



## **Customary and traditional use worksheet and ANS options for Teshekpuk caribou, GMUs 26A and 24B**

**5 AAC 99.010. Boards of fisheries and game  
subsistence procedures (“The 8 Criteria”).**

**5 AAC 99.025. Customary and traditional uses  
of game populations.**

Prepared for the Alaska Board of Game

January 2014

Mr. Chairman, members of the Board. My name is Nikki Braem, with the Division of Subsistence. The printed version of this presentation is in

### **RC 2/ TAB F**

A written report prepared with additional material on the customary and traditional uses of Teshekpuk caribou as well as information on ANS options has been submitted with other board materials. You will find this written report in **RC2 Tab E**.

## **Proposal 23**

- **Requests review of customary and traditional (C&T) use worksheet for Teshekpuk caribou**
  - Also addressed at February 2014 meeting as Proposal 50.
  
- **Department recommendation on C&T and ANS determination:  
No Recommendation.**
  - **Department Recommendation on Proposal 23: Neutral.**

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Proposal 23 requests a review of the customary and traditional use worksheet for the Teshekpuk caribou herd; and that a determination be made if there are customary and traditional (or C&T) uses; and if so, that the Board Of Game establish amounts reasonably necessary for subsistence (ANS). The proposal will also be before the Board in the Interior Board Of Game meeting in February 2014 as Proposal 50.

## Presentation Order

- **Review of subsistence procedures:**
  - Steps in the process.
  - Customary and traditional uses: The 8 Criteria.
  - Amounts reasonably necessary for subsistence (ANS).
- **Customary and traditional uses presentation**
- **ANS options presentation:**
  - Harvest data.
  - Options.
  - Key considerations.

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There are really three parts to this presentation.

In the first,

Because the board has already had a review of subsistence procedure I will only briefly review the steps (and)

In the second:

I will present information on the customary and traditional uses of caribou from the Teshekpuk herd for the Board's consideration in making a C&T determination;

When I come to the end of the second part, I will stop the presentation. If the board makes a positive c&T finding for the Teshekpuk caribou herd, meaning that it finds that there are subsistence uses of Teshekpuk caribou,

I will then present relevant harvest data, options, and review key considerations for the options for finding an amount reasonably necessary for subsistence. The structural options for setting an ANS have been developed with a great deal of consultation with the Division of Wildlife Conservation.

# Subsistence procedures

## *Review of the C&T and ANS process*

- Is the fish stock or game population manageable as a unit?
  - Teshekpuk caribou identified in AAC for Intensive Management
- It determines whether there are customary and traditional uses (subsistence uses) of that stock or population
  - Information is presented on “The 8 Criteria”
- If a harvestable surplus of the stock or population exists, the board determines the portion of that surplus that is reasonably necessary for subsistence (the ANS.)
  - Information is presented on harvests; ANS is usually a range
- The board adopts regulations providing a reasonable opportunity for subsistence uses of that stock or population
- Depending on the size of the harvestable surplus relative to the ANS, the board may adopt regulations providing for other, non-subsistence uses

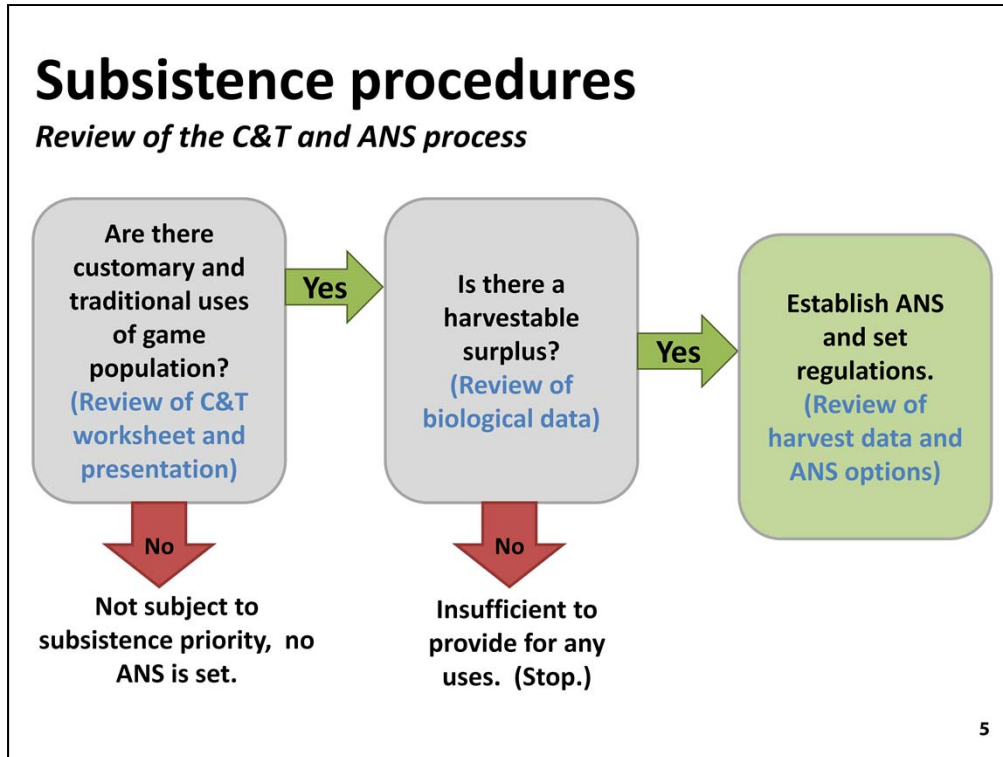
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You’ve already seen most of the information on this slide before regarding the c&t and ANS process. The only item I’ll discuss here is the first, which is germane to this presentation. CLICK

The first task for the board is to determine if the game population under consideration is manageable as a unit.

In the case of the Teshekpuk herd, the Department of Fish and Game believes so. It has been recognized as a herd since 1978. Previously, the herd has been specifically identified as a game population that is important for providing high levels of harvest for human consumptive use within that part Alaska administrative code dealing with intensive management. [5AAC 92.108] (NOTE to self: 15,000-28,000 population objective; 900-2,800 harvest objective)

Unless the board has wishes for me to do so, I will skip ahead past the other bullet points below on this slide. (PAUSE and wait for acknowledgement.)

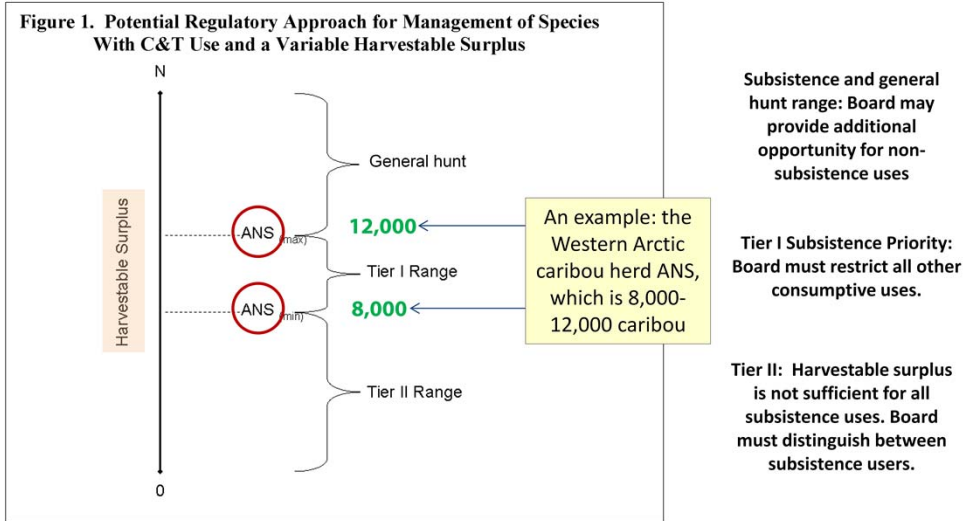


You'll recall this flow chart from earlier presentations. If the board has determined that the fish stock or game population is manageable as a unit, it proceeds. (READ from SLIDE and ditch script)

The board adopts regulations providing a reasonable opportunity for subsistence uses of that stock or population. CLICK

Depending on the size of the harvestable surplus relative to the ANS, the board may adopt regulations providing for other, non-subsistence uses.

# Amounts reasonably necessary for subsistence



Amounts necessary for subsistence are usually set as a range. Specific management implications arise in the relationship between the ANS range and harvestable surplus of a game population.

The vertical axis of this chart CLICK is the harvestable surplus of a game population. The two dotted lines to the right of it lead to the upper (CLICK) and lower (CLICK) bounds of the ANS. Where the harvestable surplus falls in relation to the upper and lower bounds (or numbers) of the ANS determines what kind of hunts can be offered.

An example is in order. CLICK. The ANS for the Western Arctic caribou herd is 8000 to 12000 caribou. If the harvestable surplus is above 12,000 caribou, the Board may offer additional opportunities for non-subsistence uses.

The lower bound of the Western Arctic ANS is 8,000 caribou. When the harvestable surplus falls between 8000 and 12000 caribou, non-subsistence uses must be restricted or eliminated.

When the harvestable surplus falls below 8,000 it is not sufficient to provide for all subsistence uses. The board must then distinguish between subsistence users

through a Tier II managed hunt.

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If the harvestable surplus falls below the lower ANS range, then all nonsubsistence uses are to be eliminated and opportunities will be restricted among Alaska residents through a Tier II hunt that distinguishes among subsistence users based upon customary and traditional reliance and dependence and the ability to obtain alternative resources. A Tier II situation implies that there is not a sufficient harvestable surplus to provide for all subsistence uses.

## **The 8 Criteria for C&T Determinations**

### ***5 AAC 99.010***

1. Length and consistency of use.
2. Seasonality of taking or use.
3. Efficiency and economy of effort and cost in the methods and means of harvest.
4. Geographic areas of harvest.
5. Traditional and contemporary means of handling, preparing, preserving, and storing
6. Intergenerational transmission of knowledge, skills, values and lore
7. Pattern of distribution and exchange
8. Reliance on wide diversity of wild resources in area, that provides economic, cultural, social and nutritional elements of subsistence way of life.

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To decide if a fish stock or game population is associated with customary and traditional uses, and thus subject to a subsistence preference, state regulation 5 AAC 99.010 says the boards must look at eight factors. These are called the "eight criteria."

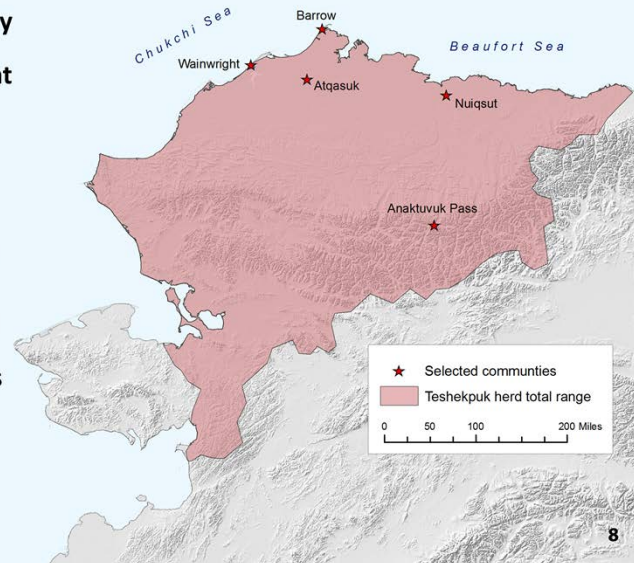
These are summarized here.

The boards rely on data about customary and traditional uses provided by the department, as well as other data, to help guide them in making positive or negative customary and traditional use findings.



## Data background

- Teshekpuk caribou primarily used by Barrow, Atqasuk, Nuiqsut; also by Wainwright and Anaktuvuk Pass.
- Previously identified in 1990 and 1993 C&T worksheets; confirmed by more recent analysis of satellite collar and harvest data.
- Information also presented on uses by residents of other Alaskan communities and non-residents.



Hunters on the ground just see caribou. Both community harvest surveys and the state harvest ticket database collect harvest information on “**caribou.**”

However, as we saw in Lincoln Parrett’s presentation, we have a good understanding, particularly when we look at harvest data in connection to satellite collar data in a GIS environment, that residents of Barrow, Atqasuk, and Nuiqsut are the primary users of the Teshekpuk caribou herd. Residents of 2 other North Slope villages, Wainwright in Game Management Unit (GMU) 26A, and Anaktuvuk Pass in GMU 24B, regularly harvest from this herd—each year, their caribou harvests are a variable mixture of WAH and TCH caribou.

These communities were identified specifically in the customary and traditional use worksheets for the Teshekpuk herd that the board saw in 1990 and 1993.

However, residents of other communities in GMU 26A, such as Point Lay and Point Hope, occasionally harvest caribou from the TCH. This is also the case in other villages in units 22, 23, southern 24, and 25A. In most cases, use is infrequent and rare because of the overwhelming presence of caribou from the Western Arctic, Central Arctic and Porcupine herds on the periphery of the Teshekpuk herd range.

Take of Teshekpuk caribou by non-local hunters and nonresidents is minimal.

The annual take of caribou from each herd by residents of North Slope villages varies. Hunting pressure (and total harvest) is tied to a variety of factors, including community size, its location in relation to the herds' ranges, and where caribou happen to migrate in a given year.

## Criterion 1: Length and Consistency of Use

- **Considerable archaeological record over thousands of years:**
  - Paleo-Arctic tradition, ~8,000-10,000 BCE, Denbigh tradition, later traditions, to the present.
- **First ethnographic accounts from the 1850s:**
  - Coastal and inland subsistence patterns both highly dependent on caribou.
- **Modern communities still highly dependent on caribou, based on harvest estimates from household surveys.**

Community	Time Period	Low Harvest	High Harvest	Per capita range	Pounds per capita range
Atqasuk	1994–2007	157	398	0.7–1.8	83–208
Barrow	1987–2003	1,158	3,359	0.3–.7	32–89
Nuiqsut	1985–2007	258	672	0.6–1.9	73–361
Wainwright	1988–2009	505	1,231	1.0–2.1	117–284
Anaktuvuk Pass	1990–2011	210	732	.7–2.6	80–304

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Criterion 1 asks the board to consider if there is a long-term consistent pattern of noncommercial taking, use, and reliance on the fish stock or game population that has been established over a reasonable period of time of not less than one generation, excluding interruption by circumstances beyond the user's control, such as unavailability of the fish or game caused by migratory patterns.

The archaeological record documenting human occupation and land mammal hunting in the area extends back approximately 8,000–10,000 years at numerous sites identified with the Paleoarctic Tradition, and which are scattered across the Brooks Range and North Slope. The subsistence patterns of this tradition were focused on land-based hunting by small, mobile groups of people. Later archaeological traditions in the region had more diverse subsistence patterns, but caribou remained important, although periods occurred where they were in low abundance.

Prior to the establishment of the modern, sedentary North Slope communities, aboriginal people moved seasonally to best take advantage of seasonally abundant species.

The earliest ethnographic accounts (first-hand observations by non-Natives) describing North Slope Iñupiat use and reliance upon caribou date from the mid-

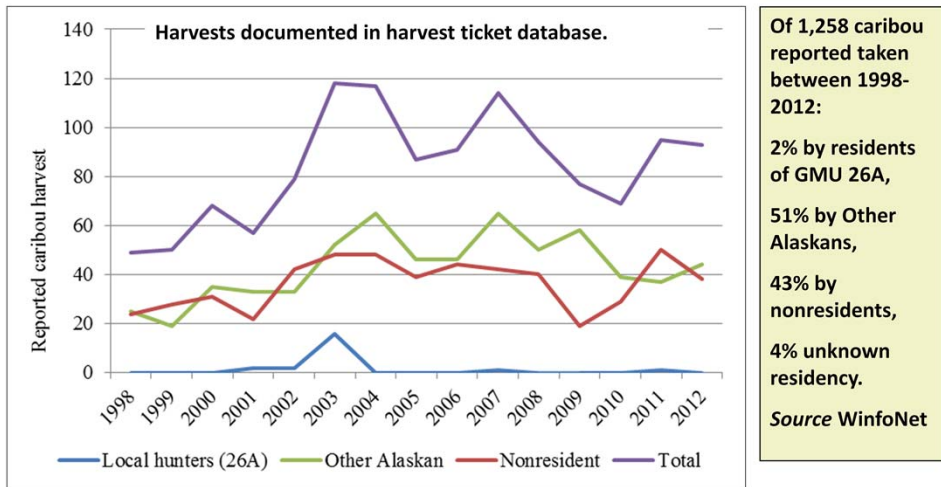
19th century. The historical subsistence patterns of North Slope Iñupiat societies fall into 2 broad categories: those oriented on sea mammal hunting with a secondary focus on terrestrial animals, birds, and fish, and those whose primary subsistence focus was caribou, supplemented with a variety of other game, birds, and fish. All societies, however, relied upon caribou for food, as well as a source of hides, sinew, bone, viscera, and antlers for the manufacture of a variety of clothing, bedding, shelters, and tools.

Since the 1990s, the amount of information on the subsistence harvests and uses of caribou on the North Slope has increased a great deal.

Caribou continue to be an important subsistence resource to North Slope residents, as harvest surveys have demonstrated. Estimated yearly harvests by Barrow, the regional center, have ranged from between 1,158 to 3,359 caribou between 1987 and 2003. In 12 estimates of the Nuiqsut harvest between 1985 and 2007, the community took between 258–672 caribou annually. Wainwright harvests have ranged from 505–1,231 caribou annually from 1988–2009.

Because of their inland location, Atqasuk and Anaktuvuk Pass do not have the access to marine mammals as do other North Slope communities. Thus, they depend more heavily on caribou. In the 8 surveys conducted in Atqasuk since 1994, annual harvest has varied from 157 caribou in 2007 to 398 caribou in 1996. Per capita harvests have ranged from .7 to 1.8 caribou per person. Since 1990, annual harvests by Anaktuvuk Pass of 210–732 caribou have been documented, with per capita harvests of .7 to 2.6 caribou per person.

## Criterion 1: Length and Consistency of Use



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This slide shows caribou harvests in GMU 26A documented in the state harvest ticket database. The purple line on top is total harvests by all hunters between 1998 and 2012.

The green line in the middle is Other Alaskans (and by Other Alaskans I mean people who are not residents of Unit 26A), and the red line that intersects it is non-residents harvest.

The blue line hugging the bottom of the chart is harvest by residents of Unit 26A. It should be noted that state residents living north of the Yukon do not have to use a harvest ticket.

Over a 15-year period, 1998–2012, a total of 1,258 caribou were reported killed by all hunters, which is an average of 84 caribou per year.

Annual caribou harvest in GMU 26A by non-local Alaskans and nonresidents, as tracked through the state’s harvest ticket database, is minimal. Of that number, more than half were killed by Alaska residents. Some harvest was reported by residents of North Slope communities, particularly Barrow and Anaktuvuk Pass, but it was only 2% of resident harvest.

When harvest ticket data are compared to results from community harvest surveys as described in the previous slide, it is clear that the harvest ticket database does not capture local harvests.

## Criterion 2: Seasonality

### *North Slope communities and elsewhere*

- **Historically and in present, caribou harvested year-round:**
  - However, hunting effort and harvest often heavier in particular months and seasons.
- **Alatna, Allakaket, Bettles, Evansville and Wiseman** primarily harvest caribou in winter, although harvest does occur in fall if caribou are present.

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Atqasuk	x	x	x	x	x	x	x	x	x	x	x	x
Barrow	x	x	x	x	x	x	x	x	x	x	x	x
Nuiqsut	x	x	x	x	x	x	x	x	x	x	x	x
Wainwright	x	x	x	x	x	x	x	x	x	x	x	x
Anaktuvuk Pass	x	x	x	x	x	x	x	x	x	x	x	x

(Calendar based on community harvests surveys, shaded cells are months of heaviest harvest.)

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Criterion 2 asks the board to consider Seasonality, meaning, if there is a pattern of taking or use recurring in specific seasons of each year.

Historically, the North Slope Iñupiat hunted caribou virtually year-round, although more intense periods of caribou harvest occurred at particular times of year. In coastal settlements, spring whaling would take precedence.

At present, caribou are taken year-round on the North Slope, but, as in the past, hunting effort (and harvest) will often be heavier in particular months and seasons. At Atqasuk, August and September is when there has been the most activity. At Barrow and Nuiqsut, more caribou are taken in July and August when they are available to boat hunters. Anaktuvuk Pass harvests the majority of its caribou in the fall and spring (Brower and Opie 1996:13). In years in which the fall harvest is poor, higher harvests will occur during late winter/spring months. Wainwright harvest is concentrated in August and September.

The communities of Alatna, Allakaket, Bettles, Evansville, and Wiseman primarily harvest caribou in the winter, although harvests do take place in the fall if caribou are present.

## Criterion 2: Seasonality

### *Harvest ticket database*

- **90% of harvest reported on harvest tickets in Unit 26A occurred in August and September. Source: Winfonet.**

Month of harvest	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
January						3	12			3		2			2	22
February						1	1					1			2	5
March						7	1					2		1	1	12
April		1				2		1	7	3		1				15
May	1					2		1	2	1						7
June								1							1	2
July	5				2		4	1		3	3	3	3	1	2	27
August	17	37	53	49	53	73	74	70	49	78	57	58	43	75	64	850
September	17	12	14	6	16	24	25	13	31	25	34	10	22	17	19	285
October	5			2	4	4			1					1		17
November	4				3	1				1					1	10
December																
Unknown			1		1	1			1				1		1	6

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Harvests tracked through the harvest ticket reporting system, which primarily captures harvest by non-local Alaskans and nonresidents; show that from 1998–2012, 90% of harvest in GMU 26A occurred in August and September (68% in August)



## Criterion 3: Means and methods of harvest

- **Methods and means:**
  - Historically: spearing from qayaq, caribou drives, snares, bow and arrow, deadfalls. Changed after introduction of firearms.
  - Today: in GMU 26A, from boats; rimfire cartridges; preference for smaller calibers, but variety used.
- **Efficiency and economy of effort:**
  - Historically and at present by placement of camps near migration routes and along river corridors, travel as appropriate to where caribou likely to be present.
  - Multiple harvest activities in camps, including fall fisheries, berry picking.
  - Anaktuvuk Pass resettlement at location of migratory corridors.

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Criterion 3 asks the board to consider the methods and means of harvest, and if there is a pattern of taking or use consisting of methods and means of harvest that are characterized by efficiency and economy of effort and cost.

Historically, a variety of methods were used to take caribou. These include spearing swimming animals from a *qayaq*, caribou drives (aided by constructed barriers or naturally-occurring features such as lakes), snares, bows and arrow, and deadfalls. These methods disappeared after the introduction of firearms in the 19th century. Caribou drives in particular allowed the Iñupiat to harvest large numbers of caribou in a short time.

Efficiency was achieved by placement of camps near migration routes and travel at the appropriate time to areas where caribou were likely to be present. Camps situated along river corridors enabled access to hunting areas prior to freezeup when bull caribou were in prime shape; caribou harvest was coincident with heavy fall fishing effort.

Today, numerous fixed camps are spread across the landscape, with many located on the major waterways that serve as “highways.” Barrow and Atqasuk base multiple harvest activities from these camps, including important fisheries, berry picking, and caribou hunting in the fall. The current resettlement location of

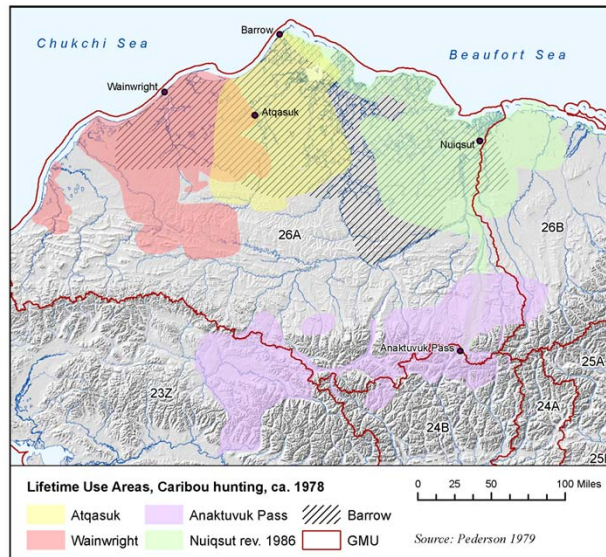
Anaktuvuk Pass was selected because of its location along major caribou migratory corridors.

Caribou harvest also takes place opportunistically during other subsistence activities; for example, during wolf and wolverine hunting and trapping. Caribou hunting is carried out by individual hunters as well as by groups of people cooperating under specific rules of sharing. Caribou are taken with modern firearms; in studies, local residents have indicated a preference for smaller calibers because it is believed a smaller caliber wastes less meat. They often use a variety of calibers under different conditions. Hunters in GMU 26A are allowed to take caribou by a boat under power; swimming caribou may also be taken with a firearm using rimfire cartridges.

Boats and all-terrain vehicles are the primary means of transportation used during open water season, while snowmachines are favored after freezeup.

## Criterion 4: Geographic areas

- **Earliest use area mapping in 1970s.**
- **Updated mapping shows consistent use of areas, interannual variation.**
- **1997-2006: Barrow used 26,328 mi<sup>2</sup>, Nuiqsut used 20,084 mi<sup>2</sup>.**



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Criterion 4 asks the board to consider the geographic areas of harvest in which the noncommercial, long-term, and consistent pattern of taking, use, and reliance upon the fish stock and game population has been established.

Prior to 1840, the Iñupiat people of the North Slope were loosely organized in groups or nations of small kin-based settlements with recognized territories. By 1900, these societies had ceased to exist. However, communities today still use areas that were the traditional territories of the various small societies that preceded modern villages.

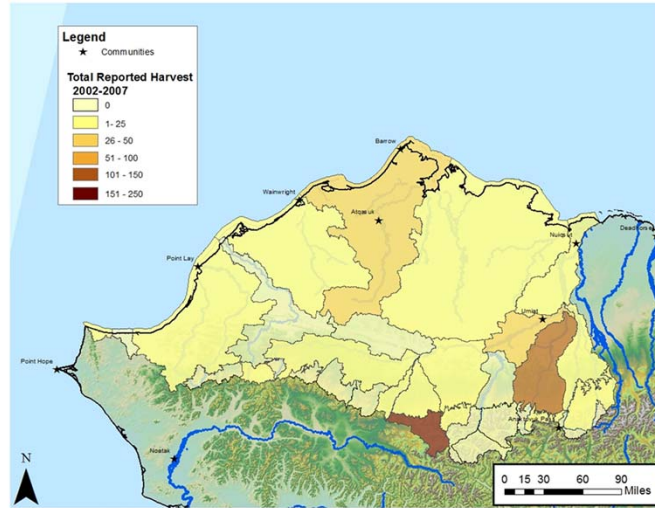
Mapping efforts, the earliest in the 1970s, show that a large area of the North Slope is used by local residents to hunt caribou. The map on this slide is an example. Many more maps were included in the written version of this report submitted to the board.

More recent mapping efforts in Barrow, Nuiqsut, Wainwright, Anaktuvuk Pass, Alatna, Allakaket, Bettles, and Wisemen have shown consistent use of the same areas through time although interannual variation is common in response to caribou migratory patterns, weather, conditions for travel, and other factors.

Certain areas may be used more regularly because they have proven particularly productive; often these are sites close to communities. In a recent study, over a 10-year period, Barrow used well over 26,000 square miles for caribou hunting; Nuiqsut used just over 20,000 square miles (Braund 2010a).

## Criterion 4: Geographic areas

- Harvest ticket data shows heaviest use in 2 UCUS associated with guided hunts and transporters.
- 2002-2007: 57% of harvest from those 2 UCUs; lesser harvests spread out across North Slope.



Caribou harvests in GMU 26A tracked through the harvest ticket database are heaviest in 2 uniform coding units (UCUs) that are associated with guided hunts and transporters (Figure 15). In the time period 2002–2007, 57% of harvest came specifically from those 2 UCUs. Lesser harvests are spread out among various other UCUs in GMU 26A.

Note to self: create map of 2002-2012 UCU harvest to have on hand.

QUESTION FOR DWC: we are referring to the two brownest. Right?

## Criterion 5: Means of handling, preparing, preserving and storing

### Historically:

- Source of many clothing items: parkas, socks, gloves, boots, mittens.
- Hides drove trade between coastal and inland groups.
- Preservation techniques: storage in ice cellars (*sigluaq*) and drying.

### Today:

- Frozen, dried, eaten fresh.
- Use more than state salvage requirements: head, organs, fat, bones, hides, antlers, sinew.



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Criteria 5 asks the board to consider if the means of handling, preparing, preserving and storing fish or game has been traditionally used by past generations, but not excluding recent technological advances where appropriate.

Historically, caribou were important not just for sustenance, but also as a source of material for many items of clothing, including parkas, underwear, socks, boots, mittens, and gloves. Thick, heavy winter hides were used for blankets and heavy socks, while short-haired summer hides, especially those of fawns, were sought for dress garments and underclothes (Murdoch 1988) .

The necessity of hides for clothing was a driver in the trade between coastal and inland groups of Iñupiat. In addition to meat, various organs, viscera, bones, sinew, antlers, and fat were salvaged. Coastal groups tended to store caribou meat frozen in ice cellars (*sigluaq*). Inland groups more commonly stripped and dried the meat (*paniqtaq*).

Today's approach to salvage and methods of processing caribou are a mixture of the old and the new. Caribou may be frozen (and stored in an ice cellar or a modern freezer), dried, or eaten fresh. Hunters commonly take more from the field than minimal state salvage requirements, including the head, various organs, fat, bones, hides, and antlers. Dried caribou fat, or *qaunnaq*, is an important ingredient for

*akutaq* (Eskimo ice cream.). Raw caribou is eaten frozen (*quaq*). Skin from the legs is used to make the uppers for boots (*kammit*). Sinew is used for skin sewing. Hides are used as bedding material (*qarraaq*) and for various craft items.

## Criterion 6: Intergenerational transmission of knowledge, skills, values and lore

- Most common type of land-based hunting on North Slope.
- Young hunters begin following experienced family members at early age.
- Extended stays at family camps; traditional values, skills, and practices.
  - Example: allowing lead caribou to pass.
  - Prioritized in community plans.



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Criterion 6 asks the board to consider if there is a pattern of taking or use that includes the handing down of knowledge of fishing or hunting skills, values, and lore from generation to generation.

Caribou hunting is the most common type of land-based hunting on the North Slope. Young hunters may begin following experienced family members at an early age. Caribou hunting is often concurrent with other subsistence activities, such as fishing, berry-picking, etc. Often these activities occur during extended stays at family camps. Subsistence camps are an important setting in which traditional values, behaviors, hunting and processing techniques, knowledge of the landscape and travel skills, and sharing values are taught and reinforced:

As on the Seward Peninsula and in Northwest Alaska, one traditional practice that local residents on the North Slope stress is the importance of allowing the lead caribou in a group to pass undisturbed to avoid deflecting or scattering the caribou that follow.

The teaching of traditional and modern skills has also been prioritized in numerous community plans.



## **Criterion 7: Distribution and exchange**

### **Historically:**

- **Caribou products trade item at Sisauliq, Nigliq, Barter Island and elsewhere.**

### **Today:**

- **Exchange well documented: percentage of use caribou is without exception higher than percentage who harvest.**
- **Distributed to visitors and community members at community celebrations such as Nalukataq, Kivgik, Christmas and Thanksgiving feast.**
- **An item of sharing and barter between households and communities; coastal goods (like maktak) for caribou meat.**

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Criterion 7 asks the board to consider if there is a pattern of taking, use, and reliance where the harvest effort or products of that harvest are distributed or shared, including customary trade, barter, and gift-giving.

North Slope groups participated in major trade fairs at Sisauliq (on Kotzebue Sound), Nigliq (near the current-day site of Nuiqsut), Barter Island, and the McKenzie River. Coastal Natives traded coastal resources (particularly whale blubber and oil) for inland resources, such as caribou meat and hides, and fox and wolverine skins. When non-Natives arrived in the region, they traded extensively with local people for caribou meat and items of clothing (Bockstoce 1988; Murdoch 1988). During the commercial whaling period, a commercial market for caribou developed with local Iñupiat supplying whaling crews.

Cooperation by individuals and families in the production and exchange of subsistence foods is well-documented in ethnographic literature. Harvest surveys in North Slope communities have documented high percentages of households giving and receiving caribou meat; the number of households using caribou in a community is almost without exception higher than those who actually harvest caribou. There are many research reports cited in the written report.

Caribou are one of several resources distributed to community members and

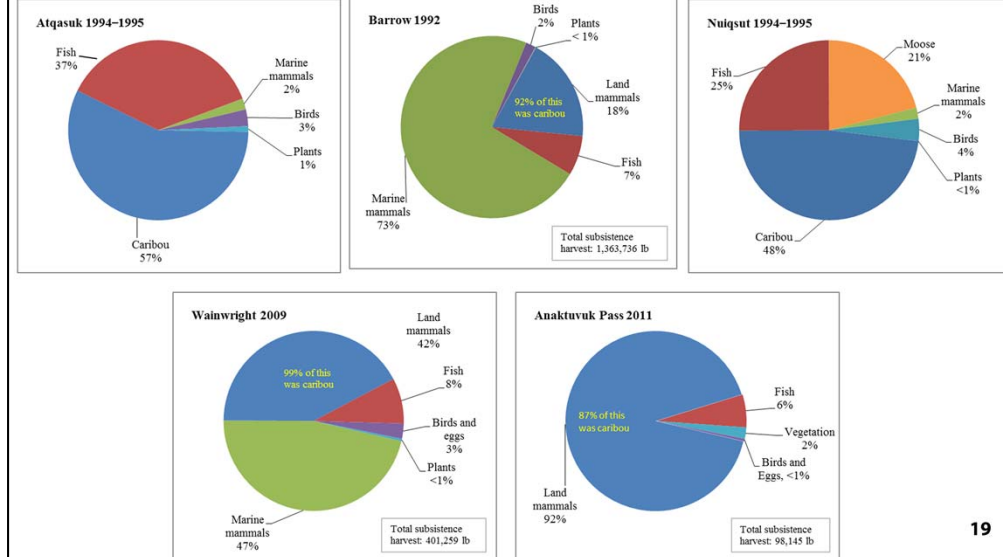
visitors during North Slope community celebrations such as *Nalukataq*, *Kivgik*, and for Christmas and Thanksgiving feasts.

Caribou are one of many subsistence resources that are items of barter between individual households and communities on the North Slope. As in the past, residents of coastal communities bring marine resources, for example *maktak*, to Anaktuvuk Pass regularly in exchange for dried caribou meat (Fuller and George 1997) .

#### EXAMPLES

During the period 2002-2007, in Nuiqsut's lowest harvest year, 363 caribou in 2006–2007, the percentage of households giving away caribou was its highest, 97%, as was the percentage of households saying they received caribou. In Atqasuk, the lowest harvest year, 2006–2007, saw the most households receiving caribou of any year, 82%. In Atqasuk's high harvest year, 2003–2004, 74% of households gave away caribou, the most of any year.

## Criterion 8: Diversity of resources in an area; economic, cultural, social and nutritional elements



And finally, Criterion 8 asks the board to consider if there is a pattern that includes taking, use, and reliance for subsistence purposes upon a wide variety of fish and game resources and that provides substantial economic, cultural, social, and nutritional elements of the subsistence way of life.

Subsistence harvests by North Slope communities are diverse, with residents harvesting and using a wide variety of fish, game, birds and eggs, berries, and plants. Annual pounds per capita harvests remain among the highest documented in the state. These figures are also in your written report.

For example, In 5 studies between 1995 and 2003, Barrow households harvested more than 60 different species (Bacon et al. 2009) .

Caribou are often a significant portion of total annual harvest by weight, eclipsed only by bowhead whales. In the pie charts you see on this slide, the blue shaded part of the pie is caribou or land mammals with the percentage that is caribou in the yellow text. In 2009, for example, Wainwright caribou harvests made up 42% of the total harvest.

At inland communities, caribou are an even greater portion of the harvest. Recently,

at Anaktuvuk Pass in 2011, caribou were 79% of the total harvest: 77,707 lb of 85,040 lb.

## **Finding**

- **Are there customary and traditional uses of Teshekpuk caribou?**

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That concludes my C&T worksheet presentation, and I'll be happy to answer any questions. I'll turn it back to you to deliberate on whether there are customary and traditional uses of Teshekpuk caribou.

[This is where the board should deliberate on whether there are C&T uses of Teshekpuk caribou.]

## Presentation Order

- **Review of subsistence procedures:**
  - Steps in the process.
  - Customary and traditional uses: The 8 Criteria.
  - Amounts reasonably necessary for subsistence (ANS).
- **Customary and traditional uses presentation**
- **ANS options presentation:**
  - Harvest data.
  - Options.
  - Key considerations.

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Because the board has made a positive C&T finding for the Teshekpuk caribou herd, and there is a harvestable surplus of the herd, we now move into the ANS options portion of this presentation.

First, I'll explain about the two datasets used to develop the options.

Then I'll go over the ANS options. There are 4, developed jointly by the Divisions of Subsistence and Wildlife Conservation.

Each option has key considerations and management implications that Wildlife Conservation staff will be discussing.

# Review of harvest data

## *Harvest surveys and harvest ticket database*

- **Two sources:**
  - Community harvest surveys:
    - Not consistently available.
  - Harvest ticket database:
    - Does not capture local harvest.
- **Limitations of both also limit numerical approaches to developing ranges.**

C&T portion of presentation = all caribou.  
ANS portion of presentation = specifically on harvests of  
Teshekpuk caribou where available.

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The department is presenting two sources of data, community harvest surveys done by the department, [pause] and the state harvest ticket database.

Community harvest surveys have been done to address management needs, and when funding has been available. They have not occurred in every community and in every year.

As also noted earlier, the harvest ticket database does not capture local harvest; just primarily nonresident and nonlocal.

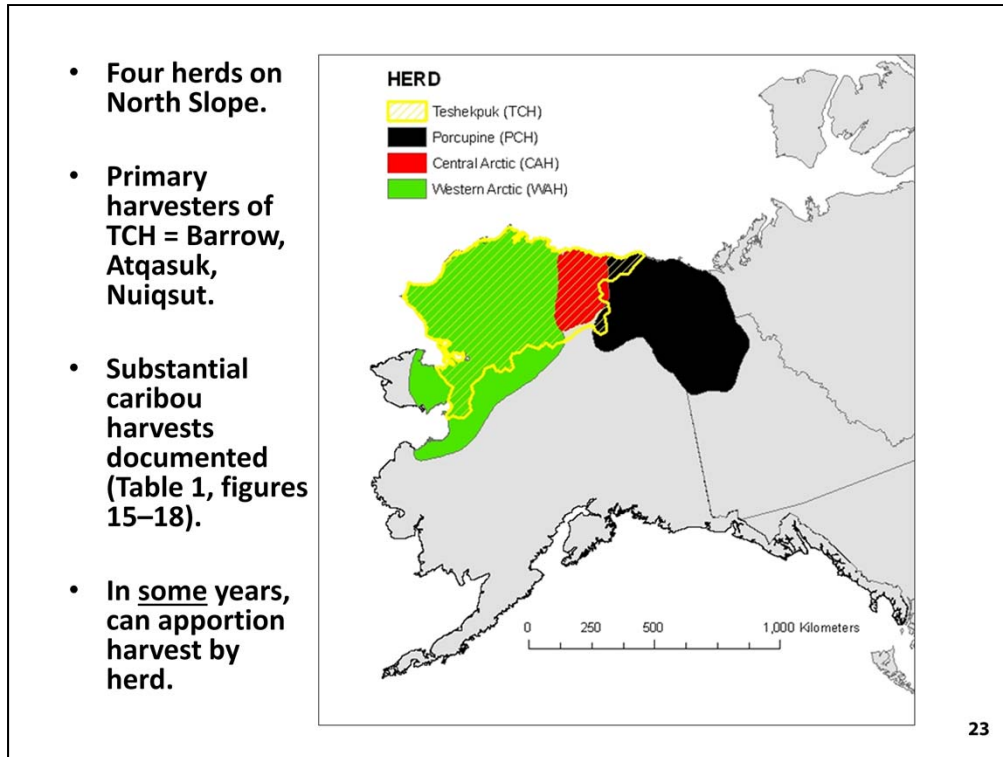
These limitations restrict the options for statistically calculating a representative range.

It is not possible, for example, to calculate a standard deviation of mean harvests. Also, simply using the high harvest and the low harvest is not recommended, because there may be higher or lower harvests in non-surveyed years.

All the options presented used a mean value bounded by ( $\pm$ ) 25%.

- During the C&T portion of the presentation, when I talked about harvest numbers, I talked about caribou in general. For this section of the presentation, I will present information specifically on harvests of Teshekpuk caribou where it is available.





As mentioned earlier, 4 caribou herds are seasonally present on the North Slope: the Western Arctic (WAH), Central Arctic (CAH), Porcupine (PCH), and Teshekpuk. The communities of Barrow, Atqasuk, and Nuiqsut are the primary harvesters of TCH animals, although Wainwright and Anaktuvuk Pass also take caribou from the herd.

Use of Teshekpuk caribou by other communities is infrequent and rare due to the overwhelming presence of the WAH, CAH, and PCH on the periphery of the TCH range. While collaring data show that TCH caribou are occasionally present in GMU 23—for example, near Noatak and the upper Kobuk drainage—there are so few relative to WAH animals that any harvest is likely negligible and impossible to identify. Harvests of TCH caribou by non-local Alaskans and nonresident hunters in GMU 26A (as documented in the harvest ticket database) are minimal.

In the early 1990s, little quantitative information existed on subsistence caribou harvests by residents of GMUs 26A and 24B. Since then, subsistence harvest surveys conducted by ADF&G Division of Subsistence, the North Slope Borough Wildlife Management Department, and various contractors have documented substantial caribou harvests by North Slope residents (Table 1 in your written report, as well as figures 15–18). Harvests by non-local Alaska residents and nonresident hunters in GMU 26A have been tracked through the harvest ticket reporting system

(figures 2–3).

Paired with biologists' increased understanding of the seasonal distribution of the herd, it is possible to estimate, in some data years, what portion of community harvest (from survey data), and non-local Alaskan and nonresident harvest (from the harvest ticket reporting system) is from the TCH, WAH, CAH, and the PCH.

## Harvest by herd, satellite-collar data

- **2002–2012, community harvest surveys: Some harvests can be apportioned by herd:**

Community	Percent of Harvest from Herd, 2002-2007				2009		2011-2012
	WACH	TCH	CAH	Unknown	WACH	TCH	TCH
Atqasuk	2%	84%		14%			98%
Barrow	1%	66%		33%			97%
Nuiqsut	1%	77%	11%	11%			77%
Wainwright <sup>a</sup>	a	a	a	a	80%	20%	60%
Anaktuvuk Pass <sup>b</sup>	80%	20%					30%

<sup>a</sup>It is not possible to apportion Wainwright harvest between 2002-2007

<sup>b</sup>Between 2002-2007, Anaktuvuk Pass harvest can only be apportioned for the 2006-2007 study year

- **1998–2012, harvest ticket database: 10% of harvests apportioned to Teshekpuk caribou (TCH); 90% to Western Arctic (WAH) caribou.**

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This slide shows you harvests apportioned by herd composition in percentage values.

For example, for the period 2002-2007, DWC estimates that 84% of Atqasuk's caribou harvest were Teshekpuk animals.

However, it's important to remember that the apportionments only apply for these specifically identified years because harvests can vary year to year depending on harvest timing and caribou migratory patterns. The apportionments in this table should not be considered applicable to earlier or later harvest estimates.

Only recently have researchers been able to use satellite collar-data and GIS software to attribute harvests to specific herds; this approach can only be applied to the most recent datasets. The data on which the options were developed are from the last 11 years, from 2002 to 2012.

# Dataset A – Known caribou harvests

*Available community survey data, harvest ticket data*

Community	2002– 2003	2003– 2004	2004– 2005	2005– 2006	2006– 2007	2008	2009	2010	2011	2012	Mean	
Atqasuk	221	352	207	174	157						222.0	
Barrow	2092										2091.5	
Nuiqsut	397	564	546	363	475						469.0	
Wainwright	866						1231				1048.2	
Anaktuvuk P.	436				696				616		582.7	
<i>Source</i> Bacon et al. 2009, Braem et al. 2011, Pedersen and Nageak 2008											sum	4413.4
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean
Other Alaskan	33	52	65	46	46	65	50	58	39	37	44	48.6
Nonresident	42	48	48	39	44	42	40	19	29	50	38	39.9
<i>Source</i> WINFONET												
Sum community means and Other Alaskans											4462.1	

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In the case of 2 of 3 communities considered the primary users of Teshekpuk caribou (Atqasuk and Nuiqsut), 5 estimates of annual harvest are available between 2002 and 2012. For Barrow, such information is only available for 2003. There are 2 harvest estimates for Wainwright and 3 for Anaktuvuk Pass.

Harvest ticket data are available for the entire time period. This table shows available GMU 26A and 24B caribou harvest information based on both sources of data.

# Dataset A, TCH harvest, 2002-2012

Based on herd apportionment percentages in *Slide 26*

Community	2002- 2003	2003	2003- 2004	2004- 2005	2005- 2006	2006- 2007	2008	2009	2010	2011	2012	Mean
Atqasuk	186		295	173	146	132						186.5
Barrow		1380										1380.4
Nuiqsut	306		434	420	280	365						361.1
Wainwright <sup>a</sup>								246				246.1
Anaktuvuk Pass <sup>b</sup>						139				185		162.0
<sup>a</sup> It is not possible to apportion Wainwright harvest between 2002-2007											sum	2336.2
<sup>b</sup> Anaktuvuk Pass harvest can only be apportioned for the 2006-2007 and 2011 study year												
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean
Other Alaskan	3.3	5.2	6.5	4.6	4.6	6.5	5	5.8	3.9	3.7	4.4	4.9
Nonresident	4.2	4.8	4.8	3.9	4.4	4.2	4	1.9	2.9	5	3.8	4.0
Source WINFONET											sum	8.9
<b>Sum community means and Other Alaskans</b>												<b>2341.0</b>

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This is Dataset A, which is based on known harvests.

The numbers you see here are estimates of the percentage of the total caribou harvest that was Teshekpuk caribou. For example, CLICK, in the case of Atqasuk, in the 2002-2003 study year, they harvested an estimated 221 caribou total. For that year, Division of Wildlife Conservation estimated that 84% caribou harvests that year were Teshekpuk animals. 84% of 221 total caribou gives us a value of 186 Teshekpuk caribou.

Using this approach, the mean harvest in the last 11 years of Teshekpuk caribou for all Alaskans is 2,341 caribou.

However, given lack of reliable harvest estimates for Barrow, this approach may significantly underrepresent actual harvest. Also, due to the Teshekpuk herd migration pattern, there is a possibility that, in certain years, nearly all of Barrow's harvest as well as that of Atqasuk may come from the TCH.

Because of this limitation, we are also offering the board the option of using Dataset B.

## Dataset B -

### *Community harvests, harvest ticket data, projected harvests*

	2002–		2003–	2004–	2005–	2006–							
Community	2003	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean	
Atqasuk	221		352	207	174	157				266	256	233.1	
Barrow		2092		2301	2201	2143				2203	2361	2216.8	
Nuiqsut	397		564	546	363	475				457	451	464.7	
Wainwright	866							1231		880	870	961.6	
Anaktuvuk P.	436					696				616	543	572.8	
<i>Source</i> Bacon et al. 2009, Braem et al. 2011, Pedersen and Nageak 2008												sum	4449.0
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean	
Other Alaskan	33	52	65	46	46	65	50	58	39	37	44	48.6	
Nonresident	42	48	48	39	44	42	40	19	29	50	38	39.9	
<i>Source</i> WINFONET													
<b>Sum community means and Other Alaskans</b>												<b>4497.6</b>	

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This dataset includes the known harvests we saw in Dataset A, but adds in additional projected harvests estimates based on long-term per capita caribou harvests, sort of like the “mean replacement” used in the muskoxen presentation.

We chose to add in years for Barrow where we could apportion harvest by herd. Also, because of the known distribution of Teshekpuk caribou in 2011 and 2012, we estimated harvest for those two years for all communities based on long-term per capita caribou harvests.

The green shaded cells are the values which contain these projected values. The additional data points change the mean value of all Alaskan harvests to 4,498 caribou

Dataset B may more accurately reflect subsistence needs and reasonable opportunity.

# Dataset B – TCH Harvest, 2002-2012

Based on herd apportionment percentages in *Slide 26*

	2002–		2003–	2004–	2005–	2006–							
Community	2003	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean	
Atqasuk	186		295	173	146	132				260	251	206.3	
Barrow <sup>c</sup>		1380		1519	1453	1415				2137	2290	1698.9	
Nuiqsut	306		434	420	280	365				352	347	357.8	
Wainwright <sup>a,c</sup>								246		528	522	432.0	
Anaktuvuk P. <sup>b,c</sup>						139				185	163	162.3	
											subtotal	2857.3	
<sup>a</sup> It is not possible to apportion Wainwright harvest between 2002-2007													
<sup>b</sup> Anaktuvuk Pass harvest can only be apportioned for 2006-2007, 2011, and 2012.													
<sup>c</sup> Shaded values are estimates based on multiplying population estimates by per capita values derived from other studies.													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Mean	
Other Alaskan	3.3	5.2	6.5	4.6	4.6	6.5	5	5.8	3.9	3.7	4.4	4.9	
Nonresident	4.2	4.8	4.8	3.9	4.4	4.2	4	1.9	2.9	5	3.8	4.0	
Source WINFONET												subtotal	8.9
												<b>Sum community means and Other Alaskans</b>	<b>2862.1</b>

Adding in the projected harvest you see in the green cells results change the mean value of all Alaskan harvests to 2,862 caribou.

## Datasets A & B

*Mean Teshekpuk caribou harvests, plus or minus 25 %*

<b>A: Mean value:</b> <b><u>2,341 caribou</u></b>	<b>B: Mean value:</b> <b><u>2,862 caribou</u></b>
<b>± 25% = 1,756 to 2,926 caribou</b>	<b>± 25% = 2,147 to 3,578 caribou</b>
<b>ANS range =</b> <b>1,800 to 2,900 TCH caribou</b> <b>(rounded)</b>	<b>ANS range =</b> <b>2,100 to 3,600 TCH caribou</b> <b>(rounded)</b>

**Every ANS option  
based on A and B**

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As I said earlier, the only statistically sound option we have in setting the upper and lower bounds of the ANS are to bound the mean value of harvests by plus or minus 25%.

In the ANS options that follow, the board will see the option using the Dataset A value and Dataset B value. So, you will see a 1A and a 1B, for example.

These options were developed in consultation with the Division of Wildlife Conservation. Each option has a different management implication, and Lincoln Parrett will talk a bit about the management implications of each options after I go through them all.

Each option has its pros and cons, and we strongly encourage the board to build a good record as it considers them, keeping in mind that an ANS is simply a tool to measure reasonable opportunity. The tool can be adjusted at a later meeting.



## Options 1 – 5 overview

- **Option 1: Combined WAH & Teshekpuk ANS:**  
Single ANS for both herds.
- **Option 2: Separate WAH & Teshekpuk ANS:**  
Keep WAH ANS and find separate Teshekpuk ANS.
- **Option 3: Combined WAH & Teshekpuk ANS, geographically nested:**  
Single ANS for both herds broken down by GMU.
- **Option 4: Separate WAH & Teshekpuk ANS, geographically nested:**  
Keep WAH ANS and find separate Teshekpuk ANS; break both down by GMU.
- **Option 5: Find no ANS at this time.**  
Satellite data; survey funding; possibly already addressed.

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Options 1 and 2 are

Options 3 and 4 take into consideration the seasonal mixing of the Western Arctic and Teshekpuk caribou herds and the ongoing declines in each herd.

A decline in one or both herds makes it challenging to manage for sustained yield and provide reasonable opportunity for subsistence users spread across a large geographic area. As noted earlier, people on the ground just see caribou.

Option 5 would set no ANS at this time, and perhaps wait for additional satellite collar data or more comprehensive survey data. Or it may be that the board addressed Teshekpuk caribou in 1992, when the Western Arctic ANS was set. The administrative record shows that harvest data from communities considered the primary users of the Teshekpuk (Barrow, Wainwright, Nuiqsut, and Anaktuvuk Pass) were included in the information reviewed by the board.

Although the record from the 1992 meeting [makes no mention of the Teshekpuk herd](#), it may be that the 1992 board set the WAH ANS with TCH animals in mind, in effect creating a combined ANS for the 2 herds.

The board could wait until next cycle.

# Option 1:

## *One combined ANS for WAH/Teshekpuk caribou*

### **Option 1A (Dataset A): One ANS for WAH and TCH combined = 9,800–14,900 caribou**

Summed mean TCH harvests for GMUs 26A and 24B	<i>Bounded by</i>	Mean ±25%			ANS range option	
		Low	High	<i>Equals</i>	Low	High
2,341		1,756	2,926		1,800	2,900
Thus, 8,000–12,000 WAH + 1,800–2,900 TCH caribou = 9,800–14,900 caribou						

**OR**

### **Option 1B (Dataset B): One ANS for WAH and TCH combined = 10,100–15,600 caribou**

Summed mean TCH harvests for GMUs 26A and 24B	<i>Bounded by</i>	Mean ±25%			ANS range option	
		Low	High	<i>Equals</i>	Low	High
2,862		2,147	3,578		2,100	3,600
Thus, 8,000–12,000 WAH + 2,100–3,600 TCH caribou = 10,100–15,600 caribou						

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Here is Option 1, one combined ANS for both herds.

Basically, you come up with an ANS for the Teshekpuk herd and then add it to the existing Western Arctic ANS of 8,000 to 12,000 caribou.

POINTER:

Using Dataset A: the mean of known values, , [point to 2,341] + or – 25% would result in a Teshekpuk ANS of 1,800 to 2,900 caribou. Adding that to the WAH ANS results in a combined ANS of 9,800 to 14,900 caribou.

POINTER:

Using Dataset B: known and projected values – [point to 2,862] the mean + or – 25% results in Teshekpuk ANS of 2,100 to 3,600 animals. Adding that to the WAH ANS results in a combined value of 10,100 to 15,600 caribou.

## Option 2:

### *Separate WAH and Teshekpuk ANS*

**Option 2A (Dataset A):** Separate ANS for TCH = 1,800–2,900 TCH caribou; WAH remains same at 8,000–12,000

Mean harvests for GMUs 26A and 24B	Bounded by	Mean $\pm 25\%$		Equals	ANS range option	
		Low	High		Low	High
2,341		1,756	2,926		1,800	2,900
Thus, 1,800–2,900 TCH caribou.						

**OR**

**Option 2B (Dataset B):** Separate ANS for TCH = 2,100–3,600 TCH caribou; WAH remains same at 8,000–12,000

Mean harvests for GMUs 26A and 24B	Bounded by	Mean $\pm 25\%$		Equals	ANS range option	
		Low	High		Low	High
2,862		2,147	3,578		2,100	3,600
Thus, 2,100–3,600 TCH caribou.						

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Option 2 really deals solely with the TCH herd. This could be called the ‘status quo’ option because it would treat the Teshekpuk herd the same way the Board has treated 3 of 4 caribou herds that are present on the North Slope. Separate ANSs have been set for the Western Arctic, Central Arctic, and Porcupine herds.

**POINTER:**

Using Dataset A: the mean of known values, [point to 2,341] + or – 25% would result in a Teshekpuk ANS of 1,800 to 2,900 caribou.

**POINTER:**

Using Dataset B: known and projected values – [point to 2,862] the mean + or – 25% results in Teshekpuk ANS of 2,100 to 3,600 animals.

## Option 3A:

### *Combined WAH and Teshekpuk ANS, nested geographically*

**Option 3A (Dataset A): One ANS for WAH and TCH combined, geographically nested = 10,000–15,000 caribou, to be allocated by the Board of Game into the GMUs**

	Mean TCH harvests for GMUs 26A and 24B		Mean ±25%			ANS range option	
			Low	High		Low	High
GMUs 26A and 24B	2,341	<i>Bounded by</i>	1,756	2,926	<i>Equals</i>	1,800	2,900
GMU 23	–					<i>Plus</i>	80
Thus, 8,000–12,000 WAH + 1,900–3,000 TCH caribou = 9,900–15,000 caribou							
Combined WAH and TCH ANS, by GMU, to be allocated by the Board of Game							
GMU 26A						X	X
GMU 24B						X	X
GMU 23						X	X
GMU 22						X	X

**OR**

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Option 3 starts out identically as Option 1 by combining a Teshekpuk ANS set by the board and the existing Western Arctic ANS

It then breaks the combined ANS down by Game Management unit or subunit.

As in POINTER:

Using Dataset A: the mean of known values, [point to 2,341] + or – 25% would result in a Teshekpuk ANS of 1,800 to 2,900 caribou. This option also includes include GMU 23 in the TCH ANS with 80-120 caribou. As noted earlier, use of TCH animals in GMUs other than 26A and 24B is rare and infrequent because of the overwhelming presence of WAH, CAH, and PCH caribou in the periphery of the TCH range.

Of the other subunits, however, GMU 23 harvests are more likely candidates for inclusion within this combined ANS, given the intermixing of the WAH and TCH in winter. Division of Wildlife staff roughly estimate the ratio of WAH animals to TCH animals in GMU 23 during winter to be 99 WAH: 1 TCH caribou. Applying that ratio to the WAH ANS of 8,000–12,000 animals results in a range of 80–120 animals.

This results in a combined ANS of 9,900 to 15,000 caribou.

The board would then break this down by Game Management Unit.

We haven't presented a specific breakdown by GMU of this combined ANS, because we have not presented information on Western Arctic harvest by GMU. If the board would like WAH data to help in this, we can put that information together in an RC.

## Option 3B:

### *Combined WAH and Teshekpuk ANS, nested geographically*

**Option 3B (Dataset B): One ANS for WAH and TCH combined, geographically nested = 10,200–15,700 caribou, to be allocated by the Board of Game into the GMUs**

	Mean TCH harvests for GMUs 26A and 24B		Mean ±25%			ANS range option	
			Low	High		Low	High
GMUs 26A and 24B	2,862	<i>Bounded by</i>	2,147	3,578	<i>Equals</i>	2,100	3,600
GMU 23	–		<i>Plus</i>	80		120	
Thus, 8,000–12,000 WAH + 2,200–3,700 TCH caribou = 10,200–15,700 caribou							
Combined WAH and TCH ANS, by GMU, to be allocated by the Board of Game							
GMU 26A						X	X
GMU 24B						X	X
GMU 23						X	X
GMU 22						X	X

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Here's the same Option using Dataset B, known and projected harvests.

Again, it starts out identically to Option 1 by combining a Teshekpuk ANS set by the board and the existing Western Arctic ANS

It then breaks the combined ANS down by Game Management unit or subunit.

As in POINTER:

Using Dataset A: the mean of known values, [point to 2,862] + or – 25% would result in a Teshekpuk ANS of 1,800 to 2,900 caribou. This option also includes include GMU 23 in the TCH ANS with 80-120 caribou. As noted earlier, use of TCH animals in GMUs other than 26A and 24B is rare and infrequent because of the overwhelming presence of WAH, CAH, and PCH caribou in the periphery of the TCH range.

Of the other subunits, however, GMU 23 harvests are more likely candidates for inclusion within this combined ANS, given the intermixing of the WAH and TCH in winter. Division of Wildlife staff roughly estimate the ratio of WAH animals to TCH animals in GMU 23 during winter to be 99 WAH: 1 TCH caribou. Applying that ratio to the WAH ANS of 8,000–12,000 animals results in a range of 80–120 animals.

Using this dataset results in a combined ANS of 10,200 to 15,700 caribou.  
The board would then break this down by Game Management Unit.

We haven't presented a specific breakdown by GMU of this combined ANS, because we have not presented information on Western Arctic harvest by GMU. If the board would like WAH data to help in this, we can put that information together in an RC.



# Option 4A:

## *Separate WAH and Teshekpuk ANSs, nested geographically*

TCH Option 4A (Dataset A): Separate WAH and TCH ANSs, nested geographically =

A total TCH ANS of 1,800–3,000, with

- 1,600–2,700 TCH caribou necessary in GMU 26A, and
- 100–200 TCH caribou necessary in GMU 24B, and
- 80–120 TCH caribou necessary in GMU 23.

A total WAH ANS = to be allocated by the Board of Game; e.g.,

A total WAH ANS of 8,000–12,000 caribou, with

- X–X WAH caribou necessary in GMU 26A,
- X–X WAH caribou necessary in GMU 24B,
- X–X WAH caribou necessary in GMU 23, and
- X–X WAH caribou necessary in GMU 22.

TCH	Mean		Mean ±25%			ANS range option	
			Low	High		Low	High
GMU 26A	2,179	<i>Bounded by</i>	1,634	2,724	<i>Equals</i>	1,600	2,700
GMU 24B	162		122	203		100	200
GMU 23	–					<i>Plus</i>	80
Thus, TCH ANS = 1,800–3,000, with 1,600–2,700 TCH in GMU 26A, 100–200 TCH in GMU 24B, and 80–120 TCH in GMU 23							
WAH to be allocated by the Board of Game						ANS range option	
GMU 26A						X	X
GMU 24B						X	X
GMU 23						X	X
GMU 22						X	X

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Option 4A starts out identically to Option 2, with a separate ANS for the Teshekpuk and Western Arctic herds. The board would set a Teshekpuk ANS and keep the existing Western Arctic one. However, it would break each ANS down by GMU or subunit as we just saw in Option 3A and B.

As in POINTER:

Using Dataset A: the mean of known and projected values of Teshekpuk harvest... by Unit 26A communities, [point to 2,179] + or – 25% would result in an ANS for Unit 26A of [POINT] 1,600 to 2,700 caribou. The mean value for 24B, [POINT] 162, plus or minus 25%, results in an ANS of 100-200 animals for 24B. Again, this option also includes include GMU 23 in the TCH ANS with 80-120 caribou [POINT]. As noted earlier, use of TCH animals in GMUs other than 26A and 24B is rare and infrequent because of the overwhelming presence of WAH, CAH, and PCH caribou in the periphery of the TCH range.

Of the other subunits, however, GMU 23 harvests are more likely candidates for inclusion within this combined ANS, given the intermixing of the WAH and TCH in winter. Division of Wildlife staff roughly estimate the ratio of WAH animals to TCH animals in GMU 23 during winter to be 99 WAH: 1 TCH caribou. Applying that ratio to the WAH ANS of 8,000–12,000 animals results in a range of 80–120 animals.

In total, for TCH caribou, for 26A, 24B, and 23, is an ANS of 1,800 to 3,000 caribou.

We haven't presented a specific breakdown by GMU for the Western Arctic herd ANS, which is 8,000 to 12,000 caribou, because we have not presented information on Western Arctic harvest by GMU. If the board would like WAH data to help in this, we can put that information together in an RC.

## Option 4B:

### *Separate WAH and Teshekpuk ANS, nested geographically*

TCH Option 4B (Dataset B): Separate WAH and TCH ANSs, nested geographically =

A total TCH ANS of 2,200–3,700, with

- 2,000–3,400 TCH caribou necessary in GMU 26A, and
- 100–200 TCH caribou necessary in GMU 24B, and
- 80–120 TCH caribou in GMU 23.

A total WAH ANS = to be allocated by the Board of Game; e.g.,

A total WAH ANS of 8,000–12,000 caribou, with

- X–X WAH caribou necessary in GMU 26A, and
- X–X WAH caribou necessary in GMU 24B, and
- X–X WAH caribou necessary in GMU 23, and
- X–X WAH caribou necessary in GMU 22.

TCH	Mean		Mean ±25%			ANS range option	
			Low	High		Low	High
GMU 26A	2,700	<i>Bounded by</i>	2,025	3,375	<i>Equals</i>	2,000	3,400
GMU 24B	162		122	203		100	200
GMU 23	–					<i>Plus</i>	80
Thus, TCH ANS = 2,200–3,700, with 2,000–3,400 TCH in GMU 26A, 100–200 TCH in GMU 24B, and 80–120 TCH in GMU 23							
WAH to be allocated by the Board of Game						ANS range option	
GMU 26A						X	X
GMU 24B						X	X
GMU 23						X	X
GMU 22						X	X

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Here's Option 4 using Dataset B.

It starts out identically to Option 2, with a separate ANS for the Teshekpuk and Western Arctic herds. The board would set a Teshekpuk ANS and keep the existing Western Arctic one. However, it would break each ANS down by GMU or subunit as we just saw in Option 3A and B.

As in POINTER:

Using Dataset A: the mean of known values of Teshekpuk harvest... by Unit 26A communities, [point to 2,700] + or – 25% would result in an ANS for Unit 26A of [POINT] 2,000 to 3,400 caribou. The mean value for 24B, [POINT] 162, plus or minus 25%, results in an ANS of 100-200 animals for 24B. Again, this option also includes include GMU 23 in the TCH ANS with 80-120 caribou [POINT].

In total, for TCH caribou, for 26A, 24B, and 23, is an ANS of 2,200 to 3,400 caribou.

We haven't presented a specific breakdown by GMU for the Western Arctic herd ANS, which is 8,000 to 12,000 caribou, because we have not presented information on Western Arctic harvest by GMU. If the board would like WAH data to help in this, we can put that information together in an RC.

# Key considerations

## *Implications and scenarios of various structural approaches*

- **Option 1** – Combine herds
  - May need additional regulations or harvest management plan to ensure sustained yield and reasonably opportunity.
- **Option 2** – Similar to other herds.
  - In the event of herd declines, may need regulations or harvest management plan to ensure sustained yield and reasonable opportunity.
- **Options 3 & 4** – Intermixing of herds
  - Addresses intermixing of WAH and TCH caribou by breaking up ANS amounts by GMUs (geographically). Complex, but may be helpful in the event of herd declines.

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In conclusion, Option 1 combine in essence combines an ANS the board sets for the Teshekpuk herd with the existing Western Arctic one.

[read slide]

Option 2, treats the Teshekpuk herd as the board has treated the other 3 arctic herds. [Read slide.]

Lincoln may at this time want to talk to you about the management implications of each of these options.

## Option 5:

### *Set no Teshekpuk ANS at this time*

- **1992 administrative record of Western Arctic herd ANS is limited:**
  - Harvest data from communities considered primary users of Teshekpuk caribou presented at that time.
  - However, those communities also harvest from WAH.
  - Unknown if board took this into account
- **Additional information may be available next board cycle:**
  - Satellite collars.
  - Community harvest survey funding.

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The BOG may wish to forego setting an ANS for the TCH due to the fact that caribou harvest data from communities considered the primary users of the TCH (Barrow, Wainwright, Nuiqsut, and Anaktuvuk Pass) were included in the information reviewed by the Board of Game in 1992 when the WAH ANS of 8,000–12,000 caribou was established.

While the administrative record of that meeting is limited at best, it may be that the board set the WAH ANS with TCH animals in mind, in effect, creating a combined ANS for the two herds. But we don't know that.

Another consideration in not setting a TCH ANS at this time would be the potential availability of better data in the future, although this is not guaranteed.

## **Finding**

- **What amounts are reasonably necessary for Teshekpuk caribou?**

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This concludes the ANS Options portion of this presentation, and I would be happy to answer any questions. I turn it back over to the board to deliberate on an amount reasonably necessary.

[This is where the board should deliberate on an ANS]



## Subsistence procedure

### *Jargon and definitions*

**“Customary and traditional” (C&T)** is defined as the non-commercial, long-term, and consistent taking of, use of, and reliance upon fish or game that have been established over a reasonable period of time taking into consideration the availability of fish and game.

**“Reasonable opportunity”** is defined as an opportunity, as determined by the appropriate board, that allows a subsistence user to participate in a subsistence hunt or fishery that provides a normally diligent participant with a reasonable expectation of taking fish or game.

**“Amount reasonably necessary for subsistence” (ANS)** is defined as the total amount of animals from a population that must be available for subsistence hunting in order to provide a **reasonable opportunity** for subsistence uses, under state and federal subsistence hunting regulations, where both exist.”

THIS IS AN EXTRA SLIDE for reference only.

As you recall, within the definition of subsistence uses on the previous slide, I highlighted the words “customary and traditional” -- which has its own definition in statute. When we say “C&T” this is what we are referring to.

Basically, when we refer to customary and traditional uses, and C&T determinations like you will take up today, we are talking about subsistence uses.

“Reasonable opportunity” is defined as an opportunity, as determined by the appropriate board, that allows a subsistence user to participate in a subsistence hunt or fishery that provides a normally diligent participant with a reasonable expectation of taking fish or game.

Amounts reasonably necessary for subsistence: this is what we are talking about when we just say ANS. We will be taking up ANS options if the board finds that there are customary and traditional uses of Teshekpuk caribou.



## Subsistence procedure

### *Jargon and definitions*

Under Alaska state law, for a fish stock or game population, the Boards of Fish and Game must provide a **reasonable opportunity** for subsistence uses first, before providing for other uses of any harvestable surplus of a fish and game population [AS 16.05.258 (b)]

➤ ***This is often called the subsistence “priority” or “preference***

**“Subsistence uses”** are defined as the noncommercial, **customary and traditional uses** of wild, renewable resources by a resident of the state for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation, for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption, and for the customary trade, barter, or sharing for personal or family consumption;

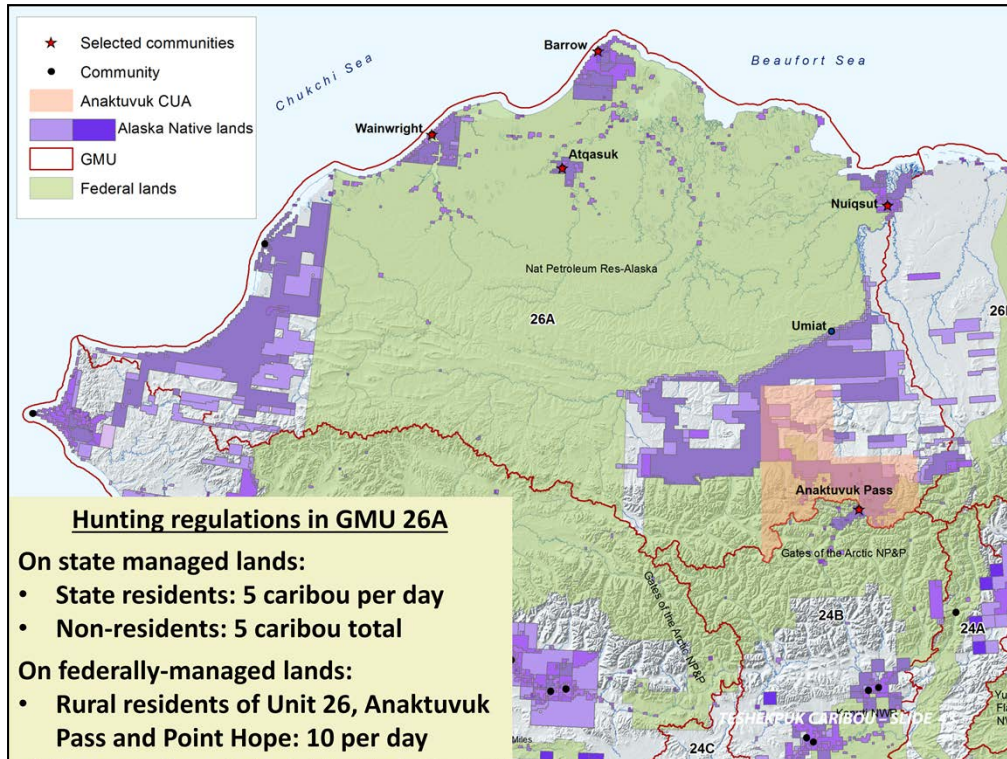
THIS IS AN EXTRA SLIDE for reference only.

In Alaska Statute, 16.05.258 (b)], for a fish stock or game population (**and today we are considering the Teshekpuk caribou herd**) the Boards of Fish and Game must provide a reasonable opportunity for subsistence uses first, before providing for other uses of any harvestable surplus of a fish and game population

This is often called the subsistence priority or preference.

The customary and traditional use worksheet and ANS options in this presentation are parts of the process by which the boards of fish and game meet this obligation.

Subsistence uses are defined as the noncommercial, **customary and traditional uses** of wild, renewable resources by a resident of the state for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation, for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption, and for the customary trade, barter, or sharing for personal or family consumption;



THIS slide is optional, and meant for reference purposes

This slide shows federal lands in region.

In Unit 26A, land mass is dominated by the NPR-A, which is administered by the Bureau of Land management.

All of Unit 26A is a CUA for moose (explain regs)

Orange area is Anaktuvuk Pass CUA (explain regs)

# Subsistence procedures

## Review of the C&T and ANS process

- Is the fish stock or game population manageable as a unit?
  - Teshekpuk caribou identified in AAC for Intensive Management
- It determines whether there are customary and traditional uses (subsistence uses) of that stock or population
  - Information is presented on “The 8 Criteria”
- If a harvestable surplus of the stock or population exists, the board determines the portion of that surplus that is reasonably necessary for subsistence (the ANS.)
  - Information is presented on harvests; ANS is usually a range
- The board adopts regulations providing a reasonable opportunity for subsistence uses of that stock or population
- Depending on the size of the harvestable surplus relative to the ANS, the board may adopt regulations providing for other, non-subsistence uses

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You've already seen this slide before regarding the c&t and ANS process. The only item I'll discuss here is the first, which is germane to this presentations. CLICK

The first step is determining if the game population under consideration is manageable as a unit.

In the case of the TCH herd, the Department of Fish and Game believes so. It has been recognized as a herd since 1978. Previously, the TCH has been specifically identified as a game population that is important for providing high levels of harvest for human consumptive use within that part Alaska administrative code dealing with intensive management. [5AAC 92.108] (NOTE to self: 15,000-28,000 population objective; 900-2,800 harvest objective)

Unless the board has wishes for me to do so, I will skip ahead past the other bullet points below on this slide. (PAUSE and wait for acknowledgement.)

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***Below is the original script if they actually want to hear about the rest.***

*In order to ensure that the state meets its obligation to manage for a subsistence priority, there are several decisions or steps the board must take.*

*The second step - the board determines whether there are customary and traditional uses of that stock or population. This determination is based on information presented on 8 Criteria identified in statute. The 8 Criteria deal with patterns of use; I'll go over them briefly in the next slide. In a few minutes I will be presenting information specific to the customary and traditional uses of Teshekpuk caribou.*

*If the board make a positive C&T finding, and a harvestable surplus of the fish stock or game population exists, the board then determines the portion of that harvestable surplus that is reasonably necessary for subsistence (the ANS.) To assist the board in making that determination, Division of Subsistence presents the best available data on harvests. The ANS is usually set as a range. For example, 8,000-12,000 caribou from the Western Arctic caribou herd. I will talk about the implications of this range in a few minutes.*

*The board adopts regulations providing a reasonable opportunity for subsistence uses of that stock or population.*

*Depending on the size of the harvestable surplus relative to the ANS, the board may adopt regulations providing for other, non-subsistence uses*