
CHAPTER 3: MOOSE MANAGEMENT REPORT

From: 1 July 2011

To: 30 June 2013

LOCATION

GAME MANAGEMENT UNIT: 1C (7,600 mi²)

GEOGRAPHICAL DESCRIPTION: That portion of the Southeast Alaska mainland from Cape Fanshaw to the latitude of Eldred Rock.

BACKGROUND

Moose are relative newcomers to many parts of Southeast Alaska, with many of the populations becoming established in the early to mid-1900s. Some areas, such as the Gustavus Forelands, did not have moose present until the 1960s. It is likely that coastal mountains inhibited the movement of moose into these areas. Once moose discovered these unexploited areas, the presence of high quality habitat led to rapid expansions of new populations. In 3 of the 4 moose management areas in this subunit, moose moved in naturally, while in one area they were introduced.

Taku River: The arrival date of moose in the Taku River drainage is not documented, but Swarth (1922) states that a moose was killed at the mouth of the Stikine River "some years" prior to 1919. If moose appeared at the same time on the Taku (which is a reasonable assumption given the proximal location and similar ecological makeup), then presumably they first occurred in the lower part of the river near the turn of the century. Based on communications with Canadian biologists who occasionally conduct aerial surveys in the upper Taku, it appears likely that moose from Alaska migrate into Canada during winter. This explains the low winter aerial survey numbers we see on the Alaska side of the border.

Moose are seen regularly in the Port Houghton area. These moose probably moved across the Fanshaw Peninsula from the Farragut Bay/Thomas Bay population to the south. Moose in this area of Unit 1C have been managed since 1995 as part of the Unit 1B registration hunt (see below).

Berners Bay: This moose population did not occur naturally, but rather was introduced in the form of translocated calves. Fifteen calves from Southcentral Alaska were released in Berners Bay in 1958, and a supplemental release of 6 more calves occurred in 1960. In June 1960, 3 cows with a single calf each were observed, indicating that cows had bred at about 16 months of age (Paul 2009). The first limited open season was held in 1963, when 4 bulls were killed. Since that time, the annual harvest has ranged 5–23 animals. Managing the Berners Bay moose herd has been a challenging task for the Alaska Department of Fish and Game (ADF&G). The

geography of the area allows for little to no immigration or emigration, resulting in a closed population with limited habitat. Because of this, ADF&G has used a variety of hunts to manage this moose herd, changing the harvest from bulls only to bulls and cows, in an attempt to balance the herd's sex ratio and limit the population size to within the carrying capacity of the habitat. The use of a habitat capability model as well as moose browse surveys in the early 1980s helped shape the past management strategy of keeping the post hunt population at no more than 90 moose observed during aerial surveys, to assure the herd does not exceed a level the habitat can support. However, recently acquired body condition and productivity data for moose in Berners Bay indicates moose are in good physical condition. Body condition is an indication of habitat quality, and in Berners Bay, good body condition suggests the habitat may be able to support a higher number of moose.

Chilkat Range: Moose were first documented in western Unit 1C in 1962 on the Bartlett River. In 1963 moose were observed in the Chilkat Mountain Range; these animals probably originated from the Chilkat Valley population near Haines. In 1965 moose were sighted for the first time along the Endicott River and St. James Bay areas. Moose probably followed the Endicott River to Adams Inlet shortly thereafter, because they were common in Adams Inlet by the 1970s. During the past few years, the southern end of the Chilkat Range near Homeshore and Pt. Couverden has seen a spike in harvest, likely a reflection of an increase in moose numbers along with the adoption of all-terrain vehicle (ATV) hunting practices on the logging road system in that area. Because of thick timber stands throughout this area, it is difficult to gather reliable aerial survey data, so our understanding of the Chilkat Range moose population is mostly limited to hunter reports and hunter harvest.

Gustavus Forelands: The first sightings of moose in the Gustavus area occurred in 1968. It is likely moose migrated to this area via the Excursion River drainage. Thirty years passed before the first moose was harvested at Gustavus in 1988, indicating that the populating of this area by moose was a gradual process. During the 1990s the population experienced a pattern of eruptive growth, and soon became the largest moose population in the subunit (1C), accounting for a higher annual harvest than the rest of the moose populations in the subunit combined. As the moose population at Gustavus grew, ADF&G biologists had increasing concerns about habitat overutilization. Habitat studies were initiated by ADF&G in 1999. In 2000, ADF&G submitted a proposal to the Board of Game (BOG) to initiate an antlerless moose hunt at Gustavus to curb the population growth. We conducted further studies including additional habitat evaluation, and radiocollaring and monitoring of female moose. Data from these studies and examinations of harvested female moose are directing management at Gustavus.

MANAGEMENT DIRECTION

For management purposes, we have separated the moose in Unit 1C into 4 distinct populations, with separate management objectives for each. In addition, a management goal was added and the management objectives were changed to reflect the difficult nature of acquiring reliable population composition and size data.

MANAGEMENT OBJECTIVES

- *Taku drainage*: Annually compare hunter effort and success as well as age data from harvested moose to gain insight into the status of this moose population. Maintain an annual harvest of at least 10 bull moose. Gather aerial survey data on both the Alaska and the Canada portion of the Taku River, through ADF&G surveys and through correspondence with Canadian biologists.
- *Berners Bay*: Maintain a post hunting survey count of 80–90 moose, and a bull:cow ratio of at least 25:100.
- *Chilkat Range*: Annually compare hunter effort and success as well as age data from harvested moose to gain insight into the status of this moose population.
- *Gustavus Forelands*: Continue to monitor this population using marked animals for insight into annual survival as well as using marked animals to estimate sightability during aerial surveys. Maintain a bull: cow ratio of at least 25:100.

METHODS

We conducted aerial surveys during both years of the report period at Berners Bay and the Gustavus Forelands, but not along the Chilkat Mountains or in the Taku River drainage. During the report period two registration permits were used to manage moose hunting effort in Unit 1C. No hunts were held for Berners Bay moose during the report period. Both bull (DM041) and cow (DM042) drawing hunts remain in regulation and will be used when the Berners Bay moose population reaches a level that can support harvest. We managed the remainder of Unit 1C (excluding Gustavus and the area south of Pt. Hobart) under the RM046 registration permit hunt for bull moose. Gustavus was managed under the RM049 registration permit hunt; no antlerless hunts (DM043, DM044, and DM045) were held in the Gustavus area during the report period. Since 1995, the area south of Pt. Hobart has been included in the antler-restriction hunt conducted in Units 1B and 3 (RM038), and information about all moose taken there has been included in the management reports covering those areas. A condition of all drawing and registration hunts required successful hunters to bring in incisors from harvested moose for aging. Other data collected from the permit hunt reports included the hunt length, hunter residency, hunt and kill location, commercial services used, transport means (for all hunters), and date of kill for successful hunters.

Research studies: Beginning in 2002, a research project was initiated at Gustavus to help guide the management of this herd. Data relating to moose browse availability and utilization, sightability during aerial surveys, and population parameters such as survival, pregnancy, and twinning were collected. In 2006 a second moose research project was initiated in Berners Bay with many of the same objectives and goals as the Gustavus project. Both of these studies have met their objectives and been completed, however, we continue to keep a collared sample of cow moose in each population to calculate sightability during aerial surveys, monitor adult female survival, and to use marked animals to determine twinning rates and fecundity, and calf survival.

Harvest data were summarized by regulatory year (RY), which begins 1 July and ends 30 June (e.g. RY11 = 1 July 2011–30 June 2012)

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Berners Bay: Aerial surveys conducted in Berners Bay in RY11 enumerated 73 moose, and 2 surveys were conducted in RY12, which resulted in 85 and 102 total moose observed, respectively (Table 1). The survey total for RY11 was below our management objective of 80–90 moose counted post hunt; however, in RY12 numbers were within or exceeded the parameters. The Berners Bay moose population was depressed during the previous report period, likely because of 3 successive years (2006–2009) of severe winter weather. During RY11, 134 inches of snow fell at the Juneau airport and 360 inches fell in Haines, Alaska which might suggest that moose numbers may drop again. However, after 2 aerial surveys in RY12 the total number of moose was the highest they have been since 1999. Careful monitoring of the herd should be maintained to ensure sufficient time to determine lags in population effects of severe weather events.

Chilkat Range: We have no direct data on the status of the Chilkat Range moose population as no surveys have been conducted for many years due to limited snow cover and dense forest canopy. However, based on harvest records and anecdotal information from hunters, we believe the number of moose in the Chilkat Range to be stable in the Endicott River and St. James Bay areas, and increasing near Homeshore and Pt. Couverden.

Taku River: We have very little information regarding the number of moose in the Taku River drainage. The last survey conducted by the department in the Taku River was in the winter of RY00, when 37 moose were counted (Table 1). In response to a proposed mine development on the Canadian portion of the Taku River a consulting group conducted an aerial moose survey in March 2007 along a proposed barge transportation route from the U.S./Canadian Border to the mouth of the Taku River at Taku Inlet. It found a total of 21 moose including 4 bulls, 9 cows, and 8 calves (A. MacLeod, B.Sc, Redfern Resources, unpublished data). Although this number seems extremely low, it is comparable to historical surveys of the Alaska portion of the Taku River. Correspondence with Canadian biologists suggests that most Taku River moose migrate up the Taku River drainage during early winter, and overwinter in Canada. Harvest records of hunter effort and take and anecdotal information from hunters indicate that the number of moose in the Taku River drainage appears to be stable.

Gustavus Forelands: Aerial surveys conducted at Gustavus during RY11 and RY12 counted 136 and 274 moose, respectively (Table 1). Radiocollared moose allow managers to estimate moose populations based on sightability estimates determined when conducting surveys. By knowing the number of collared moose in an area and the number of collared moose actually seen on surveys managers can use a ratio to estimate population numbers at the time of the survey.

Population Composition

We were able to conduct composition surveys of the Berners Bay moose population and the Gustavus moose population during both years of the report period (Table 1). We were unable to conduct composition surveys in the Taku River or in the Chilkat Range areas. Composition surveys are not always possible due to various factors, including weather, snow cover, and antler loss. In many years snow conditions do not warrant surveys until December or January, when

antler drop has commenced and differentiating male and female moose is not possible. For additional insight into the makeup of our moose populations, we collected lower jaws from each harvested moose from successful hunters, providing us with the age structure of the harvest (Tables 2 and 3).

Berners Bay: Between RY11 and RY12, we conducted 3 aerial surveys which allowed us to gather reliable composition data for this population. We observed ratios of 54 bulls:100 cows, and 24 calves:100 cows in RY11, and 43 and 31 bulls: 100 cows, respectively, and 17 and 21 calves: 100 cows, respectively for the 2 surveys conducted in RY12. The bull:100 cow ratio is higher than our objective of 25:100 in both years due to no harvest since the season was closed in 2006. The increased number of calf moose detected in RY11 is likely related to mild-moderate winter severity in RY10; however, heavy snowfall in RY11 resulted in a lower calf:100 cow ratio in RY12. Historically, lower calf production and survival (White and Barten 2009) are contributing factors in the Berners Bay moose population decline.

No moose were harvested in Berners Bay during the report period so we did not obtain age data.

Chilkat Range: No aerial surveys were conducted in this area during the report period. The mean age of harvested moose during this report period was 3.7 years, lower than the previous report period. However, during the report period 7 of 31 bull moose taken were yearlings (23%), suggesting there is a slight increase in recruitment within the population (Table 3). The Chilkat Range has little access for hunters throughout most of the area, and few large open areas where hunters can find moose. This probably is responsible for a portion of the older mean age of harvested bulls in previous report periods, as bull moose can advance to older age classes in this area because hunters cannot easily locate them. It will be important to monitor this population through age at harvest to see if the present age structure is an anomaly or a trend.

Gustavus Forelands: We flew herd composition surveys in both years of the report period. These surveys are intended to provide herd demographic data rather than a total moose count. In RY11, we observed 136 moose with a bull:cow ratio of 17 bulls:100 cows, and a calf:cow ratio of 28 calves:100 cows. In RY12, we observed 274 moose with a bull:cow ratio of 16 bulls:100 cows, and a calf: cow ratio of 20 calves:100 cows. The number of calves observed is significantly higher than in previous years. The bull:cow ratio continues to be below the management objective of 25 bulls:100 cows. Implementation of an antler restriction bull moose hunt on the Gustavus Forelands starting in RY08 is intended to increase the bull:cow ratio, and ultimately result in higher bull numbers (Schwartz et al. 1992).

The mean bull moose age at harvest was 3.5 and 2.4 years for RY11 and RY12, respectively (Table 3). The age of harvest began to decline in the early 2000s when a larger number of bull moose were harvested in Gustavus. The proportion of yearling bulls taken during the report period compared to previous reports is not significantly different, but a few older bulls taken in a year with a low overall harvest can skew the age structure. In 2011, 4 of the 8 bulls taken were >4.5 years of age resulting in a slightly higher average age at harvest. In 2012, a higher proportion of yearling bulls were taken (63%) and the age of the remaining harvest was skewed to the younger side of the age classes. Overall, it appears there are older bulls available for harvest, which is a product of the antler restricted hunt strategy that protects some bulls from harvest based on antler configuration. Prior to the antler restricted bull moose hunt in Gustavus a

high proportion of young bulls were harvested before attaining older age. No antlerless moose hunts were held in Gustavus during the report period.

Taku River: No aerial surveys were conducted in this area during the report period. By examining lower jaws we can get some insight into the population structure of the harvested bull moose using age at harvest. The mean age of harvested moose was 2.7 years during both RY11 and RY12, respectively (Table 3). During the report period 57% of the 30 bulls taken were yearling animals. This harvest of young bulls indicates a population with good recruitment. Very few older bulls were taken during the report period; only 6 of the 30 (20%) bulls taken were older than 3.5 years; 1 bull taken was 10.5 years old.

MORTALITY

Harvest

<u>Season and bag limits</u>	<u>Resident and nonresident hunters</u>
Unit 1(C), Berners Bay Drainages: 1 moose by drawing permit only; up to 30 permits may be issued	15 Sep–15 Oct (General hunt only)
Unit 1(C), that portion south of Point Hobart, including all Port Houghton drainages: 1 bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on one side or 2 or more brown times on both sides by registration permit only	15 Sep–15 Oct (General hunt only)
Unit 1(C), that portion west of Excursion Inlet and north of Icy Passage: 1 moose per regulatory year, only as follows:	
1 bull by registration permit only or	15 Sep–15 Oct (General hunt only)
1 antlerless moose by drawing permit only; up to 100 permits may be issued	15 Nov–30 Nov (General hunt only)
Remainder of Unit 1(C) 1 bull by registration permit only	15 Sep–15 Oct (General hunt only)

Game Board Actions and Emergency Orders. There were no Board of Game actions taken for moose in 1C during the 2010 Alaska meeting. We did not issue any emergency orders closing moose hunts during RY11 or RY12.

Hunter Harvest. *Berners Bay:* No moose were harvested in Berners Bay during the report period because the season remained closed. Historical harvest data can be found in Table 4.

Chilkat Range: The mean annual harvest during this report period was 16 moose, similar to the previous report period, and slightly less than the average of 18 bulls taken between 2003 and 2012 (Table 4).

Gustavus: During this report period, the antler restricted hunt at Gustavus was managed for a guideline harvest of 8 bulls in RY11 and 11 bulls in RY12. Hunters harvested 8 bulls in each regulatory year of this report period (Table 4). Anytime a new hunt strategy is introduced it is important to provide training opportunities for hunters, and to expect, in the case of a selective harvest strategy hunt, some harvest of bulls that do not meet legal antler requirements. Staff continued to provide a community training event for moose hunters in Gustavus in both RY11 and RY12 at which time antler architecture was discussed. Four bulls not meeting legal antler requirements were taken in each year (50%), which emphasizes the need to continue with public education prior to the moose hunt. No antlerless permits were offered during either year of the report period.

Taku River: The annual harvest of moose during this report period averaged 15 moose, with 16 taken in RY11 and 14 in RY12. The mean harvest for the report period is equal to the mean annual harvest of 15 moose during 2003–2012 (Table 4).

Permit Hunts. In Unit 1C, moose hunts are managed under 2 types of permits; drawing and registration. The drawing permits in Berners Bay are used to manage both bull moose (DM041) and antlerless moose (DM042). At Gustavus we use 3 drawing permits (DM043, DM044, and DM045) to manage the antlerless hunt, and a single registration permit (RM049) to manage the bull moose hunt. The remaining areas of Unit 1C at Chilkat Peninsula and Taku River are managed under an any bull registration permit (RM046).

No drawing permits for moose were offered during the report period in Unit 1C.

Under the Unit 1C bull moose registration permit (RM046) a total of 327 permits were issued in RY11, followed by 321 in RY12. Although we cannot determine the destination the permittees will hunt within Unit 1C when they acquire their permit (for RM046), the resulting reporting data (Table 4) indicate that of those actually hunting 50% hunted the Chilkat Range and 50% hunted the Taku River.

For RM049 at Gustavus, 153 permits were issued in RY11, and 147 in RY12. The number of hunters decreased significantly from previous reporting periods (Table 5), which is likely due to the implementation of the selective harvest strategy. As in most hunts, not all of the permittees actually participated in a hunt. Combining both years of the report period, 71% of the permittees hunted. Overall, during the report period, the Gustavus bull moose hunt accounted for 36% of the bull moose hunting activity in Unit 1C.

Hunter Residency and Success. Most moose harvested in Unit 1C continue to be taken by residents of the subunit (Table 6). During the report period, residents of the subunit took 60 of 77 harvested moose, other Alaska residents took 15, and nonresidents took 2 moose. Southeast moose hunting areas are not readily accessible via highway vehicles, and residents from elsewhere in Alaska have better moose hunting opportunities closer to home. Nonresidents eager to take moose focus on areas with larger moose populations and a better chance of getting a trophy animal. When offered, antlerless moose hunts draw prospective hunters from across the region, and to a lesser degree, from the remainder of and outside the state. Thirteen percent of hunters pursuing bull moose in Unit 1C were successful during the report period. Gustavus moose hunters had a success rate of 8%, 16% of the Taku River hunters were successful, and Chilkat Range hunters had a success rate of 16%.

Harvest Chronology. Similar to recent years, the RY11 and RY12 bull moose harvest was heavily weighted toward the early part of the season (mid to late September). This is partly because nearly all hunters participate on opening day, and hunt less as the season goes on. The pace of the hunts on the Chilkat Range and the Taku River are much slower than at Gustavus, but even those areas experience the majority of their respective harvests within the first 2 weeks of the season.

The chronology of the antlerless harvest differs substantially from the bull harvest in that the antlerless season at Gustavus is 1 December–10 December. Even then, most of the animals are killed during the first 2 or 3 days of the hunt.

Transport Methods. The type of transport used by successful hunters varies, reflecting difficulties in the logistics of access.

Berners Bay: Historically, all successful Berners Bay hunters used boats for access (Table 7), and airboats are almost exclusively the boat of choice. Few, if any, hunters have their own airboats; rather, they make arrangements with one of several local air boaters who then take them into Berners for their hunt.

Chilkat Range: Hunters on the Chilkat Peninsula used boats, ORVs, airplanes, and highway vehicles for transportation to hunting areas. During the report period both boats and ORVs were used by 37% of the hunters (Table 7). Generally, most airplane access (20%) to this area is in the upper Endicott River, and most boat access takes place at St. James Bay, Howard Bay, and Point Couverden/Swanson Harbor. Off-road-vehicle (ORV) use in the Couverden area is gaining in popularity due to the increase in moose numbers and the recent discovery that ORV hunting is effective on the logging roads throughout that area. Two successful moose hunters reported using a highway vehicle for transportation and one hunter was successful on foot. The vehicle is likely being used on logging roads in the Homeshore/Couverden area.

Gustavus Forelands: Successful Gustavus Forelands hunters use a variety of access methods. During the report period an average of 81% used highway vehicles, and 19% used a boat; no hunters reported using ORVs, airplanes, or walking for access during the report period. It is almost certain that the people who listed airplane as their mode of access actually flew into Gustavus on a commercial airline, then drove to a residence where they hunted with a vehicle or on foot. In general hunters who list walking as their mode of access are residents of Gustavus

who have access to hunting areas on or near their property. ATV access for hunting moose at Gustavus is restricted to “constructed road surfaces” only, thus, the limited use of that access type.

Taku: Of the successful Taku River moose hunters, boat access in the area was the most widely used (93%) during the report period, with the remainder using ORVs (Table 7). Most hunters used boats equipped with jet units to access the upper reaches of the river, then based out of private cabins near the Canadian border. Occasionally, an airplane is used to access the area.

Other Mortality. The result of the severe winter of 2006–2007 and subsequent greater than average snowfall winters of 2007–2008 and 2008–2009 (Western Regional Climate Center 2012) was a decline in the Berners Bay moose population. During this report period survival estimates for radiocollared female moose in Berners Bay continued to improve; survival rates in 2011 and 2012 were 96% and 90%, respectively (White et al. 2012). Calf moose survival for Berners Bay also improved during the report period. In 2011 calf survival was estimated at 29%, and in 2012 survival was estimated at 32% (White et al. 2012). We believe severe winter weather with resulting snow depths in Berners Bay is the likely cause of adult moose mortality. The combination of low calf survival and adult mortality in Berners Bay has negatively impacted this herd’s ability to grow, prolonging the need to keep moose hunting seasons closed. Predation by bears and wolves has always been a factor in the 1C moose populations.

Habitat. We initiated a moose browse monitoring project at Gustavus in 1999 that continues. The aim of this project is to assess willow utilization by moose on the Gustavus Forelands. Data indicate that moose are using a very high proportion of available willow browse, resulting in a shortage of browse that likely leads to the poor nutritional condition of many of the moose in this population. We continue to use data from this study to monitor the level of habitat use by moose on the Gustavus Forelands and to guide management of the moose population.

CONCLUSIONS AND RECOMMENDATIONS

Berners Bay: The RY11 and RY12 bull:cow ratios exceeded the management objective of 25:100 during both years. Aerial survey data met the objective of 80–90 moose as listed in the Berners Bay management objectives in RY11; the number of moose observed exceeded the management objectives in RY12. During the report period, moderate winters in RY11 suggested that moose numbers would dip, however in RY12 survey results were as high as they have been since 1999 suggesting that the Berners Bay moose population is increasing. There is potential that a lag effect may occur and population numbers may be lower in the next reporting period. Moose research in Berners Bay ended in 2009 and efforts are now focused on the long-term monitoring of this population. Management and research staff will continue to monitor this population using a sample of radiocollared cow moose to determine adult female survival, productivity, and fecundity. The collared sample will also help during aerial surveys by allowing us to determine sightability.

Chilkat Range: We have no established management objectives for the Chilkat Range moose population. As with the Taku River moose population, the Chilkat Range moose numbers and composition are not attainable through aerial surveys. Therefore we must use hunter harvest and effort data to gauge how this population is doing. Harvest during this report period was similar to the previous report period, but less than in RY06, which had the highest harvest (28 moose) in

the last 10 years. The age structure of the harvest during the current report period is younger than has been seen in recent years, suggesting there is good recruitment within the population. The mean number of days hunted is consistent with previous report periods suggesting that hunters are spending the same amount of time in the field from year to year. With decreasing opportunity in Gustavus, the Chilkat Range moose population continues to gain popularity with hunters in Unit 1C. ATVs and other vehicles can be used on the logging roads in the Homeshore-Couerden area to access moose hunting areas. Other portions of the Chilkat Range, such as St. James Bay and the upper Endicott River, have been surpassed in hunting effort as well as harvest by Couerden, but still provide some moose every year. Because of the thickly forested areas in the Chilkat Mountains and the inaccessible nature of most of this area, we believe the present strategy, allowing harvest of any bull, should be sustainable.

Taku: The harvest management objective of at least 10 bull moose was met during the report period. Without the ability to conduct functional aerial surveys in the Taku River area, it is difficult to determine the status of this moose population. However, in the absence of survey data, the age of harvested animals, the annual harvest, and the catch per unit effort by hunters all suggest that this population of moose is at least stable. The continued high representation of yearling bulls in the harvest indicates that this population is relatively productive, but the lack of many older age class animals also suggests that we may be harvesting nearly all available bulls on a yearly basis. Although some have suggested that moose move up the river drainage during fall to winter in areas with less snow, the high proportion of yearling bulls in the harvest suggests young males are dispersing to the Alaska portion of the river. We will attempt to survey the area on a more consistent basis and try to acquire survey data for the upper Taku River by working with Canadian biologists.

Gustavus Forelands: The bull:cow management objective of 25 bulls:100 cows was not met during the report period. The bull to cow ratio remains low, likely due to several factors, such as overall moose mortality, and low calf survival and recruitment. Ongoing moose research at Gustavus has provided us with valuable information on moose body condition as well as pregnancy and twinning rates. Given the reduction of moose numbers at Gustavus through antlerless hunts, hard winters, and predation, we are content at this time to restrict harvest to bulls only, as antlerless hunts are not needed to limit the size of this moose population. Although there is variability between years in the report period, some indices suggest the fitness of the Gustavus moose population is improving. Estimated survival and pregnancy rates of adult female moose improved during the report period; however, low calf survival resulted in little population growth. Even with the positive indications listed above, increased predation and lowering recruitment are reasons for concern about the future trajectory of this population. The new selective harvest strategy has changed the bull moose hunt in Gustavus from a derby style hunt to one where hunters will be able to hunt longer and enjoy the hunt rather than worrying about their safety, or feeling like they have to harvest the first bull they see due to short hunting seasons. Although hunters would prefer to harvest more moose than currently are being taken, the hunt has been well received and should improve moose hunting opportunity in the future.

We have made acquiring additional information on browse utilization and herd composition a priority.

We believe that a continuation of the current registration permit system should help meet population objectives throughout Unit 1C by allowing opportunity for harvest in areas where moose are present and ensuring populations do not exceed their habitat capacity. In addition, we will continue to collect teeth from harvested moose for age analysis. Areas supporting the most critical winter browse need to be analyzed, even if cursorily, to estimate the status of moose populations in relation to carrying capacity. We hope that research conducted at Gustavus and Berners Bay will serve as a template for investigations in other areas and on other populations.

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Table 1. Unit 1C aerial moose survey data, regulatory years 1995 through 2012.

Year	Bulls	Cows	Calves	Unknown	Total Moose	Count time (hrs)	Bulls per 100 Cows	Calves per 100 Cows	Calves % in herd	Moose per hour
<u>Berners Bay 1999–2008</u>										
2003	18	11	13	39	81	2.6	---	---	16	31
2004	7	12	12	55	86	3.3	---	---	14	26
2005	15	72	13	0	100	2.5	21	18	13	40
2006	10	56	9	0	75	3.5	18	16	12	21
2007	10	44	5	0	59	3.0	23	11	8	20
2008	3	22	3	5	33	3.3	---	---	9	10
2009	12	20	4	15	51	3.0	---	---	8	17
2010	18	45	10	0	73	4.3	40	22	14	17
2011	22	41	10	0	73	NA	54	24	14	NA
2012	23	53	9	0	85	4.2	43	17	11	20
2012	21	67	14	0	102	4.0	31	21	14	26
<u>Chilkat Range 1998–2012</u>										
1998	6	15	16	35	72	1.1	---	---	22	65
1999	<u>No Survey</u>									
2000	---	6	6	113	125	1.7	---	---	---	74
2001–2012	<u>No Survey</u>									
<u>Taku River 1998–2012</u>										
1998	6	15	16	35	72	1.1	---	---	22	65
1999	<u>No Survey</u>									
2000	---	5	7	25	37	2.1	---	---	19	18
2001–2012	<u>No Survey</u>									
<u>Gustavus Forelands 1998–2012</u>										
1998	---	48	54	83	185	1.9	---	---	29	97
1999	<u>No Survey</u>									
2000	---	45	45	117	207	3.7	---	---	22	57
2001	1	52	62	161	276	2.0	---	---	22	138
2002	---	75	82	155	312	2.5	---	---	26	125
2003	37	214	130	23	404	3.3	---	---	32	122
2004	23	41	45	121	230	3.8	---	---	20	60
2005	12	29	32	222	295	4.9	---	---	11	60
2006	56	239	34	0	329	---	23	14	10	---
2007	20	203	31	0	254	3.0	---	---	12	85
2008	5	31	32	205	273	3.7	---	---	12	74
2009	11	82	5	0	98	2.0	13	6	5	49
2010	14	22	22	107 ^a	165	3.0	11	17	13	55
2011	16	94	26	0	136	3.9	17	28	19	35
2012	33	201	40	0	274	5.0	16	20	15	55

^a Moose of unknown sex are presumed to be female for bull:cow and calf:cow calculations.

Table 2. Unit 1C moose age at harvest, Berners Bay, regulatory years 1999 through 2012.

Year	Age Class										Total kill	% aged	Mean age						
	0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5				10.5	11.5	12.5	13.5	14.5	15.5
	<u>Males</u>																		
1999	0	3	1	3	1	0	1	0	0	1	0	0	0	0	0	0	10	100	3.8
2000	0	0	2	2	3	0	0	0	0	0	0	1	0	0	0	0	8	100	4.6
2001	0	2	2	1	0	2	1	0	0	0	0	0	0	0	0	0	8	100	3.6
2002	0	2	1	0	1	0	1	0	0	0	0	0	0	0	0	0	5	100	3.3
2003	0	5	2	0	1	0	0	0	0	0	0	0	0	0	0	0	8	100	2.1
2004	0	0	3	2	1	0	0	0	0	0	0	0	0	0	0	0	6	100	3.2
2005	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5	80	2.5
2006	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	5	80	4.0
2007- 2012	HUNT CLOSED																		
	<u>Females</u>																		
1999	0	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5	100	2.3
2000	0	0	1	1	3	0	1	0	0	0	1	0	0	0	0	0	7	100	5.2
2001	0	1	2	0	0	0	1	0	0	0	1	0	0	1	0	0	6	100	6.2
2002	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4	100	2.3
2003- 2005	HUNT CLOSED																		
2006	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	100	2.5
2007- 2012	HUNT CLOSED																		

Table 3. Unit 1C moose age at harvest, excluding Berners Bay, regulatory years 2003 through 2012.

Year	0.5	1.5	2.5	3.5	4.5	5.5	6.5	Age 7.5	Class 8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	Total kill	% Aged	Mean Age
<u>Chilkat Range</u>																			
2003	0	6	7	2	0	1	2	0	0	1	0	0	0	2	0	0	22	95	4.2
2004	0	5	3	3	1	0	3	0	1	0	0	0	0	0	0	0	18	89	3.6
2005	0	2	5	2	2	0	0	2	0	2	0	1	0	0	0	0	17	94	4.8
2006	0	8	7	8	3	0	0	0	0	0	0	0	1	1	0	0	28	100	3.5
2007	0	2	2	1	5	1	0	0	0	0	0	0	0	0	0	0	12	92	3.6
2008	0	2	4	4	4	2	0	1	0	0	0	0	0	0	0	0	18	94	3.7
2009	1	1	2	3	2	3	2	3	0	0	0	0	0	0	0	0	18	94	4.6
2010	0	2	1	1	1	0	3	1	0	0	0	0	1	0	0	0	11	91	5.3
2011	0	6	6	0	3	2	0	1	1	0	1	0	0	0	0	0	20	100	3.8
2012	0	1	1	5	2	1	0	0	0	0	0	0	0	0	0	0	11	91	3.6
<u>Gustavus Forelands</u>																			
2003	3	27	14	4	2	0	0	0	0	0	0	0	0	0	0	0	51	98	2.0
2004	0	23	10	7	0	1	1	0	0	0	0	0	0	0	0	0	43	98	2.3
2005	0	10	23	8	2	3	0	0	0	0	0	0	0	0	0	0	47	98	2.7
2006	0	7	12	6	6	2	1	0	0	0	1	0	0	0	0	0	37	95	3.3
2007	0	2	4	8	5	4	3	1	1	0	0	0	0	0	0	0	29	97	4.3
2008	0	5	3	1	3	1	1	1	0	0	0	0	0	0	0	0	15	100	3.4
2009	0	4	0	1	1	1	1	3	1	0	1	0	0	0	0	0	13	100	5.2
2010	0	7	1	1	1	1	1	0	1	0	0	0	0	0	0	0	13	100	3.2
2011	0	4	0	0	2	1	0	1	0	0	0	0	0	0	0	0	8	100	3.5
2012	0	5	2	0	0	0	1	0	0	0	0	0	0	0	0	0	8	100	2.4

Table 3. continued.

Year	0.5	1.5	2.5	3.5	4.5	5.5	6.5	Age 7.5	Class 8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	Total kill	% Aged	Mean Age
<u>Taku River</u>																			
2003	0	3	3	1	2	1	0	0	0	0	0	0	0	0	0	0	11	91	3.0
2004	0	7	3	3	0	0	1	0	0	0	0	0	0	0	0	0	15	93	2.5
2005	0	5	4	0	0	1	0	0	1	1	0	0	0	0	0	0	14	86	3.4
2006	0	10	5	1	0	0	0	0	0	0	0	0	0	0	0	0	16	100	1.9
2007	0	8	5	1	0	0	0	1	0	0	0	0	0	0	0	0	16	94	2.4
2008	0	6	6	3	1	1	0	0	0	0	0	0	0	0	0	0	17	100	2.6
2009	0	8	7	1	1	0	0	0	0	0	0	0	0	0	0	0	18	94	2.2
2010	0	10	1	0	0	1	0	0	0	0	0	0	0	0	0	0	12	100	1.9
2011	0	10	1	1	0	0	3	0	0	0	0	0	0	0	0	0	16	94	2.7
2012	0	7	4	2	0	0	0	0	0	0	1	0	0	0	0	0	14	100	2.7
<u>Gustavus Forelands (Antlerless Harvest)</u>																			
2002	0	1	1	2	1	3	1	0	0	0	0	0	0	0	0	1	10	100	5.4
2003	2	2	6	9	1	2	1	0	1	0	0	0	0	0	1	1	32	88	4.3
2004	2	14	2	8	5	4	4	1	6	1	2	2	0	0	1	0	53	98	4.8
2005	3	3	11	4	3	9	5	5	10	3	6	0	1	1	1	0	69	94	6.1
2006	0	1	3	2	1	0	2	0	0	0	0	1	0	0	0	0	12	83	4.5
2007	HUNT CLOSED																		
2008	0	0	2	3	0	1	0	3	0	0	1	0	0	0	0	0	10	100	5.4
2009- 2012	HUNT CLOSED																		

Table 4. Unit 1C moose historical harvests, number of hunters, and percent success, regulatory years 2003 through 2012.

Year	No. males	No. females	No. unknown	Total kill	No. hunters	% success ^b
<u>Berners Bay</u>						
2003	8	0	0	8	8	100
2004	6	0	0	6	8	75
2005	5	0	0	5	8	63
2006	5	2	0	7	8	88
2007–2012		HUNT CLOSED				
<u>Chilkat Range</u>						
2003	22	0	0	22	97	23
2004	18	0	0	18	98	18
2005	17	0	0	17	115	15
2006	28	0	0	28	121	23
2007	12	1	0	13	116	11
2008	18	0	0	18	121	15
2009	18	0	0	18	116	16
2010	11	0	0	11	108	10
2011	20	0	0	20	103	19
2012	11	0	0	11	86	13
<u>Gustavus Forelands</u>						
2003	51	1 ^a	0	52	179	28
2004	43	2 ^a	0	45	164	26
2005	47	0	0	47	150	31
2006	37	0	0	37	159	23
2007	29	0	0	29	163	18
2008	15	0	0	15	124	12
2009	13	0	0	13	107	12
2010	12	1 ^a	0	13 ^c	96	13
2011	8	0	0	8	108	7
2012	8	0	0	8	104	8
<u>Taku River</u>						
2003	11	0	0	11	84	13
2004	15	0	0	15	73	21
2005	14	0	0	14	85	16
2006	16	0	0	16	82	20
2007	16	0	0	16	87	18
2008	17	0	0	17	83	20
2009	18	0	0	18	83	22
2010	12	0	0	12	84	14
2011	16	0	0	16	98	16
2012	14	0	0	14	90	16

Year	No. males	No. females	No. unknown	Total kill	No. hunters	% success ^b
<u>Gustavus Forelands (Antlerless Harvest)</u>						
2002	0	10	0	10	10	100
2003	1	31	0	32	32	100
2004	1	52	0	53	57	93
2005	3	66	0	69	80	86
2006	0	12	0	12	18	67
2007	HUNT CLOSED					
2008	0	10	0	10	11	91
2009–2012	HUNT CLOSED					

^a Illegal take.

^b Includes only legally harvested bull moose.

^c Includes two illegal bull moose.

Table 5. Unit 1C moose hunter effort and success, regulatory years 2003 through 2012.

Year	Permits Issued ^a	Successful hunters			Unsuccessful hunters			Total Hunters		
		No. hunters	Total days	Avg days	No. hunters	Total days	Avg days	No. hunters	Total days	Avg days
<u>Berners Bay-DM041 and DM042</u>										
2003	9	8	24	3.0	0	0	0	8	24	3.0
2004	8	6	9	1.5	2	9	4.5	8	18	2.3
2005	8	5	21	4.2	3	27	9.0	8	48	6.0
2006	8	7	16	2.3	1	15	15.0	8	31	3.9
2007– 2012	HUNT CLOSED									
<u>Chilkat Range</u>										
2003	516	22	61	2.8	75	244	3.3	97	305	3.1
2004	474	18	49	2.7	80	282	3.5	98	331	3.4
2005	313	17	53	3.1	98	364	3.7	115	417	3.6
2006	337	28	89	3.2	93	355	3.8	121	444	3.7
2007	358	13	41	3.2	103	452	4.4	116	493	4.3
2008	363	18	81	4.5	103	366	3.6	121	447	3.7
2009	335	18	71	3.9	98	404	4.1	116	475	4.1
2010	330	11	35	3.2	97	446	4.6	108	481	4.5
2011	327	20	67	3.4	83	412	5.0	103	479	4.7
2012	321	11	83	7.5	75	370	4.9	86	453	5.3
<u>Gustavus Forelands</u>										
2003	---	52	107	2.1	127	437	3.4	179	544	3.0
2004	---	45	68	1.5	119	292	2.5	164	360	2.2
2005	212	47	47	1.0	103	104	1.0	150	151	1.0
2006	197	37	61	1.6	122	472	3.9	159	533	3.4
2007	214	29	83	2.9	134	445	3.3	163	528	3.2
2008	159	15	15	1.0	109	109	1.0	134	124	1.0
2009	147	13	95	7.3	94	764	8.1	107	859	8.0
2010	142	13	45	3.5	83	452	5.4	96	497	5.2
2011	153	8	80	10.0	100	762	7.6	108	842	7.8
2012	147	8	66	8.3	96	638	6.6	104	704	6.8
<u>Taku River</u>										
2003	---	11	28	2.5	73	283	3.9	84	311	3.7
2004	---	15	33	2.2	58	221	3.8	73	254	3.5
2005	---	14	62	4.4	71	294	4.1	85	356	4.2
2006	---	16	50	3.1	66	281	4.3	82	331	4.0
2007	---	16	38	2.4	71	285	4.0	87	323	3.7
2008	---	17	53	3.1	66	277	4.2	83	330	4.0
2009	---	18	42	2.3	65	246	3.8	83	288	3.5
2010	---	12	22	1.8	72	419	5.8	84	441	5.3
2011	---	16	42	2.6	82	389	4.7	98	431	4.4
2012	---	14	59	4.2	76	417	5.5	90	476	5.2

Year	Permits Issued ^a	Successful hunters			Unsuccessful hunters			Total Hunters		
		No. hunters	Total days	Avg days	No. hunters	Total days	Avg days	No. hunters	Total days	Avg days
<u>Gustavus Forelands (Antlerless Harvest)—DM043, DM044, DM045</u>										
2004	60	53	95	1.8	4	18	4.5	57	113	2.0
2005	90	69	163	2.4	11	36	3.3	80	199	2.5
2006	23	12	19	1.6	6	9	1.5	18	28	1.6
2007					HUNT CLOSED					
2008	15	10	15	1.5	1	5	5.0	11	20	1.8
2009– 2012					HUNT CLOSED					

^aNumber of registration permits shown for the Chilkat Range is the total number of permits issued for all of Unit 1C excluding Berners Bay; only permittees who hunted may be categorized to specific hunt areas.

Table 6. Unit 1C annual moose kill by community of residence, regulatory years 2003 through 2012.

Year	Total kill	Gustavus	Juneau	Sitka	Wrangell	Petersburg	Haines	Other Alaska	Non- resident
<u>Berners Bay</u>									
2003	8	0	7	0	0	0	0	1	0
2004	6	0	6	0	0	0	0	0	0
2005	5	0	5	0	0	0	0	0	0
2006	7	0	7	0	0	0	0	0	0
2007-2012			HUNT CLOSED						
<u>Chilkat Range</u>									
2003	22	0	15	0	0	0	0	7	0
2004	18	1	13	0	0	0	0	3	1
2005	17	1	12	1	0	0	0	3	0
2006	28	2	16	4	0	0	0	5	1
2007	13	1	6	3	0	0	0	3	0
2008	18	2	11	3	0	0	0	2	0
2009	18	1	12	4	0	0	1	0	0
2010	11	0	8	1	0	0	0	2	0
2011	20	0	12	3	0	0	0	4	1
2012	11	0	6	4	0	0	0	1	0
<u>Gustavus Forelands</u>									
2003	52 ^a	25	20	4	0	0	1	2	0
2004	45 ^b	18	20	4	0	0	0	2	1
2005	47	20	21	3	0	0	0	3	0
2006	37	15	18	1	0	0	1	1	1
2007	29	18	10	0	0	0	0	0	1
2008	15	8	6	1	0	0	0	0	0
2009	13	10	2	0	0	0	1	0	0
2010	13 ^a	12	1	0	0	0	0	0	0
2011	8	6	1	0	0	0	0	0	1
2012	8	5	2	1	0	0	0	0	0
<u>Taku River</u>									
2003	11	0	10	1	0	0	0	0	0
2004	15	0	13	1	0	0	1	0	0
2005	14	0	11	2	0	0	0	1	0
2006	16	0	16	0	0	0	0	0	0
2007	16	0	13	2	0	0	0	1	0
2008	17	0	13	1	0	0	0	3	0
2009	18	0	13	2	0	0	0	2	1
2010	12	0	11	0	0	0	0	1	0
2011	16	0	14	1	0	0	0	1	0
2012	14	0	14	0	0	0	0	0	0

Year	Total kill	Gustavus	Juneau	Sitka	Wrangell	Petersburg	Haines	Other Alaska	Non- resident
<u>Gustavus Forelands (Cow Harvest)</u>									
2003	32	5	23	1	0	1	1	1	0
2004	53	6	39	3	0	2	1	2	0
2005	69	10	41	4	0	1	3	9	1
2006	12	0	9	1	0	0	0	1	1
2007			HUNT CLOSED						
2008	10	0	9	1	0	0	0	0	0
2009-2012			HUNT CLOSED						

^a One of these moose was an illegal kill.

^b Two of these moose were illegal kills.

Table 7. Unit 1C successful moose hunters transport methods, regulatory years 2003 through 2012.

Year	<u>Airplane</u>		<u>Boat</u>		<u>3 or 4 wheeler</u>		<u>Hwy vehicle</u>		<u>Foot</u>	
	Total	(%)	Total	(%)	Total	(%)	Total	(%)	Total	(%)
<u>Berners Bay</u>										
2003	0	---	8	(100)	0	---	0	---	0	---
2004	0	---	6	(100)	0	---	0	---	0	---
2005	0	---	5	(100)	0	---	0	---	0	---
2006	0	---	7	(100)	0	---	0	---	0	---
2007-2012	HUNT CLOSED									
<u>Chilkat Range</u>										
2003	6	(27)	10	(45)	6	(27)	0	---	0	---
2004	7	(39)	7	(39)	3	(17)	0	---	1	(5)
2005	5	(31)	7	(44)	3	(19)	0	---	1	(6)
2006	10	(35)	12	(43)	3	(11)	3	(11)	0	---
2007	2	(15)	5	(39)	6	(46)	0	---	0	---
2008	4	(22)	8	(44)	5	(28)	1	(6)	0	---
2009	5	(28)	5	(28)	7	(39)	1	(5)	0	---
2010	2	(18)	5	(46)	4	(36)	0	---	0	---
2011	5	(25)	6	(30)	7	(35)	1	(5)	1	(5)
2012	1	(9)	5	(46)	4	(36)	1	(9)	0	---
<u>Gustavus Forelands</u>										
2003	3	(6)	7	(13)	3	(6)	29	(57)	9	(18)
2004	1	(2)	6	(14)	4	(9)	30	(68)	3	(7)
2005	4	(9)	9	(20)	0	---	24	(51)	9	(20)
2006	1	(3)	4	(11)	2	(5)	27	(73)	3	(8)
2007	2	(7)	5	(17)	0	---	18	(62)	4	(14)
2008	0	---	1	(7)	1	(7)	12	(80)	1	(7)
2009	0	---	1	(8)	0	---	9	(69)	3	(23)
2010	0	---	1	(8)	0	---	12	(92)	0	---
2011	0	---	1	(12)	0	---	7	(88)	0	---
2012	0	---	2	(25)	0	---	6	(75)	0	---
<u>Taku River</u>										
2003	0	---	11	(100)	0	---	0	---	0	---
2004	0	---	15	(100)	0	---	0	---	0	---
2005	1	(7)	13	(93)	0	---	0	---	0	---
2006	1	(6)	15	(94)	0	---	0	---	0	---
2007	0	---	16	(100)	0	---	0	---	0	---
2008	1	(6)	16	(94)	0	---	0	---	0	---
2009	0	---	18	(100)	0	---	0	---	0	---
2010	0	---	12	(100)	0	---	0	---	0	---
2011	0	---	15	(94)	1	(6)	0	---	0	---
2012	0	---	13	(93)	1	(7)	0	---	0	---
<u>Gustavus Forelands (Cow Harvest)</u>										
2003	5	(16)	3	(9)	2	(6)	22	(69)	0	---
2004	2	(4)	2	(4)	2	(4)	47	(88)	0	---
2005	1	(1)	4	(6)	2	(3)	56	(81)	6	(9)
2006	0	---	2	(17)	1	(8)	8	(67)	1	(8)
2007	HUNT CLOSED									
2008	0	---	0	---	1	(10)	9	(90)	0	---
2009-2012	HUNT CLOSED									

Table 8. Unit 1C moose hunters commercial services use, regulatory years 2003 through 2012.

Year	Unit residents		Other AK residents		Non-residents		Total use		Transport	Non-guided services	Other services
	No	Yes	No	Yes	No	Yes	No	Yes			
<u>Berners Bay</u>											
2001	13	0	2	0	0	0	15	0	0	0	0
2002	13	0	1	0	0	0	14	0	0	0	0
2003	7	0	1	0	0	0	8	0	0	0	0
2004	8	0	0	0	0	0	8	0	0	0	0
2005	8	0	0	0	0	0	8	0	0	0	0
2006	8	0	0	0	0	0	8	0	0	0	0
2007–2012	HUNT CLOSED										
<u>Chilkat Range</u>											
2003	74	0	19	1	3	0	96	1	1	0	0
2004	75	4	12	2	4	1	91	7	7	0	0
2005	77	2	30	1	3	0	110	3	3	0	0
2006	83	7	25	0	6	0	114	7	7	0	0
2007	82	8	22	2	1	1	105	11	11	0	0
2008	83	1	34	0	3	0	120	1	1	0	0
2009	73	3	38	0	0	2	111	5	5	0	0
2010	75	6	21	2	4	0	100	8	7	0	2
2011	76	6	16	2	3	0	95	8	7	1	0
2012	62	6	16	1	1	0	79	7	7	0	0
<u>Gustavus Forelands</u>											
2003	152	2	21	0	2	0	175	2	2	0	0
2004	134	4	17	0	7	1	158	5	4	0	1
2005	132	2	13	1	1	0	146	3	2	1	0
2006	138	4	14	2	1	0	153	6	3	0	3
2007	147	2	9	1	4	0	160	3	1	1	1
2008	116	0	6	1	1	0	123	1	1	0	0
2009	102	0	4	1	1	0	107	1	1	0	0
2010	89	1	4	0	2	0	95	1	1	0	0
2011	93	4	8	0	3	0	104	4	1	0	3
2012	97	3	4	0	0	0	101	3	1	0	2
<u>Taku River</u>											
2003	76	0	6	0	1	0	83	0	0	0	0
2004	64	1	6	0	0	0	70	1	0	1	0
2005	76	0	9	0	0	0	85	0	0	0	0
2006	77	0	5	0	0	0	82	0	0	0	0
2007	78	2	6	0	1	0	85	2	2	0	0
2008	75	2	5	1	0	0	80	3	2	1	0
2009	77	0	5	0	1	0	83	0	0	0	0
2010	80	2	2	0	0	0	82	2	2	0	0
2011	88	0	10	0	0	0	98	0	0	0	0
2012	82	0	8	0	0	0	90	0	0	0	0

Year	<u>Unit residents</u>		<u>Other AK residents</u>		<u>Non-residents</u>		<u>Total use</u>		Transport	Non-guided services	Other services
	No	Yes	No	Yes	No	Yes	No	Yes			
<u>Gustavus Forelands (Cow Harvest)</u>											
2003	25	3	4	0	0	0	29	3	2	0	1
2004	44	5	6	2	0	0	50	7	4	0	3
2005	54	5	17	3	1	0	72	8	4	0	4
2006	14	0	3	0	1	0	18	0	0	0	0
2007	HUNT CLOSED										
2008	6	2	3	0	0	0	9	2	1	1	0
2009–2012	HUNT CLOSED										