

Sitka Black-tailed Deer Harvest Report

Southeast Alaska, 2006

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Deer Harvest Report: Overview

This report provides a summary of the harvest of Sitka black-tailed deer for the July 24th, 2006-January 31st, 2007 hunting season in Region 1—Southeast Alaska. This information was collected by the Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation through a mail survey sent to 3,014 hunters at the end of the hunting season (approximately 35% of total hunters). Deer hunters are randomly selected from across the region and asked to report deer they harvested, along with other hunting information, during the previous season. With the initial mailing and one follow-up reminder mailing, approximately 60% of surveyed hunters provided hunt reports that are included in this summary. Historical information is also included for comparison with previous years.

In addition to our mail-out survey, ADF&G has collaborated with the U.S. Forest Service (USFS) to intensively gather hunt information from individuals who hunted in Game Management Unit (GMU) 2. Separate deer reports were issued to 2,039 individuals who indicated plans to hunt in GMU 2. With the initial report, two follow-up reminders, and phone calls, 82% of GMU 2 hunters reported. This intensive sampling increases the precision of GMU 2 harvest estimates.

Summary statistics on the numbers of deer harvested, number of hunters, and hunter effort

are reported by GMU within the region (see map). For statistical reasons, only GMUs with adequate reporting (>100 reports received) are included in the detailed sections of the report. Confidence intervals are calculated for each estimate.

We wish to thank all of the hunters that participated in this survey. Hunter reporting is critical to the accuracy and success of this survey. Results of the survey provide important information for management of deer populations and hunting opportunities.



Sitka Black-tailed deer by snow berm in Tenakee Inlet, 2007. Photo by Phil Mooney, GMU 4 Management Biologist.

Deer Harvest Report: Regional Summary

Deer harvest patterns throughout southeast Alaska have been fairly similar between 1997-2006, with the exception of GMU 4. In general, the average hunter spent about 5 days afield for every deer harvested. However, in GMU 4 the number of days required to harvest a deer is less than in other parts of Southeast Alaska. This likely results from higher densities of deer in this area, which are related to the lack of wolves and black bears (important predators of deer elsewhere in the region) combined with relatively mild winters in GMU 4 during the last decade. In addition, there may be more opportunity to harvest deer in GMU 4 due to regulations for harvest of any sex, larger bag limits, and because the federal subsistence hunting season continues until later in the winter (when snow may make it easier to harvest deer at low elevations) than is typical for other parts of Southeast Alaska.

Deer harvest was higher in 2006 for most of the region, with the exception of GMU 3 and 5A. The % increase in harvest in

Deer Harvest by GMU and Year in Southeast Alaska			
GMU	2005	2006	% Change
1A	269	517	92%
1B	58	114	98%
1C	506	629	24%
2	2800	3110	11%
3	718	682	-5%
4	6997	7746	11%
5A	26	16	-38%

GMUs 1A and 1B was remarkably high, but the actual number of deer harvested is lower than most of the region. Of note

is that harvest in 1B, 1C, 2 and 4 was the highest in the last 10 years.

Deer harvest by GMU correlates strongly with hunter effort (Fig. 1). More deer are harvested per hunter in areas where fewer days are necessary to harvest a deer (Fig. 2 and 3). Of interest is that GMU 2 has the second lowest number of days required to harvest a deer and second highest number of deer harvested per hunter. GMU 2 hunters spend more days in the field (Fig. 4), which enables them to harvest more deer than hunters in GMUs 1A, 1B, 1C and 3 (Fig. 3). An extensive road network in GMU 2 likely contributes significantly to hunter effort, as it is easier to do more frequent hunting trips - even before or after work.

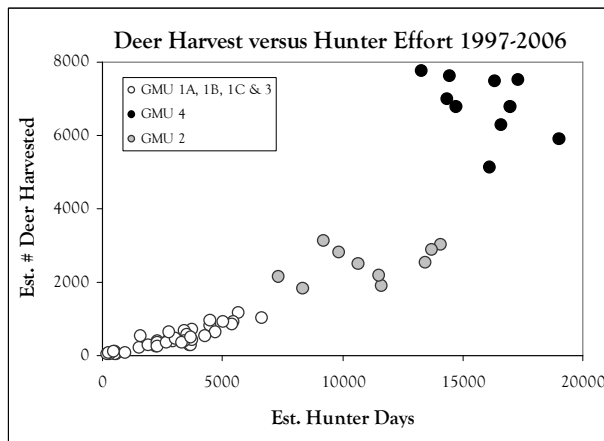


Fig. 1: Relationship between average deer harvest and hunter days in southeast Alaska between 1997-2006. This figure illustrates the consistent relationship between hunter effort and success, except GMU 4 (which required less hunter days/deer harvested).

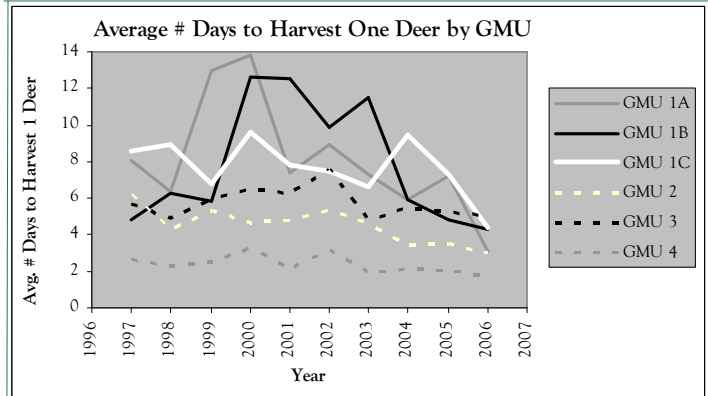


Fig. 2: Average number of days hunted per deer harvested in each GMU, 1997-2006. On average, it required less effort to harvest a deer during the 2006 season in most game management units.

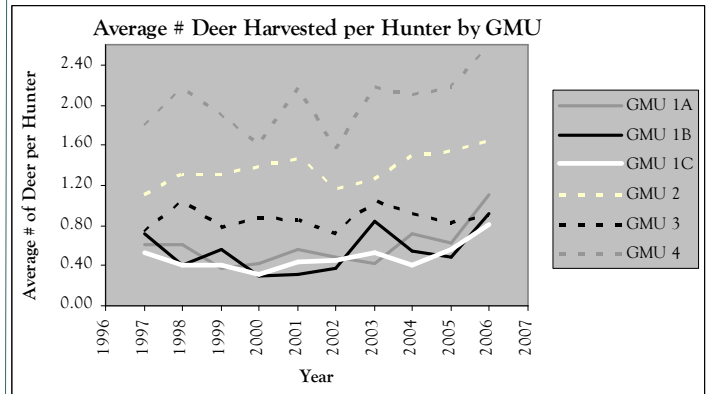


Fig. 3: Estimated average number of deer harvested per hunter by GMU, 1997-2006. Despite less average days of effort, more deer were harvested in 2006 than the previous 10 years in most game management units.

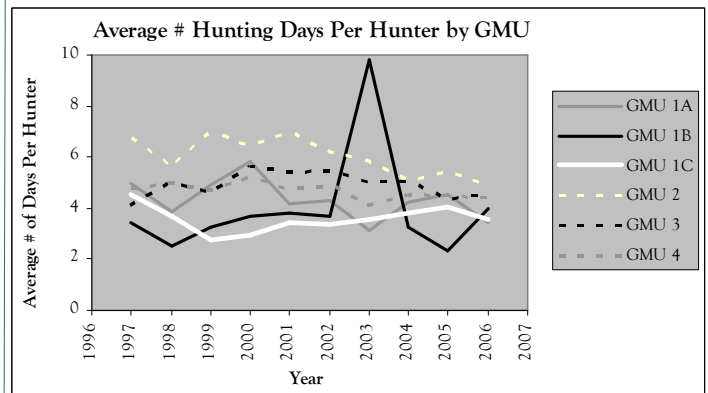


Fig. 4: Estimated average number days hunted per hunter, 1997-2006. Despite the fact it required less effort to harvest a deer in most game management units, the number of days that hunters hunted in 2006 was similar to previous years.

GMU 1A (Ketchikan Area)

GMU 1A includes Revillagigedo (Revilla) Island, adjacent smaller islands and the mainland from Dixon Entrance to the Cleveland Peninsula. Most of the area is federal land managed by the US Forest Service and much of the mainland portion of the unit is within Misty Fjords National Monument.

Hunter access to Misty Fjords is by boat or plane, whereas on



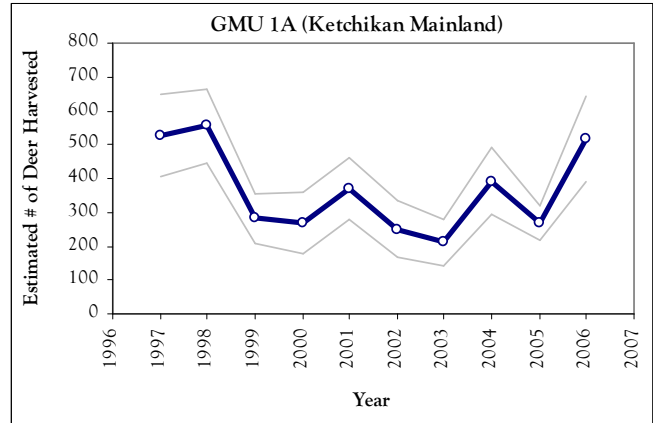
Revilla Island there is some limited road access associated with the community of Ketchikan.

Over the last 10 years deer harvest has ranged from 211 to 556, while the number of hunters in the sub-unit has varied from 429 to 908. The deer harvest in 2006 (517±128 deer) was up

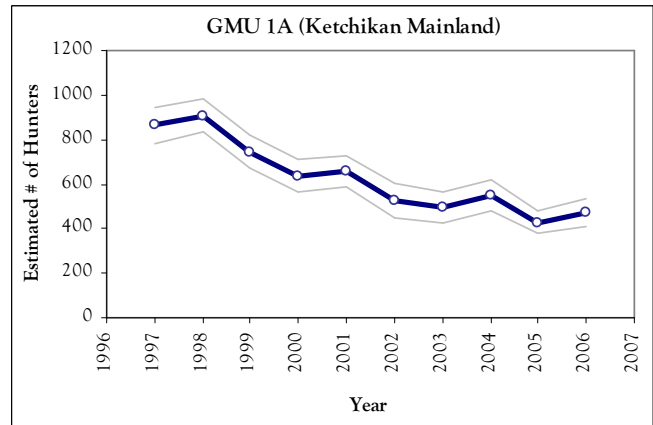
substantially from 2005 (269±104 deer). While the number of hunters and hunter effort has generally declined over the past 10 years, deer harvest has been varied. Higher harvest levels such as that in 1998 and 2006 are likely related to higher winter severity, which concentrates deer at lower elevations where they are more accessible to hunters.

The cause of the decline in hunter effort is unclear. However, annual variability in weather patterns and snowfall can have marked effects on deer distribution, population density and hunter accessibility in this area. Predators, namely black bears and wolves, can also impact deer populations through mortality of fawns and also adults. While limited information is available to assess the role of predation in influencing deer densities in this area, anecdotal information suggests a possible increase in predator densities on the Cleveland Peninsula.

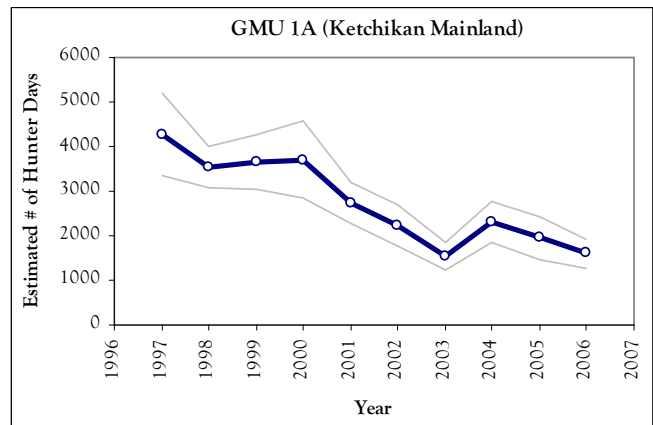
During this period no significant regulatory changes have occurred that might influence deer hunter effort or success. Likewise, it is unlikely that factors related to deer harvest survey reporting have differed during the period of study.



Estimated number of deer harvested in GMU 1A, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



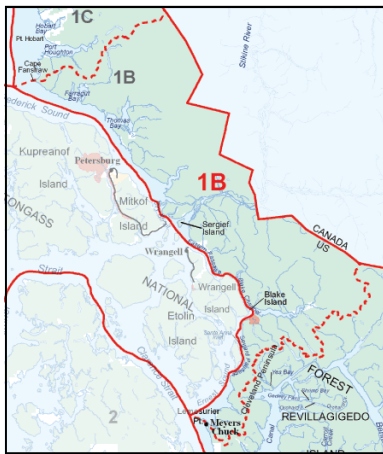
Estimated number of hunters in GMU 1A, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of deer harvested in GMU 1A, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.

GMU 1B (Petersburg Mainland)

GMU 1B includes the mainland east of Petersburg from the Cleveland Peninsula to Cape Fanshaw. Most of the area is federal land managed by the US Forest Service and includes Thomas Bay, Bradfield Canal and the Stikine River wilderness. This area is only accessible by boat or plane though some local logging roads exist for onsite access

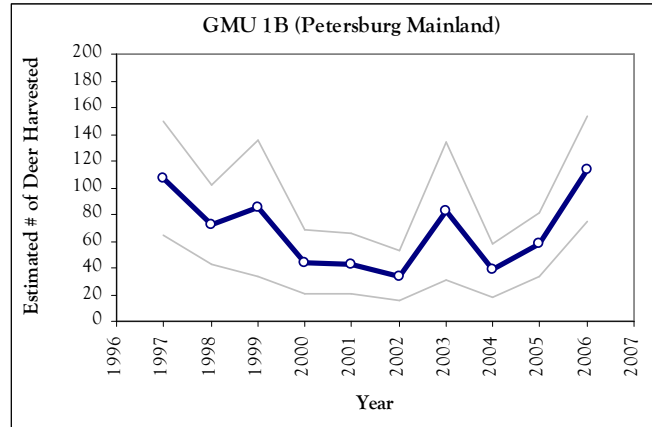


Over the last 10 years deer harvest has ranged from 34 to 114, while the number of hunters in the sub-unit has varied from 70 to 182. The deer harvest in 2006 (114 ± 40 deer) was higher than 2005 (58 ± 23 deer). Deer harvest and the number of hunters appears to have declined slightly

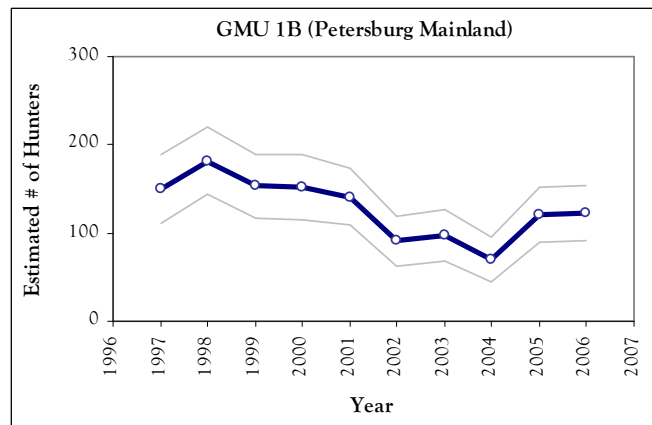
during 1997-2004 while hunter effort remained largely stable (despite a highly variable estimate in 2003). However, deer harvest increased in 2005 and 2006, likely as a result of increased numbers of hunters and hunter effort. The hard winter of 2006 may have contributed to the disproportionate increase in deer harvested, as deer were forced to lower (and more accessible) elevations earlier in the winter than normal.

This area has a relatively low deer density (due to typically high snow accumulation) and is largely inaccessible. In addition, aside from the communities of Petersburg and Wrangell, no large population centers are near this area. Much of the hunting effort by individuals in these communities is focused on islands to the west of the mainland where deer densities are generally higher. The combination of these factors likely results in the relatively low harvest rates in this area, as compared to other places in southeast Alaska.

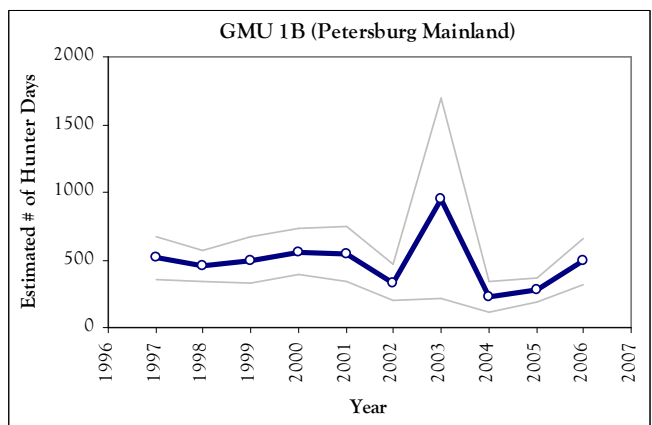
During this period no significant regulatory changes have occurred that might influence deer hunter effort or success. Likewise, it is unlikely that factors related to deer harvest survey reporting have differed during the period of study.



Estimated number of deer harvested in GMU 1A, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



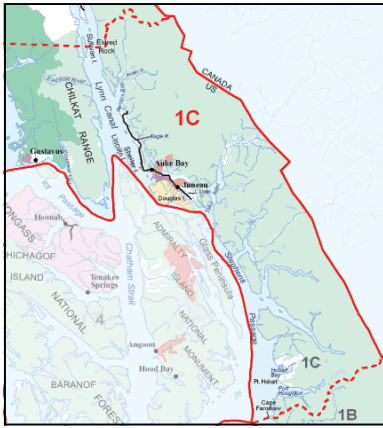
Estimated number of hunters in GMU 1B, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 1B, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.

GMU 1C (Juneau Area)

GMU 1C includes Douglas Island, adjacent smaller islands, the Juneau mainland from Cape Fanshaw to Eldred Rock, the Chilkat Peninsula and areas in and around Glacier Bay National Park. Most of the area is federal land managed by the US Forest Service and National Park Service. A large portion of the central part of the subunit is accessible from the Juneau (pop.: 31,000) road system however the remainder of the unit



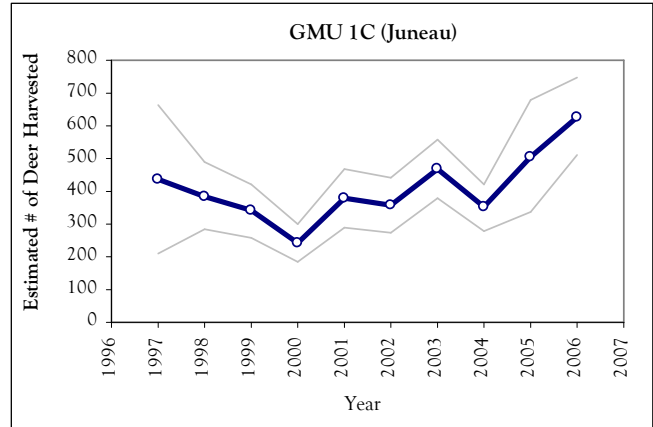
can only be accessed by boat or plane. Logging activity and associated road access is very limited in this area.

Over the last 10 years deer harvest has ranged from 241 to 629, while the number of hunters in the sub-unit has varied from 776 to 935. The

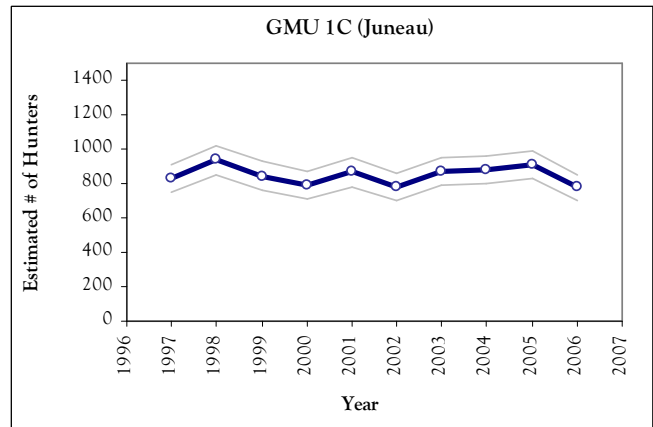
deer harvest in 2006 (629±117 deer) was up from 2005 (506±170 deer), despite the fact that the number of hunters and hunter effort was down. The extreme snowfall in northern Southeast in November 2006 concentrated deer at low elevations very early in the winter, making it easier for hunters to track and successfully harvest multiple deer off beaches in a relatively short amount of time.

Hunter effort associated with the Juneau road system is fairly high and hunter effort appears to be generally correlated with harvest in this area. Hunter success is likely linked to weather patterns and snow accumulation more than predation (which is limited). In particular, wet rainy periods or late-onset of snowy winter conditions influences the number of hunter excursions afield. Snowfall aids hunters by increasing their ability to track animals as well as by causing deer distribution to shift to lower, less snowy areas. Consequently, the variability observed in hunter success in this area is likely related to yearly variability in weather and associated hunting conditions.

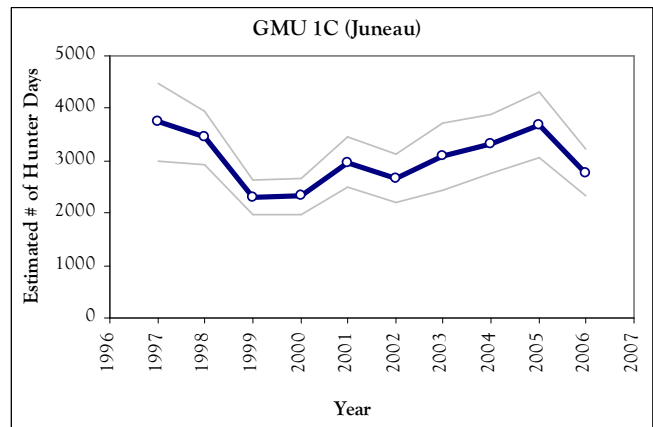
During this period no significant regulatory changes have occurred that might influence deer hunter effort or success.



Estimated number of deer harvested in GMU 1C, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunters in GMU 1C, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 1C, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.

GMU 2 (Prince of Wales Island)

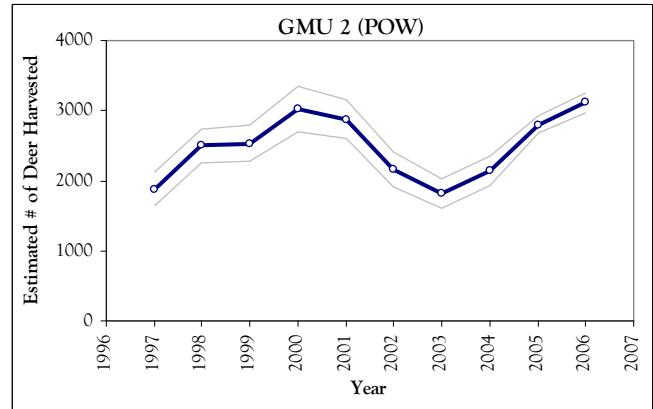
Prince of Wales island is the primary area of deer harvest in GMU 2, however harvest to a lesser extent occurs on small surrounding islands. Prince of Wales island is characterized by a relatively mild, maritime climate and winters are generally less severe as compared to colder, mainland areas. Prince of Wales island has been managed extensively for timber harvest



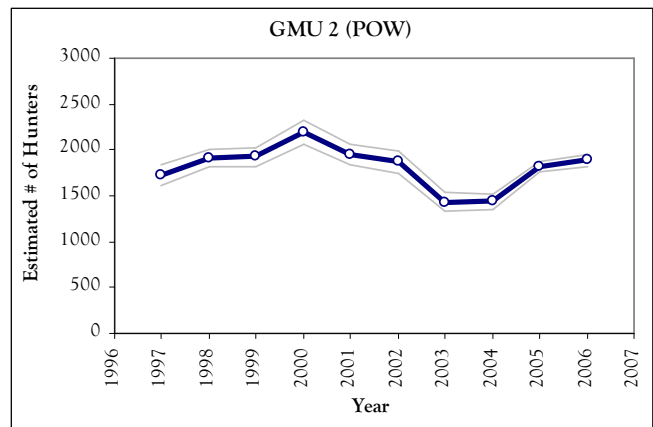
and as a result has an extensive road system (over 2,500 miles of drivable surface) which is used as the primary means of access by hunters. Most deer harvest in GMU 2 is by hunters that reside either on Prince of Wales island or in the nearby community of Ketchikan.

Over the last 10 years deer harvest has ranged from 1,817 to 3,110, while the number of hunters in the unit has varied from 1,433 to 2,192. The deer harvest in 2006 (3,110±142 deer) was up slightly from 2005 (2,800±125deer). Deer harvest and hunter effort in GMU 2 generally increased between 1997-2000 and subsequently declined between 2001-2004, only to rise again in 2005 and 2006. In GMU 2, deer harvest and hunter effort are confounded by changes to harvest survey methods employed in GMU 2, and therefore the trends reflected in these charts should be interpreted with caution.

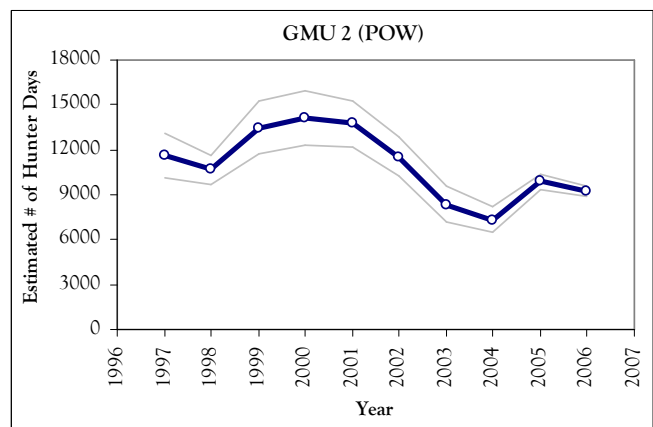
The apparent decline in deer harvest and hunter effort between 2001-2004 is potentially linked to regulatory changes that altered how GMU 2 resident hunters report their harvest. Specifically, some local hunters reported deer harvest only to USFS (which had instituted a separate permit and reporting system). Consequently, such hunters were not able to be sampled by ADF&G and, as a result, their hunting experiences and harvest were not incorporated into analyses. In 2005-2006, ADF&G and USFS combined resources to intensively capture hunter harvest in GMU 2. This situation is a special case and only relevant to GMU 2.



Estimated number of deer harvested in GMU 2, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



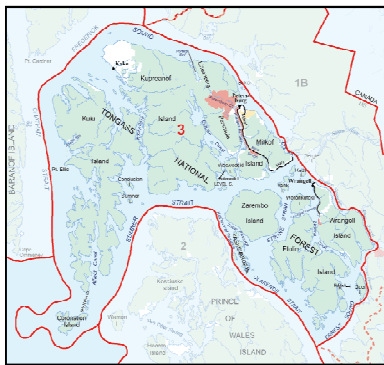
Estimated number of hunters in GMU 2, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 2, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.

GMU 3 (Central Southeast Alaska Islands):

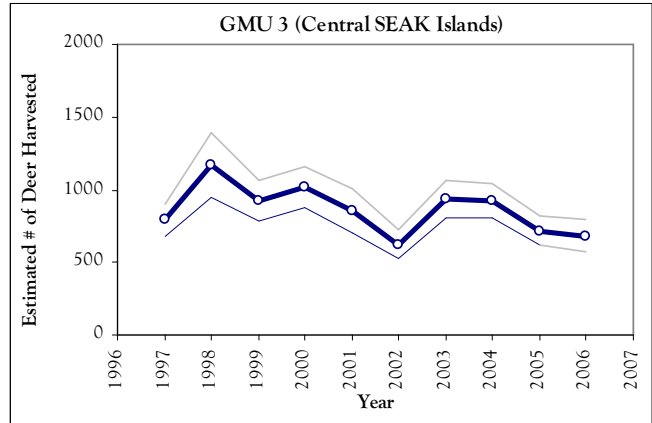
GMU 3 includes Mitkof, Wrangell, Zarembo, Etolin, Kupreanof, Kuiu and adjacent smaller islands in central southeast Alaska. Most of the area is federal land managed by the US Forest Service. This area has seen a significant amount of logging activity over the years. Initial access to most areas is by water. However, in many areas once hunters arrive, extensive



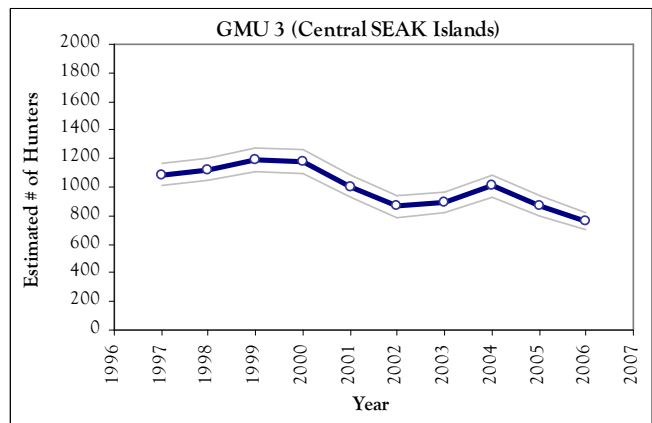
networks of logging roads are used for additional access to hunting areas. The communities of Petersburg, Wrangell and Kake are located within this sub-unit and some hunters use local road systems to access hunting areas.

Over the last 10 years deer harvest has ranged from 624 to 1,167, while the number of hunters in the sub-unit has varied from 761 to 1,189. The deer harvest in 2006 (682±111 deer) did not significantly change from 2005 (718±98 deer). Overall, deer harvest declined between 1998-2002, increased between 2002-2004, and declined again in 2005-2006. This is the only area in Southeast Alaska where deer harvest was actually lower in 2006 than the previous year. The number of deer hunters was stable between 1997-2000, declined between 2000-2002, slightly increased between 2002-2004, and declined again in 2005-2006. There was a general increase in hunter days between 1997-2000, but the subsequent downward trend indicates that hunter effort is decreasing.

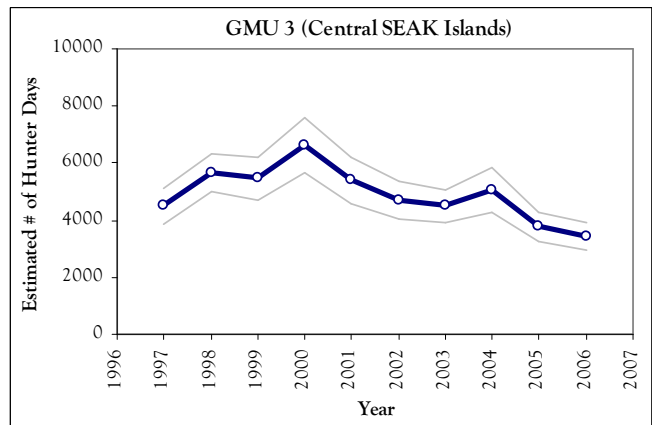
Trends in deer harvest and effort in this unit have been affected by regulatory changes that resulted in liberalization of deer hunting on the Lindenberg Peninsula beginning in 2003. This resulted in an increased harvest in a fairly large but localized part of the GMU. Consequently, an overall increase in deer harvest for 2003 and 2004 occurred, even though hunter effort did not change as significantly. Bag limits on Mitkof Island and GMU 3, in general, are more restrictive as compared to other island-dominated management units (e.g. GMUs 2 & 4).



Estimated number of deer harvested in GMU 3, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunters in GMU 3, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 3, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.

GMU 4 (Admiralty, Baranof & Chichagof Islands):

GMU 4 includes Admiralty, Baranof, Chichagof and adjacent smaller islands (such as Kruzof and Pleasant Islands). Most of the area is federal land managed by the USFS, though a significant amount of land managed by native corporations also occurs in this unit. The area is characterized by remote, rugged coastal and interior mountainous areas intermixed with areas of fairly intensive forest management. Most access is by

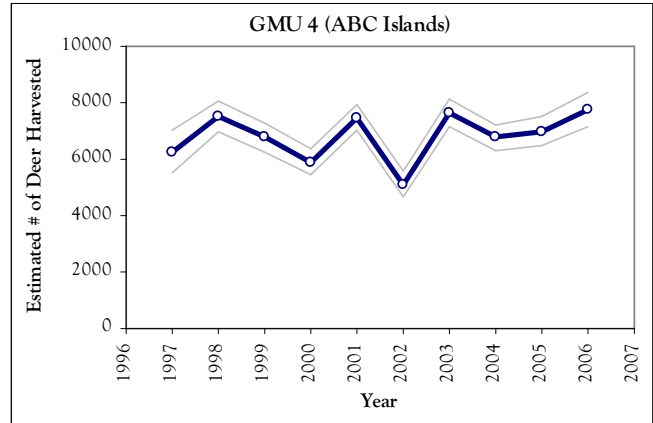


boat, though some areas (particularly around Hoonah) can be extensively accessed by road-based vehicles. Sitka (pop.: 8,000) is the largest city in this area though Juneau is in close proximity to eastern Admiralty Island.

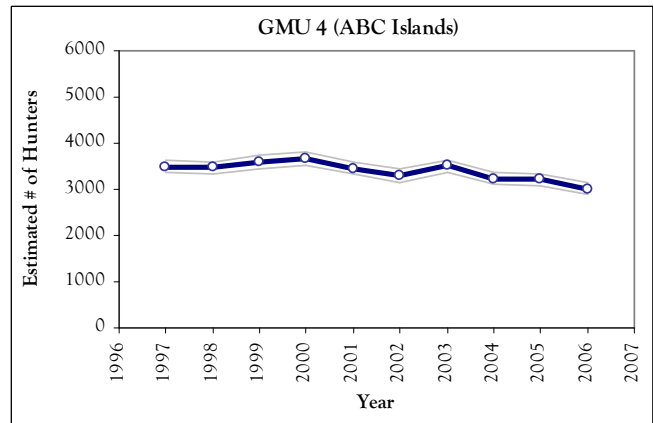
Over the last 10 years deer harvest has ranged from 5,111 to 7,746, while the number of hunters in the sub-unit has varied from 3,006 to 3,666. The deer harvest in 2006 (7,746±594 deer) was up from 2005 (6,697±513 deer). Deer harvest has remained mostly stable in GMU 4, with peaks in harvest generally occurring in heavier snow years. While the number of hunters has been fairly stable over the past 10 years, there has been a slight decline in the number of hunter days between 2000-2006.

Deer harvest in GMU 4 is very high relative to other areas in southeast Alaska, which is likely due to high deer densities that have resulted in part to the absence wolves and black bears (important predators of deer in other areas) in combination with predominantly below-average snowfall during the last decade. Winter severity is the primary factor regulating deer populations in GMU 4. Managers believed deer were near carrying capacity across much of GMU 4, but the severe winter of 2006 likely reduced populations in many areas.

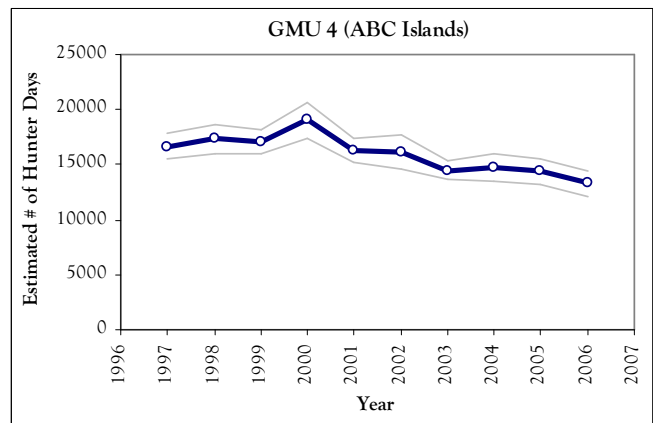
During this period no significant regulatory changes have occurred that might influence deer hunter effort or success.



Estimated number of deer harvested in GMU 4, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunters in GMU 4, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 4, 1997-2006. The lighter colored lines represent the upper and lower 95% confidence intervals.

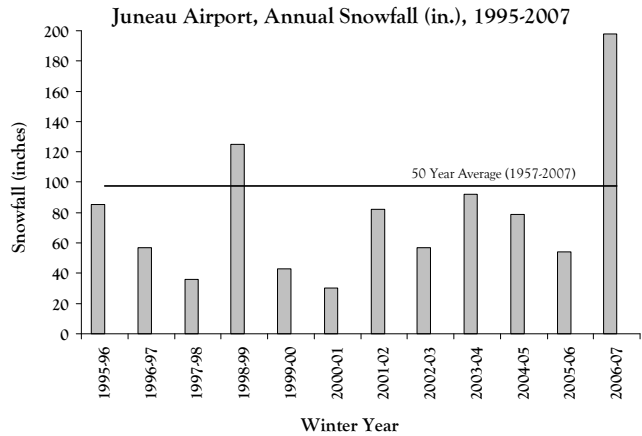
Southeast Alaska Snow Report: 1995-2007

- Snowfall data acquired from Juneau Weather Forecast Office (WFO).

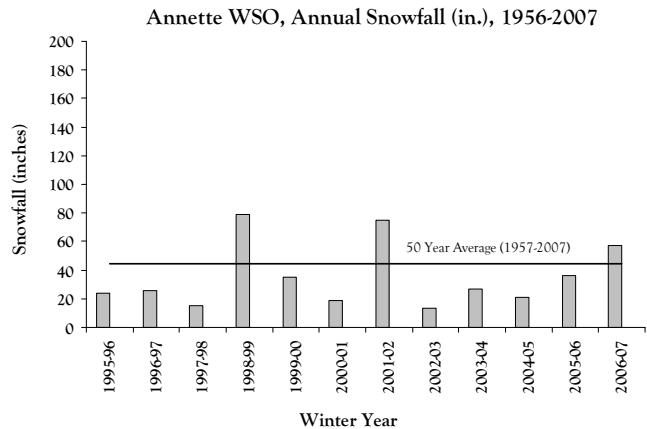
Winter severity, particularly snow depth, can play an important role in determining deer distribution, nutritional condition, productivity and survival. As a result, biologists often rely on winter severity information in order to forecast effects of winter conditions on deer population dynamics. Due to the strong maritime influence on deer range in southeast Alaska, winter snow conditions can be extremely variable both within a given winter and between years. Snow depths also vary considerably throughout the region with northern areas (e. g. Juneau) typically receiving more winter snowfall than more southerly areas (e. g. Ketchikan/Annette). Snow depth also increases significantly with elevation and by habitat type, with more open habitats accumulating more snow than forested habitats.

Between 1995-06, winter conditions in southeast Alaska were relatively mild, with only 1 out of 11 of those winters having greater than average annual snowfall in the Juneau area, and 2 out of 11 in Annette. As a result, it is unlikely that winter conditions negatively affected deer populations throughout the region during that period. However, it is important to recognize that very severe winters have occurred in southeast Alaska in the past (e. g. early-1970s & early-1980s) with severe consequences for not only deer but other wildlife populations. Snowfall recorded during the 2006-07 winter at the Juneau Airport was the highest recorded between 1956-present. In contrast, while the snowfall recorded at Annette was above average, the highest recorded snowfall in this area occurred during the 1970-71 and 1971-72 winters, with 123 and 136 inches, respectively.

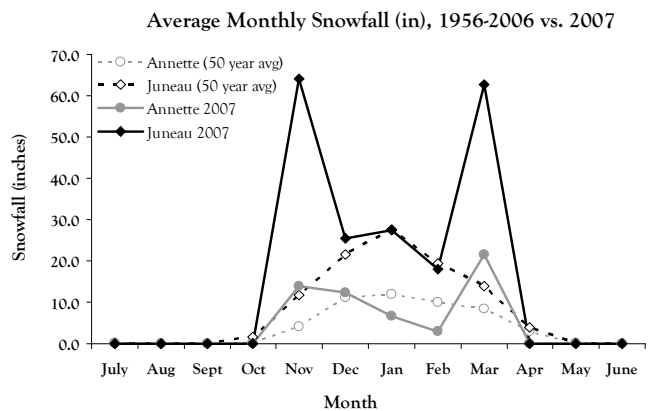
Snow conditions vary throughout the winter season with peaks occurring between November and January. Typically, this allows several days of excellent late season hunting conditions. However, when the onset of snow is shifted later or earlier in the season, hunting opportunities are affected accordingly. Snowfall came early all over the region in 2006, but was particularly high in GMU4. Heavy November snows in GMU 4 likely increased early-winter mortality by making foraging and movement difficult. Where deer moved to lower elevations, large congregations on beaches made for easier hunting opportunities. A second wave of extreme snowfall in March likely increased mortality further by over-stressing already weakened populations.



Annual winter snowfall measured at the Juneau Airport, 1995-2007. The 50-year average is depicted as a solid line. (Data: WFO, Juneau, AK)



Annual winter snowfall measured at the Annette Airport, 1995-2007. The 50-year average is depicted as a solid line. (Data: WFO, Juneau, AK)



50-year monthly snowfall averages compared to 2007 snowfall measured at the Annette and Juneau Airports, 1956-2007. (Data: WFO, Juneau, AK)

Deer Harvest Reporting: Overview of Survey Methodology and Response

Deer Harvest Reporting: 24 July 2006–31 Jan. 2007

ADF&G has historically estimated deer harvest and effort by surveying a percentage of individuals who were issued deer hunting tickets in Region 1 during the hunting season. This regional survey follows a stratified random sampling protocol, whereby approximately 35% of deer hunters in communities are sampled. A stratified random sample helps assure that the harvest characteristics of all communities, regardless of their size, are reflected in the results. ADF&G then uses an expansion factor to extrapolate the sample results and estimate total deer harvest and effort for all of Region 1. With the initial survey mailing and 1 follow-up reminder mailing, ADF&G usually receives approximately 60% response to the harvest survey. The more responses received, the more precise the estimates and the smaller their associated confidence intervals. During 2001–2004, USFS instituted their own reporting system in GMU 2 due to concern about the availability of deer for federally qualified subsistence hunters. Unfortunately, this system competed with ADF&G's survey and resulted in less reliable reporting from GMU 2. In 2005, ADF&G entered into a cooperative agreement with USFS to conduct intensive harvest reporting in GMU 2, the goal of which is to achieve a response rate closer to 100% for this area, which should result in more accurate and precise estimates of deer harvest and hunter effort.

ADFG Regional Survey (Sample): Summary by GMU of Residence

GMU Name	Overlays Issued (Deer Tickets)	Surveys Issued	Surveys Returned	Sample Rate	Overall Response Rate	Survey Response Rate
GMU 1A	892	304	129	34%	14%	42%
GMU 1C	2647	929	615	35%	23%	66%
GMU 1D	199	72	60	36%	30%	83%
GMU 2	135	51	28	38%	21%	55%
GMU 3	1497	544	381	36%	25%	70%
GMU 4	2242	779	383	35%	17%	49%
GMU 5A	141	56	35	40%	25%	63%
Outside Alaska	543	184	118	34%	22%	64%
Other Alaska	269	95	60	35%	22%	63%
Total	8565	3014	1809	35%	21%	60%

ADFG-USFS Intensive Survey of GMU 2: Summary by GMU of Residence

GMU Name	Overlays Issued (Deer Tickets)	Reports Issued	Reports Returned	Overall Response Rate
GMU 1A	761	761	582	76%
GMU 1C	14	14	13	93%
GMU 1D	3	3	1	33%
GMU 2	1232	1232	1061	86%
GMU 3	106	106	95	90%
GMU 4	10	10	5	50%
GMU 5A	2	2	2	100%
Outside Alaska	114	114	94	82%
Other Alaska	67	67	50	75%
Total	2309	2309	1903	82%
GRAND TOTAL	10874	5323	3712	49%
				34%
				70%