

# Sitka Black-tailed Deer Harvest Report

## Southeast Alaska, 2007

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## Deer Harvest Report: Overview

This report provides a summary of the harvest of Sitka black-tailed deer for the July 24<sup>th</sup>, 2007-January 31<sup>st</sup>, 2008 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 2,614 hunters at the end of the hunting season (approximately 36% 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 61% 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 2,491 individuals who indicated plans to hunt in GMU 2. With the initial report, three follow-up reminders, and phone calls, 84% 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 foraging on the beach in Nakwasina Sound, late March, 2008. Photo by Phil Mooney, GMU 4 Management Biologist.

# Deer Harvest Report: Regional Summary

Deer harvest patterns and hunter effort varies across the region, largely in relation to deer densities and accessibility. Generally more deer have been harvested and fewer days have been required to harvest a deer in GMU4 than in other parts of the Region. This may be in part related to 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. But believed to be of greater consequence are the higher deer densities in this area, which are likely 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 for most of the decade preceding 2006-2007. However, 2007 survey results indicate a disruption to typical harvest patterns in the northern half of the region.

Overall, deer harvest was lower in 2007 than 2006, with the exception of GMU 2. However, while there is a large % decrease in harvest in GMUs 1A and 1B between 2006 and 2007, this is a reflection of the

GMU	2005	2006	2007	% Change	
				2005-06	2006-07
1A	269	517	260	92%	-50%
1B	58	114	43	98%	-62%
1C	506	629	156	24%	-75%
2	2800	3110	3077	11%	-1%
3	718	682	499	-5%	-27%
4	6997	7746	1858	11%	-76%
5A	27	16	13	-40%	-21%

unusually high harvest of 2006. The actual number of deer harvested in 1A and 1B during the 2007 season is comparable to pre-

2006 levels. In contrast, the harvest in GMUs 1C, 3 and 4 was the lowest in over a decade. This is due in part to fewer hunters and lower effort (see pgs. 5, 7, 8), but is also likely related to decreased deer populations in some areas. Of note: fewer deer were harvested in GMU 4 than GMU 2 for the 1st time.

Deer harvest by GMU correlates strongly with hunter effort (Fig. 1). Generally, there is a consistent relationship between hunter effort and

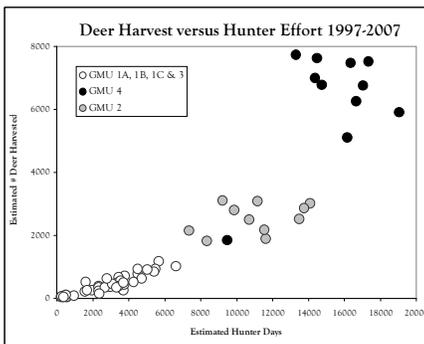


Fig. 1: Relationship between average deer harvest and hunter days in southeast Alaska between 1997-2007.

success, but in GMU 4 fewer days are usually required/deer harvested. In 2007, however, the pattern of deer harvested/hunter days was more similar to GMU2 (Fig 1). More deer were harvested/hunter in areas where fewer days were needed to harvest a deer (Fig. 2 and 3). Of note: Far more days were needed to harvest deer and far fewer deer/hunter were harvested in GMU 1C and GMU4 than previously recorded (Fig. 2 and Fig. 3). In contrast, GMU 2 had the fewest days to harvest a deer and highest number of deer harvested/hunter. GMU 2 hunters spend more days in the field (Fig. 4), likely due to the availability of an extensive road network.

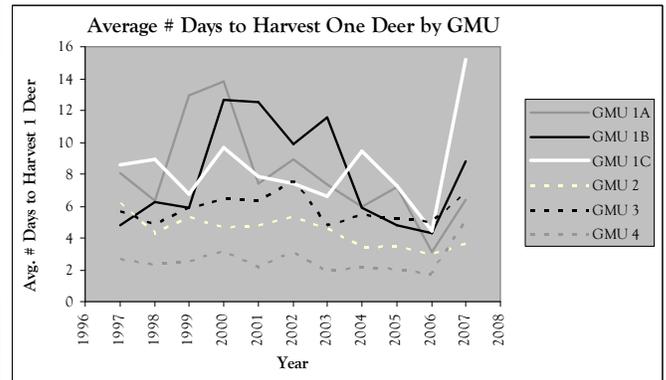


Fig. 2: Average number of days hunted per deer harvested in each GMU, 1997-2007. The number of days required to harvest a deer in 2007 was the highest on record for GMUs 4 and 1C, and higher than 2006 for the rest of the GMUs.

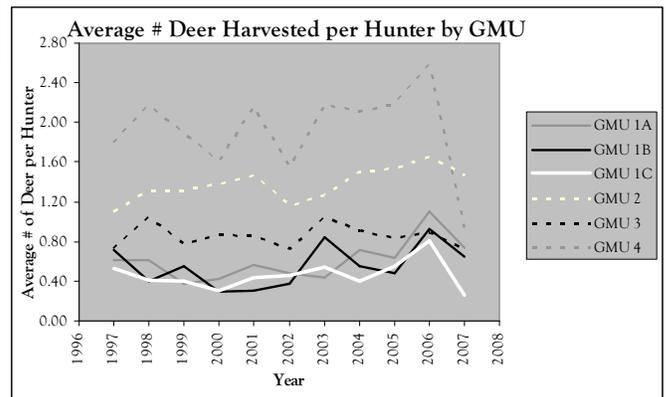


Fig. 3: Estimated average number of deer harvested per hunter by GMU, 1997-2007. Fewer deer were harvested per hunter in 2007 than 2006 for all GMUs, but in GMUs 4 and 1C, this was the lowest number of deer per hunter in over a decade.

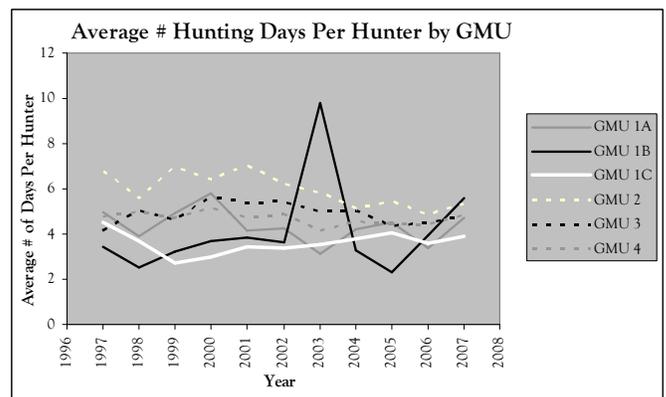
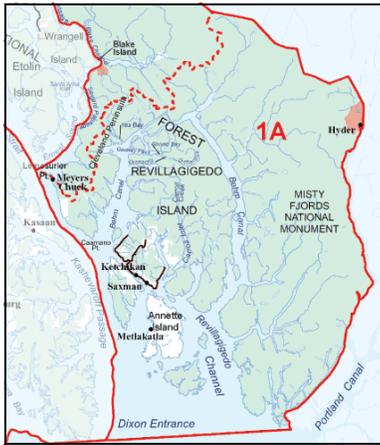


Fig. 4: Estimated average days hunted per hunter, 1997-2007. The number of hunting days per hunter in 2007 was similar to previous years in most GMUs, with the exception of GMU 1B, which displayed a higher effort.

# 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.

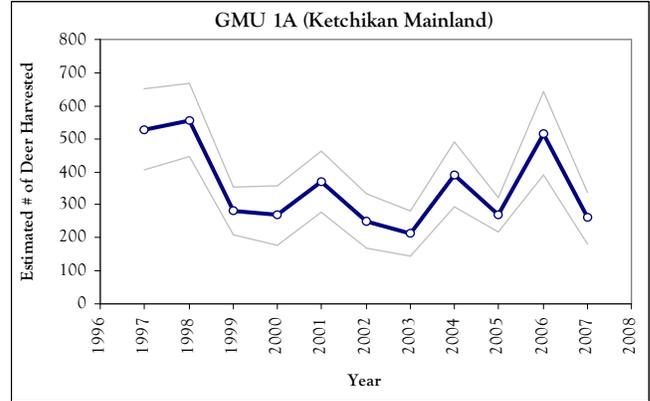


Over the last 11 years deer harvest has ranged from 211 to 556, while the number of hunters in the sub-unit has varied from 354 to 908. The deer harvest in 2007 (260±79 deer) was down substantially from 2006 (517±128 deer), but

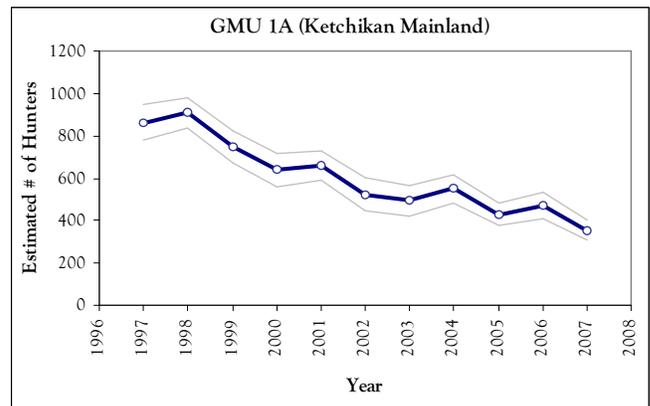
similar to 2005 (268±52 deer). It is remarkable that while the number of hunters and hunter effort has declined by approximately a half in one decade, deer harvest trends appear fairly stable (though variable among years). The cause of the decline in hunters and effort is unclear, since the number of days needed to harvest a deer in GMU 1A (Fig. 2, p. 2) has generally decreased.

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. Annual variability in weather patterns and snowfall can have marked effects on deer distribution, population density and hunter accessibility in this GMU. Predators, namely black bears and wolves, can also impact deer populations by causing mortality of both fawns and 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.

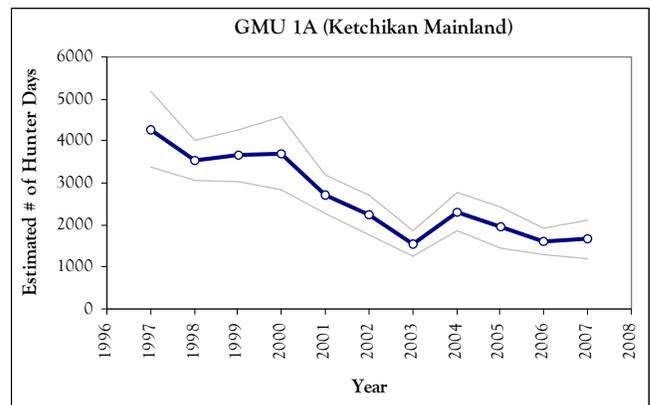
During this period no significant regulatory changes have occurred that might influence deer hunter effort or success. Likewise, it is unlikely that factors related to deer harvest survey reporting have differed during the period of study.



Estimated number of deer harvested in GMU 1A, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



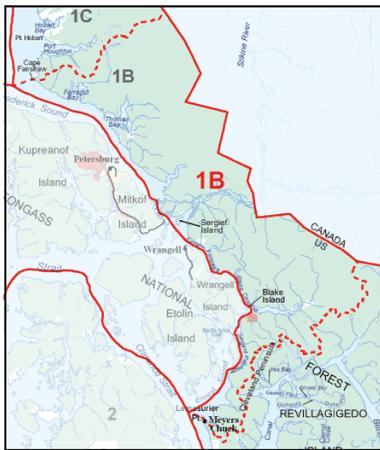
Estimated number of hunters in GMU 1A, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of deer harvested in GMU 1A, 1997-2007. 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.

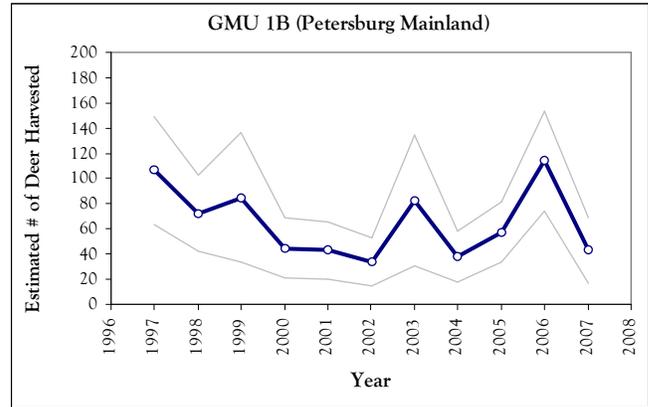


Over the last 11 years deer harvest has ranged from 34 to 114, while the number of hunters in the sub-unit has varied from 67 to 182. The deer harvest in 2007(43±26deer) was substantially lower than 2006(114±40 deer), but was comparable to 2005 (58±23 deer). Deer harvest and the number

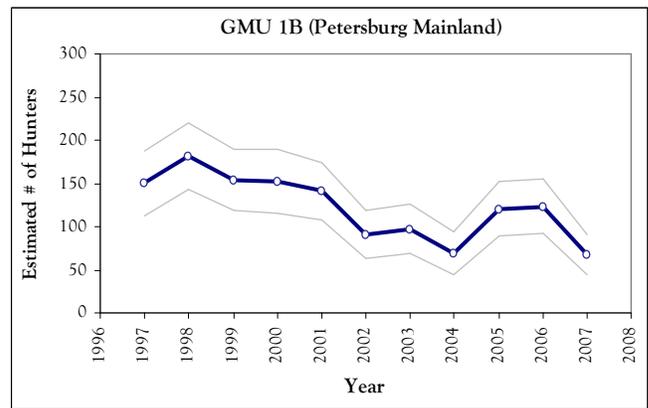
of hunters appears to have declined slightly during 1997-2004 while hunter effort remained largely stable (despite a highly variable estimate in 2003). While deer harvest increased in 2006 as a result of increased numbers of hunters and/or hunter effort, harvest in 2007 was back down again to pre-2005 levels. The hard winter of 2006 contributed to the 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. Aside from Petersburg and Wrangell, no large population centers are near this area. Much of the hunting effort 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 of deer (see Fig. 2 and 3, p. 2) in this area, as compared to other places in southeast Alaska.

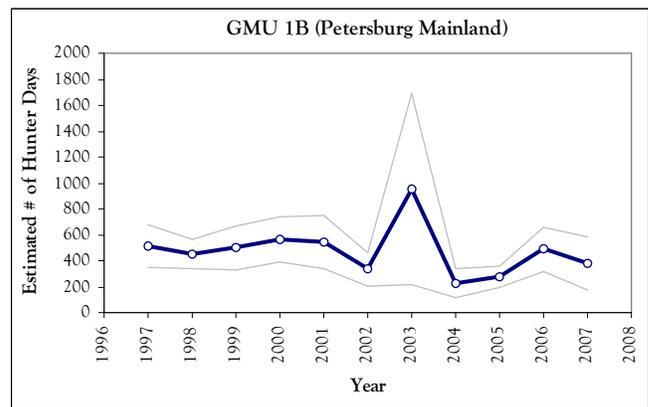
During this period no significant regulatory changes have occurred that might influence deer hunter effort or success. Likewise, it is unlikely that factors related to deer harvest survey reporting have differed during the period of study.



Estimated number of deer harvested in GMU 1A, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



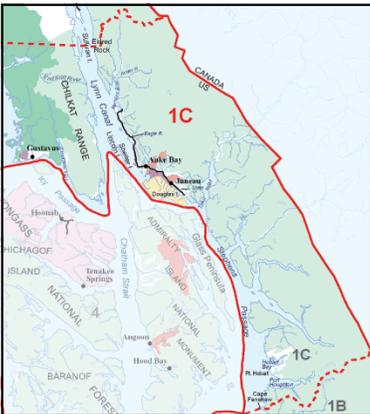
Estimated number of hunters in GMU 1B, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 1B, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.

# GMU 1C (Juneau Area)

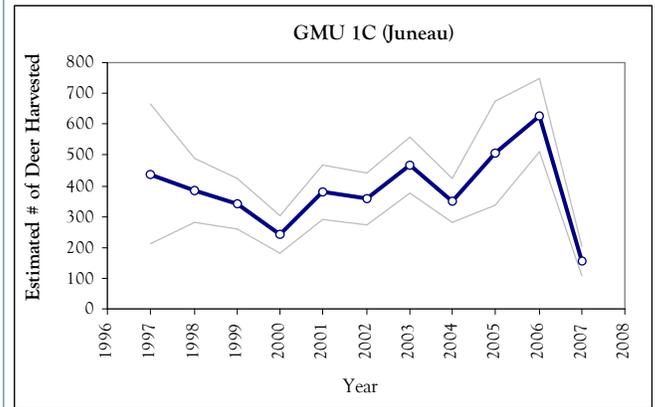
GMU 1C includes Douglas Island, adjacent smaller islands, the Juneau mainland from Cape Fanshaw to Eldred Rock, the Chilkat Peninsula and areas around Glacier Bay National Park. Most is federal land managed by the US Forest Service and National Park Service. A large portion of the central part of the subunit is accessible from the Juneau (pop. ~ 31,000) road system. The remainder of the unit can only be accessed by boat or plane. Logging and associated road access is limited. The majority of hunter effort and deer harvest are on Douglas Island which is connected to the Juneau road system. Anecdotally, some effort is shifting from 1C islands to mainland areas accessed via the road system. In addition to collecting hunter effort and harvest information from mainland hunters, ADF&G is considering establishing deer pellet transects along the mainland to collect baseline pellet density trend data.



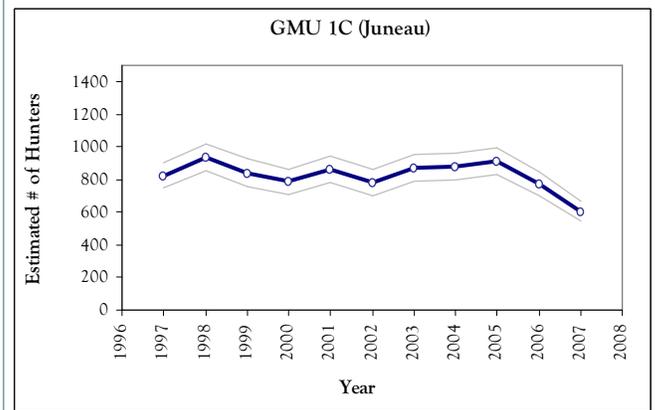
Over the last 11 years deer harvest has ranged from 156 to 629, while the number of hunters has varied from 607 to 935. The harvest in 2007 (156±46 deer) was down significantly from 2006 (629±117 deer) and was the lowest recorded in a decade. Hunter effort associated with the Juneau road system is fairly high and hunter effort is usually correlated with harvest. However, more days were required to harvest a deer and fewer deer were harvested/hunter in GMU 1C than anytime in the last decade (Fig. 2 and 3, p. 2).

While the 2007 decrease in harvest is partially due to lower numbers of hunters and reduced hunting effort, 2006 winter severity in this area also played a role by decreasing populations to some extent in areas. Reduced populations of deer in certain areas likely made harvest more difficult. Hunter success is likely linked to weather patterns and snow accumulation more than predation (which is limited). In particular, rainy periods or late-onset of snowy conditions influences the number of excursions afield. Snow aids hunters by increasing their ability to track animals as well as by causing deer distribution to shift to low elevations. Consequently, the variability observed in hunter success is related to yearly variability in weather and associated hunting conditions. Early season snowfall was lower than average in the Juneau area in 2007 (see snow report, p. 9), which likely made deer harvest more of a challenge.

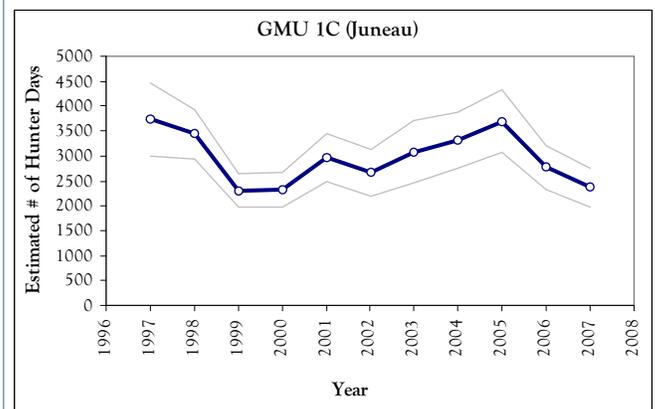
During this period no significant regulatory changes have occurred that might influence deer hunter effort or success. Likewise, it is unlikely that factors related to deer harvest survey reporting have differed during the period of study.



Estimated number of deer harvested in GMU 1C, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunters in GMU 1C, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 1C, 1997-2007. 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.

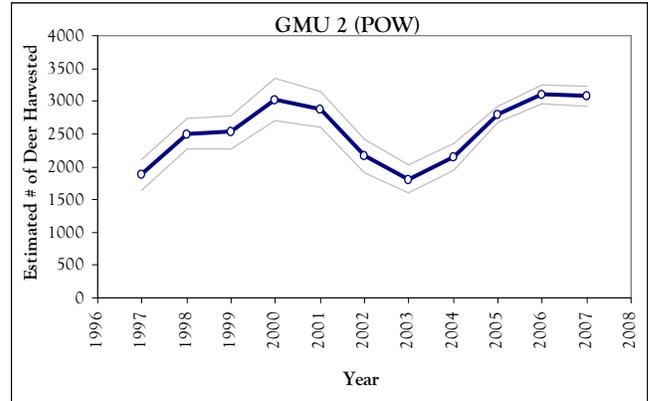


Most deer harvest in GMU 2 is by hunters that reside either on Prince of Wales island or in the nearby community of Ketchikan.

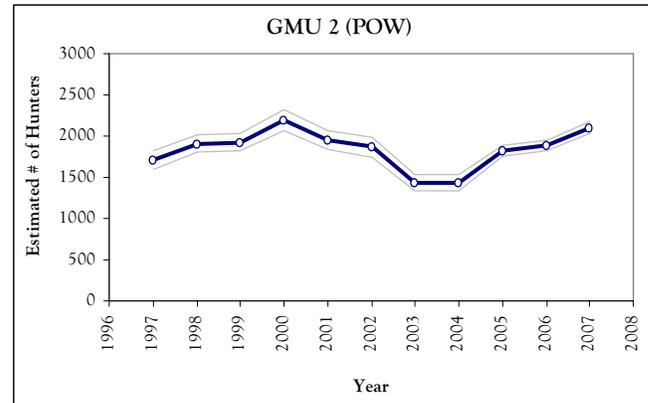
Over the last 11 years deer harvest has ranged from 1,817 to 3,110, while the number of hunters in the unit has varied from 1,433 to 2,192. Deer harvest in

2007 (3,077±161 deer) was similar to 2006 (3,110±142 deer), while the number of hunters and effort increased. Deer harvest and hunter effort in GMU 2 generally increased 1997-2000 and subsequently declined between 2001-2004, only to rise again between 2005 and 2007. Years with higher than average early winter snowfall during 2006 may have aided harvest efforts.

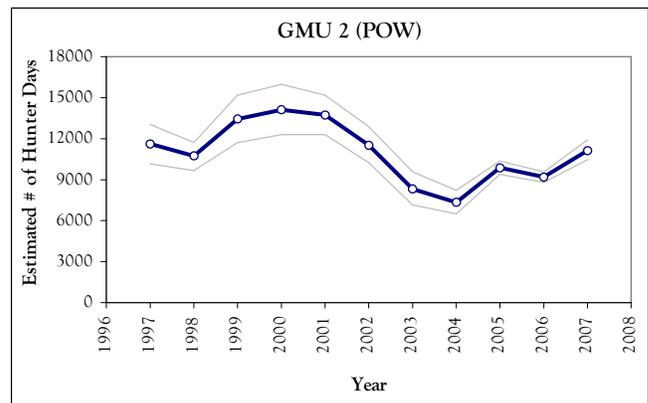
In GMU 2, deer harvest and hunter effort are confounded by changes to harvest survey methods employed in GMU 2, and therefore the trends reflected should be interpreted with caution. The apparent decline in deer harvest and hunter effort between 2001-2004 is potentially linked to regulatory changes that altered how GMU 2 resident hunters reported their harvest. Specifically, because USFS has a separate permit and reporting system for does during 2001-2004, some local hunters were confused how and to whom to report their harvest. Consequently, many hunters were not sampled by ADF&G and, as a result, their hunting experiences and harvest were not incorporated. In 2005-2006, ADF&G and USFS combined resources to intensively capture hunter harvest in GMU 2 (see p. 10). This situation is a special case and only relevant to GMU 2.



Estimated number of deer harvested in GMU 2, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



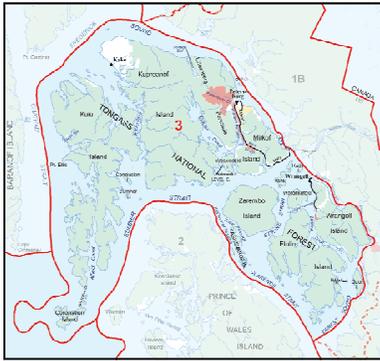
Estimated number of hunters in GMU 2, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 2, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.

# GMU 3 (Central Southeast Alaska Islands)

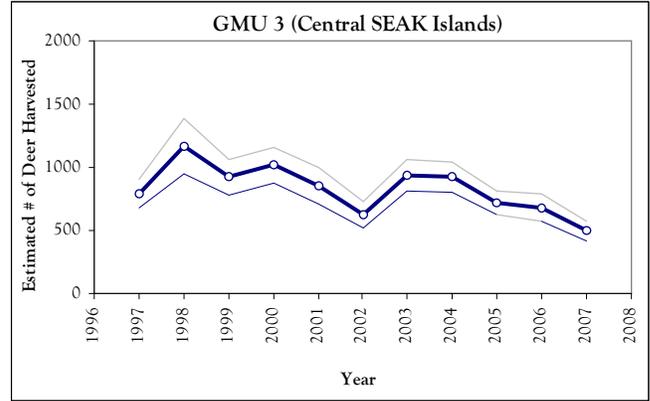
GMU 3 includes Mitkof, Wrangell, Zarembo, Etohin, Kupreanof, Kuiu and adjacent smaller islands in central southeast Alaska. Most of the area is federal land managed by the US Forest Service. This area has seen a significant amount of logging activity over the years. Initial access to most areas is by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



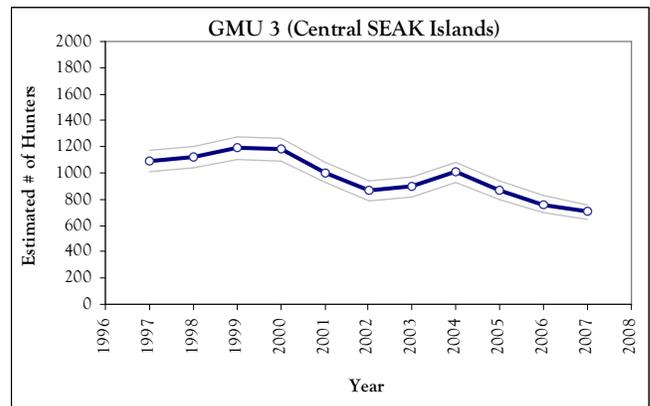
Kake are located within this sub-unit and some hunters use local road systems to access hunting areas.

Over the last 11 years deer harvest has ranged from 499 to 1,167, while the number of hunters in the sub-unit has varied from 702 to 1,189. The deer harvest in 2007 (499±77 deer) was slightly lower than 2006 (682±111 deer). Overall, deer harvest declined over the 11 year period. This is the only area in Southeast Alaska where deer harvest was actually lower in the severe winter of 2006. The number of deer hunters was stable between 1997-2000, declined between 2000-2002, slightly increased between 2002-2004, and declined again in 2005-2007. There was a general increase in hunter days between 1997-2000, but the subsequent downward trend indicates that hunter effort is decreasing. Decreased harvest is likely due primarily to the decrease in hunters and effort.

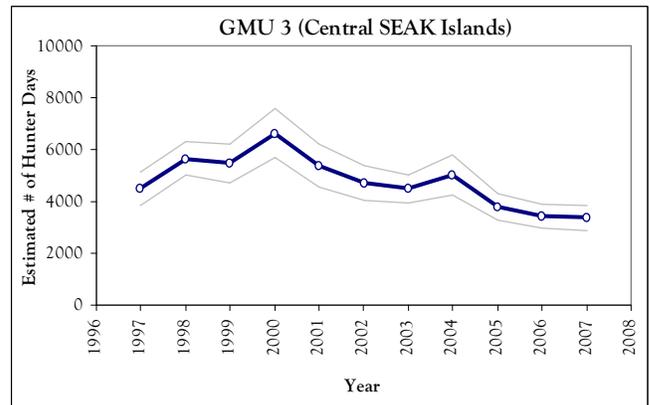
Trends in harvest and effort in this unit have been affected by regulatory changes that liberalized deer hunting on the Lindenbergh Peninsula beginning in 2003. This resulted in an increased harvest in a fairly large but localized part of the GMU. Consequently, an overall increase in deer harvest for 2003 and 2004 occurred, even though hunter effort did not change significantly. Bag limits in GMU 3, and on Mitkof Island in particular, are among the most restrictive in the region.



Estimated number of deer harvested in GMU 3, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



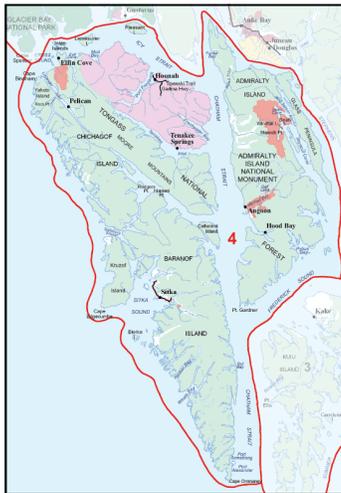
Estimated number of hunters in GMU 3, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 3, 1997-2007. 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



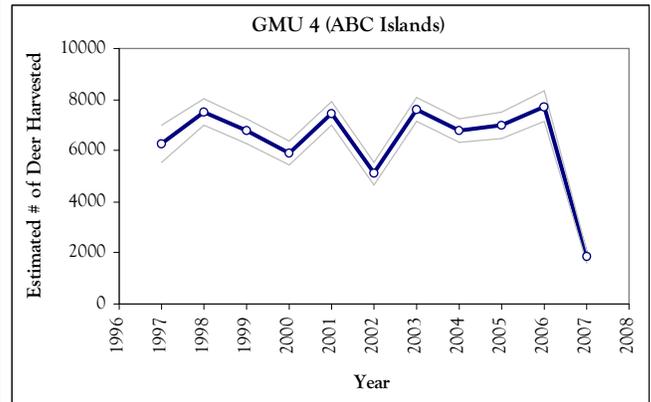
(pop. ~ 8,000) is the largest city within the GMU, though Juneau is near eastern Admiralty Island.

Over the last 11 years deer harvest has ranged from 1,858 to 7,746, while the number of hunters in the sub-unit has varied from 1,977 to 3,666. Deer harvest in 2007 (1,858±236 deer) was down significantly from 2006 (7,746±594 deer) and is by far the lowest recorded harvest for GMU 4 in over a decade.

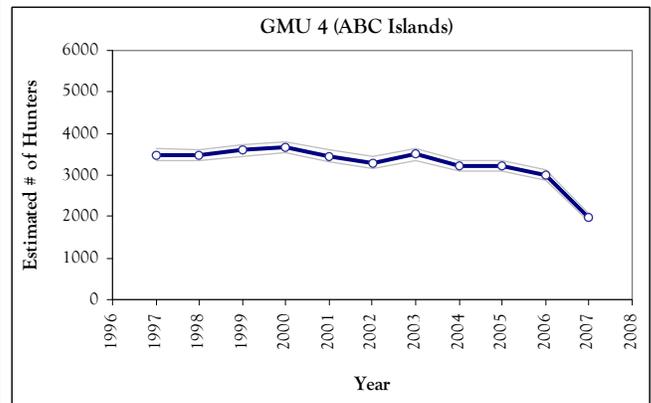
Prior to 2007, deer harvest was mostly stable in GMU 4, with harvest peaks generally occurring in heavier snow years. This was not the case in 2007.

Harvest in GMU 4 has been high relative to other areas, likely due to high deer densities resulting from the absence of wolves and black bears in combination with below-average snowfall during the last decade. Winter severity is the primary factor regulating deer populations in GMU 4. While heavy early-season snowfall in 2006 made harvest easier by concentrating deer, natural mortality associated with the winter severity reduced deer populations in many areas, likely making 2007 harvest more difficult. However, there was also a marked decline in the number of hunters and hunting effort in 2007. Anecdotal information indicates this could be due to some individuals opting not to hunt so that deer populations could recover more quickly. Alternatively, it may also be due to extremely high gas prices during this period combined with a low expectation of success.

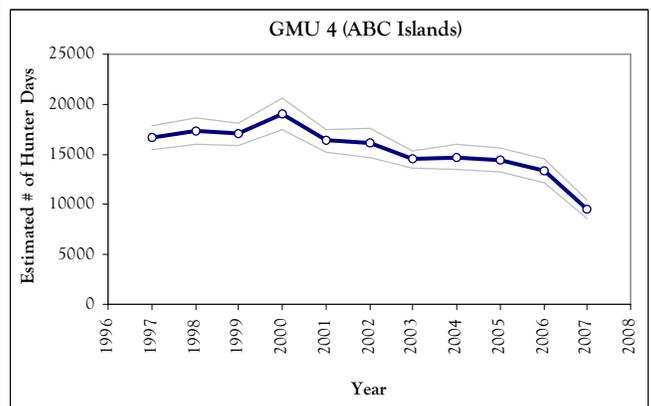
During this period no significant regulatory changes have occurred that might influence deer hunter effort or success. Likewise, it is unlikely that factors related to deer harvest survey reporting have differed during the period of study.



Estimated number of deer harvested in GMU 4, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunters in GMU 4, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.



Estimated number of hunter days in GMU 4, 1997-2007. The lighter colored lines represent the upper and lower 95% confidence intervals.

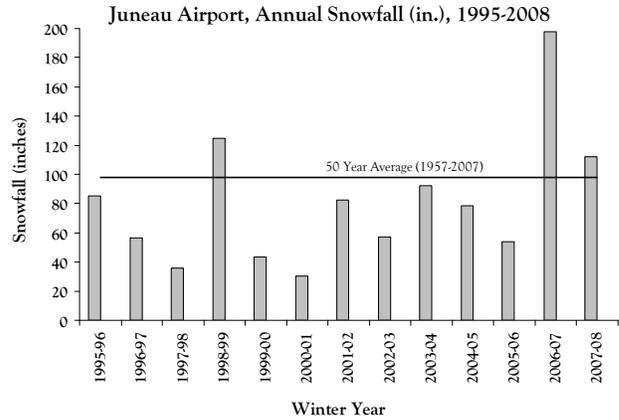
# Southeast Alaska Snow Report: 1995-2008

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

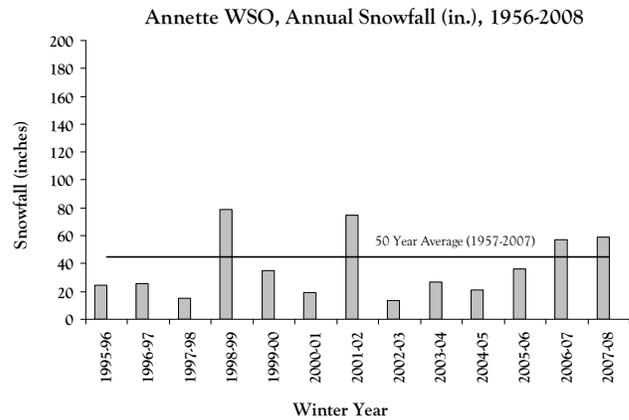
Winter severity, particularly snow depth, can play an important role in determining deer distribution, nutritional condition, productivity and survival. As a result, biologists often rely on winter severity information in order to forecast effects of winter conditions on deer population dynamics. Due 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 1995-2006, 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 2006-2007 winter at the Juneau Airport was the highest recorded between 1956-present. While the 2007-2008 winter in northern Southeast Alaska was above average, it was not as severe as the prior year. In contrast, while the snowfall recorded at Annette was above average for both the 2006-2007 and 2007-2008 winters, the highest recorded snowfall in this area occurred during the 1970-1971 and 1971-1972 winters, with 123 and 136 inches, respectively. Notable is that even high snow years in southern Southeast Alaska are generally below average in comparison to snowfall in northern Southeast Alaska.

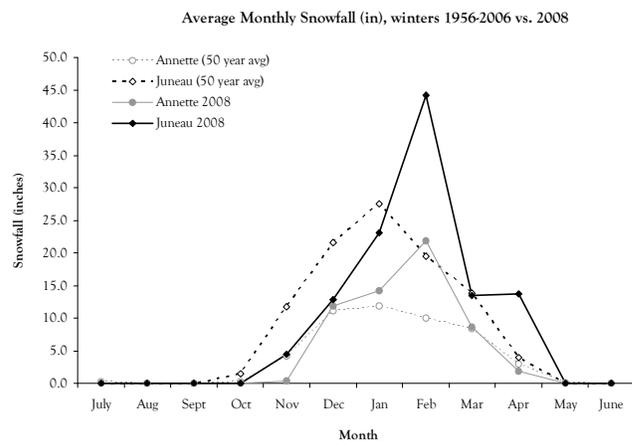
Snow conditions vary throughout the winter with peaks usually occurring between November and January. Typically, this allows several days of excellent late season hunting conditions. However, when the onset of snow is shifted later or earlier, hunting opportunities are affected accordingly. Heavy snowfall did not occur until late in 2007, and early season snowfall was at or below average. The lower early-season snowfall likely made hunting opportunities more challenging. While snowfall was above average over-all, deer likely fared better than during the 2006-2007 winter.



Annual winter snowfall measured at the Juneau Airport, 1995-2008. The 50-year average is depicted as a solid line (Data: WFO, Juneau, AK).



Annual winter snowfall measured at the Annette Airport, 1995-2008. The 50-year average is depicted as a solid line (Data: WFO, Juneau, AK).



Annual winter snowfall measured at the Annette Airport, 1995-2008. The 50-year average is depicted as a solid line (Data: WFO, Juneau, AK).

# Deer Harvest Reporting: Overview of Survey Methodology and Response

## Deer Harvest Reporting: 24 July 2007–31 Jan. 2008

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 one 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 initiated a doe harvest for federally qualified hunters with a separate permit and reporting system for only the doe harvest. Unfortunately, this created a dual reporting system, which created confusion for hunters as to what harvest should be reported to which agency. As a result, some GMU 2 harvest information may not have been captured. In 2005, ADF&G entered into a cooperative agreement with USFS to conduct mandatory harvest reporting in GMU 2, with the goal of receiving a response from every hunter that hunted within the Unit. This should result in more accurate and precise estimates of deer harvest and hunter effort.

### ADF&G Regional Survey (Sample): Summary by GMU of Residence

GMU Name	Deer Tickets Issued	Surveys Issued	Surveys Returned	Sample Rate	Overall Response Rate	Survey Response Rate
GMU 1A	844	327	149	39%		46%
GMU 1C	2091	756	505	36%		67%
GMU 1D	145	57	45	39%		79%
GMU 2	76	31	19	41%		61%
GMU 3	1372	491	339	36%		69%
GMU 4	1963	664	373	34%		56%
GMU 5A	110	41	26	37%		63%
Outside Alaska	475	164	102	35%		62%
Other Alaska	266	83	48	31%		58%
<b>Total</b>	<b>7342</b>	<b>2614</b>	<b>1606</b>	<b>36%</b>		<b>61%</b>

### ADF&G-USFS Mandatory Harvest Reporting Effort for GMU 2: Summary by GMU of Residence

GMU Name	Deer Tickets Issued	Reports Issued	Reports Returned	Overall Response Rate
GMU 1A	783	783	638	81%
GMU 1C	31	31	26	84%
GMU 1D	5	5	3	60%
GMU 2	1245	1245	1066	86%
GMU 3	155	155	148	95%
GMU 4	20	20	16	80%
GMU 5A	1	1	1	100%
Outside Alaska	165	165	134	81%
Other Alaska	86	86	65	76%
<b>Total</b>	<b>2491</b>	<b>2491</b>	<b>2097</b>	<b>84%</b>