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# CHAPTER 1: BROWN BEAR MANAGEMENT REPORT

From: 1 July 2012
To: 30 June 2014

## LOCATION

**GAME MANAGEMENT UNIT:** 1 (18,500 $mi^2$)

**GEOGRAPHIC DESCRIPTION:** The Southeast Alaska mainland from Dixon Entrance to Cape Fairweather, and those islands east of Clarence Strait from Dixon Entrance to Caamano Point, and all islands in Stephens Passage and Lynn Canal north of Taku Inlet.

## BACKGROUND

Southeast Alaska brown bears primarily inhabit the islands north of Frederick Sound including Admiralty, Baranof and Chichagof islands (ABC islands) and the coastal mainland, although they do exist in low densities on other islands separated from the mainland by relatively short water crossings. Examples include Wrangell, Etolin, Deer and Mitkof islands in Game Management Unit (GMU) 3 and Revillagigedo Island in GMU 1A. Brown bears are absent from GMU 2 and most of GMU 3. GMU 1 is divided into subunits (1A, 1B, 1C, and 1D) and encompasses the coastal mainland west of the Canadian border from Garnet Point, Kanagunut Island north to Cape Fairweather.

Most brown bear habitat in Unit 1 is managed by the U.S. Forest Service (USFS), Tongass National Forest (Tongass) and is managed under a multiple use concept. The Misty Fjords National Monument within the Tongass on the southern portion of Unit 1 mainland contains large tracts of quality brown bear habitat. The remaining brown bear habitat is on tidelands and uplands primarily in Unit 1D managed by the state, municipal lands, and lands managed by Alaska Native corporations.

Although brown bear hunting is popular in the region, Southeast Alaska does not produce brown bears as large as those found on Kodiak Island or the Alaska Peninsula that qualify for the Boone and Crockett record books (minimum skull size of 28 inches). Although the ABC Islands (GMU 4) produce 70-80% of the region-wide harvest (Mooney 2011), brown bear hunting and viewing are important to both residents of and visitors to Unit 1.

Although the department has conducted extensive brown bear research on Admiralty and Chichagof Islands in Unit 4 (Schoen and Beier 1989; Titus and Beier 1993), only recently has brown bear research been undertaken in Unit 1. Most of the information we use to assess and manage mainland brown bear populations comes from mandatory sealing data, registration permit hunt reports, observations by staff, and anecdotal information from the public.

Prior to 1989 hunters were only required to obtain a license and a metal-locking tag prior to hunting brown bears. Since 1989 hunters have also been required to obtain a registration permit prior to hunting brown bears in Unit 1 (McCarthy 1991; Larsen 1993). Nonresident brown bear hunters must employ the services of a registered big game guide or be accompanied in the field by an Alaskan resident within the second degree of kindred. Except for Berners Bay in Subunit 1C where the bag limit is 1 bear each regulatory year, brown bear hunters elsewhere in Unit 1 have a bag limit of 1 bear every 4 regulatory years.

## MANAGEMENT DIRECTION

### MANAGEMENT OBJECTIVES

- Maintain an average age of harvested males of no less than 6.5 years, and a male to female harvest ratio of at least 3:2.

- Maintain a spring harvest of at least 60% males.

- Reduce the number of bears killed because of garbage and human food conditioning.

## METHODS

Hunters must obtain one of several registration permits prior to hunting brown bears in Unit 1. Hunts in Subunits 1A, 1B, and 1C are managed under registration permits, RB062 (fall) and RB072 (spring). Hunts in Subunit 1D are also managed under separate registration permits for fall (RB050) and spring (RB051) hunting seasons. Prior to RY03, brown bear hunting in Units 1A, 1B, 1C and 1D were managed together under the same registration hunts (RB062 and RB072). Starting in RY03, due to increasing harvests, Unit 1D management was separated from the rest of Unit 1. Nonresident hunters were managed under draw permits DB052 (fall) and DB053 (spring) in Unit 1D. The draw hunt was discontinued for RY05, but the separate registration hunts RB050 (fall) and RB051 (spring) for Unit 1D continues (Porter 2005).

Registration permits include a mandatory hunt report card from which we obtain information about hunting effort, dates afield, method of transport, commercial services used, and location of hunt and kill. All permittees are required to submit a hunt report within 10 days after taking a bear. Unsuccessful permittees or those who did not hunt are required to submit a hunt report following the close of the season.

Successful hunters are required to submit bear skulls and hides for sealing within 30 days of the kill. Staff from the departments of Fish and Game and Public Safety sealed hides and skulls of brown bears. Biological and hunt information collected included, sex, skull size (length and width), date and location of kill, number of days hunted, transportation method, and hunter use of commercial services, including guide use. A premolar was collected from most bears and sent to Matson's Laboratory (Milltown, Montana) for age determination. We also sealed any bear killed under defense of life or property provisions (DLP) or any that died as road kill, illegal kill, or during research efforts. Comparison of current and historical data indicates harvest trends and may offer indirect evidence of population trends. All data collected is tallied by regulatory year for management purposes. Regulatory years run from 1 July through 30 June; e.g. RY12 = 1 July 2012–30 June 2013.

# RESULTS AND DISCUSSION

## POPULATION STATUS AND TREND

Quantitative brown bear population data are not available for most of Unit 1. Exceptions to this include portions of Bradfield Canal in Unit 1B, the Unuk River in Unit 1A, and Berners Bay in Unit 1C where research has been conducted to determine brown bear densities. Using DNA mark-recapture techniques, research staff estimated the Bradfield Canal brown bear population at approximately 48 bears (95% CI 45–58) in 2006. Given a sampled area of 1,094 $km^2$, the density of brown bears in the Bradfield Canal area during late summer was about 44 bears/1,000 $km^2$ with a 95% CI 41–53 bears/1,000 $km^2$ (Flynn et al. 2006). The Unuk River brown bear population was estimated to be approximately 45 bears (95% CI 30–60) in 2007. Given a sampled area of 877 $km^2$, the density of brown bears in the Unuk River area during late summer was about 51 bears/1,000 $km^2$ with a 95% CI 34–68 bears/1,000 $km^2$ (Flynn et al. 2010). In Berners Bay the population was estimated to be approximately 44.3 bears in 2006, 66.7 bears in 2007, and 60.4 bears in 2008 (Flynn et al. 2012). This resulted in a density estimate within an intensive study area of 33.5/1,000 $km^2$ (95% CI = 29.1–38.5 in 2006, 50.3/1000 $km^2$ (95% CI = 45.7–55.4) in 2007, and 45.5/1000 $km^2$ (95% CI = 41.3–50.3) in 2007. Based on anecdotal reports from hunters and guides, observations by department staff, and sealing records, we believe the brown bear population is relatively stable across Unit 1. However, brown bear observations have increased from the Taku River south to Endicott Arm in Unit 1C.

## MORTALITY

*Harvest*

| Season and Bag Limit | Resident and Nonresident Hunters |
|---|---|
| 1 bear every 4 regulatory years, except for Berners Bay drainages where it is 1 bear every regulatory year by registration permit only | 15 September–31 December<br>15 March–31 May |

Board of Game Actions and Emergency Orders. Beginning in RY13 the Board of Game increased the resident and nonresident bag limit for the Berners Bay drainages to 1 bear every regulatory year. No emergency orders were issued during this report period.

Hunter Harvest. A total of 51 brown bears was harvested by hunters throughout Unit 1 in this report period (Tables 1 and 2). During the report period approximately 33% of the unit's brown bear harvest occurred in Unit 1D (Haines area), 27% in Unit 1A (Ketchikan area), 22% in Unit 1C (Juneau area), and 18% in Unit 1B (Petersburg area). The percentage of Unit 1A, 1B, and 1C harvest was within a few percentage points of the previous 10-year average (RY02–RY11), but the Unit 1D harvest was nearly10% lower (Table 1) than the previous average.

Subunit 1D typically accounts for the highest proportion of the Unit 1 brown bear harvest, however in RY12, for the first time, subunit 1A provided the highest proportion of the unit-wide harvest with 35%, followed by subunit 1D (31%), 1C (23%) and 1B (12%) During RY13 Subunit 1D provided the highest proportion of the unit-wide harvest with 36%, followed by subunits 1B (24%), 1A (20%), and 1C (20%). The previous 10-year (RY02–RY11) mean harvest

percentages for subunits 1A, 1B, 1C, and 1D were 26%, 15%, 17%, and 42%, respectively (Table 1).

The Unit 1A harvest of 9 bears in RY12 and 5 bears in RY13 were above and below, respectively, the subunit's previous 10-year (RY02–RY11) mean annual harvest of 8.2 bears. The Unit 1B harvest of 3 bears in RY12 and 6 bears in RY13 was below and above, respectively, the subunit's previous 10-year (RY02–RY11) mean annual harvest of 4.7 bears. Brown bears are believed to occur throughout Unit 1B, however population densities vary greatly across the subunit. The overwhelming majority of the subunit's brown bear harvest is concentrated in and around the Bradfield Canal area. Harvest records indicate that since 1960 just 2 brown bears have been harvested on the Unit 1B mainland north of the Le Conte Bay drainage.

Guided nonresident hunters account for most of the brown bears harvested in Unit 1B. For the 20 year period RY93 to RY13 Alaska residents accounted for 0–4 bears annually. During the current report period 3 bears were taken by residents. Anecdotal evidence and unconfirmed reports suggest that at least some brown bears are being harvested illegally in the subunit by people who believe that reducing brown and black bear numbers will benefit moose and deer populations. Although the extent of the illegal harvest is unknown, it is believed to be most prevalent within the Stikine River drainage, where moose hunting is extremely popular with local hunters. Two proposals asking for additional brown bear opportunity in nearby Unit 3 failed at the 2015 BOG meeting. That those proposals were offered by local residents is indicative of many local residents' intolerance for brown bears.

The Unit 1C harvest of 6 bears in RY12 and 5 bears in RY13 were nearly identical to the previous 10-year (RY02–RY11) mean annual harvest of 5.3 bears. One bear was taken from the Juneau road system during the report period, the first since RY04–RY05 when 4 bears were taken in the area. Traditional brown bear harvest areas in Unit 1C include St. James Bay, Berners Bay, Taku River, Port Houghton, Port Snettisham and Excursion Inlet. Although Unit 1C provides some opportunity to hunt and harvest brown bears, most hunters choose to travel to nearby Unit 4, where the brown bear densities are higher.

The Unit 1D harvests of 8 bears in RY12 and 9 bears in RY13 were about 36% lower than the previous 10-year (RY02–RY11) mean annual harvest of 13.2 bears. Unit 1D has a Guideline Harvest Level (GHL) of 16 brown bears annually, a harvest level that has been met or exceeded several times during the past decade.

The combined Subunit 1D harvest of 17 bears during the current report period is about 46% lower than the previous 2 reporting periods. Female brown bears comprised 44% and 52% of the bears harvested in Unit 1D in RY10 and RY11, respectively, and female mortality exceeded the management objective of $\leq$40% of the total mortality. During the current report period the percentage of females in the harvest fell to within management objectives in RY12 at 25%, but rose again to 44% in RY13. Subunit 1D managers will continue to monitor female mortality to ensure future sustainability.

During this reporting period the spring harvest accounted for 59% of the bears taken (Table 3). Over the previous 10 years (RY02–RY11), the spring season has produced more bears (67%) than the fall season (Table 3). The percentage of female bears in the harvest is typically much

higher in the fall than spring. The lower rate of females harvested in the spring is likely due to the presence of female bears closely accompanied by cubs, the harvest of which are illegal. Some of these same bears will separate from their cubs during the summer months, and so will be alone by the fall season and available for harvest.

The mean male skull size of harvested bears across Unit 1 during RY12 ($\bar{x}$ = 21.8, n= 18) was the lowest recorded over the previous 10 years (RY02–RY11) but RY13 was the second highest ($\bar{x}$ = 23.2, n= 12). The combined average for this reporting period ($\bar{x}$ = 22.4, n= 30) is nearly identical to the previous 10-year mean ($\bar{x}$ = 22.5). The average female skull size during this reporting period ($\bar{x}$ = 20.8, n= 21) is similar to the previous ten year average of 20.5 inches (Table 4).

Mean age of harvested male bears in RY12 (7.3 years, n= 17), is similar to the previous ten 10-year average (RY02–RY11) of 7.6 years. In RY13, the average age of harvested males (9.5 years, n=12) was among the highest recorded for any reporting period. Our management objective of at least 6.5 years of age was met and exceeded for males in RY12 and RY13. The mean age of harvested females was 9.8 years (n=6) in RY12, and 9.2 years (n=13) in RY13. Both years are above the previous 10-year average age (RY02–RY11) of 8.0 years (Table 4). The annual variation in mean skull size and age is most likely an artifact of small sample size, rather than a change in the population. Managers will continue to monitor the age and skull size of harvested bears for trends in these indices.

Permit Hunts. A total of 424 and 342 registration permits were issued in RY12 and RY13, respectively, with 39% of the permittees actually hunting (Tables 5 and 6). Though the percentage of hunters who actually participated seems low, many hunters pick up brown bear permits in the event an opportunity to harvest a bear presents itself while hunting for other species, or to be able to keep a bear in the event it becomes necessary to kill one in defense of life or property (DLP). Compliance with permit reporting conditions continues to improve. A regulation passed by the BOG in 2003 made failure to submit a hunt report (FTR) a misdemeanor offense. During these 2 years only 1 and 4 hunters failed to report after receiving a reminder letter and were placed on the FTR list. This is the same as RY10 and RY11.

Hunter Success and Residency. In RY12, 168 permittees hunted brown bear in Unit 1, and only 15% were successful. In RY13, 131 people hunted and 19% were successful (Tables 5 and 6). Variability in harvest is commonly associated with factors such as weather, forage availability for bears, and objectives and persistence of hunters. The 424 registration permits issued in RY12, and 324 permits issued in RY13, were above and below, respectively, the previous 9-year average (RY03–RY11) of 409 registration permits issued annually (Tables 5 and 6). Although the number of permits issued provides a good measure of effort by nonresident hunters (nearly all of them actually go afield), the same does not apply to resident hunters. Many resident hunters get a permit and locking tag in the event they happen to have an opportunity to harvest a bear while engaged in other outdoor activities.

During RY12 and RY13, nonresidents harvested 12 and 16 bears, respectively. The nonresident hunter harvest was similar to the previous 10-year average (RY02–RY11) of 17 bears. Nonresidents accounted for 55% of the unit-wide harvest during this reporting period. Local residents of Unit 1 made up 35% of the harvest and non-local residents accounted for just 10% (Table 7).

Successful hunters spent an average of 4.8 days to harvest a bear during RY12 and 5.3 days in RY13, up slightly from the 10-year average (RY02–RY11) of 4.1 days (range 1–15 days). Combining all successful hunters across the unit, a total of 124 days were spent hunting brown bears during the RY12 season and a total of 132 days were spent hunting brown bears during the RY13 season.

Harvest Chronology. The spring bear season in Unit 1 runs from March 15–May 31. Most harvest takes place during May when new vegetation including sedges emerges along south and west facing beaches. Sedge is among the first foods available to bears in the spring, and bears feeding on beaches are visible and vulnerable to boat-based hunters. The fall season in Unit 1 runs from September 15–December 31. Most bears are harvested by people specifically hunting bears along salmon streams in September or incidental to hunting moose and deer later in September or in October. During the report period, all 30 spring bears were harvested during May and 19 of 21 fall bears were harvested during September or October (Table 8).

Transport Methods. During this report period, 76% of successful brown bear hunters reported using boats to access their hunting areas, followed in descending order by highway vehicles (14%), off-road vehicles (4%), and airplanes (4%,Table 9).

*Other Mortality*

To estimate the total human-caused mortality we review the reported harvest, defense of life or property (DLP) kills, known and estimated unreported/illegal/accidental kills, research-related kills, and natural mortalities. During this report period, 13 bears were reported as non-hunter kills, including 6 males, 5 females and 2 bears of unknown sex. Seven bears were killed under DLP regulations, 1 was illegally killed, 3 mortalities resulted from natural or unknown causes, and 2 died as a result of vehicle collisions. Non-hunting brown bear mortalities are included in the overall management of the Unit 1 brown bear population and can influence the number of bears available to hunters. When we include other sources of bear mortality to the legal Unit 1 hunter harvest, total human-caused mortality was 34 bears in RY12 and 30 bears in RY13 (Table 2). During this reporting period all of the documented non-hunting related mortality occurred in Units 1C and 1D.

Not all bears killed are reported or sealed, and some DLP mortalities occur during the hunting season and are tagged and sealed as hunter-killed bears. This can result in an underestimate of the number of bears killed under DLP provisions. We are continuing efforts to educate the public about bear behavior and ways to avoid DLP situations with the goal of reducing non-hunting mortality.

## HABITAT

*Assessment*

As noted above, most brown bear habitat in Unit 1 is under USFS jurisdiction. Within Unit 1A there is a highway-accessible area near Hyder, Alaska, (Salmon River Closed Area) that is closed to bear hunting to enhance viewing opportunities. A similar bear-viewing area exists at Chilkoot State Park in Haines. The park area is within the Lutak Road Closed Area, where the harvest of big game is prohibited. Although these viewing areas provide refugia for bears, there are other areas where habitat loss and other disturbances are of concern. These include proposed

hydroelectric development at Connelly Lake in the Chilkoot River drainage of Unit 1D, Sweetheart Creek in Unit 1C, and near Hyder in Unit 1A. Timber harvest, mineral exploration, and other human developments pose the most serious threats to brown bear habitat in Unit 1.

During RY12 and RY13, Community Waste Services worked with the department and the Chilkoot Bear Foundation to purchase materials for an electric fence around the Haines solid waste management facility. In addition to providing an electric fence charger, the department produced several fliers and Public Service Announcements informing the community about the electric fence around the landfill and the date it would be energized. Knowing that the new fence would likely divert habituated bears away from the landfill and into nearby neighborhoods, the department encouraged the community to remove and/or secure any potential bear attractants. The fence has deterred bears from entering the landfill, but as expected, bears began to seek out trash elsewhere in the community.

From 2006 to 2011 a brown bear habitat use and genetic study was conducted in Subunit 1C at Berners Bay. The impetus for the study was the proposed construction of the Juneau Access Road (Flynn et al. 2012). Forty-three brown bears (21 males and 22 females) were captured and equipped with global positioning system (GPS) radio collars to provide researchers with information on the spatial and temporal movement patterns of bears along the proposed road corridor. Final analysis of the GPS data provided evidence that male home ranges were 4 times larger than those of females. Data also indicate extensive use along the proposed road corridor. Researchers also collected genetic samples from captured bears and from hair traps strategically placed in proximity to salmon spawning streams. Both the telemetry and genetics information facilitated estimates of bear abundance in the Berners Bay area. Genetic analysis indicates Berners Bay brown bears are genetically unique among Southeast Alaska brown bear populations (Flynn et al. 2012).

## CONCLUSIONS AND RECOMMENDATIONS

Unit 1 brown bears continue to attract resident and nonresident hunters. The current registration permit hunt provides vital information about brown bear hunting effort and success. Recently enacted penalties for not reporting on permit hunt activities have improved compliance with reporting requirements which provides more data to inform management decisions. Hunters continue to use boats as the primary mode of transportation to access brown bears in the unit. Due to the high number of female bears in the fall harvests, it is essential that future management actions avoid placing additional pressure on females. ADF&G will continue to work with the USFS and other land managers to distribute the nonresident harvest throughout Unit 1.

During the current report period we met our management objective of a 3:2 male to female harvest ratio, but fell slightly short of our management objective of 60% males during the spring seasons. To aid hunters in distinguishing between male and female bears, we provide educational materials including videos and brochures. Compared to the preceding report period (RY10–RY11) fewer bears were killed because of human food conditioning. Nonetheless, the number of DLP kills remains high. We believe the number of bears taken in non-hunting situations can be further reduced. Education is the key to reducing bear mortalities resulting from food conditioning, bear-human encounters at close range, and illegal harvest. With access to more information about bears, people are less likely to find themselves in a situation that requires killing a brown bear. We also believe that reducing bear/human conflicts depends on the

willingness of the public, municipalities, and timber and mining industries to adopt and adhere to responsible garbage management practices.

Registration permit report data and observations by ADF&G staff, guides, and the public indicate the Unit 1 brown bear population is stable or increasing in some areas. Areas where bears may be increasing are between the Taku River and Port Houghton on the mainland south of Juneau and in the St. James Bay and Point Couverden areas on the west side of Lynn Canal. At this time we recommend no changes to the Unit 1 brown bear hunting seasons or bag limit.

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*While this unit report was actually published in 2016, it is part of the set of 2015 unit species management reports, so we suggest citing the report as a 2015 report to maintain its relationship to the other 2015 unit reports.*

Product names used in this publication are included for completeness but do not constitute product endorsement.

Table 1. Unit 1 brown bear harvest by subunit; regulatory years 2002–2013[a].

| Regulatory | Unit 1A | | Unit 1B | | Unit 1C | | Unit 1D | | Total |
|---|---|---|---|---|---|---|---|---|---|
| Year | harvest | % of total | harvest | % of total | harvest | % of total | harvest | % of total | harvest |
| 2002 | 4 | (17) | 6 | (26) | 2 | (9) | 11 | (48) | 23 |
| 2003 | 13 | (10) | 6 | (16) | 6 | (16) | 12 | (32) | 37 |
| 2004 | 6 | (26) | 4 | (17) | 6 | (26) | 7 | (30) | 23 |
| 2005 | 7 | (10) | 3 | (10) | 5 | (16) | 16 | (52) | 31 |
| 2006 | 8 | (23) | 7 | (20) | 6 | (17) | 14 | (40) | 35 |
| 2007 | 6 | (24) | 5 | (20) | 5 | (20) | 9 | (36) | 25 |
| 2008 | 11 | (28) | 4 | (10) | 7 | (18) | 17 | (44) | 39 |
| 2009 | 12 | (32) | 5 | (14) | 4 | (11) | 16 | (43) | 37 |
| 2010 | 5 | (16) | 4 | (13) | 5 | (16) | 17 | (55) | 31 |
| 2011 | 10 | (30) | 3 | (9) | 7 | (21) | 13 | (39) | 33 |
| 2012 | 9 | (35) | 3 | (12) | 6 | (23) | 8 | (31) | 26 |
| 2013 | 5 | (20) | 6 | (24) | 5 | (20) | 9 | (36) | 25 |
| $\bar{x}$ | 8.2 | (26) | 4.7 | (15) | 5.3 | (17) | 13.2 | (42) | 31.1 |

[a] Does not include DLP kills, research mortalities, illegal harvests, or other human-caused accidental mortalities.

Table 2. Unit 1 brown bear mortality by season; regulatory years 2002–2013.

| | Regulatory Year | Reported | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hunter Kill | | | | Nonhunting Kill[a] | | | Total Estimated Kill | | | |
| | | M (%) | F (%) | Unk. | Total | M | F | Unk. | M (%) | F (%) | Unk. | Total |
| 2002 | Fall 2002 | (60) | (40) | 0 | 10 | 1 | 0 | 1 | (58) | (33) | 1 | 12 |
| | Spring 2003 | (71) | (29) | 0 | 14 | 4 | 0 | 0 | (78) | (22) | 0 | 18 |
| | Total | (67) | (33) | 0 | 24 | 5 | 0 | 1 | (70) | (27) | 1 | 30 |
| 2003 | Fall 2003 | (58) | (42) | 0 | 12 | 1 | 1 | 0 | (57) | (43) | 0 | 14 |
| | Spring 2004 | (80) | (20) | 0 | 25 | 0 | 0 | 0 | (80) | (20) | 0 | 25 |
| | Total | (73) | (27) | 0 | 37 | 1 | 1 | 0 | (72) | (28) | 0 | 39 |
| 2004 | Fall 2004 | (75) | (25) | 0 | 4 | 2 | 0 | 1 | (71) | (14) | 1 | 7 |
| | Spring 2005 | (89) | (11) | 0 | 19 | 1 | 0 | 0 | (90) | (10) | 0 | 20 |
| | Total | (87) | (13) | 0 | 23 | 3 | 0 | 1 | (85) | (11) | 1 | 27 |
| 2005 | Fall 2005 | (60) | (40) | 0 | 10 | 0 | 0 | 0 | (60) | (40) | 0 | 10 |
| | Spring 2006 | (81) | (19) | 0 | 21 | 1 | 0 | 0 | (82) | (18) | 0 | 22 |
| | Total | (74) | (26) | 0 | 31 | 1 | 0 | 0 | (75) | (25) | 0 | 32 |
| 2006 | Fall 2006 | (50) | (50) | 0 | 8 | 1 | 2 | 0 | (45) | (55) | 0 | 11 |
| | Spring 2007 | (81) | (19) | 0 | 27 | 0 | 0 | 0 | (81) | (19) | 0 | 27 |
| | Total | (74) | (26) | 0 | 35 | 1 | 2 | 0 | (71) | (29) | 0 | 38 |
| 2007 | Fall 2007 | (75) | (25) | 0 | 8 | 1 | 0 | 0 | (78) | (22) | 0 | 9 |
| | Spring 2008 | (88) | (12) | 0 | 17 | 0 | 0 | 0 | (88) | (12) | 0 | 17 |
| | Total | (84) | (16) | 0 | 25 | 1 | 0 | 0 | (85) | (15) | 0 | 26 |
| 2008 | Fall 2008 | (60) | (40) | 0 | 15 | 2 | 4 | 0 | (52) | (48) | 0 | 21 |
| | Spring 2009 | (92) | (8) | 0 | 24 | 1 | 0 | 0 | (92) | (8) | 0 | 25 |
| | Total | (79) | (21) | 0 | 39 | 3 | 4 | 0 | (74) | (26) | 0 | 46 |
| 2009 | Fall 2009 | (62) | (38) | 0 | 13 | 1 | 1 | 0 | (60) | (40) | 0 | 15 |
| | Spring 2010 | (71) | (29) | 0 | 24 | 0 | 0 | 0 | (71) | (29) | 0 | 24 |
| | Total | (68) | (32) | 0 | 37 | 1 | 1 | 0 | (67) | (33) | 0 | 39 |

Table 2. continued.

| | Regulatory Year | Reported | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hunter Kill | | | | Nonhunting Kill[a] | | | Total Estimated Kill | | | |
| | | M (%) | F (%) | Unk | Total | M | F | Unk | M (%) | F (%) | Unk | Total |
| 2010 | Fall 2010 | (33) | (67) | 0 | 12 | 3 | 1 | 3 | (37) | (47) | 3 | 19 |
| | Spring 2011 | (63) | (37) | 0 | 19 | 2 | 0 | 0 | (67) | (33) | 0 | 21 |
| | Total | (52) | (48) | 0 | 31 | 5 | 1 | 3 | (53) | (40) | 3 | 40 |
| 2011 | Fall 2011 | (45) | (55) | 0 | 11 | 2 | 2 | 2 | (41) | (47) | 2 | 17 |
| | Spring 2012 | (77) | (23) | 0 | 22 | 4 | 2 | 0 | (75) | (25) | 0 | 28 |
| | Total | (67) | (33) | 0 | 33 | 6 | 4 | 2 | (62) | (33) | 2 | 45 |
| 2012 | Fall 2012 | (82) | (18) | 0 | 11 | 3 | 3 | 0 | (71) | (29) | 0 | 17 |
| | Spring 2013 | (60) | (40) | 0 | 15 | 1 | 0 | 1 | (59) | (35) | 1 | 17 |
| | Total | (69) | (31) | 0 | 26 | 4 | 3 | 1 | (65) | (32) | 1 | 34 |
| 2013 | Fall 2013 | (40) | (60) | 0 | 10 | 2 | 1 | 1 | (43) | (50) | 1 | 14 |
| | Spring 2014 | (53) | (47) | 0 | 15 | 0 | 1 | 0 | (50) | (50) | 0 | 16 |
| | Total | (48) | (52) | 0 | 25 | 2 | 2 | 1 | (47) | (50) | 1 | 30 |

[a] Includes DLP and illegal harvests, research mortalities, natural mortalities, and other known human-caused accidental mortalities.

Table 3. Unit 1 brown bear harvest by season; regulatory years 2004–2013.

| Regulatory Year | Fall | | Spring | |
|---|---|---|---|---|
| | Harvest | Percent of Total | Harvest | Percent of Total |
| 2002 | 10 | (42) | 14 | (58) |
| 2003 | 12 | (32) | 25 | (68) |
| 2004 | 4 | (17) | 19 | (83) |
| 2005 | 10 | (32) | 21 | (68) |
| 2006 | 8 | (23) | 27 | (77) |
| 2007 | 8 | (32) | 17 | (68) |
| 2008 | 15 | (38) | 24 | (62) |
| 2009 | 13 | (35) | 24 | (65) |
| 2010 | 12 | (39) | 19 | (61) |
| 2011 | 11 | (33) | 22 | (67) |
| 2012 | 11 | (42) | 15 | (58) |
| 2013 | 10 | (40) | 15 | (60) |
| $\bar{x}$ | 10.3 | (33) | 21.2 | (67) |

Table 4. Unit 1 age and skull size of harvested brown bears; regulatory years 2002–2013.

| Regulatory Year | Mean skull size[a] | | | | Mean age[b] | | | |
|---|---|---|---|---|---|---|---|---|
| | Male | N= | Female | N= | Male | N= | Female | N= |
| 2002 | 22.1 | 16 | 20.7 | 8 | 6.4 | 10 | 9.8 | 4 |
| 2003 | 22.3 | 27 | 20.5 | 10 | 6.5 | 27 | 6.3 | 8 |
| 2004 | 22.9 | 20 | 20.9 | 3 | 8.5 | 18 | 7.3 | 3 |
| 2005 | 22.3 | 23 | 21.4 | 8 | 7.7 | 22 | 8.8 | 8 |
| 2006 | 22.2 | 26 | 20.9 | 9 | 7.4 | 26 | 8.1 | 9 |
| 2007 | 23.5 | 21 | 21.3 | 4 | 7.9 | 19 | 8.5 | 4 |
| 2008 | 22.0 | 30 | 19.3 | 8 | 5.8 | 28 | 6.1 | 8 |
| 2009 | 22.9 | 25 | 19.5 | 12 | 8.6 | 24 | 6.1 | 12 |
| 2010 | 22.7 | 15 | 20.0 | 15 | 9.0 | 16 | 5.9 | 15 |
| 2011 | 22.5 | 21 | 20.9 | 11 | 8.5 | 21 | 12.8 | 11 |
| 2012 | 21.8 | 18 | 19.9 | 8 | 6.8 | 17 | 9.8 | 6 |
| 2013 | 23.2 | 12 | 21.3 | 13 | 9.5 | 12 | 9.2 | 13 |
| $\bar{x}$ | 22.5 | 22 | 20.5 | 9 | 7.6 | 21 | 8.0 | 8 |

[a] Skull size equals length plus zygomatic width.
[b] Determined through successful analyses of extracted premolar teeth. Some samples are not viable for aging.

Table 5. Unit 1A, 1B, 1C brown bear registration permit hunt data; regulatory years 2003–2013.

| Spring/ Fall Hunt No. | Regulatory Year | Permits Issued | Number Hunted | Number Did Not Hunt | Percent Successful Hunters | Bear harvest | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Males | Females | Unknown | Total |
| (Fall) | | | | | | | | | |
| RB062 | 2003 | 95 | 27 | 68 | (30) | 4 | 4 | 0 | 8 |
| RB062 | 2004 | 105 | 38 | 66 | (8) | 2 | 1 | 0 | 3 |
| RB062 | 2005 | 93 | 23 | 69 | (17) | 3 | 1 | 0 | 4 |
| RB062 | 2006 | 112 | 34 | 77 | (6) | 0 | 2 | 0 | 2 |
| RB062 | 2007 | 128 | 40 | 88 | (5) | 2 | 0 | 0 | 2 |
| RB062 | 2008 | 133 | 34 | 97 | (18) | 3 | 3 | 0 | 6 |
| RB062 | 2009 | 134 | 41 | 93 | (12) | 2 | 3 | 0 | 5 |
| RB062 | 2010 | 107 | 16 | 91 | (6) | 1 | 0 | 0 | 1 |
| RB062 | 2011 | 114 | 29 | 85 | (14) | 3 | 1 | 0 | 4 |
| RB062 | 2012 | 144 | 39 | 105 | (18) | 6 | 1 | 0 | 7 |
| RB062 | 2013 | 123 | 21 | 100 | (10) | 0 | 2 | 0 | 2 |
| (Spring) | | | | | | | | | |
| RB072 | 2003 | 116 | 63 | 50 | (22) | 13 | 1 | 0 | 14 |
| RB072 | 2004 | 129 | 78 | 49 | (17) | 12 | 1 | 0 | 13 |
| RB072 | 2005 | 111 | 56 | 55 | (20) | 10 | 1 | 0 | 11 |
| RB072 | 2006 | 134 | 72 | 60 | (26) | 15 | 3 | 1 | 19 |
| RB072 | 2007 | 143 | 73 | 69 | (19) | 12 | 2 | 0 | 14 |
| RB072 | 2008 | 187 | 94 | 93 | (17) | 11 | 5 | 0 | 16 |
| RB072 | 2009 | 189 | 88 | 100 | (18) | 11 | 5 | 0 | 16 |
| RB072 | 2010 | 207 | 95 | 112 | (14) | 8 | 5 | 0 | 13 |
| RB072 | 2011 | 180 | 74 | 105 | (22) | 14 | 2 | 0 | 16 |
| RB072 | 2012 | 163 | 72 | 90 | (15) | 6 | 5 | 0 | 11 |
| RB072 | 2013 | 130 | 64 | 66 | (22) | 7 | 7 | 0 | 14 |

Table 6. Unit 1D fall and spring registration and drawing hunt[a] permits by regulatory year, 2003–2013.

| Spring/ Fall Hunt No. | Regulatory year | Permits Issued | Number Hunted | Number Did Not Hunt | Percent Successful Hunters | Bear harvest | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Males | Females | Unknown | Total |
| (Fall) | | | | | | | | | |
| DB052 | 2003 | 6 | 4 | 2 | (0) | 0 | 0 | 0 | 0 |
| DB052 | 2004 | 11 | 5 | 6 | (20) | 1 | 0 | 0 | 1 |
| RB050 | 2003 | 54 | 33 | 21 | (9) | 2 | 1 | 0 | 3 |
| RB050 | 2004 | 57 | 26 | 28 | (0) | 0 | 0 | 0 | 0 |
| RB050 | 2005 | 49 | 24 | 25 | (25) | 3 | 3 | 0 | 6 |
| RB050 | 2006 | 58 | 37 | 21 | (16) | 4 | 2 | 0 | 6 |
| RB050 | 2007 | 63 | 41 | 22 | (15) | 4 | 2 | 0 | 6 |
| RB050 | 2008 | 62 | 37 | 23 | (24) | 6 | 3 | 0 | 9 |
| RB050 | 2009 | 67 | 29 | 36 | (28) | 6 | 2 | 0 | 8 |
| RB050 | 2010 | 70 | 37 | 33 | (30) | 3 | 8 | 0 | 11 |
| RB050 | 2011 | 77 | 41 | 36 | (17) | 2 | 5 | 0 | 7 |
| RB050 | 2012 | 75 | 35 | 40 | (11) | 3 | 1 | 0 | 4 |
| RB050 | 2013 | 58 | 30 | 26 | (27) | 4 | 4 | 0 | 8 |
| (Spring) | | | | | | | | | |
| DB053 | 2003 | 13 | 10 | 3 | (80) | 5 | 3 | 0 | 8 |
| DB053 | 2004 | 9 | 7 | 0 | (71) | 4 | 0 | 1 | 5 |
| RB051 | 2003 | 34 | 21 | 13 | (5) | 1 | 0 | 0 | 1 |
| RB051 | 2004 | 28 | 17 | 10 | (14) | 1 | 0 | 0 | 1 |
| RB051 | 2005 | 41 | 27 | 14 | (37) | 7 | 3 | 0 | 10 |
| RB051 | 2006 | 39 | 25 | 13 | (32) | 5 | 3 | 0 | 8 |
| RB051 | 2007 | 35 | 18 | 17 | (17) | 3 | 0 | 0 | 3 |
| RB051 | 2008 | 44 | 29 | 15 | (28) | 8 | 0 | 0 | 8 |
| RB051 | 2009 | 41 | 27 | 14 | (30) | 6 | 2 | 0 | 8 |
| RB051 | 2010 | 45 | 27 | 18 | (22) | 4 | 2 | 0 | 6 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RB051 | 2011 | 38 | 24 | 14 | (25) | 3 | 3 | 0 | 6 |
| RB051 | 2012 | 42 | 22 | 20 | (18) | 3 | 1 | 0 | 4 |
| RB051 | 2013 | 31 | 16 | 15 | (6) | 1 | 0 | 0 | 1 |

[a] Drawing permit hunt during RY03 and RY04 only. Prior to RY03 Unit 1D registration permit hunt combined with Units 1A, 1B, and 1C.

Table 7. Unit 1 successful brown bear hunters, by residency; regulatory years 2002–2013.

| Regulatory Year | Local Resident [a] (%) | Nonlocal Resident (%) | Nonresident (%) | Unknown (%) | Total Successful Hunters |
|---|---|---|---|---|---|
| 2002 | (17) | (8) | (75) | (0) | 24 |
| 2003 | (38) | (8) | (54) | (0) | 37 |
| 2004 | (39) | (0) | (61) | (0) | 23 |
| 2005 | (39) | (6) | (55) | (0) | 30 |
| 2006 | (49) | (9) | (43) | (0) | 35 |
| 2007 | (36) | (8) | (56) | (0) | 25 |
| 2008 | (41) | (10) | (49) | (0) | 37 |
| 2009 | (38) | (11) | (51) | (0) | 37 |
| 2010 | (39) | (0) | (61) | (0) | 31 |
| 2011 | (42) | (9) | (49) | (0) | 33 |
| 2012 | (42) | (12) | (46) | (0) | 26 |
| 2013 | (28) | (8) | (64) | (0) | 25 |

[a] Local residents are those hunters who reside in Unit 1.

Table 8. Unit 1 brown bear harvest by month; regulatory years 2002–2013.

| Regulatory Year | Harvest periods | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | September | October | November | Dec | April | May | June | Total |
| 2002 | 7 | 3 | 0 | 0 | 0 | 14 | 0 | 24 |
| 2003 | 7 | 3 | 2 | 0 | 0 | 25 | 0 | 37 |
| 2004 | 3 | 1 | 0 | 0 | 1 | 18 | 0 | 23 |
| 2005 | 5 | 4 | 1 | 0 | 0 | 21 | 0 | 31 |
| 2006 | 4 | 4 | 0 | 0 | 0 | 27 | 0 | 35 |
| 2007 | 4 | 4 | 0 | 0 | 0 | 17 | 0 | 25 |
| 2008 | 5 | 6 | 3 | 1 | 3 | 21 | 0 | 39 |
| 2009 | 4 | 7 | 2 | 0 | 0 | 24 | 0 | 37 |
| 2010 | 5 | 6 | 1 | 0 | 1 | 18 | 0 | 31 |
| 2011 | 5 | 6 | 0 | 0 | 0 | 22 | 0 | 33 |
| 2012 | 6 | 4 | 1 | 0 | 0 | 15 | 0 | 26 |
| 2013 | 3 | 6 | 1 | 0 | 0 | 15 | 0 | 25 |

Table 9. Unit 1 successful brown bear hunter transport methods; regulatory years 2002–2013.

| | Percent of Hunters | | | | | | |
|---|---|---|---|---|---|---|---|
| Regulatory Year | Airplane | Boat | Walk | ORV | Highway Vehicle | Other/ Unknown | No. Successful Hunter |
| 2002 | (0) | (63) | (4) | (4) | (25) | (4) | 24 |
| 2003 | (0) | (86) | (3) | (0) | (8) | (3) | 37 |
| 2004 | (0) | (78) | (0) | (9) | (13) | (0) | 23 |
| 2005 | (6) | (74) | (0) | (6) | (13) | (0) | 31 |
| 2006 | (0) | (83) | (6) | (0) | (11) | (0) | 35 |
| 2007 | (4) | (80) | (0) | (4) | (12) | (0) | 25 |
| 2008 | (0) | (74) | (0) | (13) | (13) | (0) | 39 |
| 2009 | (5) | (81) | (0) | (3) | (8) | (3) | 37 |
| 2010 | (6) | (81) | (3) | (0) | (10) | (0) | 31 |
| 2011 | (0) | (85) | (3) | (3) | (9) | (0) | 33 |
| 2012 | (8) | (65) | (0) | (4) | (23) | (0) | 26 |
| 2013 | (0) | (88) | (4) | (4) | (4) | (0) | 25 |