Species Management Report and Plan ADF&G/DWC/SMR&P–2024–2

# Brown Bear Management Report and Plan, Game Management Unit 16:

Report Period 1 July 2014–30 June 2019, and

Plan Period 1 July 2019–30 June 2024

**Chris J. Brockman**

2024

Alaska Department of Fish and Game Division of Wildlife Conservation

# Brown Bear Management Report and Plan, Game Management Unit 16:

Report Period 1 July 2014–30 June 2019, and

Plan Period 1 July 2019–30 June 2024

**PREPARED BY:**

Chris J. Brockman
Area Wildlife Biologist

**APPROVED BY:**

Todd A. Rinaldi
Management Coordinator

**REVIEWED BY**:

Tim C. Peltier
Regional Supervisor

**PUBLISHED BY:**

Susan G. Erben
Technical Reports Editor



Alaska Department of Fish and Game
Division of Wildlife Conservation
PO Box 115526
Juneau, AK 99811-5526

Hunters are important founders of the modern wildlife conservation movement. They, along with trappers and sport shooters, provided funding for this publication through payment of federal taxes on firearms, ammunition, and archery equipment, and pay state hunting license and tag fees. These taxes and fees fund the federal Wildlife Restoration Program and the State of Alaska's Fish and Game Fund, which provided funding for the work reported on in this publication.

Species management reports and plans provide information about species that are hunted or trapped and management actions, goals, recommendations for those species, and plans for data collection. Detailed information is prepared for each species every 5 years by the area management biologist for game management units in their areas, who also develops a plan for data collection and species management for the next 5 years. This type of report is not produced for species that are not managed for hunting or trapping or for areas where there is no current or anticipated activity. Unit reports are reviewed and approved for publication by regional management coordinators and are available to the public via the Alaska Department of Fish and Game's public website.

This species management report and plan was reviewed and approved for publication by Todd A. Rinaldi, Management Coordinator for the Division of Wildlife Conservation.

Species management reports and plans are available via the Alaska Department of Fish and Game's public website (www.adfg.alaska.gov) or by contacting Alaska Department of Fish and Game's Division of Wildlife Conservation, PO Box 115526, Juneau, AK 99811-5526; phone: (907) 465-4190; email: dfg.dwc.publications@alaska.gov. The report may also be accessed through most libraries, via interlibrary loan from the Alaska State Library or the Alaska Resources Library and Information Services (www.arlis.org). To subscribe to email announcements regarding new technical publications from the Alaska Department of Fish and Game, Division of Wildlife Conservation please use the following link: http://list.state.ak.us/mailman/listinfo/adfgwildlifereport.

This document, published in PDF format only, should be cited as:

Brockman, C. J. 2024. Brown Bear management report and plan, Game Management Unit 16: Report period 1 July 2014–30 June 2019, and plan period 1 July 2019–30 June 2024. Alaska Department of Fish and Game, Species Management Report and Plan ADF&G/DWC/SMR&P-2024-2, Juneau.

Please contact the authors or the Division of Wildlife Conservation at (907) 465-4190 if you have questions about the content of this report.

# Contents

# List of Figures



# List of Tables

## Purpose of this Report

This report provides a record of survey and inventory management activities for brown bear in Unit 16 for the 5 regulatory years 2014–2018 and plans for survey and inventory management activities in the following 5 regulatory years 2019–2023. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY19 = 1 July 2019–30 June 2020). This report is produced primarily to provide agency staff with data and analysis to help guide and record agency efforts but is also provided to the public to inform it of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5-year report to report more efficiently on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the brown bear management report of survey and inventory activities that was previously produced every 3 years.

# I. RY14–RY18 Management Report

## Management Area

Unit 16 is located in Southcentral Alaska, west of Anchorage. The unit consists of the drainages into western Cook Inlet from Redoubt Creek and the Susitna River including the drainages of Redoubt Creek and the drainages on the west side of the Susitna River upstream from its junction with the Chulitna River and the drainages into the west side of the Chulitna River upstream of the Tokositna River including the river and drainages on the south side of the river up to the Tokositna Glacier. It is subdivided into Unit 16A, which is east of the east bank of the Yentna River from its mouth upstream to the Kahiltna River, east of the east bank of the Kahiltna River and east of the Kahiltna Glacier, and Unit 16B, which covers all portions south and west of Unit 16A (Fig. 1). Unit 16A is 1,850 $mi^2$. Unit 16B is approximately 5.5 times larger at 10,405 $mi^2$.

The topography of the area is composed of high alpine habitat in the west (Alaska Range) with peak elevations exceeding 20,310 ft (Denali), and lower elevation mixed boreal forest in the east. The southern half of the unit is bounded by Cook Inlet (sea level) on the east. Drainage is south and east into Susitna River or Cook Inlet. The lower elevation forest has many lakes and small ponds. The southern half of the unit has several wildlife refuges along Cook Inlet where the topography is low elevation, relatively level, coastal wetland habitat. Plant communities along the rivers and streams are dominated by riverine willows (*Salix* spp.). The forest is dominated by white spruce (*Picea glauca*) and black spruce (*P. mariana*). The subalpine areas are comprised of alder (*Alnus crispa*), dwarf birch (*Betula nana*) and dwarf heath (*Cassiope* spp.*, Empetrum* spp.*, Ledum* spp.*, Vaccinium* spp., and *Arctostaphylos* spp.). Other common vegetation types scattered throughout the study area are willow (*Salix* spp.), and sedges (*Cyperaceae*).

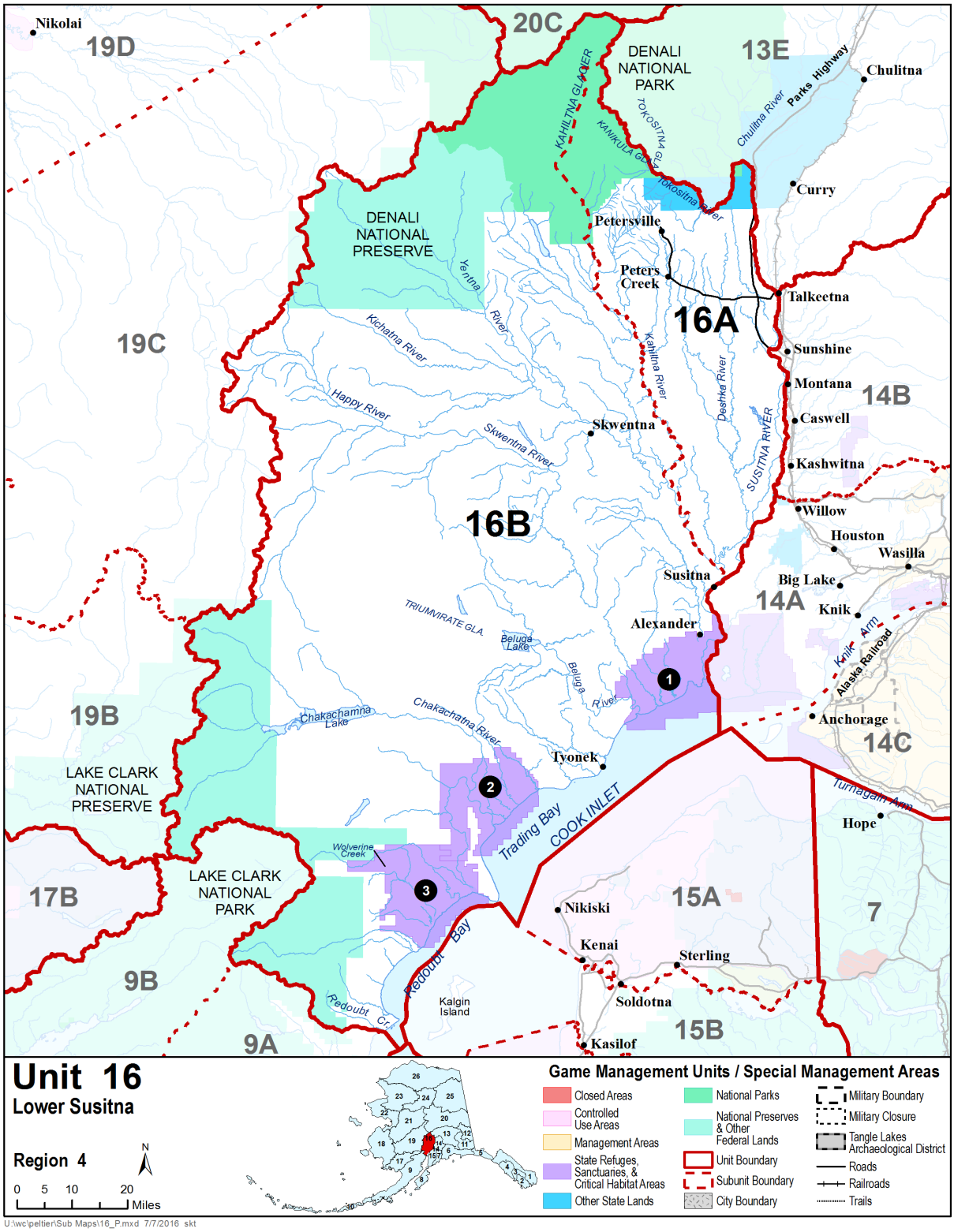


**Figure 1. Game Management Unit 16 in Southcentral Alaska, as shown in the 2023–2024 Alaska Hunting Regulations. The numbered black circles represent state restricted areas: (1) the Susitna Flats Game Refuge, (2) Trading Bay State Game Refuge, and (3) Redoubt Bay Critical Habitat Area.**

# Summary of Status, Trend, Management Activities, and History of Brown Bear in Unit 16

Unit 16 is composed of 16A, which is 1,850 $mi^2$, and 16B, which is 10,405 $mi^2$. The brown bear population in Unit 16 was estimated in the 1990s by Griese (1993) at 586–1,156. Line-transect surveys conducted in the northeastern portion of Unit 16 in 2003 and 2004, and a survey conducted in 2007 arrived at similar conclusions (Peltier 2015). Densities vary from low in the northern and eastern portion of the unit and become greater in the coastal and foothill areas of Redoubt and Trading bays. Since there are no brown bears on Kalgin Island, the Alaska Board of Game in RY16 changed the unit boundary to make the island part of Unit 15 instead of Unit 16. Due to infrequent surveys, the department has used harvest data to estimate population trends and has relied on reports by longtime residents to refine estimated trends (Griese 1998). The brown bear population estimate was also refined by applying information from surveys conducted in Lake Clark National Park and in Unit 13A to areas of similar habitat in Unit 16B.

Brown bear management has adapted to reflect our evolving understanding of harvest sustainability. Brown bears were managed conservatively in Unit 16 from the 1960s into the 1980s with a bag limit of 1 bear every 4 years[1] with a fall-only season. Harvests ranged from 17 to 46 bears annually between RY61 and RY83. In RY84, harvests increased to 66 bears when the hunting season was lengthened to allow hunting during den emergence in March and April. The bag limit in Unit 16B was liberalized from 1 bear every 4 years to 1 bear every year in RY01 and increased again to 2 bears every year in RY05. The bag limit in Unit 16A was also liberalized from 1 bear every 4 years to 1 bear per year in RY05, but the change did not apply to hunting in Denali State Park. By RY07, the bag limit in Denali State Park had also been increased to 1 bear per year. In addition to season and bag limit changes, the resident brown bear tag fee was dropped in Unit 16B in RY03, and in Unit 16A in RY07. These changes created more interest in brown bear hunting in Unit 16 and a record harvest of 162 bears in RY10. During the previous 5 years (RY09–RY13), Units 16A and 16B combined averaged 130 bears annually.

Griese (1993) first estimated an annual sustainable harvest of 55 brown bears, which included no more than 18 females older than 2 years. Harvests exceeded that level during RY84–RY92. Brown bear numbers, particularly of females and young bears, appeared to increase during the 1990s. Additionally, Griese (1999) reported longtime residents seeing more bears than over the previous 10–20 years. The sustainable harvest rate for brown bear was thought to be about 5.7% in the 1990s (Miller 1990). However, more recent studies indicate that brown bear populations can have much higher sustainable harvest rates of 10–14% (Mclellan et al. 2016; Brockman et al. 2020). During 1994, the Board of Game directed the department to allow the brown bear population in Unit 16 to decline. The board determined moose was the priority species in Unit 16 and a high population of brown bears conflicted with moose population productivity. Griese (1995) modified the brown bear population objective to reflect that priority. It was modified again in 1998, producing management goals and objectives intended to reduce the bear population. Because harvest levels were not reaching objectives and the ratio of bears to moose was greater than desired, the Board of Game adopted a 10 August opening date in RY99 in Unit

[1] All references to years in this paragraph are to regulatory years.

16B. The board lengthened the season in Unit 16A by moving the opening date from 1 September to 10 August beginning in RY09.

In 2011, the Board of Game approved changes to increase the take of brown bears in Unit 16 and specifically to reduce the brown bear population in Unit 16B by 60% (Peltier 2015). First, seasons in Units 16A and 16B were extended to no closed season except within 1 mile of the mouth of Wolverine Creek, where the season remained 15 September–31 May. Bag limits in Unit 16A remained at 1 bear every regulatory year while bag limits in Unit 16B (including the Wolverine Creek area) were increased to 2 bears every regulatory year. Second, a brown bear control program was initiated in a 960 $mi^2$ portion of southern Unit 16B between the Beluga and McArthur rivers. Under this program, permittees in the Brown Bear Control Area may take any brown bears except cubs of the year or females accompanied by cubs of the year. Participants may establish bait stations, use snares, and take a bear at a bait station the same day they have flown, provided they are at least 300 feet from the airplane. The Alaska Department of Law expedited these regulations, and they went into effect during the RY10 spring season.

# Management Direction

## Existing Wildlife Management Plans

- Alaska Wildlife Management Plans: Upper Cook Inlet Brown Bear Management Plan.
- ADF&G Division of Wildlife Conservation Strategic Plan.

## Goals

The management goal in Unit 16 is to provide the greatest opportunity to participate in hunting brown bears. For most of RY14–RY18, the goal was also to reduce the brown bear population in order to increase moose calf survival under an intensive management program.

## Codified Objectives

There are no codified population or harvest objectives for brown bear in Unit 16. There is, however, an intensive management plan for moose in Unit 16 that includes codified population reduction objectives for brown bear (see Intensive Management section below).

### Amounts Reasonably Necessary for Subsistence Uses

The Board of Game made a negative finding for customary and traditional uses of brown bears in Unit 16B. The board did not make a finding for Unit 16A.

### Intensive Management

Brown bears are not an intensive management species, but under the intensive management plan for moose in Unit 16 (5AAC 92.122), there is a goal to reduce the brown bear population to 375 in Unit 16B. The brown bear control program for Unit 16B was suspended in November 2016. The intensive management plan for Unit 16 as a whole expires 1 July 2021.

## MANAGEMENT OBJECTIVES

Reduce the brown bear population in Unit 16B to minimize the impact of brown bear predation on moose calves while maintaining a sustainable brown bear population for consumptive and nonconsumptive uses.

## MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

#### ACTIVITY 1.1. Determine population status and trend.

*Data Needs*

Simple, repeatable, and accurate surveys have not been developed to assess the Unit 16 brown bear population density. Previous density estimates of the brown bear population from line-transect surveys were similar to the results of modeling available habitat and harvest trends by Griese (1999).

*Methods*

No density estimates were conducted during RY14–RY18.

*Results and Discussion*

There are no results of population or density estimates to report.

Anecdotal reports indicate the brown bear population along the unit's major rivers declined during RY14–RY18; bear baiters saw fewer bears at bait stations in the later years of the period.

*Recommendations for Activity 1.1.*

Continue to monitor anecdotal reports and talk to users in the area to monitor perceived trends in bear abundance.

### 2. Mortality-Harvest Monitoring and Regulations

#### ACTIVITY 2.1. Monitor harvest through sealing records and defense of life and property (DLP) reports.

*Data Needs*

Mortality of brown bears must be assessed to understand the potential impact of brown bear hunting activities and other forms of mortality to guide the management of brown bears.

*Methods*

Department staff monitored brown bear mortality during RY14–RY18 by collecting harvest information through the sealing of hides and skulls of bears taken by hunters or killed for other

reasons (i.e., roadkill, DLPs, etc.). During the sealing process, the skull is measured, a tooth is taken for aging, and hunting effort, sex, method of take, type of transportation used, location of kill, and date of kill are recorded. Bears taken over bait, incidental harvest, and meat salvage were also noted on the sealing reports. To hunt bears over bait, hunters are required to have a bait station permit from the department, and no more than 2 bait stations are allowed per permit.

*Season and Bag Limit*

The season for brown bear hunting in Unit 16 during RY14–RY17 was no closed season, except within 1 mile of the mouth of Wolverine Creek, where the season was 15 Sept–31 May. In RY18, the season was 10 August–15 June, except within 1 mile of the mouth of Wolverine Creek, where the season was 15 Sept–31 May. The bag limit for all 5 years (RY14–RY18) was 2 bears every regulatory year, and baiting for brown bears was legal.

*Results and Discussion*

Harvest by Hunters

Brown bear harvest decreased in both Units 16A and 16B during RY14–RY18 (Tables 1 and 2). Combined harvest decreased to an average of 97 bears annually during RY14–RY18, from an average of 120 bears annually during RY09–RY13. Harvest in Unit 16A was stable throughout RY14–RY18 yet harvest in Unit 16B declined steadily. The average annual percent of females in the harvests decreased in Unit 16A from 49% (RY09–RY13) to 36% (RY14–RY18) but remained stable in Unit 16B at 38% between both RY09–RY13 and RY14–RY18.

With the opportunity created from the implementation of predation control, there was a commensurate increase in the total harvest during active predation control years. However, there was no increase in percent females in the harvest to the degree that would indicate a widespread population decline, and predation control may have resulted in higher cub survival, thus offsetting any decrease in the population expected from higher harvest. There were no appreciable changes in habitat that may have led to population changes, although the moose population increased during RY14–RY18, possibly providing additional prey source.

Hunter Residency

Residents on average took 51% of the brown bear harvest during RY14–RY18. (Table 3). Nonresident hunters reported an average annual harvest of 46 bears, an increase from an average annual harvest of 43 reported for RY09–RY13. Hunter success cannot be estimated because there are no requirements for permits or reports in Unit 16.

Harvest Chronology

Most brown bears harvested in Units 16A and 16B are taken in the month of June (Table 4). The percent of bears taken by month has been stable during RY14–RY18. Brown bear harvest in September is believed to be associated with moose hunters who take bears opportunistically as well as those specifically targeting brown bears (Peltier 2015).

**Table 1. Harvest, Unit 16A brown bear, regulatory years 2014–2018, Southcentral Alaska.**

| Regulatory | | Reported | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hunter kill | | | | | | Nonhunting mortality | | | Total estimated mortality | | | | | |
| year | Season | M | % | F | % | Unk | Total | M | F | Unk | M | % | F | % | Unk | Total |
| 2014 | Fall | 4 | 50 | 4 | 50 | 0 | 8 | 0 | 0 | 0 | 4 | 50 | 4 | 50 | 0 | 8 |
| | Spring | 12 | 71 | 5 | 29 | 0 | 17 | 0 | 0 | 0 | 12 | 71 | 5 | 29 | 0 | 17 |
| | Total | 16 | 64 | 9 | 36 | 0 | 25 | 0 | 0 | 0 | 16 | 64 | 9 | 36 | 0 | 25 |
| 2015 | Fall | 2 | 50 | 2 | 50 | 0 | 4 | 0 | 0 | 0 | 2 | 50 | 2 | 50 | 0 | 4 |
| | Spring | 8 | 53 | 7 | 47 | 0 | 15 | 0 | 0 | 0 | 8 | 53 | 7 | 47 | 0 | 15 |
| | Total | 10 | 53 | 9 | 47 | 0 | 19 | 0 | 0 | 0 | 10 | 53 | 9 | 47 | 0 | 19 |
| 2016 | Fall | 3 | 38 | 5 | 62 | 0 | 8 | 0 | 0 | 0 | 3 | 38 | 5 | 62 | 0 | 8 |
| | Spring | 10 | 71 | 4 | 29 | 0 | 14 | 0 | 0 | 0 | 10 | 71 | 4 | 29 | 0 | 14 |
| | Total | 13 | 59 | 9 | 41 | 0 | 22 | 0 | 0 | 0 | 13 | 59 | 9 | 41 | 0 | 22 |
| 2017 | Fall | 12 | 92 | 1 | 8 | 0 | 13 | 0 | 0 | 0 | 12 | 92 | 1 | 8 | 0 | 13 |
| | Spring | 8 | 80 | 2 | 20 | 0 | 10 | 0 | 0 | 0 | 8 | 80 | 2 | 20 | 0 | 10 |
| | Total | 20 | 87 | 3 | 13 | 0 | 23 | 0 | 0 | 0 | 20 | 87 | 3 | 13 | 0 | 23 |
| 2018 | Fall | 3 | 60 | 2 | 40 | 0 | 5 | 0 | 0 | 0 | 3 | 60 | 2 | 40 | 0 | 5 |
| | Spring | 7 | 58 | 5 | 42 | 0 | 12 | 0 | 0 | 0 | 7 | 58 | 5 | 42 | 0 | 12 |
| | Total | 10 | 59 | 7 | 41 | 0 | 17 | 0 | 0 | 0 | 10 | 59 | 7 | 41 | 0 | 17 |

**Table 2. Harvest, Unit 16B brown bear, regulatory years 2014–2018, Southcentral Alaska.**

| | | Reported | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Hunter kill | | | | | | Nonhunting mortality | | | Total estimated mortality | | | | | |
| Regulatory year | Season | M | % | F | % | Unk | Total | M | F | Unk | M | % | F | % | Unk | Total |
| 2014 | Fall | 31 | 56 | 24 | 44 | 0 | 55 | 0 | 0 | 1 | 31 | 56 | 24 | 44 | 1 | 56 |
| | Spring | 34 | 74 | 12 | 26 | 1 | 47 | 0 | 0 | 0 | 34 | 74 | 12 | 26 | 1 | 47 |
| | Total | 65 | 64 | 36 | 36 | 1 | 102 | 0 | 0 | 1 | 65 | 64 | 36 | 36 | 2 | 103 |
| 2015 | Fall | 15 | 48 | 16 | 52 | 0 | 31 | 0 | 1 | 0 | 15 | 47 | 17 | 53 | 0 | 32 |
| | Spring | 42 | 68 | 20 | 32 | 0 | 62 | 0 | 2 | 0 | 42 | 66 | 22 | 34 | 0 | 64 |
| | Total | 57 | 61 | 36 | 39 | 0 | 93 | 0 | 3 | 0 | 57 | 59 | 39 | 41 | 0 | 96 |
| 2016 | Fall | 22 | 54 | 19 | 46 | 0 | 41 | 0 | 0 | 0 | 22 | 54 | 19 | 46 | 0 | 41 |
| | Spring | 20 | 59 | 14 | 41 | 0 | 34 | 0 | 0 | 0 | 20 | 59 | 14 | 41 | 0 | 34 |
| | Total | 42 | 56 | 33 | 44 | 0 | 75 | 0 | 0 | 0 | 42 | 56 | 33 | 44 | 0 | 75 |
| 2017 | Fall | 19 | 58 | 14 | 42 | 0 | 33 | 0 | 2 | 0 | 19 | 54 | 16 | 46 | 0 | 35 |
| | Spring | 26 | 90 | 3 | 10 | 0 | 29 | 0 | 0 | 0 | 26 | 90 | 3 | 10 | 0 | 29 |
| | Total | 45 | 73 | 17 | 27 | 0 | 62 | 0 | 2 | 0 | 45 | 70 | 19 | 30 | 0 | 64 |
| 2018 | Fall | 11 | 69 | 5 | 31 | 0 | 16 | 0 | 0 | 0 | 11 | 69 | 5 | 31 | 0 | 16 |
| | Spring | 13 | 57 | 10 | 43 | 0 | 23 | 0 | 0 | 0 | 13 | 57 | 10 | 43 | 0 | 23 |
| | Total | 24 | 62 | 15 | 38 | 0 | 39 | 0 | 0 | 0 | 24 | 62 | 15 | 38 | 0 | 39 |

**Table 3. The residency of the group of hunters responsible for the most harvest, Unit 16 brown bear, regulatory years 2014–2018, Southcentral Alaska.**

| Regulatory year | Local resident[a] | Percent | Nonlocal resident | Percent | Nonresident | Percent |
|---|---|---|---|---|---|---|
| 2014 | 2 | 2 | 49 | 40 | 73 | 58 |
| 2015 | 1 | 1 | 48 | 45 | 58 | 54 |
| 2016 | 0 | 0 | 58 | 60 | 39 | 40 |
| 2017 | 2 | 2 | 48 | 56 | 36 | 42 |
| 2018 | 0 | 0 | 31 | 55 | 25 | 45 |

[a] Unit 16 resident.

**Table 4. Reported hunter harvest chronology percent by month, Unit 16 brown bear, regulatory years 2014–2018, Southcentral Alaska.**

| | Percent of harvest | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Regulatory year | Jul–Aug | Sep 1–15 | Sep 16–30 | Oct | Nov–Mar | Apr | May 1–15 | May 16–31 | Jun | *n* |
| 2014 | 24 | 13 | 10 | 2 | 0 | 7 | 2 | 6 | 36 | 127 |
| 2015 | 18 | 4 | 8 | 1 | 0 | 10 | 3 | 18 | 38 | 114 |
| 2016 | 22 | 12 | 14 | 2 | 0 | 4 | 1 | 8 | 36 | 97 |
| 2017 | 23 | 21 | 11 | 0 | 0 | 8 | 0 | 6 | 31 | 87 |
| 2018 | 14 | 11 | 13 | 0 | 0 | 0 | 0 | 18 | 44 | 56 |

Transport Methods

Most brown bear hunters used airplanes as their primary mode of transportation (Table 5). More hunters used boats during RY14–RY18 compared to RY09–RY13 (22% versus 13%).

**Table 5. Harvest percent by reported transport method, Unit 16 brown bear, regulatory years 2014–2018, Southcentral Alaska.**

| | Percent of harvest | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Regulatory year | Airplane | Horse | Boat | ORV/ATV[a] | Snowmachine | Highway vehicle | Foot | Other/unknown | *n* |
| 2014 | 50 | 9 | 21 | 9 | 2 | 4 | 3 | 2 | 127 |
| 2015 | 49 | 4 | 23 | 12 | 5 | 3 | 2 | 2 | 115 |
| 2016 | 46 | 6 | 25 | 12 | 2 | 6 | 1 | 2 | 95 |
| 2017 | 50 | 6 | 20 | 13 | 2 | 5 | 2 | 2 | 86 |
| 2018 | 46 | 6 | 21 | 13 | 0 | 13 | 0 | 2 | 56 |

[a] ORV stands for off-road vehicle, and ATV stands for all-terrain vehicle.

*Other Mortality*

There were no nonhunting brown bear mortalities reported for Unit 16A during RY14–RY18, but there were 6 in Unit 16B. Five of those mortalities were female and 1 was unknown sex. Four of the mortalities were defense of life and property, 1 was agency take, and 1 was unknown.

*Alaska Board of Game Actions and Emergency Orders*

Starting 1 July 2018, the season for Unit 16 brown bear was shortened from no closed season to a season of 10 August–15 June, except within 1 mile of the mouth of Wolverine Creek, where the season was 15 Sept–31 May.

*Recommendations for Activity 2.1.*

Continue.

3. Habitat Assessment-Enhancement

No activities for brown bear habitat assessment or enhancement are included in Unit 16 brown bear management.

### NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Harvest data and copies of sealing forms are stored on the department's internal database housed on a server (http://winfonet.alaska.gov/index.cfm).

- Defense of life and property forms are scanned and housed on the network server in the Palmer Area Biologist office (O:\WC\Palmer Area Office Folder\Species\Brown Bear\Scanned Archive Files) and stored in file folders located in the Palmer Assistant Area Biologist's office.

Agreements

Currently there are no agreements with other agencies pertaining to brown bear management.

Permitting

No permits were needed to conduct brown bear management activities in Unit 16 during RY14–RY18.

## Conclusions and Management Recommendations

The goal to reduce the number of brown bears under intensive management in Unit 16 in order to increase calf survival does not appear to have had a significant effect on the size of the brown bear population. The harvest in this decade has been almost twice as high as Griese (1993) estimated was sustainable in 1993 with no evidence that harvest strategies have had a significant impact on the brown bear population. There has been a steady decrease in brown bear harvest during RY14–RY18. The cause of the decrease is unclear but appears to be the result of decreased participation after the suspension of the predation control program. Given the high abundance of brown bears and the low calf recruitment, additional steps may be warranted to monitor the population for any decrease in density or a corresponding increase in calf recruitment. The department will continue to closely monitor harvest, particularly age and sex of bears, to avoid reducing the population below objectives.

# II. Project Review and RY19–RY23 Plan

## Review of Management Direction

### MANAGEMENT DIRECTION

The existing management direction and goals appropriately direct management of brown bears in Unit 16A and 16B. The management direction for the unit ensures that brown bears will persist as part of the natural ecosystem and ensures continued hunting and viewing opportunities. There is no indication that the long-term sustainability of the brown bear populations or that statewide goals (ADF&G 1976) for human uses cannot be met; therefore, the Unit 16A and 16B management direction should continue to be that brown bears will be managed in a manner that complements the statewide brown bear management goals. There are no area-specific issues in the unit that requires a departure from statewide goals for brown bear management.

### GOALS

The management goal in Unit 16 is to provide the greatest opportunity to participate in hunting brown bears.

### CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Board of Game made a negative finding for customary and traditional uses of brown bears in Unit 16B. The board made no finding for Unit 16A.

Intensive Management

Brown bear is not an intensive management species, but under the intensive management plan for moose in Unit 16 (5AAC 92.122), there is a goal to reduce the brown bear population to 375 in Unit 16B. The brown bear control program in Unit 16B was suspended in November 2016 (Chris Brockman, Area Biologist, ADF&G, Palmer, Summary of bear control in Game Management Unit 16: 2007–2016, memorandum, 2017). The intensive management plan for moose in Unit 16 as a whole expired 1 July 2021.

### MANAGEMENT OBJECTIVES

Reduce the brown bear population in Unit 16B to minimize the impact of brown bear predation on moose calves while maintaining a sustainable brown bear population for consumptive and non-consumptive uses.

## REVIEW OF MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1. Analyze harvest records for trends that would indicate a change in brown bear population status or composition.

*Data Needs*

Harvest must be monitored to determine trends that can indicate decreased brown bear population density and to ensure that objectives are being met.

*Methods*

Examine harvest data for changes in total harvest and the percent of females in the harvest.

### 2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor harvest through sealing and harvest records.

*Data Needs*

Harvest must be assessed to understand the potential impact and guide management of brown bears.

*Methods*

ADF&G staff will collect harvest data through harvest records or sealing records of brown bears taken by hunters, or both. We will record the location, date of harvest, method of take, transportation mode, sex, and the skull measurements of the sealed animals. The data will be stored on the ADF&G database (WinfoNet).

### 3. Habitat Assessment-Enhancement

None.

## NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

### Data Recording and Archiving

- Harvest data and copies of sealing forms will be stored on an internal database housed on a server (http://winfonet.alaska.gov/index.cfm).

- Field data sheets, appropriate defense of life and property reports, and other potential brown bear data will be scanned and housed on the network server in the Palmer Area Biologist office (O:\WC\Palmer Area Office Folder\Species\Brown bear\Scanned Archive Files) and stored in file folders located in the Palmer Assistant Area Biologist's office.

## Agreements

None.

## Permitting

None.

## References Cited


Alaska Department of Fish and Game. 1976. Alaska wildlife management plans: A public proposal for the management of Alaska's wildlife: Southcentral Alaska. Draft proposal subsequently approved by the Alaska Board of Game. Division of Game, Federal Aid in Wildlife Restoration Project W-17-R, Juneau.

Brockman, C. J., M. R. Guttery, B. W. Dale, R. A. Schwanke, R. W. Tobey, and D. N. Koons. 2020. Effect of harvest on a brown bear population in Alaska. The Journal of Wildlife Management 84(5):865–76. https://doi.org/10.1002/jwmg.21861

Griese, H. J. 1993. Unit 16 brown bear, west side of Cook Inlet. Pages 136–151 [*In*] S. M. Abbott, editor. Brown bear management report of survey-inventory activities 1 July 1990–30 June 1992. Alaska Department Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Study 4.0, Juneau.

Griese, H. J. 1995. Unit 16 brown bear, west side of Cook Inlet. Pages 142–152 [*In*] M. V. Hicks, editor. Brown bear management report of survey-inventory activities 1 July 1992–30 June 1994. Alaska Department Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Study 4.0, Juneau.

Griese, H. J. 1998. Unit 16 brown bear, west side of Cook Inlet. Pages 139–146 [*In*] M. V. Hicks, editor. Brown bear management report of survey-inventory activities 1 July 1994–30 June 1996. Alaska Department Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Study 4.0, Juneau.

Griese, H. J. 1999. Unit 16 brown bear, west side of Cook Inlet. Pages 146–154 [*In*] M. V. Hicks, editor. Brown bear management report of survey-inventory activities 1 July 1996–30 June 1998. Alaska Department Fish and Game, Division of Wildlife Conservation, Federal Aid in Wildlife Restoration Study 4.0, Juneau.

Mclellan, B. N., G. Mowat, T. Hamilton, and I. Hatter. 2016. Sustainability of the grizzly bear hunt in British Columbia, Canada. The Journal of Wildlife Management 81(2):218–229. https://doi.org/10.1002/jwmg.21189

Miller, S. D., 1990. Population management of bears in North America. Bears: Their Biology and Management 8:357–373. https://doi.org/10.2307/3872940

Peltier, T. C. 2015. Unit 16 brown bear. Chapter 15, Pages 15-1 through 15-12 [*In*] P. Harper and L. A. McCarthy, editors. Brown bear management report of survey and inventory activities 1 July 2012–30 June 2014. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2015-1, Juneau.


ALASKA
DEPARTMENT OF FISH AND GAME