Species Management Report and Plan ADF&G/DWC/SMR&P–2026–2

Black Bear Management Report and Plan, Game Management Unit 2:

Report Period 1 July 2018–30 June 2023, and

Plan Period 1 July 2023–30 June 2028

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Alaska Department of Fish and Game Division of Wildlife Conservation

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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 Roy Churchwell, former Management Coordinator for Region I for the Division of Wildlife Conservation.

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Cover Photo: Young black bear in tall grass ©2024 ADF&G. Photo by Drew Hamilton.

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Purpose of this Report

This report provides a record of survey and inventory management activities for black bear (*Ursus americanus*) in Game Management Unit 2 for the 5 regulatory years 2018–2022 and plans for survey and inventory management activities in the next 5 regulatory years, 2023–2027. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY18 = 1 July 2018–30 June 2019). 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 black bear management report of survey and inventory activities that was previously produced every 3 years.

I. RY18–RY22 Management Report

Management Area

Unit 2 includes Prince of Wales Island (POW) and adjacent islands bounded by a line drawn from Dixon Entrance at the center of Clarence Strait, Kashevarof Passage, and Sumner Strait north to and including Warren Island (Fig. 1). The land area of Unit 2 is approximately 3,582 mi^2 (9,277 km^2), featuring extensive shoreline and marine-influenced habitats. The total human population on POW fluctuates seasonally between 4,000 and 5,000 residents.

Unit 2 is a temperate rainforest with a mild, maritime climate that receives an average of 101.6 inches (2.6 m) of precipitation annually (National Oceanic and Atmospheric Administration 2022). Wind and landslide events are the primary sources of disturbance (Harris 1989, Ott 1997). There is a high density of karst and cave features caused by the chemical weathering of limestone and marble bedrock (Baichtal and Swanston 1996), which affects the hydrology and ecology of the unit.

Land cover consists of well-drained areas historically dominated by old-growth forest consisting of species such as Sitka spruce (*Picea sitchensis*), western hemlock (*Tsuga heterophylla*), red cedar (*Thuja plicata*), and Alaska yellow cedar (*Chamaecyparis nootkatensis*). On flatter terrain, as soil moisture increases, forest cover transitions to low-volume forest, including shore pine (*Pinus contorta*), and eventually muskeg. Above an elevation of approximately 2,000 ft (610 m), the forest transitions into a subalpine zone predominantly composed of mountain hemlock (*Tsuga mertensiana*) and eventually contains isolated areas of alpine vegetation. In forested habitats, the understory consists of shrubs and forbs dominated by blueberry (*Vaccinium* spp.), salal (*Gaultheria shallon*), devil's club (*Oplopanax horridus*), and western skunk cabbage (*Lysichiton americanus*).

Land ownership in Unit 2 is owned by a mosaic of federal, state, and private entities. Eighty percent of the unit consists of Tongass National Forest lands managed by the U.S. Forest Service (USFS) for diverse opportunities, including recreation, economic development, and subsistence activities (USFS Enterprise Data Warehouse 2024). The USFS also maintains Wilderness Areas

Figure 1. Map of Game Management Unit 2, regulatory years 2018–2022, Southeast Alaska.

(Karta River, Maurelle Islands, South POW, and Warren Island), public-use cabins, heritage sites, and the El Capitan Cave Interpretive site. Sealaska Corporation, the largest private landowner in the unit, primarily manages its lands for economic development (e.g., timber harvest) and hunting opportunities for shareholders.

Other landowners include the State of Alaska and the Alaska Mental Health Trust Authority. Timber harvest on federal, state, and private lands has created the greatest density of harvested forest lands in Southeast Alaska. POW contains the largest amount of total productive forest in Southeast Alaska (U.S. Department of Agriculture 2016); however, the island has also experienced the most substantial logging activity in the region since 1954, resulting in a 94% reduction in contiguous high-volume forest (Albert and Schoen 2013). Contiguous forest has been reduced by 77.5% in the northern POW biogeographical region since 1954 (Albert 2019). Logging and the development of extensive road systems increase access for hunters and trappers to previously inaccessible portions of the interior of POW and other islands in Unit 2.

Summary of Status, Trend, Management Activities, and History of Black Bear in Unit 2

Black bears are native to Unit 2 and are traditionally valued for their meat, skulls, and hides. Hunter effort and harvest in the unit have been dynamic over time. Average annual harvest increased from 123 bears during 1980–1988 to 221 bears during 1989–1995, and then to 353 bears during 1994–2002 (Bethune 2011). Hunting magazines in the late 1980s and 1990s showcased POW as an opportunity for a do-it-yourself bear hunt that could result in a trophy animal. This advertising greatly increased interest in hunting black bears in Unit 2.

Between 2003 and 2007, the average annual harvest of black bears increased to 431. Harvest peaked in 2005 with nearly 500 bears reported. Bear harvest by nonresidents in Unit 2 steadily increased over time, peaking at 89% of the total harvest in 2006 and 2007. ADF&G area biologists evaluated this higher level of harvest to be unsustainable. In RY12, a draw hunt for nonresident hunters was instituted with the intention of reducing hunting pressure in Unit 2.[1] This regulatory action limited the number of nonresident hunters through draw permits for 2 separate seasons: fall (DL027) and spring (DL028). Those wanting to hunt without a harvest ticket could do so with a registered guide. In 2019, the Alaska Board of Game voted to permit nonresidents to hunt with someone within the second degree of kindred. Since the implementation of nonresident draw permits for Unit 2 black bear hunts, harvest has stabilized, and hunters report seeing numerous bears while afield.

Unit 2 has a history of human-bear conflicts primarily associated with unsecured human refuse and livestock, but few issues are reported to the department.

[1] This topic was discussed at the 2010 Alaska Board of Game meeting in Southeast Alaska. More information is available at this link: https://www.adfg.alaska.gov/static-f/regulations/regprocess/gameboard/pdfs/2010-2011/southeast/rc41_44.pdf.

Management Direction

Existing Wildlife Management Plans

Alaska Wildlife Management Plans: A Public Proposal for the Management of Alaska's Wildlife: Southeastern Alaska is an existing wildlife management plan for black bear in Unit 2 (ADF&G 1976).

Goals

Provide opportunity for black bear hunting and viewing under the sustained yield principle, using the best science available, to benefit the people of Alaska and conserve black bear populations.

Codified Objectives

Amounts Reasonably Necessary for Subsistence Uses

In 2000, the Alaska Board of Game (the board) made a positive customary and traditional use determination for black bears in Unit 2 (5 AAC 99.025). The board established the amount reasonably necessary for subsistence uses as 15–20 bears in 2008.

Intensive Management

Not applicable.

Management Objectives

1. Maintain an average skull size of at least 19.1 inches for male bears harvested each spring (January through June) or 18.0 inches for all males taken during a regulatory year.
2. Maintain a male-to-female sex ratio of 3:1 in the harvest.
3. Minimize human-bear conflicts by providing information and assistance to the public and other agencies.

Management Activities

1. Population Status and Trend

No population status and trend activities were conducted to estimate black bear abundance in Unit 2 during RY18–RY22.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Quantify and analyze sealing data.

Data Needs

Given a positive customary and traditional finding for black bear in Unit 2 and an amount reasonably necessary for subsistence use, harvest must be assessed to evaluate whether these

codified objectives are achieved. Additionally, the department's management strategy relies on accurate hunter harvest reports and sealing records. Hunter effort and success rates, as well as skull size and male-to-female harvest ratio, are used to monitor changes in the population.

Methods

Hunters are required to submit bear specimens[2] to either authorized ADF&G staff or a state-appointed sealer within 30 days of harvest. Biological and hunt information collected at the time of sealing includes hide color, sex, skull size (length plus width), date and location of harvest, number of days hunted, transportation method, and any use of commercial services (such as licensed big game guides or transportation to the field). A premolar is collected at the time of sealing and sent to a laboratory for age determination. Other biological samples collected at the time of sealing include muscle tissue and fur, which may be used for active projects (e.g., stable isotope analyses to estimate bear diets, investigating which genes code for coat color characteristics) or cataloged for future projects.

Harvest reports provide baseline effort and success data that are not captured in the sealing process. All hunters are required to submit a harvest report; however, mandatory reporting is not enforced for black bear hunters who hunt under a general season harvest ticket, resulting in incomplete harvest data for unsuccessful resident and guided nonresident hunters.

Season and Bag Limit

Residency	Bag limit	Season
Resident	2 bears, not more than 1 of which may be a blue or glacier bear by harvest ticket	1 Sep–30 Jun
Nonresident	1 bear by harvest ticket with registered guide	1 Sep–30 Jun
Nonresident	1 bear by drawing permit (DL027), not using a registered guide	1 Sep–31 Dec
Nonresident	1 bear by drawing permit (DL028), not using a registered guide	1 Jan–30 Jun

Results and Discussion

Harvest by Hunters

During RY18–RY22, 923 total black bears were harvested in Unit 2. Annual harvest ranged from 118 to 224 bears (average = 185 bears; Table 1). Bear harvest density differed across the landscape, and. harvest was highest in areas with higher density roads or near bays with extensive shorelines. Low levels of harvest occurred on the outer islands and southern POW.

Research conducted in other areas of Alaska has shown that the limiting factor in harvest success for big game is hunter access rather than wildlife abundance (Brinkman et al. 2016), which supports our analysis for Unit 2. In April 2020, the commissioner directed the division to close all black and brown bear hunts statewide for both resident and nonresident hunters. Nonresident hunters who had drawn a DL028 tag for RY19 were allowed to hunt at the same time as those

[2] Skull and hide from 1 June to 31 December. Skull and hide or meat from 1 January to 31 May.

Table 1. Black bear reported harvest, regulatory years 2018–2022, Unit 2, Southeast Alaska.

Regulatory year	Season	Hunter harvest					Nonhunting mortality[a]				Total estimated mortality[b]					
		Male	Female	Unknown	Total	Baited[c]	Male	Female	Unknown	Total	Male	%	Female	%	Unknown	Total
2018	Fall	35	20	1	56	0	0	0	0	0	35	63	20	36	1	56
	Spring	115	16	0	131	8	0	0	0	0	115	88	16	12	0	131
	Total	150	36	1	187	8	0	0	0	0	150	80	36	19	1	187
2019	Fall	26	13	0	39	0	1	0	0	1	27	68	13	32	0	40
	Spring	69	10	0	79	10	0	0	0	0	69	87	10	13	0	79
	Total	95	23	0	118	10	1	0	0	1	96	81	23	19	0	119
2020	Fall	23	15	0	38	0	4	0	1	5	27	63	15	35	1	43
	Spring	160	21	0	181	9	0	0	0	0	160	88	21	12	0	181
	Total	183	36	0	219	9	4	0	1	5	187	83	36	16	1	224
2021	Fall	20	15	0	35	0	1	1	0	2	21	57	16	43	0	37
	Spring	157	32	0	189	13	0	0	0	0	157	83	32	17	0	189
	Total	177	47	0	224	13	1	1	0	2	178	79	48	21	0	226
2022	Fall	18	14	0	32	0	0	0	0	0	18	56	14	44	0	32
	Spring	123	17	0	140	6	0	0	1	1	123	87	17	12	1	141
	Total	141	31	0	172	6	0	0	1	1	141	82	31	18	1	173

[a] Includes take in defense of life or property, research mortalities, and other known human-caused mortalities.
[b] Percent by sex based only on known harvest total.
[c] Reported bear harvest over bait.

who drew for the RY21 DL028 season. Some hunters took advantage of this opportunity, but it did not substantially increase harvest in RY21.

The skull size management objective of 19.1 inches for male Unit 2 black bears harvested in spring was established in the late 1980s after analysis of several previous years data showed this to be the long-term average. The department seeks to maintain the skull size objective through harvest at the long-term high, and any reduction in this average skull size is considered a possible indication of changes in the population's age structure. Male skull size exceeded the annual minimum objective of 18.0 inches for the combined spring and fall harvest, as well as the objective of 19.1 inches for spring harvest during RY18–RY22 (Fig. 2). The male skull size objectives were also met during the previous reporting period (RY13–RY17), except in RY13. Female skull size remained relatively stable during RY18–RY22 (Fig. 2). On average, harvested male bears were 8 years old, and harvested female bears were 9 years old. The 3:1 sex ratio objective was met each year during RY18–RY22 (Fig. 3)

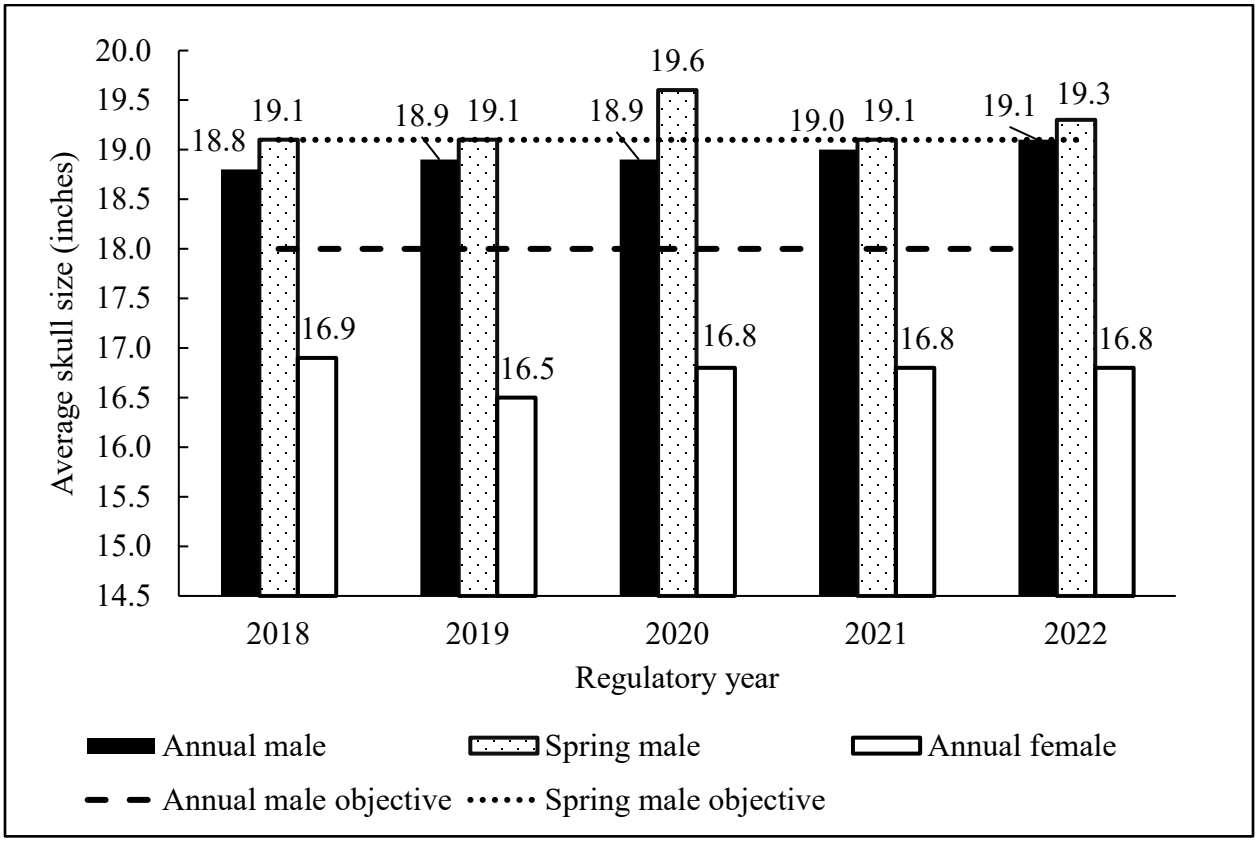

Figure 2. Average skull size (length plus width) of harvested black bears, regulatory years 2018–2022, Unit 2, Southeast Alaska.

Permit Hunts

Resident hunters, hunters hunting with a relative within the second degree of kindred, and guided nonresident hunters harvested black bears in both fall and spring seasons with harvest tickets. Nonguided nonresident hunters harvested black bears with a draw tag in the fall (DL027) and spring (DL028). The number of DL027 and DL028 permits changed annually. During RY18–RY22, DL027 permits increased from 30 to 50, and DL028 permits increased from 100 to 180.

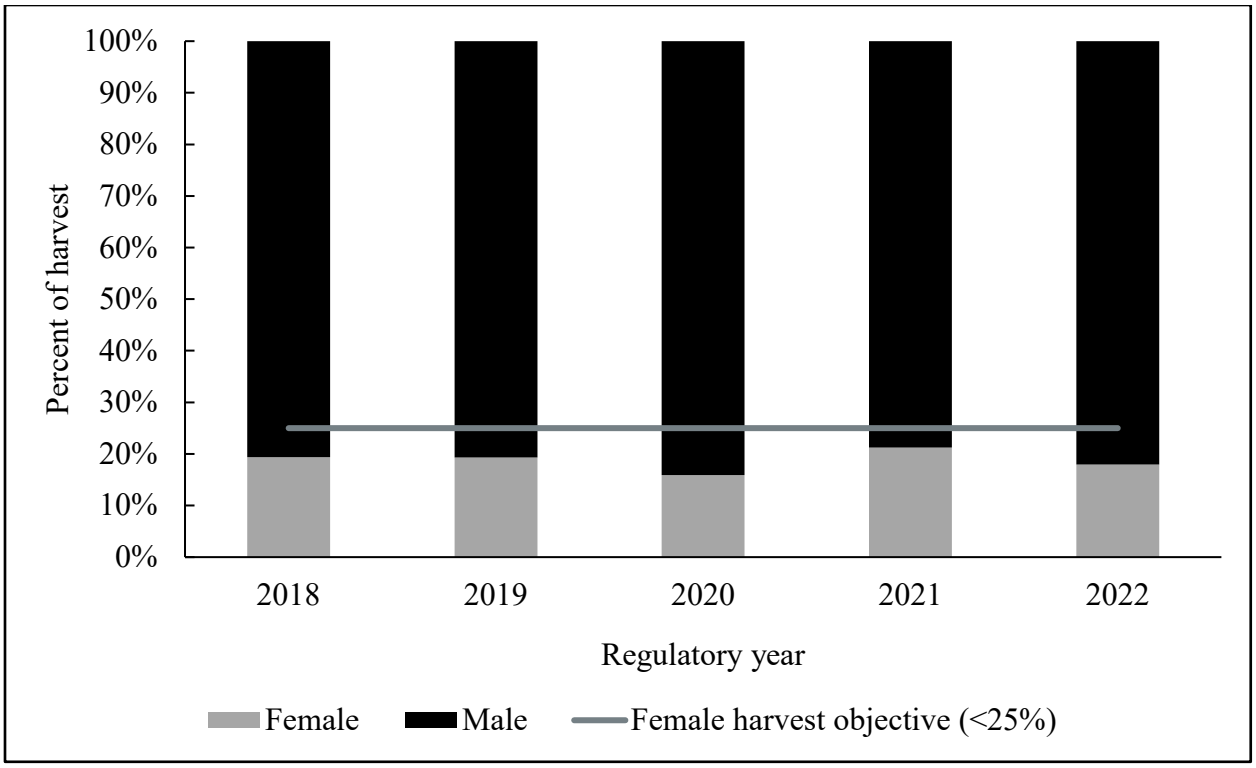

Figure 3. Black bear reported harvest male-to-female ratio, regulatory years 2018–2022, Unit 2, Southeast Alaska.

In RY18–RY22, more bears were harvested with a general season harvest ticket (GL000) than with a drawing permit (DL027 and DL028). DL027 harvest remained stable, while DL028 harvest generally increased over the reporting period (Table 2). Drawing permit hunter harvest was low in spring 2019 due to the cancellation of the spring bear season for many nonresidents. Fourteen percent of annual hunts were guided. On average, 9 bears (5% of harvest) were harvested annually over bait, and no bears were harvested with dogs. One hunter received a permit each regulatory year to hunt bears with dogs in Unit 2 but did not pursue bears for harvest during any of those years.

Table 2. Number of reported black bears harvested by draw permit type—DL027 (fall) and DL028 (spring)—and the associated number of bears harvested at a bait station or with the use of dogs under these drawing permits, regulatory years 2018–2022, Unit 2, Southeast Alaska.

	Permit			Method of take	
Regulatory year	DL027	DL028	Total	Bait	Dogs
2018	17	57	74	4	0
2019	18	12	30	0	0
2020	20	81	101	5	0
2021	19	87	106	6	0
2022	17	63	80	3	0
Average	18	60	78	4	0

Hunter Residency and Success

Nonresidents harvested more black bears than residents in each year of RY18–RY22, except for RY19 (Fig. 4). Fewer nonresidents harvested bears in RY2019 due to the closure of the spring season to nonresidents. Nonresidents also harvested more bears than residents in RY13–RY17.

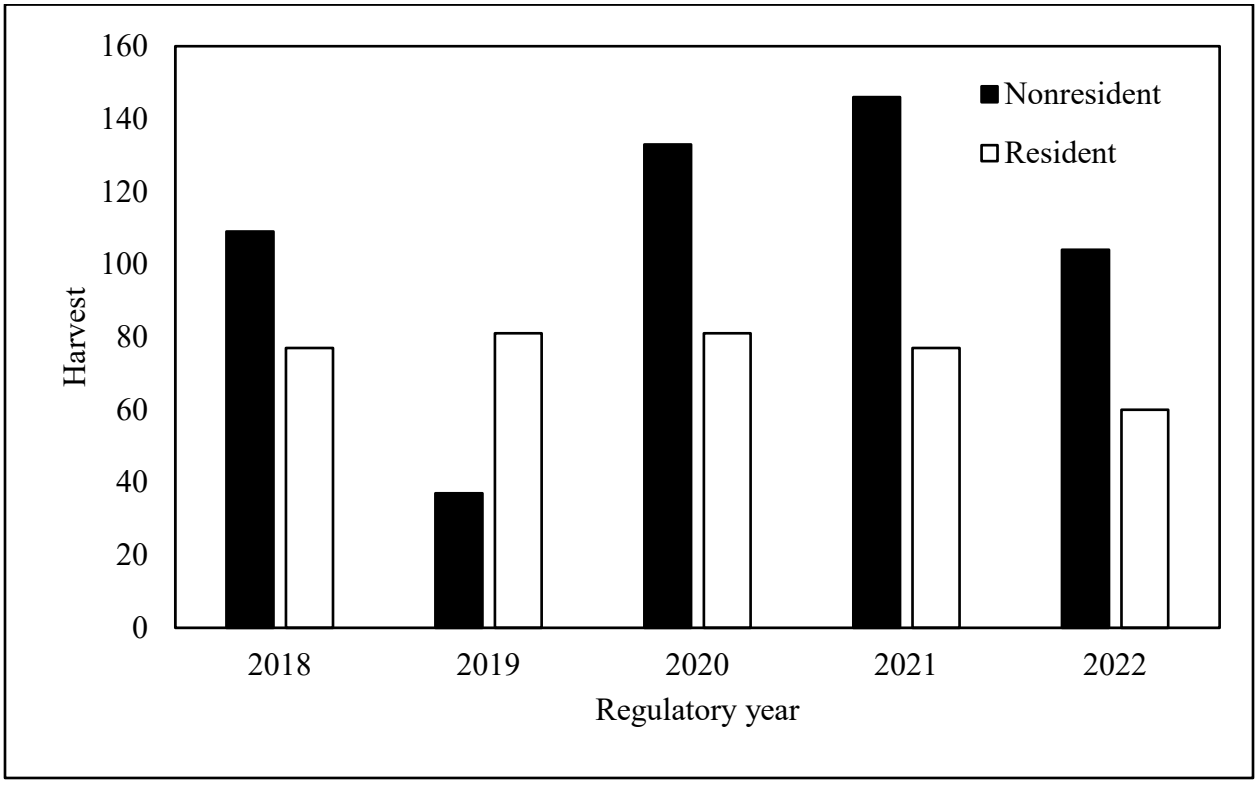

Figure 4. Number of black bears harvested by resident and nonresident hunters, regulatory years 2018–2022, Unit 2, Southeast Alaska.

Harvest Chronology

Bear harvest varies temporally, with the highest harvest in May (average = 55%), followed by June (average = 20%) and September (average = 18%). The department issues more draw hunt permits in the spring than in the fall, which influences bear harvest chronology; greater harvest in the spring helps maintain a male-to-female sex ratio of 3:1 or less in the total annual harvest.

Transport Methods

More than 50% of hunters reported using a boat to harvest a bear during RY18–RY22, except for in RY19. Highway vehicles were the second most popular mode of transportation for successful hunters. In RY19, over 50% of hunters used a highway vehicle, with boats being the second most popular mode of transportation. During RY13–RY17, highway vehicles were the most popular form of transportation for successful bear hunters.

Other Mortality

Other sources of black bear mortality include wounding loss, illegal harvest, and human-wildlife conflicts. Natural mortality factors, which are not quantified, include predation, intraspecies competition, disease, and accidents. Tracking wounded animals in Unit 2 is challenging due to the unit's dense understory and frequent rainfall. During sealing, some hunters report that they shot at additional bears; however, this information is anecdotal and not recorded. A study in Unit 2 using limited data reported an estimated 25% nonrecovery rate by hunters (Bethune 2014). Additionally, illegal harvest occurs in Unit 2 at an unknown rate. Historical records are inaccurate regarding the number of bears taken while getting into garbage or other human attractants. During RY18–RY22, residents and law enforcement provided 6 defense of life or property reports. Most of the unit is not restricted by city ordinances; therefore, landowners may choose to harvest a bear under hunting regulations rather than take the bear under defense of life or property regulations.

Recommendations for Activity 2.1

Continue sealing bears, collecting hunter harvest data, and encouraging compliance with reporting requirements.

3. Habitat Assessment-Enhancement

No habitat assessment and enhancement activities were conducted for black bears in Unit 2 during RY18–RY22. Although the division is not currently conducting habitat-related activities in Unit 2, significant changes are taking place in black bear habitat in Unit 2 outside the division's efforts. The USFS, the State of Alaska, and private landowners provided access to timber for logging companies from RY18 to RY22.

Old-growth forests are typically targeted for timber harvest, and the loss of old-growth forest reduces denning habitat for black bears. In Southeast Alaska, black bears rely on large-diameter trees in old-growth stands for dens (Porter et al. 2020, 2021). Large-diameter stumps left behind after logging can still provide denning habitat; however, their lifespan is limited. Leaving a no-harvest buffer around known denning trees could conserve black bear denning habitat by minimizing potential disturbance and preventing the abandonment of dens (Linnell et al. 2000). When known dens are within timber sale units, the department determines an appropriate buffer recommendation and assists with identifying the locations of dens prior to timber harvest.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Human–Bear Conflicts

The third management objective of minimizing human-bear conflicts by providing information and assistance to the public and other agencies is difficult to evaluate in terms of success. During RY18–RY22, the department did not record specific activities related to this objective for black bears in Unit 2. The total number of bears taken in defense of life or property was low ($n = 6$); however, the total number of human-bear conflicts on POW is unknown. With a small presence from DWC in Unit 2 during much of the year, many conflicts with black bears are handled by the Alaska Wildlife Troopers.

Data Recording and Archiving

Bear teeth were analyzed at Matson's Laboratory for aging, and data are recorded in WinfoNet (Wildlife Information Network). Historical survey notes and datasheets are stored in the Ketchikan area office files. Memos, data forms, and other information will be stored in the Ketchikan area office's shared hard drive. Species management reports and plans are available online.[3]

Agreements

There were no formal agreements for black bear in Unit 2 during RY18–RY22.

Permitting

No permits were needed to conduct work for black bears in Unit 2 during RY18–RY22.

Conclusions and Management Recommendations

Current management is providing sustainable harvest opportunities for black bears in Unit 2. Management objectives were consistently met during RY18–RY22, and no changes to management are recommended at this time. However, managers should monitor long-term harvest trends, as logging has reduced the large trees preferred for denning across Unit 2, and it should be determined whether a reduction in preferred denning habitat leads to a decline in the black bear population. This trend will be difficult to interpret without additional research that provides evidence of a change in population trend directly related to denning habitat.

II. Project Review and RY23–RY27 Plan

Review of Management Direction

Management Direction

Current goals and objectives successfully direct black bear management in Unit 2. The management direction for Unit 2 ensures that black bears will persist as part of the natural ecosystem, thereby maintaining sustainable hunting and viewing opportunities. There is no indication that the long-term sustainability of the black bear population or unitwide goals for human use cannot be met. Therefore, the department does not recommend any changes in management direction from that in the RY18–RY22 report period.

Goals

No change from the RY18–RY22 report period.

[3] http://www.adfg.alaska.gov/index.cfm?adfg=librarypublications.wildlifemanagement.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

In 2000, the Alaska Board of Game (the board) made a positive customary and traditional use determination for black bears in Unit 2 (5 AAC 99.025). The board established the amount reasonably necessary for subsistence uses as 15–20 bears in 2008.

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

No change from the RY18–RY22 report period.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

No population status and trend activities are anticipated for black bears in Unit 2 during RY23–RY27.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Quantify and analyze sealing data.

Data Needs

No change from the RY18–RY22 report period.

Methods

No change from the RY18–RY22 report period.

3. Habitat Assessment-Enhancement

No habitat assessment and enhancement activities for black bear in Unit 2 are anticipated in RY23–RY27. As logging continues and large tracts of previously logged habitat rapidly transition to second-growth forest, there may be reductions to the carrying capacity for black bears in Unit 2. The department will continue to provide comments on development projects that alter habitat.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Human–Bear Conflicts

Continue to monitor reports of nuisance or conflict-prone black bears, defense of life or property reports, and other instances of conflicts with black bears. Trained ADF&G personnel will be

available to respond to conflicts as they arise when appropriate and necessary. However, it is anticipated that most conflicts with black bears will continue to be handled by the Alaska Wildlife Troopers.

Data Recording and Archiving

The department will store all data digitally, and all historical information will be scanned and stored on the Ketchikan area office shared drive.

Agreements

The department has an agreement with the University of Alaska Fairbanks (UAF) to share wildlife photographs and location data and to provide a machine-learning platform for automated image classification of photographs from remote trail cameras in Unit 2. This agreement is effective from 23 September 2024 to 31 December 2027. There are multiple graduate student projects that will take place in Unit 2 under this agreement, including a project by a UAF Master's student to monitor interactions between deer and predators (wolves and black bears) using remote trail cameras. This project is anticipated to conclude in 2025, with results available in 2026.

No other formal agreements for black bear in Unit 2 are anticipated in RY23–RY27.

Permitting

No permits are anticipated for work with black bear in Unit 2 during RY23–RY27.

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DEPARTMENT OF FISH AND GAME