Species Management Report and Plan ADF&G/DWC/SMR&P–2023–19

Furbearer Management Report and Plan, Game Management Unit 4:

Report Period 1 July 2017–30 June 2022, and

Plan Period 1 July 2022–30 June 2027

Stephen Bethune

2023

Alaska Department of Fish and Game Division of Wildlife Conservation

Species Management Report and Plan ADF&G/DWC/SMR&P-2023-19

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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 Richard Nelson, Management Coordinator for the Division of Wildlife Conservation.

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Cover Photo: Red squirrels in Unit 4 have a very colorful history. ©2023 ADF&G. Photo by Stephen Bethune.

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Purpose of this Report

This report provides a record of survey and inventory management activities for furbearers in Game Management Unit 4 for the 5 regulatory years 2017–2021 and plans for survey and inventory management activities in the next 5 regulatory years, 2022–2026. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY21 = 1 July 2021–30 June 2022). 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, 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 years. It replaces the furbearer management report of survey and inventory activities that was previously produced every 3 years.

I. RY17–RY21 Management Report

Management Area

Unit 4 encompasses Admiralty, Baranof, Chichagof, and adjacent islands (Fig. 1). It consists of approximately 5,820 square miles of land and over 5,000 miles of shoreline. Roughly 90% of the unit is Tongass National Forest lands. Sitka, located on Baranof Island, is the largest community in the unit with about 8,500 residents. Other communities include Hoonah, Pelican, and Elfin Cove, Tenakee Springs on Chichagof Island, and Angoon on Admiralty Island. All residents of Unit 4 are qualified to trap under federal subsistence regulations.

North Chichagof Island east of Idaho Inlet and north of Trail River and Tenakee Inlet, and north of a line from the headwaters of Trail River to the head of Tenakee Inlet, and north of Tenakee Inlet is treated separately from the remainder of Unit 4 with regard to marten, mink, and weasel (Fig. 2). This area has a shorter season. This area traditionally has higher-than-average snowfalls (for Unit 4) and is highly roaded due to past logging activity. However, rural residents trapping under federal regulations are not restricted to this shorter season.

Unit 4 has 3 large federally protected wilderness areas and one small one. The West Chichagof-Yakobi Wilderness was Alaska's first federally designated wilderness area. Its designation was the result of a citizen petition led by Chuck Johnstone, who cofounded the Sitka Conservation Society in opposition to large-scale commercial logging in Southeast Alaska. The wilderness area encompasses 265,286 acres and includes most of Yakobi Island, the entire west side of Chichagof Island, as well as numerous smaller associated islands. The 956,255-acre Kootznoowoo Wilderness covers all Admiralty Island, with the exception of the Mansfield Peninsula and Alaska Native Corporation lands on the west shore near the village of Angoon. The South Baranof Wilderness is 319,568 acres and encompasses much of the southern half of Baranof Island. All 3 of these wilderness areas were designated by Congress in 1980 as part of the Alaska National Interest Lands Conservation Act. The fourth and smaller designated wilderness is the Pleasant/Lemesurier/Inian Islands Wilderness. The 23,151 acres are situated in Icy Straits between the north end of Chichagof Island and Glacier Bay National Park to the north. These islands were designated by Congress in 1990.

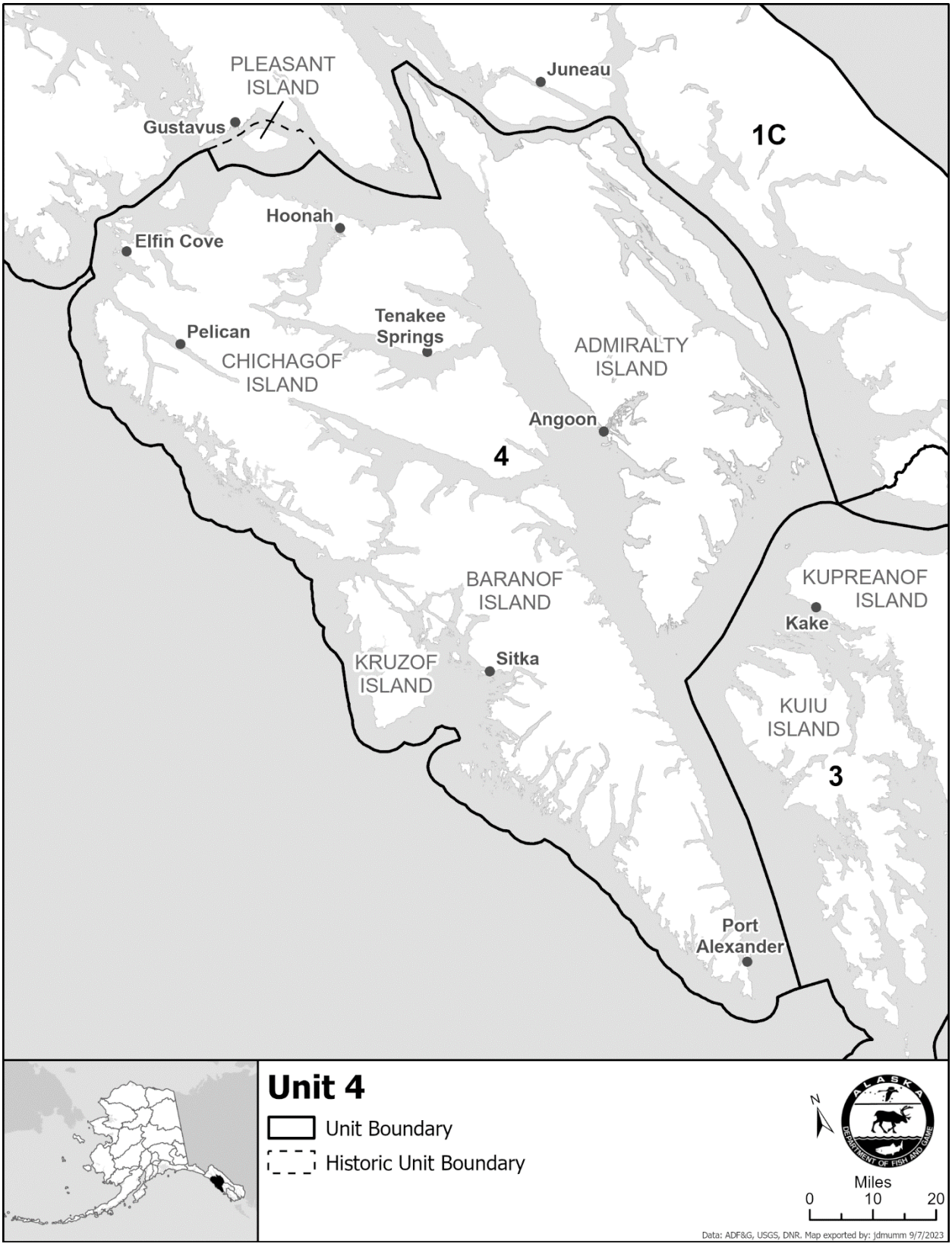

Figure 1. Map of Unit 4. Note the new boundary line near Gustavus that excludes Pleasant Island from Unit 4.

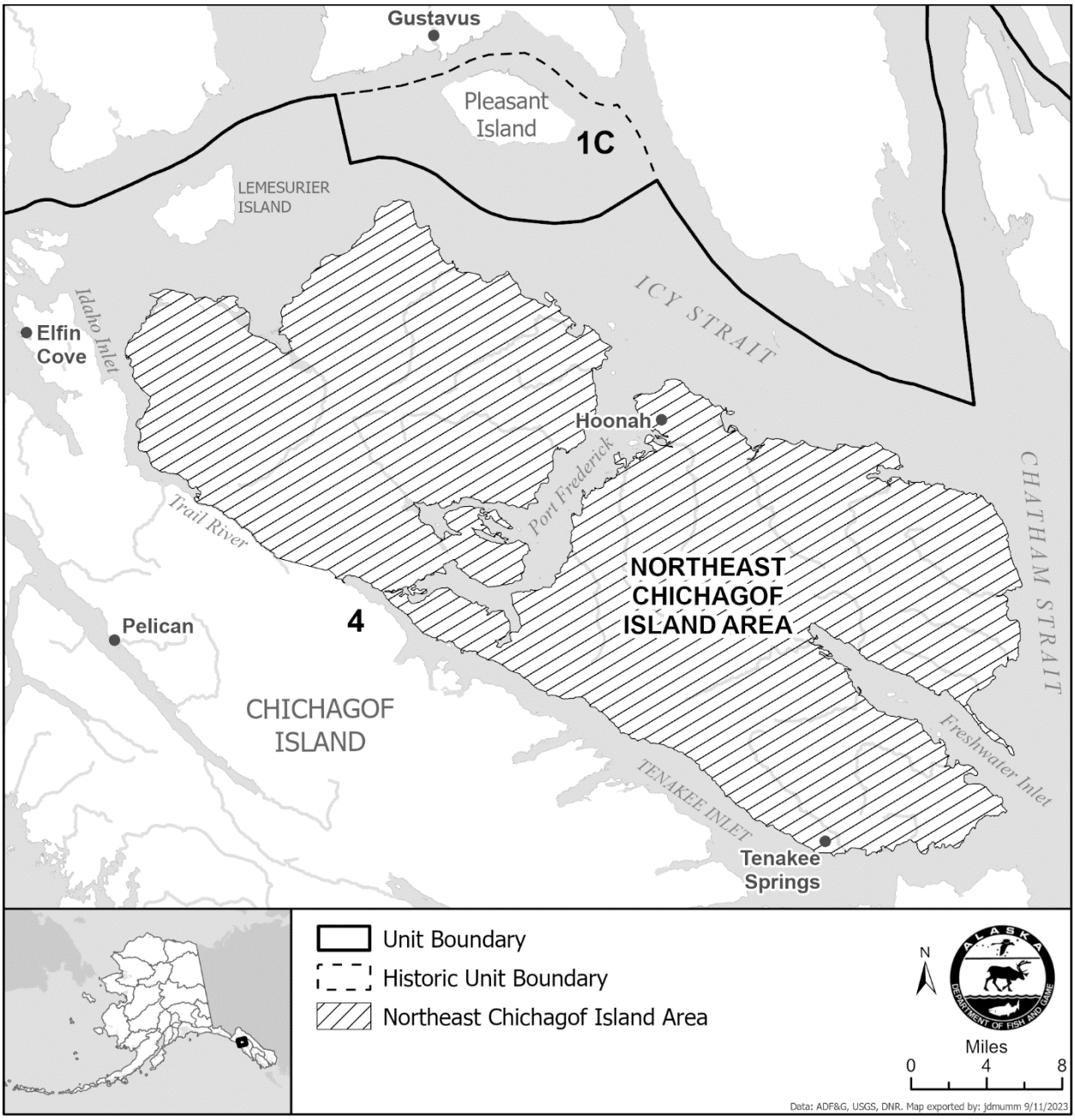

Figure 2. Map of Northeast Chichagof Island, Southeast Alaska.

The 4 federally protected wilderness areas prohibit commercial enterprises (except guides and outfitters), building new roads, timber harvest, the use of motorized land vehicles (except snow machines), and helicopters.

Pleasant Island near Gustavus was part of Unit 4, but the Alaska Board of Game decided at its March 2022 statewide meeting the island would be part of Unit 1C beginning in RY22. The island is much more ecologically and geographically associated with the Gustavus forelands than Chichagof Island.

Like most of Southeast Alaska, Unit 4 has a maritime climate with moderate summer and winter temperatures and high precipitation (U.S. Climate Data 2022). Temperatures (Fahrenheit) range from the mid-30s in the winter to mid-50s in the summer. Rainfall in Sitka averages approximately 87 inches per year, but totals are highly variable from year to year and within the unit. For example, Little Port Walter on the southeast coast of Baranof Island, one of the rainiest places in North America, recorded 216 inches of rain in 2019 (NOAA [n.d.]). Sitka averages 33 inches of snow annually, but again, annual snowfall is highly variable across the unit and from year to year. In some years deep and persistent snow can accumulate at sea level in the northern and eastern portions of the unit.

Unit 4's landscape is characterized by steep and rugged terrain with mountains, fjords, wetlands, estuaries; and short, swift rivers. Elevation within the unit ranges from sea level to 5,328 feet. Predominant vegetative communities occurring at low-moderate elevations (<1,500 feet) are dominated by western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*), with western red cedar (*Thuja plicata*) and Alaska yellow-cedar (*Callitropsis nootkatensis*) old-growth coniferous forests. Mixed-conifer muskeg and deciduous riparian forests are also common. Forests dominated by mountain hemlock (*Tsuga mertensiana*) make up a subalpine timberline band between 1,500 and 2,500 feet in elevation. Because of the high rainfall, natural disturbance to the forest occurs via landslides and wind-throw events rather than fire.

Summary of Status, Trend, Management Activities, and History of Furbearers in Unit 4

The quest for fur has done much to shape the history and culture of the people of Unit 4. Russian settlement and battles with the local Tlingit tribes were centered on the acquisition of fur, particularly sea otters. Alaska Natives have historically trapped for cultural and subsistence purposes and as an income generator. In the more modern era, trapping is more of a recreational opportunity though income potential is still an influencing factor. Trapping effort is based on a combination of factors such as fur prices, the strength of the local economy, fuel prices and to a lesser degree, furbearer abundance. Although there are some limited road-accessible areas in Unit 4 to trap, most effort is via boat. Severe winter weather can preclude trapper access and have a significant impact on annual harvest levels (Mooney 2007).

Marten (*Martes americana*), river otters (*Lontra canadensis*) and beavers (*Castor canadensis*) are the main furbearer species targeted in Unit 4. In addition, mink (*Neovison vison*), weasels or ermine (*Mustela* spp.), and American red squirrels (*Tamiasciurus hudsonicus*) are present in Unit 4 and are taken incidentally. ADF&G does not require sealing or track harvest of these incidental takes. Density of individual species is variable, depending on a variety of ecological factors and levels of harvest. Historical information on population status and trends is mostly anecdotal. Harvests of marten, river otters, and beavers are monitored by sealing.

Marten are common throughout Unit 4 and are by far the most targeted furbearer and provide the bulk of the annual harvest. Pacific marten (*Martes caurina*) are found only on Admiralty Island and are indigenous. American marten (*Martes americana*) are the result of introductions on Baranof and Chichagof islands. Marten populations on Baranof Island stem from a 1934 effort in which 7 animals were released. This transplant was successful despite the relatively small

number of animals released (Elkins and Nelson 1954). The Chichagof population is the result of 21 martens released near Pelican in 1951 and 1952 (Elkins and Nelson 1954). An interesting anecdote is that part of the successful and rapid expansion of marten on Chichagof Island is likely the result of unofficial citizen efforts. Former ADF&G biologist Loyal Johnson reported (Paul 2009) that at least one local trapper would take any females caught on Baranof that were still alive to Chichagof and release them. Marten have delayed implantation, so females caught in the fall would already be pregnant.

The U.S. Forest Service and ADF&G conducted a marten ecology study on northeast Chichagof Island in the early 1990s (Flynn 1993). Marten densities were quantified using mark–recapture techniques (Flynn and Schumacher 2016). Data from this study highlighted how variable marten numbers are over time. During the study, populations of small mammals, particularly long-tailed voles (*Microtus longicaudus)*, a primary prey of marten, showed similar trends. No other formal population estimations have been conducted for any furbearer species in Unit 4. The department relies on information acquired from trappers responding to an annual questionnaire, along with harvest trends and anecdotal information, which is adequate to evaluate general trends.

Otter and mink are abundant throughout Unit 4. The vast intertidal and estuarine habitats provide excellent habitat (Whitman 2001). Mink harvests are not tracked. Otter harvest is variable based on fur prices, and some harvest is opportunistic as deer hunters come across otters while traveling by boat. It is legal to shoot otters from a boat in Southeast Alaska. Based on long-term harvest data, populations are thought to be stable (Mooney 2013).

Beavers generally occur at low but stable densities on the Admiralty, Baranof, and Chichagof (ABC) islands. However, higher densities occur in localized areas, particularly related to disturbed areas from previous logging areas near river bottoms. These disturbed soils often regenerate into alder and willow stands and provide suitable habitat (Mooney 2007).

Red squirrels, though not tracked in Unit 4, have a colorful history that bears mentioning. They are abundant throughout the unit and are a result of a transplants that occurred in 1930 and 1931 of 150 individuals that were live-trapped near Juneau and released on Baranof and Chichagof islands (Paul 2009). Populations on Admiralty are attributed to private citizens releasing them near Young Bay in the late 1970s (Paul 2009). Red squirrel transplants were primarily conducted to augment food resources for marten. However, it is now understood that squirrels are a limited part of a marten's diet (Lensink et al. 1955, Buskirk and Ruggiero 1994, Ben-David et al. 1997, Flynn et al. 2004). It is unlikely, therefore, that squirrel transplants made much of a difference on the outcome of marten introductions. Local lore is that the 1930 introduction was conducted as an "air drop" due to poor weather and that the forest canopy provided a soft-enough landing for at least part of the transplant to survive and eventually expand.

Squirrel introductions may have had unintended consequences for upland birds. Several former ADF&G biologists stationed in Sitka suspected that squirrels are at least partly to blame for diminished populations of dusky grouse (*Dendragapus obscurus*; or hooters as they are popularly known) and ptarmigan (*Lagopus*) on the ABC islands (Paul 2009). As of this writing, dusky grouse populations remain depressed on Baranof Island and are moderate on Chichagof, but are high on Admiralty Island.

Management Direction

Existing Wildlife Management Plans

Greater Alaska Furbearer Management Plan in 1976 Species Management Plan (ADF&G 1976).

Goals

To provide the following:

1. An optimum harvest of furbearers.
2. The greatest opportunity to participate in hunting and trapping furbearers.

Codified Objectives

Amounts Reasonably Necessary for Subsistence Uses

The Alaska Board of Game has made a positive subsistence finding for furbearers in all units, including Unit 4, with a harvestable surplus to be 90% of the harvestable portion (5 AAC 99.025(13).

Intensive Management

Not applicable.

Management Objectives

- Regulate seasons and bag limits to maintain viewable and harvestable populations of marten, river otters, and mink.
- Through regulatory restrictions, allow beaver populations to expand in western portions of Unit 4 (Chichagof and Baranof islands).
- Seal harvested marten, river otter, and beaver pelts as they are presented for sealing.
- Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.
- Continue to monitor marten, river otter, and mink populations through carcass necropsies and evaluation of those data.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Record observations of furbearers seen incidentally during other survey work and anecdotal reports from the public.

Data Needs

Incidental observations are insufficient for estimating the population or detecting changes that would trigger management action. However, a statistical estimate derived from a sample-based estimator, including a measure of precision that would be needed to detect changes in the population are not currently a regional priority.

Methods

GPS locations and characteristics are recorded for any furbearers observed during other field work. Most observations occur during spring deer surveys. Anecdotal reports are recorded to the maximum level of detail available.

Results and Discussion

None.

Recommendations for Activity 1.1.

Continue to actively seek information from trappers and others that observe furbearers.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor harvest through sealing records.

Data Needs

Harvest must be assessed to understand the potential impact of furbearer harvest.

Methods

ADF&G staff collected harvest data sealing hides of marten, river otter, and beaver taken by trappers. We recorded location and date of harvest, method of take, transportation mode, and sex. In the case of otters and beavers, we measured hides. Sealing must occur by an ADF&G or state-appointed sealer within 30 days of the close of the season. These data are entered into ADF&G's Wildlife Information Network database (WinfoNet).

Season and Bag Limit

Trapping Season and Bag Limits for RY17–RY21

Species	Season	Bag Limit
Beaver	10 Nov–15 May	No limit
Marten (northeast Chichagof)	1 Dec–31 Dec	No limit
Marten (remainder)	1 Dec–15 Feb	No limit
Mink (northeast Chichagof)	1 Dec–31 Dec	No limit
Mink (remainder)	1 Dec–15 Feb	No limit
River otter	1 Dec–15 Feb	No limit

Results and Discussion

Harvest by Hunters-Trappers

MARTEN

Harvest ranged from 372 to 1,403 marten during RY17–RY21 (Table 1). The 5-year average was 814. Trappers reported average marten prices of $41 (range $20.69–$69.47) per pelt during RY17–RY21, well below the average of $142 in RY12 (Bogle 2022). On average, 29 trappers participated annually during RY17–RY21 (range 19–43). Male marten averaged approximately 64% of the harvest during the 5-year period.

Table 1. Marten, harvest and method of take for sealed animals, Unit 4, regulatory years 2017–2021, Southeast Alaska.

Regulatory year	Total harvest	Successful participants	Percentage males[a]	Percentage method of take			
				Shot	Trapped	Snared	Unknown
2017	1,211	43	70	0	100	0	0
2018	1,403	37	60	0	100	0	0
2019	442	19	62	0	100	0	0
2020	643	23	70	0	100	0	0
2021	372	21	56	0	100	0	0

[a] Unknown sex not included.

RIVER OTTER

Harvest ranged from 34 to 125 river otters during RY17–RY21 (Table 2). The 5-year average was 91. Otters are both trapped and shot. Roughly 50% were shot and 50% were trapped during RY17–RY21. The participation level declined every year. Males averaged 59% of the harvest during RY17–RY21, and juveniles made up 44% of the harvest.

Table 2. Otter, harvest and method of take for sealed animals, Unit 4, regulatory years 2017–2021, Southeast Alaska.

Regulatory	Total	Successful	Percent	Percent	Percentage method of take			
year	harvest	participants	males	juveniles[a]	Shot	Trapped	Snared	Unknown
2017	125	24	56	52	59	41	0	0
2018	118	21	62	41	51	47	0	2
2019	106	16	61	30	36	63	0	1
2020	73	15	60	48	52	48	0	0
2021	34	10	44	58	50	41	0	9

[a] Juvenile otter measure (length) <42 inches.

BEAVER

Harvest ranged from 3 to 32 beavers in Unit 4 during RY17–RY21 (Table 3). The 5-year average harvest was 15 beavers. Traps were the most common method of take, and the proportion of juveniles in the harvest varied greatly. Beavers reported as shot were a result of new regulatory action in RY15 that allowed for the take of beaver with firearms. Very few people (1 to 4 participants) targeted beavers in the unit. Sex ratio of beavers in the harvest is unknown due to the difficulty of sexing beavers.

Table 3. Beavers, harvest and method of take for sealed animals, Unit 4, regulatory years 2017–2021, Southeast Alaska.

Regulatory	Total	Successful	Percent	Percentage method of take			
year	harvest	participants	juveniles[a]	Shot	Trapped	Snared	Unknown
2017	32	3	22	0	100	0	0
2018	26	4	20	4	96	0	0
2019	8	4	0	0	88	12	0
2020	6	1	0	7[b]	100	0	0
2021	3	2	0	33	67	0	0

[a] Juvenile beavers measure (length + width) < 52 inches.
[b] Beginning in RY15, beavers could legally be taken with a firearm.

OTHER SPECIES

There are no harvest data for mink, squirrels, and weasels due to the absence of sealing requirements and minimal harvest and effort. Mooney (2013) derived a conversion factor based on marten sealed/marten reported on the annual trapper questionnaire. Using this conversion factor for RY17–RY21, results in an average annual estimate of 66 mink harvested (range 4–106; Spivey 2019, 2020; Bogle 2021a, 2021b, 2022).

Harvest Chronology

December is the peak month for both marten and river otter, with approximately three-fourths and one-half of harvest, respectively, occurring in December (Table 4). Beaver harvest is more

variable and unpredictable in timing, which is understandable given only 1–4 trappers participate.

Transport Methods

Trappers in Unit 4 consistently use boats as the primary mode of transportation for all species (Table 5).

Alaska Board of Game Actions and Emergency Orders

Beginning with the RY16 season, trappers are no longer required to mark traps and snares with a permanent identification number. Beginning with the RY19 season, the beaver trapping season was extended in Units 1–5 by 2 weeks, ending on May 15.

No emergency orders were issued during RY17–RY21.

Recommendations for Activity 2.1

Continue.

Table 4. Marten, river otter, and beaver, harvest percentage chronology, Unit 4, regulatory years 2017–2021, Southeast Alaska.

	Regulatory	Percentage of harvest								
	year	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	*n*
Marten	2017	0	0	0	67	26	7	0	0	1,211
	2018	0	0	0	80	14	6	0	0	1,403
	2019	0	0	0	88	11	1	0	0	434
	2020	0	0	0	75	18	7	0	0	642
	2021	0	0	0	86	14	0	0	0	372
River otter[a]	2017	0	0	0	62	32	6	0	0	117
	2018	0	0	0	57	23	20	0	0	115
	2019	0	0	0	35	16	49	0	0	105
	2020	0	0	0	36	39	25	0	0	67
	2021	0	0	0	79	14	7	0	0	28
Beaver	2017	0	0	0	13	28	9	28	22	32
	2018	0	0	12	4	23	8	38	15	26
	2019	0	0	25	38	0	0	25	12	8
	2020	0	0	0	0	0	0	50	50	6
	2021	0	0	0	0	100	0	0	0	3

[a] Otters taken under damage control permits outside season dates are not included in this table.

Table 5. Marten, river otter, and beaver, harvest by transport method, Unit 4, regulatory years 2017–2021, Southeast Alaska.

		Percentage of harvest							
	Regulatory year	Airplane	Foot	Boat	3 or 4-Wheeler	Snow-machine	Highway vehicle	Unknown	*n*
Marten	2017	0	5	66	9	5	15	0	1,211
	2018	0	6	65	5	4	20	0	1,403
	2019	1	5	70	12	0	12	0	442
	2020	0	8	91	1	0	0	0	643
	2021	0	4	89	0	0	7	0	372
River otter	2017	0	10	79	0	0	11	0	125
	2018	7	6	84	0	0	2	1	118
	2019	0	5	85	0	0	9	1	106
	2020	0	11	79	0	0	10	0	73
	2021	0	12	73	0	0	6	9	34
Beaver	2017	0	12	50	38	0	0	0	32
	2018	4	35	61	0	0	0	0	26
	2019	0	0	62	0	0	38	0	8
	2020	0	0	100	0	0	0	0	6
	2021	0	0	100	0	0	0	0	3

3. Habitat Assessment-Enhancement

No habitat assessment or enhancement activities were conducted by ADF&G in Unit 4 during RY17–RY21.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Data sheets are scanned and stored on the shared DWC server (S:\Offices\Sitka\Furbearer) and the local area biologist's hard drive.
- Original datasheets are stored in file folders located in the Sitka area biologist's office.
- Historical survey notes and data sheets are being digitized and scanned for permanent storage on the file server.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

It is impractical to set harvest and population objectives for furbearers without any data on population levels. Quantifiable management objectives need to be established for marten, river otters, and beavers. Harvest information is available for all these species from sealing records, and application of existing and emerging methodologies may provide opportunities to monitor population trends.

The general approach for furbearer management is to expect population levels to self-regulate trapper effort and harvest. This approach has been successful, and though populations are cyclical at times, harvests of furbearers appear to be within sustainable limits. No changes in seasons or bag limits are recommended.

II. Project Review and RY22–RY26 Plan

Review of Management Direction

Management Direction

The existing management direction and goals appropriately direct management of furbearers in Unit 4. The management direction for the unit ensures that furbearers will persist as part of the natural ecosystem and ensures continued trapping (on applicable species) and viewing opportunities. There is no indication that the long-term sustainability of the furbearer populations or that statewide goals (ADF&G 1976) for human uses cannot be met; therefore, the Unit 4 management direction should continue to be that furbearers will be managed in a manner that complements the statewide furbearer management goals. There are no area-specific issues in Unit 4 that require a departure from statewide goals for furbearer management, and furbearers are not currently managed at a subunit scale.

Goals

To provide the following:

1. An optimum harvest of furbearers.

2. The greatest opportunity to participate in hunting and trapping furbearers.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Board of Game has made a positive subsistence finding for furbearers in all units, including Unit 4, with a harvestable surplus to be 90% of the harvestable portion (5 AAC 99.025(13).

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

- Regulate seasons and bag limits to maintain viewable and harvestable populations of marten, river otters, and mink.
- Through regulatory restrictions, allow beaver populations to expand in western portions of the unit (Chichagof and Baranof islands).
- Seal harvested marten, river otter, and beaver pelts as they are presented for sealing.
- Contact reliable observers for general information about the status and trends of furbearer populations, including the use of an annual trapper survey.
- Continue to monitor marten, river otter, and mink populations through carcass necropsies and evaluation of those data.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Record observations of furbearers seen incidentally during other survey work and anecdotal reports from the public.

Data Needs

Incidental observations are insufficient for estimating the population or detecting changes that would trigger management action. However, a statistical estimate derived from a sample-based estimator, including a measure of precision that would be needed to detect changes in the population, are not currently a regional priority.

Methods

GPS locations and characteristics will be recorded for any furbearers observed during other field work. Most observations are expected to occur during spring mortality and body condition surveys. Anecdotal reports will be recorded to the maximum level of detail available.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor harvest through sealing records.

Data Needs

Harvest must be assessed to understand the potential impact of furbearer harvest.

Methods

We will collect harvest data by sealing hides of marten, otter, and beaver taken by trappers. We will record the location and date of harvest, method of take, transportation mode, sex, and, in the case of otters and beavers, we will measure the hides. Sealing must occur by an ADF&G or state-appointed sealer within 30 days of the close of the season. These data will be entered into ADF&G's Wildlife Information Network database (WinfoNet).

3. Habitat Assessment-Enhancement

No activities for furbearer habitat assessment or enhancement are expected in Unit 4 furbearer management.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Data collected during surveys will be recorded on datasheets and transcribed into the furbearer observations spreadsheet located on the Sitka server.

Agreements

None.

Permitting

None.

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