

Wolf Management Report and Plan, Game Management Units 9 and 10:

Report Period 1 July 2010–30 June 2015, and
Plan Period 1 July 2015–30 June 2020

David W. Crowley
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USFWS photo by Dom Watts.



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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 area, 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 website.

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

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Cover photo: ADF&G biologist Lem Butler with a wolf that was captured and temporarily sedated so a tracking collar could be applied. Tracking wolves helps biologists better understand wolf populations and movements. U.S. Fish and Wildlife Service photo by Dom Watts, Becharof National Wildlife Refuge.

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Purpose of this Report

This report provides a record of survey and inventory management activities for wolf (*Canis lupus*) in Units 9 and 10 for the previous 5 regulatory years (RY; RY10–RY14) and plans for survey and inventory management activities in the 5 years following the end of that period (RY15–RY19). A regulatory year begins 1 July and ends 30 June (e.g., RY10 = 1 July 2010–30 June 2011). This report is produced primarily to provide agency staff with data and analysis to help guide and record its own efforts but is also provided to the public to inform them of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G) Division of Wildlife Conservation (DWC) launched this 5-year report to more efficiently report on trends and describe potential changes in data collection activities over the next 5 years. It replaces the wolf management reports of survey and inventory activities that were previously produced every 3 years and supersedes the 1976 draft Alaska wildlife management plans (ADF&G 1976).

I. RY10–RY14 Management Report

Management Area

Unit 9 (33,638 mi²) consists of the Alaska Peninsula of Southwest Alaska, bounded in the north by the drainages of Lake Clark (Unit 9B) and Tuxedni Bay on Cook Inlet (Unit 9A), on the west by the Kvichak River drainage and Bering Sea, and extending southwest to Isanotski Strait near Cold Bay and Izembek National Wild Refuge (Unit 9D; Figure 1). Mountains of the Aleutian Range extend down the Pacific coast of the peninsula providing cool, maritime conditions, alpine tundra, heavy precipitation, high winds, and active volcanoes. Boreal forest occurs over much of the northern and central portions of Unit 9 at lower elevations, and coastal plains of rolling tundra extend down the eastern slope of the peninsula along the Bering Sea. Many of the rivers originating in Unit 9 are spawning habitat for anadromous salmon returning through Bristol Bay, a readily available prey for wolves. Most of the Alaska Peninsula is well suited to wolves, caribou (*Rangifer tarandus*), and brown bears (*Ursus arctos*). Moose (*Alces alces*) habitat is limited to relatively narrow riparian habitat and boreal forest along river and stream corridors, extending upwards into subalpine slopes during snow-free months. Portions of 4 ecoregions are found in Unit 9 including the Alaska Range, the Lime Hills, Bristol Bay lowlands, and the Alaska Peninsula (Nowacki et al. 2001).

Unit 10 (1,586 mi²) is comprised of the Aleutian Islands, located directly southwest and west of the Alaska Peninsula (Figure 2). Only Unimak Island is included in this report as it is the only island in the Aleutian Island ecoregion (Nowacki et al. 2001) with an endemic wolf population.

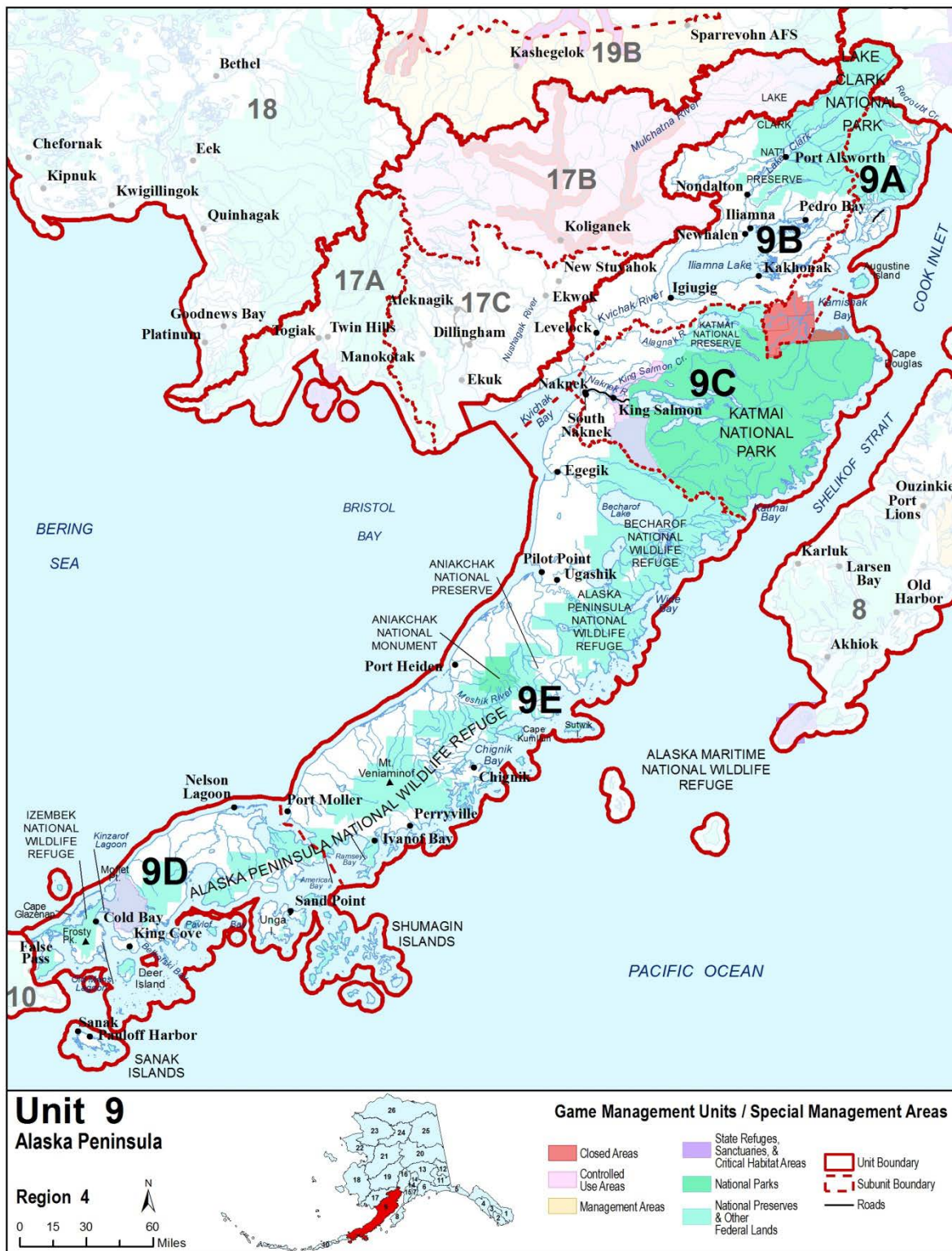


Figure 1. Unit 9, Southwest Alaska.

Game Management Unit 10 Wolf and Brown Bear Range

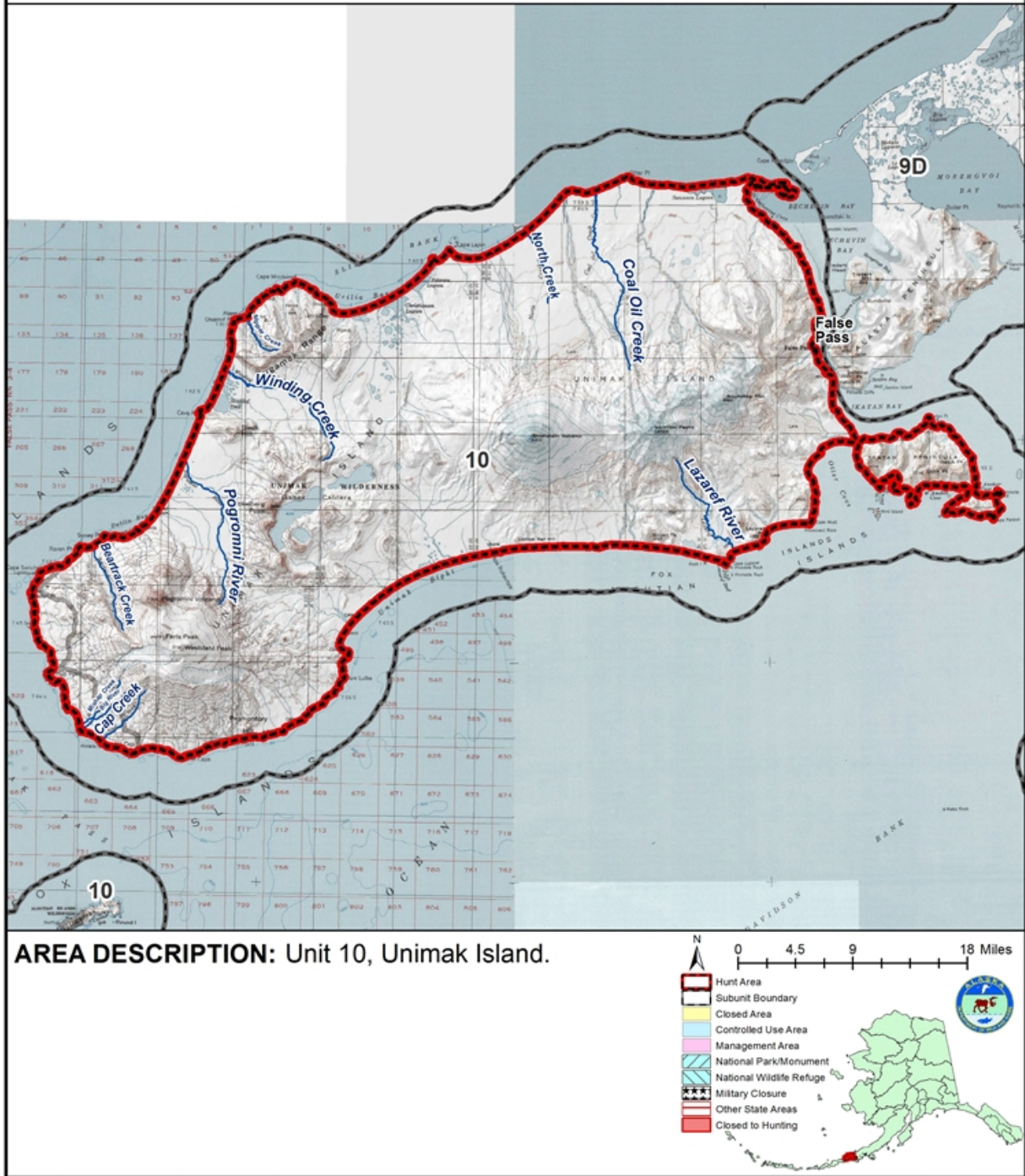


Figure 2. The Unimak Island portion of Unit 10, Southwest Alaska. Unimak is the first island in the Aleutian Island chain.

Summary of Status, Trend, Management Activities, and History of Wolves in Units 9 and 10

Wolves are present throughout Unit 9 and on Unimak Island in Unit 10. Data on historic wolf abundance are lacking, but presumably the population was reduced by federal wolf control during the 1950s. Wolves increased after the end of the federal wolf control program but were considered at low density and not limiting moose and caribou populations by the early 1980s (Sellers and McNay 1984). Wolf numbers apparently increased during the 1990s and, based on known pack sizes and territories, Sellers (2000) extrapolated a rough population size of 350 wolves for Units 9 and 10. After marking wolves with radio collars in 10 packs on the peninsula, biologists estimated a population size of approximately 350–550 wolves (Butler 2009) or about 6–7 wolves/1,000 km². Wolf numbers were primarily affected by prey abundance and periodic outbreaks of rabies. Although rabies is endemic to Unit 9 fox populations (Rausch 1977), outbreaks in wolves occur infrequently; the last significant outbreak occurred in 1998 (Riley 2012; Sellers 2000) and we know of no recently verified cases of rabies in wolves or foxes on the peninsula.

Wolf numbers appear to have remained stable or increased throughout Unit 9 since the 1990s despite the decline of moose and caribou prey. Several possible explanations for this include the abundance of alternate prey such as marine mammal carcasses and salmon (Watts et al. 2010; Stanek 2014), population rebound following a period of high wolf mortality due to rabies, and immigration from surrounding areas with higher prey bases such as the Mulchatna caribou herd's range (Riley 2012).

Prey abundance has varied during the past 70 years. Both moose and caribou populations have varied widely, and on occasion both have declined to very low levels at the same time. Prior to the mid-1900s moose were scarce on the Alaska Peninsula. During the 1950s and 1960s, moose densities increased greatly and spread southwestward, then decreased during the mid-1970s (Smith et al. 1979). Moose numbers were relatively stable at moderate to low densities from 1980 through the early 2000s, and stable at low density (<0.5 moose/mi²) after 2010 (Crowley 2014).

Caribou populations in Units 9 and 10 have fluctuated dramatically throughout recorded history. The Mulchatna caribou herd, which originates west of Unit 9 but ranges south to the Naknek River into Units 9B and 9C, has varied from about 14,000 to over 200,000. The Northern Alaska Peninsula caribou herd (NAP) has ranged from approximately 2,500 to 20,000 caribou. The Southern Alaska Peninsula caribou herd (SAP) and the Unimak caribou herd varied from a few hundred caribou to an estimated 4,200 caribou, combined.

State and federal caribou hunts were closed on SAP in RY07 because of declining herd size, and the Alaska Board of Game (BOG) authorized a predation control program to reduce wolf predation on caribou calves. Calf survival immediately improved following selective removal of 28 wolves from calving areas in RY07. This program continued with selective removal of 8 wolves in RY08 and 2 wolves in RY09, after which the program was suspended. Calf recruitment increased dramatically during RY08–RY10 following selective wolf removal on the

calving grounds. SAP continued to recover and wolf harvest by the public increased after predator control.

In response to the declining NAP population, biologists evaluated intensive management (IM) options for NAP in 1999, 2004–2005, and 2007–2009; on all occasions concluding that no viable solutions existed to alter the status of this herd (Butler 2009). A Tier II hunting program was instituted to restrict harvest by humans in RY99, but hunting closed entirely in 2005. The major impediments to creating a successful IM plan include nutritional limitations, presence of disease, and predation control restrictions imposed on federal lands. Wolf harvest by hunters and trappers on NAP began increasing in the late 1990s, possibly in response to the publicity of ADF&G and BOG conservation actions taken as the NAP herd declined. Average wolf harvest during 1999–2011 ($\bar{x} = 58$) was double that of the previous decade on NAP ($\bar{x} = 28$).

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

- *Alaska Wildlife Management Plans: Southwestern Alaska* (ADF&G 1976).

GOALS

1. Provide for an optimum harvest of wolves.
2. Provide the greatest sustained opportunity to participate in hunting and trapping wolves.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Unit 9 and Unimak Island portion of Unit 10 wolf populations have a positive customary and traditional use determination. The amount necessary for subsistence in Unit 9 is 10–28 wolves and 0–1 wolves for Unimak Island.

Intensive Management

IM programs were approved by BOG in 2008 for SAP in Unit 9D and in 2010 for NAP in Units 9C and 9E.

1. Unit 9D: Annually remove all wolves from the control area (calving grounds of SAP). This wolf control effort was suspended after the RY09 calving season.
2. Units 9C and 9E: Allow harvest of wolves with aerial gunning to achieve IM objectives for NAP caribou: population size 6,000–15,000; harvest 600–1,500.

MANAGEMENT OBJECTIVES

1. Maintain a wolf population that will sustain a 3-year average annual harvest of at least 50 wolves.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Monitoring the wolf population.

Monitoring the wolf population is currently not a listed activity. However, the department has an ongoing cooperative project with the Becharof National Wildlife Refuge to monitor wolves in Units 9C and 9E using VHF and satellite radio collars. Wolves were also collared on Unimak Island, and Lake Clark National Park and Preserve also collared wolves during this reporting period.

Data Needs

Estimate wolf density, pack size, and distribution in selected areas of Unit 9 to aid in management of wolves and prey species.

Methods

Wolves in Becharof National Wildlife Refuge were captured through aerial darting from a Robinson 44 helicopter. Wolves were weighed and measured, and blood and vibrissae samples were taken. Each wolf was fitted with a VHF (very high frequency) or GPS (Global Positioning System) radio collar. Refuge staff monitored wolves year-round.

Results and Discussion

We captured 16 wolves in RY10, including 10 in Unit 9E, 3 in Unit 9C, and 3 on Unimak Island. In RY11 we caught 9 wolves, including 2 on Unimak Island, 6 in Unit 9E, and 1 in Unit 9C. In RY13 we captured 6 wolves, including 2 in Unit 9C and 4 in Unit 9E. Wolf density in Unit 9E and the southwest portion of Unit 9C was 6–7 wolves/1,000 km² (16–18 wolves/1,000 mi²) (Brna and Verbrugge 2013). Five packs of 3–7 adult wolves plus pups were observed in Lake Clark National Park and Preserve occupying very large territories (8,000–14,000 km²) (National Park Service 2016).

Recommendations for Activity 1.1

Rapid increase in caribou calf and cow ratios occurred during and after predation control in RY08–RY09 on SAP. However, we currently know little of wolf abundance and distribution in Unit 9D, a snapshot of which would be useful to management during this period of SAP recovery in survival and abundance. We recommend monitoring wolf packs in Unit 9D as a proactive measure should it again become necessary to control predation on SAP calving grounds.

2. Mortality–Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor the wolf harvest through field observations, fur sealing reports, trapper questionnaires, and contact with trappers and hunters.

Data Needs

Monitoring, collecting, and analyzing harvest data are critical for sustained yield management, and determining combined harvest from IM programs, hunters, and trappers. Harvest distribution also indicates a minimum distribution of wolves across the peninsula. Harvest data are used to verify that the wolf population is sufficient to sustain a 3-year average harvest of at least 50 wolves.

Methods

Hunters and trappers are required to have their wolf harvests sealed within 30 days of season end. Data collected during sealing includes pack size, harvest location and month, hunter–trapper method and transportation used. These data are compiled and stored in a wolf database on ADF&G’s Wildlife Information Network server.

Season and Bag Limit

Units and bag limits	Resident open seasons	Nonresident open seasons
<i>Units 9 and 10</i>		
Hunting: 10 wolves/day.	10 Aug–30 Jun	10 Aug–30 Jun
<i>Unit 9</i>		
Trapping: No limit.	10 Aug–30 Jun	10 Aug–30 Jun
<i>Unit 10</i>		
Trapping: No limit.	10 Nov–30 Jun	10 Nov–30 Jun

Harvest by Hunters–Trappers

During RY10–RY14 reported annual wolf harvest by hunters and trappers in Unit 9 was 27–142; in Unit 10 it was 0–7 wolves (Table 1). Harvest in Unit 10 during RY13 and RY14 was the highest reported on record. Hunting and trapping harvests were affected by weather conditions. The travel conditions and access to hunting and trapping areas were particularly poor during the reporting period except for RY11 when unusually high snowfall and accumulation led to much improved access and extended season length. In RY14, for the first time since 1996, the 3-year average annual harvest of wolves in Unit 9 dropped below 50 wolves. Harvest rates calculated by subunit (Table 1) suggest a sustainable harvest.

Wolf harvest in Unit 9 is in part driven by our biennial brown bear season which is open in the fall during odd years and in spring during even years (Figure 3). Nonresident bear hunters may hunt wolves without a big game tag in Unit 9. In recent years wolf harvest by guided, nonresident bear hunters have sometimes exceeded wolf harvest by resident hunters and trappers during open bear hunts such as in Unit 9D (Figure 4). Wolf harvest increased in Unit 9D following predation control, peaked in RY11 and has since declined (Figure 4).

BOG authorized IM programs for wolf control in nearby Unit 17 to include Unit 9B in RY11. No wolves were taken in Unit 9B under this IM program. In March 2010 BOG authorized a predation control program on NAP which became active in RY11. Only 15 wolves were taken under the IM program compared to 179 wolves harvested under regular hunting and trapping regulations during RY11–RY14 (Figure 5). Low harvest under the IM program has been attributed to bad weather, lack of snow, formidable logistics, and prohibited access to federal lands. We recommend suspending the NAP IM predator control program.

Alaska Board of Game Actions and Emergency Orders

There were no BOG actions or emergency orders for wolves during this reporting period.

Table 1. Reported wolf harvest in Units 9 and 10, Southwest Alaska, 2005–2014.

Year	Unit					Unit 9 total	Unit 10 total	Units 9 and 10 total
	9A	9B	9C	9D	9E			
2005	2	32	30	6	46	116	4	120
2006	2	20	56	1	7	86	0	86
2007	1	12	52	9	35	109	0	109
2008	1	8	30	11	9	59	0	59
2009	2	11	14	14	26	67	2	69
2010	0	9	18	2	14	43	0	43
2011	0	19	48	15	60	142	1	143
2012	0	16	9	5	14	44	4	48
2013	1	10	5	12	36	64	6	70
2014	0	2	6	1	18	27	7	34
2010–2014 average		11	17	7	28	64	3.6	68
Harvest % ^a		9	22	14	14	14		

^a Percent of population harvested based on theoretical population size of 450 and potential number of pack territories within each subunit (L. Butler, Wildlife Biologist, Alaska Department of Fish and Game, 2010, unpublished data).

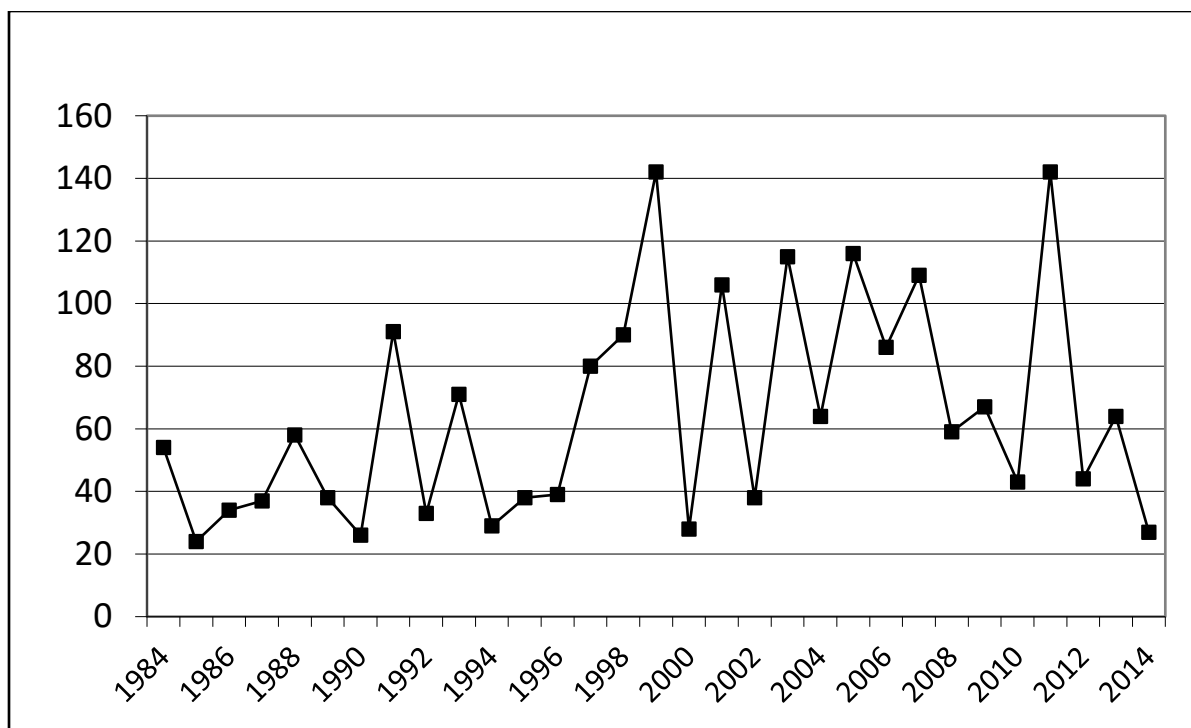


Figure 3. Unit 9 wolf harvest, Southwest Alaska, including trapping, hunting, and predation control, 1984–2014.

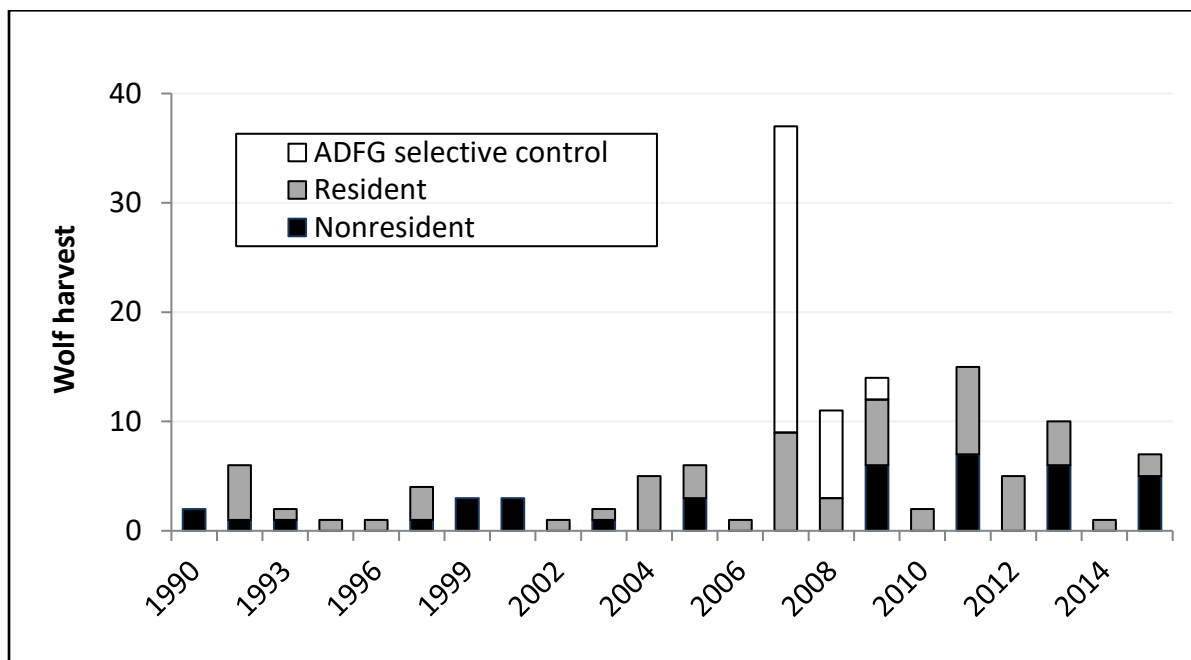


Figure 4. Wolf harvest, hunter–trapper residency, and successful predation control in Unit 9D, Southwest Alaska, 1990–2014. Wolf harvest increased after Alaska Department of Fish and Game (ADF&G) control efforts and caribou calf survival immediately rebounded from single-digit survival rates.

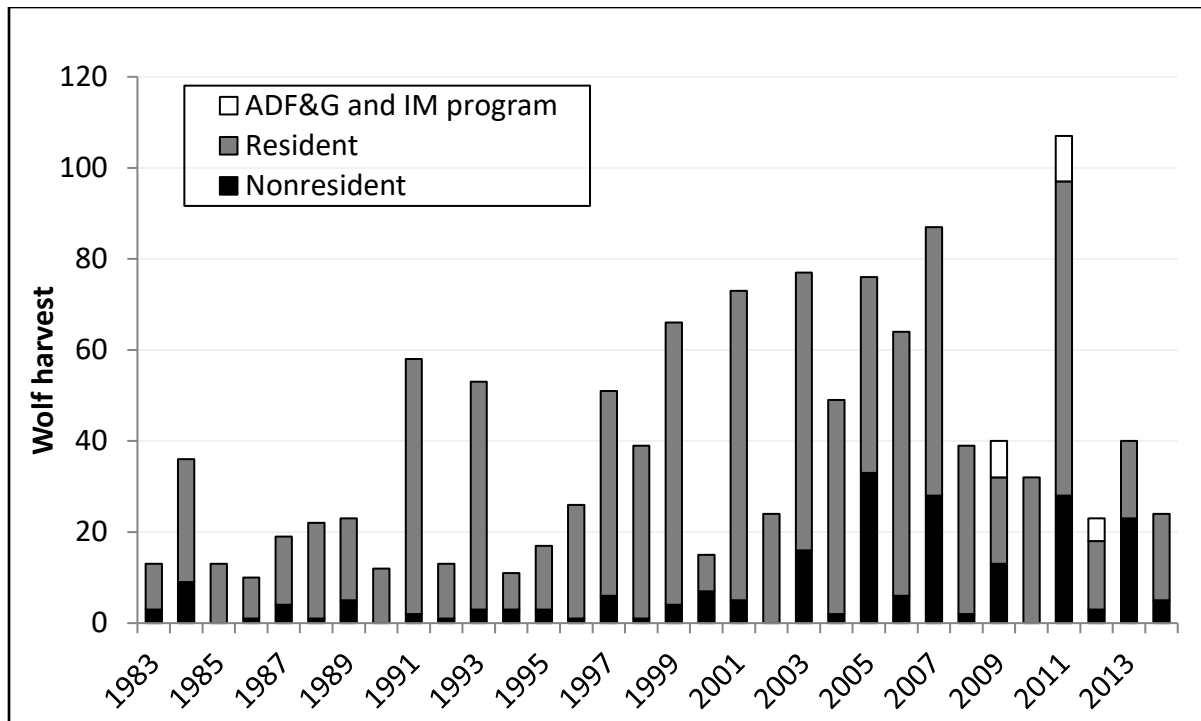


Figure 5. Wolf harvest, hunter–trapper residency, and successful predation control in Units 9C and 9E, Southwest Alaska, 1983–2013. With the exception of 2011, recent winters have had poor snow conditions and difficult access for trappers.

Recommendations for Activity 2.1

- Continue monitoring harvest.
- Discontinue IM programs by allowing them to expire.

3. Habitat Assessment–Enhancement

None.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- Digital data are backed up daily on an in-house server (O:\WC-DIV).
- Paper records are stored in file cabinets and shelves in area biologist and assistant area biologist's offices.
- Archived records are stored in indexed and labeled boxes, second floor of new warehouse (O:\WC-DIV\Admin King Salmon Area Office\Filing system\archived filing system index).

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

Preliminary results of wolf monitoring projects in Units 9C and 9E indicate a stable population of 350–550 wolves for a density of 6–7 wolves/1,000 km² (16–18/1,000 mi²). Average wolf harvest during the reporting period was 64 and 4 for Units 9 and 10, respectively. Wolf harvest was 2–5 times higher in RY11 than average, because of unusually high snowfall and accumulation, and length of seasonal access to wolves. Guided, nonresident bear hunters have taken advantage of the big game tag exemption and are taking a substantial portion of the harvest during open bear seasons. We recommend suspending the NAP IM program because it is not effective in achieving objectives.

II. Project Review and RY15–RY19 Plan

Review of Management Direction

MANAGEMENT DIRECTION

Manage wolves on the sustained yield principle for the benefit of the resource and the people of Alaska.

GOALS

1. Provide for an optimum harvest of wolves.
2. Provide the greatest sustained opportunity to participate in hunting and trapping wolves.

No changes recommended.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Unit 9 and Unimak Island portion of Unit 10 wolf populations have a positive customary and traditional use determination. The amount necessary for subsistence in Unit 9 is 10–28 wolves and 0–1 wolves for Unimak Island.

Intensive Management

IM programs were approved by BOG in 2008 for SAP in Unit 9D and in 2010 for NAP in Units 9C and E.

1. Unit 9D: Annually remove all wolves from the control area (calving grounds of SAP). This wolf control effort was suspended after the RY09 calving season.
2. Units 9C and 9E: Allow harvest of wolves with aerial gunning to achieve IM objectives for NAP caribou: population size 6,000–15,000; harvest 600–1,500.

MANAGEMENT OBJECTIVES

1. Maintain a wolf population that will sustain a 3-year average annual harvest of at least 50 wolves (in Units 9 and 10).

This objective was based on historical harvest rather than an unknown population size. Average annual harvest during this reporting period was 69 wolves; therefore, the objective is still being met. In lieu of additional techniques to evaluate or estimate wolf population size, this objective is appropriate.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Monitor pack number and size in Unit 9D by capturing and collaring wolves in the vicinity of SAP caribou, particularly within calving areas.

Data Needs

Monitoring wolf packs and spatial distribution on SAP would be used to evaluate the effects of (potential) future predation control to benefit SAP caribou, specifically those packs impacting calving areas on state lands.

Methods

A combination of VHF and GPS technology will be used to estimate wolf abundance, pack distribution, and winter predation characteristics on SAP. We will capture and collar 1 or 2 wolves per pack with VHF collars to readily locate and determine pack size. One wolf in each pack will also be fitted with a GPS collar to determine territory size and seasonal movements. Wolf packs will be located and counted in conjunction with caribou surveys and captures during April, June, and October. Geospatial data will be analyzed and mapped using GIS software.

2. Mortality–Harvest Monitoring

ACTIVITY 2.1. Monitor the wolf harvest through field observations, fur sealing reports, trapper questionnaires, and contact with trappers and hunters.

Data Needs

Monitoring, collecting, and analyzing harvest data are critical for sustained yield management, and determining combined harvest from IM programs, hunters, and trappers. Harvest data are used to verify that the wolf population is sufficient to sustain a 3-year average harvest of at least 50 wolves.

Methods

Hunters and trappers are required to have their wolf harvests sealed within 30 days of season end. These data include pack size, harvest location and month, hunter–trapper method, and transportation.

No recommended changes.

3. Habitat Assessment–Enhancement

None.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

No changes recommended.

Agreements

None.

Permitting

Izembek National Wildlife Refuge: Research and Monitoring Special Use Permit 1607 (expires April 2018).

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