Summary
Report

Public Outreach & Education Meetings, Wolf Management

KLAWOCK ALASKA, PRINCE OF WALES ISLAND

Game Management Unit 2

A summary of planning, activities, and content shared over two community outreach & education meetings; hosted by the Alaska Department of Fish & Game, Department of Wildlife Conservation on May 24th and June 14th, 2024, to foster understanding of wolf management and improve communication with the public.

Alaska Department of Fish & Game, Department of Wildlife Conservation | Sustainable Solutions

AUGUST 2024

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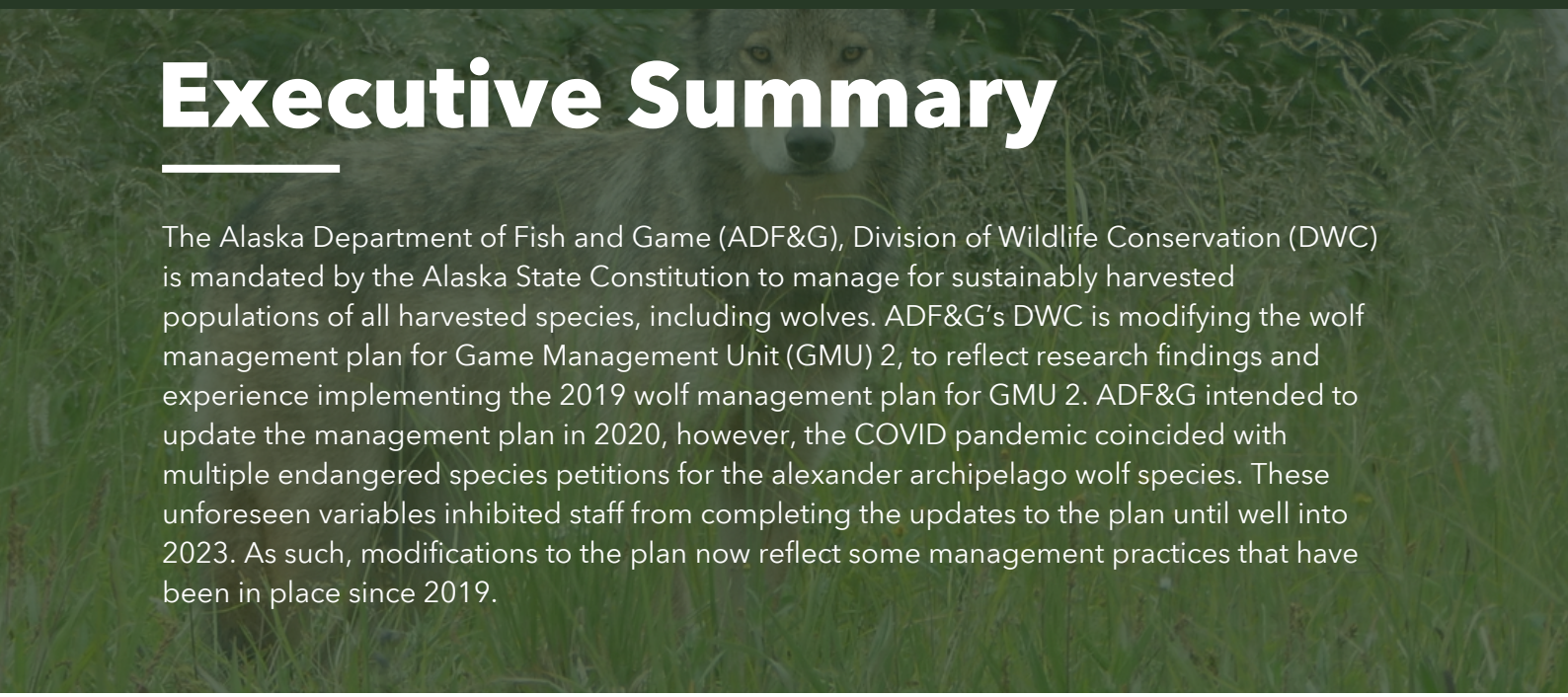


Executive Summary

The Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation (DWC) is mandated by the Alaska State Constitution to manage for sustainably harvested populations of all harvested species, including wolves. ADF&G's DWC is modifying the wolf management plan for Game Management Unit (GMU) 2, to reflect research findings and experience implementing the 2019 wolf management plan for GMU 2. ADF&G intended to update the management plan in 2020, however, the COVID pandemic coincided with multiple endangered species petitions for the alexander archipelago wolf species. These unforeseen variables inhibited staff from completing the updates to the plan until well into 2023. As such, modifications to the plan now reflect some management practices that have been in place since 2019.

DWC recognizes that wolf management on Prince of Wales Island (GMU 2) is very important to residents, trappers, hunters, and conservationists.

DWC is committed to improving its communication with those interested, with an aim to improve understanding of DWC wolf management for GMU 2. As a part of the effort to finalize updates in 2024, DWC hosted two professionally-facilitated public outreach events to discuss current wolf management and research findings with the public, and to improve understanding of ADF&G's wolf management efforts.

The overarching goal of the outreach meetings was to improve understanding of ADF&G's wolf management plan and factors that influence wolf management.

Additionally, ADF&G had the goal of better understanding participants' questions, considerations, and concerns regarding ADF&G's GMU 2 wolf management. Both meetings took place in the community of Klawock, on Prince of Wales Island (POW), Alaska.

The meetings were hybrid – participants joined in person at the Generations SE Community Learning Center (formerly Vocational & Technical Education Center) and virtually via Zoom. Both were recorded via the Zoom virtual meeting platform.

The two public outreach events included formal presentations from ADF&G's DWC managing wildlife biologists, as well as small-group, full-room, and virtually shared dialogues. Following each presentation, participants had the opportunity to ask questions, offer considerations, and share challenges via a facilitated process.

The format gave space for a mutual exchange and achievement of goals: participants gaining understanding of current research and management decisions for wolves in GMU 2; ADF&G learning how to more clearly communicate with, engage, and respond to the public, and deliver an accessible management plan.

The planning and hosting of the wolf meetings was carried out by ADF&G DWC staff and managers, along with facilitators from Sustainable Solutions – an Alaska-based facilitation firm. Facilitators worked with ADF&G to crystalize meeting goals in order to establish clear expectations for attending participants.

It was a top priority of DWC for the meetings to support a "safe place" to discuss a topic that intersects with differing perspectives, experiences, and needs. Facilitators and ADF&G requested that all who were present commit to a set of "Dialogue Agreements" at the start of each meeting. These dialogue agreements (see appendix) helped to initiate and sustain respectful dialog for the duration of the meetings.

Overall, the goals set forth by the ADF&G were met over the course of the two public outreach and education events. Members of the public who attended the meetings gained new knowledge about what informs wolf management, and ADF&G learned what information is most salient for the public in understanding wolf management, and how better to engage.

This report summarizes ADF&G's presentation content and the questions and considerations raised by participants during the two public outreach and education events. ADF&G's presentations and participants' related questions, comments, and considerations were captured by the Zoom recordings, in the Zoom chat box, and via participant responses written on notecards. Facilitators provide an organized summary of all participant contributions, grouped by theme, for the purposes of this report.

The Appendix of this summary report highlights participant questions and ADF&G's summarized responses. In addition to this summary report, there are links to a full recording of each meeting on page x of this summary report, and a link to the wolf management plan.

The remainder of this summary report is organized by the two meetings (Meeting 1 and Meeting 2). Each meeting summary is broken down into sections that correspond with the session titles in the meeting agendas. The summary of each meeting captures the main topics and technical content presented by ADF&G.

Themes gleaned from participant questions and share-outs on the content are summarized.

A summary of participant questions and considerations are organized by theme and included in the appendix; along with ADF&G's responses. Meeting materials are also included in the appendix.

Meeting 1 Overview and Content

Meeting Goal
To improve understanding of Alaska Department of Fish and Game's wolf management for GMU 2.
Agenda Topics
- Background & History of Management and Research
- Factors Used to Inform Wolf Management Plan for GMU 2
- Next Steps

Presenters
- Ross Dorendorf, Wildlife Biologist III, Division of Wildlife Conservation, ADF&G
- Tom Schumacher, Regional Supervisor, Division of Wildlife Conservation, ADF&G

Facilitators
Jess Kayser Forster and mandy park, Sustainable Solutions

Background

On May 24th, 2024, Meeting 1 content began with a welcome and opening remarks from ADF&G's Regional Supervisor for the Division of Wildlife Conservation. He outlined the intention for hosting the outreach meetings and introduced the ADF&G's constitutional mandate to manage for a sustainable wolf population.

The Wildlife Biologist III for the Division of Wildlife Conservation presented content on the history and background of wolf management in Game Management Unit 2. He then described in detail the research and other considerations that shape this year's (2024) modifications to the 2019 management plan.

Finally, he specified the next steps following Meeting 1 towards publication of the final 2024 wolf management plan for GMU 2. Following each presentation, facilitators moved participants through a process for clarification, reflection, and contribution of insights. At the close of the first meeting, participants shared appreciation for the information shared, and stated interest in receiving the information shared by ADF&G in the PowerPoint presentations and the recording of the meeting.

Agenda Session: Welcome & Introduction

ADF&G's DWC Regional Supervisor welcomes all to the room. He highlights the meeting is taking place on indigenous land of the Tlingit and Haida peoples and is thankful to be here.

He states ADF&G's intention behind the update of the wolf management plan in Game Management Unit 2 (GMU 2).

ADF&G is in the process of updating its wolf management plan for GMU 2. That original plan was written in 2018. In 2019 ADF&G's Board of Game shifted the wolf management strategy from harvest quotas (at 25-30% of the population) to managing for a specific wolf population objective. Regular population estimates are conducted to ensure harvest stays within this objective. Now, ADF&G is updating the plan to reflect current management practices. The intent was to update the plan in 2020, however there were significant delays due to COVID-19 and responding to the endangered species petition for wolves in Southeast Alaska and subsequent lawsuit.

This is Meeting 1 of two community engagement meetings that ADF&G is hosting. The purpose of these meetings is to improve public understanding of wolf management in GMU 2, to share information on wolf populations, and to discuss the considerations involved in wolf management to ensure sustainable use.

The Regional Supervisor highlighted legal and policy directives for wolf management in Alaska on State lands:

The Alaska Constitution, Article VIII, Section IV "all renewable resources shall be managed on the sustained yield principle, subject to preferences among beneficial uses."

- The GMU 2 wolf population must be managed for sustained yield, or to support consumptive use forever.
- Deer also need to be managed for consumptive use, but within the context of sustainability for all species including wolves

Policy direction: A priority for ADF&G's Commissioner is putting food (e.g. deer) on the tables of Alaskans. ADF&G is mindful of that priority but must also ensure a sustainable wolf population, per the constitutional directive. The Board of Game consistently supports high but sustainable levels of consumptive use.

Agenda Session: Background & History of Wolf Management in GMU 2

ADF&G staff present on the background and history of wolf management in GMU 2. Participants ask questions and share considerations. ADF&G addresses as many questions as time allows. A summary of the questions posed by participants during Meeting 1 and ADF&G's responses can be found in Appendix A of this document.

The remainder of this section includes key points in ADF&G presentations, as well as challenges and considerations raised by participants. For more detailed information on all topics below, you can watch or listen to the full meeting recording: [full meeting recording (see Appendix E)]

Management strategies evolve over time

- Harvest has fluctuated over time, with a low in the 1980s (37 wolves/year) and a peak in the 1990s.
- Trappers sought predictability in season lengths, while ADF&G aimed for sustainability.
- Previously, quotas were set based on harvest guidelines (percentage of estimated population).
- In 2014, annual population estimates allowed for more responsive management.
- In 2019, the Board of Game established a fall population objective of 150-200 wolves.
- Since 2019, ADF&G has adjusted harvest seasons based on population estimates and the population objective. A two-month season in 2019 yielded a high wolf harvest (164 wolves). As a result, season length was reduced in 2020 to 3 weeks, resulting in a lower harvest yield.

Endangered Species Act Petitions

- Three petitions have been submitted to list Alexander Archipelago wolves as threatened: 1993, 2011, 2020.
- The 1993 petition recognized the wolf as a distinct listable entity, but the listing wasn't warranted.
- The 2011 petition concluded the Unit 2 population was discrete but not significant for listing.
- The 2020 petition found Southeast Alaska to be a distinct population segment, but Prince of Wales Island wasn't a significant portion of its range.

Past Research Findings

ADF&G summarizes the past research findings that inform better management strategies. This research provides valuable insights into wolf behavior, habitat use, and diet preferences in Unit 2. This information can be used to develop management strategies that consider factors like prey availability, habitat fragmentation, and potential population isolation.

Habitat Selection and Denning Ecology

- Wolves avoid dense forests (clearcuts older than 30 years) but utilize younger clearcuts (under 30 years).
- They avoid roads in summer but use them for easier travel in winter.
- Wolves occupy dens for about 2 months, with breeding pairs staying close to raise pups.
- Dens are reused even if skipped for a year.

Diet

- Pups primarily eat deer while adults have a more varied diet including deer, beaver, birds, fish, etc.
- Wolf packs with a higher deer intake have larger home ranges in fragmented forests (young clearcuts and roads).
- Overall, deer is a major food source but not the only one. Wolves are adaptable and can eat various prey depending on location. (e.g., marine mammals in some areas)

Predation Patterns

- Researchers radio-collared wolves and investigated kill sites to understand prey selection.
- Deer is a significant prey item in the southern part of Southeast Alaska, but less so in the north where wolves may target mountain goats.
- A case study on Pleasant Island showed wolves switching to sea otters after deer disappeared.
- Limited movement was observed between mainland and some islands like Pleasant Island, suggesting some wolf populations might be relatively isolated.

Genetic Structure

- Three main genetic wolf populations were identified in Southeast Alaska.
- The southernmost population (including Prince of Wales Island) is genetically distinct from the northern and western populations.
- Analysis of wolf DNA revealed three distinct genetic populations in Southeast Alaska.
- The southernmost population (including Prince of Wales Island) is genetically distinct from the northern and western populations.
- Limited mixing occurs between these populations, suggesting some isolation.

Inbreeding

- Inbreeding depression can occur when related individuals breed repeatedly, reducing genetic diversity and potentially harming the population.
- Genetic data suggests two historical population bottlenecks for wolves in Unit 2: around 1790s and 1970s.
- These bottlenecks likely reduced genetic diversity.
- Studies found high levels of inbreeding in Unit 2.
- Fortunately, no outward signs of inbreeding depression (like physical deformities) have been observed yet.

Knowledge Gaps and Future Research

- The minimum population size needed to avoid inbreeding depression in wolves is unknown.
- More research is needed to understand the genetic status of wolves in Unit 2 and potential inbreeding risks.

Wolf Population Estimates

- Population estimates for Prince of Wales Island have fluctuated over time.
- Increases in sampling effort (hair snags) and incorporating harvested wolves into the estimate likely contributed to these jumps.
- These changes suggest the current estimate might be biased low.
- Future research should refine population estimation methods.

Participant Challenges and Recommendations

The following is a summary of challenges and recommendations shared by participants during the facilitated discussions and written on index cards provided by facilitators. These considerations are in relation to the ADF&G's presentation on Background and History of Wolf Management in GMU 2. A summary of all participant questions can be found in Appendix A.

Challenges

- It is challenging that the information raised by the public is disregarded.
- It is challenging that the population estimate for wolves is undercounted.
- It is challenging that hair boards are used to estimate population
- It is challenging that the population estimate is low.
- It is challenging that inbreed issues from seemingly unrelated wolf populations on Isle Royale are being compared to the situation in GMU2.
- I am challenged by the direct link between wolf predation and deer population depression. Wolves eat deer but I wonder how strongly that impacts deer populations?
- I have a great concern that we are under-harvesting wolves and based on the information provided. It seems that we are under harvesting wolves because we are acknowledging that the population estimate is low.

Recommendations

- Season should be moved: gas saved, deer hunters, deer in rut, more bears and hibernation.
- There are too many wolves in the face of declining deer due to habitat loss
  - Move the wolf trapping season to after November 30th to avoid rut; allow Trappers to subsistence hunt
- Reduce deer harvest to three per year. September 1st to December 30th on POW
- Reduce non-resident take to only one buck

Agenda Session: Factors Used to Inform Wolf Management Plan for GMU 2

The presentation by ADF&G highlighted ongoing research efforts that are used to inform wolf population management in Southeast Alaska. These efforts focus on using advanced genetic analysis, refining population estimation methods, considering the broader ecosystem when making management decisions, and communicating research information and findings with the public to increase understanding of management decisions and specific issues being addressed. Following the presentation, participants ask questions and share their considerations. ADF&G addresses as many questions as time allows.

A summary of participants' related questions and ADF&G's responses can be found in Appendix A. The remainder of this section includes key points in ADF&G presentations, as well as challenges and considerations raised by participants.

ADF&G presentation on History and Harvest Management

Genetics Research

- Researchers are assessing wolf genetic structure across Southeast Alaska, collaborating with Canada to understand cross-border gene flow.
- New methods are being developed to identify individual wolves more efficiently using DNA analysis.
- Another project is modeling inbreeding potential based on existing genetic data to predict how management actions might affect inbreeding levels.

Population Estimate Research

- The current method for estimating wolf population on POW relies on hair snags and spatially explicit capture-recapture analysis.
- A new project is evaluating potential biases in this method to improve its accuracy.
- Researchers are also exploring the use of trail cameras as a complementary method for population estimation.
- A separate study is investigating how wolves interact with hair snag boards, which might influence data collection.
- A scat detection dog is being used to collect wolf scat on outer islands where hair snag surveys are not feasible.
    - This project aims to assess wolf density and diet on these islands through DNA analysis of the scat.

Management Considerations

- The current population objective for wolves on POW is 150-200, but it's acknowledged that this might be an underestimate.
- Researchers are considering revising the objective based on upcoming data from various projects.
- Inbreeding depression is a concern, and researchers are working to develop methods to monitor genetic diversity.
- Management strategies consider not just wolves, but also deer populations, habitat changes, and bear populations.
- Collaborations with hunters and trappers are crucial for collecting samples and managing the wolf population effectively.
- Habitat improvement projects are underway to benefit deer and improve access for hunters.

Participant Challenges and Recommendations

The following is a summary of challenges and recommendations shared by participants during the facilitated discussions and on note cards, related to Factors used to Inform the Wolf Management Plan for GMU 2.

A summary of participant questions and ADF&G's responses can be found in Appendix A.

Challenges

- It is challenging seeing the wolf population in relation to the deer population over time.
- It is challenging that only 30% harvest of wolves. This seems too conservative.
- It is challenging that we are seeing a declining deer population, and we are actively sustaining a steady wolf population based on a low population estimate.
- It is challenging that this is based off 30% harvest rate when population estimates are low.
- It is challenging that trapping season is during the deer rut? We need time to get deer.
- 30% of the wolf population to be harvested is too low for wolves given their litter sizes.
- It is challenging that we are using the constitutional obligation to protect the wolf population at the same time those wolves are eradicating a whole other species at a huge rapid rate, especially the breeding population that has a non-disturbance buffer. Why are we not using the constitutional obligation to do more to protect deer?
- It is challenging that the population estimates are biased low so the margin of error is much larger but not reflected in the GMU 2 wolf management.
- I maintain that in the face of steadily declining deer population, the habitat is limiting as it is, and maintaining wolf numbers could be the additive to the deer population decline.
- Bottom line: If you set a season length with no other requirements, you could have a month season where you have 1 trapper that has one trap line or you might have 10 trappers with 10 trap lines. The end result might be very different harvests that could be from 0 to over 100 as we already witnessed. Why not set a harvest quota on what makes sense to ensure a sustainable population into the future? The ADF&G would never set a month long season on a population of caribou and say take what you want. They have a harvest quota in mind to ensure it is not overharvested. They also try to control what type of caribou are harvested - young, old, sex, etc.... So why not apply these controls to a vulnerable population?
- Using an average catch ratio rather than a harvest season length seems like there's a lot of room for error

Recommendations

- What I've heard in recent years is a concern by trappers that the length of season and timing relating to safety with winter storms versus the opportunity and conflict with deer hunters and deer hunting. These seems like reasonable concerns to consider and find a way to meet all objectives biologically
- Harvest more second growth timber stands. We should encourage landscape level quantities of second growth harvest.
- 30% of the wolf population to be harvested is too low for wolves given their litter sizes.
- Perhaps conduct a new research study that focuses on randomization of samples might improve the population estimate?

Agenda Session: Next Steps

ADF&G highlights the remaining steps leading to the finalized 2024 wolf management plan, and continuing efforts in GMU 2 wolf management. Following the presentation, participants share their questions and considerations related to next steps, as well as reflections on all topics they engaged with throughout the meeting. ADF&G addresses as many questions as time allows.

A summary of participant questions and responses from ADF&G can be found in Appendix A of this document.

ADF&G Presentation on Next Steps

Next Steps in Finalizing the Updated GMU 2 Wolf Management Plan:

- ADF&G to draft a wolf management plan that reflects current management practices
- ADF&G to hold follow-up meeting on June 14th to present draft management plan
- ADF&G to provide 30-day public comment period on the draft management plant, after June 14th meeting
- ADF&G to finalize updated wolf management plan by fall 2024

Next Steps Beyond the 2024 Wolf Management Plan

- ADF&G to continue research projects on wolf genetics, population modeling, and diet
- ADF&G to consider revising population objective after research results are available
- ADF&G to develop method to monitor genetic diversity of wolf population
- ADF&G to continue collaborating with local partners on research projects
- ADF&G to make meeting presentations and summary report publicly available
- Public to submit proposals for changing wolf trapping season dates to Board of Game by May 2025
- Public to submit proposals for changing wolf trapping season dates to Federal Subsistence Board
- ADF&G to continue habitat improvement efforts for deer in collaboration with other agencies
- ADF&G to analyze data from camera study on wolf behavior at hair boards
- ADF&G to assess results of outer island scat collection project for wolf density and diet
- ADF&G to continue annual wolf population estimates using hair board method

Participant Considerations & Recommendations

The following is a summary of considerations and recommendations shared by participants during the facilitated discussions and written on index cards provided by facilitators.

Participant considerations

- I am more faithful that the wolf population is in good hands and the lower harvest quotas will keep the population sustainable.
- I see the lower wolf quotas and limited season as a temporary measure until more is known about wolf populations. Once solid numbers are established, I have faith that the wolf limits can be raised again.
- This is an ongoing situation with complex factors. There's no right or wrong answer to changing situation with so many variables.
- Need to protect the wolves.
- Genetic depression is hard to prevent when the number of animals needed to prevent it is unknown.

- Game management is hard when using complex studies to deal with years of anecdotal information. So many individuals rely on these species to survive so it becomes a heated and tough conversation to have.
- Lack of responding to or considering local knowledge leads to an increased disconnect when interacting with local residents. This disconnect leads to further exacerbated tensions between the residents and local management. good luck
- ADF&G is really trying to achieve the best population estimate and determine genetic diversity. Great information.
- Following the constitutional mandate of sustainable population and harvest of wolves does not begin to solve the concerns of citizens on declining deer population.
- Conclusions that I can draw is there need to be more genetic studies performed to get better information.
- I look forward to future research about minimum populations needed to avoid genetic depression. as we know wolf pops are low in the grand timeline of their presence on POW given a legacy of logging and hunting.

Participant Recommendations

- Add more data about global warming – it seems there could be some changes in populations from changing global or regional temperatures
- Something needs to be different, or explanations of why no changes in order to have people understand how the new plan matters given how everything keeps evolving
- Thanks for this opportunity to learn and comment! I am hopeful the state is working to determine what a sustainable population level is for wolves on POW. This is a complex human, habitat, and wildlife population scenario. We need regulations to ensure that harvest objectives are met for all species, and we need to acknowledge how the habitat carrying capacity and access has changed. We can avert a population being listed as endangered. The State is working to obtain that information but needs to be conservative on their approach in the interim to ensure that wolves remain sustainable into the future.
- Perhaps a focus on history. We were able to coexist with healthy ecosystems – humans, wolves, deer, and bear. We now have a seriously comprised habitat and changing climate. There are serious constraints we need to consider trying and ensure all wildlife populations are managed sustainably. Make sure we account for these constraints into the future. Good to hear the acknowledgement that there is an issue with genetics that is based on science and needs to be addressed.

Meeting 2 Overview and Content

Meeting Goal

- Participants understand ADF&G's GMU 2 wolf management plan in the context of background, history, legal and policy mandates, and factors considered in wolf management.
- ADF&G has an improved understanding of participant's questions, considerations, and concerns.

Agenda Topics

- Considerations, Challenges, Questions from Meeting 1
- ADF&G's Draft Wolf Management Plan for GMU 2
- Important Considerations & Next Steps

Presenters

- Ross Dorendorf, Wildlife Biologist III, Division of Wildlife Conservation, ADF&G
- Tom Schumacher, Regional Supervisor, Division of Wildlife Conservation, ADF&G

Facilitators

Jess Kayser Forster and mandy park, Sustainable Solutions

Background

On June 14th, 2024, Meeting 2 content began, again, with a welcome and opening remarks from ADF&G's Regional Supervisor for the Division of Wildlife Conservation. He reiterated the intention for hosting the outreach meetings. Facilitators called on those who had attended Meeting 1 to help bring learnings and discussion from that first meeting into this second one. The Wildlife Biologist III for the Division of Wildlife Conservation addressed underlying questions and concerns that had arisen in Meeting 1, and summarized overall the content that was presented. ADF&G shared the updated draft management plan and responded to clarifying questions and suggestions to make the plan more comprehensive and accessible. Finally, ADF&G specified the next steps following Meeting 2 towards publication of the final 2024 wolf management plan for GMU 2. The presenter goes further to describe ongoing efforts to improve wolf management beyond the 2024 plan.

Agenda Session: Welcome & Introduction

Alaska Department of Fish and Game (ADF&G), Division of Wildlife Conservation (DWC) Regional Supervisor, Tom Schumacher, welcomes all to the room. He highlights that the meeting is taking place on the indigenous lands of the Tlingit and Haida peoples and he is thankful to be here.

He begins by recapping the legal and policy guidance presented in Meeting 1 that dictates wolf management priorities for the State of Alaska and explains how the "preferential use" statement in Article VIII, Section IV commits DWC to manage for the public preferences (e.g. more deer, fewer wolves) as long as those preferences are sustainable.

The Regional Supervisor restates ADF&G's intention for updating the GMU 2 wolf management plan and the underlying goals of Meeting 1 and Meeting 2: to increase understanding of wolf management and the updated management plan; and to improve ADF&G's public engagement and communications.

Agenda Session: Considerations, Challenges, Questions from Meeting 1

The goal of this session of Meeting 2 is to continue to clarify recurring themes that surfaced during participant discussions and in participants' written reflections from Meeting 1. (In order to understand the updated wolf management plan, it is important for Meeting-2 participants to comprehend content from Meeting 1). ADF&G continues to clarify important key topics and answer questions posed by participants as they pertain to the following three main themes:

1. Genetic diversity of Unit 2 wolves
2. Unit 2 wolf population estimates
3. Sustainable harvest rates for wolves

ADF&G presentation on key themes

1. Genetic diversity of Unit 2 wolves

Background: The Department is concerned about the potential for inbreeding depression after a study conducted by a department-sponsored graduate student that showed a level of inbreeding similar to that of wolves from Isle Royale National Park. Wolves in Isle Royale became functionally extinct in 2014, which is why the department is further investigating inbreeding of wolves in Unit 2.

The graduate student investigated the genetics of wolves across Southeast Alaska and found that the genetic diversity was very low in Unit 2. They found evidence of two distinct genetic bottlenecks (1790 and 1970) that resulted in decreased genetic diversity of Unit 2 wolves. We also know that there is very little migration of wolves to and from Unit 2 which contributes to the lack of genetic diversity. Inbreeding is occurring, which we would expect in an isolated population of animals; but the level of inbreeding after two distinct genetic bottle necks is concerning. Due to concerns of the potential for inbreeding depression, the department is maintaining the Unit 2 wolf population above the population objective (150-200 wolves) in regulation in an attempt to maintain genetic diversity.

Current Situation: The graduate students paper went through the peer review process and is currently being edited. The original sample size was 16 wolves from Unit 2 but now the department has a much greater sample size of approximately 200 plus wolves from Unit 2. New techniques are available and may provide for more detailed insight. The department is working with the new samples collected to validate the results of the initial study.

Moving Forward: What can be done to increase genetic diversity? Increasing genetic diversity of wolves in Unit 2 requires wolves from outside of Unit 2 to move into Unit 2, successfully breed, and have those genetics passed on through to future generations. This process takes time and must recur at some level to increase genetic diversity. A post-doc student is currently evaluating the likelihood of inbreeding depression, and evaluating a variety of management options to alleviate chances of inbreeding depression.

2. Unit 2 wolf population estimates

Background: The department conducted several estimates of the wolf population in Unit 2 prior to the implementation of the spatially explicit capture/recapture method used from 2012 to today. Those methods included collaring wolves, calculating average home range size, determining average pack size, and estimating the population by extrapolating the information to all of Unit 2. This style of estimate was calculated in 1994 and 2003. Then, in 2012, the department began non-invasively collecting wolf hair to use individual identifications using DNA in a spatially explicit capture/recapture model.

The department first used this method for management in 2013. The department later determined that the estimate was likely bias low from 2013 to 2018. This was based on two separate events that unexpectedly increased the estimate. In 2016, Hydaburg Cooperative Association (HCA) began collaborating with ADF&G to expand the study area by almost double. The estimate increased the same year the collaboration with HCA started.

Then, in 2019, a large addition of samples provided by trappers and hunters from harvested wolves again increased the estimate. An increase in the estimate from these two events indicated to the department that the estimate was likely bias low because an increase in sample size should only increase precision, not the estimate.

Current Situation: It's not clear if current estimates are biased low but the department is working to determine if bias exists and how to address it.

Moving Forward: The department is sponsoring a post-doc student to investigating potential biases in the model used to estimate the population of wolves in Unit 2. ADF&G is also currently analyzing data from cameras that monitored hair boards collecting hair from wolves. The cameras will aid in determining if hair boards are biased in sampling of wolves.

3. Harvest rate

Background and Current Situation: The department currently determines a season length based on experience from implementing a this management plan since 2019. This includes referencing the most recent population estimate, looking at the average harvest per day of wolves in previous seasons, evaluating various harvest scenarios based on average catch, and selecting a season length that will allow for sustainable harvest. Harvest rates of 20-30% of the population annually have been managed for in past iterations of management plans for Unit 2 wolves. A 30% harvest rate is referenced in multiple studies in the literature as being sustainable for productive populations of wolves in other locations throughout North America.

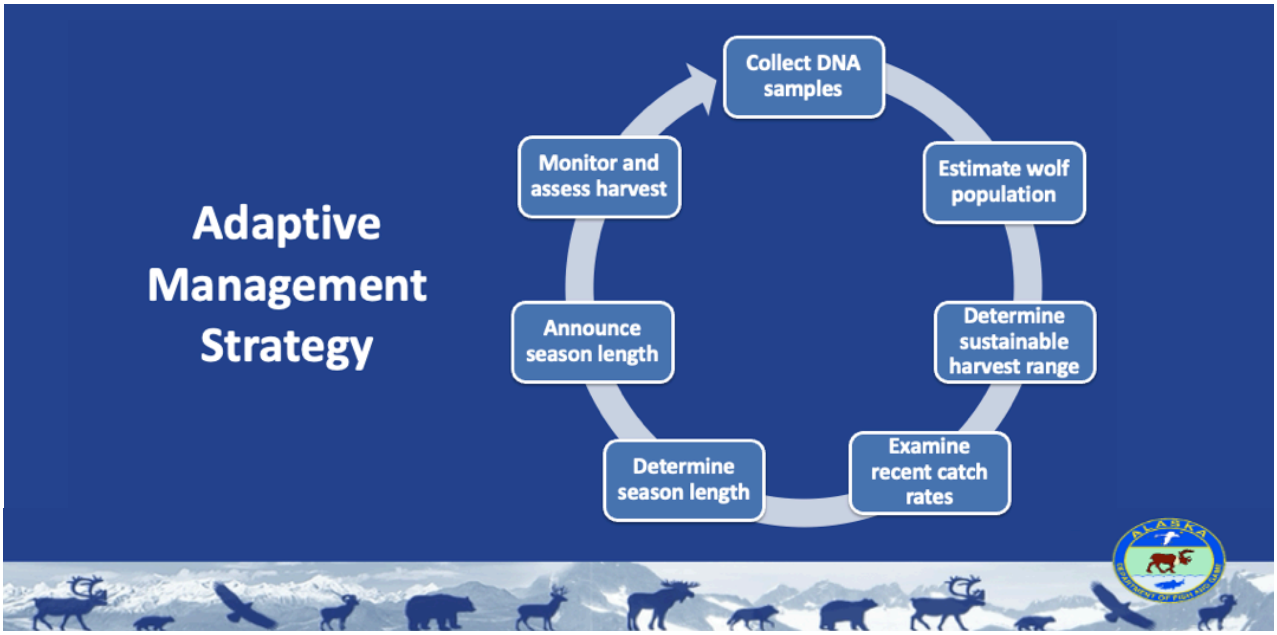
Moving Forward: Harvest averaged 30% of the population since the implementation of the management plan in 2019. Annual population estimates support our management as sustainable. Harvest rates may need to change in the future, but using an adaptive management plan that validates the status of the wolves on an annual basis allows mangers to alter the season length to maintain sustainability.

Agenda Session: ADF&G's Draft Wolf Management Plan for GMU 2

The aim for this portion of Meeting 2 is to introduce participants to ADF&G's draft wolf management plan and solicit feedback from participants around how to best clarify the plan, so it is accessible to and understood by the public. Participants are asked to review three sections of the plan: Adaptive Management Strategy, Population Estimates and Monitoring, and Research to Inform Management. Participants are asked to consider what in each section is not clear, what is missing, and what information needs to be included. They provide some feedback in the room on ways to improve the composition of the draft management plan for clarity and comprehension. The questions and feedback raised by participants during the meeting and the information they wrote on index cards is summarized in the Appendix, "Considerations and Questions: Themes from Meetings 1 & 2."

ADF&G presents on the management plan overview and the adaptive management section of the plan

The infographic below highlights the main components considered in ADF&G's adaptive management strategy. ADF&G staff presents specific information on the strategy for context, prior to participants reviewing this section of the draft management plan.



ADF&G highlights the following considerations relating to estimating the wolf population and determining the season length for trapping and hunting purposes.

- **Hair board studies:** During Fall, small boards with lure are placed at designated locations (156 spots) across the management unit. Wolves attracted to the lure leave behind hair samples.
- **DNA analysis:** The collected hair samples are used for DNA analysis to identify individual wolves.
- **Population estimation:** A statistical method called spatially explicit capture-recapture is used to estimate the wolf population based on the hair samples and considering factors like capture rates.
- **Harvest determination:** The estimated population along with factors like previous harvest data, population objectives, and winter conditions are used to determine appropriate harvest quotas and season length. This involves consulting with wildlife management experts.
- **Public communication:** Once a tentative season length is determined, there are public meetings to discuss the rationale behind the decision.
- **Regulations and announcements:** Emergency orders are issued by both wildlife management and the Forest Service outlining the season details. Press releases and online resources are made available to inform the public.

ADF&G presenter further underscores the following information about ADF&G's adaptive management strategy for GMU 2:

- **Data collection from hunters and trappers is important:** During the season, hunters/trappers report their harvest within 7 days (state regulation) and 15 days (federal regulation) and this data helps track harvest trends throughout the season;
- **Population Estimate:** There's a population objective set by regulation, aiming for a slightly higher population than the target to account for unforeseen circumstances. Annual population estimates are conducted to ensure management strategies are effective;
- **Harvest Strategy:** Harvest scenarios are based on average daily catch rates observed over several years (before and after management plan implementation). This allows them to predict potential harvest outcomes under different regulations, and;
- **Adaptive Management:** The harvest season is announced based on the chosen scenario. The 7-day and 15-day reporting requirements allow for monitoring harvest throughout the season. This data is used to assess the effectiveness of the chosen management strategy and adapt future actions if needed.

Feedback and questions from participants regarding the draft management plan

After the presentation, participants were asked to review the "Adaptive Management," the "Population Estimates and Monitoring," and the "Research to Inform Management" sections of the plan and provide their feedback. Questions collected from the index cards and meeting recording are grouped by these themes: population studies, genetic diversity, and regulation and management.

ADF&G's responses to questions collected from both Meeting 1 and Meeting 2 can be found in the appendix of this summary report. The answers found in the appendix are summarized. Many of these questions were addressed in more detail in the meeting recordings which are available by request from ADFG (Appendix E).

Agenda Session: Important Considerations & Next Steps

After participants read through and discuss the draft of the updated management plan, ADF&G provides several important considerations, and highlights the immediate next steps in finalizing the wolf management plan.

Important Considerations provided by ADF&G

- This draft plan explains and clarifies what the agency has been doing in regards to wolf management since 2020.
- Until there is new information regarding the population estimate and genetic diversity, the agency will continue to manage above the population objective that is in the regulation.
- As new information presents itself through research or other means, the Division will evaluate that information and update this plan as needed.
  - The Division of Wildlife will come back to the public and provide updated information.
- The Division of Wildlife will make recommendations to the Board of Game after there is more information and if it is appropriate to do so.
- The Division recognized the need to communicate more with the public and have face time to talk through all of the different research that is being done to address the management issues the agency is encountering.
- Division of Wildlife Conservation is very thankful for the participation and that people shared their questions and considerations and make the effort to better understand wolf management in GMU 2.

Important Next Steps provided by ADF&G

- The Draft Management Plan was made available through ADF&G. DWC requested comments from the public over a 30-day period, ending on July 15th.
- The public could email comments to Ross Dorendorf or mail them to the Ketchikan office.
- Participant comments and questions from both Meeting 1 and Meeting 2 were grouped into themes. ADF&G staff responses to these comments and questions were included in the Appendix of the Summary Report for the community outreach meetings (see Appendix A), which was made public along with the updated wolf management plan.
- The GMU 2 Wolf Management Plan was finalized and distributed before the 2024 trapping and hunting season (November 15, 2024).

This concluded the public outreach and education meetings hosted by ADF&G.

APPENDIX

- **Appendix A: Participant Questions from Meeting 1 & 2**
  - Appendix A1: ADF&G's Summarized Responses
- **Appendix B: Meeting Agendas, 1 & 2**
- **Appendix C: Dialogue Agreements**
- **Appendix D: Supplemental Definitions**
- **Appendix E: Accessing Supporting Materials**

Recordings of both meetings and a draft of the wolf management are available to the public. Contact ADF&G Ketchikan at 907-225-2475 for details.

APPENDIX

PUBLIC OUTREACH & EDUCATION MEETINGS, WOLF MANAGEMENT

KLAWOCK ALASKA, PRINCE OF WALES ISLAND

Game Management Unit 2

A summary of planning, activities, and content shared over two community outreach & education meetings; hosted by the Alaska Department of Fish & Game, Department of Wildlife Conservation on May 24th and June 14th, 2024, to foster understanding of wolf management and improve communication with the public.

Alaska Department of Fish & Game, Department of Wildlife Conservation | Sustainable Solutions
AUGUST 2024

APPENDIX A

ADF&G's summarized responses

Appendix A is a list of participant questions and comments from both Meetings 1 and 2. They are ADF&G has provided responses to many of the recurring questions posted by participants. The recurring questions and responses have been grouped under the themes identified above from Meeting 1 & 2 participant questions:

- Genetic Diversity
- Population Studies and Estimates
- Management Standards and Regulations
- Predation
- Research

GENETICS

Why is inbreeding an issue now?
A master's student sponsored by ADF&G collected wolf DNA samples from around Southeast Alaska, including Prince of Wales Island to assess gene flow across Southeast Alaska. Those samples showed that wolves on Prince of Wales Island are inbred. The data showed that wolves in Unit 2 have similar levels of inbreeding to those on Isle Royal, a small, isolated Island in Lake Superior. Wolves moved onto the island in the 1940s and went functionally extinct in 2014 due to inbreeding depression. This is new information that the department did not have before this study. The level of inbreeding is concerning because its similar to a very small population that went functionally extinct. Due to this similarity, the department will monitor for signs of inbreeding depression and work to further understand the current level of inbreeding and what it means for management.

What does the wolf population size in Game Management Unit 2 need to be to avoid inbreeding depression?
We do not have the information to answer that question currently, but we are working on multiple projects to shed light on the subject. Some information that is beneficial to inform this question is effective population size, genomic characteristics of the population, and rates at which immigrants join the breeding population. ADF&G is currently investigating those factors and others as they relate to wolves in GMU 2 and throughout Southeast Alaska. We anticipate portions of this work will become available in 2025.

How do we prevent inbreeding depression?
Increasing genetic diversity helps to reduce the likelihood of inbreeding depression. To do this, wolves from areas outside Unit 2 must successfully breed and pass on their genetics to future wolf generations and those wolves must pass their genes on and so forth. Right now, the department is trying to determine the extent of inbreeding at a larger scale across Southeast Alaska with more samples. This may provide us with a better understanding of the severity of inbreeding and potential management scenarios to avoid inbreeding depression. Results are expected in 2025.

POPULATION ESTIMATES

How accurate is the population estimate?
Although ADF&G's GMU 2 wolf population estimates have been consistent with the DNA collected, analysis of data from 2019 and 2020 suggests earlier estimates may have been biased low. Along with incremental improvements in capturing DNA from hair samples, in 2019 and 2020 ADF&G first had access to DNA from wolves harvested within the study area during the October-December study period. That DNA collected at sealing contributed to larger datasets available for the 2019 and 2020 population estimates and in part, appears responsible for higher estimates in those years. Fewer samples from harvested wolves available for earlier estimates may have biased those estimates low. It's crucial to collect samples from harvested wolves as they provide additional information to inform the estimate. The department continues to work on the estimate and other methods of estimating the population through internal projects and collaborations with universities.

How do we account for bias in the population estimate?
The department is sponsoring a post doc to investigate potential bias in the method we use to estimate the wolf population in Unit 2. The idea is to examine different ways of modeling behavior of groups and how that can affect detections at hair boards to improve population estimates. The department also placed cameras at hair boards to assess wolf behavior at hair boards. This may help the department determine if bias exists from certain groups of wolves (i.e., adults, or females, or other group) that may not be leaving hair samples or if wolves are rolling but not leaving hair samples. Results from these studies are anticipated in 2026.

Do you account for unreported or natural mortality in the management plan?
Natural and unreported human caused mortality are difficult and costly to estimate. However, regardless of how wolves enter and exit the Unit 2 wolf population, our annual estimate takes this into account. Our population estimate changes based on several factors, including natural and unreported harvest, that influence the population. Management adjusts according to the most recent estimate to adapt to change. This is the advantage of an adaptive management strategy where monitoring the population annually allows the department to alter the season length according to the estimated population to either increase or decrease harvest accordingly.

POPULATION OBJECTIVE

How did the population objective of 150-200 wolves become regulation?
The publicly available recording of the January 2019 Alaska Board of Game meeting in Petersburg documents the Board's deliberation on the objective. The Board selected the current objective range based on ADF&G's population estimates from 2014-2017, the apparent rapid recovery of the population from low numbers in 2014 and 2015, and public testimony. The Board also recognized that the 2019 population objective was a starting point that would need to be revised as new information became available. Information gathered since the 2019 Board meeting suggests the population objective in regulation may be too low. Consistent with our constitutional mandate for sustainability and with the support of the Board of Game, ADF&G is managing for a fall population greater than in regulation while supporting numerous research projects to inform sustainable population management.

When will ADF&G recommend a new population objective?
The department is working on several projects to inform sustainable management of wolves in Unit 2. A department sponsored post-doc student is looking into the potential for inbreeding depression and modeling potential outcomes of management actions to help inform management. This information will be used in conjunction with the results of projects the department and collaborators are working on to inform us on the genetic status of wolves in Unit 2. Until this work is complete the department will maintain the wolf population in Unit 2 above the current population objective. Results are expected in 2025 and 2026

Where did 30% annual wolf harvest rate for sustainable harvest come from?
The department used a percentage-based harvest rate that ranged from 20-30% of the most recent population estimate from 1997–2018. This method maintained a sustainable population and harvest opportunity of wolves in Unit 2. The department now controls hunting and trapping effort by varying season length which has also been working after adjusting season length for trapping pressure under the new management plan. The department provides a season length based on recent trapping effort that will allow for sustainable harvest. The percentage of allowable harvest comes from our learned experience through managing this wolf population and from other studies that found that productive wolf populations can be maintained when 30% of the population is harvested annually. Conditions, knowledge, and learned experience through management may change in the future which may indicate that a lower percentage of harvest is needed to maintain the population. This will be apparent with our adaptive management strategy and current and future research. Adjustments can and will be made as new information is available.

Is harvesting at 30% over or under harvesting?
Based on our learned experience through managing this population, harvesting an average of 30% of the population is sustainable and provides reasonable harvest opportunity. Other studies have shown that harvesting up to 30% of a productive wolf population annually is sustainable. Again, through managing the population with an adaptive strategy that relies on annual population estimates, we will be able to detect trends in abundance that may call for altering the percentage of harvest.

REGULATION

Trapping season coincides with the deer rut, how can the start date for trapping be changed?
Changing the start date of the wolf trapping season for Unit 2 from November 15 to another date is a decision that is made by the Alaska Board of Game. To make the change meaningful, the trapping season start date would also need to be changed in the Federal Subsistence regulations. These are two separate processes to change. For the Board of Game, the next meeting for Region 1, Southeast Alaska, is in early 2026. Proposals to change regulations are due to the department via the website (https://www.adfg.alaska.gov/index.cfm?adfg=gameboard.main) by May 1, 2025. The federal subsistence meeting to change regulations in Southeast Alaska will also be held during 2026 and details for the meeting will be posted on the Office of Subsistence Management's website at https://www.doi.gov/subsistence/osm.

PREDATION ON DEER

Is the deer population declining due to wolf predation?
Wolves and black bears are important predators of Sitka black-tailed deer. Department Researchers have found that the most common diet item found in the wolf's diet in Unit 2 is deer. Other research found that black bears killed 50% of neonate deer fawns in the spring. Habitat has also decreased deer populations as vast clearcuts throughout Unit 2 have reduced deer carrying capacity. Deer harvest from 2005 to 2015 continually rose until the average time it took to harvest a deer increased in 2016 and leveled out from 2017 to 2023. Harvest serves as the best metric indicator of trend in the deer population. Based on this information, the deer population seems to have dropped to a lower level and is now stable. It's difficult to determine the exact influence wolves are having on the deer population, but currently, the deer population appears to be stable.

What is the department doing to assess the deer population?
Deer harvest effort is the longest-term data the department must assess trends in the deer population in Unit 2. This information allows managers to compare current and past trends in abundance. The department is also researching camera-based methods to assess trends in abundance, fawn-buck-doe ratios, fawning rates and timing, rut activity, etc. The department research staff are working to compare results of camera-based methods to integrated population model as a check on accuracy. The department is also sponsoring a PhD and master's student who are testing camera-based methods in Unit 2 to assess the deer population. Results of this work are expected in 2027.

APPENDIX A.1

Participant Questions from Meetings 1 & 2

Appendix A is a list of participant questions and comments from both Meetings 1 and 2. They are grouped by common themes that reflect recurring questions and ADF&G's responses. In Appendix A.1., ADF&G provides a summary response to specific themes. The responses from DWC hit on several specific questions posed by participants.

Themes from Meeting 1 & 2 participant questions:

- Genetic Diversity
- Population Studies and Estimates
- Management Standards and Regulations
- Predation
- Research

GENETIC DIVERSITY

Meeting 1 questions

1. How is the concern for genetic depression in unit 2 different now, than it has been historically?
    a. See ADF&G's summarized responses (appendix A1).
2. Is it possible to add genetic diversity?
    a. See ADF&G's summarized responses (appendix A1).
3. How many generations will it take before we expect to see an inbreeding depression?
    a. There is no absolute number of generations it takes until genetic depression occurs because there are many factors involved. A general amount that scientists suggest is about 40 generations, though, this can vary greatly given different species, environmental conditions, etc.
4. What caused the 1970 bottleneck event?
    a. There is no definitive cause known for the genetic bottleneck of wolves in 1970, though there were a series of winters from 1968–1972 that killed many deer and may have influenced the population of wolves in Unit 2.
5. Have the wolves always been genetically isolated?
    a. Wolves in Unit 2 have become more isolated since the end of the last ice age around 10,000 years ago. Previous to this, ice connected much of the area and likely increased wolves' ability to move through the area.
6. Where does the information come from that shows you there was a bottleneck in the 1970s?
    a. This information is gathered from analyzing DNA samples of wolves from Unit 2 and throughout Southeast Alaska.
7. Could the short season be the problem of genetic depression?
    a. Clarification is needed to answer this question.
8. Can ADFG capture wolves and move them here to increase genetic diversity?
    a. See ADF&G's summarized responses (appendix A1).
9. How does the bottleneck and genetic diversity resolve itself?
    a. See ADF&G's summarized responses (appendix A1).
10. Is there any population study that points to a population number needed to prevent inbreeding depression?
    a. See ADF&G's summarized responses (appendix A1).

11. If current wood bison population, world-wide, that is disease free and genetic pure, that came from 11 wood bison on Elk Island Canada. Are you stating that wood bison are inbred?
    a. Talking with ADF&G staff directly involved with this project would be the best way to get information on the herds' genetic status. The Fairbanks office number is: 907-459-7200.
12. What kind of data is needed to determine minimum population sizes for wolves to avoid inbreeding depression?
    a. See ADF&G's summarized responses (appendix A1).
13. How can management alleviate inbreeding concerns?
    a. See ADF&G's summarized responses (appendix A1).
14. Where is there possible gene flow occurring to the mainland?
    a. Wolves are excellent swimmers and have been seen swimming long distances in Southeast Alaska. Wolves could potentially swim from many different areas to reach Unit 2, but most areas have a 4–5-mile swim with strong ocean currents making it difficult to cross. Areas with shorter distances between land are more likely to offer an easier route to and from Unit 2.
15. Genetics- Do we have enough info over enough years to start painting pictures of individuals on Prince of Wales?
    a. Individual identifications of wolves are collected on an annual basis. Re-captures, or wolves we have identified individually more than once, are important for the spatially explicit capture recapture method used to estimate the population.
16. Do we understand movement between packs, age, familial structures?
    a. The department has collared wolves several times to better understand wolf movement in Unit 2. Results of those studies can be found on the department's website **https://www.adfg.alaska.gov/index.cfm?adfg=librarypublications.wildlifepublications.**
        i. The authors are Dave Person and Gretchen Roffler and have several publications at this link that describe their work with wolves in Unit 2.
    b. The department collects age class information of harvested wolves annually by analyzing foreleg bones. Age class can be broken into three categories, pup, yearling, and adult.
    c. Relations between wolves can be investigated through DNA which the department has conducted for several genetic studies. See the link above to search for publications by Gretchen Roffler for further information.
17. These wolves have been here for a long time and inbreeding was not an issue 300 years ago, why now?
    a. See ADF&G's summarized responses (appendix A1).
18. Overall, it seems that since the first bottleneck of 1790 that genetic diversity took a hit and then in 1970 it took another hit. Unless there is a vast immigration of wolves on to POW will it just keep getting worse and worse?
    a. An analysis by Zarn (in review) detected only one immigrant to GMU 2 from elsewhere in Southeast Alaska. Wolves may move into GMU 2 more often but do not successfully breed and pass on their genetics. The department is working on several projects to assess the genetic status of wolvesin GMU 2. See ADF&G's summarized responses (appendix A1).

Meeting 2 questions

1. Have any of these studies been done before?
    a. More information is needed to answer this question.
2. What samples were used to determine the bottlenecks?
    a. Samples from across Southeast Alaska were analyzed as a part of a department sponsored graduate student's project. Here is the publication that shows where the samples were collected. Zarn, K. E. 2019. Genomic inference of inbreeding in Alexander Archipelago Wolves (Canis lupus ligoni) on Prince of Wales Island, Southeast Alaska. Master's Thesis, University of Montana
3. A loss of genetic diversity in 2 instances since the last ice age. Is this really an issue?
    a. See ADF&G's summarized responses (appendix A1).
4. Catch and release wolves from other areas?
    a. More information is needed to answer this question.
5. What's the minimum population of wolves to avoid genetic/ wolf population decline?
    a. See ADF&G's summarized responses (appendix A1).
6. What does that lack of genetic diversity mean? Fewer morphs of wolf pelts? Smaller wolves? What desirable traits could be selected away from this bottleneck?
    a. Low genetic diversity means that wolves are similar to each other genetically. When this happens, parents are more likely to pass on unfavorable traits to their offspring, and those traits are more likely to be expressed. If enough inbreeding occurs, inbreeding depression can occur where spinal deformations, reduced breeding success, or cause parents to give birth to non-viable offspring.
7. Genetic Bottlenecks- what was used to show these?
    a. This information is gathered from analyzing DNA samples of wolves from Unit 2 and around Southeast Alaska.
8. How does POW genetic diversity compare to island genetic diversity in Canada – Ellesmere Island or Unimak Island, for example.
    a. Generally, genetic diversity is lower on islands. Animals have reduced ability to mix with animals from adjacent land which causes inbreeding. Inbreeding is expected to occur at some level in island populations, however, the level of inbreeding in Unit 2 is similar to that of Isle royal, a population that went functionally extinct in 2014. This is remarkable as the population of Isle Royale was founded by only 2-3 wolves. Given this similarity, the department must further investigate the genetic structure of wolves in Unit 2 to maintain a sustainable population of wolves.
9. How related are the wolves in Unit 2? How much of a concern is this and how many years in the future?
    a. See ADF&G's summarized responses (appendix A1).
10. There is research about thinning or calling the population to improve or force breeding between individuals and connected habitat packs- is this a viable option for GM2?
    a. Culling dominant breeding individuals to create breeding opportunities for other wolves is not practical in GMU 2. It would be difficult or impossible to identify and target specific dominant wolves, and allowing high hunter/trapper harvest in the hope of removing dominant breeders would not help. See ADF&G's summarized responses (appendix A1).
11. Does where people hunt and collect wolves affect wolf diversity on the island?
    a. The department is not aware of any influence that hunting or trapping location has had on the genetic diversity of Unit 2 wolves. The department collared wolves in Unit 2 and found that some wolves move throughout the entire Unit. Also, genetic analyses showed that all wolves in Unit 2 have a similar genetic makeup that is different from wolves in other areas in Southeast Alaska. Thus, diversity is not likely affected by the location where wolves are harvested from within Unit 2.
12. Are there areas of lower and higher genetic diversity on the island? Should and can we protect these higher genetic diversity areas?
    a. The department is not aware of any influence that hunting or trapping location has had on the genetic diversity of Unit 2 wolves. The department collared wolves in Unit 2 and found that some wolves move throughout the entire Unit. Also, genetic analyses showed that all wolves in Unit 2 have a similar genetic makeup that is different from wolves in other areas in Southeast Alaska. Thus, diversity is not likely affected by the location where wolves are harvested from within Unit 2.

13. How viable would artificial insemination be? You have the capability to capture live individuals. Would alpha males sense the pups aren't theirs could possibly cut down on transport costs and bringing wolves in? Also, would a closure be needed? Have implanting fertilized eggs been done in wolf or canine populations?
    a. Artificial insemination of wolves is a new and intensive process which a zoo conducted with Mexican wolves. Male wolves from outside Unit 2 would need to be captured and transported to a facility that could conduct the procedure of removing sperm. Then female wolves would need to be captured within Unit 2, brought to a facility where the procedure for artificial insemination could take place, then monitored and released. This would be more intense and much more logistically challenging effort compared to capturing both male and female wolves from outside Unit 2 and releasing them inside Unit 2. A closure of the trapping and hunting season would likely be needed to avoid removing the animals before they got a chance to breed. However, the department is further investigating the genetic structure of wolves in Unit 2 to learn more about their condition before considering other options of increasing genetic diversity.
14. Is there historical evidence of inbreeding depression in an area of this size, negatively impacting the wolf population and if not, why do we care?
    a. See ADF&G's summarized responses (appendix A1).
15. What is the population size for Prince of Wales Island that would allow for ideal level of genetic diversity?
    a. See ADF&G's summarized responses (appendix A1).
16. Is genetic depreciation happening island wide or just certain areas more dramatically?
    a. The department collared wolves in Unit 2 and found that some wolves move throughout the entire Unit. Also, genetic analyses showed that all wolves in Unit 2 have a similar genetic makeup that is different from wolves in other areas in Southeast Alaska. Thus, diversity is not likely affected by the location where wolves are harvested from within Unit 2.
17. Genetic diversity is such an issue are there any plans or approaches to bring in wolves from outside or other such plans?
    a. See ADF&G's summarized responses (appendix A1).
18. So if we harvest at an average of about 30% through time. What will that do or not do to the pop the genetics the issue that we're having with genetic and breeding, and that level of harvest is meant to maintain the population at the current level about.
    a. The department's aim is to maintain a sustainable population of wolves in Unit 2. This is done by monitoring the population through annual population estimates that aid in determining a season length for trapping. The department is also working on methods for monitoring genetic diversity. This would aid in determining the genetic status of the population in conjunction with its overall size which would provide more information for our adaptive management strategy.

POPULATION STUDIES AND ESTIMATES

Meeting 1 questions

1. Looking at the population estimates and having the two jumps in overpopulation size. It was said that adding more hair boards should increase precision and not have a jump in population size. When adding hunt trap data, it was said the Precision should increase. I wonder why Precision wasn't increased. Is this because gathering data from unsampled areas or samples not being not previously in the sample area such as outer Islands?
    a. Precision of the estimate depends on many factors in the model. The department believes that there may be bias in sampling of certain groups of wolves (i.e., adult females, adult males, certain wolf packs, or other group) that is missing from the estimate. When certain groups of wolves are not sampled, that group is not represented in the estimate, biasing the estimate low. The department is sponsoring a post-doc that is looking into this bias and the department is using cameras to assess bias at hair boards. See ADF&G's summarized responses (appendix A1).
2. How did 150-200 become the population objective?
    a. See ADF&G's summarized responses (appendix A1).
3. How do we know what constitutes a sustainable population?
    a. The department uses adaptive management to monitor and adjust harvest pressure on wolves in Unit 2 to maintain a sustainable population. Harvest rates are consistent with what managers learned from previous years and recommendations from the literature. The department is also investigating multiple factors that influence sustainability through our research and research with collaborators. See ADF&G's summarized responses (appendix A1).
4. If this was created by the Board of Game then what is the science and data behind the decision that maintaining this population number will ensure that the wolf population will be sustainable into the future?
    a. See ADF&G's summarized responses (appendix A1).
5. How many wolf packs make a sustainable population?
    a. The answer to this depends on how large of an area you're looking at, habitat quality, prey density, reproduction rates, mortality rates, and other factors. For Unit 2, ADF&G monitors the overall population as a part of the adaptive management strategy to maintain sustainable harvest.
6. In the previous presentation you showed how you're changed population estimates based on more effort. How much faith do you have in the effort process now?
    a. See ADF&G's summarized responses (appendix A1).
7. How did you arrive at your 30% rate for harvest?
    a. See ADF&G's summarized responses (appendix A1).
8. If we are harvesting 30% of wolf population annually then it could be under harvest.
    a. See ADF&G's summarized responses (appendix A1).
9. Perhaps a new research study that focuses on randomization of samples might improve the population estimate? Very hard to do given the complexity of the POW island.
    a. More information is needed to answer this question.
10. Are there biases in the estimate? What are they? And how do we account for those biases?
    a. See ADF&G's summarized responses (appendix A1).
11. While the deer population is declining, the wolves are diversifying their diet (research demonstrates)- driving up their population. And we are maintaining this low population estimate. Does this make sense?
    a. ADF&G uses deer harvest and harvest effort as an index of deer abundance. According to our data, the deer population declined after 2015 and has since stabilized. We do not have evidence of a continued decline. The average time it took to harvest a deer from 2019 to 2023 was 4.9 days (range = 4.4-5.3) compared to 2011-2015 which averaged 3.5 days (range = 3.3-3.6). This indicates that the population has decreased but is now stable at a lower level.

b. The department is not aware of any change in the wolf population in relation to diet diversity. The department conducted studies on wolf diet but has no information on how diet changed the overall population in Unit 2. See information in ADF&G's summarized responses (appendix A1) for more information on current studies being conducted.

12. One of the SECR model assumptions involves the probability of detection at a given location is a function of distance to an individual's activity center. Is presence of road/access, thick dog ear stands, or other accessibility issues a problem for the model assumption?
    a. The short answer is that none of the factors listed violate assumptions of the SECR model. Here are more specific explanations.
    b. Roads: To estimate the effect of roads we would evaluate the effect that distance from each hair board node to a road has on probability of detection. For sampling feasibility nearly all hair board nodes are near roads, so that variable is unlikely to have any significant effect. Further, considering the abundance of roads throughout POW, all or nearly all wolf home ranges have access to roads, so roads are unlikely to affect probability of detection at the spatial scales involved.
    c. Habitat/Terrain: None of our detectors (hair boards) are set in areas where terrain or habitat would affect access. However, unfavorable habitat, rough terrain, or water barriers could affect travel distance between an animal's activity center and a detector. In our POW study area bodies of water likely have the greatest effect on travel distance. Wolves are more likely to walk around than swim across lakes or bays, so we have evaluated the effect of using Euclidean (straight line) and non-Euclidean or ecological distance on detection probability. We found that actual differences in Euclidean and non-Euclidean distances between detectors was usually quite small and has a negligible effect on model results.
    d. Wolves are habitat generalists and highly capable of moving through nearly any terrestrial landscape. Consequently, how wolves navigate terrain and habitats are matters of choice with many possible routes of varying probability, and we do not know how wolves choose their routes. If the unfavorable terrain/habitat is relatively narrow, will wolves choose to move through it? How wide would it need to be for them to make a different choice? Is the terrain/habitat really unfavorable or is there a trail we don't know about? Does what is on the other side of the unfavorable terrain/habitat influence a wolf's choice?
    e. In our analysis the detection function models the mean probability of detection vs distance within a circular area surrounding the detector and is based entirely on repeat detections of the same individual at other detectors. As such, differences in terrain/habitat-based travel distances within that detection zone tend to average out. We always examine detector-specific detection functions so that the specific factors affecting "accessibility" can be accounted for, but those models tend to rank low.

13. What is the timeline for the supplemental research design projects (e.g. camera traps) to determine if they're a useful addition to the research "toolkit"
    a. The PhD student doing this work should finish in 2026 or 2027. Ideally her dissertation will result in peer-reviewed publications. Timelines for the review and publication process are unpredictable.

Meeting 2 questions

1. Will the hair board method with the cameras continue and be used into the future to determine population estimates?
    a. Yes, we will continue using the spatially explicit capture recapture method using non-invasively collected DNA samples to monitor the population of wolves in Unit 2. Camera-based methods are being tested now that may provide an alternative at some point in the future. The department is continually searching for and creating new techniques. As science changes and methods improve, the department will use new methods that prove useful.
2. How often will population estimates be released?
    a. Population estimates of the Unit 2 wolf population are conducted annually and it takes about 8-10 months after sample collection is complete to create a new estimate for the fall population of wolves. Memos with the previous seasons data are stored on ADF&G's website here: https://www.adfg.alaska.gov/index.cfm?adfg=wolf.resources
3. What about the number of wolf packs? Does that not play into what creates a sustainable population?
    a. The answer to this depends on how large of an area you're looking at, habitat quality, prey density, reproduction rates, mortality rates, and other factors. For Unit 2, ADF&G monitors the overall population as a part of the adaptive management strategy to maintain sustainable harvest.
4. Only 15 wolves were genetic sampled from POW?
    a. A master student sponsored by the department collected genetic samples from across Southeast Alaska, including 16 samples from different wolves in Unit 2, to evaluate their genetics. This thesis is: Zarn, K. E. 2019. Genomic inference of inbreeding in Alexander Archipelago Wolves (Canis lupus ligoni) on Prince of Wales Island, Southeast Alaska. Master's Thesis, University of Montana. The department now has over 200 samples from Unit 2 in a larger effort to continue evaluating the genomics of wolves in Southeast Alaska. See summarized answers (appendix A1) for more information.

5. Is it possible to use military drones with thermal imagery to better estimate populations?
    a. Rainforest vegetation makes it challenging to use aerial methods to monitor animal populations in Southeast Alaska. Drone technology and regulations are continually changing and improving and someday may aid monitoring, but we do not currently use drone due to the challenges mentioned.
6. Camera based population estimates- is it possible to use private trail cameras to use numbers collected there?
    a. Right now, the department is sponsoring a graduate student to determine if trail cameras may be used to aid in estimating the wolf population in Unit 2. If these methods can provide better information, the department may use them in the future to aid in monitoring the wolf population in Unit 2. There may be potential in the future to supplement camera-based work with camera data from locals.
7. How much have citizen science opportunities been looked at?
    a. Residents of Unit 2 have aided and are currently aiding in the hair board work by providing insight into improving the methods. Future efforts to potentially include cameras may open up more opportunities as well.

MANAGEMENT AND REGULATIONS

Meeting 1 questions

1. What determines the wolf den buffer of 2,000 m?
    a. This research was conducted by ADF&G research biologists that collared wolves and monitored their movement through the denning season to determine what buffer size would aid in protecting their dens. The authors recommended a minimum buffer to protect wolf dens of 734 meters (2,408 feet). The citation is Roffler, G. and D. Gregovich. 2018. Wolf space use during denning season on Prince of Wales Island, Alaska. Wildlife Biology. https://doi.org/10.2981/wlb.00468.
2. Wolf den recommended buffers- What are these and how do these buffers tie into the management plan?
    a. This research was conducted by ADF&G research biologists that collared wolves and monitored their movement through the denning season to determine what buffer size would aid in protecting their dens. The authors recommended a minimum buffer to protect wolf dens of 734 meters (2,408 feet). The citation is Roffler, G. and D. Gregovich. 2018. Wolf space use during denning season on Prince of Wales Island, Alaska. Wildlife Biology. https://doi.org/10.2981/wlb.00468.
    b. ADF&G does not manage land. About 80% of the land in Unit 2 is federally managed and the USFS would decide on whether to protect a den site on that land. ADF&G comments on proposed disturbances, including timber sales, and recommends protection of den sites on all lands.
3. Why do you guys open the season at the peak of the deer rut and bears are still running around?
    a. See ADF&G's summarized responses (appendix A1).
4. Do harvest numbers include hunting poaching or any other reported known loss?
    a. Harvest is recorded when hunters and trappers seal hides according to regulations. Unknown sources of mortality such as natural, and unreported human caused mortality were estimated in the past but are not known on an annual basis. The department monitors the population using an annual population estimate that allows for an adaptive management approach. Meaning, all ways that animals enter or exit the population are accounted for and managers can increase or decrease hunting and trapping opportunities commensurate with the latest population estimate.
5. Do wolf harvest numbers change in light of logging practices or habitat changes?
    a. The department is not aware of a study directly looking at changes in harvest in response to timber harvest practices in Unit 2. However, studies were conducted that estimated a reduced population of wolves due to reduced deer populations resulting from timber harvest practices.
    b. See: Gilbert S. L., T. Haynes, M. S. Lindberg, D. M. Albert, M. Kissling, L. Lynch, and D. Person. 2022. Potential Futures for Coastal Wolves and Their Ecosystem Services in Alaska, With Implications for Management of a Social-Ecological System. Frontiers in Ecology and Evolution. doi: 10.3389/fevo.2022.809371.
6. Why can't ADF&G require trappers to register, so you know the effort and the number of trappers that are harvesting? You never know how many trappers are trapping and number of traps they put out?
    a. The Alaska Board of Game, not ADF&G, has authority to adopt regulations requiring trappers to register and report trapping effort. Federally qualified subsistence users (e.g. residents of GMU 2) trapping on federal lands may choose to trap under state or federal subsistence regulations. Consequently, for any changes in state regulations to be effective in areas with high proportions of federal lands (e.g. GMU 2), federal subsistence regulations would also need to be changed.
7. Is our current management strategy for wolves allowing for natural variations of population?
    a. The department's adaptive management strategy is based on monitoring trends in abundance. If abundance decreases, the department reduces harvest effort, conversely, if abundance increases, the department allows for additional harvest effort.

8. What other-management tools does the ADF&G have for changing wolf population levels?
    a. Managing harvest effort through an adaptive strategy is how the department maintains sustainable harvest. Other methods are available to manipulate populations, but harvest management is the most effective method for monitoring and maintaining the Unit 2 wolf population through adaptive management.
9. Can concerns from people drive change?
    a. The reason ADF&G has put so much time and effort into research, management, and engaging with the public is all centered around constitutional mandates and agency mission and objectives which include considering public concerns. Petitions to list this species as threatened or endangered demonstrate a need to continue to engage members of the public about this issue which the department continues to do in order to maintain a sustainable population according to our constitutional mandates.
10. Why do you put trapping season during the deer rut? Need that time to get deer for food.
    a. See ADF&G's summarized responses (appendix A1).
11. ADFG knows about the bias low population estimates and is doing nothing to reflect the low estimates in the GMU 2 Wolf management plan.
    a. See ADF&G's summarized responses (appendix A1).
12. So, the question is, how can these biased lows in the margin of error come down to a more realistic number?
    a. See ADF&G's summarized responses (appendix A1).
13. What I've heard in recent years are concerns by trappers- is length of season and timing relating to safety with winter storms versus the opportunity and conflict with deer hunters and deer hunting. These seem like reasonable concerns to consider and find a way to meet all objectives biologically.
    a. The Alaska Board of Game, not ADF&G, has authority to adopt regulations that change the start of the Unit 2 wolf trapping season. Federally qualified subsistence users (e.g. residents of GMU 2) trapping on federal lands may choose to trap under state or federal subsistence regulations. Consequently, for any changes in state regulations to be effective in areas with high proportions of federal lands (e.g. GMU 2), federal subsistence regulations would also need to be changed.
    b. If members of the public are interested in submitting a proposal to the Board of Game, they can contact their local ADF&G office for guidance on the process. If someone wants to submit a proposal to the Federal Subsistence Board, they can find help by contacting the Office of Subsistence Management.
14. Bottom line - If you set a season length with no other requirements, you could have a month season where you have one trapper that has one trap line, or you might have 10 trappers with 10 trap lines. The end result might be very different harvests that could be from 0 to over 100, as we already witnessed. Why not set a harvest quota on what makes sense to ensure a sustainable population into the future? The ADFG would never set a month-long season on a population of caribou and say take what you want. They have a harvest quota in mind to ensure it is not overharvested. They also try to control what type of caribou are harvested - young, old, sex, etc.... Why not apply these controls to a vulnerable population?
    a. Sustainability is paramount, but ADF&G also has legal and policy direction to provide for consumptive uses. A review of Alaska's hunting and trapping regulations will reveal that harvest management strategies vary by species and area. This is because species differ in abundance, social systems, breeding strategies and many other factors. Harvest methods and the public's interest in harvesting also differ by species and area. ADF&G's harvest management strategies are tailored to the characteristics of species, individual populations, interest in and access for harvest, and harvest methods. We also note that many big game hunts are successfully managed without harvest quotas. Examples from Southeast include general season deer and black bear hunts and the RM038 registration moose hunt in GMUs 1B and 3.

   b. ADF&G's current GMU 2 wolf harvest management strategy was specifically designed to address the unique circumstances of that population. Managing harvest by varying opportunity (trapping season length) has been successful. State reporting and sealing requirements also provide ADF&G with some in-season harvest monitoring capability. In fall 2023 ADF&G began using recent harvest rates (wolves/day) to predict harvest likely to result from seasons of varying lengths. We predicted that a 31-day trapping season would yield a harvest of about 78 wolves with a possible range of 62-99 wolves. Reported harvest in 2023 was 70 wolves, lower than the number predicted but well within the predicted range. Harvest in a single year is unlikely to have a long-term effect on sustainability of the population, so ADF&G managers monitor trends over time and adjust harvest opportunity as needed. In recent years population estimates and harvest have been stable, and all indicators point to the current management strategy being a successful and sustainable way to manage the GMU 2 wolf population. ADF&G will continue to incorporate new information into management as it becomes available.

15. Kept saying we have to have sustainable wolf versus sustainable deer population why are the wolves the priority? Kept saying the wolf is the priority?
    a. Sustainable populations of deer and wolves are important in maintaining ADF&G's constitutional mandate. The department will continue to monitor and manage harvest of both species for the benefit of the people.

Meeting 2 questions

1. Can the trapping season be changed?
    a. See ADF&G's summarized responses (appendix A1).
2. Wondering if there is a factor that is added into a harvest equation that represents unreported illegally harvested wolves. Example: wolves harvested that people are still in the windows of reporting but maybe they procrastinate? Example: harvest is limited to 20 wolves and on a certain date and that is the limit for the season. But you could have other wolf harvest reports come in? I guess could there be a more detailed equation or is that in the cited work?
    a. More information would be needed to answer this question in detail but see ADF&G's summarized responses (appendix A1).
3. Does the average wolf harvest per day account for illegal wolf harvest?
    a. See ADF&G's summarized responses (appendix A1).
4. When is the new population estimate going to come out?
    a. It takes 8-10 months after samples are collected and the field season is over to produce a population estimate. An estimate and memo regarding the 2023 hair board project efforts in Unit 2 will be produced prior to the November 15, 2024, trapping season.
5. Are hunter-harvested wolves involved in determining trapping season?
    a. Yes, all recorded harvest is involved in determining the trapping season length.
6. Is the emergency order to season ending for hunters and trappers?
    a. Yes, the emergency order closure is for both the trapping and hunting seasons in Unit 2.
7. How many wolves are killed on Prince of Wales Island by hunters?
    a. Since 2019 its averaged 8 per season (range 4-15). The implementation of a season-length based management strategy was implemented in 2019. The season for hunting wolves under hunting regulations starts September 1 and is closed by emergency order at the same time the trapping season closes. This closure occurred December 15 from 2021 to 2023 which allows for a three and a half month long hunting season for wolves since 2021.
8. If the emergency order only closes the trapping season but allows the hunting season to stay open for the duration that shows in regulation. Would that be an injury to the wolf?
    a. The department needs to stop all harvest to ensure sustainability. We do this through an emergency order that closes both the hunting and trapping seasons.

9. When would the Department consider an emergency order to stop the harvest of wolves based on some factor that may be going on? If we had a high catch rate or something. At what level or what point would we determine that we need to close the season down even earlier than we?
    a. Many factors influence the decision to make an emergency closure. The state has some ability to monitor harvest in season with a 7-day call in requirement. The federal subsistence board decided not to adopt this regulation meaning those hunting under federal regulations do not have to report wolf harvest in Unit 2 within 7 days of take. With the information we have, the department would take into consideration current known total harvest, current and previous years' harvest rates, what the department deems sustainable based on science and learned experience through managing this population, weather, and other factors.
10. What are your proposed solutions to limited and declining deer habitat?
    a. ADF&G does not manage land. The USFS manages approximately 80% of the land in Unit 2, along with private land by native corporations, and some state land managed by the Department of Natural Resources. However, ADF&G is aiding in a collaborative effort with other agencies, NGO's, and contractors to conduct wildlife treatments to second growth in an effort to benefit deer and deer hunters. This effort is currently in the planning stage and will start with a mapping component to determine the best areas to treat second growth that will benefit deer and deer hunters.
11. Will ADF&G suggest to the Board of Game increasing the population objective?
    a. See ADF&G's summarized responses (appendix A1).

Predation

1. Wolves eat deer but I wonder how strongly that impacts deer populations?
    a. The department is undertaking research that investigates predation rates of wolves in Southeast Alaska that will help answer questions related to how often wolves capture prey, the species, sex, age, etc. of the prey. This information will help answer the question of how wolves affect deer populations.
2. Is changing wolf diets creating a predator pit?
    a. The department does not have evidence to suggest that a variable wolf diet creates a predator pit. There is empirical information available in some areas to support the theory of predator pits, however, there is much that needs to be done to fully understand the conditions that allow for a depression of the prey density that maintains the population at a lower equilibrium.

Research

1. Wanting to better understand how genetic depression study is conducted?
    a. The thesis for Katherine Zarn, K. E. 2019. Genomic inference of inbreeding in Alexander Archipelago Wolves (Canis lupus ligoni) on Prince of Wales Island, Southeast Alaska. Master's Thesis, University of Montana.
2. How do you determine age of a wolf from scat?
    a. The department does not determine age of wolves from scats. There is a developing method that uses DNA to determine age, however, that method has not been tested on low quality DNA like that on scats. Someday it may be possible, but not yet.
3. Are cameras focused on hair boards to see how many don't roll?
    a. A project to assess if bias sampling occurs at hair boards using trail cameras wrapped up last year (2023) and the department is now analyzing photos and videos for data analysis. This data may aid the department in compensating for bias, if it exists, in our estimate of wolves in Unit 2.
4. How are you cleaning hair boards or are you using new boards?
    a. Department staff check hair boards once a week for 10 weeks straight from the last week of September to the first week of December. During this time, we check to see if samples are present and collect them. If samples are collected, we use a small torch to destroy any leftover genetic material to avoid collecting another sample from a previous week which would pseudo replicate detections.
5. Does E-DNA have any possible utility for finding presents on small outer islands where you can't place hair boards?
    a. E-DNA could be used to detect the presence of wolves, however, the DNA used in our estimate is higher quality and allows for an individual identification. Also, we are able to sample in our current study area in almost any weather. Collecting DNA from outer islands is a huge challenge as weather is prohibitive to our collection protocol. The department is currently sponsoring a graduate student who is using a scat detecting dog to collect wolf scats on outer islands to look at diet and movement of wolves throughout Unit 2.
6. Can the DNA identify individuals or is it just for showing presence?
    a. We use DNA collected by hair boards and samples of muscle and skin tissue collected from harvested wolves to individually identify wolves in Unit 2. This is crucial for how we estimate the population of Unit 2 wolves.
7. New technology and the population study is progressing, but do we have time to wait for it and what are the implications to wolf population versus prey species?
    a. Science takes time and the department is working on multiple research efforts to better understand both wolves and deer in Unit 2. In the meantime, the department will rely on an adaptive management strategy to make management decisions regarding the wolf population in Unit 2. Also, according to our trend in abundance of deer. The population is stable.
8. How many pups are there per den site?
    a. Average pupping rates for wolves in Unit 2 is 4 pups per den. This average is from data collected from 1993-2003, and another effort from 2012-2020 showing that reproductive rates has been consistent through time.
9. Do we have cameras on hair boards to see what wolves do and do not role?
    a. A project to assess if bias sampling occurs at hair boards using trail cameras wrapped up last year (2023) and the department is now analyzing photos and videos for data analysis. This data may aid the department in compensating for bias, if it exists, in our estimate.
10. Do we track individual wolves through time?
    a. Yes, through individual identifications, we can detect the same wolf in multiple years if we collect DNA from that animal at hair boards or from samples provided by trappers. These recaptures are crucial for our ability to estimate the population using a spatially explicit capture recapture method.

APPENDIX B

Game Management Unit 2 Wolf Management

Community Education & Outreach Meeting

In-Person Location: Vocational & Technical Education Center, Klawock, Prince of Wales
Virtual: Zoom Link | Passcode: wolf | Phone: (253)215-8782 | Webinar ID: 820 4664 0241

Meeting I: Friday, May 24, 6-10pm

Meeting Goal:

To improve understanding of Alaska Department of Fish and Game's wolf management for GMU 2.

Agenda

6:00-6:20pm **Welcome & Introductions**

Facilitators, ADF&G presenters, and community attendees have the opportunity to introduce themselves.

6:20-6:35pm **Opening Statements**

ADF&G speak to their intention behind hosting community education and outreach meetings.

6:35-6:50pm **Ground Setting**

All are grounded in the goals of the meeting and have committed to the agreements for effective engagement.

6:50-6:55pm **Break**

6:55-8:05pm **Background & History of Management and Research**

ADF&G presentations followed by participant discussion.

8:05-8:15pm **Break**

8:15-9:00pm **Factors Used to Inform Wolf Management Plan for GMU 2**

ADF&G presentations followed by participant discussion.

9:00-9:50pm **Next Steps**

ADF&G presentations followed by participant discussion.

9:50-10:00pm **Closing**

APPENDIX B

Game Management Unit 2 Wolf Management

Community Education & Outreach Meeting

In-Person Location: Generations SE Community Learning Center, Klawock, POW

Virtual: Zoom Link | Passcode: wolf2 | Phone: (253)215-8782 | Webinar ID: 896 0011 5467

Meeting 2: Friday, June 14, 6-9:30pm

Meeting Goals:

1. Participants understand ADF&G's GMU 2 wolf management plan in the context of background, history, legal and policy mandates, and factors considered in wolf management.
2. ADF&G has an improved understanding of participant's questions, considerations, and concerns regarding ADF&G's GMU 2 wolf management plan.

Agenda

6:00-6:15pm **Welcome & Introductions**

Facilitators, ADF&G staff, and community attendees have the opportunity to introduce themselves.

6:15-6:25pm **Opening Statements**

ADF&G speak to the meeting goals and their intention behind hosting community education and outreach meetings.

6:25-6:40pm **Ground Setting**

All are grounded in the goals of the meeting and have committed to the agreements for effective engagement.

6:40-7:20pm **Considerations, Challenges, Questions: Meeting 1 Themes**

Overview of information and dialogue shared between ADF&G and participants at Meeting 1.

7:20-7:30pm **Break**

7:30-8:45pm **ADF&G's Draft Wolf Management Plan for GMU 2**

Engagement with ADF&G's new draft wolf management plan for GMU 2.

8:45-8:50pm **Break**

8:50-9:25pm **Next Steps**

9:25-9:30pm **Closing**

APPENDIX C

GMU 2 WOLF MANAGEMENT
COMMUNITY EDUCATION
& OUTREACH MEETINGS
Prince of Wales, May 24 & June 14, 2024

DIALOGUE AGREEMENTS

Speak with Care for Others
We each hold the responsibility to choose our words and questions carefully with the intent to learn.

Value Each Other's Time
We all share the responsibility to ensure that everyone has an opportunity to speak and engage.

Listen Deeply
Each person engaging in this conversation has a unique and valuable experience that is their truth.

Be Present and Engaged
Cellphone ringers off, be mindful of being fully present and listening.

Agree to Disagree
Hearing differing perspectives and experiences without needing to argue.

Humor
Laughing is also an important way to relate with one another.

Safe Space for Meaningful Conversation
Notes taken will not be attributed to specific participants.

Take Care of Yourself, Take Care of Each Other
Note restrooms, exits, other amenities. Help one another when possible.

Have Any Concerns?
Speak with meeting facilitators.

Dialog agreements were inspired by the First Alaskans Institute

APPENDIX D

GMU 2 WOLF MANAGEMENT
COMMUNITY EDUCATION
& OUTREACH MEETINGS
Prince of Wales, May 24 & June 14, 2024

KEY TERMS

Inbreeding – breeding among related individuals. Inbreeding is expected in isolated island populations, but the consequences of inbreeding are a matter of degree. Populations with lower degrees of inbreeding usually do not experience negative effects. However, in smaller, isolated populations higher degrees of inbreeding can lead to a loss of genetic diversity and "inbreeding depression".

Inbreeding Depression – a condition resulting from inbreeding and loss of genetic diversity. When closely related individuals breed together over many generations, populations lose genetic diversity. That loss of genetic diversity increases the chance that both parents will carry unfavorable genetic traits and that those traits will be expressed in offspring. Those unfavorable traits can reduce individuals' ability to survive and reproduce. A decline in survival and reproduction can lead to population decline and extinction.

Alaska Constitution Article 8, Section 4, Sustained Yield

This is ADF&G's Constitutional mandate to manage for sustainably harvestable populations of all harvested species including wolves and deer. Populations of animals are managed and must remain sustainable at the Game Management Unit or Subunit scale.

"Fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the sustained yield principle, subject to preferences among beneficial uses."

APPENDIX E

Supplemental Materials for understanding the wolf management plan. Each of these can be found on ADF&G's website.

https://www.adfg.alaska.gov/
https://www.adfg.alaska.gov/index.cfm?adfg=wolf.resources

Supplemental Materials: Recordings of both meetings and a draft of the wolf management are available to the public. Contact ADF&G Ketchikan at 907-225- 2475 for details.