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U.S. DEPARTMENT OF AGRICULTURE

Chugach National Forest

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Biennial Monitoring Evaluation Report for the Chugach National Forest

Fiscal years 2024-2025



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Why Monitoring Matters

There is no single correct approach to managing a forest or grassland. Each decision maker must weigh the ecological complexity of the ecosystems, the social and economic contributions, the changing environmental conditions, the many different viewpoints of the public, and uncertainty about long-term consequences.

Data from monitoring can therefore be extremely useful. A robust, transparent, and meaningful monitoring program can provide information on specific resources, management impacts, and overall trends in condition – in other words, feedback on whether we are meeting our management objectives.

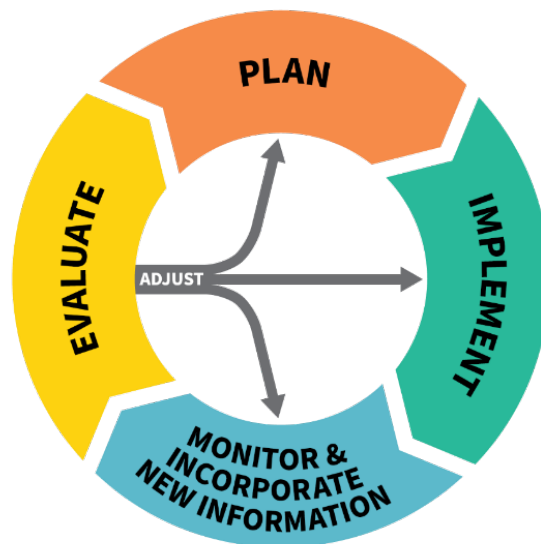
Every national forest or grassland has a land management plan that balances trade-offs among recreation, timber, water, wilderness, wildlife habitat, and other uses. The plan describes a set of desired conditions – a science-based vision for the state of the forest or grassland once the goals of the plan are met. The land management plan includes a monitoring plan, organized around a set of monitoring questions and indicators that are designed to track progress toward achieving the desired conditions. Monitoring of certain resources is required by law, regulation, or policy (see box below for required monitoring topics). Other monitoring occurs depending on specific needs of the national forest or grassland. Under the [current planning rule](#), monitoring questions developed for the monitoring plan must be “within the financial and technical capability” of the Forest Service, meaning that we must have the money and ability, including support from partners, to actually carry out the strategic monitoring outlined in the monitoring plan.

Every two years, each forest or grassland compiles and evaluates monitoring results and drafts a biennial monitoring evaluation report (BMER) like this one. If the monitoring report reveals that we are not quite meeting the mark, then there might be a need to change the land management plan, the management activities, the monitoring plan, or to reassess current conditions and trends—this is adaptive management. The results of monitoring allow us to learn through management and adjust our strategies based on what we learned. Monitoring also helps us be accountable and transparent to interested and affected parties and colleagues. BMERs are critical to adaptive management because they tell us and the public whether the land management plan is working. Although we don’t make any decisions in BMERs, they are a great opportunity to document and share monitoring results.

Our land management plan is available on our [website](#); the monitoring plan chapter can be found by scrolling to Appendix A. Monitoring Program. The [methodology used to address each monitoring question](#) can be found on our monitoring website.

Monitoring questions must address the following topics (per 36 CFR sec 219.12 - Monitoring and Forest Service Manual 1909.12 sec. 32.13 - Content of the Plan Monitoring Program):

1. Status of select watershed conditions.
2. Status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
3. Status of focal species to assess the ecological conditions.
4. Status of a select set of the ecological conditions to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.
5. Status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
6. Measurable changes on the plan area related to climate change and other stressors that might be affecting the plan area.
7. Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.
8. Effects of each management system to determine that they do not substantially and permanently impair the productivity of the land.
9. Social, economic, and cultural sustainability must also be addressed in the monitoring plan because sustainability is an inherent part of several of the required monitoring items.



Adaptive Management Cycle

Partnerships and Data Sources

To accomplish our mission, the Forest Service partners with land management agencies across all levels of government, with nonprofit and for-profit entities, universities, and communities large and small. The diversity of our partners parallels the breadth of Forest Service work. This includes: managing the nation's 193 million acres of National Forest System lands to sustain healthy terrestrial and aquatic ecosystems; conducting collaborative research that connects the agency to hundreds of partners around the world; supporting States, Tribes, communities, and nonindustrial private landowners through technical and financial assistance; protecting communities and the global environment from catastrophic wildland fires, climate change and invasive species; and inspiring life-long connections to nature for every American.

We also rely on existing data sources such as national and regional inventory, monitoring, and research programs; federal, state, or local government agencies; scientists, partners, and members of the public; and information from Tribal communities and Alaska Native Corporations.

Report Summary

This 2026 biennial monitoring evaluation report (BMER) for the Chugach National Forest documents monitoring activities that occurred during fiscal years (FYs) 2024 and 2025. Resource specialists answered eight of the nine monitoring questions using 30 of the 31 indicators to determine if current activities described in the [2020 Chugach National Forest Land Management Plan](#) are helping the forest achieve or maintain the desired conditions and objectives

The detailed resource data and specialist reports and monitoring guides that were used to build this monitoring report are available on request by contacting us at 161 E 1st Ave, Anchorage, Alaska, 99501, (907) 793-9500, or sm.fs.chugachplan@usda.gov. Each new monitoring report builds upon the evaluations and recommendations that preceded it. This monitoring and evaluation report and previous reports are available at [Chugach National Forest - Planning \(usda.gov\)](#) where you can review previous recommendations made to move our forest toward the desired conditions and objectives in our land management plan.

If certain monitoring questions are not answered in this report either the available data were unclear or we lack the capacity to compile the data or conduct the analyses. In those cases, we explain the reason for not answering the question in this report. For example, we might say “we do not have sufficient data at this time,” or “this question will be addressed in the next monitoring report because data for this resource are collected on a five-year cycle.”

Of the nine monitoring questions examined, we are meeting management plan objectives or progressing toward our desired conditions in seven. To move the Chugach NF closer to the desired condition for ecosystem processes, we need to continue invasive species monitoring efforts through the remainder of the analysis period, at which point changes to management activities may be considered. To meet plan objectives regarding the effects of management activities on the productivity of the land, the Forest needs a soil scientist to conduct post-project monitoring. Suggested improvements in other areas that are listed in the Summary of Results and Recommendations table (Table 20) will help ensure that the Chugach NF continues to meet its land management plan objectives.

Table 1 – Recommended Changes

The following table tallies our recommended changes based on evaluation of the monitoring questions addressed in this report. It provides the overall totals for how many monitoring questions or indicators are meeting the land management plan direction, or whether changes to the plan, management activities, monitoring plan, or new assessment should be considered. See Table 20 at the end of this report for a more detailed summary of the monitoring questions, results, and recommendations.

Table 1. Adaptive management recommendations for all monitoring questions addressed in this report.

Recommendations	Yes	No	Uncertain
Land management plan direction met	7	1	1
Change to land management plan		9	
Change to management activities		9	
Change to monitoring plan	1	8	
Focused assessment needed	2	7	

Forest Supervisor's Certification

This report documents the results of monitoring activities that occurred from FY 2024 through FY 2025 on the Chugach National Forest.

I have evaluated the monitoring and evaluation results presented in this report. I have examined the recommended changes. I therefore consider the 2020 Land Management Plan sufficient to continue to guide land and resource management of the Chugach National Forest and plan a deeper examination of the recommended changes through engagement with resource specialists.

JENNIFER K. YOUNGBLOOD
Forest Supervisor

Status of Select Watershed Conditions

Watershed condition is the state of physical and biological characteristics and processes within a watershed that affect hydrologic and soil functions supporting aquatic and terrestrial ecosystems. Functioning watersheds generally provide high quality water, recharge streams and aquifers, moderate climate variability, and support long-term soil productivity. Additionally, healthy watersheds create and sustain resilient terrestrial, riparian, aquatic and wetland habitats that support diverse populations of plants and animals capable of rapid recovery from natural and human disturbances. Properly functioning watersheds also provide many important ecosystem services and make a substantial contribution to social and economic sustainability in southcentral Alaska.

The condition of watersheds affects just about every other natural resource. Because of this, the Forest Service has developed nationwide programs to monitor and manage water quality and watershed conditions on National Forest System lands. These programs use the best available science, and include current, vetted technical field protocols, data management structures, and periodic evaluation and reporting requirements.

We evaluated our use of Best Management Practices (BMP) across management activities; specifically, how well they were implemented and how effective they were in maintaining or improving watershed integrity. We also evaluated changes in Watershed Condition Classification (WCC) ratings resulting from management activities across the forest in select watersheds.

The following results reflect a summary and updates from data we collected over the four-year period of 2020-2024 for best management practices. WCC ratings are performed on a five-year cycle, with the next occurring in 2026, thus no new WCC results are included in this report.

Monitoring Question 1. Are management actions effective in maintaining or improving watershed integrity?

Indicator 1.1. National best management practices ratings

Key Results

Overall, BMP implementation and effectiveness composite ratings were average, with 73% of the 2024 and 2025 project site reviews scoring an excellent or good rating. BMPs were mostly to fully implemented on less than 50% of projects (Table 2) and BMPs were mostly to fully effective on 82% of projects (Table 3). The resource category ratings were mixed across both implementation and effectiveness. All the projects implemented at least some of the BMPs.

Table 2. 2024-2025 BMP Implementation Ratings by Resource Category

Rating	Number (%) of Evaluations	Resource Category
Fully Implemented	4 (33%)	Recreation Management (2): Roads Management (2)
Mostly Implemented	1 (8%)	Minerals Management
Marginally Implemented	6 (50%)	Aquatic Ecosystems; Facilities; Water Uses; Roads Management and Vegetation Management (2)
Not implemented	0	

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Rating	Number (%) of Evaluations	Resource Category
No BMPs	1 (8%)	Recreation Management

Table 3. 2024-2025 BMP Effectiveness Ratings by Resource Category

Rating	Number (%) of Evaluations	Resource Category
Fully Effective	8 (73%)	Aquatic Ecosystems; Facilities; Minerals Management; Recreation Management (2); Roads Management; Vegetation Management (2)
Mostly Effective	1 (9%)	Recreation Management
Marginally Effective	1 (9%)	Roads Management
Not Effective	1 (9%)	Water Uses

BMP evaluations indicate that BMPs are usually effective when implemented. In general, BMP implementation ratings were worse than BMP effectiveness ratings.

Examples of some of the BMPs that were not implemented included:

Vegetation Management - In the evaluated Spruce Beetle Response project units 115, 215, and 216, burn piles and log decks were within Riparian Management Areas (RMAs), and in rare instances the designated RMAs were not met. However, the projects were still effective at protecting soil and water quality, likely due to operations occurring on frozen ground.

Road Management – The Victor Creek trailhead parking lot is partially located within an RMA. The RMA associated with the channel process group was 140 feet. The shortest distance of the parking area to Victor Creek was 80 feet. Due to the flat topography, there are limited concerns for erosion to the water body. However, if snow removal does occur in the parking lot it is recommended that plowing and snow storage occur on the farthest side of the parking area from the creek. The outhouse facility meets Alaska Department of Environmental Conservation standards.

Minerals Management – should include invasive species prevention (terrestrial and aquatics), human waste management, add resident fish stipulations, include a small spill containment kit and absorbent pads for fueling under the Spill Prevention section and include a reclamation plan in Mining Plans of Operation renewal.

Water Uses Management – The Cannery Creek hatchery does not currently have a fish screen on their intake pipe at the diversion, so fish have been entrained. We spoke with the hatchery, and they will install one when the lake is dropped/ drained for the upcoming dam repair. Additionally, there was evidence of minor amounts of erosion and sedimentation in the waterbody downstream of the diversion.

Facilities Management – The Bertha Creek campground outhouse decommissioning included topsoil, seedbed preparation and vegetation reestablishment BMPs that were not implemented. However, due to the flat topography, there was no evidence of erosion, sedimentation, or water quality impacts to the nearby waterbody. We recommend having a botanist review the site to see if bringing in topsoil and revegetation is necessary.

Aquatic Ecosystem Management – Corrective actions were needed and taken regarding a hydraulic fuel spill clean-up at the Resurrection Creek Phase II project site. Fortunately, there was no water quality impairment due to the contract requiring “fish friendly” fluids being used for all equipment operating in or near waterbodies and the spill being handled according to the contingency and emergency action plan.

For all but two evaluations, less than fully effective ratings corresponded to poorer BMP implementation ratings. Review of individual evaluations indicate that some BMPs were overlooked in developing special use permits and vegetation management projects. In addition, Chugach NF staff sometimes did not enforce permit stipulations or contract clauses.

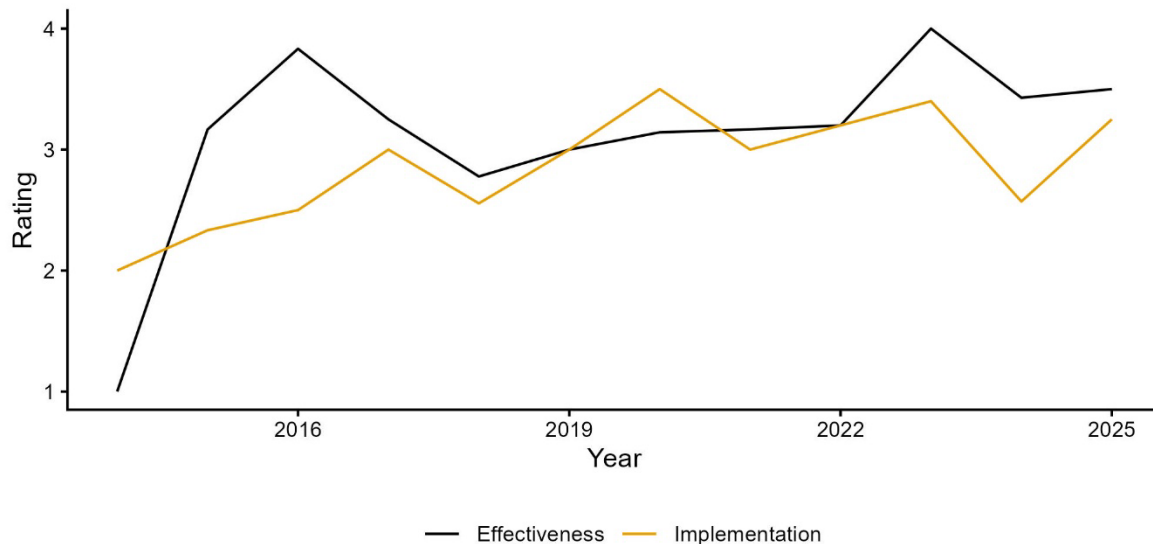


Figure 1. Average Best Management Practices implementation and effectiveness ratings through time, Implementation ratings are displayed in orange, effectiveness ratings in grey.

Recommendations

BMP evaluations suggest that management actions are maintaining or improving watershed integrity. Assessed projects representing a range of management activities across the forest, rate highly on BMP implementation and effectiveness (Figure 1). As noted previously, BMP effectiveness could be improved through better project planning to identify applicable BMPs and regular inspection and enforcement of BMP application

Indicator 1.2. Watershed Condition Classification Ratings

Key Results

The Chugach NF reassessed watershed conditions according to the WCC in 2021. The next assessment is scheduled for FY 2026, so there is no new information to include or analyze in this report. The Chugach NF has been engaged in some watershed-level condition assessments including a recent field test of a preliminary version of the revised WCC. An interdisciplinary team composed of Cordova Ranger District and forest-level staff rated the Alaganik Slough-Frontal Gulf of Alaska Watershed according to the new WCC 2.0, providing a valuable opportunity to learn about and provide guidance on the new classification scheme before applying it to watersheds across the forest.

Recommendations

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No recommendations will be issued until after the next analysis is conducted in 2026.

Table 4. Recommendations, progress toward land management plan desired conditions and objectives, and recommended actions/next steps

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 1 MI 1.1	Management actions are maintaining or improving watershed integrity.	BMP effectiveness could be improved through better project planning to identify applicable BMPs and regular inspection and enforcement of BMP application
MQ 1 MI 1.2	The next reassessment will be in FY 2026, so there is no new information to include or analyze in this report.	No recommendations will be issued until after the next analysis in 2026 (2028 BMER).

Status of Select Ecological Conditions: Focal Species

Focal species, as defined by the U.S. Forest Service's 2012 Planning Rule, are a small subset of species whose status permits inference to the integrity of larger ecological systems. The Chugach NF has identified five invasive plants (four terrestrial and one aquatic) as our focal species, because their presence on the landscape has the potential to reduce local biodiversity and disrupt valued ecosystem functions. Therefore, the presence and abundance of these focal species in the plan area is believed to be an indicator of ecosystem dysfunction or degradation and negatively affects our ability to achieve the Forest's desired condition for ecosystems processes and conditions (FW-GL3-EPC-DC). Our objective is to monitor trends in the distribution and abundance of these focal species. Understanding these trends will help us to prioritize and evaluate the efficacy of our management activities and evaluate if the Forest's actions are contributing to the spread of focal species. The following results reflect data collected during FYs 2024 and 2025. Information from the last evaluation report (2011) has not been incorporated for terrestrial invasive species, those data will be used, if feasible, in the five-year analysis due in 2028.

Monitoring Question 2. Are management strategies effectively controlling or preventing the spread of invasive species in aquatic and terrestrial systems?

Indicator 2.1. Trend in the distribution and abundance of four highly invasive terrestrial plants (bird vetch, orange hawkweed, white sweetclover, and reed canarygrass)

Key Results

- 2024: 8 out of 60 (13%) monitoring polygons contained focal invasive species.
- 2025: 15 out of 86 (17%) monitoring polygons contained focal invasive species.

Recommendations

Continue to collect data on the distribution and occurrence of the four terrestrial focal species in established monitoring polygons, focusing on resurveying areas to begin to establish trends over the planning period. Monitoring should continue to emphasize high-use areas such as trailheads, pull outs, new construction, and minerals sites. Changes to management activities may be considered based on an analysis of trends once a second round of monitoring has been completed.

Monitoring on the Seward and Sterling highways remains key to understanding the spread of these focal species as they are a primary vector for the spread of terrestrial invasive plants onto the forest. However, safety concerns have necessitated a review of the best approach to adequately assess spread along these corridors. Beginning in 2026, we will return to the stratified sampling strategy used during the previous land management plan monitoring effort. With a stratified sampling strategy, we decrease the probability of identifying small discrete infestations but feel this is a necessary tradeoff to ensure we safely collect enough data to analyze.

Indicator 2.2. Trend in geographic range and number of waterbodies infested with *Elodea* spp.

Key Results

Surveys conducted on seven waterbodies (Figure 1) during the monitoring period identified no new infestation of *Elodea* (Table 5).

Treatment efforts began in 2025 for the *Elodea* infestation in Crescent Lake in the Seward Ranger District (Figure 2).

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Table 5. Waterbodies surveyed for *Elodea* on the Chugach NF in 2024 and 2025. Prior to the current monitoring period, the following 8 waterbodies on the Seward and Cordova Ranger Districts were known to be infested with *Elodea*: Crescent Lake, Eyak Lake, McKinley Lake, Bering Lake, Martin Lake, Alaganik River/Slough, Eyak River, Wooded Pond, and Wrong-Way Pond.

Name	Ranger District	Years Surveyed	<i>Elodea</i> Present	New (since 2019)
Trout Lake	Seward	2024	No	No
Vagt Lake	Seward	2024	No	No
Upper Paradise Lake	Seward	2024	No	No
Lower Paradise Lake	Seward	2024	No	No
Coghill Lake	Glacier	2024	No	No
Crescent Lake	Seward	2024 & 2025	Yes	No
Stump Lake	Cordova	2025	No	No

Recommendations

We recommend continuing to survey lakes identified at high risk for the introduction of *Elodea*.

Table 6. Recommendations, progress toward land management plan desired conditions and objectives, and recommended actions/next steps

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 2 MI 2.1	New infestations of all four terrestrial species continue to occur across the forest.	Continue to survey established monitoring polygons to establish trends in terrestrial focal species. Implement new strategy for monitoring highways to increase field staff safety.
MQ 2 MI 2.2	Treatment of the new infestation of <i>Elodea</i> in Crescent Lake was initiated in 2025.	Continue to survey lakes identified as a high risk for the introduction of <i>Elodea</i> .



Figure 2. Biological science technicians survey the Grant Lake trail for focal species.



Figure 3. A team of biologists apply herbicides on Crescent Lake, beginning the effort to eradicate Elodea from this waterbody.

Status of Select Ecological Conditions: Riparian, Wetland, and Aquatic Ecosystems

Watershed connectivity is the unimpeded hydrologic flow and upstream and downstream movement of aquatic organisms, nutrients, and energy throughout a watershed's interconnected web of aquatic pathways. For anadromous aquatic organisms, like Pacific salmon, watershed connectivity is critical to allow for unobstructed movement along the migration corridor to access key spawning and rearing grounds for sustained population productivity.

There are 97.3 miles of Forest Service system roads in the Chugach NF with approximately 290 stream crossings (including bridges) to evaluate and ensure aquatic organism passage. Additionally, there are roughly 140 individual forest-managed roads within or adjacent to forest lands under other jurisdictions.

The Chugach Aquatic Organism Passage (AOP) program is guided by the "Chugach National Forest Aquatic Organism Passage Program Management Plan" (AOP PMP, completed February 2024). The AOP PMP consists of a forest-wide process to improve watershed connectivity by identifying and eliminating barriers to aquatic organism passage. Through a cooperative effort between the Engineering and Resources staff, this program meets the land management plan's infrastructure, fisheries, and watershed goals as well as forest and regional priorities.

Using the AOP PMP, our goal is to prioritize repair, restoration, or replacement of road-stream crossing structures that do not meet aquatic organism passage requirements or the requirements for current or projected streamflow, while outlining monitoring goals to ensure functionality of AOP projects.

Monitoring Question 3. Are management activities maintaining or improving aquatic habitat connectivity?

Indicator 3.1. Percentage of human-associated aquatic organism passage barriers improved or restored

Key Results

Eleven AOP surveys were conducted in 2024 and no additional AOP surveys were completed in 2025 due to staffing shortages. Of the nearly 300 culverts under USFS ownership on the Chugach NF, the majority are drainage pipes and unrelated to aquatic organism passage. The summary of the status of the Chugach NF culverts following the 2024 surveys include the following:

Cordova Ranger District (CRD)

A Chugach NF partner, the Copper River Watershed Project group (CRWP), has replaced several culverts either in or in areas affecting Chugach NF managed lands. The Cabin Lakes Road and the lower Goat Camp Road culverts were replaced in 2024 and two Sheridan Glacier Road culverts are currently out for bid design by Eyak Corporation. Forest Resources and Engineering staff are working on an 18 Mile Road Realignment project and have plans to address the Saddlebag Glacier Road culvert. Power Creek Road culverts are surrounded by National Forest land with the roadway managed by the Alaska Department of Transportation (ADOT); these culverts will be addressed in Phase II of the Chugach AOP Program.

Glacier Ranger District (GRD)

All three high concern culverts identified in 2004 were on Center TS Road. Previous notes indicated the culvert at milepost 0.500 had been removed but not replaced. One culvert was replaced by ADOT in 2024 (possibly corresponding to the milepost 0.300 culvert); no other culverts were observed along the road during a 2024 site visit. The milepost identifiers do not align to actual AOP/culvert sites. In 2004, Byron Glacier Creek Road was categorized as low concern, but Alaska Department of Fish and Game surveys have categorized it as of concern. A 2024 partial survey (due to stream flow) by Chugach NF biologists indicates this culvert is likely borderline. No resident or anadromous fish have been documented or observed in this creek, though, despite its apparent connection to Portage Lake.



Figure 4. The Center TS Road culvert replaced by ADOT in 2024.

Seward Ranger District (SRD)

During this period. AOP work included culvert improvements at Coeur D’Alene Creek in 2025, and replacement of a Palmer Creek Road culvert with a bridge in 2025.



Figure 5. Forest Resources staff conducting 2024 stream surveys.

Recommendations

We have no recommended changes at this time and will include new recommendations for repairs and replacements in the next biennial monitoring and evaluation report. Finally, we are considering adaptive management work on culverts that were recently installed, including navigating issues like beaver activity, further enhancement of vegetation on banks, and some sedimentation removal.

Table 7. Recommendations, progress toward land management plan desired conditions and objectives, and recommended actions/next steps

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 3 MI 3.1	Crossings have been identified. Some high priority crossings were replaced in FY24-25.	No recommended changes

Status of Select Set of Ecological Conditions Required to Contribute to Species Recovery

Dusky Canada goose and Aleutian cress have been identified as species of conservation concern for the Chugach NF. The 2020 land management plan guides us to maintain the ecological conditions necessary to support viable populations of these species. We are measuring six indicators, identified below, to determine trends in population and habitat condition for these species on the forest. Our goal is to determine if the land management plan desired conditions for terrestrial ecosystems and at-risk species are being met (see desired conditions for terrestrial ecosystems in the [land management plan](#)). These monitoring results will help us to prioritize areas in need of management attention regarding species of conservation concern.

Monitoring Question 4. Are habitat conditions necessary to support populations of dusky Canada geese and Aleutian cress being maintained?

Indicator 4.1. Dusky Canada Goose: Population trends in the Copper River Delta

Key Results

- Results from the spring aerial survey in 2024 yielded a Total Breeding Ground Index, which includes those geese counted on Middleton Island, of 8,150 (standard error (SE) =688; Figure 6); this was 35% below the ten-year average of 12,537 (SE=1,225) and resulted in a 3-year mean of 10,038 (SE=915).
- Results from the survey in 2025 yielded a Total Breeding Ground Index of 11,797 (SE=1,048; Figure 6); this was 6% below ten-year average of 12,537 (SE=1,225) and resulted in a 3-year mean of 9,855 (SE=833)
- Over the past 35 years, the Total Breeding Ground Index has fluctuated substantially from highs above 16,000 to lows below 10,000 (Figure 6). As such, the current downward trend likely represents natural variability, but highlights the need for continued monitoring.
- Below-average estimates of indicated population abundance suggest that the dusky Canada goose population is likely in a downward trend. The 3-year average of the Total Breeding Ground Index has decreased to 9,855 and remains below the ten-year average of 12,537; however, this estimate is above the 7,500-population index threshold required to maintain “standard” hunting season regulations. The breeding ground index for 2025 increased from the numbers in 2023 and 2024 and will hopefully change the three-year trend to increasing if counts stay high in 2026.

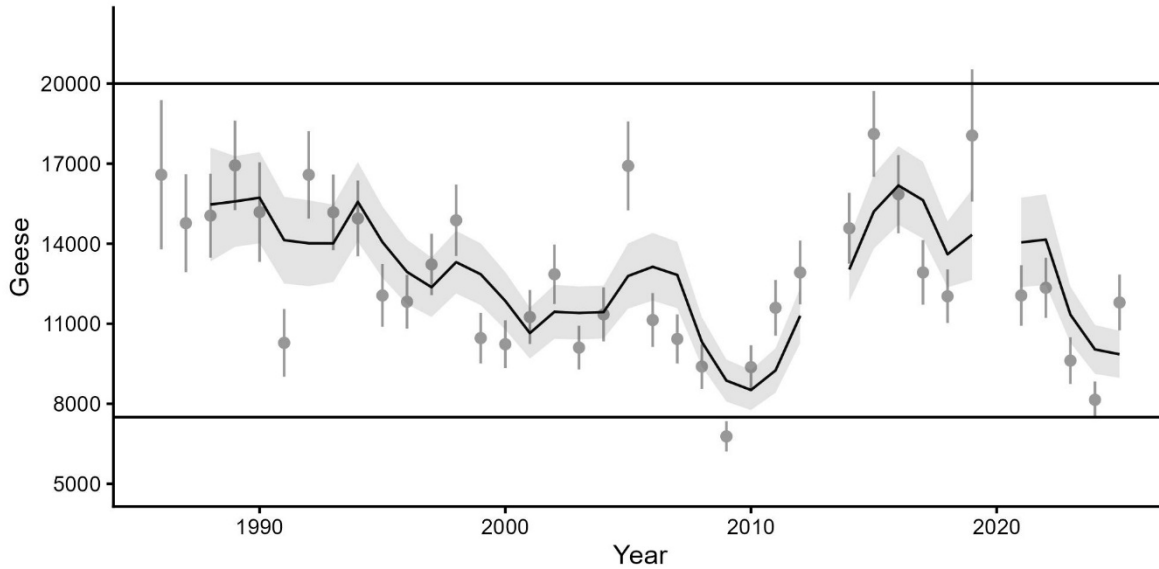


Figure 6. Total breeding ground index for dusky Canada geese, Copper River Delta and Middleton Island, Alaska, 1986–2023, with SE bars. The 3-year moving average used for the management index is indicated by the solid line.

Indicator 4.2. Dusky Canada Goose: Nesting Success

Indicator 4.3. Dusky Canada Goose: Nest Predation

Key Results

- A total of 378 nest islands were monitored in 2024. Of these, 365 were available for use by dusky Canada geese (97%). A total of 91 nests were found on nest islands in 2024, representing a 24% occupancy rate. The fate of 2 nests was unknown (4%). Of the 89 nests with determined fates, 60 were successful (67%), 24 failed (27%), and 5 abandoned (6%). Based on membrane evidence following hatch, the average number of goslings produced per successful nest island was 3.8; the minimum estimate of the total number of goslings produced by the nest island program for the 2024 season was 228.
- A total of 370 nest islands were monitored in 2025. Of these nest islands, 330 were available for use by dusky Canada geese (92%). A total of 74 nests were found on nest islands in 2025, representing a 22% occupancy rate. The fate of 7 nests was unknown (9%). Of the 73 nest islands with determined fates, 44 were successful (59%), 16 failed (22%), and 6 abandoned (8%). Based on membrane evidence following hatch, the average number of goslings produced per successful nest island was 2.9; the minimum estimate of the total number of goslings produced by the nest island program for the 2025 season was 148.
- The number of successful nests in 2025 (n=44) was the lowest observed over the last 20 years of the nest island program, but this decline may partly reflect reduced staffing in 2025 that limited the ability to revisit active nests to determine nest fate.

- Following above average nest island occupancy and nest success in 2022-2023, observed decreases in nesting productivity for 2024-2025 may reflect negative trends in the population, although the population index increased from 2024 to 2025.

Recommendations

Given recent results indicating potential downward projection in dusky Canada goose abundance, we recommend that additional effort be focused on investigating ways in which the nest island program can become more productive. Recommended improvements include 1) identifying low-productivity nest islands, 2) determining habitat variables associated with the most successful nest islands, and 3) identifying new locations on the Copper River Delta for relocating unproductive nest islands. Currently, we are investigating experimental deployment of elevated nesting platforms to assess their viability as an alternative to floating nest islands in areas where beaver damage consistently renders islands unusable to geese and increases annual maintenance needs. We will track the progress of these experimental islands and their use/success over the next few years.

Indicator 4.4. Trend of known populations of Aleutian cress

Key Results

- Aleutian Cress permanent monitoring plots in the Palmer Creek Watershed, established in 2023, were not revisited in the current monitoring period. These plots, assessed on a five-year interval, will be visited again in 2028.
- Several targeted surveys documented new occurrences of Aleutian Cress, including:
 - 2023 - along Raven Creek in Crow Pass
 - 2024 - Glacier Creek watershed north of Girdwood (2024; Figure 3); documented 4 new element occurrences and obtained a population estimate of approximately 1,375 individual genets.
 - 2024 - Canyon Creek watershed headwaters, focused on the upper reaches of the Summit Creek drainage; documented two new element occurrences and obtained a population estimate of approximately 7 individual genets. Additional survey effort is necessary to determine the full extent of the population.

Recommendations

- Continue targeted survey efforts to better understand the distribution of Aleutian cress.

Indicator 4.5. Tree and shrub encroachment in alpine habitat

Key Results

- Discussion of regional trends in tree and shrub land cover change can be found in Chapter 6, Indicator 6.2.

Recommendations

See Chapter 6, Indicator 6.2.

Indicator 4.6. Persistence of Alpine Snowpack

Key Results

Discussion of regional trends in snowpack can be found in Chapter 6, Indicator 6.4.

Recommendations

See recommendations in Chapter 6, Indicator 6.4.

Table 8. Recommendations, progress toward land management plan desired conditions and objectives, and recommended actions/next steps

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 4 MI 4.1 MI 4.2 MI 4.3	Below-average estimates of indicated population abundance suggest that the dusky Canada goose population is likely in a downward trend, and observed decreases in nesting productivity for 2024-2025 may reflect this	We recommend that additional effort is focused on investigating ways in which the nest island program can become more productive.
MQ 4 MI 4.4	The known distribution of Aleutian Cress has expanded because of new populations being discovered during the monitoring period.	Continue targeted survey efforts to better understand the distribution of Aleutian cress.
MQ 4 MQ 4.5	Discussion of regional trends in tree and shrub land cover change can be found in Chapter 6, Indicator 6.2.	See Chapter 6, Indicator 6.2
MQ 4 MQ 4.6	Discussion of regional trends in snowpack can be found in Chapter 6, Indicator 6.4.	See Chapter 6, Indicator 6.4



Figure 7. Biologists complete targeted Aleutian Cress surveys along Raven Creek in Crow Pass north of Girdwood.

Visitor Use, Satisfaction, and Progress on Recreation Objectives

The focus of monitoring visitor uses and recreation activities on the Chugach NF centers on sustainability of recreation facilities and providing desired recreation opportunities. One of the ways to provide sustainable ranges of recreation opportunities is to develop relationships and work effectively with partners and volunteers. Chugach NF staff are measuring levels of recreation use, sustainability of recreation facilities, and how engaged the communities, partners, volunteers, and businesses are in providing shared stewardship of recreation opportunities and infrastructure. This information will be used to determine if effort is needed to develop different recreation opportunities and facilities, more or different partnerships, engage more volunteers, and evaluate the adequacy and overall sustainability of recreation facilities. The following results reflect updates from data collected from our Natural Resource Management data portal and occupancy reporting from 2019 to December 2025, with emphasis on years 2024-2025 under the 2020 LMP direction.

Monitoring Question 5. Are recreation opportunities and infrastructure achieving desired conditions, and are they sustainable?

Indicator 5.1. Recreation facility occupancy rate

Key Results

The Forest's 41 public use cabins had an average occupancy rate of 33% in 2024 and 33% in 2025 (Figure 8). The cabins had a five-year average occupancy of 34% (2021-2025), with occupancy steady over that period. Cabins that are more accessible have much higher occupancy rates than those in more remote locations. Occupancy for our ten most popular cabins averaged 68% over five years. In general, these cabins are accessible from popular trailheads and often require shorter hikes to reach.

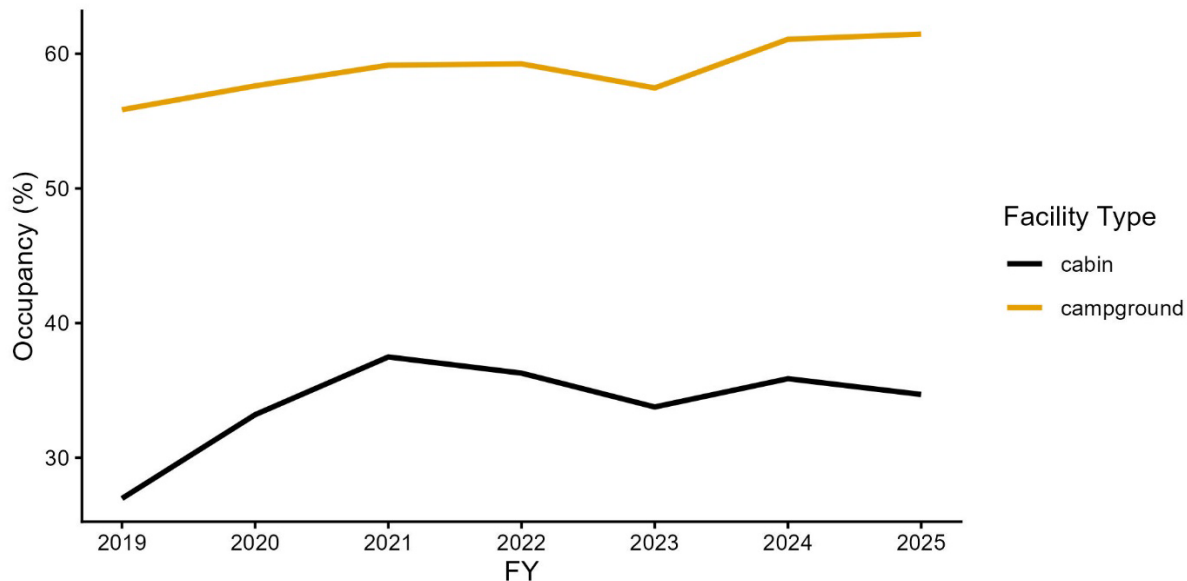


Figure 8. Six-year occupancy rates of public use cabins and campsites. Cabins and campsites are displayed in black and orange, respectively.

The 13 fee campgrounds in the Chugach NF had an occupancy rate of 61% in 2024 and 62% in 2025 (Figure 8). The campgrounds had a five-year average occupancy rate of 59% (2021-2025), with occupancy largely steady over this period. Campground occupancy varies from month to month with peak use at the height of summer, roughly June-August, during which most campgrounds generally operate at capacity. No data was available from Couer d'Alene or Childs Glacier campgrounds, as they do not use the reservation system. The steady occupancy trend data suggests that the Chugach NF is providing desired camping recreation opportunities with its 13 concessionaire managed campgrounds.

Recommendations

The steady occupancy trend data indicates the Chugach NF is providing desired camping recreation opportunities for both cabins and concessionaire managed campgrounds. We do not need to change land management plan language or management activities.

Further Comments

In 2021 the Bipartisan Infrastructure Bill was passed by Congress. With this bill, the Chugach NF saw significant investment in the Public Use Cabin Program. One of the goals of the new cabins is to make them more accessible to the public. Several will be constructed adjacent to existing campgrounds, and some will require shorter hikes on popular trails. Porcupine Cabin near Hope, AK opened December 2025, Trail River cabin became reservable in Spring 2024 and the newly reconstructed Martin Lake cabin near Cordova opened in Summer 2025. Additional cabins planned for completion in Summer 2026 include one along the Iditarod National Historic Trail at Meridian Lake and the adjacent Granite Creek Campground on the Glacier Ranger District. The next four are expected to be completed in 2027. These include cabins near the Tincan area of Turnagain Pass, one at Trinity Point near Whittier, and the reconstruction of cabins at McKinley Lake and Port Chalmers on the Cordova Ranger District. In addition to brand new cabins, the Chugach NF competed and received funding to address deferred maintenance on cabins through the Great American Outdoors Act (GAOA). These multi-year funds will help to address the maintenance backlog and give these much-loved cabins some attention. Cordova Ranger District will be reconstructing the Martin Lake and Port Chalmers cabins as well with the GAOA funds. While continued investment in new cabins and the maintenance of existing cabins will only increase occupancy, there were several factors over the last five years which negatively affected occupancy rates, including cabin closures due to wildland fire, road construction, storm damage and cabins reaching the end of their lifespans.

Indicator 5.2. Number of outfitter guide permits issued and administered

Key Results

Authorizations administered:

2022	91
2023	105
2024	119
2025	112

Because the number of outfitters and guides operating decreased slightly from 2024 to 2025, the Forest initiated an open period for accepting new outfitter and guide proposals in December 2025. The Forest expects to permit an additional thirteen outfitter guide companies through the latest open season across all three districts.

Table 9. Outfitter and guide permitted activities reported for 2024 by geographic area

2026 Biennial Monitoring Evaluation Report for the Chugach National Forest

<i>Activity</i>	<i>Kenai Peninsula</i>	<i>Prince William Sound</i>	<i>East Copper River</i>
<i>Rafting</i>	<i>X</i>		
<i>Camping</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>Dog sledding</i>	<i>X</i>		
<i>Fishing</i>	<i>X</i>	<i>X</i>	
<i>Hunting (includes camping)</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>Begich Boggs Visitor Center & Day Use Sites (interpretive use)</i>	<i>X</i>		
<i>Outfitting</i>	<i>X</i>		
<i>Heli-skiing Tours</i>	<i>X</i>		<i>X</i>
<i>Snowmobiling</i>	<i>X</i>		
<i>Remote Tours: Helicopter Landing Tours</i>	<i>X</i>		
<i>Remote Tours: Remote-Setting Nature Tours Hiking</i>	<i>X</i>	<i>X</i>	
<i>Remote Tours: Remote-Setting Nature Tours Ski touring</i>	<i>X</i>		<i>X</i>
<i>Road-based Tours: Jet Boating</i>	<i>X</i>		
<i>Road-based Tours: Horse Trail Rides</i>			
<i>Road-based Tours: ATV Rides</i>	<i>X</i>		
<i>Road-based Tours: Hiking</i>	<i>X</i>	<i>X</i>	<i>x</i>

Table 10. Outfitter and guide permitted activities reported for 2025 by geographic area

<i>Activity</i>	<i>Kenai Peninsula</i>	<i>Prince William Sound</i>	<i>East Copper River</i>
<i>Rafting</i>	<i>X</i>		
<i>Camping</i>	<i>X</i>	<i>X</i>	<i>X</i>

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<i>Dog sledding</i>	<i>X</i>		
<i>Fishing</i>	<i>X</i>	<i>X</i>	
<i>Hunting (includes camping)</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>Begich Boggs Visitor Center & Day Use Sites (interpretive use)</i>	<i>X</i>		
<i>Outfitting</i>	<i>X</i>		
<i>Heli-skiing Tours</i>	<i>X</i>		<i>X</i>
<i>Snowmobiling</i>	<i>X</i>		
<i>Remote Tours: Helicopter Landing Tours</i>	<i>X</i>		
<i>Remote Tours: Remote-Setting Nature Tours Hiking</i>	<i>X</i>	<i>X</i>	
<i>Remote Tours: Remote-Setting Nature Tours Ski touring</i>	<i>X</i>		<i>X</i>
<i>Road-based Tours: Jet Boating</i>	<i>X</i>		
<i>Road-based Tours: Horse Trail Rides</i>			
<i>Road-based Tours: ATV Rides</i>	<i>X</i>		
<i>Road-based Tours: Hiking</i>	<i>X</i>	<i>X</i>	<i>x</i>

Recommendations

A Forest-wide open season for accepting outfitter and guide proposals for specific activities and locations began in 2018 and occurred again in 2020 and 2022 and, most recently, December of 2025. Our intent is to continue offering annual open seasons, depending on administrative capacity, to ensure all current authorizations are administered to standard.

To increase outfitter and guide operators in the Spencer Whistle Stop and Grandview Whistle Stop areas, the Forest included these locations for consideration during the 2025 open season.



Figure 9. Spencer Lake boat launch, 2025.

Indicator 5.3. Number of miles of trail maintained by volunteers and partners

Key Results

National Forest System Trail miles maintained or improved by volunteers and partners in FYs (FY) 24-25 (average of 10.5 miles) was higher than long-term normals (8.6 for 2013-2025). The total number of miles maintained by volunteers and partners fluctuates from year to year, which may be due to factors such as project design or funds available to support partner agreements. Trail maintenance activities completed by volunteers and partners continue to be a small but important part of the overall trail work occurring across the Chugach every year – from 2015-2025 an average of 3.5% of the trail miles maintained was accomplished by volunteer/partner efforts (the remainder being accomplished by Chugach NF staff or through contracted work). While volunteers and partners are unlikely to ever be able to maintain most trail miles across the forest, even a small percentage of trail miles maintained by the community connects people to their public lands through shared stewardship effort.

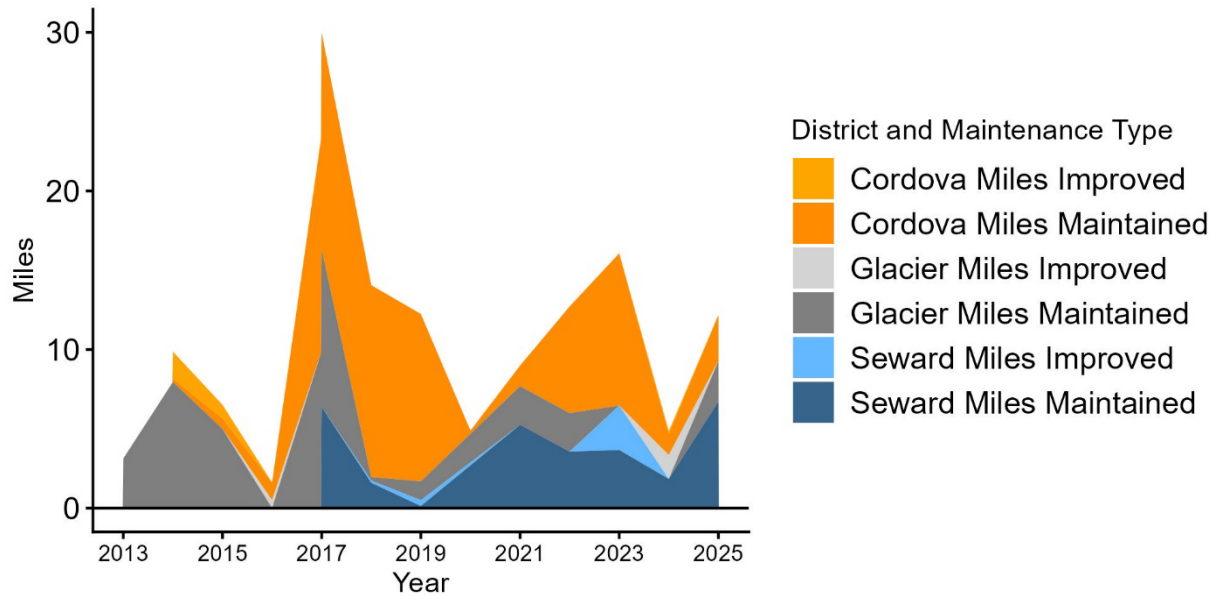


Figure 10. Ten-year comparison of miles of trail maintained by volunteers. Ranger districts are distinguished by color. Cordova is orange, Glacier grey, Seward blue. Miles improved are a lighter shade, and miles maintained darker.

Recommendations

Our continued effort to engage partners and volunteers to help with trail maintenance activities highlights our continued commitment to meeting our desired condition for this indicator. No changes to the land management plan or management actions are recommended.

Indicator 5.4. Number of recreation sites operated and maintained by volunteers and partners

Key Results

The total number of recreation sites operated and maintained by volunteers and partners has remained steady at 13 since 2020.

Recommendations

We do not need to change land management plan language or management activities.

Indicator 5.5 Total deferred maintenance forest wide

Key Results

Deferred maintenance (DM) has continued to rise since our last biennial monitoring report, both in trails and our developed recreation sites. DM costs for developed recreation sites were \$12,939,682 and \$10,809,008 in 2025 and 2024, respectively. The six-year average DM costs for developed recreation sites (2019-2025) were \$9,595,664 (Figure 11). DM costs for trails were \$22,713,544 and \$19,851,378 in 2025 and 2024, respectively. The five-year average deferred trail maintenance costs were \$19,337,866. Looking at the data for both trails and recreation sites we see a similar trend (Figure 11). Through the five-year period we saw a consistent increase in DM. The increase was largest in the Seward Ranger District in the trails program and there was a significant increase in recreation sites on the Glacier Ranger District due to repairs identified on the Begich, Boggs Visitor Center (Figure 11).

The overall increase in DM is a result of several factors. FY2020 was the rollout of the Great American Outdoors Act, which brought funding into the Forest to address Deferred Maintenance on our assets. Because GAOA funding is specifically tied to DM reduction, we have had to update the DM dollar amounts in Infra to match the project costs and actual costs on the ground, which have increased significantly over the last few years. With increased costs, we can do less work than we anticipated with the amount of funding received, resulting in smaller DM reductions upon project completion. As projects continue to be completed, we believe we will see DM start to go down slightly.

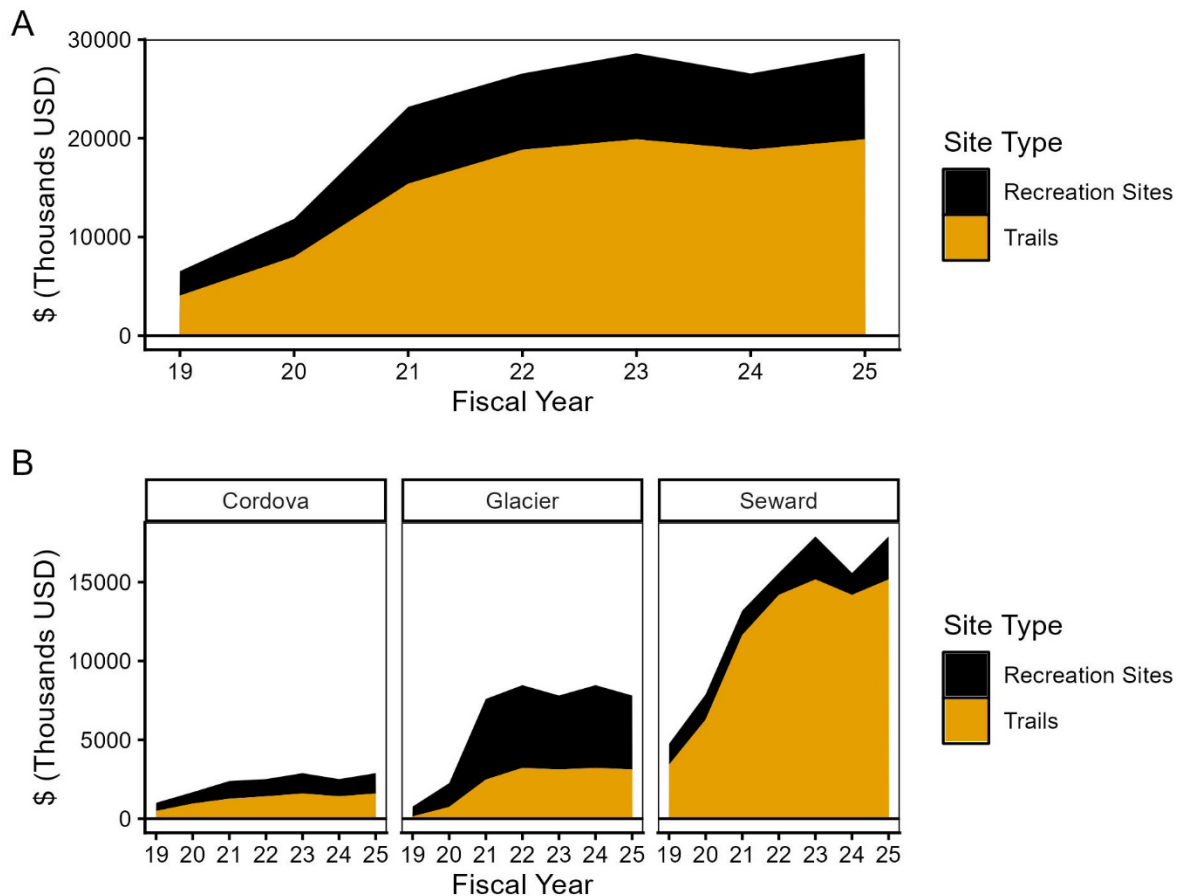


Figure 11. A) Forest-wide deferred maintenance recreation site and trail comparison, and B) maintenance recreation site and trail comparison by district. Recreation sites are displayed in black, trails in orange.

Recommendations

While it is important to have quantifiable data regarding deferred maintenance (as highlighted above), it doesn't tell the entire story. We have continued to see significant cost increases in both materials and labor as well as a decrease in qualified contractors post pandemic. Taking these variables into account has caused us to correct our cost estimates. Sustainability of our recreation facilities will be realized when timely maintenance reduces how much deferred maintenance is added to the total deferred maintenance each year and existing deferred maintenance is removed by reconstruction of aging facilities. With several years of investment still to come through GAOA and other funding streams, we believe we will continue a path to sustainability.

Table 11. Recommendations, progress toward land management plan desired conditions and objectives, and recommended actions/next steps

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 5 MI 5.1	Recreation facilities continue to show steady occupancy	We do not need to change land management plan language or management activities.
MQ 5 MI 5.2	We saw a slight decrease in the number of outfitter and guides operating between 2024 and 2025.	Continue offering annual open seasons, depending on administrative capacity, to ensure all current authorizations are administered to standard. To increase outfitter and guide operators in the Spencer Whistle stop and Grandview Whistle stop areas, include these locations in the area of consideration during the 2025 and future open seasons.
MQ 5 MI 5.3	NFST miles maintained or improved by volunteers and partners in FY24-FY25 (average of 10.5 miles) was higher than long-term normals	No changes to the land management plan or management actions are recommended.
MQ 5 MI 5.4	The total number of recreation sites operated and maintained by volunteers and partners has remained steady at 13 since 2020.	No changes to the land management plan or management actions are recommended.
MQ 5 MI 5.5	Deferred maintenance has continued to rise since our last biennial monitoring report, both in trails and our developed recreation sites.	Sustainability of our recreation facilities will be realized when timely maintenance reduces how much deferred maintenance is added to the total deferred maintenance each year and existing deferred maintenance is removed by reconstruction of aging facilities. With several years of investment still to come through GAOA and other funding streams, we will continue a path to sustainability

Climate Change and Other Stressors

The *Climate Change Vulnerability Assessment for the Chugach National Forest and Kenai Peninsula* (CCVA; Hayward et al. 2017) discusses the consequences of modeled climatic changes associated with five key elements and the associated changes in ecological services they provide. This assessment:

...explores the potential consequences of climate change for: (a) snowpack, glaciers, and winter recreation; (b) coastal landscapes and associated environments, (c) vegetation, (d) salmon, and (e) a select set of wildlife species. During the next half century, directional change associated with warming temperatures and increased precipitation will result in dramatic reductions in snow cover at low elevations, continued retreat of glaciers, substantial changes in the hydrologic regime for an estimated 8.5% of watersheds, and potentially an increase in the abundance of pink salmon. In contrast to some portions of the Earth, apparent sea level rise is likely to be low for much of the assessment region owing to interactions between tectonic processes and sea conditions. Shrubs and forests are projected to continue moving to higher elevations, reducing the extent of alpine tundra and potentially further affecting snow levels. Opportunities for alternative forms of outdoor recreation and subsistence activities that include sled-dog mushing, hiking, hunting, and travel using across-snow vehicles will change as snowpack levels, frozen soils, and vegetation change over time. There was a projected 66-percent increase in the estimated value of human structures (e.g. homes, businesses) that are at risk to fire in the next half century on the Kenai Peninsula, and a potential expansion of invasive plants, particularly along roads, trails, and waterways.

Chugach NF staff used the assessment to guide the selection of monitoring indicators for climate change outlined below.

Monitoring Question 6. Is climate change affecting key ecological functions of terrestrial and aquatic habitats within the national forest?

Indicator 6.1. Changes in hydrographs on selected sites

Key Results

Has the magnitude and/or timing of peak flows in the fall changed?

Of the ten sites with sufficient data to perform trend analysis (Figure 12), no statistically significant trends in the timing or magnitude of fall peak flows were detected.

Has the magnitude and/or timing of peak flows in the spring changed?

Four of the ten sites (Cooper Creek at the mouth and Grouse Creek) demonstrated changes in the magnitude and timing of spring peak flows. Two sites exhibited declining spring peak flows that are also occurring earlier in the year. At the mouth of Cooper Creek, spring peak flows are declining by 2.5 ft³/s per year, whereas at Grouse Creek they are declining by 0.7 ft³/s per year. Peak flows are shifting earlier at the mouth of Cooper Creek by 0.12 days per year and at Grouse Creek by 0.5 days per year. Increases in spring peak flow levels are occurring at the Kenai River gage at Cooper Landing and at Wolverine Creek. Spring peak flow levels are increasing by 18.7 ft³/s at the Kenai site and 1.7 ft³/s at the Wolverine site, representing gains of 0.6% and 2.1%, respectively.

Has summer base flow decreased in snow-dominated watersheds?

We detected directional changes in summer base flow in two snow-dominated watersheds, Six Mile Creek near the historic town of Hope; summer base flow is declining there by $\sim 7 \text{ ft}^3/\text{s}$ per year, representing a loss of approximately 0.8% of base flow per year. In contrast summer base flow is increasing by $17.6 \text{ ft}^3/\text{s}$ in the Kenai River, representing a gain of $\sim 0.5\%$ per year.

Has the magnitude of summer peak flows decreased in glacier-dominated watersheds?

We detected no changes in summer peak flow in glacier-dominated watersheds. However, at the mouth of Cooper Creek (a snow-dominated watershed), summer peak flow is decreasing by $2.5 \text{ ft}^3/\text{s}$ per year.

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Site	Period	Peakflow timing			Peakflow levels				Summer Base	Flashiness
		Winter	Spring	Fall	Winter	Spring	Summer	Fall		
Cooper Creek (at Mouth)	1958 - 2025	0.16	-0.12	0.50	0.11	-2.47	-2.50	-1.19	-0.29	2.95e-04
Copper River (at Million Dollar Bridge)	1988 - 2025	0.00	0.00	0.00	-200.00	-28.57	205.13	559.68	-278.16	4.01e-04
Glacier Creek (Alyeska Highway)	2017 - 2025	-24.75	1.83	-0.12	-6.43	-18.98	25.35	-24.52	4.10	-0.01
Glacier River Tributary (near Cordova)	2011 - 2025	0.00	-0.18	1.25	0.59	0.40	1.31	-0.92	-0.22	-1.05e-03
Grouse Creek (near Seward)	1997 - 2025	-0.11	-0.50	0.29	0.04	-0.71	-0.85	0.26	6.71e-03	1.04e-03
Kenai River (at Cooper Landing)	1947 - 2025	0.00	0.00	0.05	3.65	18.69	-5.10	23.52	17.62	-5.78e-05
Six Mile Creek (near Hope)	1979 - 2025	0.00	0.00	0.12	1.83	9.16	0.63	-9.59	-6.88	-2.47e-04
Snow River (near Seward)	1970 - 2025	-0.11	0.00	-0.11	-0.62	-12.79	21.25	-42.44	-5.19	1.77e-03
W. Fork Olsen Bay Creek (near Cordova)	1964 - 2025	-0.95	0.54	0.21	2.01	-0.50	0.11	-1.85	-0.13	-3.57e-03
Wolverine Creek (near Lawing)	1967 - 2025	0.42	0.00	-0.05	-2.98e-03	1.66	-1.26	0.77	1.50	3.62e-04

Figure 12. Mann-Kendall trend test results for streamflow for USGS gaged stations in Chugach NF. Cells are color coded, where white background means no statistically significant trend, vermillion or light vermillion means a statistically significant or nearly significant (respectively) positive trend, and vice-versa for blue and sky blue cells. Values are the Sen's Slope yearly change estimates. For flow timing, Sen's slope units are Δ Days per Year; for flow levels Sen's slope units are cubic feet per second; Flashiness was estimated with the Richards-Baker Index, which is unitless.

Recommendations

Continued monitoring of trends in the magnitude of base flow and the magnitude and timing of peak flows should continue.

Indicator 6.2. Tree and shrub encroachment in alpine habitat and recently deglaciated areas

Key Results

- From the USFS Landscape Change Monitoring System (LCMS), the most notable (Figure 13, Figure 14) in landcover occurring during the past 40 years has been a steady decline in permanent snow and ice cover, although this trend slowed over the past five years.
- Extremely small increases in shrub cover and similarly small decreases in tree cover have been observed over the past 10-15 years.

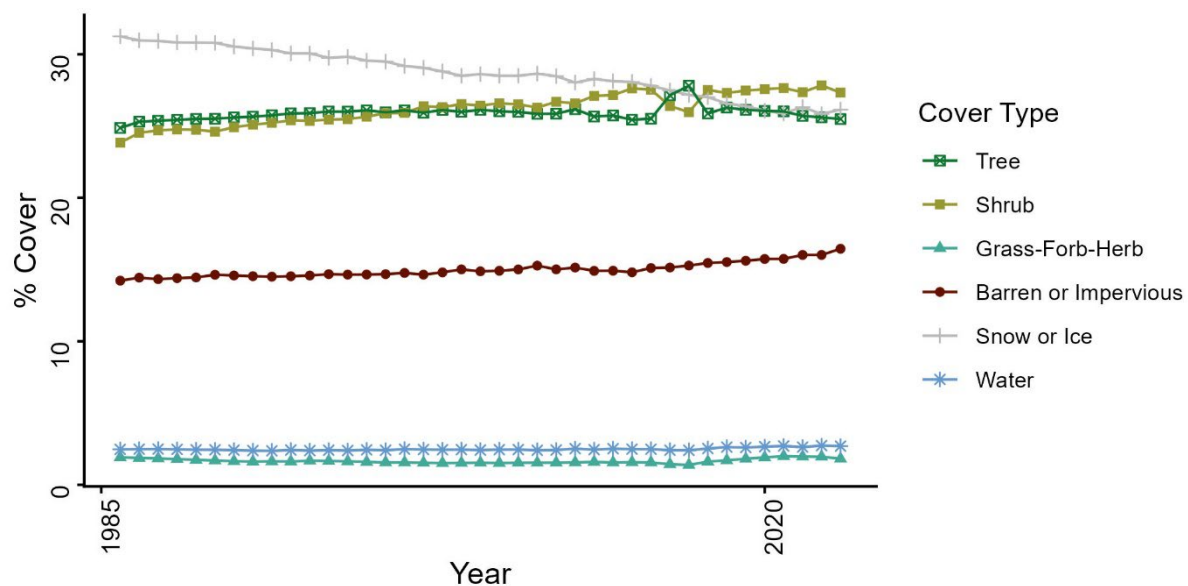


Figure 13. Area summary by key landcover type for the Chugach NF (1985-2024). Summary areas are differentiated by color and point shape. Values displayed are modeled LCMS outputs.

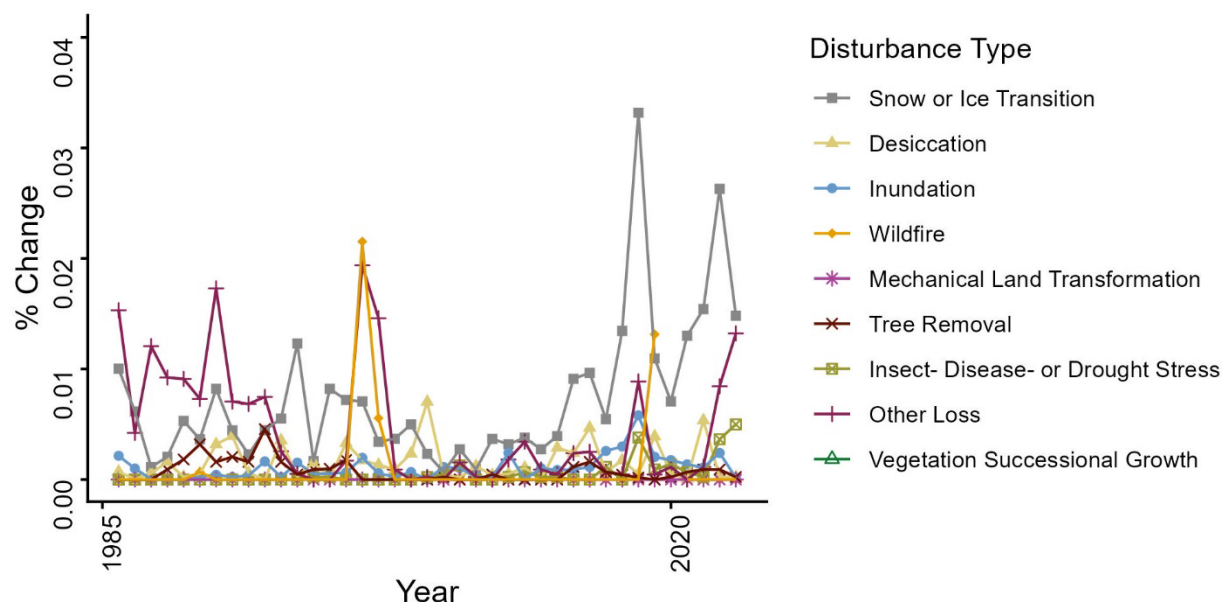


Figure 14. Percent of area undergoing change in landcover attributed to recognized change agents (1985-2024). Disturbance types are differentiated by color and point shape. Values displayed are modeled LCMS outputs.

Recommendations

We have no recommended changes to land management plan components or management activities. We recommend continuing monitoring of landcover on the Chugach.

Indicator 6.3. Changes in water temperature on selected sites

Key Results

Is spring stream temperature increasing earlier in the season?

In the six watersheds with sufficient data for temperature trend analysis (Figure 15), we did not detect any changes in the timing of spring onset (defined as the earliest day for which mean water temperature exceeds 1.5 standard deviations above the winter mean).

Is summer and/or winter stream temperature increasing?

We detected warming trends in summer stream temperature at two sites, the mouth of Cooper Creek and at Wolverine Creek. Stream temperature is increasing more rapidly at the Cooper Creek site (0.13 °C per year) than at Wolverine Creek (0.05 °C per year). In both cases, these increases coincide with broader, year-round warming trends. In the winter, stream temperature is decreasing at Bench Creek (by 0.05 °C per year) and increasing more slowly at Cooper Creek, by 0.01 °C per year.

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	Site	Timespan	Spring Onset Date	Mean Temperature				
				Summer	Spring	Winter	Fall	Annual
	Bench Creek	2014 - 2023	1.9	-0.12	-0.19	-0.05	-0.05	-0.09
	Cooper Creek (at Mouth)	1998 - 2025	0	0.13	0.03	0.01	0.08	0.06
	Daves Creek	2013 - 2022	-0.45	0.03	-0.08	-0.03	-0.13	-0.09
	Glacier River Tributary (near Cordova)	2013 - 2025	0.65	-0.09	0	0	-0.02	-0.01
	Kenai River (at Cooper Landing)	2003 - 2025	-0.22	0.01	0.01	0.02	-0.02	-0.01
	Wolverine Creek (near Lawing)	2016 - 2024	--	0.05	-0.01	--	0.05	0.08

Figure 15. Mann-Kendall Trend Test results for stream and river water temperatures in the Chugach NF. Cells are color coded; a white background means no statistically significant trend, red or pink means a statistically significant or nearly significant (respectively) positive trend, and vice versa for blue cells. Values are the Sen's slope yearly change estimates. For spring onset date timing, Sen's slope units are Δ days per year, whereas in the temperature statistics Sen's slope units are degrees C per year. Dashes indicate insufficient data.

Recommendations

We have no recommended changes to the land management plan components or management activities.

Indicator 6.4. Snow depth, season of snow cover

Key Results

Is the snow-day fraction decreasing from October to March between sea level and 500-1000 meters?

Annual snow-day fraction (the proportion of days each month when precipitation falls primarily as snow; SDF) is decreasing (Figure 16) at six of the eight SNOTEL sites in Chugach NF (all of which sit at < 1000m elevation), and October through March snow-day fraction at five of the eight. Snow day fraction is declining most rapidly at Summit Creek and Mount Alyeska, where the decreases during the winter period are approximately 1% per year.

Is the snow water equivalent decreasing in late autumn?

Snow water equivalent (SWE; Figure 17) during late fall and early winter is decreasing at four of the eight sites in October and/or November. The most pronounced decline is at Mt. Eyak, where SWE is declining in November by 4.8 mm per year. The most consistent declines are occurring at Mount Alyeska, where annual SWE is declining rapidly by 12 mm per year and in five of the months between October and April.

Compared to 1971-2000, is the percentage of the landscape that is snow dominant declining?

See Indicator 6.2 for the analysis of landcover changes occurring in Chugach NF, including reductions in snow-dominated area.

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Site	Period	Annual	Oct - Mar	Jan	Feb	Mar	Apr	Oct	Nov	Dec
Turnagain Pass	1980 - 2025	-0.6	-0.7	0	-0.6	-1	-1.2	-1	-0.3	-0.3
Summit Creek	1987 - 2025	-0.7	-1.2	-0.9	-1.4	-1.3	0.3	-1.4	-1.1	-1
Grandview	1991 - 2025	-0.8	-0.8	-0.9	-0.9	-0.1	0	-1	-1	-1
Cooper Lake	1982 - 2025	-0.4	-0.8	-0.6	-1.1	0.4	NA	-0.7	-0.9	-0.6
Grouse Creek Divide	1998 - 2025	-0.4	-0.1	0.1	0.1	-1.4	-0.8	0	-0.1	0.3
Mt. Eyak	2006 - 2025	-0.9	-1.2	-1.1	0.1	-0.6	0.9	-0.3	-2.7	-1.7
May Creek	2006 - 2025	0.1	0.4	0	0	NA	NA	-1.6	-0.9	0
Mt. Alyeska	1983 - 2025	-0.5	-1	-0.3	-0.7	-1	-1.6	-1.3	-0.8	-0.8

Figure 16. Mann-Kendall Trend Test results for SNOTEL Snow-Day Fraction data. Monthly columns contain the Sen's Slope statistic. A white background indicates no statistically significant trend, red or pink means a statistically significant ($P < 0.05$) or nearly significant positive trend ($0.05 < P < 0.1$), respectively, and vice-versa for blue cells. Except for the annual value, columns refer to trends in monthly snow-day fraction values. Sen's slope values are a non-parametric estimate of the annual rate of change in monthly snow day fraction in %, thus a change of +2 indicates an increase in 2% per year in the fraction of days in a month where snow comprises most of the precipitation.

Site	Period	Annual Max	Jan	Feb	Mar	Apr	Oct	Nov	Dec
Turnagain Pass	1982 - 2025	-5.89	-1.15	-3.05	-3.96	-4.67	-0.11	0.04	-1.28
Summit Creek	1989 - 2025	-0.22	-1.03	-1.48	-1.17	-0.27	-0.17	-0.09	-0.8
Grandview	1993 - 2025	-8.21	-5.53	-6.72	-5.79	-8.46	-0.19	-0.29	-4
Cooper Lake	1984 - 2025	-2.15	-1.78	-2.34	-1.9	-2.35	-0.08	-0.29	-1.33
Grouse Creek Divide	2000 - 2025	1.27	-1.31	-1.88	-2.41	-0.94	0	0.11	-0.28
Mt. Eyak	2008 - 2025	-12.7	-12.35	-6.09	-10.66	-11.63	-0.23	-5.36	-13.57
May Creek	2008 - 2025	3.13	1.44	2.49	2.93	2.5	0.27	1	0.81
Mt. Alyeska	1985 - 2025	-11.99	-5.84	-7.96	-8.35	-11.74	-0.27	0.01	-3.97

Figure 17. Mann-Kendall Trend Test results for SNOTEL snow water equivalent data. Monthly columns contain the Sen's Slope statistic. A white background indicates no statistically significant trend, red or pink means a statistically significant ($P < 0.05$) or nearly significant positive trend ($0.05 < P < 0.1$), respectively, and vice-versa for blue cells. Except for the Annual Max value, Sen's slope values are a non-parametric estimate of the annual rate of change in monthly mean in mm SWE.

Recommendations

Recommended actions and next steps are provided in Table 12.

Table 12. Recommendations, progress toward land management plan desired conditions and objectives, and recommended actions/next steps.

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 6 MI 6.1	Flow levels and seasonal timing of peak flows have remained within recent historical norms in most watersheds on the forest.	We have no recommended changes currently.
MQ 6 MI 6.2	Long-term reductions in snow and ice cover slowed over the past five years.	We have no recommended changes currently.
MQ 6 MQ 6.3	Warming trends were detected at two sites.	We have no recommended changes currently.
MQ 6 MI 6.4	Snow-day fraction is decreasing at most SNOTEL sites in Chugach NF.	We have no recommended changes currently, although efforts should be made over the coming decade to understand the effects of declining snow-day fraction on key ecological resources in the Forest.

Desired Conditions Including Social, Cultural, and Economic Sustainability

Monitoring for sustainable goods and services addresses six forest-wide desired conditions in the 2020 land management plan. We addressed the management question: Is the national forest providing a sustainable, predictable level of goods and services to communities? Chugach NF staff selected six indicators to determine trends in conditions for sustainable goods and services (described below).

Positive or stable trends will indicate the Chugach NF is making these commodities available; negative trends may indicate funding or staffing shortages or a change in priorities for funding and staffing, or possibly the availability of the resources may be changing (such as mineral materials) which may affect the long-term sustainability of making the good or service available to the local community.

If we find negative trends during assessment of these indicators, we should consider the following management responses:

- Re-evaluate the funding and priorities of the budget as well as staffing decisions and determine if additional resources (budget and employees) are needed for issuance of permits that are showing a negative trend.
- Determine if additional land management plan objectives are needed to focus effort on any aspect that is showing a negative trend.
- Determine if there is a limiting factor for making these resources available to the local communities beyond what is possible to change in the land management plan, budget, or staffing (for example, no additional locations available for mineral material pit development, therefore less material available).

Monitoring Question 7. Is the national forest providing a sustainable, predictable level of goods and services to communities?

Indicator 7.1. Trends in number of commercial recreation permits issued

Key Results

Trends in developed recreation and recommendation for change are reported in Section 5, Summary for Visitor Use under the Key Result: Special Use Programs -Number of outfitter guide permits issued and administered, activities, locations.

Indicator 7.2. Trends in developed recreational facility use

Key Results

Trends in developed recreation and recommendation for change are reported in Section 5. Summary for Visitor Use for the Key Result: Recreation Facility Occupancy Rate.

Indicator 7.3. Trends in number of forest product permits issued

Key Results

Forest product permits have remained within the expected range over the last 10 years (Figure 18), showing that we have been able to consistently provide adequate forest products to the public and commercial entities over the monitoring period. The fluctuations observed are expected variations as needs of the communities change and offerings from the Chugach NF vary; 2017 and 2018 saw large fuelwood offerings from the Chugach NF to dispose of material from vegetation management activities,

and 2023-2025 saw an expected spike as the Chugach NF began disposing of wood from the Spruce Beetle Strategic Response. Over the last decade we have averaged 231 permits per year and have fulfilled over 2,500 permits in total. All permit requests during the monitoring period were fulfilled.

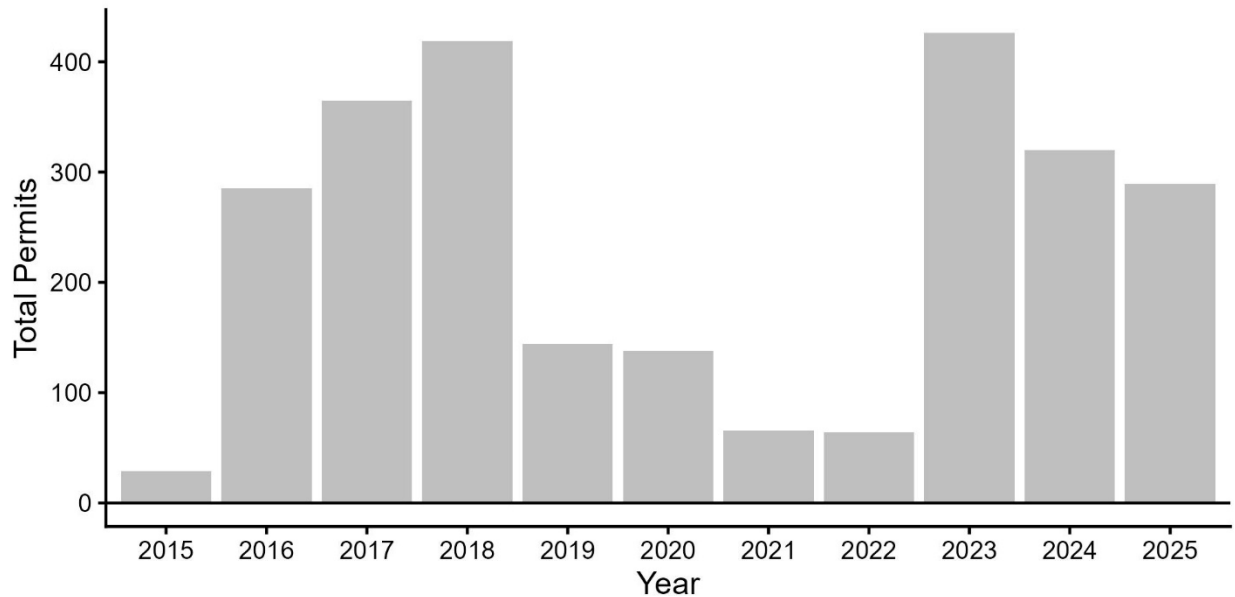


Figure 18. Chugach forest products permits issued by year, 2015-2025.

The primary categories for forest products permits are fuelwood and commercial special forest products (SFPs). Over the last decade, the Chugach NF has issued a total of 2,470 fuelwood permits totaling 7,900 cords, averaging 225 permits per year and 720 cords, indicating a relatively steady supply of fuelwood to our communities (Figure 19). The annual fluctuation in permits and cords reflects variation in vegetation management activities and public demand, and several years of high supply is contributing to a gradual reduction in demand.

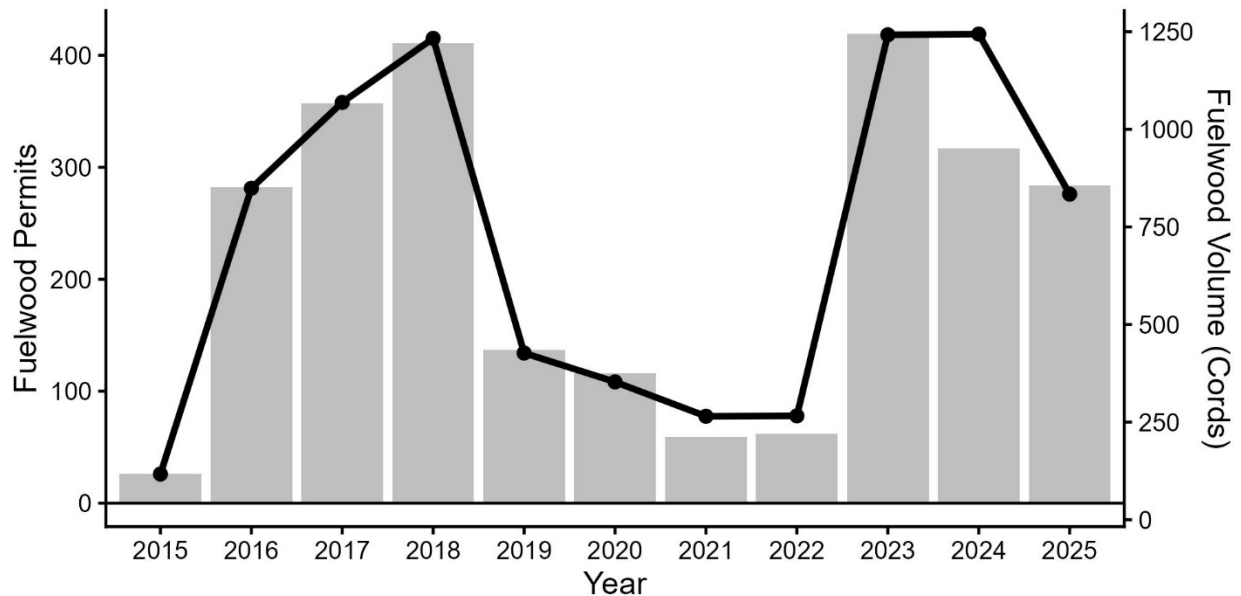


Figure 19. Fuelwood permits (light bars) and cords (black line) per year collected on the Chugach NF, 2015-2025. Permits are shaded lighter than volume.

The number of commercial special forest products permits has remained steady (Figure 20), except for 2020, when the number of commercial permits for mushroom harvesting increased dramatically following the 2019 Swan Lake Fire. This fluctuation falls within expected variation. The other metrics for commercial special forest products have been very consistent over the last decade.

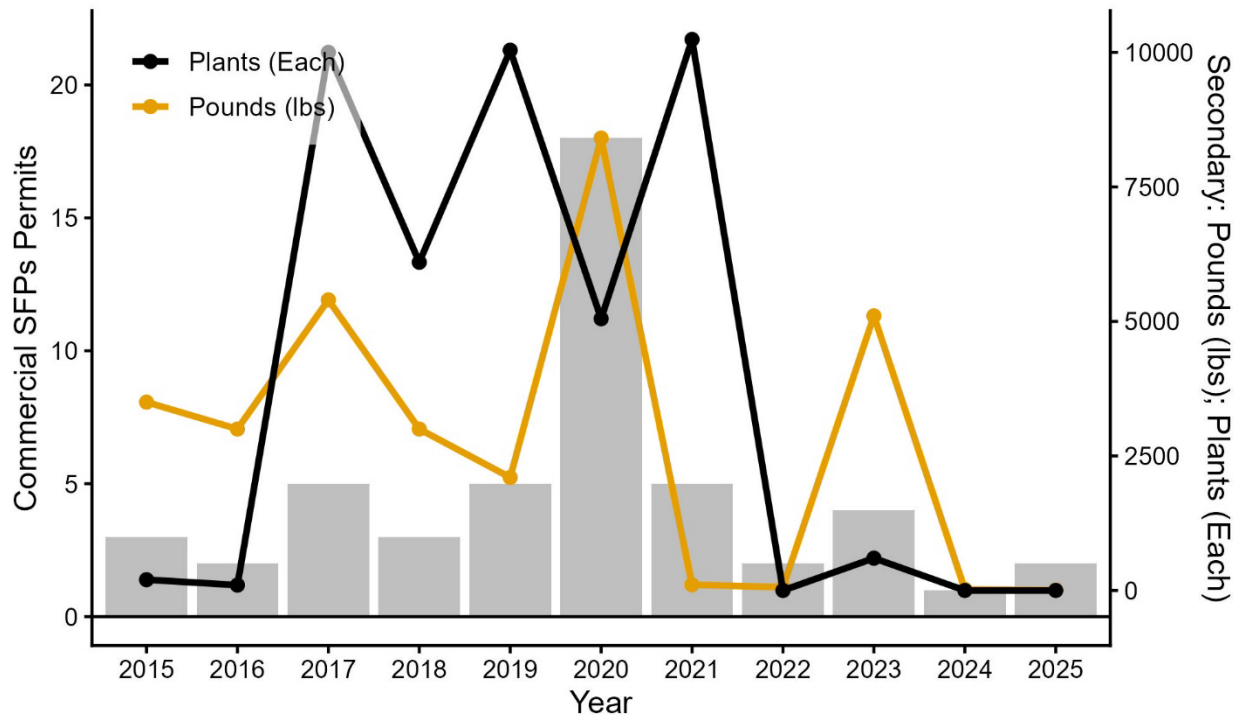


Figure 20. Commercial special forest product permits (bars) collected on the Chugach NF. Lines represent commercial plants in units (black) and pounds (orange).

Recommendations

Based on these results, we are not recommending any changes.

Indicator 7.4. Trends in sport fishing harvest

Key Results

Overall, 2024 (the latest year of data available) harvest from the monitored freshwaters in Kenai Peninsula and North Gulf Coast zones (Table 13) was below the ten-year average for most anadromous salmon species and non-salmon species (Figure 21 and Figure 22). In 2024, estimated angler days were slightly above average in Kenai Peninsula freshwater systems but well below average in the North Gulf Coast area. These patterns suggest differing levels of harvest success and angler effort between regions. Survey results were not reported for Twentymile River in 2024. Additional details on individual watersheds can be found at the State of Alaska Sport Fishing Survey:

<https://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=main.home>.

Table 13. Locations and species monitored for the Kenai Peninsula Zone and Prince William Sound Zone sportfish harvest and catch.

Location	Species
Kenai Peninsula Zone¹	
Russian River	Coho salmon, pink salmon, sockeye salmon, Dolly Varden, rainbow trout
Resurrection Creek	Chum salmon, coho salmon, pink salmon
Sixmile Creek	Chum salmon, coho salmon, pink salmon, Dolly Varden, rainbow trout
Quartz Creek	Dolly Varden, rainbow trout
Crescent Lake	Arctic grayling, rainbow trout
Kenai Lake	Dolly Varden, rainbow trout
Twentymile River	Coho salmon, pink salmon, Dolly Varden
Prince William Sound Zone²	
Alaganik Slough	Coho salmon, sockeye salmon, Dolly Varden
Eyak River	Coho salmon, pink salmon, sockeye salmon, cutthroat trout
Ibeck Creek	Coho salmon, cutthroat trout, Dolly Varden

1 – Alaska Sport Fishing Survey areas PF and L (see <https://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=main.home> for areas).

2 – Alaska Sport Fishing Survey area J.

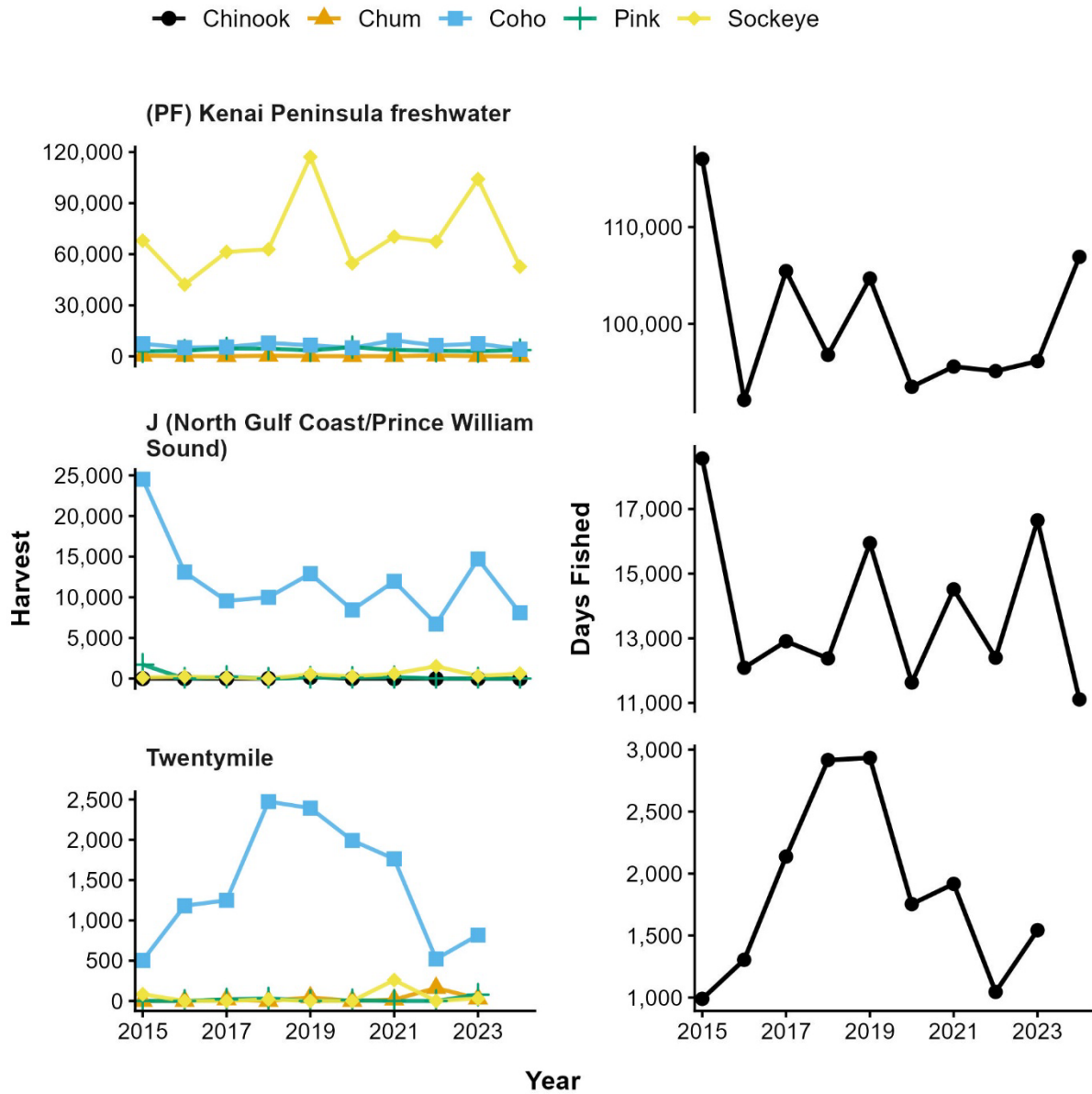


Figure 21. Estimated anadromous salmon harvest (left) with species differentiated by color and point shape and angler days (right) for freshwaters on Chugach NF, 2015-2024. Data are summarized from the [State of Alaska Sport Fishing Survey](#).

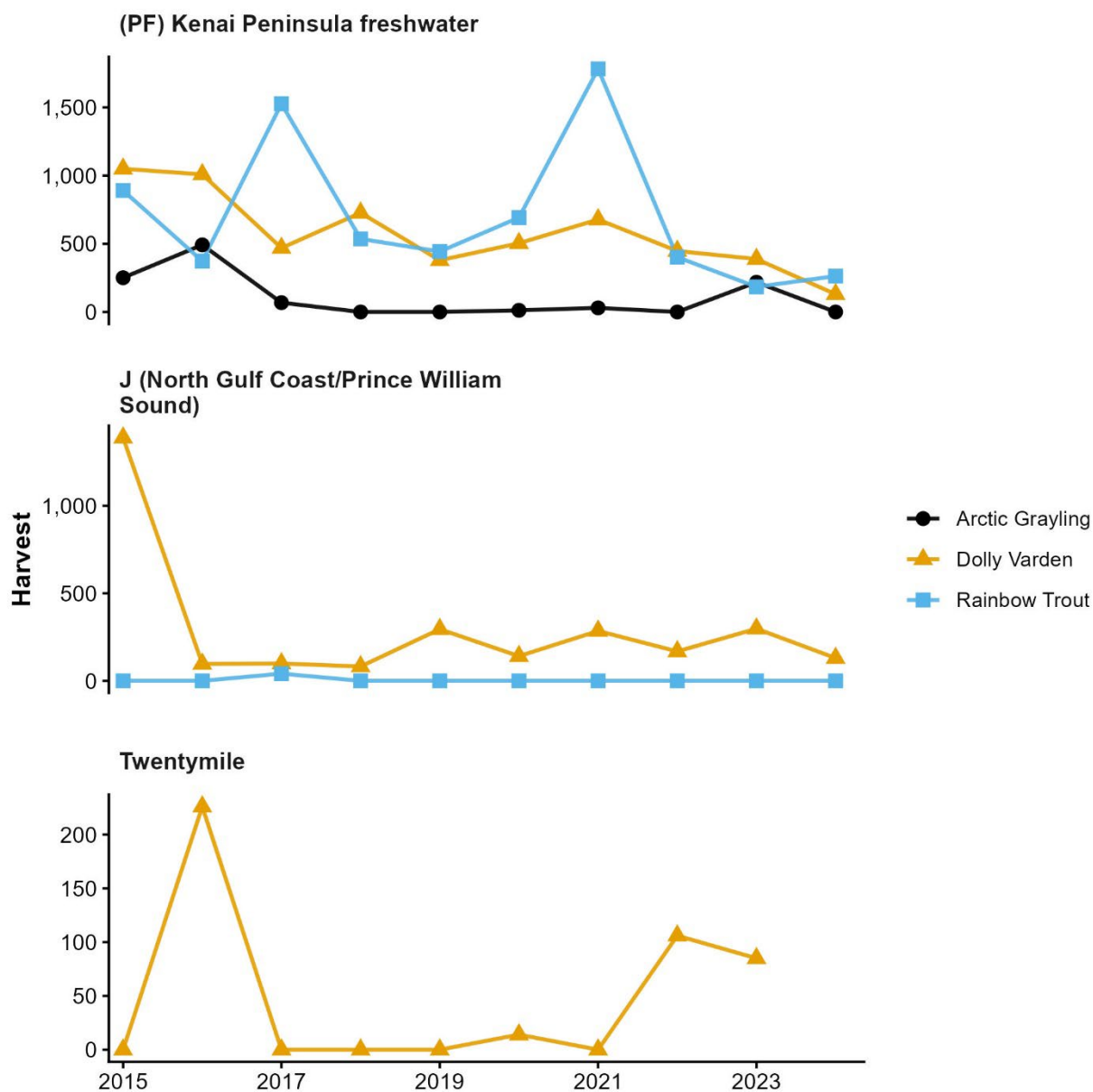


Figure 22. Estimated non-salmon harvest for freshwaters on Chugach NF, 2015-2024, with species differentiated by color and shape.

Recommendations

No changes are recommended for sport fisheries currently.

Indicator 7.5. Trends in number of permits issued for subsistence harvest

Key Results

Overall, wildlife and fish harvest opportunity under the federal subsistence program has remained relatively stable over the past two years (2024-2025) (Figure 23 and Figure 24, Table 14 and Table 15). One exception is the growth of the relatively new Lower Copper River Dipnet Fishery. These numbers generally vary according to demand, however the draw permits for moose in Unit 6C of the Copper River Delta and mountain goats and Dall sheep in Unit 7 of the Kenai Peninsula reflect the harvestable number of animals (based on population estimates) and the Federal/State harvest allocation (determined by regulation or negotiated with the State).

Harvest has also remained relatively stable overall, although it varies due to several factors such as effort, weather, population size/run strength, and other factors. A substantial increase in harvest was observed in the Lower Copper River dipnet fishery, primarily due to the increase in permits issued as well as exceptionally good fishing conditions during the early Sockeye run. In general, wildlife and fish populations have supported subsistence harvest for rural residents of the Chugach NF.

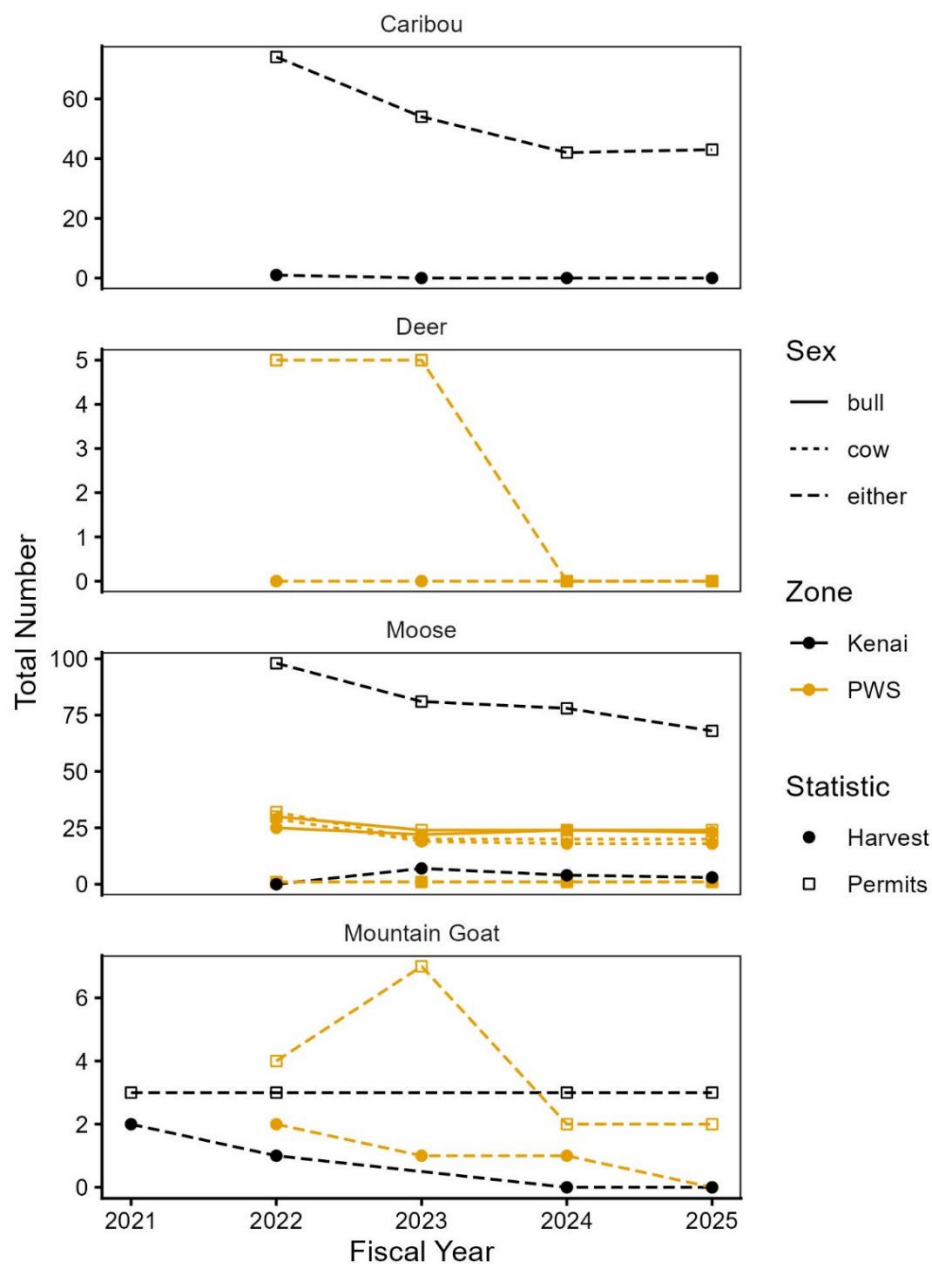


Figure 23. Subsistence ungulate permits issued and harvest in Chugach NF, 2021-2025. Sex, zone, and statistic (harvest or permits) are differentiated by line type, color, and point type, respectively.

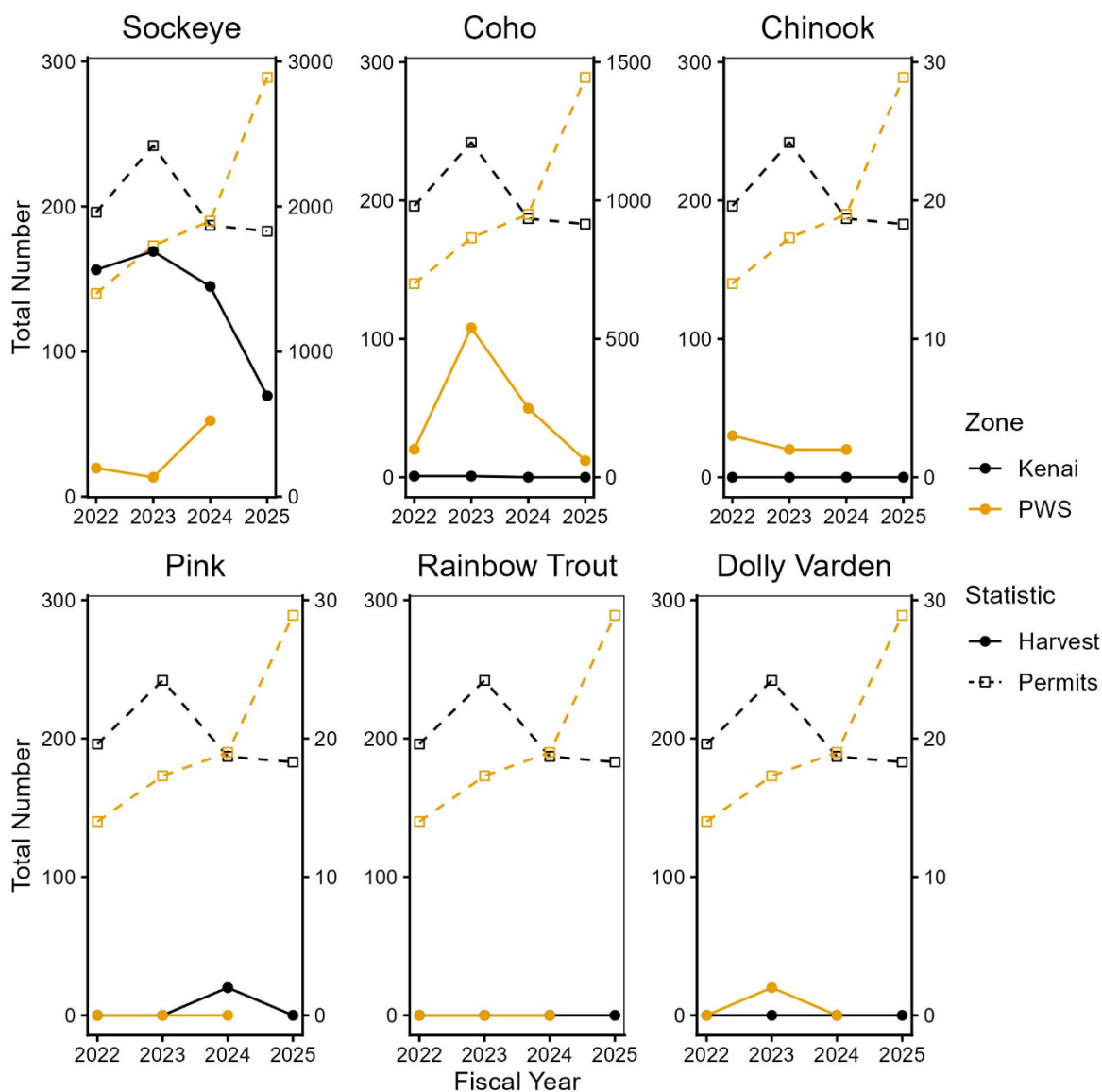


Figure 24. Subsistence fish permits issued and harvest in Chugach NF, 2022-2025. Zone and statistic (harvest or permits) are differentiated by color and line type, respectively.

Table 14. Hunt-specific permits issued and animals harvested through federal subsistence harvest seasons (events) within the Chugach NF.

Zone	Unit	Event	Species	Year	Permits	Harvest
PWS ^a	6C	FM0601	Moose - bull	2024	24	24
PWS	6C	FM0601	Moose - bull	2025	24	23
PWS	6C	FM0603	Moose - cow	2024	20	18
PWS	6C	FM0603	Moose - cow	2025	20	18
PWS	6B, 6C	FM0607	Moose	2024	1	1

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Zone	Unit	Event	Species	Year	Permits	Harvest
PWS	6B, 6C	FM0607	Moose	2025	1	1
PWS	6	FD0605	Deer	2024	0	0
PWS	6	FD0605	Deer	2025	0	0
PWS	6	FD0606	Deer	2024	0	0
PWS	6	FD0606	Deer	2025	0	0
PWS	6D	FG0604	Mountain Goat	2024	2	1
PWS	6D	FG0604	Mountain Goat	2025	2	0
Kenai	7 remainder	FM0004	Moose	2024	78	4
Kenai	7 remainder	FM0004	Moose	2025	68	3
Kenai	7	FC0702	Caribou	2024	42	0
Kenai	7	FC0702	Caribou	2025	43	0
Kenai	7	DG0703	Mountain Goat	2024	3	0
Kenai	7	DG0703	Mountain Goat	2025	3	0

a – PWS=Prince William Sound

Table 15. Fishery-specific permits issued and fish harvested through federal subsistence harvest seasons (events) within the Chugach NF

Zone	Event	Species	Year	Permits	Chinook	Coho	DV ^b	Pink	Rainbow Trout	Sockeye
PWS ^a	FFPW01	Fish	2024	110	0	249	0	0	0	99
PWS	FFPW01	Fish	2025	143	0	378	1	0	0	38
PWS	FFPW05	Fish	2024	80	2	0	0	0	0	425
PWS	FFPW05	Fish	2025	146	21	3	0	0	0	905
Kenai	KKTCI2	Fish	2024	44	0	0	0	0	0	51
Kenai	KKTCI2	Fish	2025	55	0	0	0	0	0	61
Kenai	KKTCI3	Fish	2024	143	0	0	0	2	0	1398
Kenai	KKTCI3	Fish	2025	128	0	0	0	0	0	1084

a – PWS=Prince William Sound; b – DV = Dolly Varden

Recommendations

We have no recommended changes to land management plan components or management activities. Harvest opportunity (permits) has remained stable for federal subsistence users of the Chugach NF, except for the Lower Copper River fishery which is relatively new and has seen a growth in the number of permits. The number of permits issued generally reflects demand. However, in the case of Unit 6C moose and Unit 7 mountain goats, permit numbers reflect the number of animals that can be

sustainably harvested based on population estimates. The Chugach subsistence program will continue to partner with the State of Alaska and the Chugach Regional Resources Commission to obtain current population data to ensure sustainable harvest of these species, which may result in changes to recommendations of permissible harvest levels.

Indicator 7.6. Trends in number of mineral materials permits issued and locatable mineral plans of operation approved.

Key Results

Demand for mineral materials contracts declined across FY24-FY25 relative to previous years (Figure 25) due to the closure of some gravel pits. The number of locatable mining plans of operations continued to decline, from nine in 2020 to two in 2024 to none in 2025.

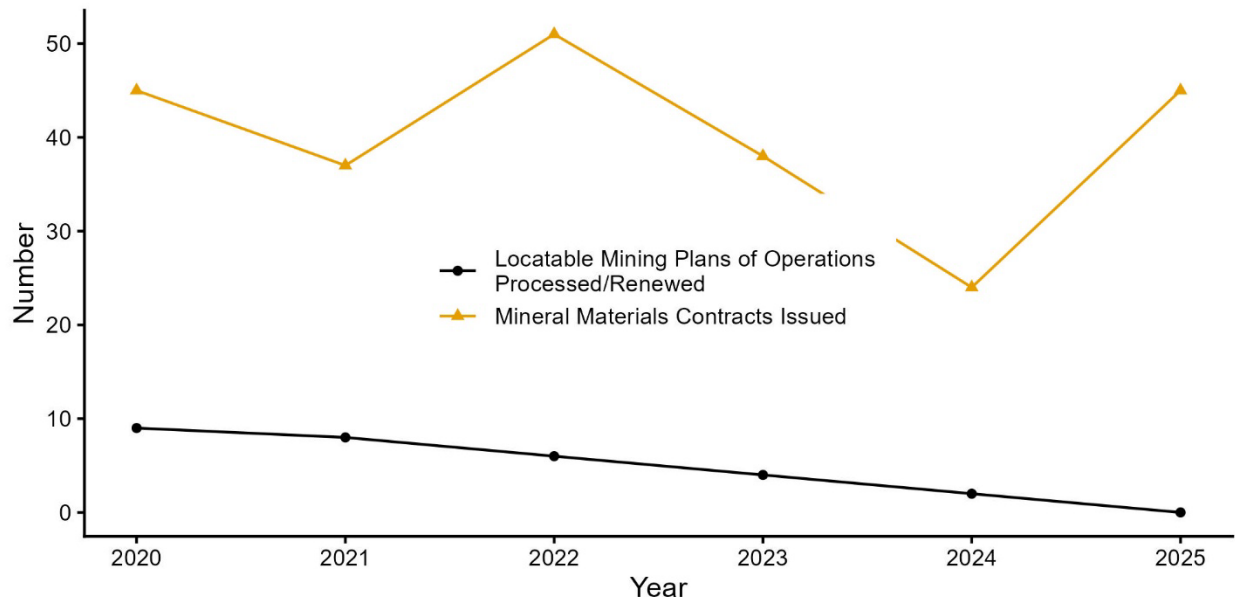


Figure 25. Number of mineral materials permits issued FY 2020-2025. Plans and contracts are black and orange, respectively.

Recommendations

No changes to land management plan language are recommended.

Monitoring Question 8. Is the presently existing character of the wilderness study area being maintained?

Indicator 8.1. Wildness

Key Results

Data for the wildness measure is gathered and evaluated annually. In 2024-2025, there were 12 authorized activities that intentionally manipulated the biophysical environment in the wilderness study area (Table 16). This is unchanged from the 2022-2023 monitoring period. Most of these activities have been occurring for many years.

Table 16. Record of authorized manipulations in 2024-25

Action(s)	Purpose	Year activity was first authorized
Using a weir to temporarily block salmon from upper Coghill River/Lake	Fish counts	1972
Using a weir to capture/kill salmon on Coghill River for sampling	Study hatchery escapement	1972
Enclosing, capturing, killing salmon at Cannery Creek Hatchery	Produce hatchery salmon	1982
Maintain a dam at Cannery Creek to alter water flow and store water	Create water source for hatchery	1982
Use a pipe to divert water from Main Lake	Create water source for hatchery	1978
Enclosing, capturing, killing salmon at Main Bay Hatchery	Produce hatchery salmon	1978
Maintaining a dam and fish ladders at Solf Lake	Alter level of Solf Lake to change lake outflow, enabling salmon to access the lake. Use ladders to assist fish access to lake	1997
Maintain a fish structure at Pigot Bay creek	Enhance salmon habitat and reproduction	Early 1990's
Maintain a fish structure at Shrode Lake outflow to alter hydrology	Enhance salmon habitat and reproduction	Early 1990's
Maintain a fish ladder at Otter Creek, Knight Island to increase fish access to stream	Increase fish reproduction	Early 1990's
Maintain a fish ladder at Derickson to increase fish access to stream	Increase fish reproduction	Early 1990's
Maintain a fish ladder at Red Creek, Esther Passage, to increase fish access to stream	Increase fish reproduction	Increase fish reproduction

Recommendations

Based on these results, there is no need for any changes.

Indicator 8.2. Natural conditions

Key Results

Weight of marine debris collected at key monitoring sites

Data shown here represent the completed 2007–2021 monitoring cycles. Results from the ongoing 2022–2026 cycle will be incorporated in the next BMER once field efforts conclude.

Table 17. Marine debris collected by Gulf of Alaska Keeper in the wilderness study area

Monitoring cycle	Value (total weight in lbs.)
2007-2011	2388.6
2012-2016	2564.6
2017-2021	3195.6

Number of miles of streams listed as “impaired” on the State of Alaska Department of Environmental Conservation 303D database

There are currently 110 watersheds either entirely within or partially within the wilderness study area boundary. Of these, none are currently listed as “impaired” by the State of Alaska Department of Environmental Conservation. This database was last updated in 2024. One-half mile of stream located in the northwest portion of the Port Wells – Frontal Gulf of Alaska watershed (HUC 1902020121) near the Granite Mine has shown water quality exceedances.

Trends in the Chugach NF watershed condition class rating for wilderness study area watersheds.

For the third measure, trends in the Chugach NF watershed condition class rating for the wilderness study area watersheds continue to reflect functioning status. Forest-wide results for watershed condition class can be found in Section 1, Watershed conditions: Key Results for Watershed Condition Classification ratings. Of the 110 watersheds either entirely within or partially within the wilderness study area boundary, all are classified as ‘functioning properly’. Several indicators are measured to establish this score. While certain indicators may be considered at risk, they do not substantially influence the overall watershed condition score.

The 2024 Alaska Department of Environmental Conservation Integrated report lists the following waterbodies as affected:

Waterbody	Category	Category Description	Parameters of Concern
Blackstone Bay – Frontal Port Wells	3	Insufficient data to determine status	Copper, Dissolved Oxygen, Nickel, pH, Zinc, Enterococcus, Fecal Coliform
Prince William Sound	3	Insufficient data to determine status	Copper, Dissolved Oxygen, Nickel, pH, Zinc
Passage Canal (Whittier Harbor)	2	Water quality standards attained for all or some designated uses	Enterococcus, Fecal Coliform
Multiple throughout the WSA	4b	Impaired; approved recovery plan in place	Petroleum Hydrocarbons

An internal report in 2017, as part of the Environmental Evaluation/Cost Analysis by Hart Crowser, documented soil and water quality exceedance levels near the Granite Creek mine related to heavy

metal concentrations. However, based on the small percentage of the watershed with impairment the attribute indicator did not change and remained in a class 2 – functioning at risk condition.

Recommendations

Based on these results, no changes are recommended for marine debris removal efforts. There are no standards or guidelines in the land management plan that would change this trend because marine debris is generated in the marine environment. However, data show that upwards of 30% of debris collected is locally generated. Ongoing educational outreach to the local boating and recreational community may reduce the amount of locally generated debris.

We also have no recommended changes to plan components, management activities or the monitoring plan for miles of stream impaired and watershed conditions. Future considerations are for us to reevaluate the insects and disease attribute to include the “anticipated” mortality to see if there is a substantial change using the national insect and disease risk and hazard mapping data. This will ensure that our future long-term trends are accurate.

Indicator 8.3. Undeveloped

Key Results

Authorized use of motorized equipment and mechanical transport

The annual number of authorizations increased during this monitoring period (Figure 26). When reviewing the data from 2024 to 2025, the change within motorized uses is partially attributed to increased accuracy in reporting from permitted set net camps, where hand tools and generators are regularly used. In 2024, the Chugach NF worked at Paulson Bay cabin, which included the use of power tools for the duration of the project. Additionally, work at Coghill Weir contributed to an increase of 113 points, or nearly 3% of 2025 total reported use.



Figure 26. Index of authorized use of motorized equipment and mechanical transport in the wilderness study area (2010-2025). Index value and 3-yr average value are displayed as black and orange, respectively.

Authorized number of installations and developments

Monitoring shows that numbers of authorized installations and developments remained stable during FY2024-2025 (Figure 27). A small increase is attributed to the installation of research plots in Cedar Bay.

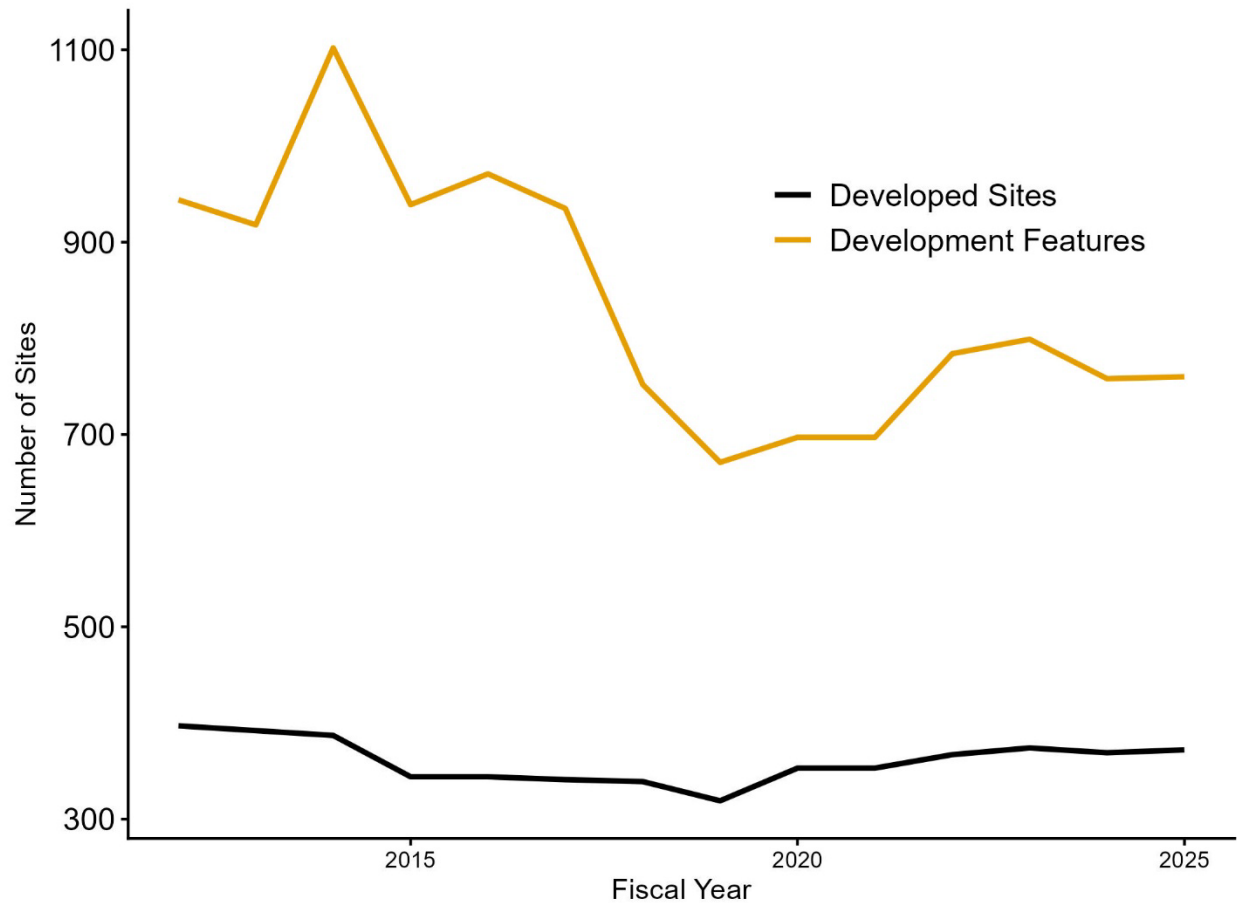


Figure 27. Total number of structures and installations within the wilderness study area 2010 through 2025. Sites and features are displayed as black and orange, respectively.

Recommendations

Currently, changes to the land management plan are not needed. We will continue monitoring trends in authorizations for motorized equipment and installations/development. We will also continue analyzing the impact of projects such as monitoring in Barry Arm to identify when unique circumstances cause changes.

Indicator 8.4. Outstanding opportunities for solitude or primitive, unconfined types of recreation

Key Results

The data show that over 50% of sites visited in 2024 and 2025 showed very little sign of human use (Figure 28).

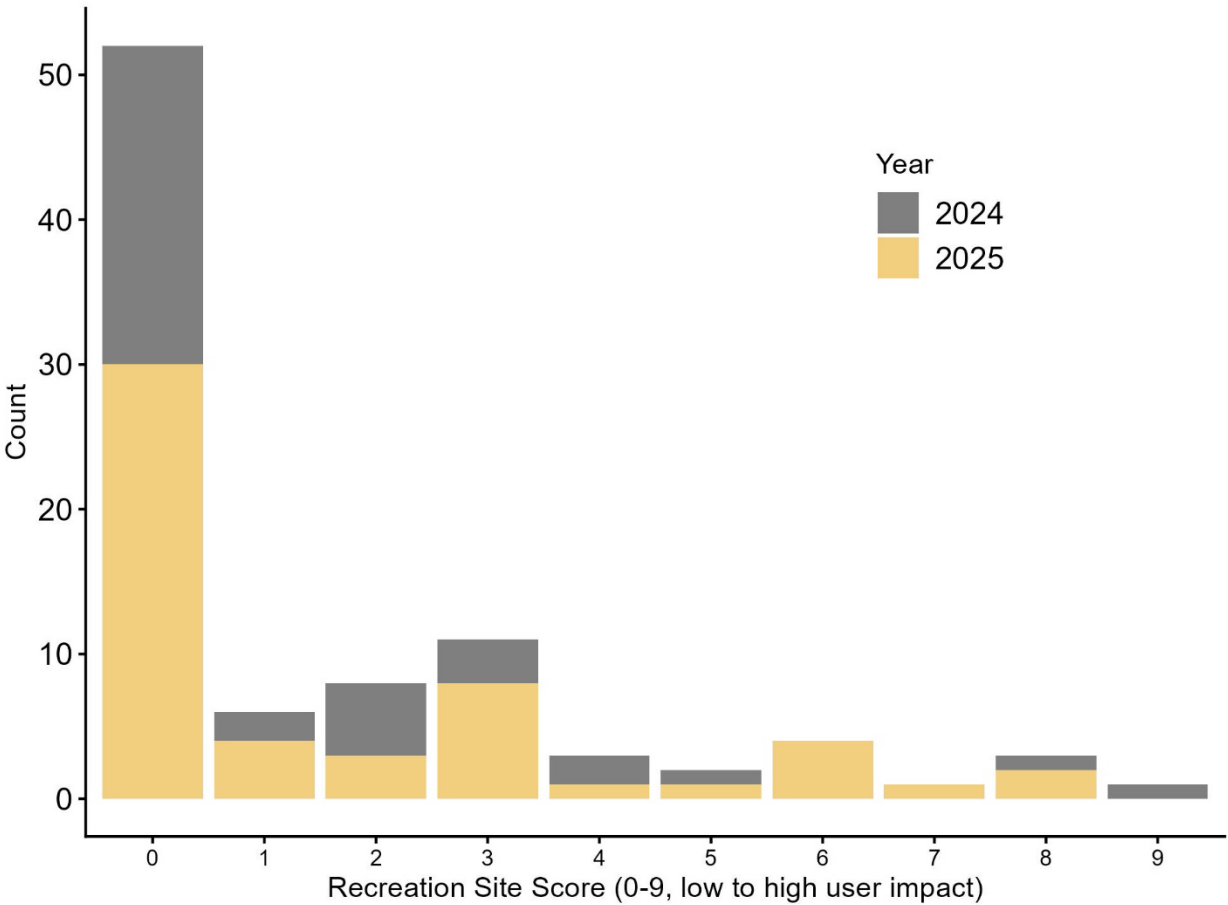


Figure 28. The overall score for rec sites visited during the 2024 (grey) and 2025 (orange) field season. This does not represent trends. It highlights the ongoing findings that over 50% of sites show little sign of human use. This is a two-year snapshot, which is part of a broader five-year monitoring cycle.

Recommendations

Based on the discovery of a large slope instability in Barry Arm, which compromises staff safely working in the area, we will adjust the encounters monitoring protocol in 2026. Data have been collected opportunistically, however two of our monitoring sites are affected by the slope instability. Staff will not be conducting recreation site monitoring for an undetermined time in Barry Arm or Harriman Fiord.

Table 18. Recommendations, progress toward land management plan desired conditions and objectives, and recommended actions/next steps.

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 7 MI 7.1	See Section 5, Indicator 5.2	
MQ 7 MI 7.2	See Section 5, Indicator 5.1	

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 7 MI 7.3	Forest product permits have remained within the expected ranges over the last 10 years. The number of commercial special forest products permits has remained steady, except for 2020, where the number of commercial permits for mushroom harvesting increased dramatically following the 2019 Swan Lake Fire.	We are not recommending any changes
MQ 7 MI 7.4	There are no current published data to report for this report period.	We have no recommended changes to the land management plan components or management activities.
MQ 7 MI 7.5	Overall, wildlife and fish harvest opportunity under the federal subsistence program has remained relatively stable over the past two years.	We have no recommended changes to the land management plan components or management activities.
MQ 7 MI 7.6	Demand for mineral materials contracts declined across FY24-FY25, as did the number of locatable mining plans of operation.	We have no recommended changes to the land management plan components or management activities.
MQ 8 MI 8.1	In 2024-2025, there were 12 authorized activities that intentionally manipulated the biophysical environment, unchanged from the previous reporting period.	Based on these results, there is no need for any changes.
MQ 8 MI 8.2	Marine debris: Data will be updated in the next round of reporting Watershed listings and WCC: No watersheds are classified as impaired by the State of Alaska DEC, and all are classified as functioning properly.	There are no recommended changes. There are no recommended changes.

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Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 8 MI 8.3	Authorized use of motorized equipment and mechanical transport and the number of authorized installations and developments remained steady.	Currently, changes to the land management plan are not needed.
MQ 8 MI 8.4	Over 50% of sites visited in 2024 and 2025 show very little sign of human use, consistent with previous findings.	The large slope instability in Barry Arm, which compromises staff safely working in the area, will continue to affect monitoring protocols in 2026-2027. For an undetermined time, staff will not be conducting campsite monitoring in Barry Arm and Harriman Fiord.

Effects of Management Activities on the Productivity of the Land

Regional soil quality standards, along with national and regional best management practices and land management plan standards and guidelines, are utilized to minimize impacts to soil and water quality from ground disturbing activities and maintain productivity of the land. Region 10 soil quality standards stipulate that no more than 15% of the activity area in the productive land base should have detrimental soil conditions to preserve long-term soil productivity. Due to the large amount of Spruce beetle-killed trees, burn piles are being utilized to dispose of woody debris. Burning slash piles has the potential to cause significant impacts to underlying soil due to high temperatures. Monitoring is currently needed to determine the areal extent and impact of burn piles on soil productivity, and the implementation and effectiveness of soil quality standards, best management practices, and land management plan standards and guidelines.

Monitoring Question 9. Are management activities meeting and maintaining soil productivity, state water quality standards, and land management plan desired conditions, goals, and objectives?

Indicator 9.1. Soil disturbance resulting from management activity

Key Results

Soil quality monitoring was not conducted during FY24-25 due to staffing shortages.

Recommendations

No changes are recommended currently. More monitoring is needed to determine the effectiveness of existing BMPs, standards and guidelines.

Table 19. Recommendations, progress toward land management plan desired conditions and objectives, and recommended actions/next steps

Monitoring question (MQ) and Monitoring indicator (MI)	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 9 MI 9.1	Soil quality monitoring was not conducted during FY24-25 due to staffing shortages.	No changes are recommended.

Summary of Results and Recommendations

Chugach NF monitoring questions and indicators addressed in this report. Possible types of recommendations include changes to the land management plan or monitoring plan, changes in management activities, or recommendations for a new focused assessment. In situations where progress is not being made toward land management plan desired conditions, an asterisk (*) occurs at the beginning of the text in the “Progress...” column.

Table 20. Monitoring questions, results, and recommendations.

Monitoring Question (MQ)	Monitoring Indicator	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 1. Are management actions effective in maintaining or improving watershed integrity?	MI 1.1. National best management practices ratings	Management actions are maintaining or improving watershed integrity.	BMP effectiveness could be improved through better project planning to identify applicable BMPs and regular inspection and enforcement of BMP application
	MI 1.2. Watershed Condition Classification Ratings	The next reassessment will be in FY 2026, so there is no new information to include or analyze in this report.	No recommendations will be issued until the next analysis in 2026 (2028 BMER).
MQ 2. Are management strategies effectively controlling or preventing the spread of invasive species in aquatic and terrestrial systems?	MI 2.1. Trend in the distribution and abundance of four highly invasive terrestrial plants.	*New infestations of all four terrestrial species continue to occur across the forest.	Continue to survey established monitoring polygons to establish trends in terrestrial focal species. Implement new strategy for monitoring highways to increase field staff safety.
	MI 2.2. Trend in geographic range and number of waterbodies infested with <i>Elodea</i> spp.	Treatment of the new infestation of <i>Elodea</i> in Crescent Lake was initiated in 2025.	Continue to survey lakes identified as a high risk for the introduction of <i>Elodea</i> .

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Monitoring Question (MQ)	Monitoring Indicator	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 3. Are management activities maintaining or improving aquatic habitat connectivity?	MI 3.1. Percentage of human-associated aquatic organism passage barriers improved or restored	Crossings have been identified. Some high priority crossings were replaced in FY24-25.	No recommended changes
MQ 4. Are habitat conditions necessary to support populations of dusky Canada geese and Aleutian cress being maintained?	MI 4.1, 4.2, 4.3. Dusky Canada Goose population trends, nest success, nest predation	Below-average estimates of indicated population abundance suggest that the dusky Canada goose population is likely in a downward trend, and observed decreases in nesting productivity for 2024-2025 may reflect this	Focus additional effort on investigating ways in which the nest island program can become more productive.
	MI 4.4. Trend of known populations of Aleutian cress	The known distribution of Aleutian Cress has expanded because of new populations being discovered during the monitoring period.	Continue targeted survey efforts to better understand the distribution of Aleutian cress.
	MI 4.5. Tree and shrub encroachment in alpine habitat	See Chapter 6, Indicator 6.2.	See Chapter 6, Indicator 6.2
	MI 4.6. Persistence of alpine snowpack	See Chapter 6, Indicator 6.4.	See Chapter 6, Indicator 6.4
MQ 5. Are recreation opportunities and infrastructure achieving desired conditions, and are they sustainable?	MI 5.1. Recreation facility occupancy rate	Recreation facilities continue to show steady occupancy	We do not need to change land management plan language or management activities.

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Monitoring Question (MQ)	Monitoring Indicator	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
	MI 5.2. Number of outfitter guide permits issued and administered	We saw a slight decrease in the number of outfitter and guides operating between 2024 and 2025.	Continue offering annual open seasons, depending on administrative capacity, to ensure all current authorizations are administered to standard. To increase outfitter and guide operators in the Spencer Whistle stop and Grandview Whistle stop areas, include these locations for consideration during the 2026 and future open seasons.
	MI 5.3. Number of miles of trail maintained by volunteers and partners	NFST miles maintained or improved by volunteers and partners in FY24-FY25 (average of 10.5 miles) was higher than long-term normals	No changes to the land management plan or management actions are recommended.
	MI 5.4. Number of recreation sites operated and maintained by volunteers and partners	The total number of recreation sites operated and maintained by volunteers and partners has remained steady at 13 since 2020.	No changes to the land management plan or management actions are recommended.
	MI 5.5. Total deferred maintenance forest wide	Deferred maintenance has continued to rise since our last biennial monitoring report, both in trails and our developed recreation sites.	No changes to the land management plan or management actions are recommended.

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Monitoring Question (MQ)	Monitoring Indicator	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 6. Is climate change affecting key ecological functions of terrestrial and aquatic habitats within the national forest?	MI 6.1. Changes in hydrographs on selected sites	Flow levels and seasonal timing of peak flows have remained within recent historical norms in most watersheds on the forest.	We have no recommended changes currently.
	MI 6.2. Tree and shrub encroachment in alpine habitat and recently deglaciaded areas	Long-term reductions in snow and ice cover slowed over the past five years.	We have no recommended changes currently.
	MI 6.3. Changes in water temperature on selected sites	Warming trends were detected at two sites.	We have no recommended changes currently.
	MI 6.4. Snow depth, season of snow cover	Snow-day fraction is decreasing at most SNOTEL sites in Chugach NF.	We have no recommended changes currently, although efforts should be made over the coming decade to understand the effects of declining snow-day fraction on key ecological resources in the Forest.
MQ 7. Is the national forest providing a sustainable, predictable level of goods and services to communities?	MI 7.1. Trends in number of commercial recreation permits issued	See Section 5, Indicator 5.2	
	MI 7.2. Trends in developed recreational facility use	See Section 5, Indicator 5.1	

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Monitoring Question (MQ)	Monitoring Indicator	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
	MI 7.3. Trends in number of forest product permits issued	Forest product permits have remained within the expected ranges over the last 10 years. The number of commercial special forest products permits has remained steady, except for 2020, where the number of commercial permits for mushroom harvesting increased dramatically following the 2019 Swan Lake Fire.	We are not recommending any changes
	MI 7.4. Trends in sport fishing harvest	There are no current published data to report for this report period.	We have no recommended changes to the land management plan components or management activities.
	MI 7.5. Trends in number of permits issued for subsistence harvest	Overall, wildlife and fish harvest opportunity under the federal subsistence program has remained relatively stable over the past two years.	We have no recommended changes to the land management plan components or management activities.
	MI 7.6. Trends in number of mineral materials permits issued and locatable mineral plans of operation approved	Demand for mineral materials contracts declined across FY24-FY25, as did the number of locatable mining plans of operation.	We have no recommended changes to the land management plan components or management activities.

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Monitoring Question (MQ)	Monitoring Indicator	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 8. Is the presently existing character of the wilderness study area being maintained?	MI 8.1. Wildness	In 2024-2025, there were 12 activities that intentionally manipulated the biophysical environment that were authorized, unchanged from the previous reporting period.	Based on these results, there is no need for any changes.
	MI 8.2. Natural conditions	Marine debris: Data will be updated in the next round of reporting Watershed listings and WCC: No watersheds are classified as impaired by the State of Alaska DEC, and all are classified as functioning properly.	There are no recommended changes.
	MI 8.3. Undeveloped	Authorized use of motorized equipment and mechanical transport and the number of authorized installations and developments remained steady.	Currently, changes to the land management plan are not needed.
	MI 8.4. Outstanding opportunities for solitude or primitive, unconfined types of recreation	Over 50% of sites visited in 2024 and 2025 show very little sign of human use, consistent with previous findings.	The large slope instability in Barry Arm, which compromises staff safely working in the area, will continue to affect monitoring protocols in 2026-2027. For an undetermined time, staff will not be conducting campsite monitoring in Barry Arm and Harriman Fiord.

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Monitoring Question (MQ)	Monitoring Indicator	Progress Toward Land Management Plan Desired Conditions and Objectives	Recommended Actions/Next Steps
MQ 9. Are management activities meeting and maintaining soil productivity, state water quality standards, and land management plan desired conditions, goals, and objectives?	MI 9.1. Soil disturbance resulting from management activity	*Soil quality monitoring was not conducted in 2024 or 2025 due to staffing shortages.	We have no recommended changes to the land management plan components or management activities.

References

Hayward, Gregory Dale, Stephen Colt, Monica L McTeague, Teresa Nettleton Hollingsworth, and others. 2017. "Climate Change Vulnerability Assessment for the Chugach National Forest and the Kenai Peninsula." *General Technical Report-Pacific Northwest Research Station, USDA Forest Service* (PNW-GTR-950).