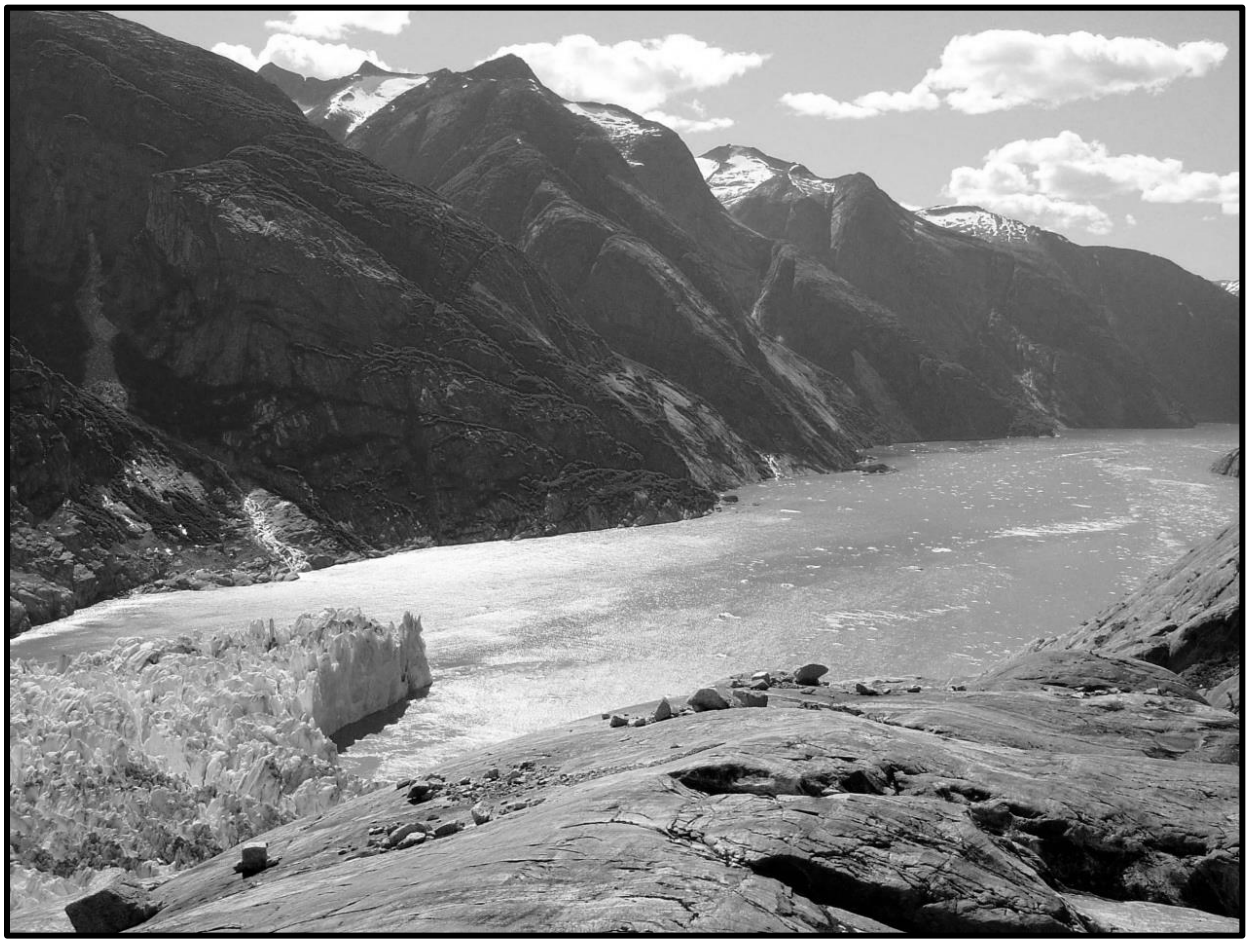
United States Department of Agriculture

Shoreline II Outfitter/Guide

Final Environmental Impact Statement
Volume I



Forest Service
Alaska Region **Tongass National Forest** **R10-MB-793c** **March 2017**

Cover Photo: A picture of Endicott Arm Glacier, taken from 1,115 feet up. The glacier is one of many vistas tourists visit Southeast Alaska annually to witness.

NOTE: We make every effort to create documents that are accessible to individuals of all abilities; however, limitations with our word processing programs may prevent some parts of this document from being readable by computer-assisted reading devices. If you need assistance with this document, please contact the Petersburg Ranger District at (907) 772-4636.

Commonly Used Acronyms & Abbreviations

ABOG	Alaska Board of Game	**LUD**	Land Use Designation
ADEC	Alaska Department of Environmental Conservation	**LWCA**	Land and Water Conservation Act
ADF&G	Alaska Department of Fish & Game	**MIS**	Management Indicator Species
AKDCBD	Alaska State Division of Community and Business Development	**NAGPRA**	Native American Graves Protection and Repatriation Act
ANILCA	Alaska National Interest Lands Conservation Act	**NEPA**	National Environmental Policy Act
BBMT	Brown Bear Management Team	**NFMA**	National Forest Management Act
BE	Biological Evaluation	**NHPA**	National Historic Preservation Act
BMP	Best Management Practice	**NMFS**	National Marine Fisheries Service
CEQ	Council on Environmental Quality	**NOI**	Notice of Intent
CFR	Code of Federal Regulations	**NRHP**	National Register of Historic Places
FEIS	Final Environmental Impact Statement	**NAGPRA**	Native American Graves Protection and Repatriation Act
DNR	Department of Natural Resources	**ROD**	Record of Decision
EPA	Environmental Protection Agency	**ROS**	Recreation Opportunity Spectrum
FSM	Forest Service Manual	**SHPO**	State Historic Preservation Officer
GIS	Geographic Information System	**SOPA**	Schedule of Proposed Actions
GMU	Game Management Unit	**TLRMP**	Tongass Land and Resource Management Plan
GUA	Guide Use Area	**TTRA**	Tongass Timber Reform Act
IDT	Interdisciplinary Team	**USDA**	United States Department of Agriculture
IRA	Inventoried Roadless Area	**USFWS**	United States Fish and Wildlife Service
LAC	Limits of Acceptable Change		

United States Department of Agriculture
Forest Service
Tongass National Forest
Alaska Region
648 Mission Street
Ketchikan, AK 99901
907-225-3101

File Code: 1950
Date: March 7, 2017

Dear Planning Participant:

The Juneau, Sitka, and Hoonah Ranger Districts and Admiralty National Monument have released the Final Environmental Impact Statement (FEIS) and draft Record of Decision (draft ROD) for the Shoreline II Outfitter/Guide project. These documents, with appendices including use area cards and response to comments, are available on-line at: http://go.usa.gov/Pzi. Hardcopies of the FEIS and draft ROD are also available for review at the Forest Service offices above, and the Petersburg Ranger District.

The Tongass National Forest is proposing new outfitter and guide allocations on the Tongass National Forest marine shoreline zone and associated uplands, in the project area as described in the FEIS, as an update the 2004 Shoreline Outfitter/Guide Record of Decision to better align with current market demand for non-motorized commercial recreation services.

The FEIS describes four alternatives: no action (Alternative 1), proposed action (Alternative 2), lower allocation (Alternative 3), and higher allocation (Alternative 4). The alternatives represent different approaches to address issues raised by the public, while achieving to varying degrees the purpose and need for action. In addition, the FEIS discusses the estimated effects of each alternative, and compares them in terms of meeting management objectives and estimated impacts to resources. The Forest Service's preferred alternative is Alternative 2.

Based on comments received during the scoping period, comments on the DEIS, and input from the Forest Service interdisciplinary team, the draft ROD documents the Responsible Official's intent to select Alternative 2, the proposed action, and provides his decision rationale. This decision would allocate up to 80,305 service days of the estimated total visitor capacity of 636,448 service days within the project area to outfitter/guide use.

Copies of this letter have been directly mailed or emailed to those people who have expressed interest in the project through scoping, comments, consultation, or request to be on the mailing list.

This project is subject to the pre-decisional administrative review (objection) process pursuant to 36 CFR 218, subparts A and B. Detailed information on objection rights and procedures are included in the draft Record of Decision, page 21.

The Shoreline II Outfitter/Guide interdisciplinary team thanks those of you who took the time to review and comment on this project. For more information, please call Carey Case, project team leader, at 907-772-3871.

Sincerely,

M. EARL STEWART
Forest Supervisor, Tongass NF

Shoreline II Outfitter/Guide

Final Environmental Impact Statement

United States Department of Agriculture
Forest Service Alaska Region

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Abstract

The Tongass National Forest is proposing new outfitter and guide allocations on the Tongass National Forest marine shoreline zone and associated uplands to be consistent with the Tongass Land and Resource Management Plan (Forest Plan). There is a need to update the 2004 Shoreline Outfitter/Guide Record of Decision to better align with current market demand for non-motorized commercial recreation services. The proposed action would allocate a portion of the overall visitor capacity, up to 80,305 service days to outfitter and guide use. A service day is a day or any part of a day for which an outfitter or guide provides service to a client on National Forest System lands.

The Shoreline II Outfitter/Guide project area includes all areas used by non-motorized outfitter and guide activities that originate from the marine shoreline areas in the Admiralty National Monument and in the Hoonah, Juneau, and Sitka Ranger Districts (see Figure 1-1). In general, the project area extends ½ mile

inland, with further inland extensions where specific outfitter and guide activities and locations are accessed from the shoreline (i.e., goat/deer hunting, canoe route/portage, freshwater fishing on anadromous and other fish-bearing streams and lakes, etc.).

This Final Environmental Impact Statement (FEIS) describes four alternatives: no action (Alternative 1), proposed action (Alternative 2), lower allocation (Alternative 3), and higher allocation (Alternative 4). The alternatives represent different project designs intended to address issues raised by the public, while achieving to varying degrees the purpose and need for action. In addition, this FEIS discusses the estimated effects of implementing each alternative, and compares them in terms of meeting management objectives and estimated impacts to resources. The Forest Service's preferred alternative is Alternative 2.

Summary

Introduction

The Shoreline II Outfitter/Guide project area (see Figure 1-1) encompasses lands in Admiralty Island National Monument, and Hoonah, Juneau, and Sitka Ranger Districts. The Shoreline II Outfitter/Guide FEIS proposes to allocate a portion of the visitor capacity of the project area to outfitter and guide use. The Shoreline II Outfitter/Guide Project Visitor Capacity Analysis (USDA Forest Service, 2014e) establishes the visitor capacity for the project area. Visitor capacity and the proposed allocations are described in terms of service days. A service day is a day or any part of a day for which an outfitter or guide provides service to a client on National Forest System lands. Service days were calculated and allocated to 48 geographic units defined as Shoreline II Outfitter/Guide use areas. This FEIS outlines potential outfitter/guide use levels (allocations) and provides a framework for managing outfitter/guide activities on all four management units. It does not establish or restrict use levels for unguided visitors.

Project Area

The project area includes all areas used for non-motorized outfitter/guide activities that originate from the marine shoreline areas in the Admiralty Island National Monument, and Hoonah, Juneau, and Sitka Ranger Districts (see Figure 1-1). In general, the project area extends ½ mile inland, with further extensions inland where specific outfitter/guide activities and locations are accessed from the shoreline (i.e., goat/deer hunting, canoe route/portage, freshwater fishing on anadromous and other fish-bearing streams and lakes, etc.). This includes a large portion of Baranof Island where goat and deer hunting areas extend inland.

Areas that are not part of this analysis:

1. Private lands and other public lands and waters outside the jurisdiction of the Forest Service (i.e., submerged islands, marine waters, Alaska State Parks).

2. The summer (peak) season at the Pack Creek Zoological Area in Admiralty Island National Monument, which had a separate decision on March 21, 2011. The remaining seasons (fall, winter, and spring) are included within this analysis.

3. Mitchell, Kanalku, and Favorite Bays in Admiralty Island National Monument are being considered under a separate analysis with a decision expected in 2017.

4. The Kruzof Island Mud Bay and Eagle River motorized and non-motorized trail systems and the Eagle River Road large group area, in the Sitka Ranger District, which were included in the Kruzof Island Outfitter/Guide decision on April 21, 2015.

Purpose and Need for Action

The purpose of this action is to manage outfitters/guide use on the Tongass National Forest Shoreline II project area consistent with the Forest Plan. A decision is needed to determine outfitter/guide use allocations for the project area. This is necessary to balance commercial and non-commercial recreational opportunities and to provide and maintain high quality recreation experiences without degrading forest resources.

This action is needed to meet Forest Plan goals and objectives for recreation and tourism, and to support local and regional economies.

Since the 2004 Shoreline Outfitter/Guide ROD was signed, demand for outfitter/guide services that originate from the marine shoreline has increased. The need for outfitter/guide services has expanded both in terms of number of visitors and the types of services being offered, and there is also continued demand for institutional outfitter/guide services (e.g., schools and therapy groups). There has been an increase in the fleet of small to mid-size cruise ships desiring to outfit/guide on the Tongass National Forest, and the demand for outfitted/guided big game hunting continues. Also, the traditionally low-use seasons (April-May; September-October) are seeing more use, with additional interest for outfitter/guide use in the winter season (January-March). Seven use areas are at 80 percent or more of their allocation during one or more seasons, and outfitters/guides are dispersing to areas traditionally less used. At some locations, outfitter/guide permit holders have requested to operate beyond the ½-mile zone. There is a need to replace the 2004 Shoreline Outfitter/Guide ROD to better align with current market demand for non-motorized outfitter/guide services.

Also, in 2008, the Forest Service updated the national directives for outfitter/guide services. These updates simplified procedures and clarified policies for priority use permits governing performance, inspections, and allocation of use. Additionally, data gathered through Forest Service monitoring and reported use by authorized outfitters/guides shows that some information used in the 2001 Visitor Capacity Analysis requires updating.

Proposed Action

The following is a summary of the proposed action. All alternatives are presented in more detail in Chapter 2 of this FEIS. **Alternative 2 is the proposed action.**

The Forest Service is proposing to allocate up to 80,305 service days of the estimated total visitor capacity of 636,448 service days within the project area to outfitter/guide use (Table 2-2). These allocations are proposed for each use area, by season and alternative. The seasons are as follows: fall (September 15 to December 31), winter (January 1 to March14), early spring (March 15 to April 24), late spring (April 25 to May 20 or 31), and summer (May 21 or June 1 to September 14). Tables 2-11 to 2-16 display the visitor capacity, the average outfitter and guide use (actual use), the highest amount of outfitter/guide use, and the proposed allocations for each use area for each season.

Actual use data is the information that the outfitters/guides are required to report to the Forest Service at the end of every operating season. The actual use data provides specific information about the outfitters/guides activities such as the location of their activities, the number of clients hosted at each location, and the date the activity occurred.

The proposed action includes the proposals for Big Game Guide Management (Brown Bear Hunts), Large Group Areas, and Adaptive Management Strategy, described under “Items Common to All Action Alternatives”, below.

Wilderness

The project area contains 20 use areas within six different congressionally designated wilderness areas. The Wilderness Act of 1964 prohibits commercial services, except for those that may be necessary to meet the recreational or other wilderness purposes of the area. The need for outfitter/guide services, which are primarily commercial in wilderness, has been documented in the Wilderness Commercial Needs Assessments (Appendix F of the DEIS). The extent necessary to meet the recreational or other wilderness purposes of the areas is represented in the proposed action.

Outfitter/guide activities will be authorized by special use permits and may be temporary in nature (less than 1 year) or for multiple years. Outfitters/guides who demonstrate satisfactory performance may be issued priority use permits, for up to 10 years, in accordance with Forest Service Handbook 2709.14.

The proposed action does not limit any use by the general public.

Significant Issues

Significant issues are used to formulate and design alternatives to the proposed action, prescribe mitigation measures, and analyze significant effects. Significant issues for the project have been identified through public and internal scoping. Similar issues are combined where appropriate.

The following issues were identified as significant and are addressed to differing degrees by the proposed action and two additional action alternatives.

Issue 1: Effects to Economic Opportunities

Issue 1 addresses concerns that the number of service days (80,305) included in the proposed action (Alternative 2) would not adequately provide for economic stability and growth within the region.

Units of Measure:

• Number of service days allocated to outfitter/guide use

• Economic trends in tourism growth in Southeast Alaska.

Response: Alternative 4 was developed specifically to focus on supporting local and regional economies by recommending increased opportunities, through a higher allocation of service days (130,655), for outfitter/guide businesses to operate in the shoreline zone. The higher allocation is based on visitor industry trends, which show consistent and increasing growth within the region.

Issue 2: Effects to Wilderness Areas and Effects of Commercial Uses on Non-Commercial Visitors

Comments were received during public scoping expressing concern related to increased outfitter/guide use in areas that historically have had low use. Several comments raised the concern of how outfitter/guide use has expanded, and that the Forest Service should do more to limit outfitter/guide operations so that “wild” places are not overcrowded.

The commenters referenced wilderness areas generally, as well as specific locations within, and outside of designated wilderness areas. Outside of wilderness, concerns were expressed about outfitter/guide use causing crowding, noise, and disturbance, particularly in locations popular with non-commercial visitors.

Units of Measure:

• Number of service days allocated to outfitter/guide use

• Forest Plan Recreation Opportunity Spectrum (ROS) standards and guidelines for remoteness, including outstanding opportunities for solitude, and social encounters

Response: Alternative 3 addresses the issue of crowding and loss of solitude, and its effect on wilderness character by offering lower outfitter/guide allocations for use areas in designated wilderness and in remote areas.

Issue 3: Incompatible Commercial Uses

Comments were received stating concerns about incompatible outfitter/guide uses (e.g., bear hunting and wildlife viewing/nature tour operators) that overlap in time and space, particularly during the spring and fall seasons, and result in conflict and diminished recreation experiences.

Units of Measure:

• Number of service days allocated to outfitter/guide use

• Types/location/timing of outfitter/guide recreation activities

Response: This issue is addressed through the varying allocations of service days in each action alternative, site-specific design features, and through the separation of the spring season into "early" and "late" spring seasons common to all action alternatives. Essentially, "early spring" season would be March 15 to April 24, and the "late spring" season would be April 25 to May 20, or 31. Alternative allocations would be split proportionally based on the number of days in each "sub" season. There would be reduced service days allocated in the popular late spring season, which should help address the issue raised. This issue is also addressed outside of this analysis through prospectus, permit stipulations, and permit administration.

Alternatives Considered in Detail

Alternative 1 – No Action

The No-action Alternative considered for this analysis is the 2004 Shoreline Outfitter/Guide ROD Selected Alternative, which was Alternative 5, with modifications. Under this alternative, allocations would remain the same as the 2004 levels. The 2004 Shoreline Outfitter/Guide EIS and ROD measured allocation in group days where a group of six people on shore in a single day equals one group day. The original allocation was for a maximum of 7,888 group days.

The unit of measure for the Shoreline II Outfitter/Guide analysis action alternatives is a service day. A service day is defined as one person on NFS lands for any period of time during one 24-hour period. Table 2-1 represents the conversion from group days to service days for the No-action Alternative to provide a meaningful comparison across all alternatives. It contains a total of 47,449 service days. The No-action Alternative would continue the existing management practices of the outfitter/guide special uses program.

The No-action Alternative has a lower maximum number of service days than the action alternatives. Service days for some use areas may be higher than they are in some of the action alternatives, but the total number of service days allocated would be less than all other alternatives being considered in this analysis.

Under this alternative, there would be no winter season as that was not part of the 2004 Shoreline Outfitter/Guide ROD. There would be a single spring season. If selected, this alternative would use service days as the unit of measure rather than group days.

Alternative 2 – Proposed Action

The Forest Service is proposing to allocate up to 80,305 service days of the estimated total visitor capacity of 636,448 service days within the project area to outfitter/guide use (Table 2-2). These allocations are proposed by season and use area. Each allocation was based on factors such as historical outfitter/guide use, subsistence activities, proximity to communities, potential for resource impacts, and quality recreation experiences as prescribed by the Forest Plan. The use would be permitted by special

use authorizations and may be temporary in nature (less than 1 year) or for multiple years. Outfitter/guides who have demonstrated satisfactory performance may be issued priority use permits, for up to 10 years, in accordance with Forest Service Handbook 2709.14.

The proposed action provides the starting point for the IDT and helps focus public and other government agency comments during scoping and later on the DEIS. It was developed to balance commercial and non-commercial recreation opportunities and to provide and maintain high-quality recreation experiences without degrading forest resources.

This alternative was developed to support local and regional economies, and meet Forest Plan goals and objectives for recreation and tourism, which are:

- Provide for a range of recreation opportunities consistent with public demand, emphasizing locally popular recreation places and those important to the tourism industry.
- Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.

This alternative was developed by taking the 2004 Shoreline Outfitter/Guide allocations and adjusting them up or down based on factors such as historical outfitter/guide use, subsistence activities, proximity to communities, potential for resource impacts, and whether the area was popular with local users. It also proposes an outfitter/guide allocation for a winter use season and delineates an “early spring” and a “late spring” season.

Alternative 3

Alternative 3 would allocate a total of 63,940 service days across the project area for use by outfitters/guides. It addresses the issue of loss of solitude and crowding by proposing lower outfitter/guide allocations for use areas in designated wilderness and in remote areas.

Alternative 3 was developed in response to concerns expressed about the increasing overlap of uses incompatible with each other such as bear hunting, nature viewing, and increased small cruise ship activity. Comments referred to remote areas within and outside of designated wilderness. The concern for crowding was not focused on areas designated for higher levels of use. This alternative only reduces allocation for the more-remote use areas. It was developed with specific focus on emphasizing uncrowded social conditions across the use areas and seasons by reducing the proposed outfitter/guide allocations.

Alternative 4

This alternative allocates 130,655 service days to outfitter/guide use. It was calculated by applying a 5 percent increase to the proposed action and compounded annually over a 10-year period. Alternative 4 was developed to emphasize support for local and regional economies by increasing opportunities for outfitters/guides.

A variety of data was reviewed to assess outfitter/guide markets. The conclusion drawn was that total visitation, cruise ship visitation, small cruise vessel capacity, and guided client’s use of the Tongass National Forest is increasing about 2 to 6 percent a year. Therefore, a 5 percent increase in the outfitter/guide allocation is warranted based on overall trends in the Southeast Alaska visitor industry and to accommodate a growing visitor industry. Increasing outfitter/guide allocations are aligned with the USDA’s transition strategy to encourage the diversification of the regional economy with particular focus

on non-timber sectors. The increased number of service days compounded annually over a 10-year period at 5 percent would allow for economic growth, resulting in greater economic opportunity in the region.

For a more-detailed analysis of the alternatives and their development, see “Alternative Development” and “Alternatives Considered in Detail” sections in Chapter 2 of this FEIS.

Items Common to All Action Alternatives

As with the current permitting process, outfitter/guide use would be authorized by special use permits to outfitter/guide service providers which may be temporary in nature (less than 1 year) or for multiple years. Outfitters/guides who have demonstrated satisfactory performance may be issued priority use permits, for up to 10 years, in accordance with Forest Service Handbook 2709.14. The selection of any alternative and allocation of service days does not restrict any use by the general public.

The following items are common to all action alternatives.

Big Game Guide Management (Brown Bear Hunts)

The Forest Service proposes to allocate guided brown bear hunts in the Alaska Department of Fish and Game (ADF&G) Unit 4 game management unit (GMU) based on the 2000 Southeast Alaska Unit 4 Brown Bear Management Strategy (BBMS). The service days used for each hunt are part of the total outfitter/guide allocation proposed for each use area and season. The Forest Service would continue to expect guides to strive for distributing their hunts based on the BBMS recommended number of guided hunts per Guide Use Area (GUA) (Table 2-5) and ADF&G’s historical percentage of use data during the spring (70 percent) and fall (30 percent) seasons. The Forest Service will keep any unallocated hunts in reserve until such time when biological or population factors allow for these hunts to be reissued in a special use permit. The Forest Service will continue to collaborate with the BGCSB and ADF&G to the maximum extent necessary to manage for healthy populations of wildlife and high quality public recreation experiences.

Large Group Areas

Large group areas (LGAs) were designated in the 2004 Shoreline Outfitter/Guide ROD and were defined as areas where larger groups of 21-75 people may be allowed. Smaller groups were also allowed. The Shoreline II action alternatives carry forward all of the LGAs previously designated with a few exceptions and additions (see Appendix B). No more than 50 percent of the total outfitter/guide allocation for a use area, by season, would be allowed at a LGA, with exceptions in use areas with hardened LGA sites. Hardened LGA sites are those with a natural or imported surface material, such as crushed rock or boardwalks, which greatly reduces soil disturbance from people walking within the site. At hardened LGA sites, the Responsible Official would have the flexibility to authorize more than 50 percent of that season’s use area allocation (not to exceed the total outfitter/guide allocation for the season).

Adaptive Management Strategy

The Forest Service proposes to implement an adaptive management strategy, which includes a monitoring and environmental review process, which would be applied to outfitter/guide allocations when any use area’s actual use data fell within the range of 80 percent to 110 percent of the allocation for any use season (early spring, late spring, summer, fall, winter) and there is a request for additional use from an outfitter/guide. The authorized officer would have discretion whether or not to implement adaptive management, and outfitter/guides requesting use that implements adaptive management may be subject to additional fees under Forest Service cost recovery regulations (36 CFR 251.58). Adaptive management seeks to provide a structure to evaluate how to best meet the project’s short-term and long-term goals, and helps answer the basic question: Are our management actions having the predicted or desired effects?

How Would Adaptive Management Changes Occur for this Project?

Adaptive management would be applied to outfitter/guide allocations described in all the alternatives, and would be designed to meet the Shoreline II project's purpose and need. More specifically, the adaptive management strategy may be implemented when any use area's actual use data fall within the range of 80 percent to 110 percent of the allocation for any use season (early spring, late spring, summer, fall, winter), and there is a request for additional use from an outfitter/guide. Outfitter/guides requesting use by implementing adaptive management may be subject to additional fees under cost recovery regulations.

Actual use data is the information that the outfitters/guides are required to report to the Forest Service at the end of every operating season. The actual use data provides specific information about activity location, client numbers hosted at each location, and the date the activity occurred. Actual use data is entered into an outfitter/guide database managed by the Forest Service. The outfitter/guide database is used to track trends of actual use, determine specific locations that receive intensive use, provide information that determines whether new applications for authorized use will be approved, and influence where monitoring may be necessary. Concerns regarding inaccurate self-reporting of actual use data are alleviated by policy that directs the Forest Service to reduce authorized use to what is actually used, and to charge a fee for what is authorized in the permit. Under-reporting of actual use will result in the reduction of an individual guide's allocation; over-reporting of use will require the outfitter/guide to pay more for their permit.

To ensure adequate existing condition data is collected, decisions based on the adaptive management strategy will not be implemented until at least 2 years after the Record of Decision has been signed. The priority for collecting existing condition information will be in those use areas and use seasons that currently have 75 percent to 80 percent of the allocation in actual use and there is a request from an outfitter/guide for additional allocated use.

While the authorized officer may take action in response to monitoring data collected, the Forest Service could not, under any scenario, authorize more than 110 percent of the allocated use (the maximum number of days in the Selected Alternative) through adaptive management, unless additional National Environmental Policy Act (NEPA) analysis is completed (see NEPA Review).

Early and Late Spring Seasons

Discussion on the implications of extending the spring season, with it starting earlier, and exactly what action would prevent non-hunting outfitters/guides from using that "early" capacity in April and May, led to the division of the spring season into "early" and "late" spring seasons for Alternatives 2, 3, and 4. The splitting of the spring season into two different timeframes is an effort to avoid compounding any potential conflicts with hunting outfitter/guides. Essentially, "early spring" is identified as March 15 to April 24 and "late spring" is April 25 to May 20 or May 31. Proposed alternative allocations were split proportionally based on the number of days in each sub-season. This results in a reduction of service days allocated in the more-popular late spring season, which should help address the issue raised.

It should be noted that Alternative 1, reflecting the use area allocation and seasons of the 2004 Shoreline Outfitter/Guide project, has only one season for spring.

Project Design Features and Mitigation

Design features are specific requirements to avoid or minimize environmental impacts and must be complied with by law, regulation, or policy, such as but not limited to BMPs, Forest Plan standards and guidelines, and standard operating procedures; they can also come from IDT recommendations, issues or concerns from the public or other agencies, or scientific literature.

Mitigation measures alleviate potential adverse effects from natural or human caused disturbances. Mitigation includes doing any, or a combination of, the following: (a) avoiding the impact altogether by not taking a certain action or parts of an action, (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and (e) compensating for the impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

Project-specific design features and mitigation measures are described in Appendices A, B, and C of this document. Design features and required mitigation must be approved by the Responsible Official, as outlined under the section Decisions to be Made in Chapter 1.

Project Monitoring and Evaluation

Monitoring and evaluation provide the public and the Forest Service with information on the progress and results of implementing decisions. Monitoring and evaluation comprise an essential feedback mechanism to help be responsive to changing conditions. There are two distinct types of monitoring: implementation and effectiveness. Implementation monitoring determines if the permitted activities comply with adopted standards and guidelines: “Did we do what we said we would?” Effectiveness monitoring determines whether the standards and guidelines achieve desired results: “Were the results what we expected?”

Implementation and effectiveness monitoring will be accomplished through the administration of the special use permits issued as a result of this decision.

Monitoring and mitigation related to adaptive management decisions are outlined in Appendices A, B, C, and D.

Comparison of Alternatives

The following table summarizes service day allocation by season and alternative. The units of measure are service days. A complete set of alternative comparison detailing use days by season and use areas is included at the end of Chapter 2.

Alternative	Spring Allocation (Early)	Spring Allocation (Late)	Spring Allocation Total	Summer Allocation	Fall Allocation	Winter Allocation	Total
1	N/A	N/A	**8,403**	32,224	6,822	0	**47,449**
2	5,710	4,640	**10,350**	57,120	9,430	3,405	**80,305**
3	4,445	3,595	**8,040**	44,920	7,575	3,405	**63,940**
4	9,245	7,515	**16,760**	93,015	15,345	5,535	**130,655**

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Chapter 1
Purpose and Need

Chapter 1. Purpose and Need

Introduction

The Forest Service has prepared this Final Environmental Impact Statement (FEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This FEIS is prepared according to the format established by the Council of Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508).

The Shoreline II Outfitter/Guide project area (see Figure 1-1) encompasses lands in Admiralty Island National Monument, and Hoonah, Juneau, and Sitka Ranger Districts. The Shoreline II Outfitter/Guide FEIS proposes to allocate a portion of the visitor capacity of the project area to outfitter and guide use. The Shoreline II Outfitter/Guide Project Visitor Capacity Analysis (USDA Forest Service 2014e) establishes the visitor capacity for the project area. Visitor capacity and the proposed allocations are described in terms of service days. A service day is a day or any part of a day for which an outfitter or guide provides service to a client on National Forest System lands. Service days were calculated and allocated to 48 geographic units defined as Shoreline II Outfitter/Guide use areas. This FEIS outlines potential outfitter/guide use levels (allocations) and provides a framework for managing outfitter/guide activities on all four management units. It does not establish or restrict use levels for unguided visitors.

In preparing this FEIS, the interdisciplinary team (IDT) used a systematic approach for analyzing the environmental effects within the proposed project area. Planning was coordinated with the appropriate Federal, State, and local agencies through correspondence and public meetings. Federally recognized tribes and an Alaska Native Claims Settlement Act (ANCSA) corporation were consulted.

This FEIS discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. This document is organized as follows.

Chapter 1. Purpose and Need: This chapter includes information on the background of the project, the purpose and need, and the agency's proposed action for achieving it. This section also details how the Forest Service informed the public of the proposal and what issues were derived from public input.

Chapter 2. Alternatives: This chapter provides a more-detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. The alternatives were developed based on the significant issues raised during public scoping. This chapter also provides summary tables of proposed activities and a comparative summary of the environmental consequences associated with each alternative.

Chapter 3. Environmental Consequences: This chapter describes the environmental effects, to various resources, of implementing the proposed action and alternatives.

Chapter 4. References and Lists: This chapter provides a list of preparers, the distribution list for the FEIS, a glossary, literature cited, and an index.

Appendices: The appendices provide more-detailed information to support the analyses presented in the FEIS. **Appendix A, Use Area Cards** contains a map and description of each of the project use areas. **Appendix B, Large Group Areas** contains a map and description of the specific large group areas (LGAs) where larger groups of 21-75 people may be allowed. **Appendix C, Stipulations and BMPs** contains reference to the best management practices (BMPs) and other stipulations that will be required for outfitter/guide permits. **Appendix D, Adaptive Management** describes the strategy intended to help

managers respond to changing resource or system conditions over time through the collection and evaluation of additional information to protect resources and to improve visitor experiences. **Appendix E, Response to Comments** contains the Forest Service response to public comments on the DEIS. **Appendix F, Wilderness Commercial Needs Assessments,** and Appendix E, Response to comments, are included in the project record or available online.

Additional information, including more-detailed analyses of project-area resources, may be found in the project planning record, available by request, from the Forest Supervisor's Office in Petersburg, Alaska. Other reference documents such as the 2008 Tongass National Forest Land and Resource Management Plan (2008 Forest Plan) and the 2016 Tongass Land and Resource Management Plan (2016 Forest Plan) are available online, or at public libraries and Forest Service offices throughout Southeast Alaska.

Background

The Tongass National Forest provides unparalleled outdoor recreation opportunities. It encompasses nearly 17 million acres in the Southeast Alaska archipelago. Recreation opportunities range from dispersed and isolated wilderness settings to more developed urban facilities that accommodate large numbers of people. The majority of recreation visits generally occur in the more accessible developed facilities such as campgrounds, bear viewing areas and visitor centers. Local residents and visitors from around the world use and enjoy the Tongass National Forest as a place to recreate, explore and renew a sense of adventure.

Demand for recreation and tourism is increasing on the Tongass National Forest. Outfitter/guides and their ability to utilize the National Forest are an important component of the tourism economy in Southeast Alaska. Tourism is an important and continually growing economic driver in Southeast Alaska, creating employment and income opportunities throughout the region.

Outfitter/guides provide equipment, services, and local knowledge and experience to Tongass National Forest visitors who prefer or need to be outfitted/guided. Outfitter/guide services provide one of the several ways forest visitors can access the Tongass National Forest.

The shoreline zone (mean high tide to ½ mile inland) of the Tongass National Forest is the interface between marine waters, the region's version of roads and highways, and the uplands where National Forest System lands begin. This zone and its use by outfitter/guides is the focus of this NEPA document, which serves to replace the 2004 Shoreline Outfitter/Guide Record of Decision (ROD).

The Forest Service will use this analysis to determine an allocation of service days dedicated to outfitter/guides through issuance of special use permits. The Forest Service will consider non-motorized uses that originate from the marine shoreline zone that serve the public need for outfitter/guide services in ways that protect the natural and cultural resources of the area.

This NEPA document would not change the way outfitters/guides are permitted at any location. It does not designate which authorized activities would take place or designate who would receive outfitter/guide permits. The issuance of permits would continue to follow the laws, regulations and policies that allow outfitting/guiding services on National Forest System (NFS) lands.

Unoutfitted/unguided visitors can continue to enjoy the Tongass National Forest recreation and subsistence opportunities as they do now.

Project Area

The project area includes all areas used for non-motorized outfitter/guide activities that originate from the marine shoreline areas in the Admiralty Island National Monument, and Hoonah, Juneau, and Sitka Ranger Districts (see Figure 1-1). In general, the project area extends ½ mile inland, with further extensions inland where specific outfitter/guide activities and locations are accessed from the shoreline (i.e. goat/deer hunting, canoe route/portage, freshwater fishing on anadromous and other fish-bearing streams and lakes, etc.). This includes a large portion of Baranof Island where goat and deer hunting areas extend inland.

The project area is divided into 48 geographical use areas (UA) (Table 1-1), encompassing 5,944,969 acres of NFS land. This translates to approximately 5,870 miles of shoreline. Of that land, approximately 2,899,350 acres are in the Shoreline II Outfitter/Guide project area. Appendix A provides detailed information for each UA, such as total acres and special features.

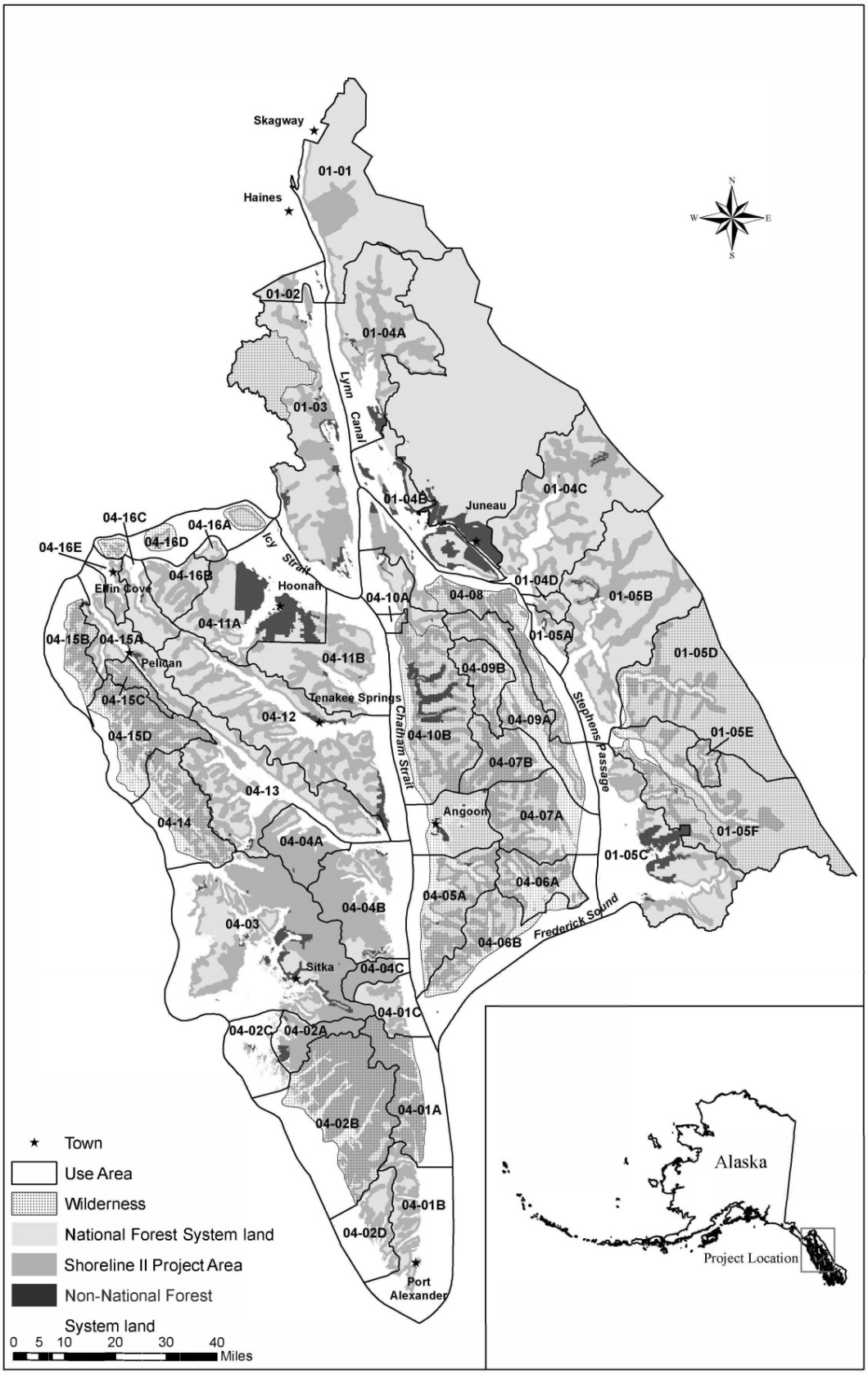
Areas that are not part of this analysis:

1. Private lands and other public lands and waters outside the jurisdiction of the Forest Service (i.e. submerged islands, marine waters, Alaska State Parks).
2. The summer (peak) season at the Pack Creek Zoological Area in Admiralty Island National Monument, which had a separate decision on March 21, 2011. The remaining seasons (fall, winter, and spring) are included within this analysis.
3. Mitchell, Kanalku, and Favorite Bays in Admiralty Island National Monument are being considered under a separate analysis with a decision expected in 2017.
4. The Kruzof Island Mud Bay and Eagle River motorized and non-motorized trail systems and the Eagle River Road large group area, in the Sitka Ranger District, which were included in the Kruzof Island Outfitter/Guide decision on April 21, 2015.

Table 1-1. Total acres of each use area

Use Area	General Location	Acres	Use Area	General Location	Acres
01-01	Skagway Area	300,795	04-05A	SE Admiralty	61,113
01-02	Haines Area	19,542	04-06A	Pybus Bay	55,102
01-03	East Chilkats	361,104	04-06B	Eliza Harbor	84,639
01-04A	Berners Bay	235,343	04-07A	Gambier Bay	119,063
01-04B	N. Juneau Coast	49,651	04-07B	Cross-Admiralty Canoe Route	86,645
01-04C	Taku Inlet	340,133	04-08	NE Admiralty	128,121
01-04D	Slocum Inlet	17,211	04-09A	Seymour Canal	87,673
01-05A	Taku Harbor	19,749	04-09B	Pack Creek Zoological Area	65,367
01-05B	Port Snettisham	365,841	04-10A	Greens Creek	2,543
01-05C	Windham Bay	162,229	04-10B	NW Admiralty	243,554
01-05D	Tracy Arm	330,724	04-11A	Port Frederick	112,274
01-05E	Fords Terror	24,374	04-11B	Freshwater Bay	97,053
01-05F	Endicott Arm	367,087	04-12	Tenakee Inlet	314,938
04-01A	Gut Bay, Baranof	94,186	04-13	Peril Strait	231,552
04-01B	Port Armstrong	74,693	04-14	Slocum Arm	97,053
04-01C	Nelson Bay	44,229	04-15A	Lisianski	89,631
04-02A	Redoubt Lake	45,155	04-15B	West Yakobi Island	39,669
04-02B	Whale Bay	222,466	04-15C	Stag Bay	26,681
04-02C	Necker Islands	6,481	04-15D	Portlock Harbor	107,939
04-02D	SW Baranof	50,534	04-16A	Point Adolphus	8,888
04-03	Sitka Area	346,237	04-16B	North Chichagof	64,447
04-04A	Rodman Bay	75,540	04-16C	Idaho Inlet	52,115
04-04B	Kelp Bay	143,995	04-16D	Pleasant, Lemesurier, and Inian (PLI) Wilderness	23,105
04-04C	Baranof Warm Springs	28,963	04-16E	Port Althorp	19,542

Figure 1-1. Shoreline II Outfitter/Guide project area map



Goals and Objectives

The Shoreline II Outfitter/Guide analysis is designed to achieve Forest Plan goals and objectives and move the analysis area toward the desired conditions. The Forest Plan describes forest-wide goals and objectives, as well as area-specific land use designation (LUD) goals, objectives, and desired future conditions. This project contributes to the following forest-wide goals and objectives:

- Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska (Forest Plan, p. 2-5).
- Support a wide range of natural resource employment opportunities within Southeast Alaska's communities (Forest Plan, p. 2-5).
- Provide a range of recreation opportunities consistent with public demand, emphasizing locally popular recreation places and those important to the tourism industry (Forest Plan, p. 2-6).
- Manage the Forest's recreation settings in accordance with the Recreation Opportunity Spectrum (ROS) standards and guidelines for each LUD (Forest Plan, p. 2-6).
- Provide for the continuation of subsistence uses and resources by all rural Alaskan residents (Forest Plan, p. 2-7).
- Manage designated Wilderness to maintain an enduring wilderness resource while providing for the public purposes of recreation and uses consistent with the Wilderness Act of 1964, the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) (Forest Plan, p. 2-8).

Purpose and Need for Action

The purpose of this action is to manage outfitter/guide use on the Tongass National Forest Shoreline II project area consistent with the Forest Plan. A decision is needed to determine outfitter/guide use allocations for the project area. This is necessary to balance commercial and non-commercial recreational opportunities and to provide and maintain high-quality recreation experiences without degrading forest resources.

This action is needed to meet Forest Plan goals and objectives for recreation and tourism, and to support local and regional economies.

Since the 2004 Shoreline Outfitter/Guide ROD was signed, demand for outfitter/guide services that originate from the marine shoreline has increased. The need for outfitter/guide services has expanded both in terms of number of visitors and the types of services being offered, and there is also continued demand for institutional outfitter/guide services (e.g., schools and therapy groups). There has been an increase in the fleet of small to mid-size cruise ships desiring to outfit/guide on the Tongass National Forest, and the demand for outfitted/guided big game hunting continues. Also, the traditionally low-use seasons (April-May; September-October) are seeing more use, with additional interest for outfitter/guide use in the winter season (January-March). Seven use areas are at 80 percent or more of their allocation during one or more seasons, and outfitter/guides are dispersing to areas traditionally less used. At some locations, outfitter/guide permit holders have requested to operate beyond the ½ -mile zone. There is a need to replace the 2004 Shoreline Outfitter/Guide ROD to better align with current market demand for non-motorized outfitter/guide services.

Also, in 2008, the Forest Service updated the national directives for outfitter/guide services. These updates simplified procedures and clarified policies for priority use permits governing performance, inspections, and allocation of use. Additionally, data gathered through Forest Service monitoring and reported use by authorized outfitters/guides shows that some information used in the 2001 Visitor Capacity Analysis requires updating.

Proposed Action

The following is a summary of the proposed action. All alternatives are presented in more detail in Chapter 2 of this FEIS. **Alternative 2 is the proposed action.**

The Forest Service proposes to allocate a portion of the total visitor capacity to outfitter/guide use. The Shoreline II Outfitter/Guide Project Visitor Capacity Analysis establishes the visitor capacity (both guided and unguided use) for the project area. Visitor capacity and the proposed outfitter/guide allocations are described in terms of service days. A service day is a day or any part of a day on NFS lands for which an outfitter/guide provides services to a client. Service days were allocated to 48 geographic units defined as use areas (Figure 1-1).

The Forest Service is proposing to allocate up to 80,305 service days of the estimated total visitor capacity of 636,448 service days within the project area to outfitter/guide use (Table 2-2). These allocations are proposed for each use area, by season and alternative. The seasons are as follows: fall (September 15 to December 31), winter (January 1 to March 14), early spring (March 15 to April 24), late spring (April 25 to May 20, or 31), summer (May 21, or June 1 to September 14). Tables 2-11 to 2-16 display the visitor capacity, the average outfitter and guide use (actual use)[1], the highest amount of outfitter/guide use, and the proposed allocations for each use area for each season.

Big Game Guide Management (Brown Bear Hunts)

The Forest Service proposes to allocate guided brown bear hunts in the Alaska Department of Fish and Game (ADF&G) Game Management Unit (GMU) 4 based on the 2000 Southeast Alaska Unit 4 Brown Bear Management Strategy (BBMS). The service days used for each hunt are part of the total outfitter/guide allocation proposed for each use area and season. The Forest Service would continue to expect guides to strive for distributing their hunts based on the BBMS recommended number of guided hunts per Guide Use Area (GUA) (Table 2-5) and ADF&G's historical percentage of use data during the spring (70 percent) and fall (30 percent) seasons. The Forest Service will keep any unallocated hunts in reserve until such time when biological or population factors allow for these hunts to be reissued in a special use permit. The Forest Service will continue to collaborate with the State of Alaska Big Game Commercial Services Board (BGCSB) and ADF&G to the maximum extent necessary to manage for healthy populations of wildlife and high quality public recreation experiences.

Large Group Areas

Large group areas (LGAs) were designated in the 2004 Shoreline Outfitter/Guide ROD and were defined as areas where larger groups of 21-75 people may be allowed. Smaller groups were also allowed. The proposed action proposes to carry forward all of the LGAs previously designated with a few exceptions and additions (see Appendix B). Additionally, no more than 50 percent of the total outfitter/guide allocation for the use area, by season, would be allowed at a LGA, with exceptions in use areas with

[1] Actual use data is the information that the outfitters/guides are required to report to the Forest Service at the end of every operating season. The actual use data provides specific information about the outfitters/guides activities such as the location of their activities, the number of clients hosted at each location, and the date the activity occurred.

hardened LGA sites. At hardened LGA sites, the Forest Service would have the flexibility to authorize more than 50 percent of that season's use area allocation (not to exceed the total commercial allocation for the season).

Adaptive Management Strategy

The Forest Service proposes to implement an adaptive management strategy, which includes a monitoring and environmental review process, which would be applied to outfitter/guide allocations when any use area's actual use data fell within the range of 80 percent to 110 percent of the allocation for any use season (early spring, late spring, summer, fall, winter) and there is a request for additional use from an outfitter/guide. The authorized officer would have discretion whether or not to implement adaptive management, and outfitter/guides requesting use that implements adaptive management may be subject to additional fees under Forest Service cost recovery regulations (36 CFR 251.58). The adaptive management strategy is more-fully discussed in Appendix D to this FEIS.

Wilderness

The project area contains 20 use areas within six different congressionally designated wilderness areas. The Wilderness Act of 1964 prohibits commercial services, except for those that may be necessary to meet the recreational or other wilderness purposes of the area. The need for outfitter/guide services, which are primarily commercial in wilderness, has been documented in the Wilderness Commercial Needs Assessments (Appendix F of the DEIS). The extent necessary to meet the recreational or other wilderness purposes of the areas is represented in the proposed action.

Outfitter/guide activities will be authorized by special use permits and may be temporary in nature (less than 1 year) or for multiple years. Outfitter/guides who demonstrate satisfactory performance may be issued priority use permits, for up to 10 years, in accordance with Forest Service Handbook 2709.14.

The proposed action does not limit any use by the general public.

Decisions to be Made

The Responsible Official for this proposal is the Forest Supervisor. The Responsible Official will evaluate the proposed action, alternatives, and environmental analysis; then considering public comment, will reach a decision in accordance with the purpose and need for this project. The type of non-motorized recreation use for any given use area will not be established by this document except in wilderness areas where the activity must be consistent with the findings of the Wilderness Commercial Needs Assessments Appendix F).

Given the purpose and need, the decision based on the Final Environmental Impact Statement (FEIS) will allocate the amount of outfitter/guide use for each use area and season within the project area. The allocation of outfitter/guide use will result in the issuance of outfitter/guide special use permits for businesses and organizations to occupy National Forest System (NFS) lands for their activities within the project area. The decision, which will be documented in a Record of Decision (ROD), will:

- Determine the amount of the service days allocated to outfitter/guides for each use area and season (see Appendix A);
- Designate large group areas designed to accommodate large groups of visitors served by outfitter/guides (See Appendix B);

- Incorporate design features to reduce impacts to natural, social, and cultural resources to incorporate into outfitter/guide special use permit stipulations (see Appendix C);
- Adopt a Historic Properties Management Plan for large group areas (LGAs) to mitigate effects to historic properties located near these sites (see Appendix B);
- Prescribe required monitoring and reporting of resource impacts;
- Determine whether to include the Big Game Management Administration Strategy (see p. 3-88); and
- Determine whether to include the adaptive management strategy (see Appendix D) as part of the Selected Alternative.

Relationship to the Forest Plan and Related Management Direction

Consistency with the Forest Plan

National forest planning takes place at several levels: national, regional, forest, and project. The Shoreline II Outfitter/Guide EIS is a project-level analysis; its scope is confined to addressing the significant issues and possible environmental effects specifically related to this project. It does not attempt to address decisions made at higher levels. However, it does implement direction provided at those higher levels.

The National Forest Management Act (NFMA) addresses the management requirements for all national forest resources and provides guidance in the preparation of the regional and forest plans. The Forest Plan and associated ROD set forth direction for managing the land and resources of the Tongass National Forest. The Forest Plan is an extensive forest-level analysis. The Shoreline II Outfitter/Guide project analysis and subsequent implementation is designed to achieve the management direction of the Forest Plan as outlined in the purpose and need statement.

Where appropriate, the Shoreline II Outfitter/Guide EIS tiers to the Forest Plan Final Environmental Impact Statement (FEIS) as encouraged by 40 CFR 1502.20.

The Forest Plan provides standards and guidelines for authorizing the services of qualified outfitter/guides to the public, where the need for the service has been identified and the use is compatible with the objectives and management direction of the affected LUD. The Forest Plan forest-wide standards and guidelines for recreation and tourism state in part:

> "Generally allocate no more than one-half the appropriate capacity of the LUD to outfitter/guide operations. For specific locations, consider different allocations based on historical use, changing demand, spatial zoning, or temporal zoning." (USDA Forest Service 2008a, p. 4-46)

2016 Tongass Land and Resource Management Plan (2016 Forest Plan)

The 2016 Tongass Land and Resource Management Plan (2016 Forest Plan) amended the 2008 Forest Plan under which the Shoreline II DEIS was prepared. The 2016 Forest Plan Record of Decision (ROD) was approved on December 9, 2016 and became effective on January 8, 2017.

The 2016 Forest Plan ROD states:

> "For activities or projects that are proposed and for which a final decision document has not yet been made prior to the approval of the amended Forest Plan, the project or activity decision

document must describe how the project or activity is consistent with the amended Plan, as addressed in Chapter 6 of the amended Plan."

Since the final decision for Shoreline II EIS has not yet been made, the Shoreline II ROD will describe how this project is consistent with the 2016 Forest Plan.

Resource specialists for the Shoreline II EIS have reviewed their analyses for their respective resources and updated information if necessary to ensure their analysis complies with direction in the 2016 Forest Plan. Resource-specific updates, as applicable, can be found under the resource discussions in Chapter 3 of this FEIS.

References and page numbers to the Forest Plan in this document refer to the 2008 Forest Plan, unless identified as the 2016 Forest Plan. All Shoreline II project alternatives are consistent with the 2016 Forest Plan.

Land Use Designation (LUD)

The Forest Plan uses LUDs, which are broad geographic zones that emphasize various resource values and outputs, to guide management of the Tongass National Forest. Each LUD provides for a unique combination of activities, practices, and uses. The Shoreline II project area includes 16 LUDs (Table 1-2).

Goals, objectives, and desired future conditions of all LUDs are described in detail in the 2008 Forest Plan (Chapter 3).

Table 1-2. LUD acreages and percentages in the Shoreline II project area

LUD	Acres	Percentage
Wilderness	692,165	20.3
Semi-Remote Recreation	654,613	19.2
Wilderness Monument	511,531	15.0
Timber Production	413,238	12.1
Old Growth Habitat	373,126	11.0
Remote Recreation	256,092	7.5
Land Use Designation II	167,107	4.9
Modified Landscape	123,022	3.6
Scenic Viewshed	87,586	2.6
Special Interest Area	76,451	2.2
Municipal Watershed	23,596	0.7
Wild River	10,388	0.3
National Monument	7,908	0.2
Research Natural Area	4175	0.1
Wilderness Monument Research Natural Area	3,675	0.1
Experimental Forest	17	>0.0
Grand Total	**3,404,690**	**100.00**

Public Involvement

Scoping

Public involvement is a key component of the planning process. The Council on Environmental Quality (CEQ) defines scoping as "an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 Code of Federal Regulations [CFR] 1501.7). Among other things, the scoping process is used to invite public participation, to help identify public issues, and to obtain public comment at various stages of the environmental analysis process. On April 1, 2012, the project was first listed in the 4th quarter of the **Schedule of Proposed Actions (SOPA)** for the Tongass National Forest.

Scoping is a process that continues until a decision is made.

Public Meetings

- February 22, 2012, and March 14, 2013: Public pre-scoping meetings held in Sitka, AK
- October 9 and November 11, 2012, and February 9, 2013: Public pre-scoping meetings held in Angoon, AK
- March 14, 2013: Public pre-scoping meeting held in Juneau, AK
- April 10, 2013: Public pre-scoping meeting webinar in Port Alexander, AK
- July 8 to 24, 2014: Open house scoping meetings were held in Sitka, Angoon, and online. The project background, proposed action, and resource information were presented.
- February 29 to March 10, 2016: Public meetings on the DEIS during the comment period were held in Hoonah on February 29, Sitka on March 1, Juneau on March 2, and Angoon on March 10. Radio and television ads, and flyer distributions were used to notify the public of the meetings.
- March 3, 2016: The Forest Supervisor, Admiralty National Monument, and Juneau District Rangers and members of the Shoreline II IDT attended a meeting with the Alaska Professional Hunters' Association. A presentation was given detailing the Shoreline II DEIS, and an overview of the comment and objection process was given.

Public Mailings

A **scoping letter** was sent on June 14, 2014 to over 300 individuals, tribal representatives, groups, and other governmental entities. This scoping document explained the purpose and need for the project, provided maps of the project, and solicited comments on the proposed action. The Forest received a total of 12 responses via email and letter from individuals, groups, tribes, State agencies, and other organizations. Copies of the letters and emails can be found in the project record.

Notice of Intent (NOI)

A **Notice of Intent (NOI)** to prepare an EIS was published on June 16, 2014 in the Federal Register (Vol. 79, No. 115).

An **updated NOI** was published on June 25, 2015 in the Federal Register (Vol. 80, No. 115), reflecting the new IDT leader and Responsible Official, the inclusion of adaptive management, and an increase to the number of allocated service days in the proposed action due to rounding. A total of nine individuals and businesses/organizations commented on the project during this public scoping period.

Draft EIS

The **Notice of Availability (NOA)** announcing the DEIS available for public comment was published in the Federal Register on January 29, 2016. An electronic bulletin to the electronic mailing list, over 400 subscribers, was sent out, and a legal notice was published in the Ketchikan Daily News January 28, 2016. The legal notice for the amended Notice of Availability was published in the Ketchikan Daily News on March 24, 2016.

The original **DEIS comment period** ended March 14, 2016. After receiving requests to extend the comment period for the DEIS from several organizations, the Responsible Official extended the comment period for an additional 30 days following the publication of an amended Notice of Availability (NOA) in the Federal Register on March 25, 2016. The extended comment period ended April 25, 2016.

A total of 129 comments were received during the DEIS comment period. Comments ranged from concerns related to specific use areas and number of service days allocated in wilderness areas to disagreement with the solitude indicators used in the wilderness analysis, and requests to not carry forward the proposal to realign big game permits (which would make the prospectus process an option), and the proposal to identify the number of permitted hunts specific to a GUA and season.

All comments are addressed within Appendix E, Response to Comments of this FEIS.

Final EIS and Draft Record of Decision

A Notice of Availability of this FEIS is published in the Federal Register, and a legal notice for the FEIS and Draft Record of Decision (ROD) is published in the Ketchikan Daily News, the newspaper of record for this project. Publication of the legal notice begins the 45-day objection period (36 CFR Part 218, subparts A and B) on the Draft ROD.

Copies of the FEIS have been mailed to Federal and State agencies, federally recognized tribal governments, and any other offices, organizations, and individuals who requested them. The FEIS is also available for review at http://www.fs.usda.gov/project/?project=38181.

Consultation with Federally Recognized Tribal Governments and Alaska Native Claims Settlement Act (ANSCA) Corporation

Tribal consultation is an important part of heritage resource management. In Alaska, Indian tribes, as defined by the National Historic Preservation Act, include federally recognized tribes, as well as village and regional corporations created by the Alaska Native Claims Settlement Act. The Shoreline II FEIS project area is within the traditional territory of the Sitka Tribe of Alaska (STA), the Angoon Community Association (ACA), the Douglas Indian Association (DIA), Skagway Village (SV), the Chilkoot Indian Association (CIA), the Chilkat Indian Village (CIV), the Hoonah Indian Association (HIA), and Organized Village of Kake (OVK). ANCSA village and regional corporations and the Central Council of Tlingit and Haida (CCTH) have cultural affiliations within the project area and represent thousands of shareholders.

The following federally recognized tribal governments and corporation were contacted to invite consultation about this project:

- Angoon Community Association
- Chilkat Indian Village
- Chilkoot Indian Association

- Douglas Indian Association
- Hoonah Indian Association
- Sitka Tribe of Alaska
- Skagway Village
- Organized Village of Kake
- Sealaska Corporation
- Central Council Tlingit and Haida Indian Tribes
- Petersburg Indian Association
- Goldbelt, Inc.
- Huna Totem Corporation
- Kake Tribal Corporation
- Kavilco, Inc.
- Klukwan, Inc.
- Kootznoowoo, Inc.
- Shee Atika, Inc.

Between 2012 and 2015, the Forest Service sent NEPA project scoping letters to all the federally recognized tribes including the corporations within the Shoreline II Outfitter/Guide EIS project area. Additionally, 49 meetings were held during this time period with the above-mentioned tribal governments and corporation. Often the District Ranger participated in the consultation, as he or she has been delegated the authority to speak for the Forest Supervisor for this EIS.

Each federally recognized tribe and corporation received a hardcopy of the DEIS. The tribes and corporations also received a letter notifying them of the extension of the comment period to April 25, 2016. Members of the Angoon Community Association attended the public meeting on March 10, 2016.

Meeting notes and tribal comments are in the project record.

Other Agency Involvement

The Forest Service is committed to working closely with other agencies at all stages of planning and is responsible for coordinating project reviews by several other agencies. In some cases, the reviews are required because another agency has the authority to issue permits for a specific activity proposed by the Forest Service. In other cases, the reviews provide a time for dialogue with agencies responsible for ensuring that certain environmental conditions are met, such as clean water or healthy wildlife populations. This interagency communication helps provide information about area resources. This information is used to meet laws and regulations, develop alternatives and to identify ways to avoid or mitigate environmental effects. In many cases, an ongoing professional dialogue is maintained with these agencies throughout the planning process.

Alaska Department of Fish and Game

The Forest Service and Alaska Department of Fish and Game (ADF&G) have responsibilities to cooperate in the common stewardship of fish and wildlife and their habitats on NFS lands.

The Forest Service met with ADF&G game management units (GMUs) 1 and 4 area biologists (August 26, 2015, and October 8, 2015) to discuss a framework for managing big game hunting activities (see Chapter 2) within those GMUs that fall within the project area. These meetings are documented in the planning record for this project, and the Forest Service will continue to work with ADF&G to meet the requirements of each agency's overlapping authorities for managing commercial big game activities. Discussions with ADF&G will be ongoing throughout the planning process for the Shoreline II Outfitter/Guide project.

Alaska Office of History and Archaeology

The Determination of Effect for this Shoreline II EIS was prepared and submitted to the Alaska State Historic Preservation Officer (SHPO) for concurrence. In accordance with Section 106 of the NHPA it was determined that no sites eligible to the National Register of Historic Places will be adversely effected as a result of this Decision if all stipulations and mitigations, which are described in the FEIS Chapter 3 and Appendices A, B and C (ROD Appendices 1, 2, and 3) are implemented. The primary mitigation factors are that the types of activities allowed under this Decision are generally not ground disturbing, permit holders and their clients will be encouraged to use *Leave No Trace* principles, and all permits will contain the Standard "Archeological-Paleontological Discoveries Clause" (R10-X106). Additionally, historic property management plans will be developed for those large group areas that contain historic properties prior to re-issuing permits or upon new application for use of the large group area.

The State Historic Preservation Officer concurred with a signed letter on December 1, 2015 with the conditional finding of "No Adverse Effect" (Bittner, 2015). Consultation has been completed for the FEIS.

National Marine Fisheries Service

The National Marine Fisheries Service (NMFS) has authority for fisheries management, species protection, and habitat conservation activities derived primarily form the Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, and Endangered Species Act (ESA). This includes all marine life, anadromous salmon, and Essential Fish Habitat (EFH). The Forest Service consults with NMFS concerning possible effects to these species.

A Biological Evaluation (BE) was prepared for the Shoreline II project consistent with Forest Service threatened, endangered, and sensitive (TES) plant and animal species policy (FSM 2670). The BE analyzed the effects of all alternatives on a TES species and is part of the project record.

The Forest Service prepared a Biological Assessment (BA) dated June 15, 2016 for threatened and endangered species, including a cover letter initiating consultation, which was emailed to NMFS on July 13, 2016. NMFS conducted a review beginning on August 10, 2016. Additional information was requested by NMFS during the consultation process, and NMFS and the Forest Service discussed any remaining issues via phone August 18, 2016. The Forest Service provided a revised Biological Assessment with updated mitigation measures to NMFS on September 9, 2016. On October 21, 2016 the Forest Service received concurrence from NMFS stating that "the proposed action may affect, but is not likely to adversely affect, Mexico DPS humpback whales, western DPS Steller sea lions, or Steller sea lion critical habitat, fin whales, sperm whales, six Chinook salmon evolutionarily significant units (ESUs), Lower Columbia River coho salmon, Hood Canal summer-run chum salmon, and five ESA listed steelhead ESUs, or southern DPS green sturgeon."

Consultation with NFMS is considered complete. Reinitiation of consultation would be required where discretionary Federal involvement or control over the action has been retained or is authorized by law and

if (1) take of listed species occurs, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this concurrence letter, or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16).

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) provides a general review in accordance with their responsibilities under NEPA, Section 309 of the Clean Air Act, and Section 402 of the Clean Water Act.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) has legal jurisdiction over a host of Federal legal mandates including the Endangered Species Act, Federal Water Pollution Control Act (Clean Water Act), Migratory Bird Treaty Act, Bald Eagle Act, and Rivers and Harbors Act. The Forest Service has ongoing consultation with the USFWS to determine if the proposed project will affect threatened or endangered species.

A BE was prepared for the Shoreline II project as required under Section 7 of the ESA, as amended, and the Forest Service threatened, endangered, and sensitive plant and animal species policy (FSM 2670). It was determined that this project would not have an effect to any listed species managed by the USFWS.

USDI Office of Environmental Policy and Compliance

The USDI Office of Environmental Policy and Compliance ensures environmental stewardship and sustainability through compliance with the National Environmental Policy Act (NEPA), executive orders, regulations, and reporting requirements. The Office, Alaska Region, was sent a copy of the DEIS. They did not have any comments on the document.

Significant Issues

Significant issues are used to formulate and design alternatives to the proposed action, prescribe mitigation measures, and analyze significant effects. Significant issues for the project have been identified through public and internal scoping. Similar issues are combined where appropriate.

Issues arise from a variety of sources, including:

- Concerns, and opportunities identified in the Forest Plan;
- Issues identified for similar projects (past actions);
- Issues raised by the IDT;
- Changes in public uses, attitudes, values or perceptions;
- Issues raised by the public during scoping; and
- Comments from other government agencies.

The Forest Service then separated the issues into two groups: significant and non-significant issues. The CEQ NEPA regulations explain this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…." A list of non-significant issues and reasons regarding their categorization as non-significant may be found in the project record.

Significant issues were defined as those directly or indirectly caused by implementing the proposed action. Non-significant issues were identified as those:

1. Outside the scope of the proposed action;
2. Already decided by law, regulation, Forest Plan, or other higher level decision;
3. Irrelevant to the decision to be made; or
4. Conjectural and not supported by scientific or factual evidence.

Measures of the significance of an issue are based on the extent of the geographic distribution, the duration of the related effects, or the intensity of interest or resource conflict surrounding the issue. For an issue to be considered significant at the project level, it must be relevant to the specific project so that it can be appropriately addressed at the project level. Some issues have already been resolved through national level direction or analyzed at the Forest Plan level.

Once a significant issue is identified, measures are developed to analyze how each alternative responds to the issue. Measures are chosen that are quantitative (where possible), predictable, responsive to the issue, and linked to cause and effect relationships. These measures describe how the alternative affects the resource(s) at the heart of the issue. Monitoring and mitigation of the anticipated environmental effects of the project are also designed to be responsive to significant issues.

The following issues were identified as significant and are addressed to differing degrees by the proposed action and two additional action alternatives. Comments on the DEIS did not introduce any issues or concerns not previously disclosed; therefore, the DEIS issues are carried forward in this FEIS.

Issue 1: Effects to Economic Opportunities

Issue 1 addresses concerns that the number of service days (80,305) included in the proposed action (Alternative 2) would not adequately provide for economic stability and growth within the region.

Units of Measure

- Number of service days allocated to outfitter/guide use
- Economic trends in tourism growth in Southeast Alaska

Response: Alternative 4 was developed specifically to focus on supporting local and regional economies by recommending increased opportunities, through a higher allocation of service days (130,655), for outfitter/guide businesses to operate in the shoreline zone. The higher allocation is based on visitor industry trends, which show consistent and increasing growth within the region.

Issue 2: Effects to Wilderness Areas and Effects of Commercial Uses on Non-Commercial Visitors

Comments were received during public scoping expressing concern related to increased outfitter/guide use in areas that historically have had low use. Several comments raised the concern of how outfitter/guide use has expanded, and that the Forest Service should do more to limit outfitter/guide operations so that “wild” places are not overcrowded.

The commenters referenced wilderness areas generally, as well as specific locations within, and outside of designated wilderness areas. Outside of wilderness, concerns were expressed about outfitter/guide use causing crowding, noise, and disturbance, particularly in locations popular with non-commercial visitors.

Units of Measure

- Number of service days allocated to outfitter/guide use
- Forest Plan Recreation Opportunity Spectrum (ROS[2]) standards and guidelines for remoteness, including outstanding opportunities for solitude, and social encounters

Response: Alternative 3 addresses the issue of crowding and loss of solitude, and its effect on wilderness character by offering lower outfitter/guide allocations for use areas in designated wilderness and in remote areas.

Issue 3: Incompatible Commercial Uses

Comments were received stating concerns about incompatible outfitter/guide uses (e.g., bear hunting and wildlife viewing/nature tour operators) that overlap in time and space, particularly during the spring and fall seasons, and result in conflict and diminished recreation experiences.

Units of Measure

- Number of service days allocated to outfitter/guide use
- Types/location/timing of outfitter/guide activities

Response: This issue is addressed through the varying allocations of service days in each action alternative, site-specific design features, and through the separation of the spring season into "early" and "late" spring seasons common to all action alternatives. Essentially, "early spring" season would be March 15 to April 24, and the "late spring" season would be April 25 to May 20, or 31. Alternative allocations would be split proportionally based on the number of days in each "sub" season. There would be reduced service days allocated in the popular late spring season, which should help address the issue raised. This issue is also addressed outside of this analysis through prospectus, permit stipulations, and permit administration.

Other Issues and Concerns

Each comment received during scoping was considered a potential issue, but some concerns and suggestions were not considered alternative-driving issues or their resolution was beyond the scope of this project. Others are addressed in the Forest Plan through protection and management of forest resources in the standards and guidelines and LUDs. Where possible, suggestions about the project were incorporated into the design of the proposed action and alternatives (see Chapter 2, and Appendices A and B). Additionally, some concerns and suggestions were considered but eliminated from detailed analysis for the reasons discussed in Chapter 2 (Alternatives Considered but Eliminated from Detailed Analysis).

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2 The Recreation Opportunity Spectrum (ROS) describes a range of recreation settings and experience expectations organized into 'ROS classes.' These classes range from least developed (i.e., Primitive) settings and experience opportunities to most developed (i.e., Urban). The full range of ROS classes identified in the Forest Plan is: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Roaded Modified, Rural, and Urban. Each ROS class includes standards and guidelines for a set of indicators. These classes and associated indicators are used in project analysis and recreation planning to describe the current condition across the landscape ("ROS inventory") and to analyze effects of different alternatives. ROS classes are also identified in the management prescriptions of each LUD, providing direction for desired conditions. In this document, when the term "prescription" is used in relation to ROS, this refers to the ROS class(s) specifically identified in the LUD management prescription. In some cases, specific ROS classes are prescribed (e.g., Remote Recreation LUD is managed for Primitive ROS settings and experiences); in other cases, the LUD prescribes maintaining the existing ROS inventory condition until approved activities change the ROS setting(s) (e.g., Modified Landscape LUD). See Chapter 3, Recreation section for more detail, including a table of ROS prescriptions by LUD.

The following issues were considered but determined not to be alternative-driving issues. The rationale for why these issues were determined to be non-significant is included below. As needed, resource effects related to these concerns are discussed in Chapter 3.

Issue: Large Group Areas should be considered their own use areas

Concerns were expressed related to keeping large group areas contained within the broader Shoreline II Outfitter/Guide use area does not allow adequate allocation of service days for the rest of the use area. Large group areas should be separated out as their own use areas.

Response: The Forest Service would only allow up to 50 percent of the total outfitter/guide allocation (by use area and season) to LGA use. This leaves at least half of the allocation available for non-LGA sites. All action alternatives address this issue.

Issue: Effects to Access to Wilderness Areas

There are concerns that proposed allocations of outfitter/guide service days within wilderness areas are too restrictive and do not meet the demand by the public for outfitter/guide services in these areas. Limiting outfitter/guide allocations would negatively impact the public's access to these wilderness areas.

Response: The Shoreline II Visitor Capacity Analysis begins to address this issue by employing a capacity formula for wilderness that is separate from other LUDs. This issue will be further addressed in the effects analysis and through site-specific mitigation measures.

Issue: The need to include Adaptive Management and/or Limits of Acceptable Change into the Shoreline II Outfitter/Guide EIS project design.

Concerns were expressed that Adaptive Management and/or Limits of Acceptable Change processes should be used in place of the traditional capacity-allocation model for the Shoreline II EIS.

Response: Limits of Acceptable Change is an alternative considered but not carried forward for further analysis (see Chapter 2). Adaptive management has been incorporated into this project as an item common to all action alternatives (See Chapter 2, and Appendix D).

Issue: The Development of a Wilderness Zoning System

Commenters felt the Shoreline II Outfitter/Guide project should consider a multi-zone approach to wilderness management due to a diversity of geographical and social conditions in the northern Tongass National Forest. They felt the development of a zoning system would minimize total displacement of users, address the considerable variation in visitor standards for acceptable conditions within wilderness, and provide for different clientele groups a range of solitude opportunities and experiences to match different visitors' desires.

Response: Developing an alternative for zoning wilderness areas is outside the scope of the project. The establishment of wilderness management zones requires consideration of the entire wilderness area. The project area for the Shoreline II Outfitter/Guide EIS only encompasses the general ½ mile zone from mean high tide inland, and further where specific non-motorized outfitter/guide activities and locations are accessed from the shoreline (i.e. goat/deer hunting, canoe route/portage, freshwater fishing on anadromous and other fish-bearing streams and lakes, etc.).

Agency Permits, Licenses, and Certifications

The Forest Service is not required to obtain permits or licenses to implement this project. However, outfitter/guide permit holders are responsible for obtaining necessary permits and licenses from Federal, State, and local agencies prior to commencing outfitting/guiding. Prior to outfitting/guiding on NFS lands, the Forest Service may require verification of current business or operating licenses such as U.S. Coast Guard License, State of Alaska Sport Fishing License, etc.

Prior to guiding on NFS lands, State requirements include:

- That commercial guides are State licensed with the Big Game Commercial Services Board (https://www.commerce.alaska.gov/web/cbpl/ProfessionalLicensing/BigGameCommercialServicesBoard.aspx), regardless of where they operate;
- Any operator that uses State lands in the course of their commercial activities must either register with the Alaska Department of Natural Resource, Division of Mining, Land and Water (DMLW) under 11 AAAC 96.018, or obtain a permit under AS 38.05.850 or lease under AS 38.05.070. More information on commercial day-use registration and DMLW authorizations maybe found at http://www.dnr.alaska.gov/mlw/permit_lease/index.cfm;
- The operator must also comply with guide regulations issued by the Alaska Department of Commerce, Community and Economic Development which address operations primarily occurring on State tidelands and related incidental activities occurring on Federal uplands. Regulation details can be found at https://www.commerce.alaska.gov/web/portals/6/pub/tourismresearch/trainbusiness/b&b_requirements%202013.pdf.

Applicable Laws and Executive Orders

Shown below is a partial list of Federal laws and executive orders pertaining to project-specific planning and environmental analysis on Federal lands. While most pertain to all Federal lands, some of the laws are specific to Alaska.

- Alaska Native Claims Settlement Act of 1971
- Alaska National Interest Lands Conservation Act of 1980
- American Indian Religious Freedom Act of 1978
- Archeological Resource Protection Act of 1980
- Bald and Golden Eagle Protection Act of 1940 (as amended)
- Cave Resource Protection Act of 1988
- Clean Air Act of 1970 (as amended)
- Clean Water Act of 1977 (as amended)
- Coastal Zone Management Act of 1972 (as amended)
- Endangered Species Act of 1973 (as amended)
- Executive Order 11593 (cultural resources)

- Executive Order 11988 (floodplains)
- Executive Order 11990 (wetlands)
- Executive Order 12898 (environmental justice)
- Executive Order 12962 (aquatic systems and recreational fisheries)
- Executive Order 13007 (Indian sacred sites)
- Executive Order 13112 (invasive species)
- Executive Order 13175 (government-to-government consultation)
- Executive Order 13443 (hunting heritage and wildlife conservation)
- Forest and Rangeland Renewable Resources Planning Act of 1974 (as amended)
- Magnuson-Stevens Fishery Conservation and Management Act of 1996
- Marine Mammal Protection Act of 1972
- Migratory Bird Treaty Act of 1918 (as amended)
- Multiple-Use Sustained-Yield Act of 1960
- Native American Graves Protection and Repatriation Act of 1990
- National Environmental Policy Act of 1969 (as amended)
- National Forest Management Act of 1976 (as amended)
- National Historic Preservation Act of 1966 (as amended)
- National Invasive Species Act of 1996
- National Transportation Policy (2001)
- Organic Act of 1897
- Rivers and Harbors Act of 1899
- Tongass Timber Reform Act of 1990
- Wild and Scenic Rivers Act of 1968 (as amended)
- Wilderness Act of 1964

Availability of the Project Record

An important consideration in preparing this FEIS is reduction of paperwork specified in 40 CFR 1500.4. This FEIS provides sufficient site-specific information to demonstrate a reasoned consideration of the environmental impacts of the alternatives and ways to mitigate the impacts. The project record contains supporting material that documents the NEPA process and analysis from the beginning of the project through project implementation.

The project record is available electronically upon request from the Petersburg Ranger District office in Petersburg, Alaska. Reference documents, such as the Forest Plan, ANILCA and the TTRA, are available for review at public libraries and Forest Service offices throughout Southeast Alaska. The Forest Plan and its FEIS are available on CD-ROM and on the Internet (http://go.usa.gov/cZGkd).

Map and Data Disclaimers

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In addition, the accuracy of calculations made from GIS layers varies with the quality of the mapping itself. Numbers presented in tables in this document may not sum correctly due to rounding. Other slight anomalies due to rounding may also occur. Therefore, all numbers calculated from GIS should be considered as approximate.

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Chapter 2
Alternatives

Chapter 2. Alternatives

Introduction

This chapter describes and compares the alternatives considered for the Shoreline II Outfitter/Guide project. It includes a description of each alternative considered. Tables of the alternatives, and service days allocated by use area (UA), are presented at the end of this chapter. This section also presents the alternatives in comparative form, defining the differences between each alternative and providing a clear basis for choice among options by the Responsible Official and the public. The information used to compare the alternatives is based on a combination of the design of each alternative and the environmental, social, and economic effects of implementing each alternative.

Preferred Alternative

The IDT has identified Alternative 2 (Proposed Action) as the preferred alternative based on the environmental analysis within this Final EIS (FEIS), and public and agency comments received. The Responsible Official may select this alternative, another alternative, or a modification of one of the alternatives in the Record of Decision.

Changes between Draft and Final

Changes made to the project and the documentation in this FEIS and the supporting resource reports are primarily in response to public comments on the Draft EIS (DEIS). These changes are minor and reflect refinement to the proposed project activities and clarification of the resource effects of the project. They are summarized in the following subsections and described in more detail throughout the FEIS and the appendices. Note that Appendices E and F of the DEIS were not republished, and Appendix E to the FEIS is now Response to Comments on the DEIS.

Chapter 2

- Removed the proposal to allocate big game hunts by GUA and season.

Chapter 3

Recreation/Special Uses

- Reviewed 2015 data from the Tongass outfitter/guide database; no significant changes to effects analysis expected. The new dataset is included in the project record.

Wilderness

- Reviewed 2015 Tongass outfitter-guide database, which resulted in no significant changes to the DEIS wilderness resource analysis of 2010-2014 outfitter-guide data.
- Consolidated and expanded explanation of the Wilderness Act standard “to the extent necessary.”
- Clarified the NEPA review for the wilderness resource, specifically that the:
    - Direct effects analysis reviews effects to wilderness character from the proposed action and alternatives within the Shoreline II project area,
    - Indirect effects analysis reviews effects to wilderness character from the proposed action and alternatives outside of the Shoreline II project area, and

  - Cumulative effects analysis reviews anticipated effects to wilderness character by reasonably foreseeable projects and activities.

- Clarified the wilderness character monitoring protocol applied in this Shoreline II wilderness resource analysis.
- Expanded the discussion clarifying the difference between monitoring wilderness character measures, indicators, and qualities, and applying management standards.
- Expanded the indirect effects analysis to better quantify effects to wilderness character outside the project area.
- Expanded the cumulative effects analysis to include additional reasonably foreseeable projects and activities and to better quantify their effects to wilderness character.

Soils and Wetlands

- Clarified analysis areas
- Clarified analysis assumptions for detrimental soils disturbance calculations
- Clarified direct, indirect, and cumulative effects discussions
- Reworded level of effects definitions
- Updated use information for Fox Creek and Williams Cove based on soil monitoring, noting moderate to severe soil impacts in user-created trails.
- Changed “slight” to “minor” in level of effects analysis.
- Defined “unhardened LGA” as large group areas that are not roads, marine access facilities (MAFs), or constructed features.
- Expanded discussion in Adaptive Management section.
- Minor clarification of wording.

Wildlife/Fisheries

- Mitigation measure limiting time spent fishing a “location” was removed based on public comments that this measure could not be accurately evaluated.
- Literature provide by the State of Alaska Department of Fish and Game was reviewed and incorporated into analysis where appropriate.
- Additional language was added for Steller sea lions, sperm whales, and harbor seals.

Appendix A

- Reformatted Appendix A to minimize repetitive information and provide a more reader-friendly format.
- Adjusted the Corner Bay Large Group Area boundary to extend to the bridge crossing on the main Corner Bay road (7540CB).
- Removed site-specific design feature for Salmon Lake Creek (04-03) and Nakwasina Sound River (04-03) that prohibited guided sport fishing on weekends and holidays.
- Corrected the use card for SW Admiralty (04-05) to move provision “Guided deer hunting is prohibited in the 04-05A SW Admiralty Use Area. The provision applies to new use requests and does not affect existing authorizations” from the Subsistence section (DEIS) to the Design Feature and Mitigation section in this FEIS.

- Adjusted the site-specific design feature for Ford Arm Creek (04-14) to remove ambiguous language regarding other groups on site.

Appendix C

- Reformatted and revised Appendix C to clarify specific permit stipulations and other mitigation measures.
- Language added to stipulations for marine mammals.

Appendix D

The adaptive management strategy was updated based on public input, and resource-related monitoring information was clarified.

Alternatives Considered, but Eliminated from Detailed Study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives, and to briefly discuss reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the proposed action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope of the project, some helped build alternatives considered in detail, or some were determined to be components that would cause unnecessary environmental harm. Therefore, the following alternatives were considered, but eliminated from detailed consideration for reasons summarized below:

- **Maximize Commercial Allocation:** An alternative that allocates 50 percent of the total capacity to outfitter/guide use regardless of site-specific conditions and market demand was eliminated from further analysis. The Forest Plan establishes a guideline that states "generally allocate no more than one-half the appropriate capacity of the LUD to outfitter/guide operations. For specific locations, consider different allocations based on historical use, changing demand, spatial zoning, or temporal zoning." This alternative was not considered because it:
    - Is not based on known supply and demand and site-specific resource conditions,
    - Exceeds the demand for outfitter/guide services,
    - Will exceed use levels projected in the visitor capacity analysis when combined with public users; and
    - Creates negative impacts to local communities through the competition for resources and recreational activities.
- **Limits of Acceptable Change (LAC):** The LAC system is a tool available for planners to establish acceptable and appropriate resource and social conditions in recreation settings. It establishes through a public planning process desired conditions of an area and then requires routine monitoring of indicators and thresholds for acceptable (or unacceptable) change. If thresholds are exceeded, then management actions will be instituted to bring impacts back to acceptable levels. The Visitor Experience and Resource Protection (VERP) process is another similar planning tool often employed by the National Park Service that establishes desired future conditions, indicators, and thresholds. Both the LAC and VERP avoid establishing recreation carrying capacity and allocations of outfitter/guide and public use.

  In contrast, the 2004 Shoreline Outfitter/Guide EIS and Shoreline II Outfitter/Guide EIS use a widely recognized planning framework that establishes a total visitor capacity of recreation users in terms of service days and then allocates a proportion of the total capacity to outfitter/guide uses and public

recreation uses. Using a LAC or VERP planning process was eliminated from further analysis because they require investments in time and money beyond the ability of the agency to successfully complete.

The Shoreline II Outfitter/Guide ROD will replace the 2004 Shoreline Outfitter/Guide EIS/ROD. Redesigning the decision framework would make the agency's knowledge gained since 2004 nontransferable to the Shoreline II Outfitter/Guide EIS. In addition, changing the planning framework would create confusion with the public, holders of special use permits, and managers who are all familiar with the visitor capacity and allocation model. Finally, the Shoreline II Outfitter/Guide project area covers more than 5,000 miles of marine shoreline across three ranger districts and a national monument. . Establishing desired future conditions, indicators, and thresholds in a public process and then requiring routine monitoring equally across the entire project area would prove to be beyond the capacity of the agency to successfully complete. Instead, the Shoreline II Outfitter/Guide project used the indicator, monitor, and threshold aspects of the LAC model and applied it to develop an adaptive management strategy. The adaptive management strategy, which could be applied to any of the action alternatives if one is selected, keeps the capacity allocation model and develops monitoring indicators and thresholds that would be applied only in targeted use areas where 80 percent or more of the allocation is used by outfitter/guides. The targeted monitoring approach in adaptive management will focus the limited agency capacity in discrete use areas across the broad project area. The adaptive management model also incorporates and encourages public participation through the development of the indicators and thresholds in this EIS, and during implementation. In part, the suggestion to use LAC helped develop the adaptive management strategy.

Alternatives Considered in Detail

The Forest Service developed four alternatives: no action, the proposed action, and two additional alternatives. The No-action Alternative represents the current allocation of outfitter/guide service days and provides a meaningful comparison of the action alternatives. The remaining action alternatives represent different ways of addressing the significant issues described in Chapter 1 and satisfying the purpose and need. The following section describes the alternatives considered in detail and describes three additional actions that include 1) Big Game Management 2) Large Group Areas 3) Adaptive Management. Any or all of these actions could be incorporated into the final decision.

Each alternative in the Shoreline II Outfitter/Guide project proposes to allocate a portion of the total visitor capacity to outfitter/guide use. The Shoreline II Outfitter/Guide Project Visitor Capacity Analysis establishes the visitor capacity for the project area (both guided and unguided use). Visitor capacity and the proposed outfitter/guide allocations are described in terms of service days. A service day is a day or any part of a day on NFS lands for which an outfitter/guide provides services to a client (FSH 2709.14 part 53.1e). Service days were allocated for outfitter/guide use to 48 geographic units defined as Shoreline II Outfitter/Guide Use Areas (Figure 1-1).

The number of outfitter/guide service days allocated for the use areas for each alternative are based on a percentage of the total visitor capacity. As a starting point for this analysis, the 2004 Shoreline visitor capacities for the use areas were converted from "group days" to "service days". Those visitor capacities, measured in service days, were then multiplied by the 2004 Shoreline allocation percentages to arrive at a number of service days per season for each of the use areas. This is Shoreline II's Alternative 1 – No Action – and represents the existing 2004 Shoreline outfitter/guide allocation in terms of service days rather than group days, to offer a more-direct comparison with the Shoreline II action alternatives.

The Shoreline II analysis updated the total visitor capacity for each of the use areas. These updated visitor capacities were multiplied by the 2004 Shoreline allocation percentages as a starting point for the proposed action, Alternative 2. The resulting service day allocations were evaluated in light of actual use and other factors, and the percentages were adjusted up or down to meet Alternative 2's objectives. The

allocation percentages were further adjusted for Alternatives 3 and 4, to respond to the issues addressed by those alternatives. Due to rounding, the allocated service days may slightly differ between alternatives even though the percent of total visitor capacity for a use area is the same as other alternatives.

Additional information on methodology for the calculation of service days by alternative is in the project record.

Alternative 1 – No Action

The No-action Alternative considered for this analysis is the 2004 Shoreline Outfitter/Guide ROD Selected Alternative, which was Alternative 5, with modifications. Under this alternative, allocations would remain the same as the 2004 levels. The 2004 Shoreline Outfitter/Guide EIS and ROD measured allocation in group days where a group of six people on shore in a single day equals one group day. The original allocation was for a maximum of 7,888 group days.

The unit of measure for the Shoreline II Outfitter/Guide analysis action alternatives is a service day. A service day is defined as one person on NFS lands for any period of time during one 24-hour period. Table 2-1 represents the conversion from group days to service days for the No-action Alternative to provide a meaningful comparison across all alternatives. It contains a total of 47,449 service days. The No-action Alternative would continue the existing management practices of the outfitter/guide special uses program.

The No-action Alternative has a lower maximum number of service days than the action alternatives. Service days for some use areas may be higher than they are in some of the action alternatives, but the total number of service days allocated would be less than all other alternatives being considered in this analysis.

Under this alternative, there would be no winter season as that was not part of the 2004 Shoreline Outfitter/Guide ROD. There would be a single spring season. If selected, this alternative would use service days as the unit of measure rather than group days.

Table 2-1: Service days by season and use area for Alternative 1, the No-action Alternative

Shoreline II Use Areas	No Action (Service Days)--Spring	No Action (Service Days)--Summer	No Action (Service Days)--Fall	Total
01-01 Skagway Area	311	890	156	**1,357**
01-02 Haines Area	178	286	148	**612**
01-03 East Chilkats	311	890	312	**1,513**
01-04A Berners Bay	244	445	156	**845**
01-04B N. Juneau Coast	186	458	150	**794**
01-04C Taku Inlet	240	916	150	**1,306**
01-04D Slocum Inlet	244	445	156	**845**
01-05A Taku Harbor	186	458	150	**794**
01-05B Port Snettisham	311	1,781	312	**2,404**
01-05C Windham Bay	260	1,637	402	**2,299**
01-05D Tracy Arm	56	183	45	**284**
01-05E Fords Terror	93	153	89	**335**
01-05F Endicott Arm	131	427	105	**663**
04-01A Gut Bay, Baranof	89	311	69	**469**
04-01B Port Armstrong	171	401	109	**681**

Shoreline II Use Areas	No Action (Service Days)--Spring	No Action (Service Days)--Summer	No Action (Service Days)--Fall	Total
04-01C Nelson Bay	50	275	55	**380**
04-02A Redoubt Lake	32	101	27	**160**
04-02B Whale Bay	179	577	110	**866**
04-02C Necker Islands	35	99	29	**163**
04-02D SW Baranof	141	453	86	**680**
04-03 Sitka Area	622	3,562	499	**4,683**
04-04A Rodman Bay	146	1,264	101	**1,511**
04-04B Kelp Bay	201	1,181	139	**1,521**
04-04C Baranof Warm Springs	28	232	37	**297**
04-05A SW Admiralty	206	463	243	**912**
04-06A Pybus Bay	122	590	89	**801**
04-06B Eliza Harbor	150	295	89	**534**
04-07A Gambier Bay	79	393	79	**551**
04-07B Cross-Admiralty Canoe Rte	99	491	99	**689**
04-08 NE Admiralty	218	983	218	**1,419**
04-09A Seymour Canal	187	1,193	187	**1,567**
04-09B Pack Creek Zoological Area	0	0	0	**0**
04-10A Greens Creek	87	590	150	**827**
04-10B NW Admiralty	175	590	262	**1,027**
04-11A Port Frederick	157	943	157	**1,257**
04-11B Freshwater Bay	170	1,022	170	**1,362**
04-12 Tenakee Inlet	304	842	304	**1,450**
04-13 Peril Strait	599	1,011	324	**1,934**
04-14 Slocum Arm	249	305	112	**666**
04-15A Lisianski	168	601	88	**857**
04-15B West Yakobi Island	89	318	47	**454**
04-15C Stag Bay	30	106	16	**152**
04-15D Portlock Harbor	69	247	36	**352**
04-16A Point Adolphus	200	954	140	**1,294**
04-16B North Chichagof	200	954	140	**1,294**
04-16C Idaho Inlet	200	954	140	**1,294**
04-16D PLI Wilderness	73	347	51	**471**
04-16E Port Althorp	127	607	89	**823**
Totals	**8,403**	**32,224**	**6,822**	**47,449**

1 The 2004 Shoreline document did not include a winter season, so there is no winter season included in the no-action table. This table represents a conversion from an allocation of group days to a more comparable service day allocation.

Alternative 2—Proposed Action

The Forest Service is proposing to allocate up to 80,305 service days of the estimated total visitor capacity of 636,448 service days within the project area to outfitter/guide use (Table 2-2). These allocations are proposed by season and use area. Each allocation was based on factors such as historical outfitter/guide use, subsistence activities, proximity to communities, potential for resource impacts, and quality recreation experiences as prescribed by the Forest Plan. The use would be permitted by special use authorizations and may be temporary in nature (less than 1 year) or for multiple years. Outfitter/guides who have demonstrated satisfactory performance may be issued priority use permits, for up to 10 years, in accordance with Forest Service Handbook 2709.14.

The proposed action provides the starting point for the IDT and helps focus public and other government agency comments during scoping and later on the DEIS. It was developed to balance commercial and non-commercial recreation opportunities and to provide and maintain high-quality recreation experiences without degrading forest resources.

This alternative was developed to support local and regional economies, and meet Forest Plan goals and objectives for recreation and tourism, which are:

- Provide for a range of recreation opportunities consistent with public demand, emphasizing locally popular recreation places and those important to the tourism industry.
- Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.

This alternative was developed by taking the 2004 Shoreline Outfitter/Guide allocations and adjusting them up or down based on factors such as historical outfitter/guide use, subsistence activities, proximity to communities, potential for resource impacts, and whether the area was popular with local users. It also proposes an outfitter/guide allocation for a winter use season and delineates an “early spring” and a “late spring” season.

Table 2-2: Service days by season and use area for Alternative 2, the Proposed Action

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
01-01 Skagway Area	160	145	710	260	125	**1,400**
01-02 Haines Area	30	25	115	55	20	**245**
01-03 East Chilkats	140	125	750	160	150	**1,325**
01-04A Berners Bay	60	55	350	105	50	**620**
01-04B N. Juneau Coast	105	90	450	155	65	**865**
01-04C Taku Inlet	125	110	810	170	165	**1,380**
01-04D Slocum Inlet	30	25	310	70	20	**455**
01-05A Taku Harbor	60	50	290	55	20	**475**
01-05B Port Snettisham	220	195	3,080	350	165	**4,010**
01-05C Windham Bay	115	100	2,070	310	150	**2,745**
01-05D Tracy Arm	40	35	175	95	0	**345**
01-05E Fords Terror	40	35	125	70	0	**270**
01-05F Endicott Arm	95	85	490	105	0	**775**
04-01A Gut Bay, Baranof	60	55	420	70	0	**605**

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
04-01B Port Armstrong	105	90	640	125	115	**1,075**
04-01C Nelson Bay	35	25	480	65	50	**655**
04-02A Redoubt Lake	165	145	1,460	315	100	**2,185**
04-02B Whale Bay	95	85	525	105	0	**810**
04-02C Necker Islands	165	145	1,410	315	100	**2,135**
04-02D SW Baranof	110	95	630	365	115	**1,315**
04-03 Sitka Area	460	410	7,420	1,055	540	**9,885**
04-04A Rodman Bay	95	60	2,670	100	65	**2,990**
04-04B Kelp Bay	180	115	6,630	215	165	**7,305**
04-04C Baranof Warm Springs	20	15	235	40	20	**330**
04-05A SW Admiralty	90	60	485	140	0	**775**
04-06A Pybus Bay	75	50	675	110	0	**910**
04-06B Eliza Harbor	95	60	310	110	0	**575**
04-07A Gambier Bay	45	30	280	110	0	**465**
04-07B Cross-Admiralty Canoe Rte	90	60	395	140	0	**685**
04-08 NE Admiralty	70	45	320	140	0	**575**
04-09A Seymour Canal	90	60	320	140	0	**610**
04-09B Pack Creek Zoological Area	90	60	0	140	0	**290**
04-10A Greens Creek	25	20	250	145	0	**440**
04-10B NW Admiralty	120	75	415	190	0	**800**
04-11A Port Frederick	140	90	990	280	130	**1,630**
04-11B Freshwater Bay	140	90	1,980	950	130	**3,290**
04-12 Tenakee Inlet	100	65	800	250	200	**1,415**
04-13 Peril Strait	250	160	5,055	310	230	**6,005**
04-14 Slocum Arm	70	60	285	120	0	**535**
04-15A Lisianski	145	130	1,190	280	165	**1,910**
04-15B West Yakobi Island	50	45	315	65	0	**475**
04-15C Stag Bay	20	15	105	20	0	**160**
04-15D Portlock Harbor	50	45	245	120	0	**460**
04-16A Point Adolphus	215	190	1,460	290	65	**2,220**
04-16B North Chichagof	110	100	980	140	85	**1,415**
04-16C Idaho Inlet	435	385	3,045	145	100	**4,110**
04-16D PLI Wilderness	40	35	265	55	0	**395**
04-16E Port Althorp	445	395	4,710	310	100	**5,960**
Totals	**5,710**	**4,640**	**57,120**	**9,430**	**3,405**	**80,305**

Alternative 3

Alternative 3 would allocate a total of 63,940 service days across the project area for use by outfitters/guides. It addresses the issue of loss of solitude and crowding by proposing lower outfitter/guide allocations for use areas in designated wilderness and in remote areas.

Alternative 3 was developed in response to concerns expressed about the increasing overlap of uses incompatible with each other such as bear hunting, nature viewing and increased small cruise ship activity. Comments referred to remote areas within and outside of designated wilderness. The concern for crowding was not focused on areas designated for higher levels of use. This alternative only reduces allocation for the more-remote use areas. It was developed with specific focus on emphasizing uncrowded social conditions across the use areas and seasons by reducing the proposed outfitter/guide allocations.

Forty-three of the Shoreline II Outfitter/Guide use areas feature predominantly Primitive or Semi-primitive Recreation Opportunity Spectrum (ROS) classes as prescribed in the Forest Plan. These use areas are proposed to have lower outfitter/guide use allocations than either the proposed action or Alternative 4. The remaining five use areas (gray shaded rows in Table 2-3), whose ROS class allows for more development, designate the same amount of outfitter/guide use as the proposed action.

To determine which use areas are more remote and support an expectation of being uncrowded, the Forest Service analyzed the Forest Plan LUDs comprising each use area. The Forest defined remote as those use areas where more than 50 percent of the area was comprised of LUDs with a prescription of Primitive or Semi-primitive ROS classes. The Forest Plan ROS class settings describe a Remoteness Indicator of “no or infrequent sights and sounds of human activity are present” (Primitive) or “nearby sights or sounds of human activity are rare, but distant sights or sounds may occur” (Semi-primitive).

Semi-primitive ROS class social encounter settings describe that “during 80 percent of the primary use season, no other parties are visible from campsites.” The Primitive ROS class social encounter setting description states, “No other parties are within sight or sound of dispersed campsites or cabins.”

To determine the allocation for this alternative, monitoring data from 2012-2014 and outfitter/guide actual use reports from 2008-2012 were reviewed. The IDT examined primarily shoreline encounter data collected from field monitoring and found only some outer coast wilderness shoreline areas contain outstanding opportunities for solitude within the threshold set by the 2012 Tongass National Forest Wilderness Character Monitoring Plan. That Plan defines outstanding opportunities for solitude as locations where at least 4 out of 5 days monitored record no medium- or high-impact encounters (typically those encounters that are close, loud or otherwise disruptive of the observer’s wilderness experience).

Additionally, actual use reports were assessed to see how outfitters/guides and their clients used National Forest System lands quantitatively and temporally. The findings were that:

- Spring and fall outfitter/guide operations used less than 10 percent of the total capacity for all use areas; summer outfitter/guide operations used less than 20 percent of the total capacity for most use areas (all but two).
- While five use areas have outfitter/guide use for more than half of the summer season calendar days, most use areas are used by outfitter/guides for less than half of the summer season calendar days.
- All but three use areas are used by outfitter/guides for less than 30 percent of spring season calendar days.
- All but one use area is used by outfitter/guides for less than 20 percent of fall season calendar days.

After reviewing the data, there was no clear method for applying a site-specific, data-driven reduction in each use area and season in response to public comments about proposed levels being too high or to ensure there is no overcrowding. However, developing an alternative that applies a general reduction in onshore outfitter/guide use is projected to:

- help maintain uncrowded conditions in areas currently uncongested,
- help reduce existing crowding in popular areas,
- align recreation opportunities in the forest with Forest Plan ROS setting indicators,
- maintain or reestablish opportunities for solitude along shoreline zones within designated wilderness, and
- provide additional space for public users.

This alternative applies a 25 percent reduction of outfitter/guide allocation from the proposed action (Alternative 2) except for the winter season (Table 2-3) to best address the issues while still meeting the purpose and need. The winter season was not reduced compared to the proposed action because the allocations are already set low and crowding during this season has not been a concern.

Table 2-3: Service days by season and use area for Alternative 3

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
01-01 Skagway Area	120	110	535	195	125	**1085**
01-02 Haines Area	20	20	90	45	20	**195**
01-03 East Chilkats	105	95	565	120	150	**1,035**
01-04A Berners Bay	45	40	265	80	50	**480**
01-04B N. Juneau Coast	80	70	340	120	65	**675**
01-04C Taku Inlet	95	85	610	130	165	**1,085**
01-04D Slocum Inlet	30	25	310	70	20	**455**
01-05A Taku Harbor	45	40	220	45	20	**370**
01-05B Port Snettisham	165	145	2,310	265	165	**3,050**
01-05C Windham Bay	115	100	2,070	310	150	**2,745**
01-05D Tracy Arm	30	25	135	75	0	**265**
01-05E Fords Terror	30	25	95	55	0	**205**
01-05F Endicott Arm	75	65	370	80	0	**590**
04-01A Gut Bay, Baranof	45	40	315	55	0	**455**
04-01B Port Armstrong	80	70	480	95	115	**840**
04-01C Nelson Bay	25	20	360	50	50	**505**
04-02A Redoubt Lake	125	110	1,095	240	100	**1,670**
04-02B Whale Bay	75	65	395	80	0	**615**
04-02C Necker Islands	125	110	1,060	240	100	**1,635**
04-02D SW Baranof	80	75	475	275	115	**1,020**
04-03 Sitka Area	345	305	5,565	795	540	**7,550**
04-04A Rodman Bay	95	60	2,670	100	65	**2,990**
04-04B Kelp Bay	135	85	4,975	165	165	**5,525**

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
04-04C Baranof Warm Springs	15	10	180	30	20	**255**
04-05A SW Admiralty	70	45	365	105	0	**585**
04-06A Pybus Bay	55	35	510	85	0	**685**
04-06B Eliza Harbor	70	45	235	85	0	**435**
04-07A Gambier Bay	35	25	210	85	0	**355**
04-07B Cross-Admiralty Canoe Rte	70	45	300	105	0	**520**
04-08 NE Admiralty	55	35	240	105	0	**435**
04-09A Seymour Canal	70	45	240	105	0	**460**
04-09B Pack Creek Zoological Area	70	45	0	105	0	**220**
04-10A Greens Creek	20	15	190	110	0	**335**
04-10B NW Admiralty	90	60	315	145	0	**610**
04-11A Port Frederick	140	90	990	280	130	**1,630**
04-11B Freshwater Bay	140	90	1,980	950	130	**3,290**
04-12 Tenakee Inlet	75	50	600	190	200	**1,115**
04-13 Peril Strait	185	120	3,795	235	230	**4,565**
04-14 Slocum Arm	50	45	215	90	0	**400**
04-15A Lisianski	110	95	895	210	165	**1,475**
04-15B West Yakobi Island	40	35	240	50	0	**365**
04-15C Stag Bay	15	15	80	15	0	**125**
04-15D Portlock Harbor	40	35	185	90	0	**350**
04-16A Point Adolphus	165	145	1,095	220	65	**1,690**
04-16B North Chichagof	85	75	735	105	85	**1,085**
04-16C Idaho Inlet	330	290	2,285	110	100	**3,115**
04-16D PLI Wilderness	30	25	200	45	0	**300**
04-16E Port Althorp	335	295	3,535	235	100	**4,500**
Totals	**4,445**	**3,595**	**44,920**	**7,575**	**3,405**	**63,940**

Grey-shaded rows denote use areas whose ROS class allows for more development, designate the same amount of outfitter/guide use as the proposed action.

Alternative 4

This alternative allocates 130,655 service days to outfitter/guide use. It was calculated by applying a 5 percent increase to the proposed action and compounded annually over a 10-year period. Alternative 4 was developed to emphasize support for local and regional economies by increasing opportunities for outfitters/guides.

A variety of data was reviewed to assess outfitter/guide markets. The conclusion drawn was that total visitation, cruise ship visitation, small cruise vessel capacity, and guided client's use of the Tongass National Forest is increasing about 2 to 6 percent a year. Therefore, a 5 percent increase in the outfitter/guide allocation is warranted based on overall trends in the Southeast Alaska visitor industry and to accommodate a growing visitor industry. Increasing outfitter/guide allocations are aligned with the USDA's transition strategy to encourage the diversification of the regional economy with particular focus on non-timber sectors. The increased number of service days compounded annually over a 10-year period at 5 percent would allow for economic growth, resulting in greater economic opportunity in the region.

With the exception of temporary recession-related slumps in Alaska's visitor industry during 2009 and 2010, statewide and regional long-term visitor industry trends indicate sustained periods of growth spanning over 2 decades. Since 2005 (excluding 2009 and 2010), statewide visitor volume has increased on average 2 percent per year, including cruise ship passengers, commercial air travelers, and independent highway/ferry tourists. In Southeast Alaska, total cruise passenger volume alone has increased on average 5 percent per year (1998-2014).

History indicates Southeast Alaska's visitor industry follows national and international trends. As the United States economy continues to recover and expand, the regional visitor industry is also expected to grow, providing more jobs and earnings over time.

Table 2-4: Service days by season and use area for Alternative 4

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
01-01 Skagway Area	260	230	1,160	425	200	**2,275**
01-02 Haines Area	45	40	190	85	35	**395**
01-03 East Chilkats	230	205	1,220	255	240	**2,150**
01-04A Berners Bay	100	85	565	170	80	**1,000**
01-04B N. Juneau Coast	165	145	735	250	110	**1,405**
01-04C Taku Inlet	205	180	1,315	285	270	**2,255**
01-04D Slocum Inlet	45	40	505	115	30	**735**
01-05A Taku Harbor	95	80	470	90	30	**765**
01-05B Port Snettisham	360	320	5,015	565	270	**6,530**
01-05C Windham Bay	185	165	3,370	510	240	**4,470**
01-05D Tracy Arm	65	55	285	155	0	**560**
01-05E Fords Terror	60	55	200	115	0	**430**
01-05F Endicott Arm	155	140	800	175	0	**1,270**
04-01A Gut Bay, Baranof	95	85	680	115	0	**975**
04-01B Port Armstrong	165	145	1,040	200	190	**1,740**
04-01C Nelson Bay	55	35	780	105	80	**1,055**
04-02A Redoubt Lake	265	235	2,380	510	160	**3,550**

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
04-02B Whale Bay	160	140	855	175	0	**1,330**
04-02C Necker Islands	265	235	2,290	510	160	**3,460**
04-02D SW Baranof	175	155	1,020	595	190	**2,135**
04-03 Sitka Area	750	665	12,090	1,720	880	**16,105**
04-04A Rodman Bay	150	100	4,345	160	110	**4,865**
04-04B Kelp Bay	290	185	10,800	350	270	**11,895**
04-04C Baranof Warm Springs	30	20	385	65	30	**530**
04-05A SW Admiralty	145	95	790	225	0	**1,255**
04-06A Pybus Bay	125	80	1,100	180	0	**1,485**
04-06B Eliza Harbor	155	100	505	180	0	**940**
04-07A Gambier Bay	70	45	450	180	0	**745**
04-07B Cross-Admiralty Canoe Rte	145	95	645	225	0	**1,110**
04-08 NE Admiralty	115	75	520	225	0	**935**
04-09A Seymour Canal	145	95	520	225	0	**985**
04-09B Pack Creek Zoological Area	145	95	0	225	0	**465**
04-10A Greens Creek	45	30	410	235	0	**720**
04-10B NW Admiralty	190	125	675	310	0	**1,300**
04-11A Port Frederick	230	150	1,605	450	215	**2,650**
04-11B Freshwater Bay	230	150	3,225	1,550	215	**5,370**
04-12 Tenakee Inlet	160	105	1,300	405	320	**2,290**
04-13 Peril Strait	405	260	8,235	500	375	**9,775**
04-14 Slocum Arm	110	100	465	200	0	**875**
04-15A Lisianski	235	210	1,940	450	270	**3,105**
04-15B West Yakobi Island	80	70	515	105	0	**770**
04-15C Stag Bay	30	25	175	35	0	**265**
04-15D Portlock Harbor	85	75	400	200	0	**760**
04-16A Point Adolphus	350	310	2,380	475	110	**3,625**
04-16B North Chichagof	180	160	1,595	225	135	**2,295**
04-16C Idaho Inlet	710	630	4,960	240	160	**6,700**
04-16D PLI Wilderness	65	55	435	90	0	**645**
04-16E Port Althorp	725	640	7,675	510	160	**9,710**
Totals	**9,245**	**7,515**	**93,015**	**15,345**	**5,535**	**130,655**

Items Common to All Action Alternatives

As with the current permitting process, outfitter/guide use would be authorized by special use permits to outfitter/guide service providers which may be temporary in nature (less than 1 year) or for multiple years. Outfitter/guides who have demonstrated satisfactory performance may be issued priority use permits, for up to 10 years, in accordance with Forest Service Handbook 2709.14. The selection of any alternative and allocation of service days does not restrict any use by the general public.

The following items are common to all action alternatives.

Big Game Guide Management

The Forest Service proposes the following actions to address the purpose and need of aligning outfitter/guide activities to updated national policies (FSH 2709.14). These actions are also intended to update and make consistent permit administration across the national monument and three ranger districts. Further, the actions are intended to enhance the equity and transparency in the issuance and administration of big game guide special use permits in accordance to existing regulations set forth in the Code of Federal Regulations, and policy set in Forest Service Manual, Forest Service Handbook and other guidance, and to the extent possible, policies set forth through the State of Alaska Big Game Commercial Services Board (BGCSB) and ADF&G. In addition, actions are proposed to address the fact that the number of brown bear hunts under special use permits and the number of brown bear guides in GMU 4 align with the recommendations in the 2000 Southeast Alaska Unit 4 Brown Bear Management Strategy (BBMS).

Number of Guided Brown Bear Hunts

- The Forest Service proposes to allocate guided brown bear hunts in the ADF&G GMU 4 based on the BBMS. The service days used for each hunt are part of the total outfitter/guide allocation proposed for each use area and season. The Forest Service would continue to expect guides to strive for distributing their hunts based on the BBMS recommended number of guided hunts per Guide Use Area (GUA) (Table 2-5) and ADF&G's historical percentage of use data during the spring (70 percent) and fall (30 percent) seasons. The Forest Service will keep any unallocated hunts in reserve until such time when biological or population factors allow for these hunts to be reissued in a special use permit. The Forest Service will continue to collaborate with the BGCSB and ADF&G to the maximum extent necessary to manage for healthy populations of wildlife and high quality public recreation experiences.

Table 2-5. BBMS recommended number of guided hunts by GUA

ADF&G GUA	BBMS Recommended Number of Guided Hunts
04-01	10
04-02	7
04-03	4
04-04	11
04-05	15
04-06	16
04-07	5
04-08	1
04-09	6

ADF&G GUA	BBMS Recommended Number of Guided Hunts
04-10	9
04-11	9
04-12	14
04-13	16
04-14	6
04-15	6
04-16	6
Total	**141**

Number of Registered Guides

- Continue to follow the guidelines for the number of permitted brown bear guides set forth in the BBMS, or any future collaborative planning effort. To maintain a high-quality hunt experience and avoid impacts to other users from overcrowding, the BBMS recommends that a maximum number of 20 individual registered brown bear guides should be permitted to operate in ADF&G GMU 4. Currently, there are 20 registered brown bear guides permitted to operate in Unit 4. Therefore, based on the current BBMS, no additional brown bear guides will be permitted within the ADF&G Unit 4 portion of the Shoreline II project area unless an existing guide relinquishes their permit (e.g., change of ownership), or a prospectus is offered.
- Require that special use permits issued to corporations or Limited Liability Company (LLCs) for big game guiding identify the maximum number of registered guides (brown bear guides and/or other big game guides) that can operate under such permit as determined by the authorized officer on a case-by-case basis. For LLCs or corporations authorized for brown bear hunting in GMU 4, the cumulative number of registered brown bear hunting guides shall align with the recommendations in the BBMS or future collaborative effort. The intent of this action is to avoid unchecked expansion of the number of registered guides operating within the project area.

Number of Guide Use Areas

- Only authorize up to the maximum number of GUAs allowed by State of Alaska regulations. The Forest Service has issued big game guide permits that have a pool of GUAs from which the permit holder may select annually for operating plan approval. This process has resulted in a greater number of user conflicts due to the higher level of unpredictability from year to year for other guides operating in the selected GUAs. The maximum number of GUAs per permit will be determined by the number of registered guides authorized on the permit and the corresponding number of GUAs within which each registered guide is licensed to operate by the State. BBMS recommendations and continued coordination with ADF&G will also factor into GUAs authorized on permits.

Competitive Interest and Prospectus

- Federal regulations (36 CFR 251.58(c)(3)(ii)) and Forest Service policy (FSM 2712.1; FSH 2709.14, 53.1h(3)) require the issuance of special use permits through the use of a prospectus when a competitive interest for outfitter/guide permits exists. Therefore, unallocated big game guide hunts or service days where there is competitive interest by big game guides will be issued through a prospectus process in accordance with Forest Service Manual and Handbook direction. When existing outfitter/guide big game permits expire, the previously allocated big game hunts or service days (where there is competitive interest) may also be issued through a prospectus process

(see previous CFR and policy reference and FSH 2709.14, 53.1m(5) and 53.1n(3 and 4)). However, if a change of ownership occurs (i.e., a permit holder notifies the Forest Service of their intent to sell their business or controlling interest in their business), Forest Service policy allows for authorized officer discretion to issue a permit to the purchaser.

- In order to consider the option to authorize hunts or services days through prospectus policies, align the terms of all big game guide special use permits, who are in good standing, to expire in the same year (earliest start date being 2023, which is the furthest out expiration date of all of the existing big game guide permits). This would allow all existing permit holders to operate through the full terms of their current permit. Existing big game guide special use permits will expire on their own terms or terminate earlier if conditions warrant (e.g., change of ownership, or non-compliance). Permits that are in good standing and that expire prior to 2023 could be renewed for a term that does not exceed 2023. At such time when the expiration dates for big game guide permits are aligned, the authorized officer may reissue a portion or all unallocated hunts or service days through a prospectus.

Change in Ownership Direction

- Rescind in its entirety the Outfitter and Guide Change in Ownership Direction (Cole, 2009) that established guidance for issuing special use permits to LLCs and limited the number of hunts and service days in a change of outfitter/guide ownership to no more than two-thirds the number held by the previous owner. This was put into effect in part to help align with the BBMS recommendations for number of registered guides and guided hunts in GMU 4. This guidance has achieved the intent and is no longer needed. In addition, the guidance about issuing permits to LLCs does not align with current policy. Issuance of future big game guide hunts or service days will be in accordance with existing Forest Service policies set forth in the Code of Federal Regulations, Forest Service Manual, Forest Service Handbook or other agency guidance.

Large Group Areas

It is proposed that no more than 50 percent of the total outfitter/guide allocation for a use area, by season, would be allowed at a large group area (LGA), with exceptions in use areas with hardened LGA sites. Hardened LGA sites are those with a natural or imported surface material, such as crushed rock or boardwalks, which greatly reduces soil disturbance from people walking within the site. At hardened LGA sites, the Responsible Official would have the flexibility to authorize more than 50 percent of that season's use area allocation (not to exceed the total outfitter/guide allocation for the season).

The following sites are proposed LGA additions in all action alternatives:

- 04-01B - Sashin Lake Trail
- 04-03 - Shoals Point
- 04-04B - Middle Arm, Kelp Bay
- 04-13 - False Island Camp
- 04-13 - Ushk Bay Head
- 04-16E - Port Althorp, Salt Chuck
- 04-16E – Port Althorp, Head of the Bay

Bohemia Basin (04-15B) is proposed for removal as a designated LGA because field reviews accessing site conditions determined that large group use would cause resource damage to the wetland areas associated with the LGA. Previous use levels at the LGA had been low, and removal of the site as a designated LGA would not restrict or change use trends. Eagle River Road (04-03) is proposed for

removal and is not considered as an LGA in this analysis because it is included in the Kruzof Island Outfitter/Guide DN/FONSI. The Iyoukeen Peninsula large group area within 04-11B has been proposed to be modified by expanding the boundaries.

Adaptive Management

How Does Adaptive Management Work?

Adaptive management seeks to provide a structure to evaluate how to best meet the project's short-term and long-term goals, and helps answer the basic question: Are our management actions having the predicted or desired effects?

Adaptive management is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but a means to more-effective decisions. It requires a measureable objective, monitoring to determine the effectiveness of the management practices used in achieving the objective, evaluation to determine if the objective is being reached, and adaptation based on the results.

Adaptive management requires managers to predict, mitigate, implement, monitor, and adapt. Managers repeat these steps over time to improve their understanding of a system and incorporate learning into resource management and protection.

Adaptive management seeks to:

- allow for adaptation in order to meet a project's environmental, social, and economic goals,
- involve stakeholders, and
- incorporate new knowledge into a transparent and agreed-to framework in order to adjust decision-making as conditions change.

Why Apply Adaptive Management to this Project?

During the scoping period for the Shoreline II Outfitter/Guide EIS, public comments requested higher allocations of service days within the project area (see Chapter 1, Significant Issues, Issues 1 and 2). The Forest Service addressed this issue through the creation of a range of action alternatives, all of which would allow for an overall increase in outfitter/guide use from the existing condition (Chapter 2, Alternatives Considered in Detail).

The issue of use levels, combined with the Forest's past experience managing outfitter/guides and knowledge of the inevitable changes that occur during implementation based on economic trends, peoples' preferences of recreation activities, and natural changes in ecological systems highlighted the need for the development of an adaptive management strategy.

The adaptive management strategy would allow the Forest to utilize past management experience in the project area, while allowing the flexibility to provide additional economic opportunities (increase use), while acknowledging that there are still uncertainties surrounding how resources will respond to use levels and how that effects visitor experience. Adaptive management would also allow the Forest to adjust outfitter/guide allocations (decrease use) in order to better protect resources and to improve visitor experience.

When developing a framework for authorizing outfitter/guide use on the National Forest, a discussion between the terms "allocated use" and "actual use" is necessary to understand the impacts and impreciseness of the permitting framework. The unit of measurement for allocated and actual use is service days. A service day is defined as an allocation of use constituting a day or any part of a day on National Forest System lands for which an outfitter or guide provides services to a client. The total

number of service days is calculated by multiplying each day, or partial day, a client is on NFS lands by the number of clients on the trip.

The Shoreline II FEIS presents the analysis of four alternatives on how to allocate a proportion of total (outfitter/guide and non-outfitter/guide) visitor capacity to outfitter/guide uses. The remainder of the total visitor capacity would be reserved to represent the non-outfitter/guide recreation use that happens on the landscape. A business which obtains an outfitter/guide permit is authorized a portion of the total outfitter/guide allocation. In a typical use area, there are multiple businesses operating at the same time and collectively they utilize the allocation of outfitter/guide use service days. This is referred to as the allocated use, or what businesses are authorized to use in a single year.

Actual use is the amount of an individual outfitter/guide's allocated use that gets utilized by paying clients in a single year. Every year, outfitter/guide companies have some degree of uncertainty on how many clients they will be able to attract to utilize all their allocated use. These uncertainties typically result from global, national and regional economic conditions, weather, and transportation logistics (i.e., the number of available seats to transport clients equals the number of service days authorized). Most outfitter/guide companies desire an authorization of use at a level greater than their actual use. This offers opportunity for business growth if favorable conditions exist, rather than turn clients away or ask the agency for more allocated use mid-season. This generally results in a gap where actual use is less than the allocated, or authorized, use.

The Forest Service Manual establishes a policy to keep allocated (authorized) use in check with actual use. Every 5 years each special use authorization undergoes a review to rebalance allocated and actual use. Ideally these numbers would be in equilibrium, but the desire for flexibility and growth by the industry and maximizing public recreation experiences by the agency make it unlikely. This results in an imprecise allocated use-actual use permitting framework.

This element of uncertainty lends itself to an adaptive approach, which allows for a better assessment of use allocations and whether those allocations are meeting the project's purpose and need. The adaptive management strategy would give the Forest a tool to adjust decisions regarding the amount and locations of guided use for practical reasons.

In order to monitor conditions in the project area, and provide a base for adaptive management decisions, key resource indicators for the project area (crowding, and conflict between user groups) were developed.

Goals and Desired Outcome for the Shoreline II Adaptive Management Strategy

The Shoreline II EIS provides the foundation for a collaborative adaptive management strategy to inform and improve outfitter/guide use management. The purpose of this plan is to meet the following three goals.

1. To provide a structured method to monitor and evaluate the impacts of outfitter/guide use within use areas (UAs), in order to help mangers implement actions that keep resource impacts within the range analyzed in the EIS.
2. To provide data illustrating existing conditions of key resource indicators (Table D-2) that describe the relationship between outfitter/guide use and their impacts, which will inform adaptive management actions.
3. Target limited agency capacity (i.e. financial, staff, etc.) to monitor only specific UAs that fall within the adaptive management strategy in order to offer quality recreation experiences and sustain economic opportunities.

Table 2-5. Phases of the Shoreline II Adaptive Management Strategy

Phase	Step or Activity	Description
Set-up phase of adaptive management	Forest Service development of adaptive management plan	Fall 2015
	Stakeholder involvement	Ongoing: The public was introduced to the adaptive management plan in winter of 2015/2016 when the DEIS was published and the comment period initiated. Public meetings were held, and written comments were accepted during designated comment periods.
	Monitoring protocols/resource indicators	Revised and adjusted based on public input between DEIS and FEIS.
Iterative phase of adaptive management	Decision making	Adaptive management may be selected within the Shoreline II ROD, with the potential to make future adjustments within parameters of the FEIS analysis; metrics were prioritized with public input (provided between Draft and Final EIS) and the Responsible Official may select final metrics.
	Stakeholder involvement	Outfitter/guides, members of the public, and the Forest Service collaborate on collecting data to support implementation of adaptive management.
	Monitoring begins	Once decided to implement adaptive management in a use area, a 2-year period of monitoring to gather existing condition data is required, before Adaptive Management decisions can be instituted. Special use permits will be amended to include Adaptive Management requirements for outfitter/guide operators in these use areas.
	Ongoing monitoring	Monitoring will be conducted as outlined in Table 2-6, and reports will be published in the Tongass Forest Plan Monitoring Report. Other reporting outlets may be established through a collaborative process with outfitter/guides and public, which may include the Forest website or other means.
	Assessment, learning and feedback	Ongoing, with periodic stakeholder meetings to discuss monitoring results throughout the life of the project.

How Would Adaptive Management Changes Occur for this Project?

Adaptive management would be applied to outfitter/guide allocations described in all the alternatives, and would be designed to meet the Shoreline II project's purpose and need. More specifically, the adaptive management strategy may be implemented when any use area's actual use data fall within the range of 80 percent to 110 percent of the allocation for any use season (early spring, late spring, summer, fall, winter), and there is a request for additional use from an outfitter/guide. Outfitter/guides requesting use that implements adaptive management may be subject to additional fees under cost recovery regulations.

Actual use data is the information that the outfitter/guides are required to report to the Forest Service at the end of every operating season. The actual use data provides specific information about activity location, client numbers hosted at each location, and the date the activity occurred. Actual use data is entered into an outfitter/guide database managed by the Forest Service. The outfitter/guide database is used to track trends of actual use, determine specific locations that receive intensive use, provide information that determines whether new applications for authorized use will be approved, and influence where monitoring may be necessary. Concerns regarding inaccurate self-reporting of actual use data are alleviated by policy that directs the Forest Service to reduce authorized use to what is actually used, and to charge a fee for what is authorized in the permit. Under-reporting of actual use will result in the reduction of an individual guide's allocation; over-reporting of use requires the outfitter/guide to pay more for their permit.

The decision space for this adaptive management framework is when any use area for any season has between 80 percent and 110 percent of its allocation utilized in actual use. To ensure adequate existing condition data is collected, decisions based on the adaptive management strategy will not be implemented until at least 2 years after the Record of Decision has been signed. The priority for collecting existing condition information will be in those use areas and use seasons that currently have 75 percent to 80 percent of the allocation in actual use and there is a request from an outfitter/guide for additional allocated use.

While the authorized officer may take action in response to monitoring data collected, the Forest Service could not, under any scenario, authorize more than 110 percent of the allocated use (the maximum number of days in the Selected Alternative) through adaptive management, unless additional National Environmental Policy Act (NEPA) analysis is completed (see the NEPA Review section).

The following sections describe the components of the adaptive management framework, and the associated monitoring plan that would provide information to determine which, or what sort of adaptive action(s) could occur.

Table 2-6. Resource indicators and corresponding adaptive actions

Resource: Indicator	Monitoring	Threshold/ Trigger	Adaptive Action
Recreation & Wilderness: Crowding	Monitor the use area and use season of concern annually for the first 2 years to establish a baseline estimate of the number of encounters per day. Then monitor biannually until data and impact relationship remains stable for three consecutive data points.	Encounters with or amongst outfitter/guides and public groups exceed the Forest Plan ROS standards and guidelines at one or more use area more than 20% of the season of concern.	Require guides to monitor and report the number of encounters per day in their actual use report. If monitoring data is below threshold, authorize up to 95 percent of the use area allocation. Continue monitoring annually for 2 years. If data remains below the threshold, authorize up to the maximum 110 percent of the use area allocation. If monitoring data exceeds the threshold, do not authorize additional use and implement the following actions in priority order to the point where the threshold/trigger is achieved: Encourage outfitter/guide communication to coordinate activities to certain days/times to reduce encounters. Outfitter/guides voluntarily reduce the number of authorized service days. Agency formally revokes authorized service days proportionally from all outfitter/guides using the use area.
Recreation: Conflict between user groups	Annually monitor use area and season conflicts through ad-hoc field monitoring and reports from the public and outfitter/guides.	Conflicts between user groups result in a diminished recreation experience and are recorded in any 2 of 5 year period in any single UA and season.	Require outfitter/guides to report the number of conflicts that result in a diminished recreation experience for their clients or public in their actual use report. If monitoring data is below threshold, authorize up to 95 percent of the UA allocation. Continue monitoring annually for 2 years. If data remains below the threshold, authorize up to 110 percent of the UA allocation. If monitoring data exceeds the threshold, do not authorize additional use and implement the following actions in priority order to the point where the threshold/trigger is achieved: Encourage outfitter/guide communication to coordinate activities to certain days/times to eliminate conflict. Outfitter/guides voluntarily reduce the authorized number of service days. Agency formally revokes service days proportionally from all outfitter/guides using the use area.

Data Collection and Documentation Prior to Implementation

Resource indicator monitoring data will be input and housed in the Outfitter and Guide database, and the results will be published in the Tongass National Forest Monitoring and Evaluation Report, and will also be available upon request from the Forest Service.

Data will be provided to, and reviewed by an interdisciplinary team located on the District where the use area being proposed for adaptive management is located. The District Ranger will work with the IDT to provide a consolidated response to the Responsible Official for approval prior to implementation.

Permit stipulations, BMPs and mitigation measures will be evaluated on a site-specific basis, as part of the special use permitting process. Management considerations and mitigations are noted on the use area, and large group area cards located in Appendices A and B respectively, and project specific Stipulations and BMPs related to guided use are located in Appendix C.

Scope of Work during Implementation

Project-level monitoring is a commitment of resources to manage the National Forest. The estimated scope of work to implement adaptive management in the first 2 to 5 years varies by alternative. Each alternative proposes an allocation that, when taken into consideration of actual use, results in varying proportions of actual/allocated use. Adaptive management would be employed when 80 percent of the allocated use is utilized by actual use. Optimally, monitoring would start at 75 percent, so that there is a level of certainty regarding future management between agency and outfitter/guide businesses. This scope of work is based on the number of use areas and season that will be at 75 percent or higher in each alternative.

Depending on which alternative is selected, the annual cost of implementing adaptive management would range from approximately $6,185 to $64,850. This estimated cost, as described in the FEIS, could be further off-set through cost recovery authorities by charging outfitter/guides who request additional use a fee and/or further cooperation for voluntary data collection with permitted outfitter/guides. The proposed adaptive management strategy is more feasible than the 2004 Shoreline FEIS/ROD monitoring requirements because it focuses the monitoring requirements in discrete use areas as opposed to the whole project area, therefore concentrating financial resources in use areas where existing use is higher and there is a demand for new use.

These estimated costs are 2016 numbers and do not account for any future inflation.

Table 2-7: Alternative 1 use areas where adaptive management strategy would be employed in first 2-5 years of implementation

District	Use Area	Season	Actual Use 2010-2014	Proposed Allocation	Proportion (Percent)
JRD	01-05D Tracy Arm	Fall	56	45	124
JRD	01-05E Fords Terror	Summer	293	153	192
SRD	04-01A Gut Bay, Baranof	Summer	235	311	76
SRD	04-02A Redoubt Lake	Summer	258	101	255
SRD	04-04B Kelp Bay	Spring	211	201	95
SRD	04-04B Kelp Bay	Summer	2,825	1,181	239
ANM	04-06A Pybus Bay	Summer	573	590	97
HRD	04-16C Idaho Inlet	Summer	1,188	954	125
HRD	04-16E Port Althorp	Spring	200	127	157
HRD	04-16E Port Althorp	Summer	917	607	151

Table 2-8: Alternative 2 use areas where adaptive management strategy would be employed in first 2-5 years of implementation

District	Use Area	Season	Actual Use 2010-2014	Proposed Allocation	Proportion (Percent)
JRD	01-05E Fords Terror	Summer	293	125	234
ANM	04-10A Greens Creek	Summer	190	250	76

Table 2-9: Alternative 3 use areas where adaptive management strategy would be employed in first 2-5 years of implementation

District	Use Area	Season	Actual Use 2010-2014	Proposed Allocation	Proportion (Percent)
JRD	01-05D Tracy Arm	Fall	56	75	75
JRD	01-05E Fords Terror	Summer	293	95	308
SRD	04-01A Gut Bay, Baranof	Summer	235	315	75
SRD	04-01A Gut Bay, Baranof	Fall	42	55	76
SRD	04-04B Kelp Bay	Spring	211	220	96
ANM	04-06A Pybus Bay	Summer	573	510	112
ANM	04-07A Gambier Bay	Spring	45	60	75
ANM	04-10A Greens Creek	Summer	190	190	100

Table 2-10: Alternative 4 use areas where adaptive management strategy would be employed in first 2-5 years of implementation

District	Use Area	Season	Actual Use 2010-2014	Proposed Allocation	Proportion (Percent)
JRD	01-05E Fords Terror	Summer	293	200	147

Early and Late Spring Seasons

Discussion on the implications of extending the spring season, with it starting earlier, and exactly what action would prevent non-hunting outfitters/guides from using that “early” capacity in April and May, led to the division of the spring season into “early” and “late” spring seasons for Alternatives 2, 3, and 4. The splitting of the spring season into two different timeframes is an effort to avoid compounding any potential conflicts with hunting outfitter/guides. Essentially, “early spring” is identified as March 15 to April 24 and “late spring” is April 25 to May 20 or May 31. Proposed alternative allocations were split proportionally based on the number of days in each sub-season. This results in a reduction of service days allocated in the more-popular late spring season, which should help address the issue raised.

It should be noted that Alternative 1, reflecting the use area allocation and seasons of the 2004 Shoreline Outfitter/Guide project, has only one season for spring.

Project Design Features and Mitigation

Design features are specific requirements to avoid or minimize environmental impacts and must be complied with by law, regulation, or policy, such as but not limited to BMPs, Forest Plan standards and guidelines, and standard operating procedures; they can also come from IDT recommendations, issues or concerns from the public or other agencies, or scientific literature.

Mitigation measures alleviate potential adverse effects from natural or human caused disturbances. Mitigation includes doing any, or a combination of, the following: (a) avoiding the impact altogether by not taking a certain action or parts of an action, (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and (e) compensating for the impact by replacing or providing substitute resources or environments (40 CFR 1508.20).

Project-specific design features and mitigation measures are described in Appendices A, B, and C of this document. Design features and required mitigation must be approved by the Responsible Official, as outlined under the section Decisions to be Made in Chapter 1.

Project Monitoring and Evaluation

Monitoring and evaluation provide the public and the Forest Service with information on the progress and results of implementing decisions. Monitoring and evaluation comprise an essential feedback mechanism to help be responsive to changing conditions. There are two distinct types of monitoring: implementation and effectiveness. Implementation monitoring determines if the permitted activities comply with adopted standards and guidelines: “Did we do what we said we would?” Effectiveness monitoring determines whether the standards and guidelines achieve desired results: “Were the results what we expected?”

Implementation and effectiveness monitoring will be accomplished through the administration of the special use permits issued as a result of this decision.

Monitoring and mitigation related to adaptive management decisions are outlined in Appendices A, B, C, and D.

Comparison of Alternatives

This section includes comparison tables by season (numbers in parentheses indicate a negative). The units of measure are service days.

Table 2-11: Alternative totals by season in service days

Alternative	Spring Allocation (Early)	Spring Allocation (Late)	Spring Allocation Total	Summer Allocation	Fall Allocation	Winter Allocation	Total
1	N/A	N/A	**8,403**	32,224	6,822	0	**47,449**
2	5,710	4,640	**10,350**	57,120	9,430	3,405	**80,305**
3	4,445	3,595	**8,040**	44,920	7,575	3,405	**63,940**
4	9,245	7,515	**16,760**	93,015	15,345	5,535	**130,655**

Table 2-12: Comparison of alternatives for the early spring season*

Early Spring (March 15 to April 24)												
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
01-01 Skagway Area	992	0	0	16	160	160	12	120	120	26	260	260
01-02 Haines Area	165	0	0	18	30	30	12	20	20	27	45	45
01-03 East Chilkats	1,169	0	0	12	140	140	9	105	105	20	230	230
01-04A Berners Bay	533	0	0	11	60	60	8	45	45	19	100	100
01-04B N. Juneau Coast	711	15	22	15	105	105	11	80	80	23	165	165
01-04C Taku Inlet	1,778	0	0	7	125	125	5	95	95	12	205	205
01-04D Slocum Inlet	178	0	0	17	30	30	17	30	30	25	45	45
01-05A Taku Harbor	198	0	0	30	60	60	23	45	45	48	95	95
01-05B Port Snettisham	3,638	0	0	6	220	220	5	165	165	10	360	360
01-05C Windham Bay	2,232	3	6	5	115	115	5	115	115	8	185	185
01-05D Tracy Arm	533	0	0	8	40	40	6	30	30	12	65	65
01-05E Fords Terror	356	0	0	11	40	40	8	30	30	17	60	60
01-05F Endicott Arm	1,346	5	7	7	95	95	6	75	75	12	155	155
04-01A Gut Bay, Baranof	946	1	3	6	60	60	5	45	45	10	95	95
04-01B Port Armstrong	1,656	0	0	6	105	105	5	80	80	10	165	165
04-01C Nelson Bay	527	0	0	7	35	35	5	25	25	10	55	55

Early Spring (March 15 to April 24)												
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
04-02A Redoubt Lake	1,066	0	0	15	165	165	12	125	125	25	265	265
04-02B Whale Bay	1,893	2	10	5	95	95	4	75	75	8	160	160
04-02C Necker Islands	1,066	0	0	15	165	165	12	125	125	25	265	265
04-02D SW Baranof	710	0	0	15	110	110	11	80	80	25	175	175
04-03 Sitka Area	6,548	51	150	7	460	460	5	345	345	11	750	750
04-04A Rodman Bay	611	0	0	16	95	95	16	95	95	25	150	150
04-04B Kelp Bay	1,757	5	8	10	180	180	8	135	135	17	290	290
04-04C Baranof Warm Springs	176	0	0	11	20	20	9	15	15	17	30	30
04-05A SE Admiralty	403	2	5	22	90	90	17	70	70	36	145	145
04-06A Pybus Bay	621	1	4	12	75	75	9	55	55	20	125	125
04-06B Eliza Harbor	617	0	0	15	95	95	11	70	70	25	155	155
04-07A Gambier Bay	703	2	6	6	45	45	5	35	35	10	70	70
04-07B Cross-Admiralty Canoe Rte	886	0	0	10	90	90	8	70	70	16	145	145
04-08 NE Admiralty	1,406	0	0	5	70	70	4	55	55	8	115	115
04-09A Seymour Canal	879	0	0	10	90	90	8	70	70	16	145	145
04-09B Pack Creek Zoological Area	879	0	0	10	90	90	8	70	70	16	145	145

Early Spring (March 15 to April 24)												
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
04-10A Greens Creek	176	0	0	14	25	25	11	20	20	26	45	45
04-10B NW Admiralty	1,933	0	1	6	120	120	5	90	90	10	190	190
04-11A Port Frederick	1,406	0	0	10	140	140	10	140	140	16	230	230
04-11B Freshwater Bay	1,406	0	1	10	140	140	10	140	140	16	230	230
04-12 Tenakee Inlet	981	2	4	10	100	100	8	75	75	16	160	160
04-13 Peril Strait	2,460	0	0	10	250	250	8	185	185	16	405	405
04-14 Slocum Arm	660	0	0	11	70	70	8	50	50	17	110	110
04-15A Lisianski	1,778	0	0	8	145	145	6	110	110	13	235	235
04-15B West Yakobi Island	1,600	0	0	3	50	50	3	40	40	5	80	80
04-15C Stag Bay	533	0	0	4	20	20	3	15	15	6	30	30
04-15D Portlock Harbor	1,244	0	0	4	50	50	3	40	40	7	85	85
04-16A Point Adolphus	711	0	0	30	215	215	23	165	165	49	350	350
04-16B North Chichagof	431	0	0	26	110	110	20	85	85	42	180	180
04-16C Idaho Inlet	2,902	0	0	15	435	435	11	330	330	24	710	710
04-16D PLI Wilderness	711	0	0	6	40	40	4	30	30	9	65	65
04-16E Port Althorp	2,952	0	0	15	445	445	11	335	335	25	725	725
Total	**59,063**	**89**	**227**		**5,710**	**5,710**		**4,445**	**4,445**		**9,245**	**9,245**

*Alternative 1 (No Action) is not included since visitor capacity and service days are zero for all use areas.

Table 2-13: Comparison of alternatives for the late spring season*

Late Spring (April 25 to May 20 or May 31)														
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 1 - No Action (% of Visitor Capacity)**	**Alt 1 - No Action (Service Days)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
01-01 Skagway Area	880	0	0	35	311	16	145	(166)	13	110	(201)	26	230	(81)
01-02 Haines Area	147	0	0	121	178	17	25	(153)	14	20	(158)	27	40	(138)
01-03 East Chilkats	1,037	13	26	30	311	12	125	(186)	9	95	(216)	20	205	(106)
01-04A Berners Bay	473	9	22	52	244	12	55	(189)	8	40	(204)	18	85	(159)
01-04B N. Juneau Coast	631	4	22	29	186	14	90	(96)	11	70	(116)	23	145	(41)
01-04C Taku Inlet	1,576	0	0	15	240	7	110	(130)	5	85	(155)	11	180	(60)
01-04D Slocum Inlet	157	0	0	155	244	16	25	(219)	16	25	(219)	25	40	(204)
01-05A Taku Harbor	175	25	36	106	186	29	50	(136)	23	40	(146)	46	80	(106)
01-05B Port Snettisham	3,226	96	138	10	311	6	195	(116)	4	145	(166)	10	320	9
01-05C Windham Bay	1,980	87	184	13	260	5	100	(160)	5	100	(160)	8	165	(95)
01-05D Tracy Arm	473	3	8	12	56	7	35	(21)	5	25	(31)	12	55	(1)
01-05E Fords Terror	315	7	18	30	93	11	35	(58)	8	25	(68)	17	55	(38)
01-05F Endicott Arm	1,194	57	118	11	131	7	85	(46)	5	65	(66)	12	140	9
04-01A Gut Bay, Baranof	839	44	92	11	89	7	55	(34)	5	40	(49)	10	85	(4)

Late Spring (April 25 to May 20 or May 31)														
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 1 - No Action (% of Visitor Capacity)**	**Alt 1 - No Action (Service Days)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
04-01B Port Armstrong	1,469	36	99	12	171	6	90	(81)	5	70	(101)	10	145	(26)
04-01C Nelson Bay	337	2	10	15	50	7	25	(25)	6	20	(30)	10	35	(15)
04-02A Redoubt Lake	946	17	30	3	32	15	145	113	12	110	78	25	235	203
04-02B Whale Bay	1,679	74	91	11	179	5	85	(94)	4	65	(114)	8	140	(39)
04-02C Necker Islands	946	6	21	4	35	15	145	110	12	110	75	25	235	200
04-02D SW Baranof	630	9	16	22	141	15	95	(46)	12	75	(66)	25	155	14
04-03 Sitka Area	5,807	86	174	11	622	7	410	(212)	5	305	(317)	11	665	43
04-04A Rodman Bay	541	5	8	27	146	11	60	(86)	11	60	(86)	18	100	(46)
04-04B Kelp Bay	1,124	206	269	18	201	10	115	(86)	8	85	(116)	16	185	(16)
04-04C Baranof Warm Springs	112	0	0	25	28	13	15	(13)	9	10	(18)	18	20	(8)
04-05A SE Admiralty	257	58	85	80	206	23	60	(146)	18	45	(161)	37	95	(111)
04-06A Pybus Bay	397	48	90	31	122	13	50	(72)	9	35	(87)	20	80	(42)
04-06B Eliza Harbor	394	46	51	38	150	15	60	(90)	11	45	(105)	25	100	(50)
04-07A Gambier Bay	449	43	61	18	79	7	30	(49)	6	25	(54)	10	45	(34)
04-07B Cross-Admiralty Canoe Rte	566	12	28	17	99	11	60	(39)	8	45	(54)	17	95	(4)

Late Spring (April 25 to May 20 or May 31)														
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 1 - No Action (% of Visitor Capacity)**	**Alt 1 - No Action (Service Days)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
04-08 NE Admiralty	899	2	10	24	218	5	45	(173)	4	35	(183)	8	75	(143)
04-09A Seymour Canal	562	16	23	33	187	11	60	(127)	8	45	(142)	17	95	(92)
04-09B Pack Creek Zoological Area	562	5	19	0	0	11	60	60	8	45	45	17	95	95
04-10A Greens Creek	112	1	3	78	87	18	20	(67)	13	15	(72)	27	30	(57)
04-10B NW Admiralty	1,236	48	68	14	175	6	75	(100)	5	60	(115)	10	125	(50)
04-11A Port Frederick	899	20	48	17	157	10	90	(67)	10	90	(67)	17	150	(7)
04-11B Freshwater Bay	899	18	54	19	170	10	90	(80)	10	90	(80)	17	150	(20)
04-12 Tenakee Inlet	627	75	127	48	304	10	65	(239)	8	50	(254)	17	105	(199)
04-13 Peril Strait	1,573	101	143	38	599	10	160	(439)	8	120	(479)	17	260	(339)
04-14 Slocum Arm	585	40	47	43	249	10	60	(189)	8	45	(204)	17	100	(149)
04-15A Lisianski	1,576	5	10	11	168	8	130	(38)	6	95	(73)	13	210	42
04-15B West Yakobi Island	1,419	2	10	6	89	3	45	(44)	2	35	(54)	5	70	(19)
04-15C Stag Bay	473	5	10	6	30	3	15	(15)	3	15	(15)	5	25	(5)
04-15D Portlock Harbor	1,104	3	8	6	69	4	45	(24)	3	35	(34)	7	75	6
04-16A Point Adolphus	631	8	25	32	200	30	190	(10)	23	145	(55)	49	310	110

Late Spring (April 25 to May 20 or May 31)														
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 1 - No Action (% of Visitor Capacity)**	**Alt 1 - No Action (Service Days)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
04-16B North Chichagof	383	25	58	52	200	26	100	(100)	20	75	(125)	42	160	(40)
04-16C Idaho Inlet	2,574	139	272	8	200	15	385	185	11	290	90	24	630	430
04-16D PLI Wilderness	631	2	5	12	73	6	35	(38)	4	25	(48)	9	55	(18)
04-16E Port Althorp	2,617	200	305	5	127	15	395	268	11	295	168	24	640	513
Totals	**48,119**	**1,708**	**2,942**		**8,403**		**4,640**	**(3,763)**		**3,595**	**(4,808)**		**7,515**	**(888)**

*Numbers in parentheses indicate a negative.

Table 2-14: Comparison of alternatives for the summer season*

Summer (May 21 or June 1 to September 14)														
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 1 - No Action (% of Visitor Capacity)**	**Alt 1 - No Action (Service Days)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
01-01 Skagway Area	4,452	0	0	20	890	16	710	(180)	12	535	(355)	26	1,160	270
01-02 Haines Area	1,272	0	0	22	286	9	115	(171)	7	90	(196)	15	190	(96)
01-03 East Chilkats	7,472	244	431	12	890	10	750	(140)	8	565	(325)	16	1,220	330
01-04A Berners Bay	2,886	46	80	15	445	12	350	(95)	9	265	(180)	20	565	120
01-04B N. Juneau Coast	7,516	50	72	6	458	6	450	(8)	5	340	(118)	10	735	277
01-04C Taku Inlet	11,533	9	24	8	916	7	810	(106)	5	610	(306)	11	1,315	399
01-04D Slocum Inlet	617	138	264	72	445	50	310	(135)	50	310	(135)	82	505	60
01-05A Taku Harbor	1,200	70	119	38	458	24	290	(168)	18	220	(238)	39	470	12
01-05B Port Snettisham	25,652	751	903	7	1,781	12	3,080	1,299	9	2,310	529	20	5,015	3,234
01-05C Windham Bay	22,960	481	694	7	1,637	9	2,070	433	9	2,070	433	15	3,370	1,733
01-05D Tracy Arm	2,162	47	77	8	183	8	175	(8)	6	135	(48)	13	285	102
01-05E Fords Terror	1,526	143	176	10	153	8	125	(28)	6	95	(58)	13	200	47
01-05F Endicott Arm	6,119	293	467	7	427	8	490	63	6	370	(57)	13	800	373
04-01A Gut Bay, Baranof	3,199	235	390	10	311	13	420	109	10	315	4	21	680	369

Summer (May 21 or June 1 to September 14)														
Shoreline II Use Areas	Estimated Visitor Capacity (Service Days)	Average O/G Annual Use (2010-2014)	Highest O/G Annual Use (2010-2014)	Alt 1 - No Action (% of Visitor Capacity)	Alt 1 - No Action (Service Days)	Alt 2 (% of Visitor Capacity)	Alt 2 (Service Days)	Difference (Alt 2-Alt 1)	Alt 3 (% of Visitor Capacity)	Alt 3 (Service Days)	Difference (Alt 3-Alt 1)	Alt 4 (% of Visitor Capacity)	Alt 4 (Service Days)	Difference (Alt 4-Alt 1)
04-01B Port Armstrong	7,950	124	227	5	401	8	640	239	6	480	79	13	1,040	639
04-01C Nelson Bay	3,182	4	17	9	275	15	480	205	11	360	85	25	780	505
04-02A Redoubt Lake	14,602	258	420	1	101	10	1,460	1,359	7	1,095	994	16	2,380	2,279
04-02B Whale Bay	5,829	151	177	10	577	9	525	(52)	7	395	(182)	15	855	278
04-02C Necker Islands	9,370	69	88	1	99	15	1,410	1,311	11	1,060	961	24	2,290	2,191
04-02D SW Baranof	4,172	17	28	11	453	15	630	177	11	475	22	24	1,020	567
04-03 Sitka Area	29,680	875	1,224	12	3,562	25	7,420	3,858	19	5,565	2,003	41	12,090	8,528
04-04A Rodman Bay	10,670	415	560	12	1,264	25	2,670	1,406	25	2,670	1,406	41	4,345	3,081
04-04B Kelp Bay	26,512	2825	4151	4	1,181	25	6,630	5,449	19	4,975	3,794	41	10,800	9,619
04-04C Baranof Warm Springs	1,675	107	128	14	232	14	235	3	11	180	(52)	23	385	153
04-05A SE Admiralty	2,425	211	284	19	463	20	485	22	15	365	(98)	33	790	327
04-06A Pybus Bay	3,370	573	646	18	590	20	675	85	15	510	(80)	33	1,100	510
04-06B Eliza Harbor	3,436	85	176	9	295	9	310	15	7	235	(60)	15	505	210
04-07A Gambier Bay	2,765	77	133	14	393	10	280	(113)	8	210	(183)	16	450	57
04-07B Cross-Admiralty Canoe Rte	3,036	80	114	16	491	13	395	(96)	10	300	(191)	21	645	154

Summer (May 21 or June 1 to September 14)														
Shoreline II Use Areas	Estimated Visitor Capacity (Service Days)	Average O/G Annual Use (2010-2014)	Highest O/G Annual Use (2010-2014)	Alt 1 - No Action (% of Visitor Capacity)	Alt 1 - No Action (Service Days)	Alt 2 (% of Visitor Capacity)	Alt 2 (Service Days)	Difference (Alt 2-Alt 1)	Alt 3 (% of Visitor Capacity)	Alt 3 (Service Days)	Difference (Alt 3-Alt 1)	Alt 4 (% of Visitor Capacity)	Alt 4 (Service Days)	Difference (Alt 4-Alt 1)
04-08 NE Admiralty	6,365	30	76	15	5	320		(663)	4	240	(743)	8	520	(463)
04-09A Seymour Canal	3,978	21	83	30	1,193	8	320	(873)	6	240	(953)	13	520	(673)
04-09B Pack Creek Zoological Area**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04-10A Greens Creek	999	190	398	59	590	25	250	(340)	19	190	(400)	41	410	(180)
04-10B NW Admiralty	5,148	25	38	11	590	8	415	(175)	6	315	(275)	13	675	85
04-11A Port Frederick	7,582	100	195	12	943	13	990	47	13	990	47	21	1,605	662
04-11B Freshwater Bay	9,887	305	679	10	1,022	20	1,980	958	20	1,980	958	33	3,225	2,203
04-12 Tenakee Inlet	9,954	86	187	8	842	8	800	(42)	6	600	(242)	13	1,300	458
04-13 Peril Strait	20,218	696	902	5	1,011	25	5,055	4,044	19	3,795	2,784	41	8,235	7,224
04-14 Slocum Arm	3,145	20	35	10	305	9	285	(20)	7	215	(90)	15	465	160
04-15A Lisianski	4,755	22	67	13	601	25	1,190	589	19	895	294	41	1,940	1,339
04-15B West Yakobi Island	4,484	3	10	7	318	7	315	(3)	5	240	(78)	11	515	197
04-15C Stag Bay	1,495	2	6	7	106	7	105	(1)	5	80	(26)	12	175	69
04-15D Portlock Harbor	3,487	50	116	7	247	7	245	(2)	5	185	(62)	11	400	153
04-16A Point Adolphus	3,650	453	823	26	954	40	1,460					65	2,380	1,426

Summer (May 21 or June 1 to September 14)														
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 1 - No Action (% of Visitor Capacity)**	**Alt 1 - No Action (Service Days)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
04-16B North Chichagof	4,888	206	347	20	954	506	30	1,095	141	735	(219)	33	1,595	641
04-16C Idaho Inlet	10,494	1,188	1,349	9	954	29	3,045	2,091	22	2,285	1,331	47	4,960	4,006
04-16D PLI Wilderness	1,769	81	176	20	347	15	265	(82)	11	200	(147)	25	435	88
04-16E Port Althorp	9,423	917	1,183	6	607	50	4,710	4,103	38	3,535	2,928	81	7,675	7,068
Totals	**338,961**	**12,773**	**18,740**		**32,224**		**57,120**	**24,896**		**44,920**	**12,696**		**93,015**	**60,791**

*Numbers in parentheses indicate a negative.
** 04-09B Pack Creek Zoological Area summer season allocation was part of a separate decision and is not included in the Shoreline II Outfitter/Guide decision. Summer use at Pack Creek was however considered in cumulative effects for this project.

Table 2-15: Comparison of alternatives for the fall season

Fall (September 15 to December 31)														
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 1 - No Action (% of Visitor Capacity)**	**Alt 1 - No Action (Service Days)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
01-01 Skagway Area	2,592	0	0	6	156	10	260	104	8%	195	39	16%	425	269
01-02 Haines Area	432	0	0	34	148	13	55	(93)	10%	45	(103)	20%	85	(63)
01-03 East Chilkats	3,110	2	7	10	312	5	160	(152)	4%	120	(192)	8%	255	(57)
01-04A Berners Bay	1,037	0	0	15	156	10	105	(51)	8%	80	(76)	16%	170	14
01-04B N. Juneau Coast	1,382	16	80	11	150	11	155	5	9%	120	(30)	18%	250	100
01-04C Taku Inlet	3,456	0	0	4	150	5	170	20	4%	130	(20)	8%	285	135
01-04D Slocum Inlet	346	0	0	45	156	20	70	(86)	20%	70	(86)	33%	115	(41)
01-05A Taku Harbor	346	2	7	43	150	16	55	(95)	13%	45	(105)	26%	90	(60)
01-05B Port Snettisham	3,456	6	10	9	312	10	350	38	8%	265	(47)	16%	565	253
01-05C Windham Bay	3,110	8	32	13	402	10	310	(92)	10%	310	(92)	16%	510	108
01-05D Tracy Arm	1,168	56	67	4	45	8	95	50	6%	75	30	13%	155	110
01-05E Fords Terror	691	6	8	13	89	10	70	(19)	8%	55	(34)	17%	115	26
01-05F Endicott Arm	1,512	39	48	7	105	7	105	0	5%	80	(25)	12%	175	70

Fall (September 15 to December 31)														
Shoreline II Use Areas	Estimated Visitor Capacity (Service Days)	Average O/G Annual Use (2010-2014)	Highest O/G Annual Use (2010-2014)	Alt 1 - No Action (% of Visitor Capacity)	Alt 1 - No Action (Service Days)	Alt 2 (% of Visitor Capacity)	Alt 2 (Service Days)	Difference (Alt 2-Alt 1)	Alt 3 (% of Visitor Capacity)	Alt 3 (Service Days)	Difference (Alt 3-Alt 1)	Alt 4 (% of Visitor Capacity)	Alt 4 (Service Days)	Difference (Alt 4-Alt 1)
04-01A Gut Bay, Baranof	1,362	42	59	5	69	5	70	1	4%	55	(14)	8%	115	46
04-01B Port Armstrong	2,419	7	15	5	109	5	125	16	4%	95	(14)	8%	200	91
04-01C Nelson Bay	1,037	1	3	5	55	6	65	10	5%	50	(5)	10%	105	50
04-02A Redoubt Lake	2,074	3	11	1	27	15	315	288	12	240	213	25	510	483
04-02B Whale Bay	2,576	29	71	4	110	4	105	(5)	3	80	(30)	7	175	65
04-02C Necker Islands	2,074	0	0	1	29	15	315	286	12	240	211	25	510	481
04-02D SW Baranof	2,419	2	5	4	86	15	365	279	11	275	189	25	595	509
04-03 Sitka Area	13,187	117	325	4	499	8	1,055	556	6	795	296	13	1,720	1,221
04-04A Rodman Bay	1,382	9	22	7	101	7	100	(1)	7	100	(1)	12	160	59
04-04B Kelp Bay	4,253	35	63	3	139	5	215	76	4	165	26	8	350	211
04-04C Baranof Warm Springs	346	7	12	11	37	12	40	3	9	30	(7)	19	65	28
04-05A SE Admiralty	1,728	37	53	14	243	8	140	(103)	6	105	(138)	13	225	(18)
04-06A Pybus Bay	1,382	30	56	6	89	8	110	21	6	85	(4)	13	180	91
04-06B Eliza Harbor	1,382	4	8	6	89	8	110	21	6	85	(4)	13	180	91
04-07A Gambier Bay	1,382	1	3	6	79	8	110	31	6	85	6	13	180	101

Fall (September 15 to December 31)														
Shoreline II Use Areas	Estimated Visitor Capacity (Service Days)	Average O/G Annual Use (2010-2014)	Highest O/G Annual Use (2010-2014)	Alt 1 - No Action (% of Visitor Capacity)	Alt 1 - No Action (Service Days)	Alt 2 (% of Visitor Capacity)	Alt 2 (Service Days)	Difference (Alt 2-Alt 1)	Alt 3 (% of Visitor Capacity)	Alt 3 (Service Days)	Difference (Alt 3-Alt 1)	Alt 4 (% of Visitor Capacity)	Alt 4 (Service Days)	Difference (Alt 4-Alt 1)
04-07B Cross-Admiralty Canoe Rte	1,728	0	0	6	99	8	140	41	6	105	6	13	225	126
04-08 NE Admiralty	2,765	0	0	8	218	5	140	(78)	4	105	(113)	8	225	7
04-09A Seymour Canal	1,728	15	28	11	187	8	140	(47)	6	105	(82)	13	225	38
04-09B Pack Creek Zoological Area	1,728	19	27	0	0	8	140	140	6	105	105	13	225	225
04-10A Greens Creek	572	37	167	26	150	25	145	(5)	19	110	(40)	41	235	85
04-10B NW Admiralty	3,802	13	21	7	262	5	190	(72)	4	145	(117)	8	310	48
04-11A Port Frederick	2,765	6	23	6	157	10	280	123	10	280	123	16	450	293
04-11B Freshwater Bay	9,504	51	149	2	170	10	950	780	10	950	780	16	1,550	1,380
04-12 Tenakee Inlet	4,147	25	57	7	304	6	250	(54)	5	190	(114)	10	405	101
04-13 Peril Strait	4,385	68	102	7	324	7	310	(14)	5	235	(89)	11	500	176
04-14 Slocum Arm	2,419	31	47	5	112	5	120	8	4	90	(22)	8	200	88
04-15A Lisianski	3,456	2	5	3	88	8	280	192	6	210	122	13	450	362
04-15B West Yakobi Island	3,110	4	10	2	47	2	65	18	2	50	3	3	105	58
04-15C Stag Bay	1,037	2	4	2	16	2	20	4	1	15	(1)	3	35	19
04-15D Portlock Harbor	2,419	7	14	1	36	5	120	84	4	90	54	8	200	164

Fall (September 15 to December 31)														
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 1 - No Action (% of Visitor Capacity)**	**Alt 1 - No Action (Service Days)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Difference (Alt 2-Alt 1)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Difference (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
04-16A Point Adolphus	1,382	12	59	10	140	21	290	150	16	220	80	34	475	335
04-16B North Chichagof	1,728	5	18	8	140	8	140	0	6	105	(35)	13	225	85
04-16C Idaho Inlet	2,074	13	8	7	140	7	145	5	5	110	(30)	12	240	100
04-16D PLI Wilderness	1,382	0	0	4	51	4	55	4	3	45	(6)	7	90	39
04-16E Port Althorp	2,074	0	0	4	89	15	310	221	11	235	146	25	510	421
Totals	**115,846**	**769**	**1,704**		**6,822**		**9,430**	**2,608**		**7,575**	**753**		**15,345**	**8,523**

Table 2-16: Comparison of alternatives for the winter season

Winter (January 1 to March 14)									
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**
01-01 Skagway Area	1,752	0	0	7	125	7	125	11	200
01-02 Haines Area	292	0	0	7	20	7	20	12	35
01-03 East Chilkats	2,102	0	0	7	150	7	150	11	240
01-04A Berners Bay	701	0	0	7	50	7	50	11	80
01-04B N. Juneau Coast	934	12	60	7	65	7	65	12	110
01-04C Taku Inlet	2,336	0	0	7	165	7	165	12	270
01-04D Slocum Inlet	234	0	0	9	20	9	20	13	30
01-05A Taku Harbor	234	0	0	9	20	9	20	13	30
01-05B Port Snettisham	2,336	0	0	7	165	7	165	12	270
01-05C Windham Bay	2,102	0	0	7	150	7	150	11	240
01-05D Tracy Arm	701	0	0	0	0	0	0	0	0
01-05E Fords Terror	467	0	0	0	0	0	0	0	0
01-05F Endicott Arm	1,635	0	0	0	0	0	0	0	0
04-01A Gut Bay, Baranof	1,168	0	0	0	0	0	0	0	0
04-01B Port Armstrong	1,635	0	0	7	115	7	115	12	190
04-01C Nelson Bay	701	0	0	7	50	7	50	11	80
04-02A Redoubt Lake	1,402	0	0	7	100	7	100	11	160
04-02B Whale Bay	3,270	0	0	0	0	0	0	0	0
04-02C Necker Islands	1,402	0	0	7	100	7	100	11	160
04-02D SW Baranof	1,635	0	0	7	115	7	115	12	190
04-03 Sitka Area	7,709	20	64	7	540	7	540	11	880
04-04A Rodman Bay	934	0	0	7	65	7	65	12	110

Winter (January 1 to March 14)									
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**
04-04B Kelp Bay	2,336	0	0	7	165	7	165	12	270
04-04C Baranof Warm Springs	234	0	0	9	20	9	20	13	30
04-05A SE Admiralty	1,168	0	0	0	0	0	0	0	0
04-06A Pybus Bay	934	0	0	0	0	0	0	0	0
04-06B Eliza Harbor	934	0	0	0	0	0	0	0	0
04-07A Gambier Bay	934	0	0	0	0	0	0	0	0
04-07B Cross-Admiralty Canoe Rte	1,168	0	0	0	0	0	0	0	0
04-08 NE Admiralty	1,869	0	0	0	0	0	0	0	0
04-09A Seymour Canal	1,168	0	0	0	0	0	0	0	0
04-09B Pack Creek Zoological Area	1,168	0	0	0	0	0	0	0	0
04-10A Greens Creek	234	0	0	0	0	0	0	0	0
04-10B NW Admiralty	2,570	0	0	0	0	0	0	0	0
04-11A Port Frederick	1,869	1	3	7	130	7	130	12	215
04-11B Freshwater Bay	1,869	0	0	7	130	7	130	12	215
04-12 Tenakee Inlet	2,803	0	0	7	200	7	200	11	320
04-13 Peril Strait	3,270	0	0	7	230	7	230	11	375
04-14 Slocum Arm	1,635	0	0	0	0	0	0	0	0
04-15A Lisianski	2,336	0	0	7	165	7	165	12	270
04-15B West Yakobi Island	2,102	0	0	0	0	0	0	0	0
04-15C Stag Bay	701	0	0	0	0	0	0	0	0
04-15D Portlock Harbor	1,635	0	0	0	0	0	0	0	0
04-16A Point Adolphus	934	0	0	7	65	7	65	12	110

Winter (January 1 to March 14)									
Shoreline II Use Areas	**Estimated Visitor Capacity (Service Days)**	**Average O/G Annual Use (2010-2014)**	**Highest O/G Annual Use (2010-2014)**	**Alt 2 (% of Visitor Capacity)**	**Alt 2 (Service Days)**	**Alt 3 (% of Visitor Capacity)**	**Alt 3 (Service Days)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**
04-16B North Chichagof	1,168	0	0	7	85	7	85	12	135
04-16C Idaho Inlet	1,402	0	0	7	100	7	100	11	160
04-16D PLI Wilderness	934	0	0	0	0	0	0	0	0
04-16E Port Althorp	1,402	0	0	7	100	7	100	11	160
Totals	**74,459**	**33**	**127**		**3,405**		**3,405**		**5,535**

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Chapter 3
Environmental Consequences

Chapter 3. Environmental Consequences

Introduction

This chapter summarizes the physical, biological, social, and economic environments of the affected project area and the potential effects to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for the comparison of alternatives presented in Chapter 2.

Direct, indirect, and cumulative effects are disclosed. Effects are quantified where possible, but qualitative discussions are also included.

The following discussion of resources and potential effects associated with each of the alternative uses information included in the Forest Plan, other project environmental analyses, project specific resource reports and related information, analyses, and other sources as indicated. Where applicable, such information is briefly summarized and referenced to minimize duplication.

2016 Tongass Land and Resource Management Plan (2016 Forest Plan)

As mentioned in Chapter 1, the 2016 Forest Plan amended the 2008 Forest Plan under which the Shoreline II DEIS was prepared. The 2016 Forest Plan ROD was approved on December 9, 2016 and became effective on January 8, 2017.

Resource specialists have reviewed their resource analyses to ensure that Shoreline II FEIS complies with the applicable standards and guidelines in Chapters 3 and 4 of the 2016 Forest Plan. These standards and guidelines in the 2016 Forest Plan changed very little from those in the 2008 Forest Plan. In addition, resource specialists reviewed their resource analyses to ensure that Shoreline II FEIS complies with the applicable Forest-wide plan components in Chapter 5 of the 2016 Forest Plan. Any new information from the 2016 Forest Plan FEIS relevant to the Shoreline II resource analyses has been included and incorporated by reference where applicable.

Since Shoreline II does not propose young-growth management, renewable energy development, or transportation systems corridors development, these plan components are not applicable. Chapter 5 does include Forest-wide plan components for Wildlife which apply to the Shoreline II project. This is further discussed in the Wildlife section of this chapter.

Analyzing Effects

Environmental consequences are the effects of implementing an alternative on the physical, biological, social, and economic environment. The Council of Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) include a number of specific categories to use for the analysis of environmental consequences. Several of these categories are applicable to the analysis of the proposed project and alternatives. They form the basis of much of the analysis that follows and are explained briefly below.

Direct, Indirect, and Cumulative Effects

Effects disclosed in this document are organized into three categories: direct, indirect, and cumulative effects. **Direct environmental effects** occur at the same time and place as the initial cause or action. **Indirect effects** occur later in time or are spatially removed from the action. **Cumulative effects** result from the incremental effects of actions, when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. Effects are discussed below by resource.

The interdisciplinary team (IDT) developed a list of activities (the Catalog of Events) to consider when analyzing the cumulative effects of the project. The project list included but was not limited to:

- Kruzof Integrated Resource Project
- Hidden Falls Fish Hatchery Repermit
- Sweetheart Lake Hydroelectric project in Gilbert Bay
- State of Alaska energy projects
- Sealaska land exchange
- Angoon Airport
- Thayer Lake Hydroelectric project

A complete list of projects is included in the Catalog of Events in the project record.

Short-term Uses and Long-term Productivity

NEPA requires consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). As declared by Congress, this includes using all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

Short-term uses, and their effects, are those activities that occur annually or within the first few years of project implementation. Long-term productivity refers to the capability of the land and resources to continue producing goods and services long after the project has been implemented. Under the Multiple-Use Sustained-Yield Act and the National Forest Management Act, all renewable resources are to be managed so that they are available for future generations.

Outfitter/guide use is expected to have minimal effect on trees and tree growth, but could affect native plants, the spread of invasive plants, and archeological sites. Long-term productivity of resources is expected to be maintained through the application of site-specific resource protection measures (design features and mitigation measures) and adaptive management as described in Chapter 2 and Appendices A, B, C and D.

Unavoidable Adverse Effects

Implementation of an action alternative may cause some adverse environmental effects that cannot be effectively mitigated or avoided. Unavoidable adverse effects often result from managing the land for one resource at the expense of the use or condition of one or several other resources. Many adverse effects can be reduced, mitigated, or avoided by limiting the extent or duration of effects. The application

of Forest Plan standards and guidelines, best management practices (BMPs), project-specific project design and mitigation measures, adaptive management and monitoring are all intended to further limit the extent, severity, and duration of potential effects. Such measures are discussed throughout this chapter.

Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time such as the temporary loss of timber productivity in forested areas that are kept clear for use as a power line right-of-way or road.

As an example, the use of rock for construction or the loss of the only known population of a plant would be an irreversible commitment of that resource since the rock is no longer in the ground or the plant no longer exists. A lower allocation of service days to outfitter/guides is a loss of business productivity, which is an irretrievable commitment of resources.

No irreversible commitments are expected if the design features and mitigation measures as outlined in Appendix C are implemented. The action alternatives may reduce the amount of potential guided use in some use areas but may also increase potential guided use in most other areas. While there could be an irretrievable loss of business productivity in some locations; it may be offset by the gains in other locations.

Other Resources

Several resources and uses of the project area are likely to remain unaffected by the proposed action or alternatives, or will not be affected to a significant degree. Even though significant effects are not expected, these resources are discussed in the Analysis of the Alternatives by Resource section of this chapter to the extent those measurable effects or differences between alternatives are present. Resources or uses for which no measurable effects were identified are discussed briefly here.

Air Quality/Climate Change

No significant effects on global carbon sequestration levels are expected under any of the alternatives considered for the 2008 Forest Plan Final EIS. Therefore, it is reasonable to conclude that small changes (project-level) in carbon sequestration on the Tongass, whether beneficial or adverse, would have a minor effect on atmospheric carbon levels. All of the action alternatives proposed for this project would have limited, short-term effects on ambient air quality. Such effects, in the form of boat motor emissions are likely to be indistinguishable from other local sources of airborne particulates.

Inventoried Roadless Areas

The Shoreline II Outfitter/Guide EIS does not propose any road building, or new facilities within inventoried roadless areas. There will be no effects from implementation of any of the action alternatives to the physical, biological or social values of any project area IRAs, keeping roadless area characteristics unchanged across the project area.

Land Ownership and Administration

None of the proposed alternatives promote vandalism, trespass, or ground disturbance at or near pre-existing permitted land activities. Therefore, no adverse effects (direct, indirect, or cumulative) are anticipated if Shoreline II project alternatives are implemented.

The proposed alternatives will not result in any adverse or beneficial cumulative effects to permitted land activities. The modification to existing allocations of recreational use days will typically be in previously disturbed areas. Special-use permits pertaining to roads, power lines, telephone lines, hydroelectric facilities, and telecommunication locations are likely to continue with no significant change into the future. Short-term special uses for specific events are analyzed on a case-by-case basis. There are currently no pending special use permits within the planning area awaiting analysis.

Wild, Scenic, and Recreational Rivers

Some segments of rivers within the Shoreline II project area have been classified as Wild Rivers and recommended to Congress for inclusion in the National Wild and Scenic Rivers System. The Forest Plan describes desired conditions for Wild Rivers (USDA Forest Service 2008a, p. 3-74) and management prescriptions to achieve Forest Plan goals and objectives. No appreciable effect is expected with the implementation of Shoreline II that would cause these river segments to deviate from the desired condition or preclude them from eventual inclusion by Congress in the National Wild and Scenic Rivers System.

Very little guided or outfitted activity has occurred along these river segments. This is not expected to change considerably with the implementation of Shoreline II. Recreation and tourism use and activities will continue to be managed consistent with the Wild and Scenic Rivers Act and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA).

For these reasons, effects to river segments managed under the Wild River classification are expected to be negligible. No further analysis is necessary.

Analysis of the Alternatives by Resource

The following sections describe the environmental effects of each of the alternatives as they relate to each resource for this project. Concerns, suggestions, and design recommendations are discussed as they relate to the project's affected environment and potential effects of the alternatives on resources.

Socioeconomics

Introduction

A shared characteristic of all Shoreline II Outfitter/Guide EIS alternatives is that they manage outfitter/guide activity, to a greater or lesser degree, based on a variety of rationale. In Southeast Alaska, the visitor industry plays an important role as measured by a variety of economic indicators. Tourism impacts local communities and economies by providing employment opportunity, contributing towards household income, and generating local government revenue. Tourism's potential to directly impact local employment by supporting outfitter/guide businesses, and related jobs, is an impact that is considered throughout the socioeconomics section. To a lesser extent, tourism's impact on recreational opportunities for local residents is also important; however, this impact is largely related to the perceived negative impact on recreational experiences through crowding and overcrowding. Of noteworthy importance, tourism growth in communities with economies historically tied to traditional resource extraction activities may result in changes to community social structure, local economy, and the overall distribution of wealth.

The Shoreline II Outfitter/Guide EIS is limited to the management and allocation of guiding and outfitting activities in the shoreline zone of the Admiralty Island National Monument, and Hoonah, Juneau, and Sitka Ranger Districts in the northern portion of the Tongass National Forest. The socioeconomic effects section concentrates mainly on the social and economic aspects of recreation and tourism within the analysis area. However, localized socioeconomic issues also occur within the broader context of a socially- and economically-interconnected region. The importance of socioeconomics extends beyond only recreation and tourism concerns. Where necessary, the broader regional context and tourism-related trends will be considered, but in a limited manner. For more information on Southeast Alaska socioeconomic conditions, see the comprehensive analysis completed for the *Tongass National Forest Land and Resource Management Plan* amendment (USDA Forest Service, 2016b).

The following affected environment section begins by introducing communities within the analysis area, followed by a description of important regional economic trends. The role of outfitter/guides in the commercial recreation industry follows. These discussions provide a foundation for the socioeconomic effects analyses that concludes this section.

Analysis Area

Northern Southeast Alaska is sparsely populated with isolated communities connected primarily via air and water service. The Alaska Marine Highway System transports people and vehicles between several ports in Southeast Alaska, British Columbia (Prince Rupert), and Washington (Bellingham). Haines and Skagway, at the northern end of the Tongass National Forest, offer road access to the interior and southcentral Alaska via the Alaska Highway and to Canada via the Cassiar Highway. Juneau, Petersburg, and Sitka are the only communities in or near the project area with year-round scheduled commercial jet service. As the gateway community to Glacier Bay National Park, Gustavus also receives commercial jet service, but only during the summer season.

Community Overview

The affected environment, including the three ranger districts and one national monument, is comprised of approximately one dozen incorporated and unincorporated communities with populations ranging from 15 seasonal residents to over 30,000 permanent full-time residents. The following community profiles summarize community-level socioeconomic characteristics and also briefly describe the local economy. While Baranof Warm Springs is not generally considered a "community" by most social scientists, it is included in this section because it is a significant tourist destination. Current socioeconomic information

is provided by the Alaska Department of Commerce, Community, and Economic Development (Community Database Online), Alaska Department of Labor and Workforce Development (Alaska Local and Regional Information), and local and regional economic development organizations.

Table 3-1: 2016 Community Populations

Community	2016 Population Estimate
City and Borough of Juneau	32,739
City and Borough of Sitka	8,920
Baranof Warm Springs	Seasonal
Port Alexander	58
City of Hoonah	793
City of Angoon	408
City of Pelican	78
Elfin Cove	13
City of Tenakee Springs	140
Haines Borough	2,466
Municipality of Skagway	1,065
City of Gustavus	558
City of Kake	605
Petersburg Borough	3,179

Source: 2015 DCCED certified population

City and Borough of Juneau

Juneau, Alaska's state capital, is the largest community in the analysis area with an estimated population of 32,739. The community is a service and recreation center for residents and visitors alike. Tourism is a significant contributor to the local economy, especially during the summer months, providing approximately 1,700 jobs (Bell, 2015). The most popular local attractions include the Mendenhall Glacier, Mount Roberts Tram, Juneau Icefield, and Tracy Arm. Juneau is accessible by only air or water transportation. Scheduled commercial jet and air taxi service is available year-round at the Juneau International Airport. Marine facilities include multiple seaplane facilities, deep draft docks, small boat harbors, and a state ferry terminal. The Alaska Marine Highway System and commercial barge services provide year-round marine transportation access.

City and Borough of Sitka

With an estimated population of 8,920, Sitka is the second largest community in the analysis area and a popular visitor destination. Sitka is located on scenic Baranof Island and is a port of call for cruise ships throughout the summer season. Cruise passengers arriving to Sitka primarily disembark via anchor and lighter boat service in downtown Sitka, however, a secondary method of arrival is a deep water dock located out-of-town with bus service to downtown Sitka. Despite varied cruise ship visitation during the past decade, the leisure and hospitality industry remains an important part of Sitka's economy, generating a significant quantity of jobs and income. The local government operates five small boat harbors, a seaplane base, and an airport. The community is also served by the Alaska Marine Highway System and goods are transported to the community via regular commercial barge service.

Baranof Warm Springs

Baranof Warm Springs (seasonal population 15) is situated at the northwest end of Warmsprings Bay on the eastern shore of Baranof Island, 20 air miles east of Sitka. The community is part of the City and Borough of Sitka and is considered a seasonal recreation area with approximately 15 full-time and 25

part-time residents during the summer season. An additional 60 individuals are estimated to visit Baranof Warm Springs every day via floatplane or boat during the summer season. The community and surrounding federal and state lands provide a variety of recreational opportunities including hiking, fishing, boating, and natural hot springs. Popular geographic attractions include Baranof Lake and the Baranof River waterfall. The State of Alaska owns and maintains the boat and float dock, which attracts a significant quantity of transient pleasure and commercial fishing boats.

Port Alexander

Port Alexander is one of the smallest communities in the analysis area (population 58) and is located on the south end of Baranof Island, 65 air miles south of Sitka. Port Alexander has long provided safe harbor for commercial fishing boats during Chatham Strait gales and storms. Commercial fishing, subsistence activities, and tourism are important elements of the local economy. Access to Port Alexander is by floatplane or boat. The State of Alaska owns and maintains a seaplane base. Residents and visitors fly to Port Alexander via commercial or chartered floatplane service from Sitka, Petersburg, Wrangell, and Juneau. Other local facilities include a breakwater, dock, and small boat harbor. There are no roads in Port Alexander; skiffs provide local transportation.

City of Hoonah

Hoonah is the largest Tlingit village in Alaska with a population of 793 year-round residents. Many residents maintain a subsistence lifestyle that includes hunting, fishing, and gathering edible plants and berries. The State of Alaska owns and operates the local airport and seaplane base. Air taxi services and the Alaska Marine Highway System provide regular access to Hoonah. Icy Strait Point, a restored cannery at Point Sophia owned by Huna Totem Corporation, opened as Southeast’s newest cruise industry port of call in 2004. The introduction of cruise industry to Hoonah’s local economy has yielded multiple economic benefits as new retail, leisure, and hospitality businesses have opened or increased operations to serve visitors. Hoonah is surrounded by an extensive road system on northwest Chichagof Island.

City of Angoon

Angoon (population 408) is a Tlingit village and the only settlement on Admiralty Island located on the southwest coast of Kootznahoo Inlet. Angoon is located 55 air miles southwest of Juneau and 41 air miles northeast of Sitka. Angoon residents practice a subsistence lifestyle and participate in commercial fishing. The community is only accessible by floatplane or boat. Scheduled and charter floatplane services are available from the state-owned seaplane base on Kootznahoo Inlet. Angoon's facilities also include a deep draft dock, small boat harbor, and an Alaska Marine Highway System ferry terminal.

City of Pelican

Pelican (population 78) is a fishing community with the majority of residents participating in commercial, sport, and subsistence fishing activities. Located in Chichagof Island’s remote Lisianski Inlet, Pelican is dependent on boats, floatplanes, and the Alaska Marine Highway System for service. Daily scheduled air taxi service is available from Juneau and Sitka. Additional community facilities include a state-owned seaplane base, a small boat harbor, dock, and state ferry terminal.

Elfin Cove

Elfin Cove (population 13), located on Chichagof Island at Cross Sound, is a fish-buying and supply center for the commercial fishing industry. The population is highly seasonal as residents participate in commercial fishing, sport fishing, and charter services. There are several lodges located in Elfin Cove that operate on a seasonal basis. Additional retail businesses that serve visitors also provide employment opportunities. A state-owned seaplane base is available with air taxi service from Juneau. Skiffs provide local transportation.

City of Tenakee Springs

Tenakee Springs (population 140), located on Chichagof Island, has long been considered a retirement community and summer retreat for Juneau and Sitka residents, with limited opportunities for local employment. While fish processing has been a mainstay of its economy, tourism is growing in importance. Tenakee Springs is dependent on seaplanes and the Alaska Marine Highway Service for access. The City of Tenakee Springs operates a seaplane base and heliport with scheduled or chartered service from Juneau. The Alaska Marine Highway System provides access on a limited basis. Additional marine facilities include a small boat harbor and ferry terminal. Local transportation is primarily by bicycle or off-highway vehicle (OHV) along a 3-mile local path.

Haines Borough

Haines (population 2,466) is a northern terminus of the Alaska Marine Highway System, a cruise ship port of call, and hub for transportation to and from Southeast Alaska. Many jobs are seasonal, with tourism businesses and access to the interior Alaska highway system becoming increasingly important. Haines is a major transshipment point because of its ice-free deep-water port and dock and year-round road access to Canada and interior Alaska. Air service is provided daily via the Haines airport and seaplane base.

Municipality of Skagway

Skagway (population 1,065) is an important port of call for cruise ships and a transfer site for interior bus tours. An estimated 831,000 passengers visited Skagway during the 2014 season (JEDC, 2014). The Klondike Gold Rush National Historic Park is a major attraction. The White Pass and Yukon Railroad is open seasonally providing tours between Skagway and Canada's Yukon Territory. The Klondike Highway and Alaska Highway provide road connection to British Columbia, the Yukon Territory, interior Alaska, and the Lower 48 states. Skagway is primarily accessed by air, road, and marine services. The State of Alaska owns the airport and seaplane base at the boat harbor with scheduled air service from Juneau. Skagway also receives regular state ferry and barge services. A protected small boat harbor, boat launch, and boat haul-out are also available.

While not within the defined project area, Gustavus, Kake, and Petersburg are included in the effects analysis as there is some reliance on the project area for subsistence activities or support of current outfitting and guiding businesses.

City of Gustavus

Gustavus (population 558) is the gateway community to Glacier Bay National Park and attracts a large quantity of seasonal residents and recreation enthusiasts. Glacier Bay National Park is the largest employer in the community followed by a variety of tourism establishments. Gustavus offers a state-owned airport with year-round daily air taxi service and jet service during the summer season. Floatplanes also land at nearby Bartlett Cove. Air traffic is relatively high during peak summer months, and several cruise ships include Glacier Bay in their itinerary, but do not visit the Gustavus community. There is a 10-mile paved road connecting the national park with the airport. Gustavus residents use portions of the project area for their recreation use and subsistence gathering. There are also outfitters and guides who use National Forest System lands who have businesses originating in Gustavus.

City of Kake

Kake (population 605), a predominantly Tlingit village, is located on the west side of Kupreanof Island alongside Keku Strait – just south of Admiralty Island. Kake is 38 air miles northwest of Petersburg and 95 air miles southwest of Juneau. Kake's economy is primarily based on timber, fishing, and subsistence. The community has extensively used southern Admiralty Island, the southeast side of Baranof Island, and the mainland near Hobart Bay for subsistence activities.

Petersburg Borough

Petersburg, including neighboring Kupreanof, is located on the northern tip of Mitkof Island (population 3,179). Kupreanof is economically tied to Petersburg, where most residents find employment, purchase goods, and attend school. Petersburg's economy is primarily based on commercial fishing and timber industries. While there is no deep-water dock suitable for large cruise ships, independent tourism activities make some use of the project area. Similar to Gustavus, Petersburg residents use portions of the project area for their recreation use and subsistence gathering. Also, there are outfitters and guides who use National Forest System lands who have businesses originating in Petersburg.

Regionwide Overview

An overview of Southeast Alaska's social and economic conditions provides context for considering the potential effects of proposed alternatives. The Southeast Alaska panhandle extends nearly 500 miles along the coast from Metlatkatla to Yakutat, encompassing 35,000 square miles of land. The region is home to 34 communities that are located on islands and the mainland. The three largest communities – Juneau, Ketchikan, and Sitka – are home to 75 percent of the regional population. Alaska Natives comprise nearly a quarter of the region's population.

Southeast Alaska's land ownership is dominated by the federal government, which manages 95 percent of the land base – most of which is the Tongass National Forest. Remaining federal lands are managed primarily by the National Park Service and the Bureau of Land Management. The State of Alaska manages only 2 percent of the total land base including Mental Health Trust Authority and University of Alaska lands, and a small Southeast State Forest. Local governments and Alaska Native regional and village corporations own and manage a limited amount of Southeast lands at less than 1 percent and 3 percent respectively. Total Southeast lands in other private ownership is also less than 1 percent of the total land base. Of noteworthy importance, very limited privately-owned land is unique to Southeast Alaska and is oftentimes viewed as an impediment to economic development by communities, local governments, economic development organizations, and local businesses.

Beginning in the 1880s, Southeast's population experienced a century of growth that intensified after statehood in 1959 as the workforce expanded in mining, government, fishing, tourism, and timber sectors. However, the 1990s and early 2000s brought challenging economic times. During the early 1990s, seafood and timber directly accounted for one-fifth of the regional economy. However, the following decade brought pulp mill and sawmill closures and plummeting salmon values. Total Southeast wages hit bottom in 1997, and it would be another ten years before economic recovery.

From 2008 to 2012, Southeast Alaska's population and economy rebounded with 6 consecutive years of growth (Southeast Conference, 2014). During these years, total regional population, employment, and wages increased. Economic sectors with the most significant growth included seafood, health care, tourism, and mining. In 2012, the region reached historic highs across nearly all socioeconomic indicators including population, income, and employment. Growth across Southeast has largely plateaued during the most recent 4 years. While seafood, tourism, military, and health care sectors continue to post gains in total jobs and economic value, the impact of declining overall state government health is undeniably felt across Southeast Alaska.

Economists expect Southeast's economy will remain flat in the coming years, likely growing less than 1 percent per year. Previous regional economic drivers including government and timber are projected to decline while the visitor industry will continue to grow the region's job base. Tourism has been one of the fastest growing sectors of Alaska's statewide economy in recent decades and has a particular importance to Southeast Alaska's rural communities (Mazza et al., 2005; Schroeder et al., 2005). As tourism has become an integral component of Southeast's regional and local economies, it has also changed social and cultural community conditions (Cerveny, 2005).

Of noteworthy importance, Southeast Alaska hosts the state capital in Juneau with a minority of state government jobs located throughout the region. The State of Alaska is undergoing significant fiscal hardship due to significant declines in state tax revenue generated via the oil and gas industry. During 2014, 2015, and into first-half of 2016, the region lost an estimated 500 state government jobs, mostly in Juneau and Ketchikan, but with a payroll impact of $28 million likely felt across the region (Southeast Conference, 2016).

The Tongass National Forest plays an important role in the formal and informal economies of Southeast Alaska. The formal economy includes those economic activities that are recorded in official statistics. The informal economy includes activities that are not typically recorded in official statistics. Elements of the informal economy include subsistence activities, in-kind contributions, non-cash income, unpaid labor and labor exchanges, and care-giving for the young and elderly.

Southeast Cruise Visitor Volume

From 1998 to 2015, Southeast's total cruise passenger volume has averaged approximately 862,302 out-of-state visitors arriving via large and small cruise ship per year during the summer season (May to September). Cruise visitation peaked during 2008 with over one million passengers, but was followed by 2 consecutive years of decline (2009 and 2010) related to the national economic recession and prolonged period of recovery. Excluding recession-impacted years (2009 and 2010), total cruise volume to Southeast increases approximately 5 percent each year.

Although 2014 also yielded a 2 percent decrease in total cruise volume, it was following on the heels of a strong 2013 cruise season. During the 2015 summer season, 994,000 out-of-state visitors traveled to Southeast via cruise ship between May and September. Total cruise visitor volume increased by 26,500 passengers (4 percent) between 2015 (994,000) and 2014 (967,500).

Long-term trends in Southeast's total cruise volume generally indicate sustained growth over time, in most port of call communities, with the exception of 2009, 2010, and 2014. Total Southeast cruise passenger volume is again growing since the national recession and prolonged period of economic recovery, but total volume has yet to reach the peak of 1,030,100 million in 2008. Data is latest available.

Table 3-2: 1998-2015: Southeast Cruise Visitor Volume

Year	Total	Annual Percent Change
1998	569,000	NA
1999	596,000	5
2000	640,000	7
2001	690,648	8
2002	741,500	7
2003	777,800	5
2004	884,400	14
2005	948,200	7
2006	951,400	0
2007	1,017,000	7
2008	1,030,100	1
2009	1,018,700	-1
2010	875,593	-14
2011	883,000	1
2012	937,000	6

2013	999,600	7
2014	967,500	-3
2015	994,000	3
Average	862,302	4
Average (exclude 2009 and 2010)		5

Source: Southeast Conference, 2016

Table 3-3: 2007-2013: Community Cruise Visitor Volume Annual Percent Change, Large Vessel Only

Year	Haines	Juneau	Ketchikan	Hoonah	Sitka	Skagway	Wrangell
2007	-16	7	7	15	-12	7	-10
2008	81	1	4	-22	24	-5	-23
2009	-13	-1	-1	6	-23	0	-4
2010	-26	-14	-11	-9	-36	-11	1
2011	-16	0	2	4	-10	2	22
2012	14	6	6	-6	-14	7	-86
2013	4	5	6	3	-10	9	846
Average	4	1	2	-1	-12	1	107

Source: Alaska Department of Commerce, Community, and Economic Development, 2014

Small Cruise Market

Although Southeast's small cruise ship industry is small, it has the potential to yield significant benefit because small ships visit communities of all sizes. Reliable data regarding Southeast's small cruise industry is limited, oftentimes privately held, and varies from one source to the next. However, general trends can be observed via wastewater discharge permits issued by Alaska Department of Environmental Conservation for vessels carrying 50 – 249 passengers (i.e., small ships). On an annual basis, State law requires operators to register ships, voyages, and berth capacity in order to receive a wastewater discharge permit. While these numbers are an indicator of total passenger capacity, they do not necessarily reflect actual visitation as voyage and passenger cancellations may have occurred.

In total, there are approximately eight operators that offer approximately 100 Southeast small vessel voyages each year. During the 2016 season (May to September), small ship capacity totaled 12,358 passengers, which represents approximately 1 percent of overall Southeast cruise visitation. During the past decade, small cruise passenger capacity widely varied and was impacted by the recession for a longer period of time. Excluding recession-era slumps (2009 and 2010), small ship capacity increased on average 3 percent per year.

Table 3-4: 2005-2016: Annual Maximum Passenger Capacity, Small Vessel Only

Year	Total	Annual Percent Change
2005	21,256	NA
2006	21,080	-1
2007	20,648	-2
2008	20,471	-1
2009	14,174	-31
2010	10,230	-28

2011	7,128	-30
2012	10,207	43
2013	11,408	12
2014	11,760	3
2015	10,932	-7
2016	12,358	13
Average	14,304	-3
Average (exclude 2009 and 2010)		3

Source: Alaska Department of Environmental Conservation, Cruise Ship Program

Tongass National Forest Guided Clients

Over an 11-year period (2004 – 2015), an average of approximately 566,000 individuals accessed the Tongass National Forest per year using guided services provided by approximately 140 commercial outfitter/guide businesses. The year-to-year percent change is highly variable, ranging from -38 percent to 25 percent. Excluding annual high and low outliers during the 2004 to 2015 timeframe, guided client use on the Tongass National Forest increased on average 2 percent each year. The most recent 4 years has yielded sustained growth, with a decadal peak in 2015 at 624,667 guided clients.

Table 3-5: 2004-2015: Tongass National Forest Guided Clients

Year	Total	Annual Percent Change
2004	505,188	NA
2005	616,275	18
2006	446,592	-38
2007	598,051	25
2008	600,404	0
2009	528,324	-14
2010	592,673	11
2011	533,388	-11
2012	545,622	2
2013	591,897	8
2014	609,779	3
2015	624,667	2
Average	566,072	1
Average (excluding 2006 and 2007)		2

Source: USDA Forest Service, Tongass National Forest Outfitter/Guide Database

Commercial Recreation and Outfitter/Guides

Providing an adequate description of the tourism industry in general, and the outfitter/guide sector in particular, is complicated by a number of factors. First, standard employment and income statistics do not specifically identify a tourism sector because much of the money spent by tourists goes to establishments (i.e., restaurants and hotels) that also serve other visitors or local residents. It is not possible to directly and routinely measure the amount of economic activity attributable to tourism in these sectors. Some establishments (i.e., accommodations) primarily serve visitors, but they are also commonly combined with other types of businesses to meet the needs of their customers. Furthermore, not all lodge visitors will use outfitter/guide services and not every outfitter/guide will use the Tongass National Forest to

accommodate customers (i.e., whale watching, glacier viewing). These problems are further compounded by the fact that at the local level, and especially in sparsely populated areas, statistics for many sub-sectors are frequently unavailable to protect the privacy of individual establishments. Consequently, the standard set of employment and income statistics used in economic analysis are oftentimes inadequate for measuring and tracking overall activity in the commercial recreation sector – especially at the outfitter/guide level.

Despite data challenges, the largest and fastest growing component of recreation and tourism in Southeast Alaska is the cruise ship industry. Estimates indicate the 2016 cruise season brought approximately one million visitors to Southeast – nearly four times the cruise ship passengers reported to have visited Southeast Alaska 2 decades ago.

Implications of Expanding Commercial Vessel Activity

The magnitude and rapid growth of Southeast Alaska's cruise ship industry has important implications for recreation planning. Shore excursions have become an integral part of the cruise ship experience, providing increased revenues for ship operators and opportunities for local entrepreneurs. This activity has been concentrated at major ports of call including Ketchikan, Juneau, and Skagway and generally does not occur in the shoreline zone. Alongside international cruise lines, however, several small commercial vessel operators are active in the region, often taking customers to places bypassed by larger ships. To the extent that it occurs on the Tongass National Forest, this activity could be affected by alternatives and the potential for crowding. Likewise, if growth in large cruise ship activity continues at its current rate, then limited capacity and crowding may force certain cruise lines to diversify activities and locations, making greater use of the forest-based recreation use capacity in the analysis area. Growth in the commercial vessel industry may also provide some indication of independent visitor trends in Southeast Alaska.

Commercial Recreation Providers Survey

The number of cruise ship passengers visiting the region, however, is not a reliable or valid indicator of activity in the outfitter/guide sector. A comprehensive survey of commercial recreation providers in Southeast Alaska, conducted by the Alaska Department of Commerce, Community, and Economic Development provides a better indicator of the industry, although it is limited to a single point in time and the data is now outdated (2001). Nonetheless this survey remains the most current, reliable and valid study of regional commercial recreation providers. The survey identified 736 commercial recreation providers working in the region during the summer of 2000, but the actual number of firms engaged in providing commercial recreation services is likely higher, since it is unlikely the survey successfully identified all providers. Of the 736 businesses, slightly over half (58 percent) were identified as providers of saltwater fishing charters and related services. The remainder was evenly divided among tour operators, hunting guides, and air and sea charters. Approximately 433 outfitter/guides were based in towns within the analysis area.

Of the 736 surveys that were distributed, 193 were returned (26 percent). Responses indicate growth in the commercial recreation industry, with 68 percent of responding firms having opened business within the past ten years; 73 percent reported increased business since 1995. With 86 percent of respondents earning gross revenues of less than $100,000, most of the firms were relatively small, but 6 percent reported revenues above one million dollars ($1M), including one firm with revenues exceeding ten million dollars ($10M). A similar distribution is observed in terms of total clients served, with the majority of firms serving fewer than 100 clients, a smaller number of firms serving considerably larger numbers, and one firm serving clients in excess of 100,000 a year. The survey also asked questions regarding the sensitivity of businesses to competing forms of land use. High concentrations of other recreationists, particularly groups larger than 50, were identified by respondents as one of two factors having the largest potential negative impact on their business. The indication here is that concentrated use in large group areas may exclude other users from the immediate vicinity.

On average, each survey respondent employed 40 person-months of labor, or 3.25 full-time equivalents in the 2000 season. This number includes both full-time and part-time workers. By multiplying the total sample (736 firms) by the average employment per firm (3.25 full-time equivalents), it is estimated 2,392 full-time equivalents are directly attributable to the commercial recreation industry in Southeast Alaska. The estimate for firms based within the analysis area is 1,407 (433 x 3.25). These estimates are based on the assumption that: (1) the survey responses are representative of the true average for firms in the region; and (2) the sample of 736 includes all firms working in the region. Both of these assumptions are questionable – the first because no non-response-bias analysis could be conducted for the survey despite its relatively low response rate, and the second because it is highly unlikely that all the commercial recreation providers active in the region were identified. Consequently, employment estimates need to be viewed with caution. Nonetheless, they provide some indication of general industry size of the industry. Of noteworthy importance, the survey did not specifically identify outfitter/guides that access the Tongass National Forest.

Forest Service Special Use Permits

A more direct, but less comprehensive source of information on outfitter/guides that depend on the Tongass National Forest for recreation opportunities is the special use permit data reported to the Forest Service. Data indicates 140 firms received permits in the analysis area from 2008 to 2014, serving 557,863 total guided clients per year, on average. Of these, a small number of firms accounted for the majority of the client base, and their activity was largely focused on providing hiking and sightseeing experiences for relatively large groups. This use was directly associated with the cruise ship industry either through linkages with cruise lines or because the firms ran their own tour boat services. These firms are most likely to take advantage of large group areas and other locations provided under some alternatives. Assuming continued industry growth, they are likely to face increasing constraints under the more-restrictive alternatives, or more crowding under the less-restrictive alternatives, especially in the more popular areas during the summer season.

Additional Information

In addition to popular summer group destinations, spring hunting on Admiralty Island has also been identified as an area where planning alternatives could potentially constrain commercial activity. In terms of number of clients, hunting's share of total commercial activity in the analysis area is relatively small. This is somewhat misleading, however, since guided hunting is more involved and expensive than day-hiking or general sightseeing, and will subsequently have a proportionately larger economic impact on a per-hunt basis. This is particularly true for brown bear hunting, which accounts for the large majority of total commercial hunting activity in the spring season. For example, a day hike may only cost $100 to $150 a day per client for this activity, whereas a brown bear hunt may cost $1,000 to $2,000 per day per client to participate.

Environmental Consequences

Direct and Indirect Effects Overview

The potential effects of alternatives on guided recreation use are discussed in this EIS. In order to estimate economic effects, recreation impacts must be translated into meaningful economic measures such as employment or income. Social impacts on communities in the region can then be partially inferred from the economic impacts, although important aspects of the social impacts are difficult to precisely determine and may necessarily be overlooked.

As explained in the recreation section, the total capacity allocated to outfitter/guide use across the Tongass National Forest exceeds expected overall actual use. However, while the total capacity exceeds total demand, outfitter/guide recreation use may be near or at capacity in some specific use areas. Allocations in these areas

may be limited in some alternatives and seasons, causing some outfitter/guides to move to other locations if they desire to maintain or increase their operations. Accurately predicting the effects of this on outfitter/guide use is difficult, mainly because predicting the ability of outfitter/guides to substitute one location with another is difficult. Additionally, for certain uses and certain locations it is possible that displacement or dispersal will occur before allocated limits are reached because outfitter/guides, and their clientele, want to avoid crowding and protect the quality of the remote experience. The following section provides a qualitative discussion of the possible effects of each alternative.

Socioeconomic Effects on Unguided Users

As indicated in the description of the current socioeconomic environment, the natural amenities and recreation opportunities in Southeast Alaska are an important factor in attracting and retaining residents in the region, and this is an important source of economic activity. Quantification of these relationships and the expected impact of the proposed alternatives on them is not feasible. It is reasonable to assume, however, an increase in authorized outfitter/guide use may potentially impact the quality of the recreation experience for local residents. At the same time, unguided use can also lead to crowding, noise, and site degradation. Therefore, restricting only outfitter/guide use will not necessarily guarantee the quality and quantity of recreation opportunities for unguided users. However, when examining the number of persons who may be authorized by each alternative, Alternative 1 (No Action) is least likely to affect local unguided users followed closely by Alternative 3. It is anticipated Alternative 4 will have the greatest impact on local unguided users as it recommends the largest increase in service days be allocated for outfitter/guides.

Socioeconomic Effects on the Outfitter/Guide Industry

If past trends continue, outfitter/guide use in the analysis area will continue to grow, although perhaps not at the robust pace of past decades. If the industry continues to grow, however, the impacts of the alternatives and the differences among them will become increasingly important. As noted in prior discussion, there are some locations, depending on the alternative, that may pose some restrictions or limitations for future use as the managed capacity may have already been reached. Notably, all alternatives have the potential to accommodate additional commercial recreation use, but Alternative 4 is the least restrictive and allows the most room for growth in the commercial recreation industry. Alternatives 1 and 3 are similar in support for outfitter/guides with 47,449 and 63,940 service days allocated respectively. Alternative 2 provides more room for outfitter/guide growth while also considering unguided use by local residents and independent visitors.

The outcome of commercial recreation expansion could have a variety of unanticipated impacts depending on business practices, clientele preferences, and perceptions. In some places, Alternative 4 might displace existing outfitter/guides who market a more primitive setting near communities or in use areas with limited historical use. Notably, all alternatives would accommodate growth consistent with Forest Plan land use designations according to standards and guidelines. The rate of commercial recreation industry growth is also largely dependent on access logistics, market trends, and national economic trends.

Cumulative Effects

As described earlier, tourism is a major regional economic driver enabling many communities in the analysis area to adapt to declines in the forest products industry, declines in public sector, and highly variable seafood prices. Since tourism has become a major component of the regional economy, positive and negative effects become increasingly important over time.

Alternative 1, the No-action Alternative with 47,449 service days, would not decrease outfitter/guide use from current levels, but also does not allow room to grow the outfitter/guide sector. Alternative 3 recommends a limited overall increase in service days (63,940) while lowering outfitter/guide use in wilderness and remote areas. Alternative 1 and Alternative 3, for all practical purposes, do not significantly support growth in outfitter/guide use. Alternative 2, the proposed action, would allow room to grow the outfitter/guide sector by allocating 80,305 service days, an increase from Alternative 1 (No Action) and Alternative 3. Alternative 4 allows the greatest room to grow the outfitter/guide sector with 130,655 service days, but may impact unguided use (i.e., local residents and independent visitors).

All action alternatives allow for stability in outfitter/guide use across the analysis area as a whole. Cumulative effects of the action alternatives in terms of increased employment and revenue for the regional economy would likely be positive. The higher the alternative allocation to outfitter/guides, the greater potential for cumulative growth in this sector.

Adaptive Management

Applying an adaptive management strategy when actual outfitter/guide use falls within the range of 80 percent to 110 percent of the allocation, for any season, allows flexibility for responding to observed trends and supports outfitter/guide use across all alternatives. In particular, the Forest Service may authorize up to 110 percent of allocated outfitter/guide use through adaptive management. This would authorize additional use, applicable to all alternatives, which would support additional economic opportunity for the outfitter/guide industry. Furthermore limiting any increase to 110 percent, without additional NEPA review, limits any potential impact to unguided users.

Another less tangible but no less important factor is the amenity values and recreation opportunities provided by the Tongass National Forest. These values and opportunities are a major ingredient in the quality of life enjoyed by Southeast Alaska residents. This analysis focuses on how commercially-guided recreation fits within the context of unguided recreation and the region’s natural character, which is highly valued by residents and non-residents alike. Growth in regional population and increases in independent travelers who do not use outfitting and guiding services will continue to reduce opportunities for experiencing solitude in certain areas. Opportunities for solitude would still exist in the analysis area, but at reduced levels from those currently available.

Wilderness

Introduction

This wilderness section first examines the existing condition of wilderness resources within the Shoreline II project area for six wilderness areas. This section then evaluates the potential effects to these wilderness resources from the outfitter/guide use allocated under the proposed action and alternatives. Effects are analyzed for the following significant issue raised during public scoping:

Issue #2: Effects to wilderness areas and effects of commercial uses on unguided visitors

Comments were received during public scoping expressing concern related to increased outfitter/guide use in areas that historically have had low use. Several comments raised the concern of how outfitter/guide use has expanded, and that the Forest Service should do more to limit outfitter/guide operations so that "wild" places are not overcrowded. The commenters referenced wilderness areas generally as well as specific locations within and outside of designated wilderness areas. There are concerns that the wilderness areas are already too crowded with outfitters and guides. Any additional increase in commercial allocation would negatively impact wilderness character.

The Forest Plan goal for wilderness is to manage designated wilderness to maintain an enduring wilderness resource while providing for the public purposes of recreational, scenic, scientific, educational, conservation, and historical use, as provided in the Wilderness Act of 1964 and the Alaska National Interest Lands Conservation Act of 1980 (USDA Forest Service, 2008a, 2-8). The public concerns for wilderness resources associated with commercial use that this analysis addresses are crowding and impacts to wilderness character.

Regulatory Framework

Congress designates wilderness areas with the prescribed intent of preserving wilderness character for the enjoyment of present and future generations. Authorities expressing the intent to preserve wilderness character and setting standards for upholding it include:

- the Wilderness Act of 1964, which defines the purpose and need for wilderness and gives Congress the authority to designate wilderness areas on Federal lands (U.S. Congress, 1964).
- the Alaska National Interest Lands Conservation Act of 1980, which designated four of the six project area wildernesses (U.S. Congress, 1980).
- the Tongass Timber Reform Act of 1990, which amended the Alaska National Interest Lands Conservation Act to designate additional wilderness areas, including two of the project area wildernesses (U.S. Congress, 1990).
- the 2008 Tongass Land and Resource Management Plan (amended 2016), which sets management prescriptions for designated wilderness areas and affirms that congressionally designated wilderness areas "must be managed in accordance to the direction provided through their enabling legislation" (USDA Forest Service 2008a, pp. 1-2, USDA Forest Service 2016, pp. 1-2).

These authorities contain prescriptive language as to how Federal agencies shall administer wilderness areas. At the Forest level and the local District level, the Forest Service also conducts:

- wilderness commercial needs assessments to apply administrative standards pertaining to commercial use in Wilderness, and

- monitoring to ground-truth the status and trends of wilderness character.

The Wilderness Act provides that wilderness areas "shall be administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness" (U.S. Congress, 1964). Except as otherwise provided, the Wilderness Act affirms that "wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use" and that administering agencies shall manage wilderness "for such other purposes for which it may have been established as also to preserve its wilderness character" (U.S. Congress, 1964). The law requires administering agencies to provide for the use and enjoyment of wilderness in a manner that preserves wilderness character (U.S. Congress, 1964).

In addition to affirming qualities of wilderness, the Wilderness Act also strives to preserve wilderness character by limiting uses that would degrade these qualities. With specific exceptions, it prohibits commercial enterprise, permanent roads, and except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act, temporary roads, motor vehicles, motorized equipment or motorboats, landing of aircraft, other forms of mechanical transport, or installations and structures (U.S. Congress, 1964). Commercial services, including outfitter/guide operations that are the subject of Shoreline II, are one of the possible exceptions to the prohibition on commercial enterprise per the Wilderness Act:

> Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas. (U.S. Congress, 1964, Section 4(d)(6)).

The Wilderness Act Section 4(d)6 requires administering agencies to authorize commercial services only to the extent necessary; in other words, no more commercial services may be authorized than are necessary to meet the goals of the Wilderness Act (U.S. Court of Appeals for the 9th Circuit, 2004). This constraint is unique to designated wilderness and intentionally limits agency discretion for authorizing commercial services in order to fulfill the obligation to preserve wilderness character (U.S. Court of Appeals for the 9th Circuit, 2004).

Wilderness Character Monitoring, Wilderness Commercial Needs Assessments, and Determining the 'Extent Necessary'

In order to evaluate an area's wilderness character, the Federal agencies administering wilderness have established protocol called wilderness character monitoring (USDA Forest Service 2012). This protocol details specific quantifiable aspects for five broad qualities of wilderness character encompassing the physical resources, experiential opportunities and managerial approaches to be found in a designated wilderness per the legal definition of wilderness (Landres et al. 2015). Monitoring will be essential for ensuring compliance with the law and ensuring that authorized activities realize public purposes of wilderness.

Wilderness commercial needs assessments determine which, if any, commercial services are necessary in each wilderness by weighing how the commercial services help realize purposes of the Wilderness Act versus their potential to uphold or impact wilderness character. The wilderness commercial needs assessments for the six wilderness areas find a need for some commercial services for the role they play in realizing the public purposes of wilderness while conforming with the preservation of wilderness character (USDA Forest Service, 2013, 2014a, b, c, and d). The full wilderness commercial needs assessments are located in the Shoreline II EIS project record, and their findings are summarized below in the Affected Environment/Existing Conditions section.

For Shoreline II, **determining the extent necessary** for commercial services in wilderness is a multistage process that consists of:

- the wilderness commercial needs assessments finding certain commercial services are necessary to realize public purposes of the Wilderness Act,
- the Shoreline II Project Visitor Capacity Analysis applying larger buffer zones between capacity locations for wilderness use areas than for other land use designations when determining overall recreation visitor capacity (USDA Forest Service, 2014d, p.5),
- outfitter/guide use allocations incorporating mitigation measures designed to preserve wilderness character, and
- wilderness character monitoring verifying that wilderness character is being preserved.

This suite approach is discussed further under the Assumptions subsection of the Analysis Methods section and allows for consideration of multiple alternatives with varying commercial capacities.

Analysis Methods

Analysis Area

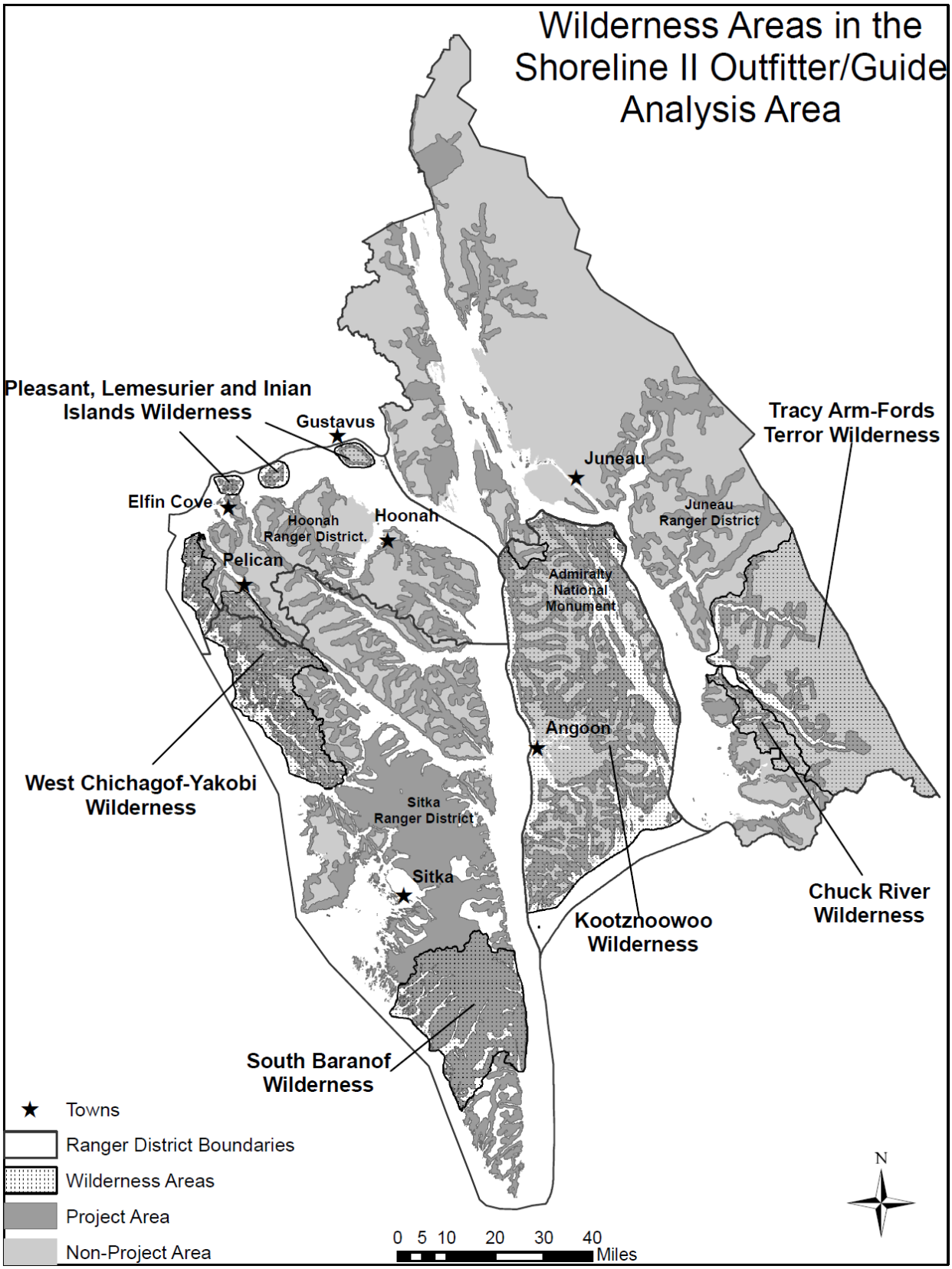
There are six designated wilderness areas within the Shoreline II project area (Figure 3-1 and Table 3.6). The Tracy Arm – Ford's Terror & Chuck River Wilderness Areas are grouped together as they are adjoining units managed as one unit.

Table 3-6: Designated wilderness areas in the Shoreline II Outfitter/Guide EIS project area

Wilderness	Administering District	Year of Designation [1]	National Forest acreage[2]	Shoreline II Project Area acreage	% Overlap
Kootznoowoo Wilderness	Admiralty Island National Monument	1980	971,480	536,843	55%
Pleasant, Lemesurier & Inian Islands Wilderness	Hoonah Ranger District	1990	23,079	14,192	61%
South Baranof Wilderness	Sitka Ranger District	1980	315,832	299,815	95%
Tracy Arm – Ford's Terror & Chuck River Wilderness Areas	Juneau Ranger District	1980 & 1990	723,751	161,718	22%
West Chichagof – Yakobi Wilderness	Hoonah and Sitka Ranger Districts	1980	273,075	205,021	75%

[1] www.wilderness.net
[2] USDA Forest Service. (2016). Land Areas of the National Forest System: As of September 2016. Washington Office Lands Report.

Figure 3-1. Designated Wilderness areas in the Shoreline II project area.



Outfitter/guide use allocated under the Shoreline II Outfitter/Guide alternatives would occur within the shoreline zone of the wilderness areas and areas accessed from shoreline. In general, the project area extends ½ mile inland, with further extensions inland where specific outfitter/guide activities and locations are accessed from the shoreline (i.e. goat/deer hunting, canoe route/portage, freshwater fishing on anadromous and other fish-bearing streams and lakes, etc.). For some wilderness areas, the Shoreline II project area represents a zone along the shore (e.g. in the Tracy Arm – Ford's Terror Wilderness Area) whereas for other wilderness areas, the project area extends far inland (e.g. South Baranof Wilderness Area) (see Figure 3-1 for a map showing where the Shoreline II project area occurs in these wilderness areas).

A comprehensive wilderness character analysis examines the effects where a project is taking place as well as within the non-project wilderness area. The Environmental Consequences section accomplishes this in the following manner:

- The direct effects analysis considers how wilderness character is affected within the project area.
- The indirect effects analysis considers how wilderness character would be indirectly affected outside the project area.
- The cumulative effects analysis considers how wilderness character would be affected by other foreseeable projects and activities.

This analysis considers impacts to wilderness that originate from within wilderness as well as impacts that originate adjacent to designated wilderness but affect resources and experiences within wilderness.

Temporal Scale

The time period of direct, indirect and cumulative effects from this project are estimated to be 10 years, which is the maximum term of an outfitter/guide permit. This analysis variable is also defined by the spring, summer, fall, and winter seasons for a full calendar year because commercial use has been occurring, or has been requested, in all four seasons.

Resource Indicators and Units of Measure

Wilderness Character Qualities, Indicators, and Measures

The wilderness resource is defined by the condition and trends of an area's wilderness character (U.S. Congress, 1964; Landres et al. 2015). The Federal land management agencies charged with managing wilderness have identified five Qualities that constitute wilderness character, using terms from the legal definition of wilderness in the Wilderness Act (Landres et al. 2015):

- **Untrammeled**: Wilderness is essentially unhindered and free from human control or manipulation.
- **Natural**: Wilderness ecological systems are substantially free from the effects of modern civilization.
- **Undeveloped**: Wilderness retains its primeval character and influence, and is essentially without permanent improvement or modern human occupation.
- **Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation**: Wilderness provides outstanding opportunities for solitude or primitive and unconfined recreation.
- **Other Features of Value**: Other features of value integral to wilderness character are identified and threats monitored.

Wilderness character monitoring assesses the conditions, trends and data adequacy pertaining to these qualities. This monitoring "is organized around a hierarchical framework that divides wilderness

character into successively finer components" (Landres et al. 2015). The wilderness character components that are most essential to this analysis are:

- **Wilderness character:** "Wilderness character is a holistic concept based on the interaction of (1) biophysical environments primarily free from modern human manipulation and impact, (2) personal experiences in natural environments relatively free from the encumbrances and signs of modern society, and (3) symbolic meanings of humility, restraint, and interdependence that inspire human connection with nature. Taken together, these tangible and intangible values define wilderness character and distinguish wilderness from all other lands" (Landres et al., 2015, p.7).
- **Qualities:** The five Qualities (identified above) are "the primary elements of wilderness character that link directly to the statutory language of the 1964 Wilderness Act" (Landres et al., 2015). The Untrammeled, Natural, Undeveloped, and Solitude or Primitive and Unconfined Recreation Qualities are common to all wilderness areas nationwide; Other Features of Value is an optional Quality (per statutory language) that exists where other features of value are integral to wilderness character (Landres et al., 2015).
- **Indicators:** Indicators are subparts of the Qualities that are consistent nationwide.
- **Measures:** Measures are the specific elements under each indicator for which data are collected to assess conditions and trends in an indicator (Landres et al., 2015). Measures may be established at the national, regional and local level, with the latter allowing for tailored monitoring of locally relevant elements.

Wilderness character is assessed in a multi-tiered fashion presenting different scales of fineness. Individual measures under the various Qualities afford the finest level of detail. A more aggregated assessment is gained by weighing measures against each other and deriving a summary of their parent indicator's condition, trend and data adequacy (Landres et al. 2015). Indicators are then weighed against each other to derive a summary of their parent Quality. Finally, the Qualities are weighed against each other to derive the condition, trend and data adequacy of overall wilderness character. When considering the existing conditions of, and project effects to, wilderness character, it is important to consider all levels. This analysis examines conditions and effects at the measure, indicator, Quality and overall wilderness character scales.

In order to weigh measures, indicators, and Qualities using different metrics against each other, numerical scores from 1 to 3 are assigned for the condition, trend and data adequacy ratings of each measure.

Table 3-7. Scores for Conditions, Trends and Data Adequacy

Condition		Trend		Data Adequacy	
3	Good	3	Improving	3	High
2	Warrants Moderate Concern	2	Stable	2	Medium
1	Warrants Significant Concern	1	Degrading	1	Low
N/A	Unknown	N/A	Undetermined	N/A	Unknown

For measures where the condition, trend or data adequacy is unknown or undetermined, no score is given and the measure does not factor further in the protocol.

The wilderness monitoring protocol is applied to a wilderness area using the following process:

1. Measure conditions, trends, and data adequacies are scored.

2. Scores at the measure level are averaged under each indicator to tally the indicator scores for condition, trend and data adequacy.
3. Scores at the indicator level are averaged to generate Quality scores for condition, trend and data adequacy.
4. Scores as the Quality level are averaged to generate overall wilderness character scores for condition, trend and data adequacy.

Averages are carried out to the hundredths decimal place to demonstrate how changes in measures ripple upward through the wilderness character monitoring protocol. The indicator, Quality, and wilderness character ratings all derive from the averages generated from the initial measure scores for conditions, trends, and data adequacies. Differences in the measure scores and how these differences percolate through the higher protocol levels allow for comparisons as to how the Shoreline II proposed action and alternatives generate affect wilderness character.

Wilderness Character Monitoring for the Shoreline II Outfitter/Guide EIS Wilderness Areas

The wilderness character monitoring used in this analysis and the Wilderness Resource Report is based on national and local protocols. National protocol is outlined in *Keeping It Wild: An Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System* (Landres et al., 2008), *The USDA Forest Service Technical Guide for Monitoring Selected Conditions Related to Wilderness Character* (USDA Forest Service, 2009) and *Keeping It Wild II: An Updated Interagency Strategy to Monitor Trends in Wilderness Character Across the National Wilderness Preservation System* (Landres et al., 2015) Locally, the Forest Plan specifies wilderness administration must “protect and perpetuate wilderness character” and use the Untrammeled, Natural, Undeveloped and Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Qualities to evaluate its status (USDA Forest Service, 2016, page 3-22). The 2012 Wilderness Character Monitoring Plan for the Tongass National Forest (hereafter Tongass Wilderness Character Monitoring Plan) describes these Qualities and lists Forest-level indicators and measures (USDA Forest Service, 2012). Modifications to these protocols for this analysis are discussed in the Wilderness Resource Report.

Not all Qualities, indicators, and measures that comprise wilderness character for an area will be affected by the Shoreline II’s proposed action and alternatives. In particular, the Untrammeled Quality and Undeveloped Quality are unaffected by this project, as are the Natural and Other Features of Value Qualities, assuming mitigation, monitoring and adaptive management occur. Additionally, the Natural Quality and Other Features of Value Quality contain indicators and measures that are assessed in other sections of the Shoreline II EIS, Chapter 3, as well as in the resource reports available in the project record. In these instances, only the findings will be summarized here and the relevant reports can be referenced for further detail.

Thus the focus of this analysis will be on the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality. This Quality has four indicators, most of which have multiple measures (Table 3-8). However, two of the indicators will not be affected by the Shoreline II proposed action and alternatives (Table 3-8). See the Affected Environment section for more details on the measures and the Environmental Consequences section for explanations on why indicators will or will not be affected. The two affected indicators distinguish between occupancy and modification from human activity inside the wilderness and from human activity outside the wilderness. This analysis focuses on these two indicators and their measures in detail.

Table 3-8. The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality, its Indicators and Measures (Shoreline II affected components italicized).

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality		
Indicators	**Description**	**Measures**
Remoteness from sights and sounds of human activity inside the wilderness	*Measures reflecting occupancy or modification from people in wilderness*	*• Number of cabin reservations (i.e., number of nights) per year* *• Number of guided visitors in service days per year* *• Average number of groups encountered per day in wilderness* *• Number and condition of recreation sites* *• Number of miles and condition of user created trails*
Remoteness from sights and sounds of human activity adjacent to the wilderness	*Measures reflecting human activity adjacent to wilderness affecting the experience of people in wilderness*	*• Average number of groups encountered per day adjacent to wilderness (saltwater, air, non-wilderness lands)* *• Percent of days monitored with Low-intensity or no encounters.*
Facilities that decrease self-reliant recreation	Developments and installations that compromise unconfined and primitive recreation experiences.	• Type and number of agency-provided recreation facilities, such as cabins, shelters, tent pads, other developed campsites (cabins and facilities authorized under special use permits are not included) • Type and number of user-created recreation facilities such as tent platforms or cabins, whether authorized or unauthorized • Number and type of signs in wilderness. (District discretionary) • Number and type of agency-provided installations in wilderness. (District discretionary) • Number of miles of system trails in wilderness (whether they are actively maintained or not) • Number and type of trail development features (including bridges, staircases, other significant development on trails)
Management restrictions on visitor behavior	Restrictions that confine visitor freedom in wilderness (usually to address crowding or resource concerns).	• Number and type of management restrictions such as permits (e.g., limited entry permit), closures, fees and restrictions

Key definitions from these measures above include:

Encounter: An encounter occurs when a person or group located on NFS lands becomes aware of the presence of another person or group located on or adjacent to NFS lands.

Encounter Intensity: Percent of days monitored with Low-intensity or no encounters was added as a measure to assess how well outstanding opportunities for solitude prevail in wilderness areas as detailed in the Tongass Wilderness Character Monitoring Plan (USDA Forest Service, 2012). This is a rating of the impact to solitude experienced by the monitoring observer during an encounter. Low-intensity reflects almost no effect. Medium-intensity correlates with a somewhat noisy and/or noticeable impact. High-intensity represents a disruptive impact indicative of a loud, very close and/or very long encounter (USDA Forest Service, 2012).

User-created trails: Non-system, informal, trails created by visitor use that were not installed and/or not maintained by managers; may also include decommissioned system trails that are still used by recreational visitors (Hall & Antonio, 2016, p.36). Also called "social trails."

How This Analysis Applies Wilderness Character Monitoring Measures and Management Standards

Two key concepts are critical to understanding an analysis of wilderness character:

1. As assessment of wilderness character, including its existing condition and project effects on it, requires that all Qualities, indicators and measures be considered. This analysis will determine which wilderness character monitoring components are affected by Shoreline II and which are not. It will document effects to affected elements. But when wilderness character is regarded, all components must factor in, affected or not.
2. There are varying degrees of degradation and improvement. Wilderness character can be degraded even when remaining in good condition when incremental impairment takes it closer to, but not across, the threshold to a worse condition. A 3.00 and a 2.50 condition rating score both equate with a good condition; however the lower number is closer to the more degraded moderate concern condition. If there is enough impairment to cross the threshold to a worse condition, the condition will degrade to moderate concern. Conversely, wilderness character can be improved even when remaining in a condition of significant concern when incremental impairment takes it closer to, but not across, the threshold to a better condition. If there is enough improvement to cross the threshold to a better condition, the condition will improve to moderate concern or good condition.

The intent of this analysis is to show as clearly as possible existing conditions and Shoreline II project effects at all levels.

Sources of Information

The sources of information used in this analysis and the Wilderness Resource Report are listed in Appendix I: Regulatory Framework and References of the Wilderness Resource Report.

The initial Wilderness Resource Report and DEIS wilderness analysis for the Shoreline II Outfitter/Guide EIS used Tongass outfitter/guide actual use data from 2010 – 2014. Since then, the Tongass outfitter/guide actual use dataset for 2015 became available. A new 5-year dataset (2011-2015) was reviewed and considered. No significant changes were expected in the Wilderness Resource Report or the effects analysis. The difference in service days between the two 5-year periods were modest with the largest percentage change attributable to a shift in comparatively low actual use numbers in the Pleasant, Lemesurier and Inian Islands Wilderness Area (see the Wilderness Resource Report, Table 5, for 2010-2014 and 2011-2015 actual use numbers comparison).

The Affected Environment and effects analysis continues to be based on the 2010-2014 dataset. The 2011-2015 outfitter/guide actual use dataset is included in the project record.

Assumptions

The Extent Necessary May Vary By Allocations and Mitigation Measures

The Wilderness Act requires that commercial services occur "to the extent necessary," meaning that no more commercial services are authorized than is necessary to meet the goals of the Wilderness Act (U.S. Congress, 1964, Sec. 4(d)6; U.S. Court of Appeals for the 9th Circuit, 2004). In attempting to meet the goals of preserving wilderness character (nondegradation) with the goals of use and enjoyment (realizing

purposes), the approach taken in this analysis is that different Shoreline II outfitter/guide allocations can serve as "the extent necessary" as long as mitigations are in place to preserve wilderness character. Generally, higher allocations of commercial use require more mitigation measures to ensure that higher volumes of clients do not impair the wilderness resource as they engage in their use and enjoyment of the areas.

This extent necessary approach of developing varying mitigation measures for commercial use levels allows for consideration of different allocations where use and enjoyment of wilderness is balanced with preserving wilderness character.

The Condition Rating is the Most Valuable Aspect

In summarizing the existing condition and in comparing effects across alternatives, it is most practical to use the condition rating of good condition, moderate concern and significant concern to capture the current status of wilderness character and the consequences upon it by the Shoreline II Outfitter/Guide project. Trends are generated by analyzing how conditions have changed over time. Trend analysis is lacking in many of the wilderness character monitoring elements of the Wilderness Resource Report and this analysis due to insufficient data.

Resource specialists (in wilderness and elsewhere) have evaluated the conditions of their resources and discerned attributing factors that contributed to the resource conditions. While there are still some assumptions that must be made, it is easier to project future conditions given that there are more known variables and direct correlations between projected use and resource conditions. For these reasons, the Existing Conditions and Environmental Consequences sections will primarily rely on condition ratings to assess the relative status of wilderness character and its components.

Affected Environment

The Affected Environment and Existing Condition discusses the current conditions and trends of the wilderness areas in the Shoreline II project area in terms of wilderness Qualities, indicators, and measures. Based on these factors, it evaluates how wilderness character is faring in the Shoreline II wilderness areas.

Shoreline II Outfitter/Guide EIS Wilderness Areas

Tracy Arm – Ford's Terror Wilderness Area

The Tracy Arm-Ford's Terror Wilderness is about 45 miles southeast of Juneau. It encompasses 648,877 acres of the mainland coastal mountains bordering Holkham Bay, on the east side of Stephens Passage. It surrounds three glacial fjords—Tracy and Endicott Arms and Ford's Terror—and extends eastward to the mountains and icefield along the Canadian border.

Tracy Arm-Ford's Terror is mountainous and heavily glaciated, with most of its terrain above treeline. Most of the land along shore is covered in an early-successional mix of alder, willow and young spruce. Steep shores, swift streams, cliffs, gorges, glaciers and thick vegetation make travel on land difficult. The wilderness has no cabins or maintained trails.

For many visitors, this wilderness is all about glaciers, both present and past. In addition to three tidewater glaciers that regularly calve ice bergs into the ocean, the surrounding mountains reveal the influence of Pleistocene glaciation, with rounded domes, sheer walls and deep, U-shaped valleys.

Chuck River Wilderness Area

Chuck River experienced significant development and use prior to being designated a wilderness. Congress designated the 74,874-acre Chuck River Wilderness in 1990. It adjoins the Tracy Arm – Ford's

Terror wilderness designation in Endicott Arm and Holkham Bay and includes lands around Windham Bay and the Chuck River watershed. Highlights for visitors to the Chuck River Wilderness Area include its tranquility, scenic beauty, aged forests, healthy fish runs, hunting opportunities and protected anchorages.

The adjoining Tracy Arm – Ford's Terror and Chuck River Wilderness Areas are managed as one unit and include three use areas:

- 01-05D Tracy Arm
- 01-05E Fords Terror
- 01-05F Endicott Arm

South Baranof Wilderness Area

The South Baranof Wilderness comprises 315,832 acres, most of which is coastal temperate rainforest. Numerous bays along the area's shoreline cut deep into the mountainous interior of Baranof Island, providing safe anchorage for boats in an otherwise exposed ocean environment. The community of Sitka lies approximately 19 miles to the north of the South Baranof Wilderness and Port Alexander is approximately 20 miles to the south.

At 4,528 feet, Mount Ada is the highest peak in the South Baranof Wilderness. On the eastern side of Baranof Island, Mount Ada's peak lies less than 3 miles from saltwater. Permanent snowfields and active glaciers blanket the higher elevations and several high-elevation lakes offer outstanding recreation opportunities. Most of the area's lower-elevations offer old-growth western hemlock and Sitka spruce, with a scattering of yellow cedar and mountain hemlock.

The area supports a full range of life zones, from shoreline to the alpine. Wildlife includes brown bears, Sitka black-tail deer, mountain goat, mink, marten, and river otters; trout and salmon (seasonally), as wells as eagles and shorebirds. Seals, sea lions, whales, and a large population of sea otters are often seen offshore, and crab, shrimp, herring, salmon and halibut are harvested from the ocean. It is this combination of mountains, glaciers, dense rainforest, and the sea that gives the South Baranof Wilderness its variety and high value as wilderness.

The South Baranof Wilderness consists of two use areas:

- 04-01A Gut Bay, Baranof, and
- 04-02B Whale Bay.

Kootznoowoo Wilderness Area

The northern edge of the Kootznoowoo Wilderness is 12 boat-miles south of Juneau, Alaska. From here, Kootznoowoo Wilderness stretches another 81 miles south to Frederick Sound. Paddlers on the Cross Admiralty Canoe Route cross six lakes and may find wilderness solitude as they traverse from Angoon to the historic homestead of Allen Hasselborg (the bear man of Mole Harbor), a distance of 27 miles. Totaling 971,480 acres (about 1,500 square miles) this wilderness supports approximately one bear per square mile.

Coastal forests of old-growth Sitka spruce and western hemlock dominate, Sitka black-tailed deer inhabit the forest, and bald eagles nest along most beaches. Harbor seals, Steller sea lions, and humpback whales feed in nearby waters rafts of sea ducks such as scoters and harlequins. The forest floor vegetation includes mosses and blueberry; muskegs contain sedge and sphagnum bogs. Rocky peaks rise above 3,000 feet. Designated as Admiralty Island National Monument in 1978, almost all but the northern end of the island was designated Wilderness in 1980 under ANILCA. Additional lands around Admiralty Cove and Young Lake were added as wilderness in 1990 under the Tongass Timber Reform Act. The Kootznoowoo Wilderness contains 30 miles of primitive trails, 13 cabins and 10 shelters for public use.

The Kootznoowoo Wilderness Area consists of these use areas:

- 04-05A SW Admiralty,
- 04-06A Pybus Bay,
- 04-06B Eliza Harbor,
- 04-07A Gambier Bay,
- 04-07B Cross-Admiralty Canoe Route,
- 04-08 NE Admiralty,
- 04-09A Seymour Canal,
- 04-09B Pack Creek Zoological Area,
- 04-10A Greens Creek, and
- 04-10B NW Admiralty.

West Chichagof – Yakobi Wilderness Area

The West Chichagof-Yakobi Wilderness Area includes 273,075 acres of coastal temperate rainforest, bounded to the west by the Gulf of Alaska. The wilderness area spans approximately 60 miles of coastline featuring numerous sheltered bays and hundreds of smaller islands in proximity to Chichagof and Yakobi Islands. The communities of Sitka and Hoonah are each about 30 miles distant from their nearest respective access to the wilderness. Pelican lies only 1 mile from the West Chichagof-Yakobi Wilderness Area boundary.

Western hemlock and Sitka spruce forests cover approximately one-third of the West Chichagof-Yakobi Wilderness Area, with muskeg, alpine, and estuarine vegetation making up the rest. Sitka black-tailed deer are common and brown bears are frequently sighted, along with smaller furbearing animals. Migratory waterfowl frequent the West Chichagof-Yakobi Wilderness Area in large numbers and marine mammals, including sea otters, sea lions, and seals, can be seen.

Tlingit Indians have long valued this area for its rich natural resources. A history of human habitation has left behind mining cabins and equipment, remnants of fox farms, small communities, and Tlingit village sites. Remnants of past and current human presence include several mine adits, cabins, fish weirs, and trails.

The West Chichagof-Yakobi Wilderness Area consists of four use areas:

- 04-14 Slocum Arm,
- 04-15B West Yakobi Island,
- 04-15C Stag Bay, and
- 04-15D Portlock Harbor.

Pleasant, Lemesurier and Inian Islands Wilderness Area

In 1990 Congress designated the 23,079-acre Pleasant, Lemesurier, and Inian Islands Wilderness. These islands are located along the Icy Strait corridor, north of the City of Hoonah.

Pleasant Island, the easternmost island, is fairly flat with dense forest and vast muskegs; its highest point, The Knob, is at approximately 600 feet above sea level. At least two of the island's lakes and three of its streams hold fresh water. It is about 2 miles from the City of Gustavus across Icy Passage and accessible by boat. Local residents hunt and gather here.

Lemesurier Island, the next island to the west, is mostly rolling terrain with one peak reaching 2,180 feet above sea level–high enough to claim sub-alpine habitat. It is densely forested with several freshwater streams and small lakes. Hoonah Ranger District maintains a primitive trail that leads to a lake above Jacks Cove. This lake has no outlet and is surrounded by carbonate bedrock, which suggests a viable karst system. There are two parcels of private land on this island.

The Inian Islands, westernmost of this wilderness, are made up of four main islands with four smaller islands. Less than a mile north of the Inian Peninsula and about a mile from the community of Elfin Cove, the "Inians" rise to about 1,000 feet on the largest island. Substantial tree cover provides habitat for deer and small mammals.

The Pleasant, Lemesurier, and Inian Island Wilderness Area includes Use Area 04-16D with the same name as the wilderness area.

Wilderness Commercial Needs Assessment Findings

The Wilderness Commercial Needs Assessments for these six wilderness areas find a need for outfitter/guide services conducting remote setting nature tours, camping, freshwater fishing and hunting for each wilderness area. These commercial services help realize the public purposes of wilderness in a manner compatible with the preservation of wilderness character.

The Wilderness Commercial Needs Assessments are included in Appendix F of the DEIS.

Wilderness Character Summary

Existing Wilderness Character

Table 3-9 displays the wilderness character monitoring results for the Qualities and the overall wilderness character condition score for each wilderness area. The Wilderness Resource Report Wilderness Character Summary section contains more detail.

Table 3-9: Summary of Existing Conditions for Wilderness Character and Qualities for the Shoreline II project wilderness areas

Wilderness	Tracy Arm – Ford's Terror & Chuck River Wilderness Areas	South Baranof Wilderness Area	Kootznoowoo Wilderness Area	West Chichagof – Yakobi Wilderness Area	Pleasant, Lemesurier & Inian Islands Wilderness Area
Wilderness Character	Good condition (2. 72)) Stable trend Medium data adequacy	Good condition (2.68) Stable trend Medium data adequacy	Moderate Concern (2.24) Stable trend Medium data adequacy	Moderate Concern (2.46) Stable trend Medium data adequacy	Good condition (2.69) Stable trend Medium data adequacy
Untrammeled Quality	Good condition (3.00) Stable trend Medium data adequacy	Good condition (2.50) Stable trend Good data adequacy	Moderate concern (2.17) Stable trend Medium data adequacy	Moderate concern (2.17) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy
Undeveloped Quality	Moderate concern (2.33) Stable trend	Good condition (2.83) Stable trend	Significant concern (1.44) Stable trend	Moderate concern (2.00) Stable trend	Good condition (2.50) Stable trend

	Low data adequacy	Medium data adequacy	Medium data adequacy	Medium data adequacy	Medium data adequacy
Natural Quality	Good condition (2.75) Stable trend Medium data adequacy	Good condition (2.75) Stable trend Medium data adequacy	Good condition (2.50) Undetermined trend Low data adequacy	Good condition (2.50) Stable trend Low data adequacy	Good condition (2.75) Stable trend Medium data adequacy
Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality	Good Condition (2.54) Undetermined trend Medium data adequacy	Moderate Concern (2.33) Undetermined trend Medium data adequacy	Moderate Concern (2.08) Undetermined trend Medium data adequacy	Good Condition (2.63) Undetermined trend Medium data adequacy	Good Condition (2.50) Undetermined trend Medium data adequacy
Other Features of Value Quality	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy	N/A

Four wilderness areas have Wilderness character in good condition with a stable trend and medium data adequacy:

Tracy Arm–Ford's Terror and Chuck River Wilderness Areas

West Chichagof–Yakobi Wilderness Area

Pleasant, Lemesurier and Inian Islands Wilderness Area

Two wilderness areas have Wilderness character warranting moderate concern with stable trends and medium data adequacy:

Kootznoowoo Wilderness Area

South Baranof Wilderness Area

This summary of the existing conditions for the six wilderness areas indicates that the four wilderness areas in good condition are comparatively remote, unsettled, undeveloped and less-intensively managed, and that the two wilderness areas of moderate concern have 1) extensive histories of human settlement and extraction, 2) substantial developments (non-recreational and recreational), and 3) the most hands-on management.

This analysis examines the five Qualities for the six wilderness areas below.

Untrammeled Quality

The Untrammeled Quality gauges how much people intervene to manage a wilderness area rather than letting nature proceed as it will. The Quality has two indicators: actions authorized by the Forest Service, and actions unauthorized by the Forest Service. The former covers three measures assessing trammeling actions of vegetation management, fish/wildlife/habitat management and fire suppression. In general, the measures for this Quality score high when there are no or few trammeling actions and score worse the more trammeling actions occur. See Table 3-9, above.

Four wilderness areas have an Untrammeled Quality in good condition with a stable trend and medium data adequacy:

Tracy Arm – Ford's Terror and Chuck River Wilderness Areas

- Two annual trammeling actions: treatment of invasive white clover and ox-eye daisies.

South Baranof Wilderness Area

- Three instances of unauthorized tree removal in 2012 at Port Banks and Sandy Bay

Pleasant, Lemesurier and Inian Islands Wilderness Area

- One instance (year undetermined but recent) of unauthorized logging of downed trees in a stream

These wilderness areas have few recorded trammeling actions over the last 5 years which grants the good condition and stable trend. The data adequacy is medium as thresholds need refining and trends need validating.

Two wilderness areas have an Untrammeled Quality of moderate concern with a stable trend and medium data adequacy:

Kootznoowoo Wilderness Area

- Multiple instances of: salmon containment at Kanalku Creek fish weir; brown bear captures and collarings, and invasive weed treatments in Whitewater Bay, Gambier Bay and Seymour Canal. Other trammeling actions include the alteration of Kanalku Falls facilitating fish passage and the ongoing habituation of bears at Pack Creek brown bear viewing area.

West Chichagof – Yakobi Wilderness Area

- Multiple instances of salmon containment and tagging at Ford Arm fish weir and invasive weed treatments at Rust Lake and White Sulphur Hot Springs. Instances of unauthorized tree cutting at Ford Arm and Falcon Arm.

These wilderness areas have more numerous trammeling actions over the last 5 years earning a score of moderate concern. The trends are considered stable since weed eradication and salmon management are likely to continue for the foreseeable future. The data adequacy is medium as thresholds need refining and trends need validating.

Undeveloped Quality

The Undeveloped Quality generally refers to a wilderness area retaining its primeval character and influence due to a lack of installations and structures, an absence of normally prohibited motorized equipment and mechanical transport, and a lack of other representations of human occupancy and modification. In general, the measures for this Quality score highly when there are fewer developments and instances of motorized or mechanical use, and they score lower when otherwise. The Quality has three indicators:

- Non-recreational Buildings and Non-recreational Installations and Developments. Measures under this indicator count developments such as non-public use cabins, administrative or research camps, radio repeaters and navigational aids.
- Inholdings. The measure under this indicator evaluates level of development and occupancy of non-National Forest System lands in wilderness.
- Use of Motor Vehicles, Motorized Equipment, or Mechanical Transport. The measures for this indicator assess administrative, emergency and unauthorized uses of motor vehicles, motorized equipment or mechanical transport not allowed by ANILCA.

See Table 3-9 above.

Two wilderness areas have an Undeveloped Quality in good condition with a stable trend and medium data adequacy.

South Baranof Wilderness Area

- Structures/installations include the Falls Lake Fish Weir; the old Sandy Bay Hatchery site with remnant materials left on site, and the Patterson Bay Net Pen Shoreties. No inholdings. Evidence of unauthorized chainsaw use.

Pleasant, Lemesurier and Inian Islands Wilderness Area

- Four inholdings with 12 structures. Evidence of unauthorized chainsaw use where downed trees were logged.

One wilderness area has an Undeveloped Quality of moderate concern with a stable trend and medium data adequacy.

West Chichagof–Yakobi Wilderness Area

- Eight separate developments and seven installations related to mines, weirs and cabins. Inholdings include the Chichagof Mine and other parcels (over 800 acres). The Alaska Department of Fish & Game Ford Arm camp has been given administrative use of a generator for some years. In 2012 there was also an emergency helicopter landing, as well as an unauthorized chainsaw use.

The sum of these measures and indicators results in an Undeveloped Quality of moderate concern with a stable trend. The data adequacy is regarded as medium due to thresholds needing refining and unconfirmed trends.

Two wilderness area has an Undeveloped Quality of moderate concern with a stable trend and low data adequacy.

Tracy Arm–Ford's Terror and Chuck River Wilderness Areas

- Multiple instances of structures and installations related to old mining claims, timber camps, navigational aids and research. Numerous inholdings including several with cabins and one recently renovated and operating commercial lodge. A few recent episodes of unauthorized and emergency helicopter use in the Tracy Arm – Ford's Terror Wilderness Area.

One wilderness area has an Undeveloped Quality of significant concern with a stable trend and medium data adequacy.

Kootznoowoo Wilderness Area

- Nineteen Forest Service permitted cabins, ten unpermitted crab pot storage sites with hundreds of crab pots, several permitted tent platforms, the Pack Creek administrative site, an ADF&G fish research camp and weir, a permitted lodge, a Forest Service radio repeater, several permitted communications sites and many navigational markers. Over 29,000 acres of inholdings including clearcut areas, cabins and other structures. In 2013 there was an unauthorized helicopter landing by a film crew. Permitted cabin owners use chainsaws and generators commonly which constitutes administrative use.

  The sum of these measures and indicators is an Undeveloped Quality warranting significant concern with an undetermined trend. The data adequacy is regarded as medium due to thresholds needing refining and unconfirmed trends.

Natural Quality

The Natural Quality represents the degree to which wilderness ecological systems are substantially free from the effects of modern civilization. This Quality has two indicators: plant and animal species and communities, and physical resources. The plant and animal species and communities indicator has five measures: assessing disturbance to rare and sensitive plants, extirpated fish and wildlife species, number of non-native plants, extent of non-native plants, and number of non-indigenous fish and wildlife species. The physical resources indicator has two measures assessing air quality: one measuring contaminant concentration in lichen tissue common to all wilderness areas, and for wilderness areas where nearby emissions might affect the scenic purpose of wilderness, and another measure assessing the number of readings of interest exceeding regulated opacity limits from cruise ship stacks. In general, the relative absence of disturbance, extirpations, non-natives, contaminants and readings of interest scores highly whereas the presence of these elements lowers scores.

See Table 3-9, above.

Five wilderness areas have a Natural Quality in good condition with a stable trend and medium data adequacy:

Tracy Arm–Ford's Terror and Chuck River Wilderness Areas, South Baranof Wilderness Area & Pleasant, Lemesurier and Inian Islands Wilderness Area

- No extirpations and few known non-native wildlife species. Unknown rare plant disturbances and extent of non-native plants: at least three invasive species. Good scores for air quality contaminants and readings of interest (visual emissions readings) where they occur.

West Chichagof–Yakobi Wilderness Area

- No extirpations and few known non-native wildlife species. Unknown rare plant disturbances and extent of non-native plants: at least 13 invasive species documented. Good scores for air quality contaminants.

At present, the good scores for the fish and wildlife measures and the air quality measures offset moderate concern scores for the plant measures resulting in the Natural Quality's overall good condition. Incomplete data combined with thresholds needing refining and unconfirmed trends result in the Natural Quality's stable trend and medium data adequacy.

One wilderness area has a Natural Quality in good condition with an undetermined trend and low data adequacy.

Kootznoowoo Wilderness Area

- No extirpations and few known non-native wildlife species, though reports of a feral dog-pack are occasionally received from Southern Admiralty Island. Unknown rare plant disturbances and extent of non-native plants: at least six invasive species documented with four other species reported. It is unclear if recent inventories of increased extents of invasive weeds reflect new proliferation or new recording of extant populations. Good scores for air quality contaminants.

At present, the good scores for the fish and wildlife measures and the air quality measures offset moderate concern and significant concern scores for the plant measures, resulting in the Natural Quality's overall good condition. Insufficient data for the large area combined with inconsistent monitoring, thresholds needing refining and unconfirmed trends result in the Natural Quality's undetermined trend and low data adequacy.

Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality

The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality represents the experiential opportunities wilderness affords: what wilderness experiences visitors find. The Quality has four indicators assessing opportunities for solitude, primitive and unconfined recreation. The first two indicators, Management Restrictions on Visitor Behavior, and Facilities that Decrease Self-reliant Recreation are discussed below. The Wilderness Resource Specialist Report: Shoreline II Outfitter/Guide Project contains a detailed discussion examining the measures of the solitude indicators, as these were identified as a significant issue by the public for the Shoreline II project. A summary of the findings for the solitude indicators is presented here.

Table 3-10. A Summary of the six wilderness areas score for the Indicators and the overall Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality

Indicator	Tracy Arm – Ford's Terror & Chuck River Wilderness Areas	South Baranof Wilderness Area	Kootznoowoo Wilderness Area	West Chichagof – Yakobi Wilderness Area	Pleasant, Lemesurier & Inian Islands Wilderness Area
Solitude: Remoteness from sights and sounds of human activity inside the wilderness	Good condition (2.67) Undetermined trend Medium data adequacy	Moderate concern (2.33) Undetermined trend Low data adequacy	Moderate concern (2.33) Undetermined trend Low data adequacy	Good condition (2.50) Undetermined trend Medium data adequacy	Good condition (3.00) Undetermined trend Low data adequacy
Solitude: Remoteness from sights and sounds of human activity adjacent to the wilderness	Moderate concern (1.50) Undetermined trend Medium data adequacy	Significant concern (1.00) Undetermined trend Medium data adequacy	Moderate concern (1.50) Undetermined trend Medium data adequacy	Moderate concern (2.00) Undetermined trend Medium data adequacy	Significant concern (1.00) Undetermined trend Low data adequacy
Primitive Recreation: Facilities that decrease self-reliant recreation	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy	Moderate concern (1.50) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy
Unconfined Recreation: Management restrictions on visitor behavior	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy	Good condition (3.00) Stable trend Medium data adequacy
Overall Quality Rating	Good condition (2.54) Undetermined trend Medium data adequacy	Moderate concern (2.33) Undetermined trend Medium data adequacy	Moderate Concern (2.08) Undetermined trend Medium data adequacy	Good Condition (2.63) Undetermined trend Medium data adequacy	Good Condition (2.50) Undetermined trend Medium data adequacy

Unconfined Indicator: Management restrictions on visitor behavior

This indicator measures management restrictions on visitor behavior. As all six wilderness areas have minimal restrictions on visitors (group size limit of 12 and a required permit for Pack Creek with a daily quota of 24 people during the peak summer season in the Kootznoowoo Wilderness area; otherwise, no required permits, quotas, closures or assigned sites) this indicator scores a good condition for all areas with a stable trend, but with medium data adequacy due to thresholds and trends needing refining.

Primitive Recreation Indicator: Facilities that decrease self-reliant recreation

This indicator gauges facilities that decrease self-reliant recreation. This includes Forest Service-system trails and the number of constructed features, user-created facilities, Forest Service public recreation cabins and installations/structures such as boxes or cables for securing food. For this indicator, five wilderness areas – all but Kootznoowoo Wilderness area - score a good condition with a stable trend and medium data adequacy due to the low number of facilities, features, and installations:

Tracy Arm–Ford's Terror and Chuck River Wilderness Areas,

- No public recreation cabins; no system trails; two installed cables for hanging food; no known user-created facilities.

South Baranof Wilderness Area

- Three public recreation cabins; one system trail (1.1 miles) with one feature; no known user-created facilities.

West Chichagof–Yakobi Wilderness Area

- Four public recreation cabins; six system trails (11.3 miles) with 15 features; no known user-created facilities.

Pleasant, Lemesurier and Inian Islands Wilderness Area

- No public recreation cabins; one system trail (1/2 mile) with one sign; no known user-created facilities.

For the Primitive Recreation indicator, one wilderness area warrants significant concern with a stable trend and medium data adequacy:

Kootznoowoo Wilderness Area

- Thirteen public recreation cabins; 10 public use shelters; 16 system trails (29.25 miles) with approximately 900 constructed features; and a known trespass cabin.

The medium data adequacy reflects incomplete monitoring combined with thresholds needing refining and unconfirmed trends.

Solitude Indicators

The two solitude indicators and their measures are:

- Remoteness from sights and sounds of human activity inside the wilderness
  - a) Number of cabin reservations (i.e., number of nights)per year
  - b) Number of guided visitors in service days per year
  - c) Average number of groups encountered per day in wilderness
  - d) Number and condition of recreation sites
  - e) Number of miles and condition of user-created trails

- Remoteness from sights and sounds of human activity adjacent to the wilderness
  a) Average number of groups encountered per day adjacent to wilderness (saltwater, air, non-wilderness lands)
  b) Percentage of days monitored with low-intensity or no encounters.

Four wilderness areas have an Outstanding Opportunities Quality in good condition with an undetermined trend and medium data adequacy.

Tracy Arm–Ford's Terror and Chuck River Wilderness Areas

West Chichagof–Yakobi Wilderness Area

Pleasant, Lemesurier and Inian Islands Wilderness Area

Two wilderness areas have an Outstanding Opportunities Quality warranting moderate concern with an undetermined trend and medium data adequacy.

Kootznoowoo Wilderness Area

South Baranof Wilderness Area

Other Features of Value Quality

Other Features of Value Quality represents unique features that are integral to a wilderness area's character. This is a recently added Quality derived from language in the Wilderness Act (U.S. Congress, 1964, Section 2(c)). Five of the six wilderness areas are adopting this Quality and developing indicators and measures (Table 3-11).

Table 3-11. Other Features of Value Quality list of unique features integral to wilderness character

Tracy Arm – Ford's Terror & Chuck River Wilderness Areas	South Baranof Wilderness Area	Kootznoowoo Wilderness Area	West Chichagof – Yakobi Wilderness Area
Cultural Resources	Baranof Island Brown Bears	Cultural Resources	Chichagof Island Brown Bears
Subsistence Opportunities	Red Bluff Bay Geologic Features	Subsistence Opportunities	White Sulphur Springs
	Historic/Prehistoric Values		Historic/Prehistoric Values
	Subsistence Opportunities		Subsistence Opportunities

In conferring with agency specialists, this Quality is regarded in good condition overall for the five wilderness areas, with the trend stable and data adequacy medium for all until the measures, indicators, thresholds and trends are further refined and developed. See Table 9, above.

Five wilderness areas have an Other Features of Value quality in good condition with a stable trend and low data adequacy:

Tracy Arm – Ford's Terror and Chuck River Wilderness Areas

South Baranof Wilderness Area

Kootznoowoo Wilderness Area

West Chichagof – Yakobi Wilderness Area

Other Features of Value have not been identified for the Pleasant, Lemesurier and Inian Islands Wilderness Area.

Environmental Consequences

Summary of Effects

The Environmental Consequences section describes the direct, indirect, and cumulative effects the proposed action and alternatives would have on wilderness character measures, indicators and Qualities within the Shoreline II project area.

The direct effects analysis compiled the unaffected Qualities with the affected Qualities to assess how wilderness character could be affected. The degree of change to the measures, indicators, Qualities and wilderness character determines the level of effect of the alternative as defined below:

Table 3-12. Summary level of effect of an alternative on Qualities and wilderness character

Level of Effects Definitions				
No Effect	**Negligible Effect (+/-)**	**Minor Effect (+/-)**	**Moderate Effect (+/-)**	**Major Effect (+/-)**
The effect of the examined alternative is absent or has no impact of any kind. No conditions and/or trends of any measures are affected.	The effect of the examined alternative would affect a measure or measures, but not to the degree that the conditions and/or trends of any indicators change.	The effect of the examined alternative would affect measures such that the condition and/or trend of an indicator changes, but no Qualities change.	The effect of the examined alternative would affect measures such that the conditions and/or trends of multiple indicators change, but no Qualities change.	The effect of the examined alternative affects measures and indicators such that the condition and/or trend of a wilderness Quality changes.

Effects that change indicators, Qualities or overall wilderness character –may represent different degrees of impacts. Some impacts may change enough measures that the effects create changes at higher levels. In other instances, indicators, Qualities or overall wilderness character may be at a threshold and a modest impact on only one or a few measures will be enough to push the indicators, Qualities or overall wilderness character across to a new status. Either way, whether the impacts are substantial or modest, the important point is that a threshold has been crossed.

Direct Effects

Qualities Unaffected by the Shoreline II Outfitter/Guide Project

There are four Qualities of wilderness character that will not be affected in any of the six wilderness areas by the proposed action and alternatives: Untrammeled, Undeveloped, Natural, and Other Features of Value, and these are discussed in more detail the Wilderness Resource Report. The direct effects analysis of the Environmental Consequences section will focus more in-depth on the affected Quality of Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation, and its indicators and measures.

Untrammeled Quality

There will be no effect to the Untrammeled Quality in all six wilderness areas because the proposed action and alternatives do not propose intentional manipulation of wilderness from any outfitter/guide use proposed under the Shoreline II Outfitter/Guide EIS project.

Undeveloped Quality

There will be no effect to the Undeveloped Quality in all six wilderness areas because use allocations described in the proposed action and alternatives do not authorize structures, installations, inholdings or exceptional cases of using prohibited motorized or mechanized means.

Natural Quality

The Natural Quality is regarded as being unaffected by this project contingent on mitigation, adaptive management, and monitoring taking place to protect rare and sensitive plants and to prevent additional and expanded non-native plant species. Measures assessing air quality, extirpated species and non-indigenous fish and wildlife species are not expected to change as a result of Shoreline II activities.

Other Features of Value Quality

Findings from specialists indicate that the Other Features of Value indicators will not be substantially affected by the Shoreline II Outfitter/Guide EIS proposed action and alternatives as long as proper mitigation, adaptive management and monitoring measures are realized. See the Project Design Features and Mitigation Measures and the Adaptive Management sections below, and the relevant resource specialist reports for more details. Consequently, the Other Features of Value Quality is expected to remain unchanged from its existing condition for the Shoreline II Outfitter/Guide EIS project proposed action and alternatives.

Effects to the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality

Measures and Indicators Unaffected by the Shoreline II Outfitter/Guide Project

The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality has two indicators which are unaffected by the proposed action and alternatives: The primitive recreation indicator: facilities that decrease self-reliant recreation and the unconfined recreation indicator: management restrictions on visitor behavior. Consequently, the analysis of this Quality will focus on the two solitude indicators: remoteness from human activity inside wilderness and remoteness from human activity adjacent to wilderness. This is the main focus of the Environmental Consequences section.

Effects to the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality

Measures and Indicators Unaffected by the Shoreline II Outfitter/Guide Project

The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality has two indicators which are unaffected by the proposed action and alternatives: The primitive recreation indicator: facilities that decrease self-reliant recreation and the unconfined recreation indicator: management restrictions on visitor behavior. Consequently, the analysis of this Quality will focus on the two solitude indicators: remoteness from human activity inside wilderness and remoteness from human activity adjacent to wilderness. This is the main focus of the Environmental Consequences section.

Summary of Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality

By averaging the measures and then the indicators under the various alternatives, a composite Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality score may be determined (Table 3-13).

Table 3-13. Effects Summary of the four Shoreline II alternatives on the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality

	Tracy Arm – Ford's Terror & Chuck River Wilderness Areas	South Baranof Wilderness Area	Kootznoowoo Wilderness Area	West Chichagof – Yakobi Wilderness Area	Pleasant, Lemesurier & Inian Islands Wilderness Area
Existing Condition	Good condition (2.54)	Moderate concern (2.33)	Moderate concern (2.08)	Good condition (2.63)	Good condition (2.50)
Alternative 1 (No Action)	Good condition (2.54) (No effect)	Moderate concern (2.33) (No effect)	Moderate concern (1.71) (Moderate negative effects)	Good condition (2.58) (Minor negative effects)	Moderate concern (2.42) (Major negative effects)
Alternative 2 (Proposed Action)	Good condition (2.54) (No effect)	Moderate concern (2.33) (No effect)	Moderate concern (2.08) (No effect)	Good condition (2.58) (Minor negative effects)	Moderate concern (2.42) (Major negative effects)
Alternative 3	Good condition (2.54) (No effect)	Moderate concern (2.33) (No effect)	Moderate concern (2.08) (No effect)	Good condition (2.58) (Minor negative effects)	Moderate concern (2.42) (Major negative effects)
Alternative 4	Good condition (2.38) (Major negative effects)	Moderate concern (2.08) (Minor negative effects)	Moderate concern (1.71) (Moderate negative effects)	Moderate concern (2.21) (Major negative effects)	Moderate concern (2.33) (Major negative effects)

By categorizing the level of effect, the Forest Service can note if the condition rating reflects no effect (no changes), a negligible change (measure-shifting), a minor change (indicator-shifting), a moderate change (multiple indicator shifts) or a major change (Quality-shifting). See Table 3-11.

Direct Effects Findings

The following section summarizes by wilderness area how the Shoreline II proposed action and alternatives affect the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality. The Wilderness Resource Report summarizes effects at all levels - measure, indicator, Quality and overall wilderness character - in the Environmental Consequences – Direct Effects section.

Tracy Arm – Ford's Terror and Chuck River Wilderness Areas

For the Tracy Arm – Ford's Terror and Chuck River Wilderness Areas, Alternatives 1, 2, and 3 do not substantially affect the measures under the two affected indicators: Remoteness from sights and sounds of people inside the wilderness, and Remoteness from sights and sounds of people adjacent to the wilderness. Consequently, these three alternatives score the same as the existing condition for the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality: good condition, just above the threshold for moderate concern with no effects.

Alternative 4 would affect two measures under the indicator Remoteness from sights and sounds of people inside the wilderness (Average number of groups encountered per day in wilderness and Number and condition of recreation sites). Consequently, this indicator changes to a condition of moderate concern, resulting in an Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality shift to a condition of moderate concern. Alternative 4 has major negative effects on the Quality.

South Baranof Wilderness Area

For the South Baranof Wilderness Area, Alternatives 1, 2 and 3 do not substantially affect the measures under the two affected indicators: Remoteness from sights and sounds of people inside the wilderness, and Remoteness from sights and sounds of people adjacent to the wilderness. Consequently, these three alternatives score the same as the existing condition for the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality: moderate concern with no effects.

Alternative 4 would affect three measures under the indicator Remoteness from sights and sounds of people inside the wilderness: Average number of groups encountered per day in wilderness, Number and condition of recreation sites, and Number of miles of user-created trails. Consequently, this indicator changes to a condition of moderate concern. The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality remains in a condition of moderate concern, but with a lower score, comprising minor negative effects.

Kootznoowoo Wilderness Area

For the Kootznoowoo Wilderness Area, Alternatives 2 and 3 do not substantially affect the measures under the two affected indicators Remoteness from sights and sounds of people inside the wilderness and Remoteness from sights and sounds of people adjacent to the wilderness. Consequently, these two alternatives score the same as the existing condition for the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality: moderate concern with no effects.

Alternatives 1 and 4 would affect three measures under the indicator Remoteness from sights and sounds of people inside the wilderness: Average number of groups encountered per day in wilderness, Number and condition of recreation sites, and Number of miles of user-created trails. They would affect one measure under the indicator Remoteness from sights and sounds of people adjacent to the wilderness: Average number of groups encountered per day adjacent to wilderness (saltwater, air, non-wilderness lands). Consequently, both of these indicators change from conditions of moderate concern to significant concern. The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality remains in a condition of moderate concern, but with a lower score, comprising moderate negative effects for Alternatives 1 and 4.

West Chichagof – Yakobi Wilderness Area

For the West Chichagof - Yakobi Wlderness Area, Alternatives 1, 2 and 3 affect a measure under the affected indicator Remoteness from sights and sounds of people inside the wilderness (Number of miles of user-created trails). Consequently, these three alternatives score slightly lower than the existing condition for the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality, but the Quality still remains in good condition. Alternatives 1, 2, and 3 have minor negative effects on the Quality.

Alternative 4 would affect three measures under the indicator Remoteness from sights and sounds of people inside the wilderness (Average number of groups encountered per day in wilderness, Number and condition of recreation sites, and Number of miles of user-created trails) and one measure under the indicator Remoteness from sights and sounds of people adjacent to the wilderness (Average number of groups encountered per day adjacent to wilderness (saltwater, air, non-wilderness lands)). Consequently, the former indicator changes from a condition of moderate concern to significant concern and the latter indicator scores lower but remains of moderate concern. The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality lowers to a condition of moderate concern, comprising major negative effects for Alternative 4.

Pleasant, Lemesurier and Inian Islands Wilderness Area

For the Pleasant, Lemesurier and Inian Islands Wilderness Area, Alternatives 1, 2, and 3 affect a measure under the affected indicator Remoteness from sights and sounds of people inside the wilderness (Number

and condition of recreation sites). Consequently, these three alternatives score slightly lower than the existing condition for the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality. As the existing condition of the Quality is barely at the threshold for good condition, these slightly lower scores drop the Quality to a condition of moderate concern. Hence, Alternatives 1, 2, and 3 have major negative effects on the Quality.

Alternative 4 affects two measures under the affected indicator Remoteness from sights and sounds of people inside the wilderness (Number and condition of recreation sites and Number of miles of user-created trails). This also lowers the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality score from good condition to that of moderate concern. The Quality condition score is lower than for Alternatives 1, 2, and 3, but the effect is categorized in the same fashion as having major negative effects on the Quality.

Direct Effects Summary

The wilderness character of the six wilderness areas is fairly resilient in regards to the Shoreline II Outfitter/Guide proposed action and alternatives, largely in part to the health of the Untrammeled, Undeveloped, Natural and Other Features of Value Qualities, but also due to the fact that the Shoreline II project tends to have a concentrated impact under two of the four indicators under the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality. It is only when the proposed use is substantially more than the 5-year actual use average, and when certain wilderness areas are on the cusp between conditions, that the Shoreline II proposed action and alternatives would have a greater effect.

Indirect Effects

Indirect effects occur later in time or are spatially removed from the action. The indirect effects analysis assesses effects on the non-project area wilderness character and on awareness and appreciation of wilderness by people beyond the project area.

Shoreline II and Non-Shoreline Wilderness

The table below compares the Shoreline II project area acres to the whole wilderness acreage for the six designated wilderness areas.

The Shoreline II Decision will determine the extent of commercial services allocated for a majority portion of four wilderness areas (see Table 3-6, above). Should the Angoon-Mitchell Bay Ecotourism Environmental Assessment allocate commercial use upon its completion (in 2017), over 60 percent of the Kootznoowoo Wilderness Area will have allocations for outfitter/guide use. The Chuck River Wilderness Area also has outfitter/guide use allocations for about 50 percent of its area. This proportion is diminished when combined with the Tracy Arm – Ford's Terror Wilderness Area. The same four Qualities of wilderness character (Untrammeled, Undeveloped, Natural, and Other Features of Value) that will not be directly affected in any of the six wilderness areas by the proposed action and alternatives are not expected to be indirectly affected either. Consequently, any indirect effects to the wilderness character of a whole designated wilderness primarily concerns the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality.

Indirect effects include how the Shoreline II project might affect people's awareness and appreciation of wilderness. People support wilderness from afar for its inherent intrinsic and spiritual values, as well as for its explicit ecosystem services such as providing fresh air and water, wildlife habitat and nurturing biodiversity. For some, authorizing commercial services in wilderness may compromise these other values and benefits. Others may gain greater wilderness awareness and appreciation through hearing of peoples' adventures while on an outfitted/guided trip. It is not possible to quantify the effects of any action alternative on these concerns. Based on public input received during Shoreline II scoping and

comment periods, it is likely that some people are anxious about crowding and commercialism affecting wilderness, whereas others embrace the opportunities and use.

Indirect Effects Findings

South Baranof, West Chichagof-Yakobi and Pleasant, Lemesurier and Inian Islands Wilderness Areas

These three wilderness areas feature the greatest overlap between the whole wilderness and the Shoreline II project area. While the Pleasant, Lemesurier and Inian Islands Wilderness Area has 61 percent overlap, the scattered island layout dilutes the non-project area 9,075 acres as the acreage is divided between three islands and ringed by Shoreline II project area acreage. These three wilderness areas have some degradation of Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation measures, indicators, or overall Quality within the Shoreline II project area. The minority non-project area is likely insufficient to counter such impairments when wilderness character for the whole wilderness is determined. This means that when the Shoreline II Record of Decision is signed, the direct effect finding for the Outstanding Opportunity for Solitude or a Primitive and Unconfined Type of Recreation Quality will likely become the status of the Quality for the whole wilderness for each of the three areas.

Tracy Arm – Ford's Terror, Chuck River, and Kootznoowoo Wilderness Areas

The majority of the Chuck River and Kootznoowoo Wilderness Areas overlap with the Shoreline II project area, but they also feature substantial contiguous non-project area wilderness. The Tracy Arm – Ford's Terror wilderness has the least overlap with the Shoreline II project area and its non-project area consists of severe geography and icefields or glaciers.

These non-project area locations are more difficult to access and likely less impaired with measures, indicators, Qualities and overall wilderness character in comparatively good condition. Agency decisions that would affect the wilderness character of these non-Shoreline II project areas must be weighed in light of the fact that they have potential to either preserve or degrade wilderness character where its integrity may be most intact, especially the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality.

Cumulative Effects

The cumulative effects analysis considers reasonably foreseeable projects that may have an effect on the wilderness character of the Shoreline II Outfitter/Guide EIS wilderness areas in the next 10 years, the maximum duration of an outfitter/guide use permit before requiring reauthorization. The following projects have been determined as potentially having cumulative effects on wilderness character.

Table 3-14. List of projects considered for cumulative effects to wilderness resources.

Project Name	Type[1]	Action[2]	Affected Wilderness Area[3]
Angoon Airport	Adjacent	Future	Kootznoowoo
Angoon Hydroelectric Project	Hydroelectric Project	Future	Kootznoowoo
Angoon Mitchell Bay Ecotourism EA	Adjacent	Future	Kootznoowoo
Bohemia Basin Trail and Recreation Improvements	Trail & Recreation Improvements	Past	West Chichagof - Yakobi
Commercial Filming	Special Uses	Present	All six wilderness areas
Continued Development and Management of Non-wilderness Lands	Adjacent	Present	All six wilderness areas
Cube Cove/Shee Atika Land Acquisition	Land Acquisition	Present	Kootznoowoo
Hatchery Fish	Fisheries	Present	Tracy Arm – Ford's Terror, Chuck River, South Baranof, Kootznoowoo and West

			Chichagof - Yakobi
Hecla Greens Creek Mining Company's 2017-2021 Exploration Project	Minerals Exploration	Present	Kootznoowoo
Kanalku Fish Passage Barrier Modification	Fisheries	Present	Kootznoowoo
Marine waterways and airspace use surrounding NFS lands	Adjacent	Present	All six wilderness areas
Pack Creek Zoological Area Outfitter/Guide Permitting	Adjacent	Present	Kootznoowoo
Sustainable Cabin Management project: cabin removals at Rezanof and Maksoutof Lakes SBW; cabin conversion to shelter at Distin Lake	Trail & Recreation Improvements	Past	South Baranof; Kootznoowoo
Windfall Harbor Shelter Rehabilitation	Trail & Recreation Improvements	Past	Kootznoowoo

[1]Type provides the nature of the project, with "adjacent" indicating that the project will occur adjacent to the Shoreline II project area.
[2]Action notes when the project occurs, either "past," "present" or "future."
[3]Affected Wilderness Area notes which wilderness areas may be affected by the listed projects.

The cumulative effects of these projects are discussed below, grouped alphabetically by Type.

Adjacent Projects

Angoon Airport (Kootznoowoo Wilderness Area)

An airport is proposed to service the community of Angoon, which will be located outside of the project area on non-NFS lands. This project may result in increased air traffic near the Kootznoowoo wilderness and increased visitor use on NFS lands near Angoon, including the 04-05A SW Admiralty, 04-07B Cross Admiralty Canoe Route and 04-10B NW Admiralty use areas. Air traffic and increased visitation would potentially impact the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality.

Angoon-Mitchell Bay Ecotourism EA (Kootznoowoo Wilderness Area)

An Angoon-Mitchell Bay Ecotourism environmental assessment is underway and examines increasing ecotourism services in the Angoon-Mitchell Bay vicinity. This project may result in increased outfitter/ guided use in the Kootznoowoo Wilderness Area in and around Mitchell Bay, including possible increased use from visitors extending into adjoining Shoreline II Use Areas (04-05A SW Admiralty, 04-07B Cross Admiralty Canoe Route, 04-10B NW Admiralty). Increased visitation would potentially impact the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality.

Continued Development and Management of Non-wilderness Lands (All six wilderness areas)

There are numerous projects that involve development or management of lands in the vicinity of the six wilderness areas. The projects identified below are removed enough that they are not foreseen as having direct effects on the wilderness character Qualities of the wilderness areas:

- Crooked Creek/Jim's Lake Hydropower Project
- Davidson Creek Falls Fish Passage
- Eight Fathom Rock Pit Expansion Project
- Hidden Falls Fish Hatchery permit issuance

- Sitka Young Growth Thinning Project
- Sweetheart Lake Hydroelectric Project
- Tongass Land and Resource Management Plan Amendment

Marine Waterways and Airspace Use (All six wilderness areas)

Activities occurring on marine waterways and in the airspace surrounding National Forest System lands within the analysis area have the potential to impact the wilderness resource. This project defines an encounter as: when a person or group located on National Forest System (including wilderness) becomes aware of the presence of another person or group located on or adjacent to National Forest System lands. National Forest visitors who are recreating adjacent to common travel corridors (water and air) are expected to have more encounters and increased frequencies of sights and sounds of humans from marine and air traffic.

Drones deserve mention. District offices have received film permit applications requesting drone use in or adjacent to wilderness. Wilderness rangers have received reports of clients aboard tour boats requesting to fly drones to obtain aerial photography of scenery and wildlife. The miniaturization and affordability of drones makes it likely that their use will increase in and around wilderness areas in the future. Impacts could range from disturbing wildlife, introducing mechanized/motorized means to wilderness, encroaching on wilderness visitors' sense of remoteness to noise pollution. These would primarily be negative effects on the four primary Qualities: Untrammeled, Undeveloped, Natural and Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation. A positive indirect effect might be the enhanced appreciation of the scenic purpose of wilderness.

Pack Creek Zoological Area Outfitter/Guide Permitting (Kootznoowoo Wilderness Area)

Pack Creek Zoological Area Outfitter/Guide permitting authorizes use for outfitters/guides to operate in and around Pack Creek (Use Area 04-09B Pack Creek Zoological Area). Outfitted/guided use at Pack Creek occurs through most of the summer season. The site is accessed by airplane and boat. This traffic may be encountered in Use Areas 04-08 NE Admiralty, 04-09A Seymour Canal and 04-09B Pack Creek Zoological Area and will contribute to keeping the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality at a moderate concern level. The continued habituation of brown bears to people contributes to the moderate concern of the Untrammeled Quality as well.

Fisheries

Hatchery Fish (All six wilderness areas)

The annual release of millions of salmon by hatcheries near Shoreline II project wilderness areas has a potential to affect wilderness character. Hatchery salmon that stray into wilderness streams or are planted in wilderness lakes would count as introduced fish with a direct effect of degrading the Natural Quality (introducing non-indigenous fish) and the Untrammeled Quality (intentional action to enhance fish stocks). Should the accompanying commercial fishery intercept wild salmon to a substantial degree as they harvest the returning hatchery fish, then there could also be indirect effects impairing the Natural Quality (if the native fish species is pushed toward extirpation) and hindering subsistence opportunities and thereby degrading the Other Features of Value Quality. Net pens, shore ties, fish passes and other developments or installations associated with hatchery activities would impair the Undeveloped Quality.

Kanalku Fish Passage Barrier Modification (Kootznoowoo Wilderness Area)

ADF&G has an ongoing project to facilitate fish passage at the Kanalku Falls along Kanalku Creek which flows into Mitchell Bay. This project is taking place outside of the Shoreline II project area but effects the Kootznoowoo wilderness character. ADF&G maintains a research camp on the site during the summer and establishes multiple weirs on Kanalku Creek to count salmon. ADF&G has already modified the plunge pool at the base of the falls by adding concrete and excavating. Currently ADF&G is

monitoring the run to gauge whether additional modifications will be necessary. The modification, installations and occupation associated with this project impair the Untrammeled, Undeveloped and Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Qualities.

Hydroelectric Power

Angoon Hydroelectric Project (Kootznoowoo Wilderness Area)

Kootznoowoo, Inc. has a statutory right granted by ANILCA to develop hydroelectric resources on Thayer Creek in the Kootznoowoo Wilderness Area to provide power to the community of Angoon. In May 2009, the Forest Service issued a Record of Decision selecting the project arrangement and describing the terms and conditions required to be in included in the special use authorization. Kootznoowoo Inc. is working with project designers to develop a plan for constructing the hydropower facility.

This project will include construction of a diversion dam, penstock, powerhouse, underground transmission lines and access roads. The construction of the hydro power facility would contribute to the Undeveloped Quality remaining in a condition of significant concern and push its trend to degrading. The Untrammeled Quality and Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality would also have impaired measures and degrading trends.

Land Acquisition

Cube Cove/Shee Atika Land Acquisition (Kootznoowoo Wilderness Area)

In July 2016, the Forest Service signed an agreement with Shee Atiká Inc. to acquire its 22,890-acre private inholding on Admiralty Island within the Kootznoowoo Wilderness Area. Much of the land has been logged and it contains some road infrastructure and features. This land becomes part of the monument wilderness as it is acquired.

The impacted area is captured under the developed/undeveloped inholdings measures under the Undeveloped Quality and contributes toward this Quality's significant concern rating. The acquisition will transfer these impacts to the index of non-recreational installations and other in-wilderness measures and contribute toward the Undeveloped Quality remaining of significant concern.

Depending on action taken to reintegrate this area with the monument wilderness, the Untrammeled Quality may be degraded by interventions to remove features (e.g. culverts; roads) or other management activities (weed treatments; stream restorations) intended to restore naturalness to the area. The Natural Quality may be degraded due to the presence of invasive weeds; however, the widespread number and extent of invasive weeds already have these measures at the significant concern level; the overarching Natural Quality would be expected to remain as it is currently, within good condition.

The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality is not expected to change much from its condition of moderate concern with this acquisition. Use of the Forest Service cabins and lakes already occurs, as does some hunting conducted under permission of Shee Atika Inc. Due to the condition of the land, major use of the area is not expected in the reasonably foreseeable future. The Other Features of Value Quality is not anticipated to be affected either.

It is likely that several of these Qualities will improve for this area once the forest and natural vegetation has returned, but such improved wilderness character is decades away.

Minerals Exploration

Hecla Greens Creek Mining Company's 2017-2021 Exploration Project (Kootznoowoo Wilderness Area)

Hecla Greens Creek Mining Company has proposed to conduct mineral exploration activities adjacent to their operating Greens Creek Mine to test potential mineralization. The proposed activity will take place for 5 years with a typical operating season of May until September but possibly from March to October

when conditions allow. The exploration will take place in areas near the northern Kootznoowoo Wilderness Area boundary. Typical operations would require 1 to 3 hours of daily helicopter use; more-demanding operations would require 3 to 7 hours of daily helicopter use. This traffic may be encountered in Use Areas 04-08 NE Admiralty, 04-09A Seymour Canal, 04-10A Greens Creek, and 04-10B NW Admiralty, and will contribute to keeping the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality at a moderate concern level.

Special Uses

Commercial Filming (All six wilderness areas)

There has been an increase in the commercial film permits issued by the Forest in recent years, with some of this interest involving filming tidewater glaciers, brown bears and salmon streams in wilderness. The miniaturization and affordability of video cameras makes it likely that such film interest will continue. Impacts could range from disturbing wildlife, introducing motorized/mechanized/installations in wilderness (e.g. generators, data transmitters,) to encroaching on a visitors' sense of remoteness and competing with outfitter-guides for sites. These would primarily be negative effects on the four primary Qualities: Untrammeled, Undeveloped, Natural and Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation. Positive effects might include enhanced appreciation of the educational, conservation and scenic purposes of wilderness.

Trail and Recreation Improvements

Bohemia Basin Trail and Recreation Improvements (West Chichagof – Yakobi Wilderness Area)

Trail improvements at Bohemia Basin (in Use Area 04-15A Lisianski) are expected to improve access to National Forest System lands for recreation visitors, including access to the West Chichagof – Yakobi Wilderness Area. This improvement may draw more visitors and, as a result, more encounters and sights/sounds of humans would be expected to occur in the area. Such use may affect individual measures under the Remoteness from sights and sounds of human activity inside the wilderness indicator, but would not likely change the overall condition of the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality.

Sustainable Cabin Management project (South Baranof and Kootznoowoo Wilderness Areas)

Two cabins have been removed in the South Baranof Wilderness Area (Rezanof Lake and Maksoutof Lake, in Use Area 04-02B Whale Bay). One cabin in the Kootznoowoo Wilderness Area (Distin Lake, in Use Area 04-07B Cross Admiralty Canoe Route) has been converted to a three-sided shelter. Removal of the cabins in 04-02B Whale Bay will not affect in-wilderness encounters because these cabins have been unavailable for rental in the Forest Service reservation system for over 25 years and receive little use. The removals will benefit the Facilities that decrease self-reliant recreation indicator and secure the good condition of the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation of the South Baranof Wilderness Area.

The shelter at Distin Lake in the Kootznoowoo Wilderness Area is expected to maintain the same visitation level. The switch from a cabin to a shelter does not substantially change the Facilities that decrease self-reliant recreation indicator but keeps the high number of facilities (12 cabins, 11 shelters plus outhouses and woodsheds) which maintains the area's Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation in a condition of moderate concern.

No other wilderness character Qualities are affected for either wilderness by these projects.

Windfall Harbor Shelter Rehabilitation (Kootznoowoo Wilderness Area)

In year Windfall Harbor shelter (in Use Area 04-09B) was rehabilitated and moved, providing an improved overnight stay experience for recreation visitors in this area. This improvement may draw more visitors and as a result, more encounters and sights/sounds of traffic to this area. Guided use in this area is accounted for in the Pack Creek Zoological Area Outfitter/Guide decision. Unoutfitted/unguided use is not expected to be substantial. The rehabilitation of this shelter helps secure a comparatively high number of recreation facilities in the Kootznoowoo Wilderness Area (12 cabins and 11 shelters plus outhouses and woodsheds) and contributes to keeping the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality in a state of moderate concern. No other wilderness character Qualities are affected.

Cumulative Effects Findings

Tracy Arm – Ford's Terror, Chuck River, South Baranof, West Chichagof – Yakobi and Pleasant, Lemesurier and Inian Islands Wilderness Areas

These five wilderness areas do not have substantial cumulative effects from the reasonably foreseeable projects. The projects are removed enough from the wilderness areas that impacts to wilderness character should be none to negligible. Wilderness character monitoring for these five wilderness areas should confirm that the cumulative effects from the aforementioned foreseeable activities remain slight.

Kootznoowoo Wilderness Area

The Kootznoowoo Wilderness Area is anticipated to have additional impacts to wilderness character due to new developments and expanded commercial use. Additionally, existing developments and continuations of commercial use will likely prevent impaired measures, indicators and Qualities from improving. The Kootznoowoo Wilderness Area can sustain some additional impacts and continue to have an overall wilderness character condition of moderate concern, with the Natural and Other Features of Value Qualities in good condition, the Untrammeled and Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Qualities in a condition of moderate concern, and the Undeveloped Quality in a condition of significant concern.

Design Features and Mitigation Measures

Adaptive Management

Adaptive management will be triggered for all use areas that reach or have already surpassed 80 percent of a season's outfitter/guide allocation. Adaptive management requires monitoring to ensure that authorized outfitter/guide use is not compromising desired conditions. Adaptive management also provides measures to be employed when unacceptable degradation occurs (see Appendix D, Adaptive Management, for more details). For wilderness areas, primary concerns include impacts to charismatic areas that draw repeated visits. Impacts from repeated visits can degrade recreation sites and lead to the proliferation of user-created trails. The Recreation Site and User-created Trail Mitigations subsection below outlines the process for triggering adaptive management measures sooner when unacceptable conditions are found prior to reaching the 80 percent allocation threshold.

Recreation Site and User-created Trail Mitigation

Establish acceptable condition ratings using Forest Service Level II inventory standards for recreation sites and Forest Service trail standards for user-created trails where commercial use occurs

If a recreation site or trail condition degrades below established standards, employ one or more of the following mitigation measures:

- Work with outfitter/guides to improve recreation site or trail conditions
- Do not authorize new outfitter/guide use at the site, and/or
- Reduce existing authorized use

Where impacts are a concern in wilderness, it may be proper to designate specific sites for outfitted/guided use to allow for a phased approach that assesses how new commercial use affects others' opportunities and the physical resources. Designated sites could be continued or relaxed depending on the findings of subsequent monitoring.

Additional mitigation may be found under the appropriate resource section of this document, in Appendix A, Use Area Cards, and Appendix C, Stipulations and BMPs.

Recreation

Introduction

This section summarizes and examines the existing condition of recreation resources within the Shoreline II Outfitter/Guide project area. This information is used to evaluate the potential effects to these recreation resources from outfitter/guide use. In this analysis, the term "outfitter/guide" is used interchangeably with "guide" and includes, but is not limited to, "packing, hunts, education, float trips, canoe…liveries, shuttle services, ski touring,…boat tours, and fishing trips and may be conducted by, among others, educational, rehabilitation, and interpretive ventures and outdoor institutional organizations, including both for-profit and non-profit entities." (USDA Forest Service 2013, FSH 2709.14, 53.1, p. 3))

Effects are analyzed for the following significant issues raised during public scoping:

Issue #2: Effects to wilderness areas and effects of outfitter/guide uses on unguided visitors

- There are concerns that the wilderness areas are already too crowded with outfitter/guides. Any additional increase in outfitter/guide allocation would negatively impact wilderness character. (This part of the issue was addressed in the Wilderness section.)
- Outside of wilderness, outfitter/guide use may cause crowding, noise, and disturbance, particularly in locations popular with unguided visitors. (This part of the issue is addressed in this Recreation section.)

Issue #3: Incompatible outfitter/guide uses

- There are concerns about incompatible outfitter/guide uses (e.g., bear hunting and wildlife viewing/nature tour operators) that overlap in time and space.

This analysis also addresses the extent to which the alternatives meet the project purpose and need, which is to manage outfitter/guide use in accordance with the Forest Plan, to determine new allocations for outfitter/guide use, to balance outfitter/guide and unguided recreation opportunities, and to provide and maintain high-quality recreation experiences without degrading other forest resources. The Forest Plan goal for recreation and tourism is to provide a range of recreation opportunities consistent with public demand, emphasizing locally popular recreation places and those important to the tourism industry. Recreation resources distill down to an individual's recreation experience they obtain while visiting the Tongass National Forest. Those experiences can be impacted negatively or positively by outfitter/guide recreation service providers. Outfitter/guides play an important role in providing and enhancing high-quality and safe recreation experiences for visitors who normally do not have the knowledge and skills needed to recreate in the more remote landscapes of Southeast Alaska. Outfitter/guides can also create negative impacts to unguided users who are also using Forest recreation resources. The public concerns for recreation resources associated with outfitter/guide use that this analysis is addressing are crowding, impacts to popular or high-value local areas, and incompatible uses.

Information related to the recreation resources are described in the Affected Environment section of this section. The direct, indirect, and cumulative effects of the alternative are analyzed in the Environmental Consequences section.

Regulatory Framework

Recreation management in the Shoreline II project area must be consistent with the laws, regulations, policies, and other relevant plans of the Federal government. The legal policy and framework that governs recreation management is summarized in Appendix A of the Recreation Resource Report in the project record.

Forest Plan Direction

The Forest Plan provides the management framework for the recreation resource. The Forest Plan divides land into a series of areas, each of which is described by a land use designation (LUD). Each LUD has a management prescription that includes goals, objectives, and a desired future condition. LUDs also include standards and guidelines for managing recreation and the other forest resources. See Chapter 1 of the EIS for a discussion of the LUDs.

As disclosed and discussed under Environmental Consequences in this section, three use areas have the potential (under Alternative 1 and Alternative 4) to exceed the Forest Plan guideline to "generally allocate no more than one-half the capacity of the LUD" to outfitter/guide operations (USDA Forest Service 2008a, p. 4-46 and USDA Forest Service 2016a, p. 4-44). To be more responsive to the public's and outfitter/guide's needs, particularly in areas where actual use may be more concentrated, the Shoreline II project applied the "one-half" guideline for visitor capacity on use area rather than LUD. Alternative 1 allocates 55 percent to use area 01-04D and Alternative 4 allocates 53 percent to use area 04-16E. Since the Forest Plan provides for some allowance over 50 percent, this project is considered to be consistent with Forest Plan direction for this indicator for all alternatives.

Social Encounters and Remoteness, and Popular or High-value Local Areas also have a high likelihood of major effects under use areas 01-04D, 04-16D, and 04-16A under Alternatives 1 and 4 under both the 2008 and the 2016 Forest Plan. This is also disclosed and discussed under Environmental Consequences in this section.

Recreation Opportunity Spectrum and Land Use Designations

In addition to the information provided in Appendix A of the Recreation Resource Report, the following section provides more detail about the Recreation Opportunity Spectrum (ROS), which is referenced throughout this analysis.

The Forest Plan assigns a range of recreation settings for each LUD using the ROS. These classes cover the full range, or spectrum, of recreation opportunities. Each LUD may include more than one ROS class. The ROS classes, from least developed to most developed, are listed below.

- Primitive
- Semi-Primitive Non-motorized
- Semi-Primitive Motorized
- Roaded Natural
- Roaded Modified
- Rural
- Urban

Each ROS class includes standards and guidelines for a set of indicators (see the Forest Plan for a complete description of all ROS standards and guidelines components). These classes and associated indicators are used in project analysis and recreation planning to describe the current condition across the landscape (ROS inventory) and to analyze effects of different alternatives. ROS classes are also

identified in the management prescriptions of each LUD, providing direction for desired conditions. In this document, when the term "prescription" is used in relation to ROS, this refers to the ROS class(s) specifically identified in the LUD management prescription. In some cases, specific ROS classes are prescribed (e.g., Remote Recreation LUD is managed for Primitive ROS settings and experiences); in other cases, the LUD prescribes maintaining the existing ROS inventory condition until approved activities change the ROS setting(s) (e.g., Modified Landscape LUD). Table 3-15 provides a full list of the LUDs within the Shoreline II project area and the associated prescribed ROS class(s).

Table 3-15: Forest Plan ROS prescription by LUD

LUD	ROS Prescription
Experimental Forest	Existing ROS unless scheduled activities cause a change.
LUD II	Semi-Primitive
Modified Landscape	Existing ROS unless scheduled activities cause a change. Change to Semi-Primitive Motorized, Roaded Natural, or Roaded Modified is allowed.
Municipal Watershed	No specific direction in the Forest Plan. Primitive or Semi-Primitive are usually appropriate.
Non-Wilderness National Monument	Existing ROS unless scheduled activities cause a change.
Old-Growth Habitat	Semi-Primitive
Remote Recreation	Primitive
Research Natural Area	No specific direction in the Forest Plan. Primitive is usually appropriate.
Scenic Viewshed	Existing ROS unless scheduled activities cause a change. Change to Semi-Primitive Motorized, Roaded Natural, or Roaded Modified is allowed.
Semi-Remote Recreation	Semi-Primitive generally
Special Interest Area	Adopt through project planning. Before planning, manage as existing ROS.
Timber Production	Existing ROS unless scheduled activities cause a change. Change to Semi-Primitive Motorized, Roaded Natural, or Roaded Modified is allowed.
Wild River	Primitive and Semi-Primitive
Wilderness	Primitive and Semi-Primitive
Wilderness National Monument	Primitive and Semi-Primitive
Wilderness Monument Research Natural Area	No specific direction in the Forest Plan. Primitive is usually appropriate.

Analysis Methods

Analysis Area

The analysis area for this section comprises National Forest System (NFS) lands within the Juneau, Hoonah, and Sitka Ranger Districts and Admiralty Island National Monument; it does not include State, Native, or private lands within or adjacent to NFS lands. This area is divided into 48 use areas, as identified in the Shoreline II project area map (Figure 1-1). These use areas are the individual analysis units because they represent a more site-specific and defined portion of the project area to help focus the analysis.

Temporal Scale

The time period of effects from this project is estimated to be 10 years, which can be the term of an outfitter/guide permit. This analysis variable is also defined by the early/late spring, summer, fall, and winter seasons for a full calendar year because outfitter/guide use has been occurring, or has been requested, for the full year. Seasons are defined as follows and each use area section (below) provides the specific spring and summer season start/end dates:

- **Early Spring: March 15 to April 24.** Season start date was extended from the 2004 Shoreline Outfitter/Guide FEIS and ROD to earlier to accommodate demand for guided activities and to shift some use away from the late spring season when incompatible uses and user conflicts more commonly occur.
- **Late Spring: April 25 to May 20/May 31**. The late spring season was established to accommodate existing levels of hunting use during the short spring bear hunting season, while also allowing for some additional use by other activities. The season end dates were determined by the brown bear hunting season closure.
- **Summer: May 21/June 1 to September 14**. Season start date for each use area was determined by the brown bear hunting season closure. The end date aligns with the start of fall brown bear hunting season.
- **Fall: September 15 to December 31**. Season start date aligns with the start of fall brown bear hunting season. Season end date was extended from the 2004 Shoreline Outfitter/Guide FEIS and ROD to accommodate demand for guide activities and align with the brown bear hunting season closure.
- **Winter: January 1 to March 14**. Although not included in the 2004 Shoreline Outfitter/Guide FEIS and ROD, a winter season was included in this analysis to provide opportunities for winter outfitting and guiding. There is currently a limited demand for outfitter/guide activities in the winter season.

Resource Indicators and Units of Measure

The Forest Plan specifies the use of ROS class standards and guidelines for project analysis and recreation planning (pp. 4-43 and 4-47). For this analysis, social encounters and remoteness ROS setting indicators are most relevant to the two issues being addressed. In addition, the number of service days allocated to outfitter/guide use is relevant because there is an expectation that as service days increase, the number of encounters and frequency of human sights/sounds would also increase. A service day is defined as a day or any part of a day on NFS lands for which an outfitter or guide provides services to a client (FSH 2709.14, 53.1e). Popular or high-value local areas are also identified as an indicator in this analysis. For each of these indicators, units of measure are outlined (Table 3-16) and a scale of effect from “negligible” to “major” is defined (Table 3-17) to provide a means of analyzing the effects on the ROS setting. Also, the magnitude of change between the action alternatives and the no action alternative is discussed. These indicators and measures are used to describe the affected environment and to evaluate the effects of the alternatives on the recreation resources.

Table3-16: Resource indicators and units of measure for recreation resources

Indicator	Unit of Measure	Forest Plan Threshold or Guideline
Outfitter/Guide Allocation	Number of service days allocated to outfitter/guide use	Generally allocate no more than one-half the appropriate capacity to outfitter/guide use (USDA Forest Service 2008a p. 4-46)
Social Encounters	Number of encounters per day. Threshold varies by ROS prescription.	Primitive (P) = 2 or less encounters/day; maximum group size 12 persons/group Semi-Primitive (SP) = 9 or less encounters/day; maximum group size 20 persons/group Roaded Natural (RN) and Roaded Modified (RM) = 19 or less encounters/day; no maximum group size Rural (R) = 20 or more encounters/day; no maximum group size Urban (U) = No restrictions, site specific standards (USDA Forest Service 2008a pp. I-1 to I-6)

Indicator	Unit of Measure	Forest Plan Threshold or Guideline
Remoteness	Frequency of sights/sounds of human activity from other recreation users.	P = No or infrequent sights/sounds of human activities SP = Nearby sights/sounds of human activities are rare RN = Remoteness is of little importance, but low to moderate concentrations of human sights or sounds are preferred RM = Remoteness from urban conditions and high concentrations of other people is important. R = Remoteness is of little importance, and moderate to high concentrations of people and sights and sounds of human activity are acceptable when not continuous. U = Remoteness is not important. High concentrations of people and sights and sound of human activity are acceptable. (USDA Forest Service 2008a pp. I-1 to I-6)
Popular or high-value local areas	Number of popular locations, time period of popular use, activity type(s), and/or amount of use (if known)	Minimal adverse impacts to popular or high-valued local areas (USDA Forest Service 2008a p. 4-46)

Outfitter/Guide Allocation

Analyzing the proportion of outfitter/guide allocation in relation to the visitor capacity provides a meaningful measure of effects from the proposed action and alternatives on crowding and impacts to unguided users. The Forest Plan guideline for this indicator is to generally allocate no more than one-half the appropriate capacity to outfitter/guide use.

Social Encounters

Social encounters were selected as an indicator to assess the public concern of crowding resulting from allocating a proportion of total visitor capacity to outfitter/guide use. Social encounter is defined as: An encounter occurs when a person or group located on NFS lands becomes aware of the presence of another person or group located on or adjacent to NFS lands.

For this analysis, the social encounters indicator is analyzed for each alternative by comparing the number of estimated groups per day during the primary use season with the number of known use locations. To evaluate effects of each alternative on the social setting, this estimate is compared to the Forest Plan threshold or guideline for number of encounters per day (defined by ROS class; Table 3-16). For example, in a use area managed for Primitive ROS, if there is an estimated three groups (guided and unguided combined) in the use area at one time, and there are five use locations identified within the use area, then there are two unused locations that users can choose to go to if one is already occupied on a given day. Assuming groups are spread evenly over time and space, then this example is expected to be below the Forest Plan threshold and guideline for number of encounters (Primitive ROS is two or fewer encounters/day). If the estimated groups per day exceeds the number of use locations, then for the purposes of this analysis, this would be considered exceeding the Forest Plan threshold or guideline and would translate into a major effect for this measure as indicated in Table 3-17. This conservative approach is adopted in this analysis because in reality, recreation use patterns are rarely uniform. It is likely that certain locations are more frequently used than others due to such factors as scenic attractions, access, facilities, or other attractions. As a result, more encounters may occur at certain locations.

Variables used in this analysis include the primary use season for each use area and use locations. The **primary use season** refers to the season during which visitation to the forest is generally the highest. This season may vary across the project area and is influenced by local factors of a given area or site. Factors may include fish run seasons, game management seasons, cruise ship schedules, typical weather

patterns, etc. **Use locations** are the areas identified in the Shoreline II Visitor Capacity Analysis (USDA Forest Service, 2014e; also in Shoreline II DEIS Appendix E) as "capacity locations."

This analysis uses the groups per day estimates as an indicator and is supported by a more site-specific qualitative description of effects based on other supporting information such as professional knowledge, comments and documented issues of crowding between outfitter/guides, public comments, outfitter/guide actual use data, and monitoring data.

A more detailed description and example of the method used to evaluate social encounters is provided in the Recreation Resource Report.

Remoteness

Remoteness is used as an indicator in this analysis because it describes the relationship between recreation users and other uses that may be incompatible for an expected recreation experience. Remoteness is defined using the Forest Plan ROS standards and guidelines. Factors that define remoteness, such as sight and sound, do not have to originate from the National Forest uplands, but they do have to impact users on the National Forest uplands. The Forest Plan ROS standards and guidelines serve as the threshold for the remoteness indicator (Table 3-16).

In this section, remoteness is used to describe the effects of the proposed action and alternatives of outfitter/guide use on other recreation users during the primary use season. The effect of outfitter/guide use on remoteness is a qualitative description based on professional knowledge, monitoring data, and public comments.

Popular or High-Value Local Areas

Popular or high-value local areas are important to guided and unguided users of the Tongass National Forest. These are areas that local people, independent travelers, or outfitter/guide service providers tend to go to repeatedly. They typically contain some sort of feature, such as a fish stream, bear viewing, geological formation, recreation facility (trail, shelter, etc.), beach, or other attraction that creates a unique experience. A use area may contain several use locations, and one or more of them could be described as a popular or high-value area.

Analyzing impacts of outfitter/guide use on popular or high-value areas provides a more site-specific description of use patterns in a use area. Recreation issues associated with this indicator include incompatible uses, crowding, and displacement of visitors to other use locations.

In summary, this section is framed to quantitatively and qualitatively illustrate, with the best available information, the relationship between the visitor capacity, the outfitter/guide allocation described in the proposed action and alternatives, the daily activities of all recreation users, the site-specific geography of use areas, and other relevant measures that describe effects to recreation resources. Conclusions, such as whether an effect or impact is negligible, minor, moderate, or major (Table 3-17) are based upon the professional's judgment of the magnitude of the change, the context and extent of the impact, and the timing and nature of activities taking place.

Table 3-17: Units of measure and levels of effect

	Level of Effect			
Unit of Measure	**Negligible**	**Minor**	**Moderate**	**Major**
In general…	Effect would be hardly noticeable, limited in extent (localized), infrequent (few occurrences at any time of year).	Effect would be noticeable, but limited in extent (localized), occurs less than 15% of the primary use season.	Effect would be readily apparent, affect multiple locations, occurs more than 15% but less than 80% of the primary use season.	Effect would be highly noticeable, extensive (entire use area), occurs on most days of primary use season (more than 80%).
Number of service days allocated to outfitter/guide use	Less than 5% of the total visitor capacity is allocated to outfitter/guide use.	5-25% of the total visitor capacity is allocated to outfitter/guide use.	26-50% of the total visitor capacity is allocated to outfitter/guide use.	More than 50% of the total visitor capacity is allocated to outfitter/guide use.
Number of Encounters	Expect no increase or decrease in encounters with or amongst outfitter/guide groups at any time of year.	Expect more encounters with or amongst outfitter/guide groups at a few locations less than 15% of the primary use season.	Expect more encounters with or amongst outfitter/guide groups at multiple locations more than 15% but less than 80% of the primary use season.	Expect more encounters with or amongst outfitter/guide groups throughout the Use Area and on most days of primary season (more than 80%). Encounter levels are expected to exceed the Forest Plan threshold or guideline.
Frequency of sights/sounds of human activity from other users	Expect no increase or decrease in the amount of human sights or sounds experienced at any time of year.	May experience more sights or sounds of humans at a few locations less than 15% of the primary use season.	Expect more sights or sounds of humans at multiple locations and more than 15% but less than 80% of the primary use season.	Expect more sights or sounds of humans throughout the Use Area and on most days of the primary use season (more than 80%). Remoteness conditions are expected to exceed the Forest Plan threshold or guideline.
Popular/high value local areas affected	No impacts to high value areas are expected.	Little to no adverse impacts are expected and may include: encounters with outfitter/guide groups are limited to a few popular locations less than 15% of the primary use season	Some adverse impacts are expected and may include: encounters with outfitter/guide groups occur frequently at multiple popular locations within the Use Area, more than 15% but less than 80% of the primary use season	Adverse impacts to popular/high value local areas are expected and may include: encounters with outfitter/guide groups occur at most or all of the popular locations within the Use Area on most days of the primary use season (more than 80%), displacement of unguided users.

Sources of Information

Several sources of information are used for this section, which include the Tongass Outfitter/Guide Database, INFRA database, GIS, public recreation cabin use from the National Recreation Reservation Service, trail use from district logs, encounter monitoring, campsite/dispersed site monitoring, information gathered at public forums, in-person field contacts, outfitter/guide annual meetings, permit inspections, and public comments during scoping. This information is used to describe existing conditions and as a basis for the effects analysis.

Since the initial Recreation Resource Report was written, the Tongass Outfitter/Guide Database dataset for 2015 became available. A new 5-year dataset (2011-2015) was reviewed and considered. The data did not change the effects analysis. The affected environment and effects analysis is based on the 2010-2014 dataset. The new dataset is included in the project record.

Assumptions

Continued Demand for Outfitter/Guide Permits

Statewide and regional long-term visitor industry trends indicate sustained periods of growth spanning over 2 decades (excluding 2009 and 2010 recession-related slumps). While the national recession and prolonged period of economic recovery negatively impacted Alaska's visitor industry during 2009 and 2010, the industry rebounded and is again on a sustained path of growth. The 2017 tourism season is expected to yield an all-time high cruise passenger volume due to larger ships carrying more passengers. History indicates Southeast Alaska's visitor industry follows national and international trends. As the U.S. economy continues to recover and expand, Southeast Alaska's visitor industry is also expected to grow. It is reasonable to assume that demand for special use permits to conduct outfitter/guide operations within the Shoreline II Outfitter/Guide FEIS and ROD project area will continue to increase.

Unguided Recreation Use is Stable

There is limited quantifiable information available about unguided use levels and related trends. However, examining economic and population trends for those communities within and affected by the Shoreline II project can provide an approximation of unguided visitor use trends. Unguided recreation use is not expected to increase at rates higher than the general population growth. The following is excerpted from the Socioeconomics section:

> Economists expect Southeast's economy will remain flat in the coming years, likely growing less than 1 percent per year. Previous regional economic drivers including government and timber are projected to decline while the visitor industry will continue to grow the region's job base.

Based on the expectation of flat growth trends, this section assumes that unguided visitor use will remain relatively stable over the coming years.

Future Use Patterns are Similar to Existing Use Patterns

Recreation use impacts vary based on factors such as activity type, method of transportation, distribution of use over space and time, and time spent on NFS lands. Within the project area, patterns of use are generally associated with protected boat anchorages, accessible shoreline areas, and the recreation opportunities available (e.g. campsites, beaches, fishing streams, trails, scenic attractions, and wildlife habitat for hunting). It is reasonable to assume that future use patterns, including the type of activities occurring, the method of transportation used, and the spatial and temporal (seasonal) distribution of use, will be similar to existing patterns of use.

Affected Environment

The project area is divided into 48 geographical use areas, encompassing 5,944,971 acres of NFS land. This translates to approximately 5,870 miles of shoreline. Of that land, approximately 2,899,350 acres are in the Shoreline II project area. Appendix A provides detailed information for each UA, such as total acres and special features.

Fourteen communities are found within or near the general project area: Juneau, Sitka, Baranof Warm Springs, Port Alexander, Tenakee Springs, Pelican, Elfin Cove, Gustavus, Angoon, Hoonah, Haines, Skagway, Petersburg, and Kake. The highest levels of recreation use are centered near these communities. The communities of Petersburg and Kake are just south of the project area, but do have

some reliance on the project area for business, personal, and subsistence needs. Descriptions of each of these communities can be found in the Socioeconomics section.

Recreation Opportunity Spectrum (ROS)

As described in the Analysis Methods section (above), the Forest Plan uses the ROS for project analysis and planning. It also uses the ROS to help describe the types of recreation settings that are provided by the Tongass National Forest. Overall, 53 percent of the Shoreline II project area is inventoried as providing Primitive ROS class opportunities, much of this in designated wilderness areas. Approximately 35 percent is inventoried as Semi-Primitive Non-Motorized and Semi-Primitive Motorized ROS classes. The remaining 12 percent is inventoried as Roaded Natural, Roaded Modified, Rural, and Urban ROS classes.

Recreation Use and Levels

Types of recreation occurring within the analysis area include tourism (including cruise ships and historical and cultural tourism), outfitted/guided fishing and hunting, wildlife viewing, hiking, and many others. Most of these recreation activities take place in, and depend on, settings that are primarily undeveloped and widely dispersed. Most of the area is wild and remote, with limited road access available around the communities. Recreation facilities, primarily cabins and shelters, are limited. The analysis area is a place where people generally expect a remote and wildland experience.

Most recreation in the analysis area occurs as day trips originating from a nearby community. In the areas near communities that serve as large cruise ship ports (e.g., Juneau, Sitka, Hoonah), the trends in visitation indicate a desire for shorter, “softer” adventure excursions that don’t require hard skills to experience wild Alaska (Zegre et al., 2012). This may result in more visitors on forest areas located closer to port communities for shorter durations. When visitors use the National Forest for overnight trips, they generally use boats as base facilities and for sleeping, regardless of the type of activity. If boats are not used, remote tent camping is typical.

Unguided Recreation

Precise information on unguided recreation and tourism use in the project area is generally not available. Except for locations where fees are collected or where people can be easily counted, most of the use data are based on long-term observations, anecdotal information, and professional estimates adjusted with quantitative indicators where available. Anecdotal reports and recreation site monitoring provide some indication of the amount, type, and extent of unoutfitted/unguided use in the analysis area. This information is provided for each use area in Appendix A.

Outfitter/Guide Use

Information about outfitter/guide provided recreation use is more available due to an annual reporting requirement for all permitted outfitter/guides. The following is a summary of outfitter/guide use from the Tongass outfitter/guide database for the recent 5 year period (2010-2014; USDA Forest Service, 2015a).

There were 122 permitted outfitter/guides that provided services to national forest visitors within the Shoreline II analysis area during 2010 to 2014. Sixty-two of these operators used the analysis area consistently (at least 4 out of 5 years). Approximately 16,000 service days have been used on average annually.

The primary activity conducted by outfitter/guides was remote setting nature tours (10,114 service days annually; 63 percent). These activities have occurred every month of the year, but typically occur from May through September. There are 325 locations used for remote setting nature tours; sites most used include Lake Eva Trail Large Group Area (LGA), Fox Creek LGA, Williams Cove LGA, and George

Island LGA with over 700 service days annually at each of these sites. Wildlife viewing at Pack Creek Zoological Area is a type of remote setting nature tour activity that has 401 service days (3 percent) of use occurring annually (in addition to the 10,114 service days already mentioned). Much of this use occurs during the summer season, which is covered by a separate NEPA analysis, but the use information is provided in this section as context.

Freshwater fishing is the second-most occurring activity (2,520 service days annually; 16 percent) and takes place from mid-April through mid-October, with most use occurring from May through September. There are 169 locations used for freshwater fishing; sites most used include Nakwasina Sound River, Greens Creek, Slocum Inlet, Lake Eva Creek, and Saook Bay Creek with over 100 service days annually at each of these sites. Camping is the next-most occurring activity (1,174 service days annually; 7 percent) and has occurred during all months of the year, but most commonly occurs from June through August. There are 140 sites reported used for camping with the most use occurring at The Basin in Kelp Bay and Point Adolphus with over 100 service days annually at each of these sites. Brown bear hunting (884 service days annually; 6 percent) has occurred from mid-April to May and mid-September to mid-October, with most use occurring in May and September. There are 240 locations reported used for hunting and are widely dispersed throughout the analysis area, with most areas reporting less than 10 service days annually. The most used areas include Gambier Bay, north arm of Hoonah Sound, Chaik Bay, Kelp Bay, and Goose Flat in Tenakee Inlet; all with less than 40 service days annually.

The remaining activities that occur within the analysis area account for 2 percent or less of the total and are not displayed in Figure 2. Kayaking (282 service days), hatchery tours (257), mountain goat hunting (127), black bear hunting (101), and deer hunting (87) are all activities consistently conducted every year by outfitter/guides, but on a more limited basis. Additional activities that occur on a more sporadic (not every year) and limited basis include: waterfowl and small game hunting (11), hot springs soaking (5), outfitting (2), and rafting (2).

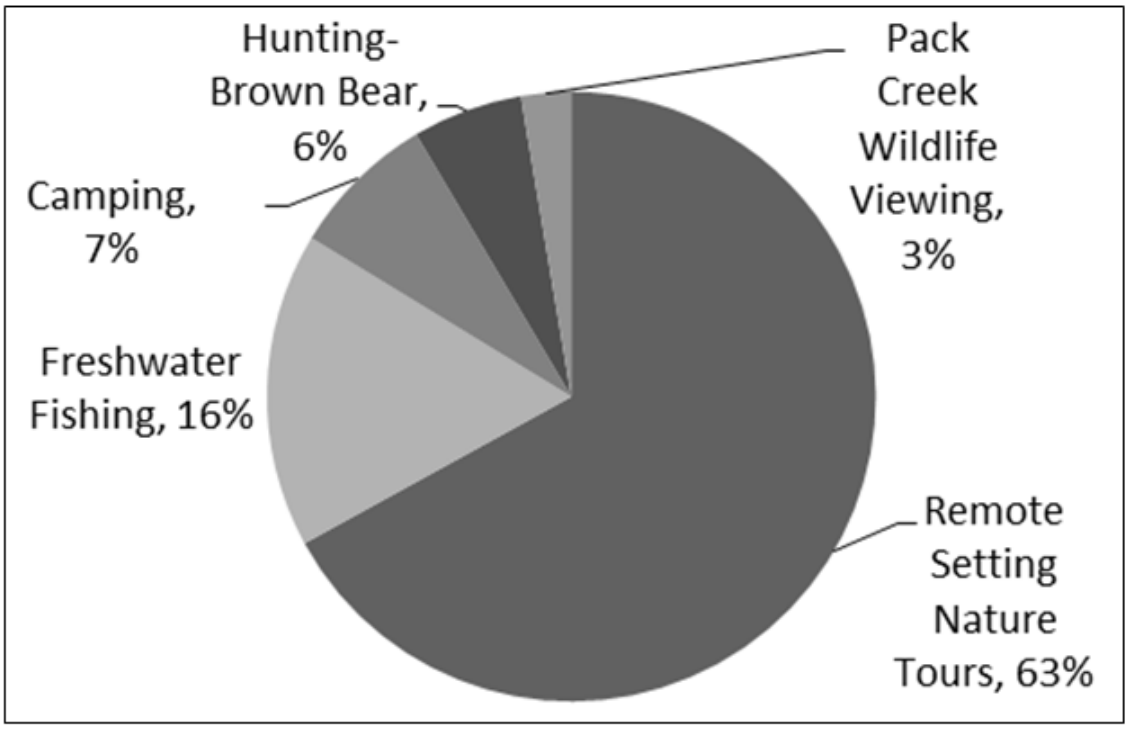


Figure 3-2. Percent of outfitter/guide use by activity (2010-2014).

Recreation Facilities

A current inventory of Forest Service facilities that are accessible from saltwater is presented in Table 3-18. Recreation facilities can help visitors experience their NFS lands. All facilities are available for general public use; some facilities are available for outfitter/guide use and include: trails, docks, day use/picnic sites, bathhouse, wildlife viewing site, some shelters, and some public recreation cabins. Anchor buoys are not available for outfitter/guide use unless the associated public use cabin or shelter is available for outfitter/guides.

Table 3-18: Recreation facilities in the analysis area

Type of Facility	Number
Bathhouses	1
Day Use/Picnic Sites	4
Docks	5
Public Recreation Cabins	30
Shelters	14
Trails (79 miles)	25
Wildlife Viewing Sites	1

Bathhouses

White Sulphur Springs bathhouse is located in the Portlock Harbor Use Area (04-15D). This facility is available for outfitter/guide use under 2004 Shoreline Outfitter/Guide FEIS and ROD and will continue to be available under Shoreline II, with stipulations (see Appendix A, Use Area Cards, Use Area 04-15D Portlock Harbor, Design Features and Mitigation section). Only 5 service days on average have been used annually by guides at this site. Neka Hot Springs (04-11A) also has developed facilities, but this site is not accessible from saltwater and is not included in this analysis.

Day Use/Picnic Sites

Day use facilities exist at Sturgill's Landing (01-01), False Bay (04-11B), Whitestone Harbor (04-11B), and Kennel Creek (04-11B). All of these facilities are proposed to be available for outfitter/guide use under Shoreline II. Less than 5 service days of use annually have been reported by outfitter/guides at the previously listed 04-11B sites; no outfitter/guide use has been reported at Sturgill's Landing

Docks

Dock facilities are associated with road systems at Eight Fathom (04-11A), Salt Lake Bay (04-11A), Kennel Creek (04-11B), Corner Bay (04-12), and False Island (04-13). All of these docks are available for outfitter/guide use under 2004 Shoreline Outfitter/Guide FEIS and ROD and will continue to be available under Shoreline II for non-motorized activities, with stipulations (see Appendix A, Use Area Cards, Design Features and Mitigations section for each use area). Actual use reports indicate 18 service days have been used on average annually at Eight Fathom, 11 at Salt Lake Bay, 3 at Kennel Creek, 7 at Corner Bay, and 22 service days at False Island.

Public Recreation Cabins

In 2007, the Tongass National Forest established guidelines for authorizing outfitter/guide use of public recreation cabins. These guidelines were used to develop a policy for authorizing outfitter/guide use of cabins on each district. With the downward trend in funding for maintaining recreation facilities across the Tongass, low-use facilities are being decommissioned. By allowing outfitter/guide use of cabins, the additional revenue and use may result in certain cabins staying in the system. Some districts specified a

number of nights and date limitations for each cabin while others left it open for case-by-case requests, and some cabins were determined to be unavailable for outfitter/guide use due to high levels of use by unguided users. Table 3-19 lists the cabins that are accessible from saltwater in the Shoreline II project area, as well as the availability for outfitter/guide (O/G) use and actual use levels by outfitter/guides (2010-2014). See the Design Features and Mitigation section in Appendix A for specific cabin stipulations.

Table 3-19: Public recreation cabins in the Shoreline II project area

Use Area	Cabin	Available for O/G Use in Shoreline II?	Average Annual O/G Use (service days)
01-04A	Berners Bay	No	0
01-04C	West Turner Lake	No	0
01-04C	Taku Glacier	Yes	0
01-04C	East Turner Lake	Yes	0
04-02A	Kanga Bay	Yes	1
04-02A	Sevenfathom	Yes	0
04-03	Allan Point	Institutional O/Gs only[1]	6
04-03	Brent's Beach	Institutional O/Gs only[1]	58
04-03	Fred's Creek	Institutional O/Gs only[1]	12
04-03	Piper Island	Institutional O/Gs only[1]	0
04-03	Salmon Lake	Yes	0
04-03	Samsing Cove	Institutional O/Gs only[1]	18
04-04A	Appleton Cove	Yes	0
04-06A	Pybus Bay Cabin	Yes	0
04-07A	Church Bight	Yes	0
04-07A	Jims Lake	Yes	0
04-07B	Big Shaheen	Yes	0
04-07B	Hasselborg Creek	Yes	0
04-07B	Lake Alexander	Yes	0
04-07B	Little Shaheen	Yes	0
04-07B	Sportsmen	Yes	0
04-08	Admiralty Cove	No	0
04-08	North Young Lake	Yes	0
04-08	South Young Lake	Yes	0
04-11A	Eight Fathom Bight	No	0
04-11B	Kennel Creek	No	0
04-13	Moser Island	Institutional O/Gs only[1]	0
04-14	Lake Suloia	Yes	0
04-15B	Greentop	Yes	0
04-15D	White Sulphur Springs	Institutional O/Gs only[1]	0

[1] For example: educational, rehabilitation, or youth organizations.

Shelters

Shelters are typically three-sided structures without a heat source; they may have an outhouse associated with the site. The intent of these facilities is primarily for emergency shelter purposes, but they can also be used for recreation uses. All of these facilities are proposed to be available for outfitter/guide use under Shoreline II; many were not available in the past or were only available on a case-by-case basis.

Table 3-20: Shelter facilities in Shoreline II project area

Use Area	Shelter	Available for O/G Use in Shoreline II?	Average Annual O/G Use (service days)
04-03	Kakul	Yes	1
04-03	Neva	Yes	0
04-07B	Davidson Lake	Yes	0
04-07B	Distin Lake	Yes	0
04-07B	Hasselborg Lake	Yes	0
04-07B	Lake Alexander	Yes	0
04-07B	Lake Guerin	Yes	0
04-07B	Mole Harbor	Yes	0
04-09B	Windfall Harbor	Yes	0
04-10B	Thayer Lake (2)	Yes	0
04-12	Long Bay	Yes	0
04-13	Ostoia Island	Yes	0
04-15A	Bohemia Basin	Yes	0
04-16A	Pinta Cove	Yes	47

Trails

Developed trail hiking opportunities are limited across the project area due to the costs of constructing and maintaining trails in remote areas in this temperate rainforest climate. The existing trail facilities are in a range of maintenance conditions, with some trails currently closed to outfitter/guide use due to poor trail conditions. If funding becomes available for trail improvements, these trails may be opened in the future for outfitter/guide use.

Table 3-21: Trails in the Shoreline II project area

Use Area	Trail	Approximate Length (miles)	Available for O/G Use in Shoreline II?	Average Annual O/G Use (service days)
01-04C	Pt. Bishop Trail	7.7	Yes	0
04-01B	Mist Cove Trail	0.6	Yes	97
04-01B	Sashin Lake Trail	1.7	Yes, after reconstruction	0
04-02A	Kizhuchia Creek Road Trail	1.6	Yes	0
04-04B	Lake Eva Trail	2.9	Yes	1,707
04-04C	Sadie Lake Trail	0.5	Yes, after reconstruction	28
04-07B	Cross-Admiralty Canoe Route	19.4 (many segments)	Yes	0
04-08	Admiralty Cove to Young Lake	4.8	Yes	0
04-09B	Pack Creek	1	Yes	477
04-11B	Lower Suntaheen	0.3	Yes	<1
04-11B	Wukuklook	0.6	Yes	126
04-13	Sitkoh Creek Trail	4.4	Yes, after reconstruction	41
04-14	Suloia Lake Trail	0.7	Yes, after reconstruction	2
04-15A	Bohemia Basin	4	Yes	13
04-15A	Lisianski River	6	Yes	2
04-15B	Greentop Cabin Trail	1	Yes	0
04-15C	Stag Bay Trail	1	Yes	0
04-15C	Stag River Trail	2.4	Yes	0
04-15D	Didrickson Trail	0.1	Yes	0

Use Area	Trail	Approximate Length (miles)	Available for O/G Use in Shoreline II?	Average Annual O/G Use (service days)
04-15D	Dry Pass Trail	3.7	Yes	3
04-15D	Goulding Trail	1.4	Yes	15
04-15D	White Sulphur Springs	1	Yes	0
04-16D	Lemesurier Island Lake Trail	0.5	Yes	0
04-16E	George Island Trail	0.5	Yes	1,043

Wildlife Viewing Sites

Pack Creek Bear Viewing Area is located in the 04-09B Use Area. It is actively managed from June 1 to September 10 by the Forest Service and Alaska Department of Fish and Game under a separate NEPA decision. Outside of this date range, the area would be available for outfitter/guide use under Shoreline II. The average annual use by outfitter/guides at this site is 477 service days, which includes use during the June 1 to September 10 timeframe.

Large Group Areas

There are 40 large group areas (LGAs) identified within the Shoreline II project area, seven of which are new proposed LGAs. The other 33 LGAs were designated in the 2004 Shoreline Outfitter/Guide FEIS and ROD and are carried forward in this EIS. Designating specific LGAs is intended to provide durable sites that can accommodate larger groups where physical resource impacts are not expected to occur. When larger operators are applying for an outfitter/guide permit, permit administrators can direct applicants to this list for consideration in their application.

It is important to note that larger groups (up to 75 people) may also be allowed outside of designated LGAs, depending on the LUD and management prescription for the ROS class. In some cases, the LUD clearly specifies the type of ROS class to be managed for (e.g., Remote Recreation LUD prescribes Primitive ROS), and in other cases the LUD defaults to the existing on-the-ground ROS condition (e.g., Modified Landscape). Areas that are managed for Roaded Natural, Roaded Modified, Rural, or Urban ROS do not have a group size limit and could accommodate larger groups. There are areas within the Shoreline II project area that are managed for these ROS classes that are not within a designated LGA. Outfitter/guides may be allowed to take larger groups to these areas.

See Appendix B for specific information about each LGA.

Access

The Tongass National Forest is a forested archipelago. The marine waters flowing between islands serve as the ‘road’ to this national forest. Recreation access to the analysis area is primarily by motorized boats and floatplanes. A unique aspect of recreation management in the analysis area is that almost the entire shoreline, including designated wilderness areas, is immediately adjacent to saltwater, which allows motorized boat traffic and floatplane access.

People can access the national forest to recreate in a number of ways including: canoe or kayak, personal motor or sailboat, charter boat, floatplane, wheeled plane, state ferry, tour boat, or cruise ship. Most of the non-motorized access is in the form of kayaks, although many kayaks are often first transported to remote locations by motorized boats or by floatplanes.

Because of the nature of the marine water access, recreation users tend to be highly mobile. Opportunities to encounter other parties are much greater for these highly mobile users than they would

be if each party stayed in one location for the duration of its outing. Conversely, this mobility also allows people to avoid each other. Groups tend to disperse themselves geographically, with many groups moving around to seek areas without other people. If a bay or anchorage appears crowded, a group may avoid entering that bay to access the uplands.

Monitoring Results

In general, the condition of recreation resources in the Shoreline II analysis area meets Forest Plan standards and guidelines in terms of encounters, crowding, use levels, and resource impacts. A monitoring report reviewing outfitter/guide actual use data for the Shoreline II project area (USDA Forest Service, 2014d) evaluated the average number of outfitter/guide groups using NFS lands per day (of only those days used by outfitter/guide groups) and the percent of days used in each season by outfitter/guides. Two analysis scales were used for data evaluation: use areas and capacity locations. Within each use area, capacity location polygons were generated as part of the Shoreline II Visitor Capacity Analysis (USDA Forest Service, 2014e; also in Shoreline II DEIS Appendix E), which were used to consolidate site points and eliminate redundant sites. This grouping also associated sites that were approximately within sight or sound of each other. Essentially, these are a grouped set of actual use locations.

Results indicate that at the use area scale and at the more localized (capacity location) scale for each season; all of the use areas were below (within) the ROS standards and guidelines for groups per day. It is important to note that this review makes a conservative assumption that the outfitter/guide groups reported on a given day were all on the National Forest at the same time. In reality, it is likely that groups disperse themselves throughout the day to avoid encountering other groups. However, since the data does not include time of day, the assumption that groups overlapped in time was used. It is also important to note that unguided use is factored into the ROS standards and guidelines. However, this particular report focused only on outfitter/guide use because reliable data for unguided use is not available for the project area.

The percent of days used was evaluated to provide an overall perspective on the amount of the season that sites are used by outfitter/guide groups. The highest percentage of days used occurred in the 04-03 Sitka Area for the spring (36 percent), summer (69 percent), and fall (37 percent) seasons. For the summer season, 69 percent translates into approximately 73 days of the season that there is an outfitter/guide group operating somewhere within the use area. This is one of the larger acreage use areas and contains the most capacity locations (50) than any other area in the project area. As a result, there is a higher likelihood of an outfitter/guide group using this area. When reviewing the percent of days used in each season at the capacity location scale, the highest use (24 percent) occurred at Kelp Bay and Pond Island (04-04B) in the spring season. In the summer season, the highest use (42 percent) occurred at Point Adolphus (04-16A). In the fall season, the highest use (16 percent) occurred at Endicott Arm (01-05F).

In addition to the data review, there are some site-specific impacts noted from recreation site monitoring that are primarily associated with campsites and user-created trails. The following section provides a summary of monitoring results for each district/monument in the project area. More details about monitoring results can be found in the individual use area sections of the Recreation Resource Report in the project record.

Juneau Ranger District

On the Juneau Ranger District, the perception of crowding is most pronounced in areas such as Tracy and Endicott Arms (01-05D and 01-05F, respectively) during the summer season, where vessels regularly cruise saltwater, without going ashore. Although this activity is not within the Shoreline II project area, it contributes to an increased sense of crowding for those present (whether the viewer is onshore or aboard a vessel).

Reports of crowding occur occasionally from outfitter/guide operators vying for certain locations within the same timeframe. Most of these timing conflicts are successfully resolved by the outfitter/guide operators, without intervention by the Forest Service.

The project area on the Juneau Ranger District receives very low to low levels of outfitter/guide use overall, with a few exceptions. Higher levels of use, relative to available outfitter/guide allocation, occur at Williams Cove LGA, Fords Terror (01-05E), and Endicott Arm (01-05F) during the summer season.

Physical resource impacts (e.g., user-created trails showing signs of erosion/vegetation damage) from recreation use are limited to individual sites and have been noted at Williams Cove LGA and at the narrows at Fords Terror. Campsite and dispersed recreation inventories/surveys have shown that most sites are low impact or recovering to a natural condition, except at Williams Cove LGA and at the narrows at Fords Terror.

Admiralty Island National Monument

On Admiralty Island National Monument, instances of crowding occur occasionally in areas where different types of outfitter/guide use overlap (spring bear hunting and remote setting nature tours, for example). Pybus Bay (04-06A) is an example of where this type of timing conflict occurs.

Reports of crowding occur annually from big game outfitter/guides vying for locations within the same timeframe, typically spring bear hunting season. Some of these timing conflicts are successfully resolved by the outfitter/guide operators, while others require intervention by the Forest Service. Hood, Chaik, and Whitewater (all in 04-05A), and Gambier Bays (04-07A) are examples of where this type of timing conflict occurs.

The project area on Admiralty Island National Monument receives very low to moderate levels of outfitter/guide use overall, with a few exceptions. For example, higher levels of use, relative to available outfitter/guide allocation under the 2004 Shoreline Outfitter/Guide FEIS and ROD, occur at the Brothers Islands (04-06A) during the summer season.

Physical resource impacts (e.g., user created trails showing signs of erosion/vegetation damage) from recreation use are limited to individual sites and have been noted at the Brothers Islands. Dispersed recreation inventories/surveys have shown that most sites are low impact or recovering to a natural condition, except at the Brothers Islands.

Sitka Ranger District

Levels of use on the Sitka Ranger District range from very low in the 04-01C Nelson Bay Use Area to high in the 04-03 Sitka Area, 04-04B Kelp Bay, and 04-13 Peril Strait Use Areas during the summer season. Crowding has been reported at certain locations during popular fish runs (e.g., Redoubt Lake, Sandy Bay, Port Banks, Politofski Lake Creek, Salmon Lake Creek), at popular trails (e.g., Lake Eva), and at areas with other scenic and wildlife viewing attractions (e.g., Red Bluff Bay).

Most outfitter/guide use locations that have been monitored show little to no physical resource impacts from recreation use. Outfitter/guides generally pack out their trash and also pack out trash left by other visitors.

However, some site-specific impacts have been noted associated with user-created trails and campsites. User trails have been documented at a number of locations, some showing regular maintenance including illegal chainsaw cutting (e.g., Politofski Lake and Sandy Bay). Some resource impacts associated with popular campsites (e.g., structures, trash, fire ring scars, and/or vegetation damage/loss) have been observed in the following use areas: 04-01A Gut Bay, 04-02A Redoubt Lake, 04-02B Whale Bay, 04-02C Necker Islands, 04-03 Sitka Area, 04-04B Kelp Bay, 04-13 Peril Strait, 04-14 Slocum Arm, and 04-15D Portlock Harbor. It is unknown if outfitter/guide use contributed to these impacts, but continued monitoring, site naturalization, and education of visitors to use Leave No Trace practices is needed.

Overall, dispersed campsite inventories indicate that most sites are low impact or are recovering to a natural condition.

Monitoring also indicates that adjacent saltwater activities (i.e., sights and sounds of water traffic) are having an impact on the ability for wilderness visitors to experience solitude and may be disrupting the natural behaviors of brown bears that frequent the area (e.g., Red Bluff Bay).

Hoonah Ranger District

Levels of use on the Hoonah Ranger District range from very low (04-15A Lisianski and 04-15B West Yakobi Island Use Areas) to high (04-16A Point Adolphus Use Area) during the primary use season. Crowding has been reported in some locations associated with day use and camping activities (Pinta Cove and Point Adolphus (both in 04-16A)) and a popular trail at George Island (04-16E).

Most outfitter/guide use locations that have been monitored show little to no physical resource impacts from recreation use. Those noted are associated with ground hardening and some tree branch removal at campsites (04-16A Point Adolphus Use Area, 04-16D PLI Wilderness Use Area) and user trail impacts occurring at Marble Creek (04-16C) and Fox Creek LGA (04-16C). Overall, sites used by outfitter/guides are kept clean and in good condition.

There have been some physical resource impacts noted (e.g., furniture structures, trash, fire ring scars, and vegetation loss) at several popular day use areas and campsites in the following use areas: 04-11B Freshwater Bay, 04-16B North Chichagof, and 04-16E Port Althorp that are attributed to unguided visitors.

Environmental Consequences

The Environmental Consequences section provides an analysis of the direct and indirect effects the No Action (Alternative 1), proposed action (Alternative 2), and other action alternatives (3 and 4) would have on the recreation resources, and the cumulative effects these actions would have when considered in combination with other past, present, and reasonably foreseeable actions. Effects are analyzed using the recreation resource indicators and measures that were described in the Analysis Methods section of this Recreation section.

Direct and Indirect Effects Summary

Alternative 1

Outfitter/Guide Allocation

On average, the total outfitter/guide allocation for Alternative 1 across all seasons ranges from 1 percent (04-02A Redoubt Lake and 04-02C Necker Islands) to 55 percent (01-04D Slocum Inlet) of visitor capacity, with an average of 11 percent. One use area, 01-04D Slocum Inlet, is above the Forest Plan guideline of 50 percent (USDA Forest Service. 2008a, p. 4-46) and is expected to have a major effect overall on the recreation setting. The remaining allocations are well below the Forest Plan guideline of 50 percent. Three use areas (01-05A Taku Harbor, 01-02 Haines Area, and 04-10A Greens Creek) are expected to have a moderate effect, 36 use areas are expected to have a minor effect, and eight use areas are expected to have a negligible effect overall on the recreation setting (Figure 3-3).

- Negligible effect: 8 use areas
- Minor effect: 36 use areas
- Moderate effect: 3 use areas
- Major effect: 1 use area

Social Encounters and Remoteness

Management prescriptions vary across the analysis area depending on the LUD and ROS prescription, but the majority of the analysis area is managed for Primitive or Semi-Primitive ROS settings. For Primitive recreation opportunities, the Forest Plan standard and guideline is 12 persons per group maximum and two or fewer encounters per day. Nearby sights and sounds of humans are expected to be none or infrequent. For Semi-Primitive recreation opportunities, the Forest Plan standard and guideline is 20 persons per group maximum and nine or fewer encounters per day. Nearby sights and sounds of humans is expected to be rare, but distant sights or sounds may occur.

Given the number of estimated groups per day and the number of use locations available, all use but one use area are expected to be below the Forest Plan threshold for number of encounters and remoteness standards for Alternative 1. Based on use trends, one use area (01-04D Slocum Inlet) is expected to have more encounters and sights/sounds of humans throughout the use area on most days of the primary use season. Conditions under Alternative 1 are expected to exceed the Forest Plan standards and guidelines for remoteness and encounters, resulting in a major level of effect. A minor level of effect is expected for 24 use areas with more encounters and sights/sounds of humans at a few locations less than 15 percent of the primary use season. A moderate level of effect for Alternative 1 is expected within 15 use areas where more encounters and frequency of sights/sounds of humans are expected to occur more than 15 percent but less than 80 percent of the primary use season. The remaining eight use areas are expected to have negligible effects with no increases or decreases of encounters or sights/sounds of humans (Figure 3-4).

- Negligible effect: 8 use areas
- Minor effect: 24 use areas
- Moderate effect: 15 use areas
- Major effect: 1

Popular or High-valued Local Areas

Popular or high-value areas are important to guided and unguided users on the Tongass National Forest. These are areas that local people, independent travelers, or outfitter/guide service providers tend to go to repeatedly. A use area may contain several use locations, and one or more of them could be described as a popular or high-value area. Issues associated with this indicator include incompatible uses, crowding, and displacement of visitors to other use locations.

Under Alternative 1, major effects are expected for this unit of measure in one use area (01-04D Slocum Inlet), which may include encounters and displacement of unguided users. Some adverse impacts are expected (moderate effects) at eight use areas: 01-04A Berners Bay, 01-05A Taku Harbor, 01-05E Fords Terror, 04-05A SW Admiralty, 04-10A Greens Creek, 04-12 Tenakee Inlet, 04-13 Peril Strait, and 04-16A Point Adolphus. These impacts may include encounters with outfitter/guide groups frequently at multiple popular locations within the use area, more than 15 percent but less than 80 percent of the primary use season. The remaining use areas expect negligible (14 use areas) to minor effects (25 use areas), which may include encounters with outfitter/guide groups at a few popular locations less than 15 percent of the primary use season (Figure 3-5).

- Negligible effect: 14 use areas
- Minor effect: 25 use areas
- Moderate effect: 8 use areas
- Major effect: 1 use area

Figure 3-3. Alternative 1 effects summary map, outfitter/guide allocation indicator

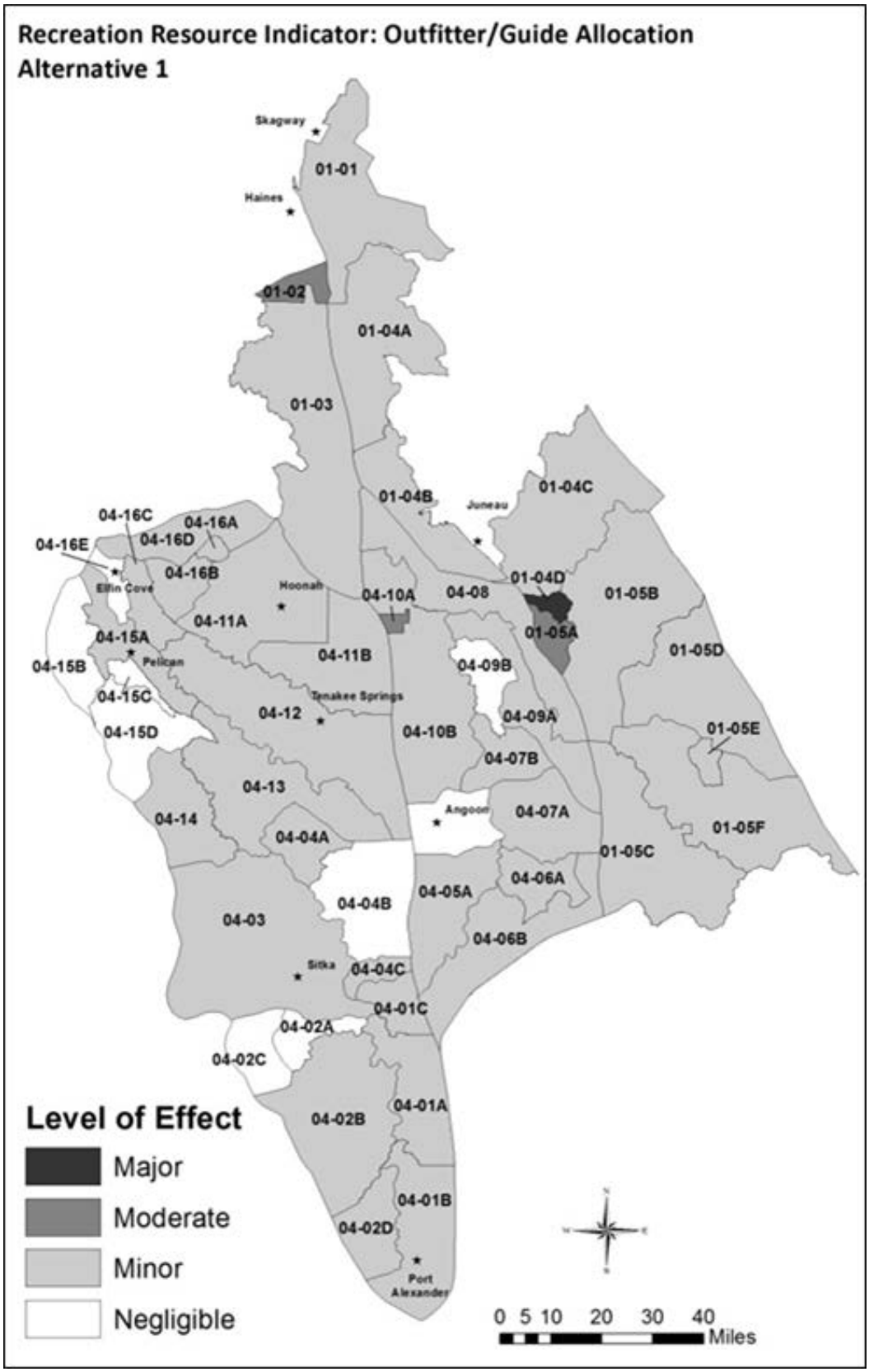


Figure 3-4. Alternative 1 effects summary map, social encounters and remoteness indicators

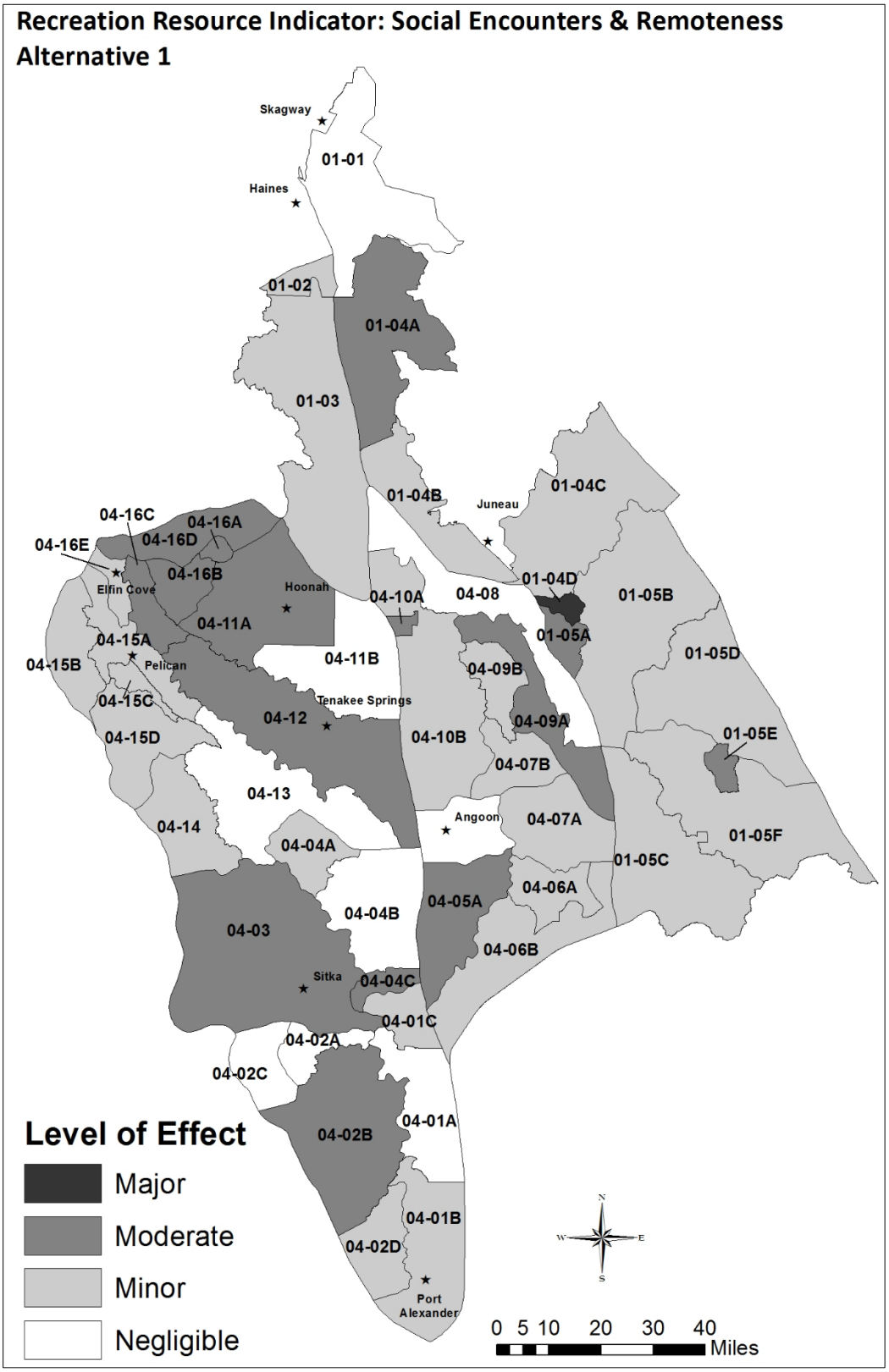
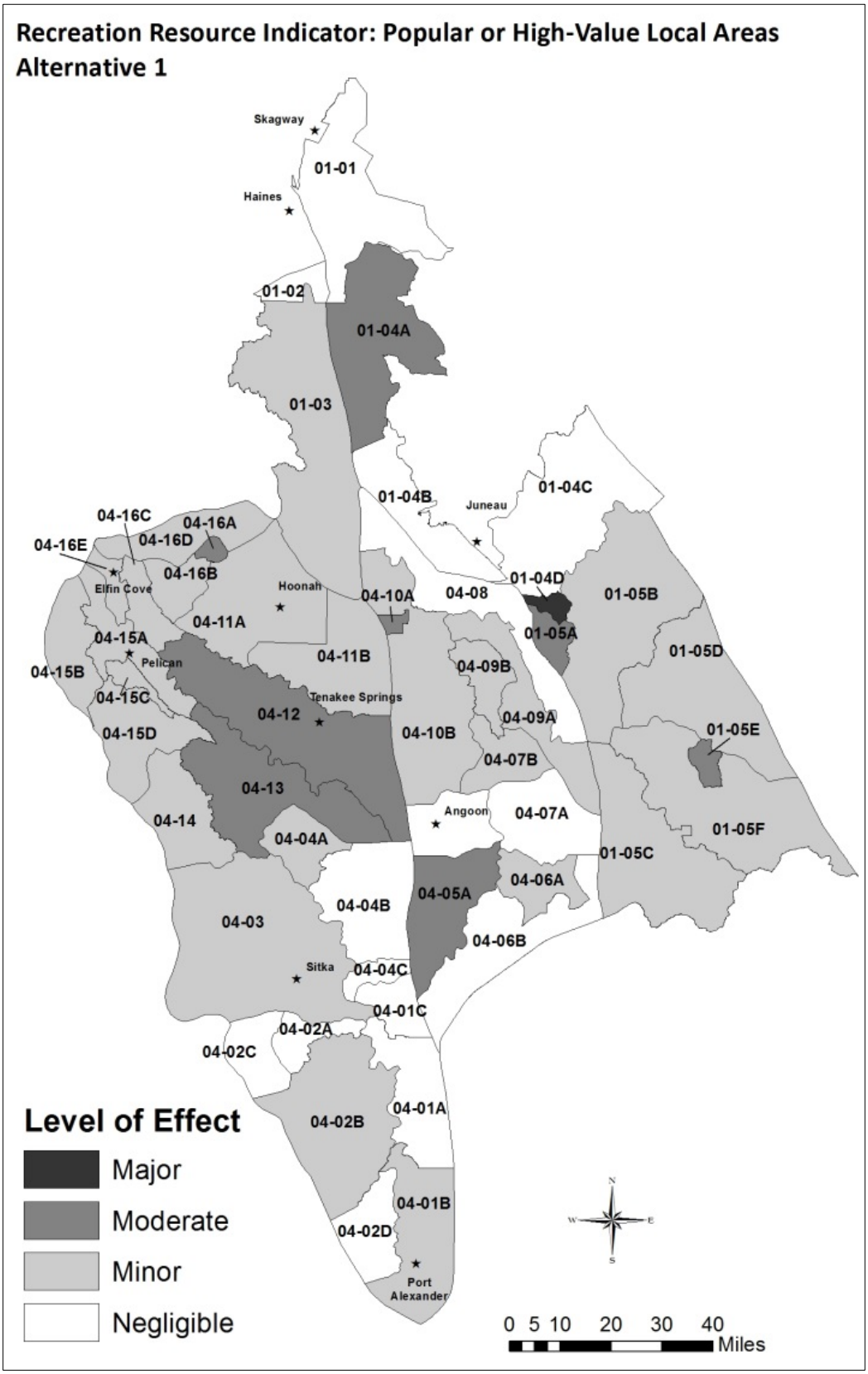


Figure 3-5. Alternative 1 effects summary map, popular or high-value local areas indicator



Alternative 2

Outfitter/Guide Allocation

On average, the total outfitter/guide allocation for Alternative 2 across the full year ranges from 4 percent (04-15B West Yakobi Island, 04-15C Stag Bay, and 04-08 NE Admiralty) to 32 percent (04-16E Port Althorp) of visitor capacity, with an average of 12 percent. All use areas are below the Forest Plan guideline of 50 percent. Three use areas (01-04D Slocum Inlet, 04-16A Point Adolphus, and 04-16E Port Althorp) are expected to have a moderate effect, 42 use areas are expected to have a minor effect, and three use areas are expected to have a negligible effect overall on the recreation setting (Figure 3-6).

- Negligible effect: 3 use areas
- Minor effect: 42 use areas
- Moderate effect: 3 use areas
- Major effect: n/a

Social Encounters and Remoteness

Given the number of estimated groups per day and the number of use locations available, all use areas are expected to be below the Forest Plan threshold for number of encounters and remoteness standards for Alternative 2. Based on use trends, 23 use areas expect more encounters on NFS lands and sights/sounds of humans are expected to occur at a few locations less than 15 percent of the primary use season, resulting in a minor level of effect for Alternative 2. A moderate level of effect for Alternatives 2 is expected within 19 use areas where more encounters and frequency of sights/sounds of humans are expected to occur more than 15 percent but less than 80 percent of the primary use season. The remaining six use areas are expected to have negligible effects with no increases or decreases of encounters or sights/sounds of humans (Figure 3-7).

- Negligible effect: 6 use areas
- Minor effect: 23 use areas
- Moderate effect: 19 use areas
- Major effect: n/a

Popular or High-valued Local Areas

Under Alternative 2, some moderate effects are expected at nine use areas: 01-04D Slocum Inlet, 04-01B Port Armstrong, 04-04B Kelp Bay, 04-05A SW Admiralty, 04-12 Tenakee Inlet, 04-13 Peril Strait, 04-16A Point Adolphus, 04-16C Idaho Inlet, and 04-16E Port Althorp. These impacts may include encounters with outfitter/guide groups frequently at multiple popular locations within the use area, more than 15 percent but less than 80 percent of the primary use season. Negligible (15 use areas) to minor effects (24 use areas) are expected for the remaining use areas, which may include encounters with outfitter/guide groups at a few popular locations less than 15 percent of the primary use season (Figure 3-8).

- Negligible effect: 15 use areas
- Minor effect: 24 use areas
- Moderate effect: 9 use areas
- Major effect: n/a

Figure3-6. Alternative 2 effects summary map, outfitter/guide allocation indicator

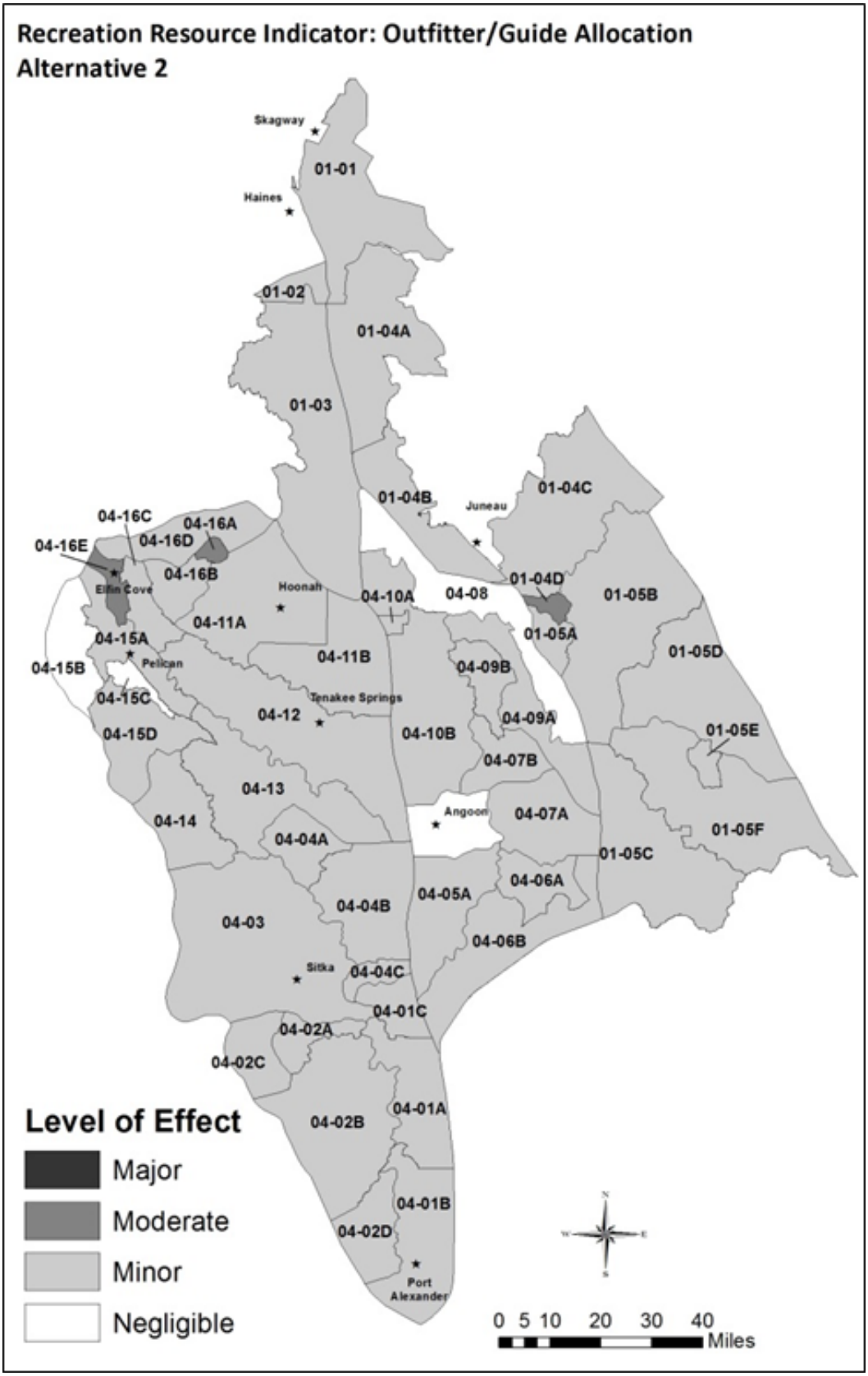


Figure3-7. Alternative 2 effects summary map, social encounters and remoteness indicators

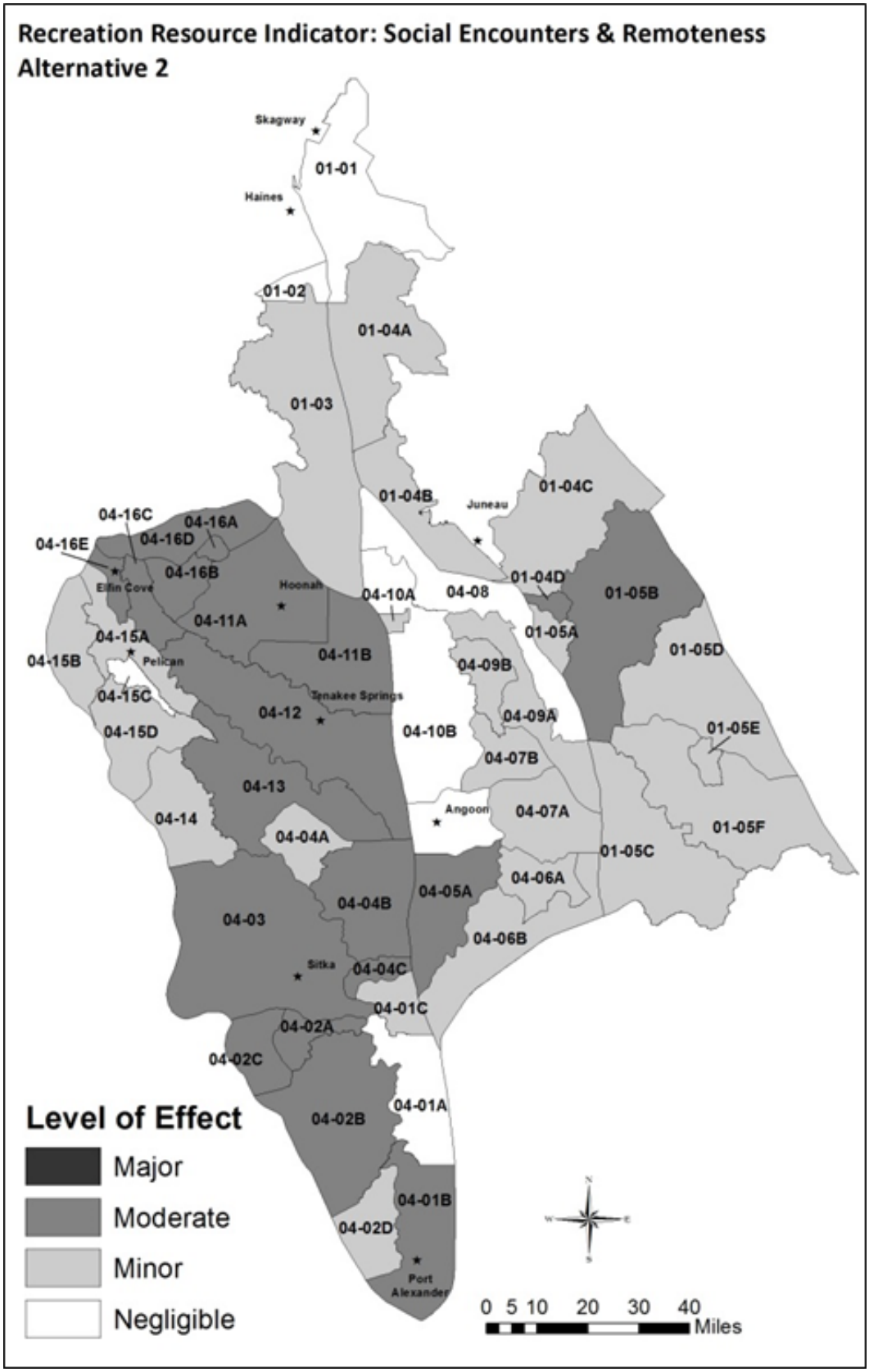
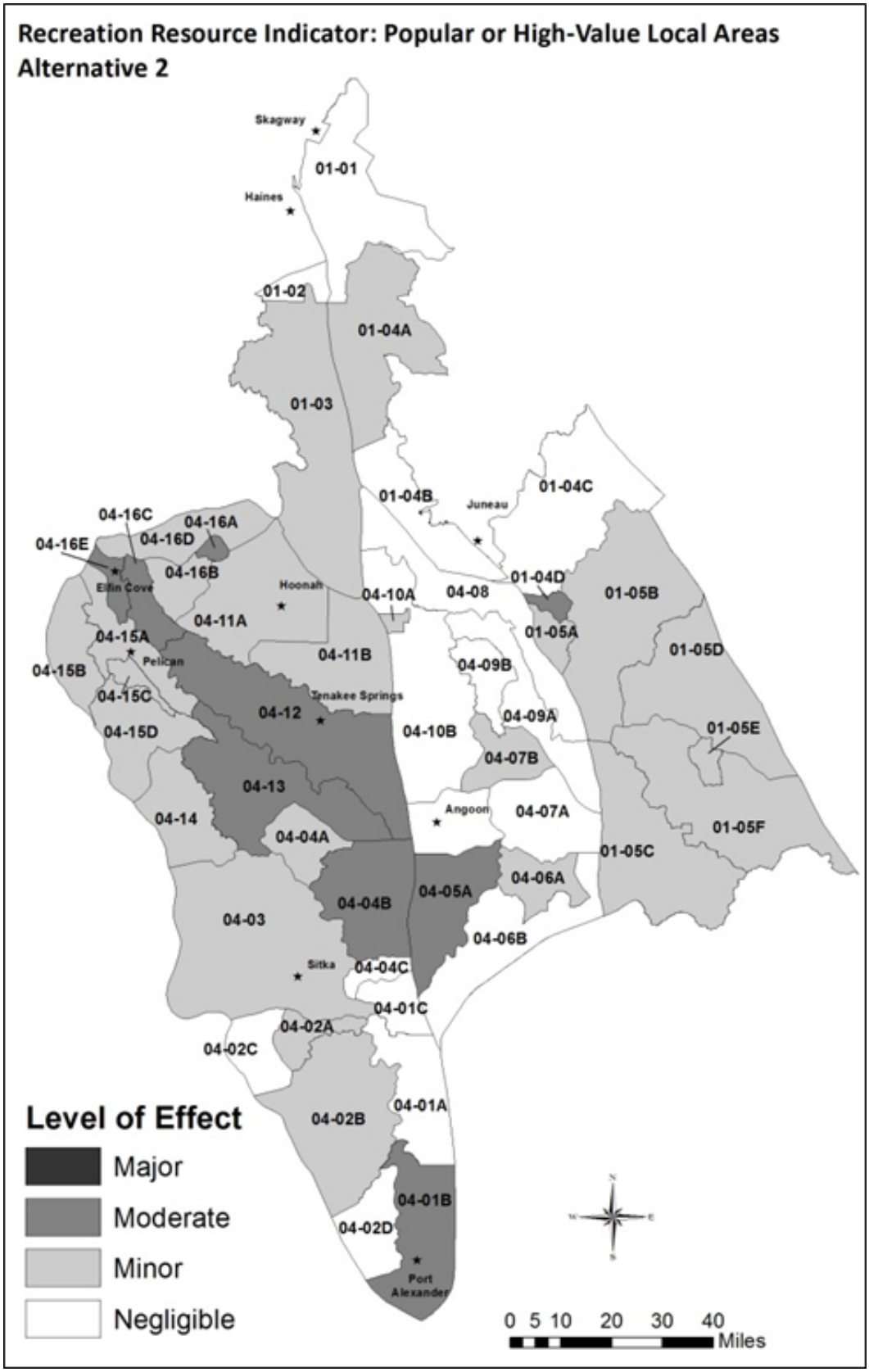


Figure 3-8. Alternative 2 effects summary map, popular or high-value local areas indicator



Alternative 3

Outfitter/Guide Allocation

On average, the total outfitter/guide allocation for Alternative 3 across all seasons ranges from 3 percent (04-15B West Yakobi Island, 04-15C Stag Bay, and 04-08 NE Admiralty) to 30 percent (01-04D Slocum Inlet) of visitor capacity, with an average of 10 percent. All use areas are below the Forest Plan guideline of 50 percent. One use area (01-04D Slocum Inlet) is expected to have a moderate effect, 41 use areas are expected to have a minor effect, and six use areas are expected to have a negligible effect overall on the recreation setting (Figure 3-9).

- Negligible effect: 6 use areas
- Minor effect: 41 use areas
- Moderate effect: 1 use areas
- Major effect: n/a

Social Encounters and Remoteness

Given the number of estimated groups per day and the number of use locations available, all use areas are expected to be below the Forest Plan threshold for number of encounters and remoteness standards for Alternative 3. Based on use trends, 24 use areas expect more encounters on NFS lands and sights/sounds of humans are expected to occur at a few locations less than 15 percent of the primary use season, resulting in a minor level of effect for Alternative 3. A moderate level of effect for Alternatives 3 is expected within 17 use areas where more encounters and frequency of sights/sounds of humans are expected to occur more than 15 percent but less than 80 percent of the primary use season. The remaining seven use areas are expected to have negligible effects with no increases or decreases of encounters or sights/sounds of humans (Figure 3-10).

- Negligible effect: 7 use areas
- Minor effect: 24 use areas
- Moderate effect: 17 use areas
- Major effect: n/a

Popular or High-valued Local Areas

Under Alternative 3, some moderate effects are expected at seven use areas: 01-04D Slocum Inlet, 04-04B Kelp Bay, 04-05A SW Admiralty, 04-12 Tenakee Inlet, 04-13 Peril Strait, 04-16A Point Adolphus, and 04-16E Port Althorp. These impacts may include encounters with outfitter/guide groups frequently at multiple popular locations within the use area, more than 15 percent but less than 80 percent of the primary use season. Negligible (15 use areas) to minor effects (26 use areas) are expected for the remaining use areas, which may include encounters with outfitter/guide groups at a few popular locations less than 15 percent of the primary use season (Figure 3-11).

- Negligible effect: 15 use areas
- Minor effect: 26 use areas
- Moderate effect: 7 use areas
- Major effect: n/a

Figure 3-9. Alternative 3 effects summary map, outfitter/guide allocation indicator

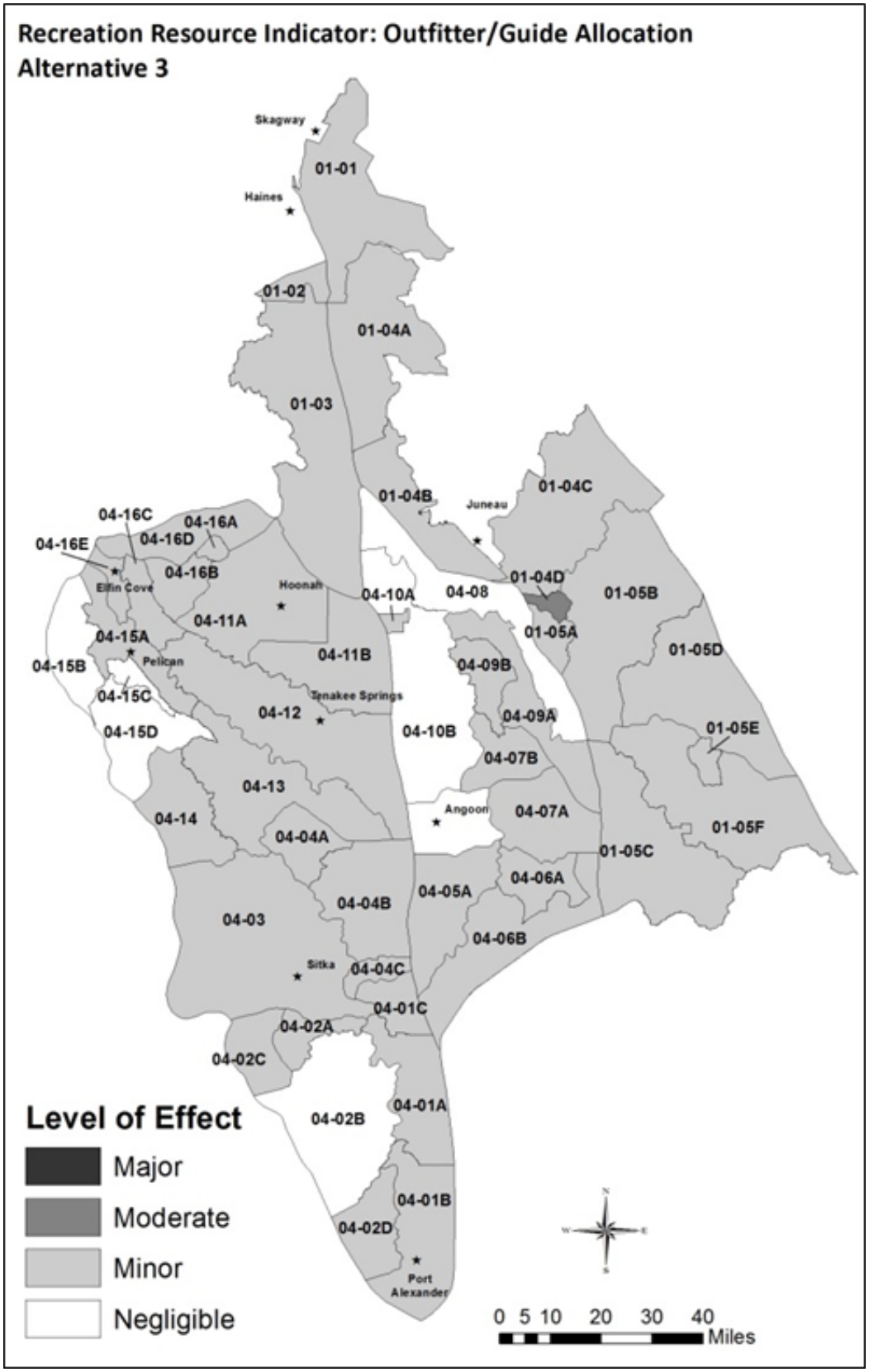


Figure 3-10. Alternative 3, effects summary map, social encounters and remoteness indicators

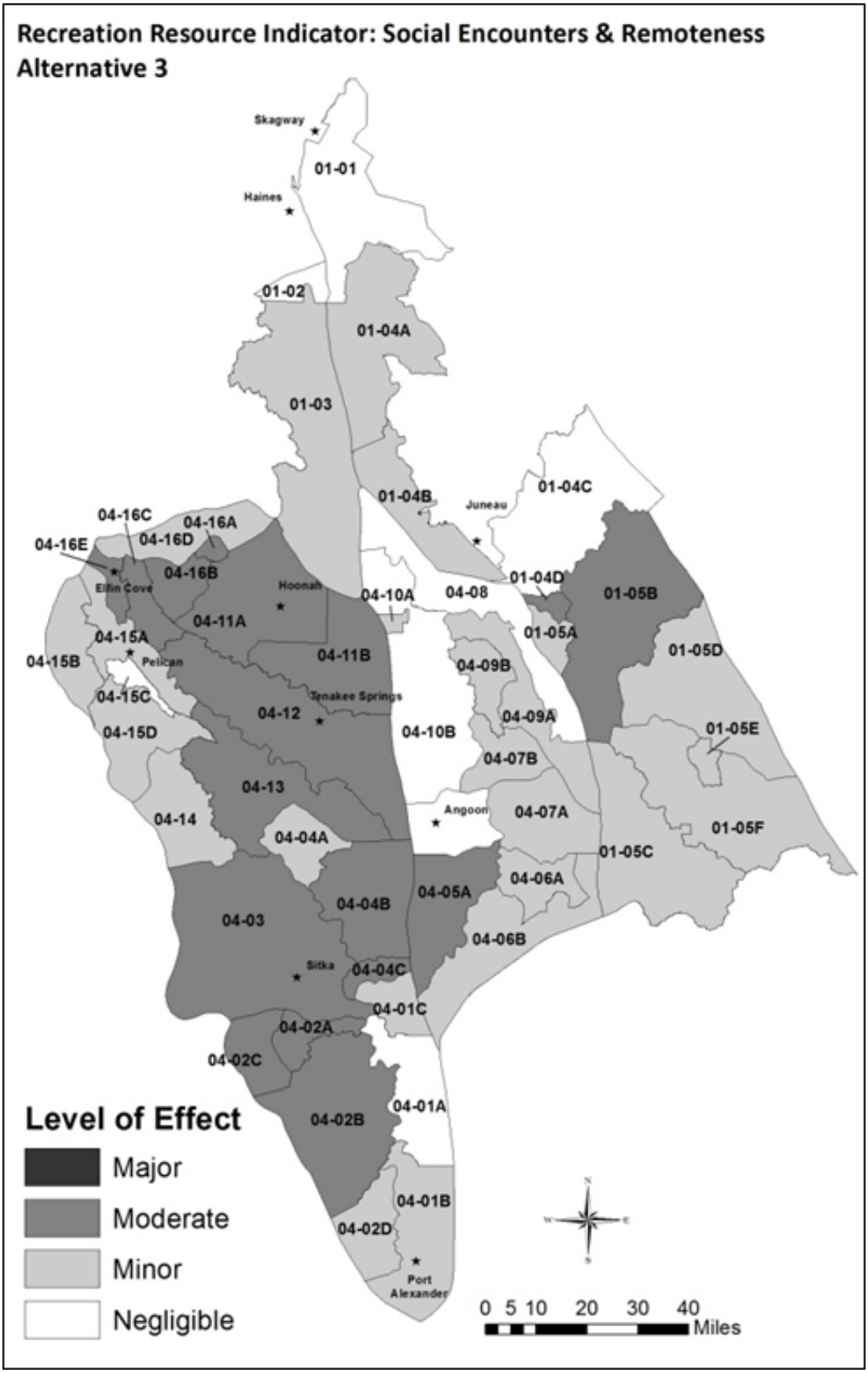
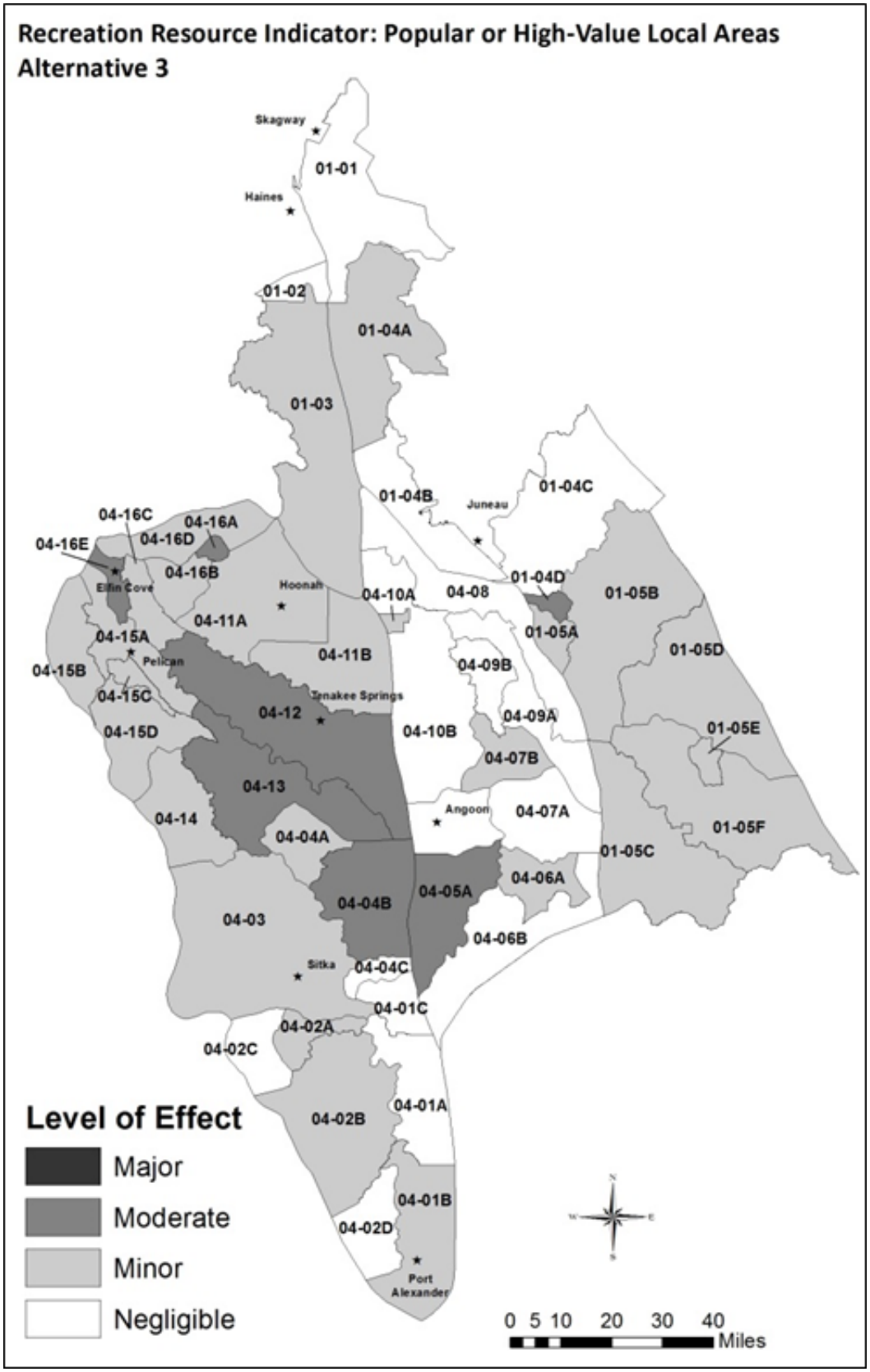


Figure 3-11. Alternative 3 effects summary map, popular or high-value local areas indicator



Alternative 4

Outfitter/Guide Allocation

On average, the total outfitter/guide allocation for Alternative 4 across all seasons ranges from 6 percent (04-15B West Yakobi Island and 04-15C Stag Bay) to 53 percent (04-16E Port Althorp) of visitor capacity, with an average of 20 percent. One use area, 04-16E Port Althorp, is above the Forest Plan guideline of 50 percent and is expected to have a major effect overall on the recreation setting. The remaining allocations are well below the Forest Plan guideline of 50 percent. Ten use areas (01-04D Slocum Inlet, 01-05A Taku Harbor, 04-03 Sitka Area, 04-04A Rodman Bay, 04-04B Kelp Bay, 04-10A Greens Creek, 04-13 Peril Strait, 04-16A Point Adolphus, 04-16B North Chichagof, and 04-16C Idaho Inlet) are expected to have a moderate effect, and 37 use areas are expected to have a minor effect overall on the recreation setting (Figure 3-12).

- Negligible effect: n/a
- Minor effect: 37 use areas
- Moderate effect: 10 use areas
- Major effect: 1 use areas

Social Encounters and Remoteness

Given the number of estimated groups per day and the number of use locations available, all but one use area are expected to be below the Forest Plan threshold for number of encounters and remoteness standards for Alternative 4. Based on use trends, two use areas (01-04D Slocum Inlet and 04-16E Port Althorp) are expected to have more encounters and sights/sounds of humans throughout the use areas on most days of the primary use season. Conditions under Alternative 4 are expected to exceed the Forest Plan standards and guidelines for remoteness and encounters, resulting in a major level of effect. A moderate level of effect for Alternatives 4 is expected within 22 use areas where more encounters and frequency of sights/sounds of humans are expected to occur more than 15 percent but less than 80 percent of the primary use season. For 19 use areas it is expected that more encounters on NFS lands and sights/sounds of humans are expected to occur at a few locations less than 15 percent of the primary use season, resulting in a minor level of effect for Alternative 4. The remaining five use areas are expected to have negligible effects with no increases or decreases of encounters or sights/sounds of humans (Figure 3-13).

- Negligible effect: 5 use areas
- Minor effect: 19 use areas
- Moderate effect: 22 use areas
- Major effect: 2 use areas

Popular or High-valued Local Areas

Under Alternative 4, major effects are expected at three use areas: 01-04D Slocum Inlet, 04-16A Point Adolphus, and 04-16E Port Althorp. These impacts may include encounters with outfitter/guide groups at most or all of the popular locations within the use area on most days of the primary use season (more than 80 percent), or displacement of unguided users. At 15 use areas, some adverse impacts are expected (moderate effects), which may include encounters with outfitter/guide groups frequently at multiple popular locations within the use area, more than 15 percent but less than 80 percent of the primary use season. The remaining use areas are expected to have negligible (15 use areas) to minor effects (15 use areas), which may include encounters with outfitter/guide groups at a few popular locations less than 15 percent of the primary use season (Figure 3-14).

- Negligible effect: 15 use areas
- Minor effect: 15 use areas
- Moderate effect: 15 use areas
- Major effect: 3 use areas

Figure 3-12. Alternative 4 effects summary map, outfitter/guide allocation indicator

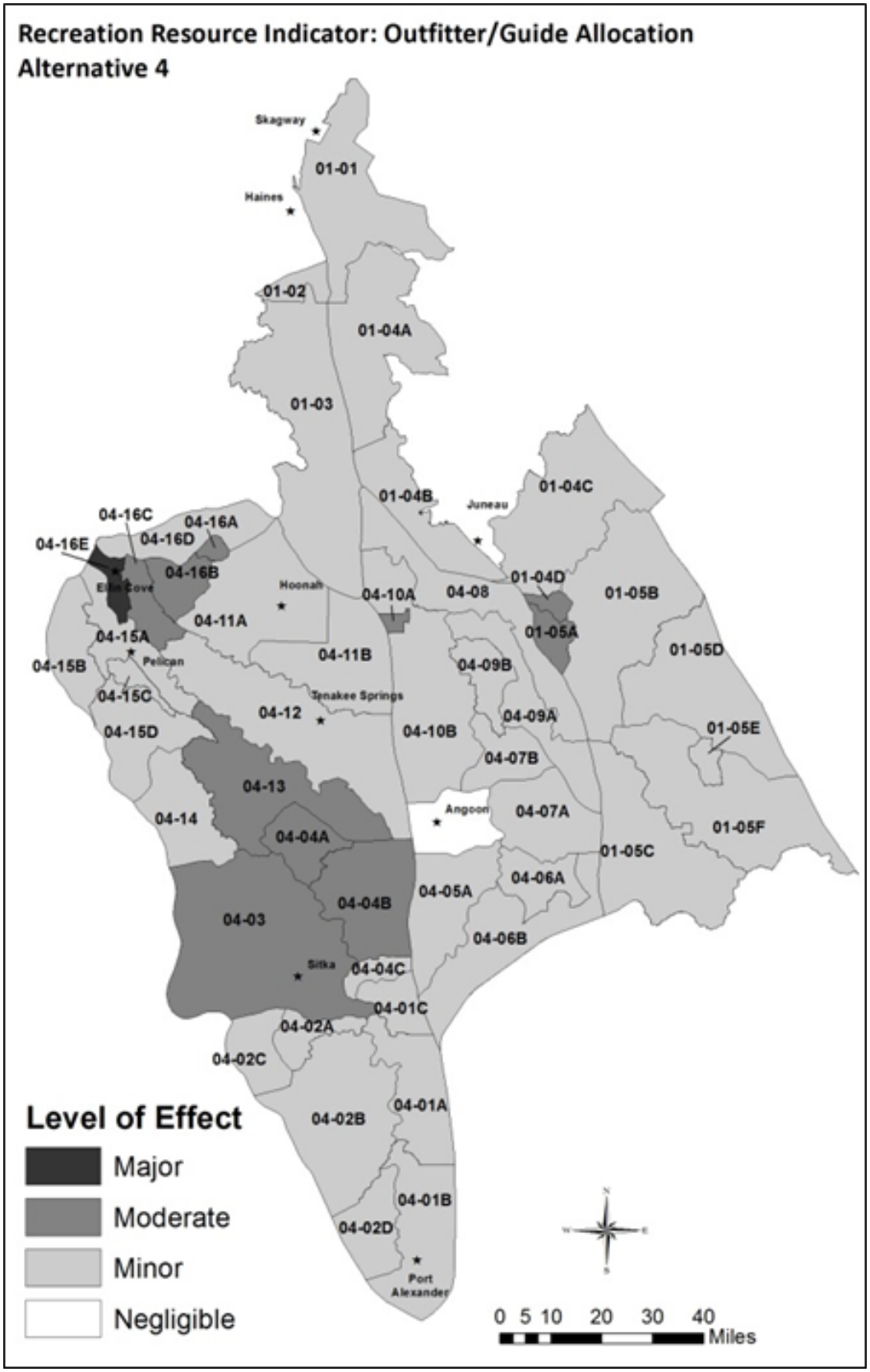


Figure 3-13. Alternative 4 effects summary map, social encounters and remoteness indicators

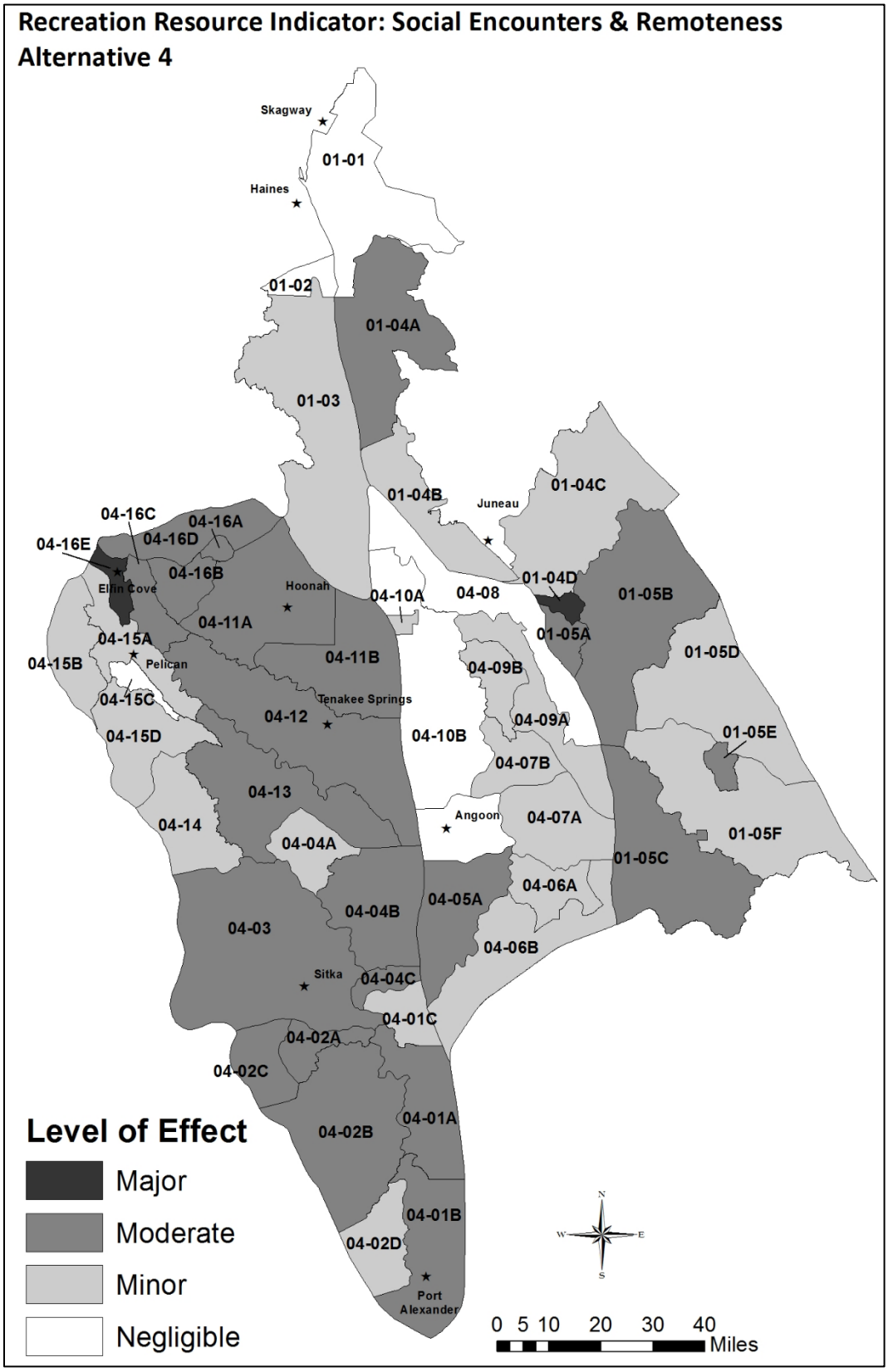
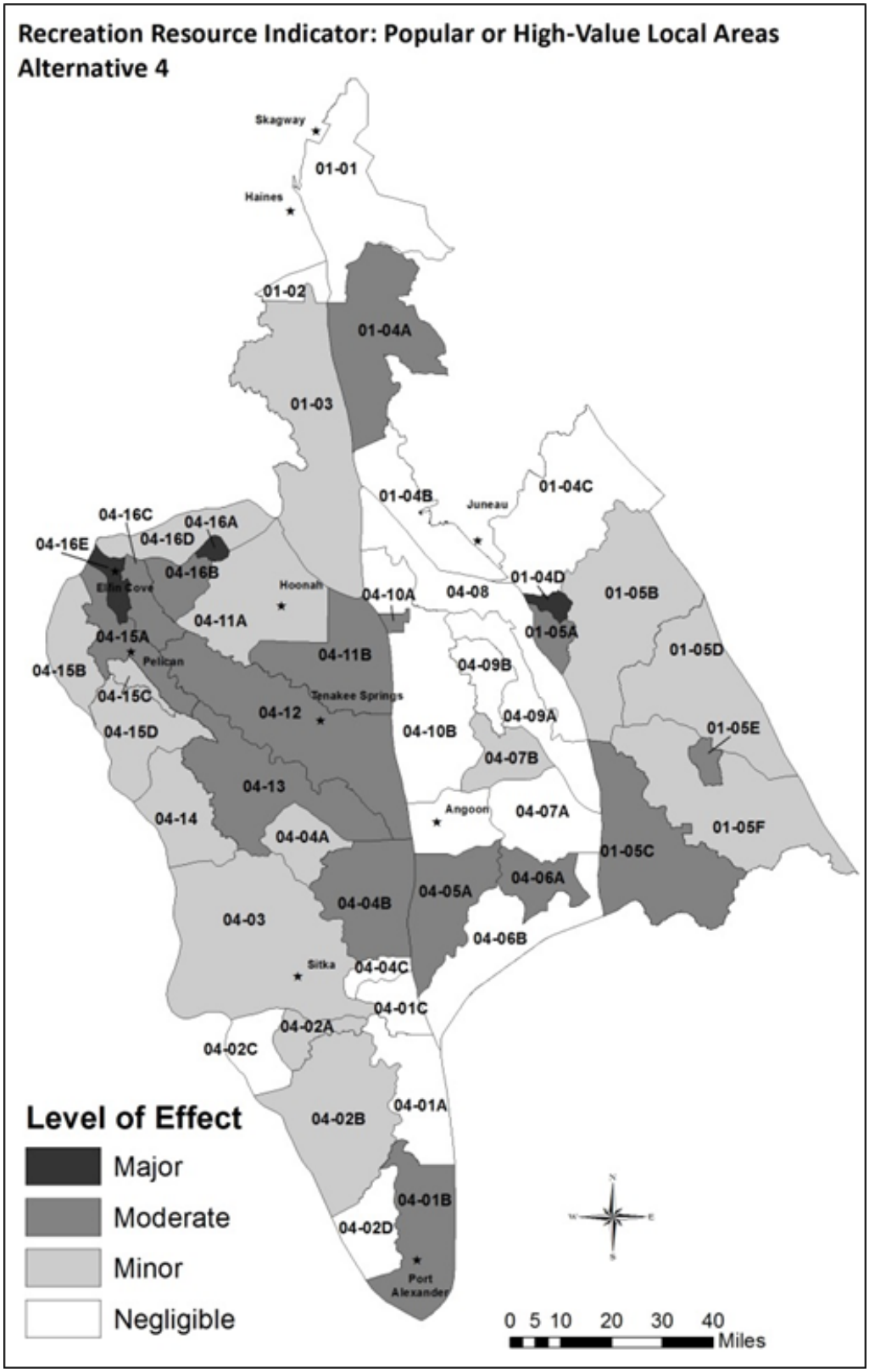


Figure 3-14. Alternative 4, effects summary map, popular or high-value local areas indicator



Direct and Indirect Effects Common to All Action Alternatives

Big Game Guide Management

Number of Guided Brown Bear Hunts

Outfitter/Guide Allocation

The Forest Service proposes to allocate guided brown bear hunts based on the Southeast Alaska Unit 4 Brown Bear Management Strategy ("BBMS" State of Alaska, 2000). Overall, brown bear guiding activities account for 6 percent of the total outfitter/guide use within the project area. Each brown bear hunt generally spans 10 days and with 141 hunts available under the BBMS, this translates into approximately 1,410 service days across 35 Shoreline II use areas. The service days used for each hunt are part of the total outfitter/guide allocation proposed for each use area and season. Therefore, effects under the outfitter/guide allocation indicator are expected to be the same as previously described in the Direct and Indirect Effects Summary section (above), for Alternatives 2, 3, and 4.

Guides would continue to have flexibility to conduct hunts across GUAs, which should allow for guides to avoid other operators and minimize conflicts among user groups.

Social Encounters and Remoteness

This section focuses on those use areas with a primary use season identified as the spring or fall, when guided brown bear hunting activities are conducted. This includes four use areas: 01-04B North Juneau Coast (fall), 04-04A Rodman Bay (fall), 04-10B NW Admiralty (spring), and 04-15C Stag Bay (spring). Use Area 01-04B is outside of the area covered by the BBMS and is not directly affected by this action.

For 04-04A, Alternative 4 proposes the largest increase in outfitter/guide allocation with 160 service days in the fall season (compared to Alternative 1 with 101 service days). With an average group size of 3.2 during the fall season (USDA Forest Service, 2014e); this translates into approximately 0.3 outfitter/guide groups per day in the use area. With four use locations available, this is within the ROS standards and guidelines for social encounters. Taking a conservative approach and assuming all four hunts allocated to the 04-04 GUA were conducted in the 04-04A Use Area, the effects are expected to include more encounters and sights/sounds of humans at a few locations less than 15 percent of the primary use season – this is categorized as a minor effect.

In actuality, any encounter during a brown bear hunt may result in an unacceptable effect on the hunt. The four allocated hunts translate into approximately 40 service days (a brown bear hunt typically spans 10 days). If all of the remaining 120 service days were used for other non-hunting outfitter/guide activities, the amount is within a reasonable level that overlapping incompatible uses can be addressed through guide communication and coordination. The alternatives do not prescribe allocations by activity in specific locations. Communication and coordination is the responsibility of the outfitter/guide representatives operating in the project area.

For 04-10B and 04-15C, all of the action alternatives propose a decrease compared to Alternative 1 (no action) during the primary use season (late spring) and are expected to be within the ROS standards and guidelines. No increase in the amount of encounters or frequency of human sights or sounds is expected - this is categorized as a negligible effect.

Popular or High-valued Local Areas

This section focuses on the primary use season for this indicator, and as such, the same use areas discussed previously were analyzed for effects to popular or high-valued local areas. For 04-04A, Appleton Cove and Rodman Bay are high-value areas for local users during fall hunting season. Brown bear guide groups have the potential to displace local users in these areas; however, with the low amount of outfitter/guide allocation proposed in the fall season across all alternatives, the level of effect is

expected to be minor. Some encounters with brown bear guide groups may occur less than 15 percent of the days in the fall season. For 04-10B, much of the shoreline provides poor anchorages except in the major bays. Juneau residents primarily use the northern portion of this use area; the community of Angoon uses this area extensively. Under each of the action alternatives it is expected that no impacts to high-value areas would occur – a negligible effect. In 04-15C, Saltery River and Stag Bay estuary are high-valued local areas. Given the few number of use locations within this use area, the effects for all alternatives are expected to result in some encounters with brown bear guide groups at one or both of these popular locations less than 15 percent of the primary use season – this is categorized as a minor effect.

Other Big Game Management Actions

Number of Registered Guides

The Forest Service proposes to continue to follow the guidelines for the number of permitted brown bear guides set forth in the BBMS, or any future collaborative planning effort.. To maintain a high-quality hunt experience and avoid impacts to other users from overcrowding, the BBMS specifies that a maximum number of 20 individual registered brown bear guides should be permitted to operate in ADF&G Game Management Unit 4. Currently, there are 20 permitted brown bear guides operating in Unit 4. Therefore, no new brown bear guides will be permitted within the ADF&G Unit 4 portion of the Shoreline II project area unless an existing guide relinquishes their permit (e.g., change of ownership), or a prospectus is offered. As a result communication, coordination, and cooperation amongst the current operators, and with other outfitter/guides and unguided groups, must continue. Most of the brown bear guides operating now have been operating for decades; they know the areas and the patterns of use. Professionalism and communication are critical to maintaining the desired range of recreation experiences being sought by all public lands visitors.

The Forest Service also proposes to require that special use permits issued to corporations or Limited Liability Company (LLCs) for big game guiding identify the maximum number of registered guides (brown bear guides and/or other big game guides) that can operate under such permit as determined by the authorized officer on a case-by-case basis. The intent of this action is to avoid unchecked expansion of the number of registered guides operating within the project area and to remain within the BBMS recommended total of 20 individual registered guides. Permits that are issued to individuals are clearly permitting only one registered guide for big game hunting activities. Since corporations or LLCs are not individual persons, the action proposes to clearly specify the number of registered guides authorized to operate under the permit; the individual names of guides would continue to be identified in the operating plan and reviewed for approval by the authorized officer.

Number of Guide Use Areas

The Forest Service proposes to only authorize up to the maximum number of GUAs allowed by State of Alaska regulations. Currently, the State allows big game guides to register for up to three GUAs for conducting guided hunts. The Forest Service has issued big game guide permits that have a pool of GUAs from which the permit holder may select annually for operating plan approval. This process resulted in a number of user conflicts due to the higher level of unpredictability from year to year for other guides operating in the selected GUAs. The action to specify a maximum number of GUAs per permit is intended to align Forest Service permits with State regulations. The maximum number of GUAs per permit will be determined by the number of registered guides authorized on the permit and the corresponding number of GUAs within which each registered guide is licensed to operate by the State. BBMS recommendations and continued coordination with the Alaska Department of Fish & Game will also factor into GUAs authorized on permits. This action should provide for greater awareness of where big game hunting activities are most likely to occur, and allow for better coordination and minimize user conflicts.

Competitive Interest and Prospectus

Federal regulations (36 CFR 251.58(c)(3)(ii)) and Forest Service policy (FSM 2712.1; FSH 2709.14, 53.1h(3)) require the issuance of special use permits through the use of a prospectus when a competitive interest for outfitter/guide permits exists. Therefore, unallocated big game guide hunts or service days where there is competitive interest by big game guides will be issued through a prospectus process in accordance with Forest Service Manual and Handbook direction. When existing outfitter/guide big game permits expire, the previously allocated big game hunts or service days (where there is competitive interest) may also be issued through a prospectus process (see previous CFR and policy reference and FSH 2709.14, 53.1m(5) and 53.1n(3 and 4)). However, if a change of ownership occurs (i.e., a permit holder notifies the Forest Service of their intent to sell their business or controlling interest in their business), Forest Service policy allows for authorized officer discretion to issue a permit to the purchaser. There is competitive interest for outfitter/guide hunting for all big game species (except Sitka black tail deer) in the project area. The intent of this action is to align this project with current direction, which should result in the best services for the public.

Adaptive Management

Under the adaptive management strategy (see Appendix D), the outfitter/guide allocation could be up to 10 percent more than the Selected Alternative. When this 10 percent increase is applied to each alternative, the level of effect for outfitter/guide allocation is largely the same as that described above under each alternative, with a few exceptions. Under Alternative 1, two use areas (04-04B Kelp Bay and 04-16E Port Althorp) would move from a negligible to minor effect. Under Alternative 3, one use area (04-10B NW Admiralty) would move from a negligible to minor effect and one use area (04-16E Port Althorp) would go from a minor to moderate effect. Under Alternative 4, two use areas (04-02C Necker Islands and 04-02D SW Baranof) would move from a minor to moderate level of effect and two use areas (01-04D Slocum Inlet and 04-16A Point Adolphus) would go from a moderate to major level of effect. Alternative 2 effects would remain the same.

The additional 10 percent allocation results in an average of 0 percent to 2 percent increase in allocation for the project area for all alternatives. Since it is likely that certain locations are more frequently used than others due to such factors as scenic attractions, access, facilities, or other attractions, there may be localized increases in encounters, effects to the remoteness setting, and increases in use at popular or high-valued areas during the primary use season. However, the overall level of effect on the recreation setting for social encounters and remoteness and on popular or high-value areas is expected to be similar to that described above for each alternative. If monitoring under the adaptive management strategy shows thresholds are being exceeded, the resultant management action(s) is expected to improve the recreation setting by decreasing encounters and providing opportunities for remoteness within acceptable ROS conditions.

Large Group Area Management

Under all action alternatives, the service days allocated for LGA use would be part of the total outfitter/guide allocation proposed for each use area and season (Chapter 2). Therefore, effects under the outfitter/guide allocation indicator are expected to be the same as previously described in the Direct and Indirect Effects Summary section (above), for Alternatives 2, 3, and 4.

There are 40 large group areas (LGA) identified within the Shoreline II project area, seven of which are new proposed LGAs. The other 33 LGAs were designated in the 2004 Shoreline Outfitter/Guide FEIS and ROD and are carried forward in this project with a minor adjustment to the Corner Bay Road LGA (04-12) boundary. For social encounters, remoteness, and popular/high-valued local areas, effects were analyzed for the seven new proposed LGAs.

04-01B Port Armstrong- Sashin Lake Trail LGA

Alternative 4 proposes the largest increase in outfitter/guide allocation with 1,040 service days in the summer season. Up to 50 percent (520 service days) could be allocated to LGA use. Sashin Lake Trail is the only proposed LGA within the 04-01B Port Armstrong use area. Assuming conservatively a minimum group size of 22 persons (21 + 1 guide), this translates into approximately 25 groups per season (less than two per week) could occur at this site. Sashin Lake Trail is a high-valued location, especially to residents of Little Port Walter NOAA research station. With a design feature proposed that requires outfitter/guide groups to adhere to the requirements listed in the most current NOAA Little Port Walter Visitor Guide (developed with NOAA staff), effects are expected to be moderate. More encounters and sights/sounds of humans are expected to occur more than 15 percent but less than 80 percent of the primary use season. Effects from Alternatives 2 and 3 are expected to be less than these described for Alternative 4.

04-03 Sitka Area – Shoals Point LGA

Alternative 4 proposes the largest increase in outfitter/guide allocation with 12,090 service days in the summer season. Up to 50 percent (6,045 service days) could be allocated to LGA use and this is the only proposed LGA within the 04-03 Sitka Area use area. Eagle River Road LGA is managed under a separate NEPA decision (Kruzof Island Outfitter/Guide, April 2015). Assuming conservatively a minimum group size of 22 people (21 + 1 guide), this translates into approximately 275 groups per season (18 groups per week) occuring at this site. Good sea and weather conditions are required to land at Shoals Point. This limits access and, therefore, it is not expected that the full potential of service days that could be used at this LGA would be used. However, given these same access limitations, those days that are accessible are likely to also be used by unguided groups. As a result, more encounters and sights/sounds of humans are expected to occur more than 15 percent but less than 80 percent of the primary use season – a moderate effect. Effects from Alternatives 2 and 3 are expected to be similar.

04-04B Kelp Bay– Middle Arm, Kelp Bay LGA

Alternative 4 proposes the largest increase in outfitter/guide allocation with 10,800 service days in the summer season. Up to 50 percent (5,400 service days) could be allocated to LGA use in this use area. There are two other LGAs (Lake Eva Trail and Hanus Bay) in this use area that would share this allocation. Currently, Lake Eva Trail LGA is used on average 1,630 service days in the summer season; Hanus Bay LGA is used 5 service days in the summer season. There is demand for more outfitter/guide use at Lake Eva Trail and increases in use at this site are expected under all action alternatives. Hanus Bay LGA is expected to continue to be lightly used (on average 5 service days in the summer season). Assuming conservatively that Lake Eva Trail uses half of the available allocation (i.e., 2,700 service days); this would translate into approximately 123 groups per season (about eight groups per week) that could occur at the proposed Middle Arm, Kelp Bay LGA. At this level of use, outfitter/guide groups have the potential to displace other outfitter/guide groups operating nearby on most days of the summer season. Effects are categorized as a major effect, but localized to this site under Alternative 4. Alternative 2 proposes the next highest allocation with 6,630 service days in the summer season. Using the same logic, approximately 1,650 service days would be available for other LGA use (i.e., 75 groups per season, five groups/week) resulting in more encounters more than 15 percent but less than 80 percent of the primary use season--a moderate effect. Alternative 3 proposes the lowest allocation for the action alternatives at 4,975 service days. Accounting for the current level of LGA use at Lake Eva Trail and Hanus Bay only, this leaves about 850 service days available for LGA use at Middle Arm, Kelp Bay (i.e., 39 groups per season; two groups per week). Based on actual use data, more use is likely to occur at Lake Eva Trail, leaving fewer service days available for other LGAs under Alternative 3.

04-13 Peril Strait – False Island Camp and Ushk Bay Head LGAs

Alternative 4 proposes the largest increase in outfitter/guide allocation with 8,235 service days in the summer season. Up to 50 percent (4,117 service days) could be allocated to LGA use in this use area. There are four LGAs in this use area; the two proposed sites and two existing LGAs (Nismeni Point and

Sitkoh Bay Road) that would share this allocation. Currently, Sitkoh Bay Road is used on average 192 service days in the summer season; Nismeni Point LGA has not been used in the summer season. Demand for outfitter/guide use at these sites is expected to be similar to current use levels. That leaves approximately 3,900 service days available for the two proposed sites; which translates into approximately 89 groups per season (about six groups per week). At this level of use, more encounters are expected more than 15 percent but less than 80 percent of the primary use season --a moderate effect. Alternative 2 would have approximately 2,300 service days available for the two new LGAs, which are approximately 52 groups per season (about three groups per week). Alternative 3 would have approximately 1,700 service days available for the two new LGAs, which translates into approximately 39 groups per season (about two groups per week). Effects under Alternatives 2 and 3 are expected to result in more encounters and sights/sounds of humans less than 15 percent of the primary use season – a minor effect.

04-16E Port Althorp – Port Althorp, Salt Chuck and Head of the Bay LGAs

Alternative 4 proposes the largest increase in outfitter/guide allocation with 7,675 service days in the summer season. Up to 50 percent (3,836 service days) could be allocated to LGA use in this use area. There are three LGAs in this use area; the two proposed sites and one existing LGA (George Island) that would share this allocation. Currently, George Island is used on average 844 service days in the summer season. There is demand for more outfitter/guide use at George Island and increases in use at this site are expected under all action alternatives. Assuming that George Island uses half of the available allocation (i.e., 1,900 service days), this would translate into approximately 43 groups per season (about three groups per week) that could occur at the two new LGAs. At this level of use, more encounters are expected less than 15 percent of the primary use season – a minor effect. Effects from Alternatives 2 and 3 are expected to be similar.

In summary, effects under Alternative 4, ranged from major (Middle Arm Kelp Bay), to moderate (Sashin Lake Trail, Shoals Point, False Island Camp, Ushk Bay Head), to minor (Port Althorp, Salt Chuck and Head of the Bay). Effects under Alternative 2, are moderate for Sashin Lake Trail, Shoals Point, and Middle Arm Kelp Bay; the remaining sites are a minor effect under this alternative. Effects under Alternative 3, are moderate for Sashin Lake Trail and Shoals Point; the remaining sites are a minor effect under this alternative.

Cumulative Effects

Cumulative effects result from the incremental effects of actions, when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. The following list of projects (Table 3-22) were considered to have potential cumulative affects to recreation resources and the following discussion describes the anticipated cumulative effects to recreation resources.

Table 3-22. List of projects considered for cumulative effects to recreation resources.

Project or Activity Name	Type	Action	Use Area
Angoon Airport	Adjacent	Future	Outside project area
Angoon Mitchell Bay Ecotourism EA	Adjacent	Future	Outside project area
Bohemia Basin Trail and Recreation Improvements	Trail & Rec Improvements	Past	04-15A
Crooked Creek/Jim's Lake Hydropower Project	Hydropower	Future	04-16E
Cube Cove/Shee Atika Land Acquisition	Land Acquisition	Present	04-10B
Davidson Creek Falls Fish Passage	Fisheries	Past	01-04C
Eight Fathom Rock Pit expansion project	Minerals	Present	04-11A

Fort Babcock/Shoals Point Remediation Project	Remediation	Future	04-03
Hecla Greens Creek Mining Company's 2017-2021 Exploration Project	Minerals	Present	04-10A
Hidden Falls Fish Hatchery permit issuance	Special Uses Permit	Future	04-04B
Kootznoowoo Inc. Land Conveyance Near Kook Lake	Land Conveyance	Future	04-12
Kruzof Island Outfitter/Guide	Adjacent	Past	04-03
Lake Osprey Hydropower Project	Hydropower	Future	04-01B
Marine waterways and airspace activities surrounding NFS lands	Adjacent	Present	Outside project area
Pack Creek Zoological Area Outfitter/Guide Permitting	Adjacent	Past	04-09B
Salmon Lake Trail Reconstruction	Trail & Rec Improvements	Future	04-03
Sealaska Land Conveyance near Redoubt Falls	Land Conveyance	Future	04-02A
Sitka Young Growth thinning project	Vegetation	Future	04-12, 04-13
Sitkoh River Stream Restoration	Restoration	Past	04-13
Sustainable Cabin Management project: cabin removals at Rezanof and Maksoutof Lakes; cabin conversion to shelter at Distin Lake	Trail & Rec Improvements	Past	04-02B, 04-07B
Sweetheart Lake Hydropower Project	Hydropower	Present	01-05B
Temporary Sawmills at False Island and Corner Bay	Vegetation	Past	04-12, 04-13
Tenakee Peril Strait Thinning Project	Vegetation	Future	04-04A, 04-04B, 04-13
Tenakee Springs/Indian River Hydropower Project	Hydropower	Future	04-12
Angoon Hydropower Project	Hydropower	Present	04-10B
Windfall Harbor Shelter Rehabilitation	Trail & Rec Improvements	Past	04-09B

Cumulative Effects Common to All Alternatives

Outfitter/Guide Allocation

The only past, present, or reasonably foreseeable future project that may affect outfitter/guide allocations is the Hidden Falls Fish Hatchery permit reissuance. Concerns have been identified with this project that relate to increased visitor use (both guided and unguided) at this site. It is expected that this project will result in a site-specific visitor management plan for Hidden Falls Fish Hatchery, which may include setting an allocation for outfitter/guide use at this location. The rest of the projects listed are not expected to directly affect the outfitter/guide allocations for the use areas in which the projects are situated. However, these projects may have other effects, which are described in the following sections.

Social Encounters and Remoteness

Trail and Recreation Improvements

Trail improvements are in process at Bohemia Basin (04-15A Lisianski) and Salmon Lake Trail (04-03 Sitka Area), which are expected to improve access to NFS lands for recreation visitors. Windfall Harbor Shelter (04-09B Pack Creek Zoological Area) has been rehabilitated and moved, which will provide an improved overnight stay experience for recreation visitors. These improvements may draw more visitors and as a result, more encounters and sights/sounds of humans would be expected to occur in these areas.

In contrast, two cabins have been removed (Rezanof Lake and Maksoutof Lake, 04-02B Whale Bay) and one cabin (Distin Lake, 04-07B Cross-Admiralty Canoe Route) has been converted to a three-sided shelter. Removal of the cabins are not expected to affect social encounters because these cabins have been off the reservation system for over 25 years and receive little use. However, the removals are

expected to improve the Remoteness setting by eliminating sights of human structures in this area. The Distin Lake shelter is expected to maintain the same use level and is not expected to increase or decrease encounters.

Hydroelectric Projects

There are four projects in process within the analysis area: Sweetheart Lake (01-05B Port Snettisham), Angoon (Thayer Lake; 04-10B NW Admiralty), Tenakee Springs/Indian River (04-12 Tenakee Inlet), and Crooked Creek/Jim's Lake (04-16E Port Althorp). Lake Osprey (04-01B Port Armstrong) is a possible future project. All of these projects involve construction activities that will take place and some level of infrastructure will be situated on NFS lands. During construction, it is expected that sights and sounds of human activity will be increased in the vicinity of these projects. Encounters with other groups are expected to be more frequent throughout project construction and more occasional after construction activities are complete. Long-term effects to the remoteness setting are expected in these areas due to the presence of human structures.

Minerals and Remediation Projects

There is one rock pit expansion project at Eight Fathom (04-11A Port Frederick) that is adjacent to a designated large group area (Eight Fathom Dock Area). Expansion activities will include blasting, processing, and transporting of rock materials from this site. There is a remediation project (contaminant cleanup) in the planning phase at Fort Babcock/Shoals Point on Kruzof Island (04-03 Sitka Area). It is expected that there will be heavy equipment, tree cutting, and ground-disturbing activities occurring, as well as a temporary camp on site for workers. While these projects are underway, more encounters and frequents sights and sounds of humans is expected. At Fort Babcock, long-term effects may include improved access to the WWII historic site due to upgrading of the old road for remediation activities.

Hecla Greens Creek Mining Company has proposed to conduct mineral exploration activities adjacent to their operating Greens Creek Mine to test targets of potential mineralization where past work has identified targets requiring further work to delineate mineral resources. The proposed activity will take place for 5 years with a typical operating season running from May until September, but possibly from March to October when conditions allow. The exploration will take place in areas near the northern Kootznoowoo Wilderness Area boundary. Typical operations would require 1 to 3 hours of daily helicopter use; more-demanding operations would require 3 to 7 hours of daily helicopter use. This traffic may be encountered in use areas 04-08 NE Admiralty, 04-09A Seymour Canal, 04-10A Greens Creek, and 04-10B NW Admiralty and will contribute to more encounters and frequent sights and sounds of humans.

Vegetation Projects

There are several projects within the analysis area that involve timber harvest and thinning activities. Thinning projects are in process at Appleton Cove (04-04A Rodman Bay), Hanus Bay (04-04B Kelp Bay), Corner Bay (04-12 Tenakee Inlet), Kook Lake (04-12 Tenakee Inlet), False Island (04-13 Peril Strait), and Sitkoh Lake (04-13 Peril Strait) [Tenakee Peril Strait and Sitka Young Growth Thinning Projects]. Associated with these projects are permit renewals for two temporary sawmills at False Island and Corner Bay. All of these projects are expected to have increased, but short-term, effects to social encounters and remoteness measures while felling and hauling activities are underway. Longer-term effects are expected in the vicinity of the two sawmills as log sorting, storing, processing, drying, and finishing timber occurs. Outfitter/guides operating in the vicinity of these sites while projects are underway are expected to experience more encounters and increased frequencies of sights/sounds of human.

Fisheries and Stream Restoration Projects

There is one fisheries project in process at Davidson Creek Falls (01-04C), where fish passage improvements were completed. Activities entailed blasting to deepen an existing pool. There were short-term negative effects to the remoteness setting from increased sights and sounds of human activity. Long-term effects to encounters and remoteness setting are expected to be negligible. This is an existing site that was modified; therefore, the recreation experience available before and after project implementation is expected to remain the same. However, this could potentially affect number of encounters if the passage improvement results in greater numbers of fish returns, which could attract more people fishing the stream. These types of effects are unknown at this time.

Sitkoh River Stream Restoration is another project that was recently completed in the project area. This project is expected to enhance fish habitat and increase fish populations, with could also attract more people fishing the river (guided and unguided) and enhance the overall quality of the fishing experience.

Land Conveyances

There is a parcel of NFS land near Kook Lake (04-12 Tenakee Inlet) that is in process of being conveyed to Kootznoowoo Inc., and a parcel of land at Redoubt Falls (04-02A Redoubt Lake) that is in the process of being conveyed to Sealaska Corporation. Currently, outfitter/guide activities are not authorized at Redoubt Falls. The Shoreline II project is proposing outfitter/guide use with prohibited use during the subsistence sockeye season (June 1 to August 31). Outfitter/guide activities outside of this season could be permitted. If this proposal is included in the Record of Decision, there may be permitted outfitter/guides affected by this land conveyance, as well as the parcel near Kook Lake. Existing outfitter/guide permit holders would need to contact the new landowners to obtain permission to conduct outfitter/guide activities on their lands.

Land Acquisitions

In July 2016, the Forest Service signed an agreement with Shee Atika Inc. to acquire its 22,890 acre private inholding on Admiralty Island. The land has some old roads and features. This land will become NFS lands and take on the monument wilderness land use designation. Depending on the course of action taken to reintegrate this area with the monument wilderness, there may be short-term negative effects to the remoteness setting with removal of features (e.g. culverts, roads) or other management activities (weed treatments; stream restorations) to restore greater naturalness to the area. Some recreational use of the Forest Service cabins and lakes already occurs in the area, as does some hunting conducted under permission of Shee Atika Inc. Due to the condition of the land, no increase in use of the area is expected in the foreseeable future.

Adjacent Projects and Activities

An airport is proposed to service the community of Angoon, which will be located outside of the project area on non-NFS lands. This project may result in increased visitor use on NFS lands near Angoon including the 04-05A SW Admiralty and 04-10B NW Admiralty use areas. If this occurs, it is expected that more encounters would occur as well as increased frequency of sights and sounds of humans. These effects are also expected as a result of the Angoon-Mitchell Bay Ecotourism Environmental Assessment, the Kruzof Island Outfitter/Guide decision, and the Pack Creek Zoological Area Outfitter/Guide decision. Each of these projects is providing more opportunities for outfitter/guide services adjacent to the Shoreline II project area.

Activities occurring on marine waterways and in the airspace surrounding NFS lands within the analysis area have the potential to impact recreation experiences. This EIS defines a social encounter as: when a person or group located on NFS lands becomes aware of the presence of another person or group located on or immediately adjacent to NFS lands. National Forest visitors who are recreating adjacent to common travel corridors (water and air) are expected to have more encounters and increased frequencies of sights and sounds of humans.

Popular or High-Value Local Areas

There are nine (of 146 identified) popular or high-value local areas associated with the past, present, and reasonably foreseeable future actions discussed previously. These nine areas are referenced under the alternatives discussions in the Direct and Indirect Effects Summary section, above.

Table 3-23: Popular or high-value local areas associated with past, present, or future projects

Use Area	Popular/High-Value Area
01-05B Port Snettisham	Sweetheart Creek
04-03 Sitka Area	Salmon Lake Trail
04-04A Rodman Bay	Appleton Cove
04-04B Kelp Bay	Hanus Bay
04-11A Port Frederick	Eight Fathom
04-12 Tenakee Inlet	Kook Lake
04-13 Peril Strait	False Island
04-13 Peril Strait	Sitkoh Lake
04-15A Lisianski	Bohemia Basin

The Sweetheart Lake hydroelectric project is expected to maintain adequate habitat conditions for sockeye salmon (FERC, 2016). In addition, while project construction activities are expected to have short-term negative effects on public access to this site, recreation improvements, including hardened access trails to fishing areas, installation of mooring buoys near the mouth of the creek, and public access to the project dock and intertidal ramp are expected to enhance recreation opportunities and may result in increased use (FERC, 2016).

At Salmon Lake Trail (04-03 Sitka Area), it is expected that short-term negative effects will occur during trail reconstruction due to access limitations. However, improvements are expected to have positive effects overall for the recreation resources of this site by improving the hiking experience for the forest visitor.

Thinning projects at Appleton Cove (04-04A Rodman Bay), Hanus Bay (04-04B Kelp Bay), Kook Lake (04-12 Tenakee Inlet), False Island (04-13 Peril Strait), and Sitkoh Lake (04-13 Peril Strait) are expected to have short-term negative effects to recreation visitors in these areas due to chainsaw noise and associated human activity. However, in the long term, these projects are expected to have an overall positive effect on these areas, due to the forest health and habitat improvements that these projects are providing. Forest visitors use these areas for deer hunting, fishing, hiking, and subsistence activities. Outfitter/guides use these areas for brown bear and deer hunting, wildlife viewing, fishing, hiking, and other remote setting nature tour activities. These types of activities are expected to benefit in the long term from these projects.

Activities in the Eight Fathom area (04-11A Port Frederick) include cabin use, camping, hiking, fishing, hunting, water fowling, subsistence use, and gathering forest products. It is expected these activities will have short term effects from rock pit expansion activities, and in the long term it is expected that forest visitors will continue to have recreation opportunities in this area.

At Bohemia Basin (04-15A Lisianski), common activities include shelter use, camping, hiking, day use picnicking, fishing, hunting, sightseeing, subsistence use, and gathering forest products. Trail improvements are expected to enhance the ability for guided and unoutfitted/unguided visitors to participate in these activities. The overall effect of this project is expected to be positive for this high-value area.

Cumulative Effects Common to Action Alternatives

Big Game Management

For the projects described previously, there may be short-term negative effects to big game guide activities from increased sights and sounds of humans during project implementation. If these projects take place during hunting seasons, the effects may result in reduced opportunities for a successful hunt in the vicinity of project activities. In the long term, overall positive effects are expected from the vegetation projects (improved forest health and habitat), recreation improvements (improved access to NFS lands), and fish passage improvements (food supply for certain big game species). Any of the development projects are expected to have a negative effect at a local level over the long term due to reduced forest habitat at those sites (e.g., hydropower development) and reduced opportunity for hunting in the those locations. The adjacent outfitter/guide allocation decisions are expected to result in more visitor services offerings in those areas, which are expected to result in more sights and sounds of humans. The Kruzof Island Outfitter/Guide decision prohibits outfitter/guide use of the Eagle River Road LGA from May 21 to May 31, which is a common time period for guided brown bear hunting activities in that area. This should minimize encounters with other outfitter/guide operators during that timeframe.

Adaptive Management

Adaptive management strategy provides a process for increasing or decreasing the outfitter/guide allocation of the selected alternative. When considered in combination with the other past, present, and reasonably foreseeable future projects, effects to outfitter/guide activities and allocation are expected to be the same as those previously discussed. See Appendix D.

Large Group Areas

There is one rock pit expansion project at Eight Fathom (04-11A Port Frederick) adjacent to a designated large group area (Eight Fathom Dock). There is a remediation project (contaminant cleanup) in the planning phase at Fort Babcock/Shoals Point on Kruzof Island (04-03 Sitka Area). While these projects are underway, more encounters and frequents sights and sounds of humans are expected at these LGA sites. At Shoals Point, long-term effects may include improved access to the WWII historic site due to upgrading of the old road for remediation activities.

There are four LGAs (Hanus Bay (04-04B Kelp Bay), Corner Bay Road (04-12 Tenakee Inlet), False Island Camp (04-13 Peril Strait), and Sitkoh Bay Road (04-13 Peril Strait)) likely to be affected by timber harvest and thinning activities, and permit renewals for temporary sawmills at False Island and Corner Bay. Short-term negative effects are expected while falling and hauling activities are underway. Longer-term effects are expected in the vicinity of the sawmills as log sorting, storing, processing, drying, and finishing timber occurs. Outfitter/guides operating at LGAs in the vicinity of these sites while projects are underway are expected to experience more encounters and increased frequencies of sights/sounds of human presence.

Summary of Cumulative Effects

In summary, all of the projects analyzed for cumulative effects involve site-specific activities. Individually, there are short-term negative effects expected during project implementation at all of the project sites. These include increased encounters and higher frequencies of sights and sounds of human activity (e.g., chainsaw noise from thinning projects). In the long term, some projects are expected to have overall positive effects. For example, cabin removals are expected to improve the remoteness setting by reducing sights of human structures in the project area. And some projects are expected to draw more visitors due to improved facilities and increased outfitter/guide allocations (e.g., trail and recreation facility improvements, outfitter/guide allocation projects adjacent to the project area such as

Pack Creek Zoological Area decision, Kruzof Island Outfitter/Guide decision, the and Angoon-Mitchell Bay Ecotourism Environmental Assessment) resulting in more encounters and sights/sounds of humans over the long term., which include trail and recreation facility improvements, airport services, as well as other outfitter/guide allocation projects adjacent to the project area (i.e., Pack Creek Zoological Area decision, Kruzof Island Outfitter/Guide decision, the and Angoon-Mitchell Bay Outfitter and Guide Environmental Assessment). These projects are expected to draw more visitors due to the improved facilities and more outfitter/guide use, resulting in increased encounters and sights/sounds of humans

For popular or high-value local areas, no cumulative effects to the recreation resources are anticipated at Sweetheart Creek (01-05B Port Snettisham) and Eight Fathom (04-11A Port Frederick). Overall positive cumulative effects are expected at Salmon Lake Trail (04-03 Sitka Area), Appleton Cove (04-04A Rodman Bay), Hanus Bay (04-04B Kelp Bay), Kook Lake (04-12 Tenakee Inlet), False Island (04-13 Peril Strait), Sitkoh Lake (04-13 Peril Strait), and Bohemia Basin (04-15A Lisianski). Projects at these sites are expected to improve the hiking experience for forest visitors or provide long-term forest health and habitat benefits that translate into more availability of resources enjoyed by forest visitors.

Heritage

Introduction

Heritage resources on the Tongass National Forest include a diverse array of prehistoric and historical sites and are evidence of at least 10,000 years of human occupation and use. Although the exact date of Tlingit occupation is not known, oral histories and ethnographic accounts indicate that the Tlingit have occupied Southeast Alaska for centuries and were expanding their occupation northward at the time of European contact. The Shoreline II Outfitter/Guide EIS analysis area encompasses the north half of the Tongass National Forest, and crosses the traditional boundaries of several Tlingit groups, called "Kwans". The analysis area falls into the traditional territory of the following Tlingit Kwans (listed geographically from south to north): Kake, Sitka, Angoon, Taku, Auk, Hoonah, Chilkoot, and Chilkat. These groups have left their mark on the land evidenced by a variety of sites: villages, seasonal campsites, rock art, sacred and religious areas, and subsistence places.

Regulatory Framework

Below is a partial list of Federal laws, guidelines, regulations and executive orders pertaining to cultural resource management on Federal and State lands. These apply to federally funded projects or those that take place on Federal lands. Some of the laws are specific to Alaska.

- Antiquities Act of 1906
- National Historic Preservation Act of 1966 (as amended)
- National Environmental Policy Act (NEPA) of 1969 (as amended)
- Alaska Historic Preservation Act (1970)
- Executive Order 11593 (1971-Cultural Resources)
- Alaska Native Claims Settlement Act (ANCSA) of 1971
- American Indian Religious Freedom Act of 1978
- Archeological Resource Protection Act of 1979
- Alaska National Interest Lands Conservation Act (ANILCA) of 1980
- Abandoned Shipwreck Act of 1988
- Federal Cave Resource Protection Act of 1988
- Native American Graves Protection and Repatriation Act (NAGPRA) of 1990
- Executive Order 13007 (1996-American Indian Sacred Sites)
- Executive Order 13084 (1998-Consultation And Coordination With Tribal Governments)
- Executive Order 13175 (2000-Government-To-Government Consultation)

Forest Plan Standards and Guidelines for Heritage Resources and Sacred Sites Forest-wide include:

- Heritage Resource Activities: HSS1 (Forest Plan pg. 4-16 to 4-18)
- Sacred Sites Protection Activities: HSS2 (Forest Plan p. 4-19)

The National Historic Preservation Act and Section 106

36 CFR Part 800 Regulations implementing Section 106 of the National Historic Preservation Act (NHPA), amended May 18, 1999, require Federal agencies to take into account the effects of their undertakings on historic properties, in consultation with other interested parties. The process involves identifying the area of potential effect (APE), identifying the cultural resources within the APE and evaluating them for eligibility for inclusion on the National Register of Historic Places. Historic properties are defined as those archaeological sites, including any prehistoric or historic district, site,

building, structure, or objects, that meet the eligibility criteria for inclusion on, or are listed on, the National Register of Historic Places.

The National Register is the nation's inventory of significant historic places. The Criteria for Evaluation (36 CFR 60.4) are written to recognize the wide variety of historic properties associated with our nation's history and prehistory (USDI, National Park Service 1997). The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- That are associated with events that have made a significant contribution to the broad patterns of our history; or
- That are associated with the lives of persons significant in our past; or
- That embody the distinctive charasteristics of a type, period, or method of construction, or that represent the work of a master, or that possess hight artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- That have yielded or may be likely to yield, information important in prehistory or history.

Throughout the analysis, there is on-going consultation with federally recognized tribes, ANCSA corporations, certified local governments and other interested parties. The Alaska State Historic Preservation Officer (SHPO) provides oversight and comments on the agency's compliance with Section 106 of the National Historic Preservation Act.

After the historic properties within the APE have been identified, the next step is to assess the potential effects to the historic properties. This determination can be one of three findings: no historic properties affected, no adverse effect, or adverse effect. A finding of no historic properties affected can be made if no historic properties are present within the area of potential effect or if they can be avoided. If historic properties are identified within the area of potential effect and will be affected, the effect can be determined to be adverse or not adverse.

If historic properties are present and will be affected, but the effects will not diminish the characteristics that make them significant and will not result in a loss of integrity of the site, the determination would be no adverse effect.

If historic properties are present and will be affected and the effects will diminish the characteristics that make them significant and will result in a loss of integrity of the site, the determination would be an adverse effect. Some examples of how sites are adversely affected are listed below.

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of Interior's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features.

Heritage Program management procedures on Forests in the Alaska Region have been streamlined for efficiency in the "*Third Programmatic Agreement Among The USDA Forest Service, Alaska Region, The*

*Advisory Council On Historic Preservation, and the Alaska State Historic Preservation Officer Regarding Heritage Program Management on National Forests in the State of Alas*ka."

Tribal Consultation

Between 2012 and 2015, the Forest Service sent project scoping letters to all the federally recognized tribes and the native corporations within the project area. Additionally, formal government-to-government consultation with a subset of these tribes occurred during this period, at scheduled meetings or at regularly scheduled council meetings. Often the District Ranger participated in the consultation, as they have been delegated the authority to represent the Forest Supervisor for this project.

Chapter 1 contains a brief discussion of tribal consultation for this EIS. A complete list of tribal consultation is available in the project record.

Affected Environment

Ethnographic Overview and Traditional Territories

An overview of Tlingit social organization is helpful in order to understand land use patterns and consultation responsibilities. The following discussion is summarized from several sources including Goldschmidt and Haas (1998), Emmons (1991), and DeLaguna (1990).

When Europeans arrived, they found that the Tlingit nation occupied most of Southeast Alaska from Prince of Wales Island to Yakutat. "Nation" in this sense is defined as a people with common language, customs, traditions and religious beliefs that set them apart from their neighbors. Within the nation are named territories that have defined geographical limits, and contain one or more permanent winter villages.

In 1946 Walter Goldschmidt, Theodore Haas, and Joe Kahklen conducted an investigation of traditional Tlingit land and water use patterns. From this study they identified seven traditional territories that are within this analysis area. More-complete descriptions are found in Goldschmidt & Haas (1998:27-179), Table 3-24 presents an overview of these territories, as does the map in Figure 1. For simplicity, large bodies of water describe territorial boundaries in the following table. Although the Tlingit recognized the nation and the territory, no political structure or leadership existed at that level.

Table 3-24: General extent of Tlingit territories in the analysis area

Territory	General Vicinity
Angoon	Central Chatham Strait: the western and southern portions of Admiralty Island and eastern Chichagof Island
Auk	Berners Bay, Lynn Canal, and Seymour Canal. Also, portions of the mainland, Douglas Island, and Admiralty Island
Chilkat and Chilkoot	East and west sides of the north end of Lynn Canal. Territory extends into the interior.
Hoonah	Primarily the north end of Chichagof Island and the adjacent mainland: Glacier Bay, Cross Sound, Icy Strait, Port Frederick, and the outer coast to Cape Fairweather
Kake	South end of Chatham Strait, Frederick Sound, and Keku Strait: western Kupreanof, northern Kuiu, southeastern Admiralty, and southeastern Baranof islands
Sitka	Pacific coast of Chichagof and Baranof Islands and up Peril Strait to Hoonah Sound
Taku	Stephens Passage: primarily the mainland but also some of Admiralty Island and the south end of Douglas Island

Previous Heritage Resource Investigations

Heritage Resource investigations have been conducted in the analysis area since 1975. Most have been inventories in compliance with the Section 106 of the National Historic Preservation Act. Table 3-25 presents a summary of these investigations; number of surveys, miles surveyed, and the number of sites identified, in each of the use areas prior to 2004. These investigations have examined roughly 725 miles of shoreline, including 28 of the large group areas, and identified 415 sites. Since 2004 most surveys have been small in scale and limited to a discrete project area, for example, a proposed campground, free use timber allocation, a Forest Service recreation cabin or trail, or a special-use authorization. Few large-scale timber sales or other large-scale projects have been completed within the APE within the last 10 years; notable exceptions are inventories of historic districts including the Berners Bay Historic Mining District and the Annex Creek Hydroelectric Historic District.

The Heritage Resource Sensitivity Zone Model, developed from over 35 years of investigations on the Tongass National Forest, informs our investigations. The *Third Amended Programmatic Agreement among the USDA Forest Service, Alaska Region, the Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Officer Regarding Heritage Program Management on National Forests in the State of Alaska* articulates the model that is used. Two sensitivity zones have been developed to determine the likelihood of the presence of historic properties; these are high and low.

High-sensitivity zones are those areas as defined below:

- All land between lower low water and 100 feet in elevation above mean high water, with no consideration of slope.
- Areas of former lode and placer mining activity.
- River valleys, lake and river systems providing passes or portages across larger landmasses.
- Lakes and stream systems containing, or known to have contained, anadromous fish runs, including a focus on barrier falls locations in such systems.
- Elevated/fossil marine, river, and lake terrace systems
- Cave and rock shelters, areas of karst landforms and rock formations known for caves and rock shelters.
- Areas associated with myths and legends such as traditional cultural properties or cultural landscapes.
- Known sources of potential raw materials (obsidian sources, exceptional concentrations of cedar trees, etc.)
- Alpine areas if ethnographic or historic evidence or previous surveys conducted nearby indicate cultural use, such as high elevation mountain peaks overlooking saltwater that may contain rock cairns.
- Other areas identified through historical, ethnographic or oral history research and information sources

The low-sensitivity zone is all land not relegated to the high-sensitivity zone.

Since the analysis focuses on shoreline activities, much of the 5,300 miles of the analysis area is in the high-sensitivity zone. However, not all of the shoreline is considered high sensitivity; the suitability for past human use, and in fact recreation, varies according to many other factors such as anchorage, recreational opportunities, exposure, availability of fresh water and other resources, as well as slope.

This analysis is primarily built upon work done prior to and includes the work done in 1999 – 2003 in support of the Shoreline Outfitter/Guide EIS (USDA 2004). At that time, inventories were conducted at

most of the large group areas, rather than across the entire analysis area, as it was believed that these areas would receive the most intense use and potential for effects to historic properties. The project description, the size of the analysis area, the concentrated use within the large group areas, the types of outfitter/guide activities permitted, outfitter/guide group size, permit stipulations, the scope of the EIS, and the Heritage Resource Sensitivity Zone model guided the decision then to examine the large group areas in detail.

In the 2004 Record of Decision, the Forest Service stipulated that each large group area would be monitored at least once over the life of the decision (5 to 7 years). Additionally, the Forest Service stipulated that field observations at four of the large group areas (North Windham, George Island, Todd Road and Sand Bay) would be conducted annually.

The monitoring did not occur and the large group areas were rarely revisited following the Record of Decision. Therefore, when the Shoreline Outfitter/Guide II project was initiated in 2012, the Juneau/Admiralty archaeologists returned to many of the large group areas on the Juneau Ranger District, with the exception of Point Anmer and Mallard Cove. Cursory surveys in wilderness areas (that have no large group areas) on Admiralty and Juneau Ranger Districts were conducted. Additionally, they visited areas within the Juneau Ranger District that showed high outfitter/guide actual use according to the outfitter/guide database, the database which tracks actual service days used as reported by commercial operators. Areas that were visited as high use included Slocum Inlet, Tracy Arm, and Greens Creek.

On the Hoonah and Sitka Ranger Districts, the archaeologist took a different approach. In 2012, he monitored areas that had high outfitter/guide actual use, based on the actual use database, within a mile of known and documented archaeological or historic sites. He designed this monitoring effort in order to assess the effects of commercial tourism on archaeological and historic sites.

The numerous archaeological surveys within the project area, beginning in the 1970s, have resulted in the location and documentation of 721 archaeological or historic sites on National Forest System lands on the Alaska Heritage Resource Survey (AHRS), within the APE. Of those sites, the majority are unevaluated and have not been determined either eligible or ineligible for the National Register of Historic Places. Sites that have not formally been determined eligible are treated as eligible, until determined not eligible for inclusion on the National Register of Historic Places. Table 3-25 presents a summary of these investigations; number of surveys completed prior to 2004, and the number of sites documented in each of the use areas in 2004 and from 2004 to 2015. These investigations examined an estimated 718 miles of shoreline, including 40 of the large group areas. Twenty-four sites are within large group areas. Additionally, four sites are in the immediate vicinity (within 500 feet) of the large group area but outside the plotted polygon.

The number of surveys and miles surveyed in the following table is based on the analysis completed in 2004, while the number of sites is higher due to those recorded at the time of the current analysis (2015). This more-accurately reflects the current inventory of sites recorded on the National Forest System (NFS) within the project area. The increased number of sites in 2015 reflect those recently documented, or sites that are wholly or partially on NFS lands but also potentially partially on lands or within a historic district partially managed by other agencies (i.e. National Park Service). In some cases, there is an increase or decrease in numbers of sites within a use area because the land status is not clear. An example of this would be petroglyph sites that can be in the intertidal zone on either State lands, if below mean high tide, or on NFS lands if in the uplands. In some cases, the number of sites has decreased due to lands being conveyed out of Federal management to the State, ANCSA corporations, or as a final adjudication of Native allotments. Another reason for site numbers to vary from those reported in 2004 is that use areas have been subdivided in some cases for this analysis. In the 2004 Shoreline Outfitter/Guide FEIS and ROD there were 37 use areas, and for this EIS there are 48 use areas.

Table 3-25: Heritage resource investigations in the analysis area

Use Area	Number of Surveys Prior to 2004	Miles Surveyed (2004)	Number of Sites Documented Prior to 2004	Number of Sites Documented (2015)
01-01, Skagway Area	5	2.00	5	10
01-02, Haines Area	2	2.00	0	0
01-03, East Chikats	9	15.00	13	13
01-04A, Berners Bay	11	29.00	6	56
01-04B, North Juneau Coast	3	4.00	13	20
01-04C, Taku Inlet	5	1.00	4	27
01-04D, Slocum Inlet	1	5.00	0	2
01-04E, Juneau (not proposed use area)	-	-	-	3
01-05A, Taku Harbor	2	0.50	1	4
01-05B, Port Snettisham	1	0.25	2	13
01-05C, Windham Bay	30	52.00	14	26
01-05D, Tracy Arm	16	4.50	4	0
01-05E, Fords Terror	-	-	-	-
01-05F, Endicott Arm	-	-	-	8
04-01A, Gut Bay, Baranof	8	3.50	3	7
04-01B, Port Armstrong	78	28.00	6	12
04-01C, Nelson Bay	-	-	-	-
04-02A, Redoubt Lake	9	2.50	8	5
04-02B, Whale Bay	22	4.00	15	22
04-02C, Necker Islands	-	-	-	9
04-02D, SW Baranof	-	-	-	2
04-03, Sitka Area	76	76.50	53	75
04-04A, Rodman Bay	17	41.50	8	6
04-04B, Kelp Bay	28	73.50	16	24
04-04C, Baranof Warm Springs	1	0.50	1	0
04-05A, SE Admiralty	35	14.00	23	46
04-06A, Pybus Bay	14	8.50	8	11
04-06B, Eliza Harbor	17	6.00	8	10
04-07A, Gambier Bay	38	16.00	18	19
04-07B, Cross Admiralty Canoe Route	-	-	-	18
04-08, NE Admiralty	13	10.50	5	12
04-09A, Seymour Canal	16	10.50	6	9
04-09B, Pack Creek Zoological Area	-	-	-	5
04-10A, Greens Creek	2	3.00	4	4
04-10B, NW Admiralty	4	2.50	3	10
04-11A, Port Frederick	41	63.50	36	22
04-11B, Freshwater Bay	-	-	-	37
04-12, Tenakee Inlet	49	129.00	55	41
04-13, Peril Strait	80	72.50	36	52

Use Area	Number of Surveys Prior to 2004	Miles Surveyed (2004)	Number of Sites Documented Prior to 2004	Number of Sites Documented (2015)
04-14, Slocum Arm	26	5.50	10	21
04-15, A, B, C and D (see below)	61	19.00	22	-
04-15A, Lisianski	-	-	-	8
04-15B, West Yakobi Island	-	-	-	7
04-15C, Stag Bay	-	-	-	-
04-15D, Portlock Harbor	-	-	-	28
04-16A, Point Adolphus	8	5.00	0	-
04-16B, North Chichagof	6	2.50	4	5
04-16C, Idaho Inlet	8	2.00	3	3
04-16D, PLI Wilderness	8	3.00	2	2
04-16E, Port Althorp	-	-	-	7
Totals	**750**	**718.25**	**415**	**721**

Rows with no values indicate the use area was subdivided for the 2015 analysis, therefore has a number of sites documented, but not the number of miles of survey or the number of surveys; in the 2004 analysis it was part of the larger use area. Alternatively, if a use area has no values across the entire row, there have been no surveys or sites documented in the use area.

Summary

Over 750 surveys of varying size and intensity have been completed within the project area. A total of 721 sites have been documented and over 718 miles of shoreline have been inventoried for the presence of historic resources.

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to consider the effects to historic properties as a result of its undertakings. Issuing special use permits for outfitter/guide use has the potential to effect historic properties throughout the area of potential effect. The most concentrated use is anticipated to be within the large group areas. Table 3-26 lists the large group areas with sites and historic properties. Nineteen LGAs have one or more sites within their boundaries, with a total of twenty-four boundaries. Twenty-four sites are located within LGAs. Table 3-26 also shows the six large group areas that have one or more historic properties (eligible sites) within their boundaries and need to have a Historic Properties Management Plan (Management Plan) that clearly articulates how the Forest will avoid or minimize effects to these historic properties prior to issuing or re-issuing special use permits for authorizations for outfitter/guide use within these LGAs.

We consulted *Haa Léelk'w Hás AaníSaax'ú Our Grandparents' Names on the Land* and found that fourteen of the LGAs have one or more native place names that have been documented. In some cases, more than one *Kwáan* has a name listed; in those cases, we provided both names (Table 3-26).

Seventeen sites within large group areas have not yet been evaluated for eligibility and are therefore managed as eligible, per the Forest Plan. Those sites need completed determinations of eligibility to ensure that they are, in fact, historic properties (eligible) and need to be managed as such. If determined eligible, a management plan to ensure the protection of these sites needs to be completed to avoid or minimize effects to these historic properties prior to issuing or re-issuing special use permits for outfitter/guide use within these LGAs. If the sites are determined not eligible then the agency has no further responsibilities to protect the site. This information is shown in Table 3-26 below:

Table 3-26: LGAs that have Identified Sites and/or Native Place Names (within the LGA as discernible)

Large Group Area	AHRS Sites Present to be evaluated or Interpreted	Management Plan Needed	Native Place Name (Thorton, 2012)
Katzehin Falls	SKG-566 - Unevaluated	If Determined Eligible	
Sullivan Mountain			*Yaana.eit Xágu* (*Jilkáat and Jilkoot Kwáan)*
North Windham	[1]SUM-022 - Eligible	Yes	S'iknaxsáani (*Kéex' Kwáan, Kooyú Kwáan and S'awdáan Kwáan*)
Sand Bay	SUM-040 - Unevaluated SUM-041- Unevaluated SUM-123 - Unevaluated	If Determined Eligible	
Sashin Lake Trail	XPA-350 - Unevaluated XPA-297 - Unevaluated	If Determined Eligible	
Shoals Point	SIT - 457 - Eligible	Yes	
Lake Eva Trail	[2]SIT-778 – Unevaluated	If Determined Eligible	*Gáchkw Yayuwaa Gatheéeni* (*Sheet'ká Kwáan*) *Gáchgu Héen* (*Xutsnoowú Kwáan*)
Point Elizabeth			*Dadzi X'aaui* (*Sheet'ká Kwáan*)
Rodman Bay	[2]SIT-778 – Unevaluated	If Determined Eligible	
Middle Arm, Kelp Bay			*Tsisk'u Sáani* (*Xutsnoowú Kwáan*) *Yéikheen.áa* (*Xutsnoowú Kwáan*)
Cordwood Creek	JUN-917 - Unevaluated	If Determined Eligible	
Fowler Creek	JUN-918 - Unevaluated	If Determined Eligible	*Weineidei Aan (Weineideiyan*) (*Áak'w Kwáan*)
Iyoukeen Peninsula	SIT-675 - Unevaluated	If Determined Eligible	*Aawateeni Héen* (*Xunaa Káawu*)
Kennel Creek	SIT-092 - Unevaluated	If Determined Eligible	
Neka Bay South Bight	JUN-612 - Eligible JUN-914 - Unevaluated	Yes	
Neka Bay North Bight			*Neeká (Xunaa Káawu*)
Red Cliff Island	SIT-643 - Unevaluated	If Determined Eligible	
Corner Bay Road	SIT-122 - Eligible	Yes	
False Island Camp	SIT-351 - Eligible SIT-121 - Eligible	Yes	
Nismeni Point			*Kaa Ts'akool Noowk'* (*Sheet'ká Kwáan*)
Sitkoh Bay Road	SIT-514 - Unevaluated	If Determined Eligible	*Ataheen* (*Sheet'ká Kwáan, Xutsnoowú Kwáan)* *L'ukhéenak'u* (*Xutsnoowú Kwáan)*
Ushk Bay Head	SIT-495 - Unevaluated	If Determined Eligible	*Áshgu Tlein Aan* (*Sheet'ká Kwáan*) *Ata'x aan hitx'I áa yéi téeyin* (*Sheet'ká Kwáan*)
Three Hill Island	XMF-073 - Unevaluated XMF-074 - Unevaluated	If Determined Eligible	*L'ilguk –Kanax Aan Gashu* (*Sheet'ká Kwáan*)
Pinta Cove			*Tsaa X'aayi* (*Xunaa Káawu*)
George Island	XMF-043 - Eligible	Yes	*Kooshnáax'i* (*Xunaa Káawu*) *Wéinaa Té* (*Xunaa Káawu*)

[1] SUM 022 was determined not eligible in 1986 (Davis), however the eligibility status needs to be revisited, in light of the age of the determination and the discovery of a prehistoric component. The Forest Service recommends the site as eligible and when the SHPO concurs, a management plan must be developed before permits are issued.

[2] Site is a linear feature that starts within one UA and LGA and continues into another LGA

Environmental Consequences

Direct and Indirect Effects

Area of Potential Effect

The area of potential effect (APE), as defined in Section 106 of the National Historic Preservation Act, is the geographic area or areas in which an undertaking that may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. For this project, the APE includes areas used by non-motorized outfitters and guides that originate from the marine shoreline. The project area generally extends ½ mile inland from the shoreline encompassing the national monument and three ranger districts. The project areas extends further inland where specific outfitter and guide activities and locations are accessed from the shoreline. Additionally, the Cross Admiralty Canoe Route, extending from east to west across the center of Admiralty Island is included in this analysis.

The project area is almost entirely within the high-sensitivity zone for the presence of archaeological and historical resources. Several factors concerning outfitter/guide activities are important due to the implications they have on potential impacts to heritage resources: group size, activity type and duration of visit.

Group Size

The 2016 Forest Plan ROS classes recognize three sizes of commercial recreation groups: 1) small - up to 12 people (including guides); 2) up to 20 people (including guides); and 3) 21-75 people (including guides). Generally the larger the group size, the higher the potential for impacts to historic properties. However, small group sizes can also affect historic resources if they are repetitive or of longer duration, such as a small group camping on a site for multiple days might have a larger impact than a large group walking in an area for an hour once a week. In this EIS, large groups are defined as 21–75 people and large group areas are specific areas where groups of 21–75 people may be allowed.

Recreational Activities

Outfitter/guide activities included in this analysis include hiking, sightseeing, freshwater fishing, bird watching, photography, and camping. With the exception of big game hunting and some sport fishing, outfitter/guide use is generally non-consumptive. The types of outfitter/guide activities under consideration have less potential to disturb heritage sites than other types of ground-disturbing activities due to the nature of these activities, the short period spent in any one place, and the use of “Leave No Trace” practices. The principles of “Leave No Trace” are designed to minimize impacts to the environment, including heritage resources.

An analysis of potential effects of outfitters and guide activities to historic properties has only been conducted on a limited basis. The actual effects and potential effects of outfitters and guides must be determined with selective annual inventory and monitoring of previous and proposed outfitter and guide actual use locations.

Permit Stipulations

Outfitter/guides must obtain a special use permit that authorizes use in specific use areas and takes into account effects to different resources. Authorized officers can disallow use of an area based on resource concerns including the presence of historic properties. Each special use permit includes the Archaeological-Paleontological Discoveries (R10-X106) clause to protect heritage resources. The stipulation language states:

> Items of historic, prehistoric, or paleontological value are protected under various Federal laws, including the Antiquities Act of 1906 (16 U.S.C. 433), the Archaeological Resource Protection Act of 1979 (16 U.S.C. 47033) as amended, and Federal regulations. If historic, prehistoric, or paleontological objects or sites are discovered during activities under this permit, the holder is responsible for assuring that those objects or sites are not disturbed during the course of the activities of the holder or the holder's clients. The holder must notify the Forest Service of such discovery at the earliest opportunity. Failure to comply with this clause may result in criminal prosecution of the holder for violation of a Federal law or regulation.

If outfitters or guides are found to be deliberately vandalizing or destroying historic properties or looting sites they could be subject to criminal and civil penalties as allowed under the Archaeological Resource Protection Act as well as potentially having their permits revoked.

Large Group Areas

Forest records indicate that most outfitter/guide groups on the Forest consist of less than six people; however, more mid-sized cruise ships are anticipated to operate in the analysis area and that group size will increase. To accommodate this increase, specific areas, defined as large group areas, were selected for use. There are 40 large group areas under consideration in this analysis. The large group areas allow up to 75 people at one time, including both the “15 percent areas” and “Enclaves” included in the 2004 Shoreline Outfitter/Guide EIS. The following proposed large group area additions supplement those analyzed in 2004 Shoreline Outfitter/Guide EIS and are common to all action alternatives:

- 04-01B - Sashin Lake Trail
- 04-03 - Shoals Point
- 04-04B - Middle Arm, Kelp Bay
- 04-13 - False Island Camp
- 04-13 - Ushk Bay Head
- 04-16E - Port Althorp - Salt Chuck
- 04-16E – Port Althrop – Head of Bay

Additionally, two large group use areas identified in the 2004 Shoreline Outfitter/Guide EIS have been proposed for removal and are not considered in this analysis, under all the action alternatives, as large group areas:

- 04-15 - Bohemia Basin
- 04-03 - Eagle River Road (included in the Kruzof Island Outfitter/Guide DN/FONSI)

One other large group area, the Iyoukeen Peninsula large group area (within 04-11B) has been proposed to be modified by expanding the boundaries.

Types of Activities Permitted and Potential for Effect

Outfitter/guide camping has the highest probability of ground disturbance due to the length of stay and activities that may occur under a permit for this kind of activity. For example, campers occupying or frequenting a location where a significant cultural resource is located can potentially disturb the existing ground cover exposing the resource, leaving it open to the effects of erosion, weathering, and later looting or displacement of components.

Guided fishing occurs within areas that are defined as within the High Sensitivity Zone for the presence of historic sites. Lakes and stream systems containing, or known to have contained, anadromous fish

runs, and barrier falls locations in such systems, are high sensitivity. Walking along streams and along stream banks can lead to bank erosion resulting in the displacement of archaeological material.

Nature walking, bird watching, hiking and photography have less potential to affect historic properties when done in small (as defined above) groups and in dispersed places. However, when done repeatly in the same location and in large groups these can result in user-created trails leading to trampling, erosion and exposure or degradation of significant cultural features.

Guided hunting has little potential to affect historic properties. Hunting is done in small groups and over a dispersed area, and, therefore, has less potential to affect historic properties.

Sightseeing and marine shoreline hiking are activities that have potential to affect historic properties when done in small groups and in remote locations. When the "sights" are historic debris and artifacts scattered on the surface they are attractive for people to pick up, displace or even collect. This type of collection and disturbance at historic sites is targeted for monitoring at known historic sites, especially in large group areas.

Effects Common to all Alternatives

For all of the alternatives, the potential effects to known historic properties are difficult to determine because the effects analysis of outfitter/guide use on historic properties has been completed on a limited basis. The actual effects and potential effects of future permitted outfitters and guides must be evaluated with monitoring of outfitter and guide actual use. Overall, camping seems to have the highest potential for direct effect to historic properties sites through campfires, ground disturbance and displacement of artifacts. Large groups, or small groups returning to the same locations frequently, could have an effect if the groups create trails, leading to erosion and exposure or degradation of historic properties sites. Historic sites with above-ground features are at risk from unguided users as they present attractive places to pick up and examine, and even possibly collect, historic artifacts that are scattered on the surface.

Actual use that is the metric used to predict effects; the higher the use numbers, the higher the potential for effects. For example, fewer service days are allocated to outfitter/guide use in Wilderness Areas under all of the alternatives and Wilderness has no large group areas, therefore, the effect to historic properties is anticipated to be minimal. In fact, Wilderness designation focuses commercial uses into areas adjacent to but not in the Wilderness. There are some use areas that will see increases in allocated service days these are the areas that are anticipated to potentially result in effects, to historic properties.

The large group areas typically have higher actual use numbers and, therefore, the potential to affect historic properties disproportionately. Six large group areas are identified with seven historic properties within the boundary of the LGA. For these LGAs, we would develop a Historic Properties Management Plan that clearly articulates the manner in which the Forest will avoid or minimize effects to these historic properties prior to issuing or reissuing special use permits for outfitter/guided use within these LGAs. Each management plan will be developed on a case-by-case basis depending on the resource. In some cases, the sites are historic and in some cases even pre-date the historic era, which could indicate procedures such as avoidance, data recovery (excavation), or interpretive identification. The management plan developed could incorporate a range of mitigation measures, including interpretation, consultation, trail hardening, avoidance, boundary adjustment, data recovery or other protective measures.

Twenty-four sites are located within 19 large group areas. The LGAs have 17 unevaluated sites that are managed as eligible, until determined not eligible. The determinations of eligibility need to be completed to ensure that they are, in fact, historic properties (eligible) and need to be managed as such. If determined eligible, a management plan to ensure the protection of these sites needs to be completed to avoid, minimize or avoid effects to these historic properties prior to issuing or reissuing special use authorizations for outfitter/guide use within these LGAs. If the sites are determined not eligible then the Forest has no further responsibilities. Refer to Table 3-26.

Alternative 1 - No Action

The No-action Alternative considered for this analysis is the 2004 Shoreline Outfitter/Guide EIS Record of Decision (ROD). Under this alternative, allocation would remain the same as the 2004 levels.

The No-Action Alternative would continue the existing management of the outfitter guide special uses program and allocate up to 47,449 service days for commercial use. Under this alternative, there would be no winter season, as that was not part of the 2004 Shoreline Outfitter/Guide EIS ROD. The additional large group areas would not be added to the inventory of large group areas and there would be 35 LGAs, as currently described in the 2004 Shoreline Outfitter/Guide EIS.

The No-action Alternative would still have the potential to affect historic properties, known or yet unknown. This alternative has the least potential to affect historic properties overall as the total number of service days for the project area is the least overall. This alternative has the lowest number (or an equally low number in two cases) of allocated service days in 19 of the 48 UAs. In the remaining 29 UAs the service days allocated, and thus the potential effects to historic properties, is higher. Based on numbers of service days only, this alternative will have the least potential to affect historic properties in 19 of the UAs. In six of the UAs, it presents the highest potential to affect historic properties (see Table 3-27).

Between 2010 and 2014, on average only 34 percent of the total service days allocated were used. If all the service days allowed under the No-action Alternative were used there would be a 197 percent increase in use compared to the current average annual total actual use. In 40 of the UAs, demand has not reached the 2004 total allocation. In five of the UAs there has been an excess of actual use reported in at least one season's use: UA 04-02A (Redoubt Lake), UA 04-04B (Kelp Bay), UA04-16C (Idaho Inlet), UA 04-16E (Port Althorp) and UA 1-05D (Tracy Arm).

Alternative 2 – Proposed Action

The Forest Service is proposing to allocate up to 80,305 service days of the estimated total visitor capacity of 636,448 service days within the project area to outfitter/ guide use. These allocations are proposed by season and UA. Each allocation was based on factors such as historical outfitter/guide use, subsistence opportunities, proximity to communities, potential for resource impacts, and quality recreation experiences as prescribed by the Forest Plan.

This alternative represents an increase of 69 percent over the No-action Alternative across the project area. This alternative would have the potential to affect historic properties, known or unknown. This alternative has more potential to affect historic properties than Alternative 3 based on the total number of service days and more potential to affect historic properties than the No-action Alternative. This alternative has the lowest number of allocated days in only one UA, 01-01D Slocum Inlet, for both Alternative 2 and Alternative 3. In 20 of the remaining 48 UAs, this alternative allocated the second-lowest number of service days.

Alternative 3—Lower Allocation

This alternative would allocate 63,940 service days across the project area for use by outfitters/guides. It addresses the issue of loss of solitude and crowding by proposing lower outfitter/guide allocations for use areas in designated wilderness and in remote areas, areas that historically have had low outfitter and guide use.

While this alternative is lower in number of service days than the proposed action (Alternative 2), it is higher across the project area than the Alternative 1. This alternative has the lowest allocation in 29 of the UAs and is the same allocation as Alternative 2 in five of the UAs. In the remaining 14 UAs, the allocated service days in this alternative represent the second-least number of service days allocated, second only to the No-action Alternative. If based on numbers of overall service days only, it is the alternative that will have the least potential to affect historic properties in 29 of the use areas. Overall,

this alternative has the next to lowest potential to affect historic properties; the No-action Alternative has the lowest potential. In five UAs, the allocation (Alternative 3) is the same as the proposed action (Alternative 2): UA 01-04D (Slocum Inlet), 01-05C (Windham Bay), UA 04-04A Rodman Bay, UA04-11A (Port Frederick), UA 04-11B (Freshwater Bay).

Alternative 4—Higher Allocation

This alternative allocates 130,655 service days to outfitter and guide use. It was calculated by applying a 5 percent increase to the proposed action and compounded annually over a 10-year period. Alternative 4 was developed to emphasize support for local and regional economies by increasing opportunities for outfitter and guides.

Alternative 4 has the most potential to affect historic properties, known or unknown. This alternative has the highest potential to affect historic properties overall as the total number of service days is the highest. Additionally, this alternative has the highest number of allocated service days in all but six (01-02 Haines Area, 01-04D Slocum Inlet, 01-05A Taku Harbor, 04-08 NE Admiralty, 04-09A Seymour Canal, 04-10A Green Creek) of the 48 UAs. If based on numbers of service days only, this alternative will have the most potential to affect historic properties in 42 of the UAs.

Table 3-27 summarizes the potential effects by alternative in each use area, based on the allocation. The second column contains the average actual use in each of the use areas, based on 2010-2014 outfitter and guide reported data. Columns 3 to 6 provide the proposed allocation in Alternatives 1 to 4. The final column ranks the predicted potential effect from each alternative as well as the current actual use, from lowest to highest.

Based on total numbers by use area, Alternative 3 offers the least potential for effect to historic properties in 29 use areas, and Alternative 1 the least potential for effect in 19 use areas. Alternative 4 presents the highest potential for effect in 42 use areas, and Alternative 1 presents the highest potential for effect in six use areas.

Table 3-27: Service Day Allocation in Use Areas by Alternative)

Use Area Number and Name	Average Actual Use 2010-2014 (A)	Alt 1 No Action (1)	Alt 2 Proposed Action (2)	Alt 3 Wilderness Alt (3)	Alt 4 Max Economic Alt (4)	Potential Effects Ranking (Low to High) by Alternative
01-01 Skagway Area	0	1,357	1,400	1,085	2,275	A 3 1 2 4
01-02 Haines Area	0	612	245	195	395	A 3 2 4 1
01-03 East Chilkats	259	1,513	1,325	1,035	2,150	A 3 2 1 4
01-04A Berners Bay	55	845	620	480	1,000	A 3 2 1 4
01-04B N. Juneau Coast	97	794	865	675	1,405	A 3 1 2 4
01-04C Taku Inlet	9	1,306	1,380	1,085	2,255	A 3 1 2 4
01-04D Slocum Inlet	138	845	455	455	735	A 2/3 4 1
01-05A Taku Harbor	97	794	475	370	765	A 3 2 4 1
01-05B Port Snettisham	853	2,404	4,010	3,050	6,530	A 1 3 2 4
01-05C Windham Bay	579	2,299	2,745	2,745	4,470	A 1 2/3 4
01-05D Tracy Arm	106	284	345	265	560	A 3 1 2 4
01-05E Fords Terror	157	335	270	205	430	A 3 2 1 4
01-05F Endicott Arm	391	663	775	590	1,270	A 3 1 2 4

Use Area Number and Name	Average Actual Use 2010-2014 (A)	Alt 1 No Action (1)	Alt 2 Proposed Action (2)	Alt 3 Wilderness Alt (3)	Alt 4 Max Economic Alt (4)	Potential Effects Ranking (Low to High) by Alternative
04-01A Gut Bay, Baranof	321	469	605	455	975	A 3 1 2 4
04-01B Port Armstrong	167	681	1,075	840	1,740	A 1 3 2 4
04-01C Nelson Bay	7	380	655	505	1,055	A 1 3 2 4
04-02A Redoubt Lake	278	160	2,185	1,670	3,550	1 A 3 2 4
04-02B Whale Bay	256	866	810	615	1,330	A 3 2 1 4
04-02C Necker Islands	75	163	2,135	1,635	3,460	A 1 3 2 4
04-02D SW Baranof	28	680	1,315	1,020	2,135	A 1 3 2 4
04-03 Sitka Area	1,149	4,683	9,885	7,550	16,105	A 1 3 2 4
04-04A Rodman Bay	429	1,511	2,990	2,990	4,865	A 1 2/3 4
04-04B Kelp Bay	3,070	1,521	7,305	5,525	11,895	1 A 3 2 4
04-04C Baranof Warm Springs	114	297	330	255	530	A 3 1 2 4
04-05A SE Admiralty	308	912	775	585	1,255	A 3 2 1 4
04-06A Pybus Bay	652	801	910	685	1,485	A 3 1 2 4
04-06B Eliza Harbor	135	534	575	435	940	A 3 1 2 4
04-07A Gambier Bay	123	551	465	355	745	A 3 2 1 4
04-07B Cross-Admiralty Canoe Route	92	689	685	520	1,110	A 3 2 1 4
04-08 NE Admiralty	32	1,419	575	435	935	A 3 2 4 1
04-09A Seymour Canal	52	1,567	610	460	985	A 3 2 4 1
04-09B Pack Creek Zoological Area[1]	24	0	290	220	465	1 A 3 2 4
04-10A Greens Creek	228	827	440	335	720	A 3 2 4 1
04-10B NW Admiralty	78	1,027	800	610	1,300	A 3 2 1 4
04-11A Port Frederick	127	1,257	1,630	1,630	2,650	A 1 2/3 4
04-11B Freshwater Bay	374	1,362	3,290	3,290	5,370	A 1 2/3 4
04-12 Tenakee Inlet	188	1,450	1,415	1,115	2,290	A 3 2 1 4
04-13 Peril Strait	865	1,934	6,005	4,565	9,775	A 1 3 2 4
04-14 Slocum Arm	91	666	535	400	875	A 3 2 1 4
04-15A Lisianski	29	857	1,910	1,475	3,105	A 1 3 2 4
04-15B West Yakobi Island	9	454	475	365	770	A 3 1 2 4
04-15C Stag Bay	9	152	160	125	265	A 3 1 2 4
04-15D Portlock Harbor	60	352	460	350	760	A 3 1 2 4
04-16A Point Adolphus	473	1,294	2,220	1,690	3,625	A 1 3 2 4
04-16B North Chichagof	236	1,294	1,415	1,085	2,295	A 3 1 2 4

[1] Pack Creek Zoological Area allocations reflect only fall and spring allocations

Use Area Number and Name	Average Actual Use 2010-2014 (A)	Alt 1 No Action (1)	Alt 2 Proposed Action (2)	Alt 3 Wilderness Alt (3)	Alt 4 Max Economic Alt (4)	Potential Effects Ranking (Low to High) by Alternative
04-16C Idaho Inlet	1,340	1,294	4,110	3,115	6,700	1 A 3 2 4
04-16D PLI Wilderness	83	471	395	300	645	A 3 2 1 4
04-16E Port Althorp	1,117	823	5,960	4,500	9,710	1 A 3 2 4
TOTALS	**15,360**	**47,449**	**80,305**	**63,940**	**130,655**	**A 1 3 2 4**

Cumulative Effects

Significant cultural sites have the potential to be impacted through natural processes such as weathering, erosion and natural decay and through recreation by unguided visitors, or a combination of natural and human caused effects. Increased use by outfitters and guides could add to the cumulative effects on historic properties. Increased outfitter/guide use could lead to degradation of the site by erosion, theft or vandalism.

There are no expected cumulative effects from other projects near the large group areas as they are placed away from other forest projects. Forest Service trail improvements and recreation cabins in the vicinity will not result in cumulative effects from outfitter/guide use recreation. Trails in the area could potentially be used by outfitter and guides. There could be a potential for cumulative effects from recent decisions or analysis for project areas where outfitter/guide use is also either being considered or permitted. These areas include:

- Pack Creek Zoological Area on Admiralty Island during the summer (peak) season. The other seasons (spring, fall and winter) are included in this analysis.
- Mitchell, Kanalku and Favorite Bays on Admiralty Island, which are being considered under a separate analysis, the Angoon-Mitchell Bay Ecotourism EA.
- The Mud Bay and Eagle River road systems on Kruzof Island, which were included in the Kruzof Island Outfitter/Guide decision on April 15, 2015.

Since these three cases are being considered separately, there could be an increase of overall numbers of outfitter/guide use in the Shoreline II area, potentially resulting in effects to historic or archaeological sites in the Shoreline II area. The Angoon-Mitchell Bay Ecotourism EA proposes to permit small guided groups in Mitchell, Favorite and Kanalku Bay. It is within the Kootznoowoo Wilderness authorizing generally non-ground disturbing activities such as guided hiking, fresh water angling, and bear viewing. This project might also consider authorizing camping, which has more potential for ground disturbance; however, with wilderness stipulations of group size of 12 of less, there is less potential to affect historic properties. The area of cumulative impact could potentially be at the western end of the Cross Admiralty Canoe Trail (use area 04-07B) near Mitchell Bay, as this area is adjacent to the use area permitted under the Angoon-Mitchell Bay Ecotourism EA; however, there is no physical overlap. The presence of permitted user groups permitted under both the Shoreline II project and the Angoon-Mitchell Bay Ecotourism project could potentially result in greater human presence in this general area and, therefore, more potential effects in an area of high sensitivity for the presence of historic resources.

The Pack Creek Zoological Area is also being allocated service days for outfitter/guide use under this analysis in three seasons. Outfitter/guide use during the summer season was allocated in a previous decision, potentially resulting in cumulative effects to historic properties. However, as the area is wholly

within the Kootznoowoo Wilderness Area, the numbers are not expected to be large, and as summer visitors to the area are restricted in the area that they can use, the impacts are not expected to be adverse.

The Mud Bay and Eagle River road system allocation for outfitter/guide use of Kruzof Island was considered under a separate decision document. The Sitka Tribe considers Kruzof Island a sacred place, with Mount Edgecumbe volcano being a sacred site. The tribe has reaffirmed, and the Forest Service acknowledges, the cultural reverence of this island to the Native people of Sitka. Therefore, upon application for any commercial use on Kruzof Island under the Shoreline II project, the Forest Service shall consult with the Sitka Tribe and consider their comments and concerns prior to issuing special use permits.

There has been a limited archaeological investigation of the area of potential effect. No known cumulative effects on historic properties from outfitter/guide activities have been documented. Some of the outfitter/guide activities covered under this analysis have low potential to impact significant cultural resources, such as nature walks or guided hiking.

Based on the lack of ground-disturbing activities, combined with periodic monitoring of outfitter/guide activities, mitigation measures, administrative oversight, and enforcement of regulations, it is expected that proposed activities should result in minimal effects on existing historic properties. If the permit terms and conditions are adhered to, the cumulative effects for any of the alternatives are not likely to result in adverse impacts to historic properties.

Adaptive Management

The effects of adaptive management are not expected to have any additional effect to historic properties (due to increased use) over those disclosed in the effects discussion above. If effects are noted at a historic property, within a use area where adaptive management is being proposed, sites within the use area would be monitored (see Implementation Monitoring below), the effects evaluated and if determined to be adverse, a plan to mitigate the effects at that specific site, within the larger use area, would be negotiated, codified in a Memorandum of Agreement, as required under the National Historic Preservation Act and implemented.

Implementation Monitoring

Forest Service archaeologists annually will monitor a sample of ten permitted use areas throughout the project area, using standard archaeological monitoring and inventory procedures described in the Programmatic Agreement. These areas will be examined based on: 1) if any known historic properties are in the immediate vicinity, 2) the location's level of archaeological sensitivity, and 3) type of activities being permitted. Camping is considered the activity with the most potential to impact historic properties and camping sites will be given a high priority for monitoring. Active touring is the second activity of concern for impact to historic properties. Outfitted/guided use area monitoring will include pedestrian transects, with soil probes and test units to determine if buried cultural remains are being impacted. Photographic overviews will be taken as a baseline to compare with later examinations of the location.

The results of these examinations will be included in a required annual report to the Alaska State Historic Preservation Officer, added to the Forest Service Heritage files annual report and reflected in the national database (NRM). Some permit sites might be examined more than once during the use season to confirm whether the activities are affecting historic properties. This periodic monitoring is the key component in ensuring the permitted activities will not adversely affect historic properties.

Thresholds Triggering Heritage Actions

In addition to implementation monitoring, the Forest proposes effectiveness monitoring which would be triggered when certain thresholds were met, regardless of which alternative is selected. Those thresholds would require additional heritage review to ensure the protection of historic properties. If a threshold

number of service days or use is never met, some of these monitoring protocols would not be implemented. More details are in Appendix B, Large Group Areas.

The special use permit administrators track the permittees' annual reported actual use days and locations in a database. When 300 or more service days are reported in a single year at discrete locations within any use area (outside of LGAs), the heritage staff will be notified that a threshold has been met that requires monitoring to ensure historic properties are not being impacted. If inventories in that location are incomplete, inventories will be done using survey protocols listed in the Programmatic Agreement. If sites are present and unevaluated, the sites would be evaluated. If sites are found to be eligible for the National Register of Historic Places, management plans will be created and implemented to avoid, minimize, or mitigate adverse effects to historic properties.

Use data will be compiled by special use permit administrators and presented on an annual basis to heritage program staff. When 40 or more reported service days are used per mile of shoreline within a use area, heritage staff will monitor historic properties for impacts and complete inventories where prior inventories, if any, have not been completed within five field seasons.

Historic properties that are located within large group areas need to be identified and protected. Upon application for new, or reissue of an existing, outfitter/guide permit within a large group area, a historic properties management plan would be developed to avoid, minimize or mitigate adverse effects to historic properties (see Appendix B, Large Group Areas).

Management plan measures may include site avoidance, or minimizing potential for effect. If avoidance or minimizing service days does not protect the site and it has been adversely affected, we could potentially recommend data recovery by systematic excavation and/or interpretation. Once a management plan is created to protect a historic property, the property will be monitored to ensure the management plan is being implemented and is effective. See the Historic Properties Management Plan section in Appendix B, Large Group Areas.

Wildlife

Introduction

The 2008 Forest Plan incorporates laws, regulations and Forest Service policies to provide specific information on how management indicator species (MIS), threatened, endangered and sensitive species, and other wildlife and fish species will be managed on National Forest System (NFS) lands. Forest-wide desired conditions and goals are included in Chapter 2 of the Forest Plan. The Forest is organized into land use designations (LUD) for management purposes. Each LUD has specific goals, objectives, desired conditions, and management prescriptions that are discussed in Chapter 3 of the Forest Plan. Forest Plan standards and guidelines in Chapter 4 (USDA Forest Service 2008a, pp. 4-12, 4-14, 4-89 to 4-100) provide direction for species and habitat management. The Forest Plan Final Environmental Impact Statement (FEIS) provides in-depth information on MIS and TES species (USDA Forest Service 2008b, pp. 2-13, 3-74 to 3-77, 3-230 to 3-241, 3-291 to 3-292), migratory birds, and other species of concern (USDA Forest Service 2008b, pp. 3-241 to 3-250).

Consistency with the 2016 Forest Plan

The 2016 Forest Plan ROD was approved on December 9, 2016 and became effective on January 8, 2017. The Shoreline II wildlife analysis has been reviewed for consistency with the 2016 Forest Plan applicable standards and guidelines in Chapters 3 and 4, and Forest-wide Plan components in Chapter 5 for wildlife including Guideline G-WILD-02 (bald eagle habitat) and Standards S-WILD-03 (Aleutian tern) and S-WILD-04 (black oystercatcher).

Prior to issuance of a special use permit for activities under the Shoreline II ROD, resource specialists will determine if those activities are proposed near an active bald eagle nest, Aleutian tern nesting area, or black oystercatcher nesting area. Applicable standards and guidelines will be applied to special use permits if activities are within or near a nesting area. Resource specialists will provide locations of known sensitive areas and have permittees avoid those areas. Also, if permittees find new nests or colonies they must take necessary precautions given by the standards and guidelines, and notify the special use coordinator. This section discusses possible effects to wildlife, including bald eagle, Aleutian tern, and black oystercatcher. In addition, the Biological Evaluation (BE) for Shoreline II included the Aleutian tern and black oystercatcher. The BE determined the project “may affect” individuals, consistent with the determination in the BE for the 2016 Forest Plan; none of the effects are expected to result in a loss of viability or lead toward an ESA listing for any of the species analyzed.

In addition, the Shoreline II project analyzed the 13 management indicator species (MIS) from the 2008 Forest Plan, which was in effect when analysis was started for this project. The 2016 Forest Plan used the 2012 Planning Rule to amend the 2008 Forest Plan. Although the 2012 Planning Rule does not require the use of MIS to analyze project effects, the 2016 Forest Plan Amendment FEIS included these 13 species in its effects analysis under the heading of “Former Management Indicator Species” (Forest Plan FEIS, page 3-230). This analysis used the best available science for these species, including the addition of new (since 2008) references. The Shoreline II interdisciplinary team has reviewed the new references used in the 2016 Forest Plan FEIS for applicability to the Shoreline II project activities, and updated the effects analysis as needed. Therefore, Shoreline II project analysis for wildlife is consistent with the best available science used in the 2016 Forest Plan.

Analysis Methods

This effects analysis is based on professional judgment using quantitative and qualitative information provided by Forest Service and other agency staff, relevant references and technical literature citations,

and subject matter experts. This analysis uses the terminology defined below to describe the intensity of the direct, indirect and cumulative effects of the proposed and alternate actions on MIS, migratory birds, and other species and habitats in the analysis area.

Collection of population trend information for MIS specific to the Shoreline II Outfitter and Guide EIS is cost prohibitive. Peer-reviewed, published literature from Southeast Alaska is limited for some species. Much of the available information for Southeast Alaska is Forest Service general technical reports and annual project monitoring reports (e.g. fishpass and weir projects), Alaska Department of Fish and Game (ADF&G) internal publications and harvest reports, or masters/doctorate dissertations. Since data is lacking for Southeast Alaska, the Forest Service used information from other areas to support conclusions. Wildlife disturbance from recreational activities is widely recognized, but few studies have quantified these effects. Key reference citations are included throughout this report; many other research publications provided basic information.

Analysis Area

The wildlife resource analysis area for this project includes all NFS lands on the national monument and three ranger districts and the immediately adjacent marine environment that would be used by outfitters and guides to access sites (Figure 1-1, Chapter 1). The cumulative effects area is the same boundary, but includes non-NFS lands. These areas are appropriate for wildlife analysis because some species included in this analysis use the marine environment, while others may be found from saltwater to alpine and incorporates a watershed basis for analysis. Most of the Juneau Ranger District (JRD) is part of ADF&G Game Management Unit (GMU) 1C, but it also includes lands in GMU 1D and 4. The Admiralty National Monument, Hoonah and Sitka Ranger Districts are in GMU 4. ADF&G further divides the State into Guide Use Areas (GUA) for managing hunting guides. Chapter 4 defines GMU and GUA.

The Forest Service has further refined the GUAs in the project area into use areas to determine recreation visitor capacity and manage guided use (see Figure 2). This analysis will reference the use areas because they are the reporting unit for the amount of outfitter/guide use on the Forest. There are 48 use areas in the project/analysis area (Chapter 1, Table 1-1). Additionally, within the project area the Forest Service has identified 40 large group areas (LGA) where large groups (21-75 people at one time) can come ashore (Appendix B, Table B-1). Specific information on these areas is included in the use area and large group area cards in Appendices A and B of the Shoreline II Outfitter/Guide EIS.

Assumptions

Since hunting seasons, and timing of wildlife breeding, foraging, migrating, or wintering lifecycles vary among species, it is not practical to break out the analysis by use season. Therefore, effects are assumed to be correlated to the total allocated service days. However, in cases where a specific season or use area seems relevant, more focused analysis of service days is used.

Impacts from outfitter/guide activities were based on maximum use of the allocation. Unguided uses were addressed subjectively due to the lack of quantifiable information on unguided use.

For most species and activities, scientific literature on disturbance thresholds is lacking. Although some activities, such as guided hunting and fishing, would likely not occur in large group sizes, this project does not set outfitter/guide allocations by activity.

Due to known disturbance factors, Leave No Trace Principles for wildlife include “Avoid wildlife during sensitive times: mating, nesting, raising young, or winter”. Given the variety of wildlife species in the analysis area, avoidance would have to occur during the entire recreational season. Therefore, it is unlikely that Leave No Trace principles for wildlife would be implemented to the level that would avoid

all disturbances. Design features and Forest Plan standards and guideline buffer requirements should lessen, but not eliminate impacts.

Level of Effects

Numerous studies have identified a variety of factors that influence both the vulnerability of wildlife and the frequency of wildlife response to human disturbance. Although disturbance has been heavily studied, research on thresholds is lacking; wildlife responses are relatively unpredictable and may vary even within a given species. Therefore, the assumption was made that risk of disturbance effects to species is correlated to the amount of allocated use. For comparative purposes, alternatives were ranked by overall allocated use and each use area was ranked for overall allocated use by alternative. When appropriate, as described in the species discussions, rankings for comparisons of specific seasons or groups of use areas were used.

In addition, subjective general criteria were used to assess the intensity or level of influence of the effects. The levels of influence are defined below.

Negligible: Individuals would not be affected, or the action would affect an individual but the change would be so small that it would not be of any measurable or perceptible consequence to the individuals or populations. Negligible effect would equate with a "no effect" determination for threatened and endangered species and the “no impact” determination for sensitive species.

Minor: Individuals would be affected but the change would be small. Impacts would not be expected to have any long-term effects on species or their habitats, or the natural processes sustaining them. Occasional responses to disturbance by some individuals could be expected, but without interference to reproduction, or other factors affecting population levels. Minor effect would equate with a “not likely to adversely affect" determination for threatened and endangered species and the "may impact individuals but not likely to cause a trend to federal listing or a loss of viability" determination for sensitive species.

Moderate: Individuals would be noticeably affected. The effect could have some long-term consequence to individuals or habitat. Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or juvenile states; or interference with activities necessary for survival can be expected on an occasional basis. Frequent response to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, or other factors affecting short-term population levels. Moderate effect can equate with a “likely to adversely affect” determination for threatened and endangered species and the "may impact individuals but not likely to cause a trend to federal listing or a loss of viability" determination for sensitive species.

Major: Populations would be affected with a long-term, vital consequence to the individuals, populations, or habitat. Impacts on species, their habitats, or the natural processes sustaining them would be detectable. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Major effect would equate with a “likely to adversely affect” determination for threatened and endangered species and the "likely to result in a trend to federal listing or a loss of viability" determination for sensitive species.

Affected Environment

The analysis area contains most all of the habitats found in Southeast Alaska from large-tree productive old growth forest to alpine and glaciers. The project will generally not physically alter habitat. Primary effects are expected to be from various types of disturbance. Therefore, species discussions will not dwell

on habitat attributes, except where habitats relate to anticipated populations trends, disturbance, or potential harvest of wildlife species. The Forest Plan FEIS (USDA Forest Service 2008b) and Schoen and Dovichin (2007) provide large-scale overviews of the habitats and habitat trends on the northern Tongass National Forest.

Management Indicator Species

Management indicator species (MIS) are vertebrate or invertebrate species whose response to land management activities can be used to predict the likely response of other species with similar habitat requirements. FSM 2621.3 requires the effects of a proposed action on MIS be assessed and that the Forest Plan requirements, goals and objectives for these species are met at the project level (USDA Forest Service 1991a, FSM 2621.4).

Thirteen wildlife MIS were selected for the Tongass (USDA Forest Service 2008b, pp. 3-230 to 3-241). All are associated with productive old-growth forest (POG). Six of the MIS also specifically use riparian habitats and five of the species use estuarine habitats.

MIS Selected for Analysis in the Shoreline II Outfitter/Guide EIS

The following Forest Plan MIS species were selected for the Shoreline II Outfitter/Guide EIS analysis because they are species of interest to outfitter-guides and their clientele, and may be affected by human disturbance during critical life stages or are the focus of wildlife viewing and guided hunting.

Alexander Archipelago Wolf

The Alexander Archipelago wolf (*Canis lupus ligoni*) was selected as a Tongass National Forest MIS because of population viability concerns in some areas of the Tongass. This species inhabits the mainland and the larger islands south of Frederick Sound (MacDonald and Cook 2007) where its densities are closely tied to the population levels of their prey (primarily Sitka black-tailed deer). Wolves only occur on the Juneau Ranger District within the analysis area. Based on trapper reports, ADF&G considers wolves common and increasing in GMU 1C (Scott 2012a) and stable in GMU 1D (Sell 2012a).

Important components of wolf management include maintaining core area habitats with low road density, maintaining wolf harvest within sustainable limits through regulations, and providing adequate deer habitat to support an abundant and stable deer population (USDA Forest Service 2008b, p. 3-238). Human access on roads may result in wolf mortality by both legal and illegal harvest (USDA Forest Service 2008b, p. 3-284). Changes in road access and deer habitat provide general measures of effects. The Forest Plan provides standards and guidelines to maintain sustainable wolf populations, protect den sites, provide prey habitat and manage road access (USDA Forest Service 2008a, p. 4-95).

Wolf hunting is an authorized outfitter/guide activity on JRD. Guided wolf hunting generally occurs in combination with, or incidental to, hunts for other species, such as black bear. Few people have historically hunted wolves with a guide. From 2010 through 2014, guides reported clients spent 40 service days wolf hunting, all in combination with black bear hunting. Guides do not report the number of animals harvested to the Forest Service. Wolf harvest is reported to ADF&G, but the harvest report does not identify whether the hunter was guided or not. Thus, the number of wolves harvested by clients of permitted guides is not available, but based on the low effort, guided harvest is expected to be a small percentage of the overall harvest. In GMU 1C, 21 wolves were reported harvested in 2010 but the average harvest from 1996-2010 was 9.5 wolves (Scott 2012a). In GMU 1D, 11 wolves were reported harvested in 2010 with the average harvest from 1996-2010 of 5.4 wolves (Sell 2012a).

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) was selected as a MIS for this project because of its use of coastal areas for foraging and nesting. Eagles breeding in coastal Alaska remain in the vicinity of their

nest sites throughout the year; immature eagles wander more widely in search of food (US Fish and Wildlife Service [USFWS] 2009). Most bald eagles nest in old-growth trees within 328 feet (100 meters) of saltwater shorelines. Bald eagles in Alaska may begin attending to nest building in preparation for nesting in early February. Egg laying occurs between April and June with a peak in late April and early May. Hatching and rearing young occurs starting in mid-May through mid-September while fledging occurs in August through mid-October. Young birds stay in the vicinity of the nest for about 6 weeks after fledging because they are dependent on their parents for food (USFWS 2007).

Because they forage primarily on fish, key habitats include riparian and shoreline areas. Changes in POG forest especially along the shoreline provide a general measure of effects. Forest Plan standards and guidelines require maintenance of the ecological integrity of beach fringe habitat and managing bald eagle habitat in accordance with an Interagency Agreement between the Forest Service and USFWS (USDA Forest Service 2008a, p. 4-92). Based on agreement with the USFWS, the Tongass manages bald eagle habitat consistent with the National Bald Eagle Management Guidelines (USFWS 2007). This plan provides recommendations for avoiding habitat alterations and disturbance (including repeated human activity) within 330-660 feet (depending on the activity type) of bald eagles nests and that aircraft avoid flying within 1,000 feet of nests during the breeding season. For non-motorized recreation (e.g. hiking, camping, fishing, hunting, birdwatching, canoeing, kayaking), and motorized watercraft, the Plan recommends a 330-foot buffer during the breeding season. Not all bald eagles react to disturbance in the same way. This variability may be related to differences in visibility, duration of disturbance, noise levels, and tolerance or habituation to human activities (USFWS 2007).

There are 4,529 known historic bald eagle nests in the analysis area (USFWS 2014), although data is lacking for much of Baranof Island (Sitka Ranger District) and some other areas. Nest maps for bald eagles in Southeast Alaska are maintained by USFWS and are infrequently updated, so good sources of active nest locations are not available. These nests are evenly distributed along the shorelines and a GIS-based analysis indicates that an estimated 91 percent occur within the beach and estuary buffer. No project level surveys were completed.

Black Bear

Black bears (*Ursus americanus*) were chosen as a MIS for this project because of their importance for hunting and for recreation and tourism. They are present throughout the Southeast Alaska mainland and on the islands south of Frederick Sound. Black bears only occur on the Juneau Ranger District within the analysis area. Population estimates are not available for black bears in GMUs 1C and 1D. ADF&G estimates that the GMU 1C population trend is stable (Scott 2011) but did not project a trend for GMU 1D (Crupi 2011).

Black bears will use a variety of habitats from sea level to the alpine but appear to prefer estuarine, riparian, and forested coastal habitats (USDA Forest Service 2008b, p. 3-233). Black bears follow a general yearly cycle. After emerging from their dens in April and May, they head to coastal areas to forage on early green vegetation. They follow the greening vegetation up in elevation as snow melts. They return to lower elevations during summer to forage on salmon and berries before returning to their dens around October and November.

The GMUs 1C and 1D annual harvest has risen steadily over the past 40 years. Current annual harvest is around 94 bears in GMU 1C (Scott 2011) and 31 bears in GMU 1D (Crupi 2011). In both GMUs 1C and 1D, around 80 percent of the harvest occurs in the spring season, particularly in May. This is related to hunters' interest in taking a bear with a prime pelt. Bear pelts are prime if the animal is taken shortly after den emergence. Black bears emerge in the largest numbers in early to mid-May. Harvest in GMU 1C tends to be concentrated in a few areas such as the Chilkat Range and the mainland from Port Snettisham south. In GMU 1D most bears are taken on non-National Forest System lands where roads provide easy access. Boats are consistently the dominant mode of transportation for successful black bear hunters GMU 1C. During spring, black bears can be found on nearly any uninhabited beach as they forage and

boats provide the easiest, most efficient access (Scott 2011). In GMU 1D, most hunters use highway vehicles (Crupi 2011). Based on this information, most guided and unguided black bear hunting effort and harvest in GMU 1C occurs within the project area, while most effort and harvest in GMU 1D is outside the project area.

Resident hunters historically accounted for 60-70 percent of the annual harvest in GMU 1C, but more recently non-resident hunters have taken an increasing percentage. There is no guide requirement for non-resident black bear hunters but approximately half of nonresidents hunt with a guide in GMU 1C (Scott 2011). In GMU 1D, nonresidents take about 20 percent of the harvest (Crupi 2011). The area between Port Snettisham and Cape Fanshaw in GMU 1C is used by nonresidents on combination hunts for brown bear and black bear. A typical hunt begins in GMU 4 for brown bears and then finishes in this area for black bears (Scott 2011).

Ten guiding businesses are authorized under special use permits to conduct up to 117 guided black bear hunts in the analysis area. From 2010 through 2014, guides provided an average of 53 hunts per year for black bears in the analysis area.

Brown Bear

Brown bears (*Ursus arctos*) were chosen as an MIS for this project because of their importance for hunting, recreation, and tourism. Brown bears occur throughout the southeast Alaska mainland and most of the islands north of Frederick Sound (MacDonald and Cook 2007). They occur throughout the analysis area (ADF&G GMUs 1C, 1D, and 4). ADF&G believes the brown bear population across all of GMU 1 is stable. However, brown bear observations have increased from the Taku River south to Endicott Arm in GMU 1C (Sell 2013). The GMU 4 brown bear population is genetically distinct from the mainland population (Mooney 2013a). In 1998, the ADF&G estimated the population of GMU 4 brown bears to be 4,155 bears. This estimate has not been updated, although more-recent research in specific watersheds on northeast Chichagof Island suggests the population in those areas increased between 1991 and 2004. The GMU 4 brown bear population is believed to be stable (Mooney 2013a).

Brown bears are habitat generalists and use a variety of habitats from sea level to the alpine. Bears frequent the sedge and grass estuaries and beaches during the spring to forage on the first green vegetation as they emerge from their dens. Visibility along the beach makes them accessible for wildlife viewing and harvest. The late-summer season has been identified as the most critical or limiting period for brown bears when they must build up energy reserves that are adequate to survive the winter and successfully reproduce. During this season, many brown bears concentrate along low-elevation valley bottoms and salmon streams, with most use occurring within 500 feet of streams, where their efforts focus on consuming large quantities of fish. Cover for visual obscurity, provided by riparian buffers, is important for minimizing interactions among bears and between humans and bears.

For regulatory years 1998-2011, brown bear harvest in GMU 1C averaged five bears per year, and in GMU 1D averaged 14 bears per year (Sell 2013). GMU 4 brown bear harvest averaged 151 for regulatory years 2007-2011 (Mooney 2013a). Approximately 69 percent of the brown bears harvested in GMU 4 are taken by nonresidents (Mooney 2013a) and 58 percent of the harvest in GMU 1 is by nonresidents (Sell 2013). Nonresidents are required to be accompanied in the field by an Alaska-licensed guide or resident relative within the second degree of kindred. Spring seasons produced a larger harvest and greater hunting pressure. Generally speaking, hunters prefer to hunt the spring season because bears are easier to locate and they may have longer hair than in the fall, making for a better trophy hide. Most spring harvest occurs in May. The greatest number of bears is available to hunters late in the spring season, because nearly all bears have left their dens to seek food, and breeding season approaches. Most fall harvest occurs in September. Bear hunters in GMUs 1 and 4 used boats as the most common form of transportation. Similar to black bear, most brown bear hunting occurs in most of the Shoreline II Outfitter/Guide project area, except in GMU 1D (Sell 2013, Mooney 2013a).

Five areas in GMU 4 are closed to bear hunting, in part, to enhance viewing opportunities. There are no similar closures in GMUs 1C and 1D. The Bear Cove closed area (within Sitka UA 04-03) is 8 miles southeast of Sitka on the west side of Baranof Island. The Port Althorp (UA 04-16E) closed area is on northern Chichagof Island near Elfin Cove. The Seymour Canal closed area is on northeastern Admiralty Island and encompasses the Stan Price State Wildlife Sanctuary and the Pack Creek Zoological Area (UA 04-09B). The Pack Creek Brown Bear Viewing Area is managed cooperatively by the Forest Service and ADF&G as a bear-watching area. The Salt Lake and Mitchell Bay closed areas are contiguous and are located near Angoon along Kootznahoo Inlet, Favorite, Kanalku, and Mitchell Bays and Salt Lake on southwest Admiralty Island. The Salt Lake and Mitchell Bay closed areas are not within the project area and will be analyzed in a separate outfitter/guide analysis, the Angoon-Mitchell Bay Ecotourism EA. However, they are within the analysis area. Some outfitter/guides take clients to other GMU 4 locales for bear watching (such as Kalinin Bay on Kruzof Island and Lake Eva on northeast Baranof Island, and Pavlof Bay on Northeast Chichagof Island) (Mooney 2013a).

The Forest Service manages bear hunting outfitter/guides such that guide and harvest numbers are generally aligned with recommendations in the Unit 4 Brown Bear Management Strategy (BBMS, ADF&G 2000). The BBMS is a comprehensive management strategy produced by a citizens and agency advisory team for the Alaska Board of Game. This strategy included specific recommendations to the Forest Service with regards to GMU 4 bear hunting guides and hunts:

- Maintain the current moratorium on new hunting guides in GMU 4 until the outfitter/guide analysis for the northern Tongass National Forest is completed (note: this recommendation applied to the 2004 Shoreline Outfitter/Guide analysis).
- Cap the number of guides at the current number (approximately 38); allow the number to decrease by attrition to 20 hunting guides maximum in GMU 4 over the long term.
- Allocate outfitter/guide use on a “client/hunt,” not a “service-days,” basis.
- Maintain essentially the same number of nonresident hunters (guided and next-of-kin) as the current annual average (148 compared to a current level of 147) with some redistribution of effort among the guide use areas and an adjustment to allow for next-of-kin hunting effort in some areas.
- Allocate guided hunts to the spring and fall seasons based approximately on ADF&G’s data of the historical percentage of use during those seasons.

In addition, the advisory team had concerns about the GMU 4 restrictions on brown bear hunting guides and hunts resulting in a “spillover” effect which would cause increased hunting pressure and overharvest in GMU 1. To address this problem, the team recommended that the Forest Service institute a moratorium on issuing additional permits to brown bear guides in GMU 1.

Forest Service management has focused on the number of hunts more than the number of guides. In GMU 1, the Forest Service is not issuing new permits until after they issue a prospectus. There is no current timeline for the development of this prospectus (J. Berger, personal communication). In the late 1990s, when the BBMS was being prepared, the number of guides registered in GMU 4 had risen from nine in 1988 to 36 in 1999 (Mooney, personal communication). In 2015, 17 guiding businesses (20 total guides) are authorized to conduct up to 135 guided brown bear hunts in the analysis area. Some of these hunts may be used in either GMU 1C or GMU 4. Forest Service actual use data for GMU 4 indicates that, in 2014, 125 hunts were used with a 5-year average of 130. In the late 1990s, the historical average number of guided hunts in GMU 4 was 147 per year (ADF&G 2000). Table 3-28 compares actual numbers of GMU 4 permitted guided hunts to the BBMS recommendations by GUA for 2010-2014. Note, some hunts were conducted in more than one GUA and as such, they are counted in each GUA that the hunt occurred. For example, one client may have started a hunt in 04-01 and moved to 04-04 part way through the hunt. This one hunt would be counted as a hunt in both 04-01 and 04-04 and inflates the total number of hunts shown in Table 3-28 compared to the actual number of hunts shown above. The Forest

Service allocates outfitter/guide use on a hunt basis, and for management purposes estimates 10 service days per hunt. Currently, guided hunts are not allocated between spring and fall hunts, based on ADF&G's data of the historical percentage of use during those seasons.

Table 3-28. GMU 4 Brown bear guided hunts for 2010-2014 compared to the Brown Bear Management Strategy recommendations (ADF&G 2000)

Guide Use Area	Total Fall Actual Use [1]	Total Spring Actual Use [1]	Avg Fall Actual Use [2]	Avg Spring Actual Use [2]	Yearly Avg Actual Use [3]	Fall % of Total [4]	Spring % of Total [4]	BBMS Guided Hunters [5]	BBMS – Actual [6]
04-01	22	34	4.4	6.8	11.2	39	61	10	(1.2)
04-02	22	24	4.4	4.8	9.2	48	52	7	(2.2)
04-03	0	7	0	1.4	1.4	0	100	4	3.6
04-04	22	44	4.4	8.8	13.2	33	67	11	(2.2)
04-05	32	64	6.4	12.8	19.2	33	67	15	(4.2)
04-06	17	68	3.4	13.6	17	20	80	16	(1.0)
04-07	0	37	0	7.4	7.4	0	100	5	(2.4)
04-08	0	3	0	0.6	0.6	0	100	1	0.4
04-09	0	18	0	3.6	3.6	0	100	6	2.4
04-10	9	32	1.8	6.4	8.2	22	78	9	0.8
04-11	7	58	1.4	11.6	13	11	89	9	(4.0)
04-12	22	61	4.4	12.2	16.6	27	73	14	(2.6)
04-13	28	74	5.6	14.8	20.4	27	73	16	(4.4)
04-14	20	23	4.0	4.6	8.6	47	53	6	(2.6)
04-15	14	30	2.8	6.0	8.8	32	68	6	(2.8)
04-16	9	21	1.8	4.2	6.0	30	70	6	0
Grand Total	**224**	**598**	**44.8**	**119.6**	**164.4**	**27**	**73**	**141**	**(22.4)**

1) Total Spring and Fall Actual Use are the cumulative number of hunts that occurred in each Guide Use Area (ADF&G delineated GUA) in the spring and fall seasons from 2010-2014.
2) Average Spring And Fall Use are the annual average per season from 2010-2014.
3) Calendar year average from 2010-2014.
4) Percentage of total hunts by GUA occurring in each season.
5) The number of hunts specified for each GUA by the BBMS.
6) The difference between the BBMS and actual use. Numbers in parentheses indicate where the 2010-2014 actual use average exceeds the BBMS.
7) The BBMS shows this total as 144, apparently due to a computation error.

As of 2015, the Forest Service has essentially met the BBMS guideline of a maximum of 20 guides and 141 hunts. Spatial distribution of the hunts does not quite meet the guidelines. This appears to be at least partially related to counting hunts by a single client that occur in more than one GUA as multiple hunts in this table, as described above. This inflates the 5-year average by 34.4 hunts per year. The BBMS recommendations for the distribution of hunts by GUA were based on historical numbers and concerns about crowding rather than biological issues (ADF&G 2000).

Despite these management actions, some concerns have surfaced that were unforeseen at the time the BBMS was developed. Bear harvest by nonresidents has increased as the hunt efficiency (success rate) has increased for guided hunts (Mooney 2013a). Thus, meeting BBMS numbers for guides and hunts may still result in unsustainable harvest. Guiding nonresident hunters on private lands was not considered in the BBMS. Guiding on private lands is increasing and it will be necessary to reallocate hunts with private landowners at the table so the BBMS recommended nonresident hunt numbers are not exceeded (Mooney 2013a).

The BBMS also recognized the potential for conflict between brown bear hunting and viewing. The BBMS team recommended a set of management guidelines and locations for "Brown Bear Special Use Zones" to the management agencies. None of these zones have been created by the Forest Service. The BBMS also includes extensive recommendations for guided bear watching etiquette.

Mountain Goat

Mountain goats (*Oreamnos americanus*) were selected as a Tongass MIS to represent species using cliffs, alpine and subalpine, and old-growth forest habitats. They were selected as a MIS for this analysis based on their importance for hunting, recreation, and tourism. Mountain goats occur in suitable habitat throughout the Southeast Alaska mainland (MacDonald and Cook 2007). They were successfully introduced to Baranof Island in 1923, but recent DNA analysis indicates that there was likely a relict population there prior to the transplant (Mooney 2012, Shafer *et al.* 2011). ADF&G reports that goat populations are at medium to high densities in GMU 1C and populations appear healthy (Scott 2012b). ADF&G characterizes the GMU 1D population as healthy overall (Sell 2012b) and GMU 4 as declining slightly compared to 2004 levels (Mooney 2012).

In all seasons, mountain goats use habitat close to cliffs with moderately steep, rugged slopes on southerly aspects (White *et al.* 2012). Generally, mountain goats migrate seasonally between alpine summer habitat and forested winter habitat where snow depths are less. The quantity and quality of winter habitat is the most limiting factor for mountain goats. Mature old-growth stands intercept snow and provide thermal cover and forage. Winter elevations are generally in the 1,000-1,500 foot elevation range. However, there can be considerable variation based on local conditions. For example, in the Lynn Canal, area some goats winter near sea level, while others winter at high elevation where colder, drier, and windier conditions prevent snow accumulation (White *et al.* 2012). Migration from winter habitat to summer habitat usually starts in mid-May as higher elevations become snow free. Migration from summer range to winter range begins around mid-October, corresponding to significant snowfall in the alpine (White *et al.* 2012). The breeding season for mountain goats occurs between late October and early December. Kids are born in mid-May to mid-June.

For regulatory years 2001-2010, goat harvest in GMU 1C averaged 43 goats and GMU 1D averaged 32 goats per year. For regulatory years 2006-2010, GMU 4 averaged 37 goats harvested per year.

Seven guiding businesses are authorized under special use permits to conduct up to 48 guided mountain goat hunts in the analysis area. From 2010 through 2014, guides provided an average of 27 goat hunts per year in GMU 1C, all within GUAs 01-05 (Tracy Arm/Fords Terror area) and 01-03 (Chilkat Range). From 2010 through 2014, guides provided an average of five goat hunts per year on Baranof Island in GMU 4. Although goats are distributed throughout the GMU 1 mainland, hunting efforts are usually concentrated in areas where access is relatively easy. Because of this, guided hunts in Tracy and Endicott Arms have become a major factor in the GMU 1C goat harvest. This is one of the few areas in the world where hunters can stay in comfort aboard large boats and make day hunts for goats along steep cliffs lining fiords. This use predominates late in the season, when snow often forces goats to lower elevations. The interest from registered guides to hunt goats in this area remains high (Scott 2012b).

Forest Plan standards and guidelines provide for maintaining goat habitat and populations by locating facilities and human activities as far from important wintering and kidding habitat as feasible and managing disturbance from aircraft flights (USDA Forest Service 2008a, p. 4-96).

Sitka Black-tailed Deer

The Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) was selected as a Tongass MIS because it is an important game and subsistence species in Southeast Alaska. They were selected as an MIS for this analysis because they are an important subsistence species, and the Forest Service authorizes guided deer hunts.

Sitka black-tailed deer occur on the mainland and most islands in Southeast Alaska (MacDonald and Cook 2007). Few, if any, deer occur in GMU 1D and there is no State or Federal harvest season. No population estimates are available for deer in the analysis area, but based on a variety of indicators the population appears to be increasing in GMUs 1C and 4 following the severe winters in 2006-2009 (Scott 2013, Mooney 2013b).

Although deer will use a wide range of habitat from shoreline to alpine, they are associated with old-growth forests. This species represents those that use lower elevation (below 800 feet elevation) - productive old-growth (POG) forest habitats during the winter. Research conducted in Southeast Alaska indicates that low-elevation, high-volume old-growth habitats are particularly important to deer, especially during severe winters (Schoen and Kirchhoff 1990; Hanley and Rose 1987; Yeo and Peek 1992). These mature old-growth stands intercept snow, provide thermal cover, and support herb and shrub forage for deer (Alaback 1982; Schoen *et al.* 1984). The quantity, quality, distribution, and arrangement of winter habitat are considered the most important limiting factors for Sitka black-tailed deer in Southeast Alaska (USDA Forest Service 2008b, p. 3-230).

Like other species discussed, deer have been shown to be susceptible to disturbance by humans. Deer from harvested populations may be more susceptible to disturbance than populations that are not hunted (Stankowich 2008).

For ADF&G regulatory years 2007-2011 in GMU 1C, 813 hunters participated and harvested an estimated 345 deer per year (Scott 2013). For regulatory years 2007-2011 in GMU 4, 2,524 hunters participated and harvested an estimated 4,160 deer per year (Mooney 2013b).

Guided deer hunting would be allocated under all alternatives. Fifteen guiding companies are authorized by the Forest Service to provide up to 117 guided deer hunts in the analysis area. Harvest by guided hunters is unknown, but reported use averaged 24 hunts per year from 2010 to 2014, ranging from 13 to 39. All reported use occurred in GMU 4. Guided deer hunts are often done in combination with or may be incidental to guided hunts for other species.

Forest Plan standards and guidelines for deer include considering deer habitat during project planning and analysis (USDA Forest Service 2008a p. 4-92).

Vancouver Canada Goose

The Vancouver Canada goose (*Branta canadensis fulva*) was selected as a Tongass MIS because of their association with wetlands (both forested and non-forested) in the estuary, riparian, and upland areas of the Forest. They were selected as an MIS for this analysis because they congregate in particular areas on the forest while molting during the summer, which provides viewing opportunities, but they are particularly susceptible to disturbance during this time.

There is little information on Vancouver Canada goose response to recreational activities. However, waterfowl in general have been shown to be susceptible to disturbance from activities such as hiking, kayaking, and motor vehicles (eg. see Blanc *et al.* 2006, Boyle and Samson 1985).

Vancouver Canada geese are relatively non-migratory, with the majority of birds moving only locally between nesting, brood rearing, molting, and winter concentration areas. They are highly mobile and are found throughout the mainland and islands of Southeast Alaska. They often nest in low productivity wetland and muskeg forest (Hupp *et al.* 2006). Nesting and brood-rearing habitats are potentially affected by various forest management activities, although timber harvest in these areas has generally been minimal because these sites are fairly unproductive.

Large aggregations of molting geese are known to occur in the analysis area, such as Tracy Arm (01-05 D) and Fords Terror (01-05E). Although other areas may be less well documented, with similar habitat and the population well distributed in the analysis area, molting congregations likely occur throughout the

analysis area. These molting aggregations are sensitive to approach by humans in boats or on foot (Lebeda and Ratti 1983).

Estuarine habitats are important to Vancouver Canada geese during winter where they exploit marine grasses and salt marsh plants commonly found in intertidal areas (Fox 2008). Because intertidal communities are relatively stable environments, waterfowl that use such habitats often move little during winter and show strong fidelity when returning to winter sites (Hupp *et al.* 2010). Geese concentrated in these areas during the winter would be susceptible to disturbance (Fox 2008).

Guided waterfowl hunting is a permitted activity in the analysis area. However, very little guided waterfowl hunting is conducted, with just 14 total service days reported during 2010 – 2014. Most guided waterfowl hunting is done incidental to or in combination with other guided hunts. In Alaska, an estimated 9,900 Canada geese were harvested by 1,900 hunters over 7,600 days afield, statewide (Raftovich *et al.* 2015).

The Forest Plan provides standards and guidelines to avoid or minimize disturbance to important goose habitat (USDA Forest Service 2008a, p. 4-94). Additionally, riparian and wetland standards and guidelines, which include the use of various best management practices, are designed to minimize impacts to and maintain the function of these habitats (USDA F 2008a, p. 3-241).

Other Species of Concern

Other species that have Forest Plan standards and guidelines or other legal status, occur in the analysis area, and may be impacted by the proposed action or alternatives were included in this analysis.

Harbor Seals

Harbor seals (*Phoca vitulina*) are not a Tongass MIS or Region 10 Sensitive species. They were chosen for analysis because they are protected under the Marine Mammal Protection Act (MMPA), common in the analysis area, and popular on wildlife viewing tours. In addition, there are numerous haul-outs in the analysis area, several large group areas are near seal haul-outs, and hauled-out seals are sensitive to disturbance. The MMPA prohibits the “take” of marine mammals. Take means: “to harass, hunt, capture, or kill, or attempt to harass hunt, capture or kill.” Harassment means “any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild; or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including but not limited to migration, breathing, nursing, breeding, feeding, sheltering”. National Marine Fisheries Service (NMFS) regulations further define take to include “the negligent or intentional operation of an aircraft or vessel, or the doing of any other negligent or intentional act which results in disturbing or molesting a marine mammal” (50 CFR 216.3).

NMFS regulations pertaining to viewing seals include remaining at least 100 yards from marine mammals and limiting time spent observing individuals to 30 minutes. Additional guidance includes:

- use extra caution when viewing seals that are on land or ice, as harassment may occur at distances greater than 100 yards,
- when encountering seals hauled out on land or ice, avoid making the animals aware of your presence,
- while viewing marine mammals, your actions should not cause a change in the behavior of the animals (see NMFS web site http://alaskafisheries.noaa.gov/protectedresources/mmv/guide.htm).

Recent voluntary, but strongly recommended, guidelines for all vessels in all glacial areas (e.g. Tracy Arm) have been established which include:

- keep 500 yards away from all seals without compromising safe navigation,
- practice no wake,

- avoid abrupt changes in course or engine pitch,
- avoid loud noises,
- avoid traveling through waters with greater than 50 percent ice cover,
- target visits during early morning and evening hours when fewer seals are hauled out
- specific travel areas for Tracy Arm are recommended.

Forest Plan direction for harbor seals includes (USDA Forest Service 2008a page 4-93):

- ensuring Forest Service permitted or approved activities are conducted in a manner consistent with the MMPA and NMFS regulations and guidelines, including prohibiting take,
- locating Forest Service authorized and approved facilities and concentrated human activities as far from known marine mammal haul outs, rookeries and known concentration areas as feasible;
- Guideline distances include locating developments 1 mile from known haul outs,
- Forest Service permitted or approved activities will not intentionally approach within 100 yards or otherwise intentionally disturb or displace any hauled out marine mammal, and
- cooperate with state and other federal agencies to develop sites and opportunities for the safe viewing and observation of marine mammals by the public.

In Alaska, harbor seals range from Southeast Alaska, west through the Gulf of Alaska and Aleutian Islands, in the Bering Sea north to Cape Newenham, and the Pribilof Islands. There are twelve stocks of harbor seals in Alaska, with five in Southeast Alaska, and three within the analysis area (Allen and Angliss 2014). The Glacier Bay/Icy Strait, Lynn Canal/Stephens and Sitka/Chatham stocks occur in the analysis area. The Glacier Bay/Icy Strait stock includes one of the largest breeding aggregations in the state, but has been on a long-term population decline. Trends are not known for the Lynn Canal/Stephens and Sitka/Chatham stocks.

Harbor seals are generally non-migratory, but move locally associated with tides, weather, season, food availability, and reproduction (Allen and Angliss 2014). Pups are born between May and mid-July. Pups are able to swim almost immediately after birth. They remain with their mothers for about 1 month (Kinkhart et al. 2008). Harbor seals haul out of the water to rest, give birth, and nurse their pups. They spend more time hauled out in spring and summer during the pupping and molting seasons. Reefs, sand and gravel beaches, sand and mud bars, and glacial ice are used for haul-out sites. Harbor seals are opportunistic foragers and take advantage of seasonally available prey resources, primarily fish (Kinkhart et al. 2008).

While harbor seals will often voluntarily swim close to humans on beaches or in small boats, seals resting on land or ice are wary of people and will rush in to the water if approached too closely. Hauled-out seals have been shown to be susceptible to disturbance by all vessel types (Henry and Hammill 2001, Jansen et al. 2014, Young 2009) as well as humans on foot. In general, the larger and closer the motorized vessel, the greater the disturbance (Young 2009). If disturbed too often, seals have been known to abandon favorite haul out sites or their pups (Kinkhart et al. 2008). Disturbance can increase the risk of mother-pup separation during the short (~3 weeks) but critical life stage of weaning when pups must receive maternal sustenance and protection to survive (Jansen et al. 2010).

Seabirds

Seabirds were chosen for analysis because some are protected under the Migratory Bird Treaty Act (MBTA), there are numerous nesting colonies in the analysis area, they are popular sights on wildlife viewing tours, nesting birds can be sensitive to disturbance, and the Forest Plan contains standards and guidelines for this group of species.

There is limited data on colonies of seabirds, but the Seabird Information Network maintains the online North Pacific Pelagic Seabird Database of sites recorded during surveys. This database is not all inclusive, but includes 46 colony sites within the analysis area (R. Kaler personal communication). Most are located along the outer coast of Baranof, Chichagof, and Yakobi Islands. Species include Leach's storm-petrel, fork-tailed storm-petrel, tufted puffin, common murre, glaucous-winged gull, pelagic cormorant, black-legged kittiwake, rhinoceros auklet, pigeon guillemot, thick-billed murre, ancient murrelet, herring gull, arctic tern, double-crested cormorant, black oystercatcher, horned puffin, mew gull, and Caspian tern. Many of the seabird colonies in the analysis area are on exposed rocky shores or inaccessible cliffs and do not receive substantial outfitter or guide use. Many are exposed to the open ocean and are therefore not protected enough for frequent motorized boating. Two colony sites are on the islands that contain the Three Hill Island and George Island LGAs. There are also known, but undocumented seabird sites around the analysis area, in locations such as Tracy (01-05D) and Endicott Arms (01-05F) and Stephens Passage (04-06B) that receive substantial vessel traffic and recreation-related tourism.

Colonial seabirds can be affected by human disturbance, particularly during the breeding season (Anderson and Keith 1980, Burger 1981, Chatwin 2010, Klein et al. 1995, Pierce and Simons 1986, Rodgers and Schwikert 2002, Rodgers and Smith 1995). Disturbance can also displace them from foraging areas. Carney and Sydeman (1999) reviewed literature on human disturbance of seabirds and found that many seabirds, such as cormorants, gulls, and terns, exhibited substantially reduced breeding success whereas other species, such as albatrosses and shearwaters, showed little to no effect or became habituated to repeated human presence. Chatwin (2010) studied offshore disturbance from motor boats and kayaks and found that most seabird species were not disturbed if boats and kayaks remained at least 70 meters [230 ft] offshore. However, Chatwin (2010) re-confirmed that surface-nesting seabirds are particularly vulnerable to land-based disturbance and recommended that viewers not go ashore at seabird nest or roost sites. Conversely, studies of impacts of motorboats and personal watercraft by Rodgers and Schwikert (2002) showed that buffers of 150 meters [~500 ft] were necessary to prevent flushing, nest abandonment, or other altered behavior.

Forest Plan direction for seabird rookeries provides for the protection and maintenance of seabird (marine bird) rookeries. Direction includes locating facilities and concentrated human activities requiring Forest Service approval as far from known seabird colonies as feasible consistent with the Migratory Bird Treaty Act, maintaining a 250 meter (820 feet) no-disturbance distance from seabird colonies on upland habitats, and limiting the availability of garbage to gulls by requiring special use permittees to collect and dispose of garbage from their special use permits (USDA Forest Service 2008a, pg. 4-93).

Migratory Birds

The Migratory Bird Treaty Act of 1918 (amended in 1936 and 1972) prohibits the taking of migratory birds, unless authorized by the Secretary of Interior. Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) provides for the conservation of migratory birds and their habitats and requires the evaluation of the effects of Federal actions on migratory birds, with an emphasis on species of concern. Federal agencies are required to support the intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory birds when conducting agency actions. A Memorandum of Understanding (MOU) was entered into between the Forest Service and the USFWS to strengthen migratory bird conservation (USDA Forest Service 2008c). The MOU identifies strategies that promote conservation and avoid or minimize adverse impacts on migratory birds through enhanced collaboration between the Forest Service and USFWS and in coordination with State, tribal, and local governments. The MOU requires that the Forest Service, within the NEPA process, evaluate the effects of agency actions on migratory birds, focusing first on species of management concern along with their priority habitat and key risk factors (Appendix 1 of the resource report lists the identified species, but northern goshawk, black oystercatcher, Aleutian tern, and Kittlitz's murrelet are addressed in the

biological evaluation). This includes, to the extent practicable, evaluating and balancing the long-term benefits of projects against short and long-term adverse effects, pursuing opportunities to restore or enhance habitat, and considering approaches to identify and minimize take.

Over 100 species of birds migrate from the lower 48 states, Central and South America, to nesting, breeding, and rearing grounds in Alaska. Most of the birds fly to the interior or northern Alaska and only pass through Southeast Alaska on their way to the breeding grounds (USDA Forest Service 2008b, pg. 3-244). Species most likely to be affected by this project are those that use shoreline, beach fringe, riparian, and estuarine areas, especially where large numbers concentrate in an area (e.g. migrating shorebirds).

The analysis area includes four important bird areas (IBA). These are sites, identified by Birdlife International and partners, which provide essential habitat for one or more species of birds that have some level of conservation concern. IBAs on or adjacent to NFS lands in the project area include Port Snettisham, Berners Bay, Glacier Bay and Icy Strait, Stephens Passage and Tracy-Endicott Arms, and Sitka Sound. All of these IBAs are primarily aquatic, although Berners Bay includes some uplands. Berners Bay is identified as a State priority site while the other three are identified as globally important sites. Each IBA focuses on the following species: marbled murrelet in Port Snettisham and Stephens Passage and Tracy-Endicott Arms; bald eagle, surf scoter, and Thayer's gull in Berners Bay; Barrow's goldeneye, Kittlitz's murrelet, marbled murrelet, pelagic cormorant, surf scoter, and white-winged scoter in Glacier Bay and Icy Strait.

Threatened, Endangered, and Sensitive Species

The analysis area, assumptions, and affected environment for this section are the same as the MIS species section above.

Lists of federally threatened and endangered species for the State of Alaska were accessed from the USFWS and NMFS websites on August 13, 2015 (Table 3-29, USFWS 2015a; Table 3-30 NMFS 2015). These lists were reviewed to determine which species occur in the analysis area using existing survey data, GIS layers and databases, communication with research personnel, agency internet sites, literature reviews, and information in the 2008 Forest Plan FEIS. Species known or suspected to occur within the analysis area were analyzed further.

Table 3-29: Threatened and endangered species managed by the USFWS that occur in Alaska.

Common Name	Scientific Name	ESA Status	Location Description
Eskimo curlew	*Numenius borealis*	Endangered	Nested in the Arctic tundra (USFWS 2012a).
Short-tailed albatross	*Phoebastria albatrus*	Endangered	Occupies coastal waters in the Gulf of Alaska and the Aleutian Islands (USFWS 2015b).
Spectacled eider	*Somateria fischeri*	Threatened	Occupies coastal waters in northern and western Alaska (USFWS 2012b).
Steller's eider	*Polysticta stelleri*	Threatened	Occurs in northern and western Alaska (USFWS 2014a).
Northern sea otter, SW Alaska population	*Enhydra lutris kenyoni*	Threatened	Inhabits the Aleutian Islands, Alaska Peninsula coast, and Kodiak Archipelago (USFWS 2013).
Polar bear	*Ursus maritimus*	Threatened	Lives only in the arctic (USFWS 2014b).
Wood bison	*Bison bison athabascae*	Threatened	Meadows interspersed with forest, peat, and shrub lands in interior Alaska and western Canada (76 Federal Register 26: 6734-6754).
Pacific walrus	*Odobenus rosmarus divergens*	Candidate	Continental shelf waters of the Bering and Chukchi Seas (Garlich-Miller *et al.* 2011).

Table 3-30: Threatened and endangered species managed by the NMFS that occur in Alaska

Common Name	Scientific Name	Distinct Population Segment	ESA Status
Blue whale	*Balaenoptera musculus*		Endangered
Bowhead whale	*Balaena mysticetus*		Endangered
Fin whale	*Balaenoptera physalus*		Endangered
Humpback whale	*Megaptera novaeangliae*		Endangered
North Pacific right whale	*Eubalaena japonica*		Endangered
Sei whale	*Balaenoptera borealis*		Endangered
Sperm whale	*Physeter macrocephalus*		Endangered
Beluga whale	*Delphinapterus leucas*	Cook Inlet	Endangered
Gray whale	*Eschrichtius robustus*	Western North Pacific	Endangered
Steller sea lion	*Eumetopias jubatus*	Western	Endangered
Bearded seal	*Erignathus barbatus*		Threatened
Ringed seal	*Phoca hispida*		Threatened
Harbor seal	*Phoca vitulina*	Iliamna Lake [2]	Candidate
Chinook salmon	*Oncorhynchus*	Puget Sound	Threatened
	tshawytshca	Lower Columbia River	Threatened
		Upper Columbia River spring	Endangered
		Upper Willamette River	Threatened
		Snake River spring/fall	Threatened
		Snake River fall	Threatened
Sockeye salmon	*Oncorhynchus nerka*	Snake River	Endangered
Coho salmon	*Oncorhynchus kisutch*	Lower Columbia River	Threatened
Steelhead	*Oncorhynchus mykiss*	Upper Columbia River	Endangered
		Middle Columbia River	Threatened
		Lower Columbia River	Threatened
		Upper Willamette River	Threatened
		Snake River Basin	Threatened
Chum salmon	*Oncorhynchus keta*	Hood Canal summer run	Threatened
Green sturgeon	*Acipenser medirostris*	Southern DPS	Threatened
Leatherback sea turtle	*Dermochelys coriacea*		Endangered
Loggerhead sea turtle	*Caretta caretta*		Threatened
Green sea turtle	*Chelonia mydas*		Threatened
Olive Ridley sea turtle	*Lepidochelys olivacea*		Threatened
Pinto abalone	*Haliotis kamtschatkana*		Candidate

Since all federally listed species known to occur in the project area are primarily restricted to the marine environment, activities in the marine environment of northern Southeast Alaska form the basis of environmental baseline conditions. Vessel use of the marine environment is extensive and watercraft range from small personal skiffs to large commercial ships. The Forest Service does not have jurisdiction over marine waters, but access to outfitter/guide use sites requires interdependent actions such as use of motorized boats or fixed-wing aircraft to reach sites.

The project area has a number of communities, including Juneau, the largest community in Southeast Alaska. Most communities have at least one small harbor for personal watercraft, commercial fishing

vessels, and charter fishing boats. Most communities also have ferry terminals that support the Alaska Marine Highway. Several of the communities also have marine facilities that support cruise ships and large supply barges. Many local residents own and use boats for work and leisure. There is no data on the amount of boat traffic in the analysis area. However, vessel traffic varies substantially based on distance from communities and between major channels and secluded bays.

Recreational use is not distributed equally. Some areas have intensive disturbance whereas others have less-intensive disturbance (Leung and Marion 2000). Some factors affecting use in Southeast Alaska include distance from communities and ease of access such as protected anchorages, landing sites, and facilities (e.g., cabins).

Access sites addressed in this project are primarily accessible via marine waters and therefore watercraft travel to them presents the potential for effects to marine mammals. Because individual activity allocations are not being set, it is not possible to determine or analyze the amount or type of future outfitter-guide boat use. However, this project is focused on shoreline use which is predominantly accessed by motorized boats.

Boat access to sites was widely distributed across the area, with use reported at approximately 550 sites between 2010 and 2014. Outfitter/guides employ a wide variety of motorized boats, from small motorized skiffs to small cruise ships. Potential effects from boats include acoustic disturbance (engine noise), ship strike, wave action from boat wakes, and fuel or oil spills. In some cases, the larger vessels may launch smaller skiffs and kayaks for shore excursions. Kayakers make less noise and are less likely to accidentally strike marine mammals, although they may disturb them, particularly when hauled out on shore or ice (Gunvalson 2011). Also, some guides use small plane support to exchange clients from town rather than return to town with their vessel.

Threatened and Endangered Species Addressed in Detail

Humpback Whales

Humpback whales were listed as endangered under the Endangered Species Conservation Act on December 2, 1970 (35 Federal Register 233: 18319 – 18322 [December 2, 1970]), and have been listed under the ESA since its implementation in 1973. There are four recognized distinct population segments (DPS) of humpback whales in the North Pacific (Western, Hawaii, Mexico and Central America). The Hawaii DPS has the higher occurrence in southeast Alaska making up about 94% of the populations. The other 6% contains individuals from the Mexico DPS. On September 8, 2016 the Hawaii DPS was removed from the endanger species list.

Commercial whaling operations were the primary contributor to the decline in humpback whale populations (NMFS 1991b). The recovery plan completed by the NMFS for the humpback whale identified six known or potential categories of human impacts to these species: hunting, entrapment and entanglement in fishing gear, collisions with ships, acoustic disturbance, habitat degradation, and competition for resources with humans. The primary ongoing threat to humpback whales is entanglement in fishing gear (NMFS 1991b); especially drift gillnets (Carretta et al. 2007). The minimum annual mortality and serious injury rate due to fisheries related activities is 7.45 whales per year for the entire stock and 2.55 whales per year for Alaska (Allen and Angliss 2014).

Between 1978 and 2011, 108 whale-vessel collisions were reported in Alaskan waters, a majority (86 percent) of which involved humpback whales (Neilson et al. 2012). Twenty-five of these collisions resulted in the whale’s death. The minimum annual mortality due to vessel strikes is 4.23 whales per year for the entire stock and 1.8 for Alaska (Allen and Angliss 2014). Laist et al. (2001) found that while all sizes and types of vessel can strike a whale, ships greater than 80 meters (265 feet) and those going faster than 14 knots were most likely to cause severe or fatal injuries.

Whales that use low-frequency sounds (such as the humpback whale) may be at an increased risk for disturbance from anthropogenic noise (Carretta et al. 2007). The Central North Pacific stock is the focus of a large whale-watching industry in its wintering grounds (Hawaii) and a growing whale watching industry in Alaska where it spends the summer (Allan and Angliss 2014). Whale watching could result in acoustic disturbance or displacement from preferred habitats. Noise from small and large boats can disturb whales; however, it is not likely to mask communication or cause harm to their auditory system, especially boats abiding by NMFS standoff distance of 100 yards (Au and Green 2000). However, Ellison et al. (2012) were concerned that most studies to date only focused on the acute effects and did not assess chronic effects or contextual factors that may affect response.

Humpback whales are common in the inside waters of the Alexander Archipelago and are regularly sighted in the Inside Passage and coastal waters of Southeast Alaska from Yakutat Bay south to Queen Charlotte Sound. Humpback whales feed in Southeast Alaska waters from about May through December, although some have been seen every month of the year (NMFS 1991b). Calambokidis et al. (2008) estimated between 7,469 and 10,103 humpback whales for the Central North Pacific stock, and between 2,883 and 6,414 humpback whales in Southeast Alaska and northern British Columbia. Hendrix et al. (2012) estimated a 2008 humpback whale population of 1586 in northern Southeast Alaska.

The local distribution of humpbacks in Southeast Alaska appears to be correlated with the density and seasonal availability of prey, particularly herring and euphausiids. Important feeding areas include Glacier Bay and adjacent portions of Icy Straight, Stephens Passage/Frederick Sound, Seymour Canal, and Sitka Sound. Glacier Bay and Icy Straight appear to be important feeding areas early in the season, when whales prey heavily on herring and other small, schooling fishes. Frederick Sound is important later in summer, when whales feed on swarming euphausiids. During autumn and early winter, humpbacks move out of the Sound to areas where herring are abundant, particularly Seymour Canal (NMFS 1991b).

Humpback whales are known to occur in the marine waters adjacent to the project area. No surveys were conducted specifically for humpback whales. Forest Plan direction for humpback whales (USDA Forest Plan 2008a, p. 4-99) includes protecting habitat and ensuring permittees follow regulations for preventing take. Take includes harassing or pursuing or attempting such activities.

Sperm Whales

Sperm whales were listed as endangered under the Endangered Species Conservation Act on December 2, 1970 (35 Federal Register 233: 18319 – 18322 [December 2, 1970]), and have been listed under the ESA since its implementation in 1973. In the North Pacific, sperm whales numbers were heavily depleted by commercial harvest (Ivashchenko et al 2013, Allen and Angliss 2015). Prior to exploitation, North Pacific stock abundance for sperm whales is believed to have been around 1,260,000 (Allen and Angliss 2015). Following the 1970s, stocks are now believed to have been reduced to 930,000 (Allen and Angliss 2015). Reliable current estimates for sperm whales are not available and no reliable population trends estimates can be made (Allen and Angliss 2015).

In general, sperm whales are considered pelagic species and are usually found in waters 600 meters or deeper, and are uncommon in waters less than 300 meters (NMFS 2016a). A recent study by Southeast Alaska Sperm Whale Avoidance Project (SEASWAP 2016) tracked the movement of several individuals into the insides waters of Southeast Alaska. The study showed several tagged whales migrating through Chatham Strait as far north as the Lynn Canal with one individual moving through Icy Strait (SEASWAP 2016). However, sperm whale sightings in the inside waters of Southeast Alaska are still considered uncommon (Allen and Angliss 2015).

The sperm whale recovery plan (NMFS 2010) cites a number of potential threats to Pacific stocks, but all of these threats are considered low or expected to have little effect on their recovery. Four of the most common threats cited for Southeast Alaska sperm whales are interactions with commercial fishing, whale

watching, acoustic disturbance, and ship strikes. From 2008-2012, no serious injuries or mortalities were observed for sperm whales in commercial fishing waters in Alaska (Allen and Angliss 2015). Very little information is available for understanding the frequency of ship strikes, but general consensus is that the threat is low (NMFS 2010). Neilson et al. (2011) found that out of the 89 defined whale strikes documented from 1978-2011, only one of those was a sperm whale and the fate of that whale is unknown. The level of effects on sperm whales from ship noise is not fully understood either, but effects are expected to be similar to those described for humpback whales (NMFS 2010). From 2006-2010, there were 11 sperm whales mortalities reported in the Alaska Region Stranding Program (Allen and Angliss 2015). However, the human interaction for these cases could not be determined.

Steller Sea Lion – Western Distinct Population Segments (DPS)

The Steller sea lion ranges from Hokkaido, Japan, through the Kuril Islands and Okhotsk Sea, Aleutian Islands and central Bering Sea, Gulf of Alaska, Southeast Alaska, and south to central California (NMFS 2008). They consist of two distinct population segments (DPS) separated at 144° W longitude (near Cape Suckling, just east of Prince William Sound, Alaska). The NMFS listed the Steller sea lion as threatened range-wide under the Endangered Species Act in April 1990. The decline has continued for the western population in Alaska, which was declared endangered in 1997.

In November 2013 the NMFS published a final rule to delist the eastern DPS of the Steller sea lion (NOAA 2013a, 78 Federal Register 213: 66140 – 66199 [November 4, 2013]). The NMFS conducted a status review and determined that this DPS no longer meets the definition of a threatened species and has recovered sufficiently that delisting is warranted. The eastern DPS remains protected under the Marine Mammal Protection Act. By Forest Service policy (FSM 2600, Supplement R-10 2600-2005-1, 2672.11), the eastern DPS of the Steller sea lion was required to be classified as a FS sensitive species for at least 5 years following delisting and is addressed in the sensitive species section of this analysis. However, in June 2016, R10 Supplement policy that required that delisted species be included on the R10 sensitive species list for 5 years was rescinded. A revision to FSM 2672.24 Delisting Monitoring Plan Implementation, currently in draft form, will address monitoring and conservation measures for delisted species. This does not change the analysis or conclusions for the eastern DPS Steller sea lion.

The western DPS of the Steller sea lion remains classified as an endangered species and no changes have been made to critical habitat designations. Critical habitat may be modified in a later ruling (78 Federal Register 213: 66140 – 66199 [November 4, 2013]).

A recent minimum population estimate for the United States portion of the western DPS was 45,659 (Allen and Angliss 2014). This estimate did not correct for animals that were at sea during the surveys. Data suggests that the western DPS population overall increased between 2000 and 2012, although it still seems to be decreasing west of Samalga Pass in the Aleutians (Allen and Angliss 2014).

Steller sea lions inhabit colder temperate to sub-arctic pelagic and near-shore waters in the North Pacific Ocean with sufficient prey for foraging, terrestrial haul-out sites which are used for rest and molting, and rookeries used for mating and pupping (NMFS 2008). Haul-outs and rookeries are gravel, rocky, or sand beaches, ledges, or rocky reefs (NMFS 2008). They take prey opportunistically and eat many different fish, such as capelin, cod, herring, mackerel, pollock, rockfish, salmon, and sand lance. They also eat bivalves, cephalopods, and gastropods.

Adult males are first to arrive at rookeries and establish territories by mid-May. Peak parturition is late May through early July, and breeding takes place about 11 days later (NMFS 2008). Territorial males abandon territories once breeding ends and by August adult males leave rookeries although adult females and young may remain through September. In winter, sea lions may travel far out to sea into water greater than 1,000 meters deep and commonly near and beyond the 200-meter depth contour (NMFS 2008). Additional life history and population information is contained in the Recovery Plan (NMFS 2008) and is incorporated by reference.

Critical habitat including haul-out and rookery sites has been designated for Steller sea lions and includes a 3,000-foot distance landward and seaward from major rookery and haul-out sites in Southeast Alaska. Major rookeries and haul-outs in Southeast Alaska are identified in 50 CFR 226. There is one rookery and eight haul-outs designated as critical habitat within the analysis area (Table 3-31). Biali Rock is listed in the CFR as a haul-out but is now known to also be a rookery (NMFS 2013b). There are numerous other locations where smaller numbers of sea lions regularly haul-out which may not be fully documented. The NOAA webpage as a link to the mapped smaller haul-outs such as navigation markers, see http://www.nodc.noaa.gov/cgi-bin/OAS/prd/accession/details/129877 for map detailing smaller haul-outs.

Table 3-31: Steller sea lion critical habitat in the analysis area (50 CFR 226)

Location	Type	Use Area
White Sisters	Rookery	04-15D
Benjamin Island	Haul out	01-04B
Biali Rock	Haul out	04-02B
Cape Cross	Haul out	04-15B
Cape Ommaney	Haul out	04-01B
Biorka (Kaiuchali) Island	Haul out	04-02C
Gran Point	Haul out	01-01
Point Lull	Haul out	04-04B
Sunset Island	Haul out	01-05C

Most of the sea lions that occur in the analysis area are from the eastern DPS. However, the NMFS has determined that some individuals of the endangered western DPS commonly occur year-round in Southeast Alaska, north of Sumner Strait (NMFS 2013c). Fritz et al. (2013) estimated an average annual breeding season movement of western DPS Steller sea lions to Southeast Alaska of 917 animals. Less than 2 percent of all re-sightings of sea lions branded in the western population occurred in the eastern population (Raum-Suryan et al. 2002).

Forest Plan direction for sea lions (USDA Forest Service 2008a, pp. 4-93, 4-98, and 4-99) includes protecting habitat and ensuring that FS permittees follow regulations for preventing take. Take includes harassing or pursuing or attempting such activities.

Sensitive Species

The sensitive species list for the Alaska Region was revised February 2, 2009, and by Alaska Region policy also includes species more-recently designated as Candidates by the NMFS or USFWS.

Table 3-32 lists the Forest Service Region 10 Sensitive Species. Information on basic biological and ecological requirements for some of these species is found in the Forest Plan FEIS which is incorporated by reference. Additional literature and information is maintained in the District files. Standards and guidelines for sensitive species are described starting on page 4-88 of the Forest Plan.

Table 3-32: Alaska Region (R10) sensitive species

Common Name	Scientific Name
Aleutian tern	*Sterna aleutica*
Black oystercatcher	*Haematopus bachmani*
Dusky Canada goose	*Branta canadensis occidentalis*
Kittlitz's murrelet	*Brachyramphus brevirostris*
Queen Charlotte goshawk	*Accipiter gentilis laingi*

Steller sea lion – eastern DPS	*Eumetopias jubatus*
Pacific walrus	*Odobenus rosmarus divergens*
Iliamna Lake harbor seal	*Phoca vitulina*

Aleutian Tern

The Aleutian tern breeds in Alaska and Siberia. In Alaska, they are associated with coastal areas throughout the Aleutian Island as far west as Attu Island, north to the southeast Chukchi Sea and east to the Alaska Peninsula, Yakutat, and Glacier Bay. Aleutian terns feed primarily in shallow waters, including tidal rips, rivers, inshore marine waters and fresh water ponds and marshes, on small fish (e.g. capelin and sand lance), marine invertebrates and some insects (USFWS 2006a). They nest in coastal colonies in a variety of habitats including islands, shrub-tundra, grass or sedge meadows, and freshwater coastal marshes (USFWS 2006a). On the Tongass, nesting colonies occur on the Yakutat Ranger District as well as in the adjacent Glacier Bay National Park.

Their migration routes and wintering areas are not well known, but they are thought to migrate over water to wintering areas in the tropical western Pacific (Haney et al. 1991).

The world population is estimated at 17,000-20,000 individuals, while the Alaska breeding population is estimated at around 9,500 birds (USFWS 2006a). Population viability concerns in Aleutian terns have been raised due to population declines throughout their range. Declines may result from both natural and human-induced causes such as isostatic rebound, structural changes in vegetation, shifts in forage prey populations, and disturbances from human activities (Goldstein et al. 2009). Aleutian terns are highly sensitive to human disturbance (North 2013, USFWS 2006a).

Aleutian terns are considered casual or accidental in Southeast Alaska (Armstrong 1995). There is only one reported sighting of Aleutian terns in the analysis area (eBird 2015). There are no known nesting colonies within the analysis area.

Forest Plan direction for Aleutian terns can be found in the Forest Plan under “Seabird Colonies” in Chapter 4 of the Standards and Guidelines for Wildlife (USDA Forest Service 2016a, p. 4-89, XI) and in the Wildlife Standards and Guidelines (USDA Forest Service 2016a, S-WILD-03, p. 5-14).

Black Oystercatcher

Black oystercatchers have a small global population (estimates of 8,500 – 11,000 individuals) with distribution from the Aleutian Islands down the Pacific Coast to Baja California. The majority of the population breeds in Alaska, concentrated especially in Prince William Sound and the Kodiak Archipelago. The population trend in Alaska is thought to be stable, but survey data is limited, and trend data virtually nonexistent. In addition to being a R10 Sensitive species, black oystercatchers are listed as a species of “high concern” in the Alaska shorebird conservation plan (Alaska Shorebird Group 2008), a U.S. Fish and Wildlife Service bird of conservation concern within region 7 (Alaska), and are included in the Alaska Audubon Watch List.

Black oystercatcher populations appear to be regulated by the availability of quality foraging and nesting habitat. Because they are confined to specific shoreline habitat and congregate during the winter, they are vulnerable to natural and human disturbances. Threats include predation, recreational disturbances, flooding, vessel wakes, and shoreline contamination (Tessler et al. 2007). Extensive data collection from Kodiak Island to British Columbia in the early 2000s showed these long-lived birds have high site fidelity but low reproductive rates and high inter-annual variability in nest success (Goldstein et al. 2009).

They favor rocky shorelines and forage exclusively on intertidal macroinvertebrates (e.g., limpets and mussels) found in sheltered areas of high tidal variation (Tessler et al. 2007). Black oystercatchers nest in

uneven distribution, usually in proximity to gradually sloping shorelines with dense mussel beds. Nesting sites range from mixed sand and gravel beaches to exposed rocky headlands. Nests are generally shallow circular depressions lined with shell fragments or pebbles located just above the high tide line. Some nests may be on cliffs above the high tide line. They tend to avoid vegetated habitats and are most abundant on non-forested islands (Tessler et al. 2007).

Most egg laying occurs in May and early June, but replacement clutches may be laid into mid-July (Anders and Falxa 1995). The eggs are incubated for about 4 weeks. Chicks can leave the nest bowl within 1 day of hatching, but it takes about 3 days before they can walk and swim competently. The parents brood the chicks at least intermittently for up to 23 days. The young can fly by about 40 days, but they remain with their parents through the first year (Anders and Falxa 1995).

In winter, oystercatchers concentrate on protected, ice-free tidal flats with dense mussel beds. In Alaska, migrating and wintering flocks favor tidal flats of protected bays and inlets, where mussel beds occur. They forage almost exclusively in intertidal habitats, on rocky shores exposed to surf action and on sheltered gravel, cobble, or sandy shores and mudflats of bays and sounds (Anders and Falxa 1995).

There is suitable habitat for black oystercatchers in the analysis area and they have been reported in the analysis area (eBird 2015). No comprehensive surveys of the analysis area have been completed but they are assumed to occur where suitable habitat exists.

Forest Plan direction for black oystercatchers is to minimize human disturbance of habitats during important periods of the year (nesting and brood-rearing, molting, and winter) by managing human uses (such as trails and off highway vehicle use) in significant wetland areas. To reduce human disturbance, provide a minimum distance of 330 feet (100 meters) between human activities on the ground and significant areas used by other waterfowl.

Forest Plan direction for black oystercatchers can be found in the Forest Plan under Waterfowl and Shorebird Habitats in Chapter 4 of the Standards and Guidelines for Wildlife (USDA Forest Service 2016a, p. 4-89, XI) and in the Wildlife Standards and Guidelines (USDA Forest Service 2016a, S-WILD-04, p. 5-14).

Dusky Canada Goose

Dusky Canada geese nest primarily on the Copper River Delta and winter in southwestern Washington and western Oregon (Bromley and Rothe 2003). Dusky Canada goose nest areas have not been identified on the Tongass, but they may occur here while migrating to and from winter habitat (Bromley and Rothe 2003). Dusky Canada geese appear to leave the Copper River Delta area in early to mid-October for fall migration. They are thought to migrate primarily offshore, with few stops on the way to the wintering area. Most appear to have returned to the Copper River Delta by mid to late April and again, appear to make few stops along the way (Bromley and Rothe 2003).

Most Canada geese in the analysis area are Vancouver Canada geese which are nearly indistinguishable from dusky Canada geese. It is possible but unlikely dusky Canada geese could be in the analysis area for short periods during spring and fall. No project level surveys were conducted. There is no specific Forest Plan direction for this species, but general direction for waterfowl and shorebird habitats apply (USDA Forest Service 2008a, pp. 4-93 to 94) and direction for the protection of beach, estuary and riparian habitats maintain habitat for this species.

Kittlitz's Murrelet

In May 2001, the USFWS received a petition for listing the Kittlitz's murrelet. In May 2004, the USFWS published in the Federal Register (USDI FWS 2004, 69 Federal Register 69:24876-24904 [May 4, 2004]) that listing of the Kittlitz's murrelet was warranted but precluded, indicating candidate species status. In October 2013, the FWS determined that listing the Kittlitz's murrelet was not warranted (USDI FWS

2013, 78 Federal Register 192:61764-61801 [October 3, 2013]). The species is no longer a USFWS candidate species. However, it remains on the Alaska Regional Forester list of sensitive species.

The Kittlitz's murrelet was designated as a candidate species because of concerns with significant population declines. Range-wide, the population declined substantially between 1989 and 2000 but stabilized between 2000 and 2012. The causes for the decline have not been satisfactorily determined (USDI FWS 2013, 78 Federal Register 192:61764-61801 [October 3, 2013]). The range-wide population is estimated to be around 33,500 birds (USDI FWS 2013, 78 Federal Register 192:61764-61801 [October 3, 2013]).

Kittlitz's murrelet is a small diving seabird that is closely associated with glacial habitats along the Alaska mainland coast. The only North American population occurs in Alaskan waters from Point Lay south to northern Southeast Alaska (Endicott and Tracey Arm) (USFWS 2006b). Records indicate that the distribution once reached as far south as LeConte Bay (Agler et al. 1998, Webster 1950). Recent surveys found that these murrelets were distributed from Icy Bay to Endicott Arm with the highest density in Icy Bay and none observed in LeConte Bay (Kissling et al. 2007). The largest breeding populations are believed to be in Glacier Bay National Park and Preserve, Prince William Sound, Kenai Fjords, and Icy Bay (Kendall and Agler 1998). The Kittlitz's murrelet population has shown a significant decline in Prince William Sound, Glacier Bay and in the Malaspina Forelands (USFWS 2006b).

Kittlitz's murrelets congregate near tidewater glaciers and offshore of remnant high-elevation glaciers during the breeding season. Breeding sites are usually chosen in the vicinity of glaciers and cirques in high-elevation alpine areas with little or no vegetative cover (van Vliet 1993). Nesting habitat is characterized by sparsely vegetated scree-fields, coastal cliffs, barren ground, rock ledges, and talus above timberline in coastal mountains, generally in the vicinity of glaciers, cirques near glaciers, or historically glaciated areas. Surveys completed in Southeast Alaska found that Kittlitz's murrelet used a greater variety of habitat then previously acknowledged, including glaciated fjords on the mainland and exposed areas along the outer coast in addition to more protected inner fjords (Kissling et al. 2007). During winter and spring, the marine distribution of Kittlitz's murrelet is farther offshore (USFWS 2002).

Prey consists of fish including sand lance (Ammodytes hexapterus), herring (Clupea pallasi), capelin (Mallotus villosus), and sandfish (Trichodon trichodon), and euphausiids, amphipods and small crustaceans (Day et al. 1999). They forage extensively near the outflow from glaciers, both tidewater and retreated glaciers with turbid glacial streams, and primarily within 656 feet (200m) from shore (Day et al. 1999). Higher densities of murrelets were observed where tidewater glaciers were stable or retreating and with adjacent uplands dominated by ice. Along the outer coast, abundance was associated with distance to shore (within 200 m) and shallow waters (10 fathoms or less) (Kissling et al. 2007).

Due to the Kittlitz's murrelet association with glacial habitat, this species occupies only very specific areas on the Tongass. Forest Plan direction for seabirds and shorebird habitats applies (USDA Forest Service 2008a, pp. 4-93 to 94).

Queen Charlotte Goshawk

The Queen Charlotte goshawk has been the subject of listing petitions and several other legal challenges under the ESA. The USFWS evaluated listing the goshawk in 2007 and concluded that the subspecies population in Southeast Alaska is a distinct population segment (DPS) and that the best available information on biological vulnerability and threats to the goshawk did not support listing this population as threatened or endangered at that time (USDI FWS 2007a, 72 Federal Register 216: 63123 – 63140, [November 8, 2007]). In 2012, the USFWS listed the British Columbia DPS as threatened, but again, the Southeast Alaska DPS was not listed (USDA FWS 2012, 77 Federal Register 148: 45870 – 45893, [August 1, 2012]). The USFWS did not support listing the Southeast Alaska DPS because of differences in conservation status, habitat management, and regulatory mechanisms (USDA FWS 2012, 77 Federal Register 148: 45870 – 45893, [August 1, 2012]).

The Queen Charlotte goshawk is recognized as a distinct subspecies of the northern goshawk (*Accipiter gentilis*) that occurs only in coastal areas of British Columbia and in Southeast Alaska. Because it is difficult to distinguish between the Queen Charlotte and northern goshawk, this document will refer to both as "goshawks".

Within Southeast Alaska and on the Tongass National Forest, the goshawk is a year-round resident and may occupy different or overlapping winter and breeding territories (USDA Forest Service 2008b). Goshawks are a wide-ranging forest raptor that occupies old-growth forest habitat in Southeast Alaska. Productive old-growth (POG) forest is an important component of goshawk habitat use patterns in Southeast Alaska and at all scales (nest tree, nest site, post-fledging areas) goshawks select POG forest types. For this analysis, POG is defined using the size-density model (SDM) that uses average tree size (quadratic mean diameter) and average tree density (stand density index) based on stand structure associated with stand age and site conditions to define differences in forest structure (Caouette and DeGayner 2005). The model delineates seven size density (SD) classes (SD4H, SD4N, SD4S, SD5H, SD5N, SD5S, SD67) that describe POG forest stand structure. High-volume POG (HPOG) may include the largest trees and is defined as SD5N, 5S and 67.

Non-productive forest types and young-growth stands are also used to a lesser extent, and in some areas these matrix lands may be important for long-term goshawk management (Reynolds et al. 1992). Most other habitat types (such as alpine, subalpine, muskeg, and clearcuts) were used infrequently or avoided by goshawks. Occasionally, goshawks will nest in younger forests or in smaller patches of trees, and forage in young forest as well as along edges and in openings (Boyce et al. 2006).

Suitable nest site habitat consists of large trees with a dense canopy and generally an open understory averaging 12 to 37 acres in size (Flatten et al. 2001). Lewis (2005) analyzed 63 nest sites (habitat immediately surrounding the nest) from 50 nesting areas (a 20- to 30-acre area surrounding a nest, including roosts and prey plucking sites) in Southeast Alaska and found that 89 percent were located in high-volume stands with relatively dense, multi-storied canopies (SD5N, SD5S, and SD67 categories). Nest areas had significantly more forest, productive forest, hemlock, and canopy cover and less non-forested area than random 12-hectare plots, and less non-forested habitat and forest/non-forest edge than random 65-hectare plots (Lewis 2005).

Foraging areas comprise the largest percentage of the goshawk's home range. Foraging habitat is characterized by forested stands with a greater diversity of age classes and structural characteristics (e.g., snags, woody debris) than nesting areas (Reynolds et al. 1992). Breeding season home range size is strongly dependent upon the quality of foraging habitat and prey availability. In Southeast Alaska, prey remains identified in goshawk breeding areas included Steller's jays (Cyanocitta stelleri), grouse (Dendragapus spp.), varied thrush (Ixoreus naevius), red squirrel (Tamiasciurus hudsonicus), and woodpeckers (Picidae) (Titus et al. 1994). The median size adult goshawk home range during the breeding season in Southeast Alaska was 9,469 acres for females and 11,425 acres for males (Iverson et al. 1996).

Goshawks generally occur in low densities in Alaska. Populations are believed to have declined, primarily due to timber harvest since the 1950s. In 2007, the USFWS estimated the goshawk population at 261 to 336 breeding pairs on the Tongass National Forest and 300 to 400 pairs across Southeast Alaska (USDI FWS 2007a, 72 Federal Register 216:63123-63140 [November 8, 2007), but confidence in the estimate was low. Flatten et al. (2001) observed a 45 percent territory occupancy rate in Southeast Alaska from 1991 to 1999. Mean productivity was two fledglings per nest with a 93 percent success rate of >one young fledged.

Low prey diversity results in higher sensitivity to habitat modification which may further reduce prey diversity and abundance. Disease and predation also contribute to population declines, especially in the presence of other stress factors such as prey shortages, but there is no indication that goshawks have

experienced any significant problems with disease or predation in Alaska (72 Federal Register 216: 63123 – 63140, [November 8, 2007]).

There are at least 67 known historic nests within the analysis area, many of which are alternate nests within the same territory. Thirty-five of the nests are within the shoreline zone (project area). The current status of these nests is unknown.

Forest Plan direction for goshawks (USDA Forest Service 2008a, pages 4-99 to 100) focuses on nest site management, including conducting inventories to determine the presence of nesting goshawks for proposed projects that affect goshawk habitat. Continuous disturbances likely to result in nest abandonment within the surrounding 600 feet of the nest are not allowed from March 15 to August 15. The Forest Plan also includes a conservation strategy that consists of a system of reserves (Old Growth Habitat Reserves and other non-development LUDs) and direction for managing the matrix between reserves.

Steller Sea Lion – Eastern DPS

The basic biological information for sea lions described above for the western DPS in the Threatened and Endangered section of this biological evaluation also applies to the eastern DPS. However, while western DPS sea lions are expected to rarely occur in the analysis area, eastern DPS sea lions are expected to regularly occur in the analysis area year-round.

A recent minimum population estimate for the United States portion of the eastern DPS was 34,485 (Allen and Angliss 2014). This estimate did not correct for animals that were at sea during the surveys. The eastern DPS increased at a rate of 4.18 percent per year between 1979 and 2010 (Allen and Angliss 2014).

Pacific Walrus and Lake Iliamna Harbor Seal

The Pacific walrus and Lake Iliamna harbor seal are included as sensitive species based on their listing as candidate species by the USFWS and NMFS, respectively (FSM 2672.11). The Pacific walrus inhabits the shallow continental shelf waters of the Bering and Chukchi Seas (Garlich-Miller et al. 2011) and does not occur in Southeast Alaska. The NMFS has initiated a status review of the Lake Iliamna harbor seal in response to a petition to identify them as threatened or endangered as a distinct population segment (NOAA 2013, 78 Federal Register 96: 29098 – 29100 [May 17, 2013]). They are currently considered part of the Bristol Bay stock which does not occur in Southeast Alaska (Allen and Angliss 2014). There is no specific Forest Plan direction for these species. These species do not occur in the analysis area and no direct, indirect or cumulative effects are expected. They will not be addressed further.

Environmental Consequences

Direct and Indirect Effects

Direct and indirect effects occur from outfitter/guide activities and connected actions that can adversely affect individuals, their young, or their habitat. General disturbance effects on wildlife from recreational activities have been well documented, but not well quantified. The indirect impacts of recreation on wildlife are even less understood than the direct impacts (Cole and Landres 1995). Boyle and Sampson (1985) recognized that impacts were occurring, but acknowledged that management was hampered by the complexity of cause-and-effect relationships and the incompleteness of existing information. Taylor and Knight (2003) document similar lack of information on the area of influence from various recreational activities. Tempel et al. (2008) compiled current research and summarized effects: 1) if an activity elicits a significant behavioral response from individuals, occurs frequently, and/or is widespread, long-term impacts to the reproduction and survival of individuals is possible; 2) if a large enough number of individuals is negatively affected by recreation, impacts at the population level can occur; 3) if impacted

wildlife populations have important interactions with other species, community impacts are also possible. The significance and magnitude of any effect are related to the extensiveness, intensity, and timing of the activity. The vulnerability and rarity of the habitat, and its importance to a species, is also important (Cole and Landres 1995).

Direct effects from recreation include intentional or unintentional wildlife harassment, alteration of wildlife behavior, and displacement from food, water, and shelter (Leung and Marion 2000). According to Blanc et al. (2006), the main effect of disturbance is a change in behavior whether it is associated with movement and escape or not. Effects can be physiological or behavioral. Physiological effects include increased heart rate and respiration, increased oxygen consumption, increased body temperature, and increased metabolism (Gabrielsen and Smith 1995). Gill et al. (2001) state the decision to move away from disturbance or not is complex and dependent upon the quality of the habitat individuals are currently occupying, the distance to and quality of other suitable sites, the relative risk of predation, the density of competitors in alternative sites, and the investment required to establish a new territory. Indirect effects include reduced health and fitness, reduced reproductive rates, increased mortality, and composition change (Leung and Marion 2000, Taylor and Knight 2003, Cole and Landres 1995). Many immediate disturbance responses appear to be short-term; however, little is known about the long-term effects of recreational disturbance on energy balance or survival rates. Indirect effects occur through normal outfitter/guide activities such as hiking, biking, hunting, and fishing where recreationists have the potential to negatively impact the physical environment (e.g., trampling vegetation, soil compaction, erosion, disturbances due to noise and motion, pollution, nutrition loading, and introduction of non-native invasive plant species).

Boyle and Sampson (1985) reviewed 166 research articles, of which 163 documented negative effects of recreational activity on wildlife: 52 on hiking and camping, 37 on boating, 27 on wildlife viewing and photography, 20 on off road vehicle use, 12 on snowmobile use, 8 on shore recreation and swimming, and 7 on rock climbing. Leung and Marion (2000) state that the mere presence of visitors may harm wildlife by displacing them from essential habitats or disrupting their raising of young and that trails and campsites may cause a landscape fragmentation effect possibly interfering with movement of some animal species. Visitors hiking on trails may disturb wildlife, displacing them from trail corridors temporarily or permanently. Likewise, camping can disrupt normal wildlife activities, attract animals, or alter wildlife habitat through vegetation and soil impacts causing wildlife to avoid areas with campsites (Leung and Marion 2000, Boyle and Sampson 1985). Most vegetation damage occurs quickly at low and moderate levels of visitor use (Leung and Marion 2000). Monz (1998) found that campsites on beaches and on forest understory in Prince William Sound, Alaska, were very susceptible to vegetation loss. Cole and Landres (1995) discuss damage to vegetation and soils caused by human trampling during hiking, camping, fishing, and nature tours. Czech et al. (2000) identified outdoor tourism and recreation development as the fourth-leading cause of population declines in threatened and endangered species.

Direct and indirect effects vary by activity. Direct impacts on wildlife species from fishing include disturbance, entanglement with fishing lines and ingestion of lead sinkers. Indirect impacts associated with fishing include vegetation trampling, boating disturbance, and introduction of non-native species. Recreationists involved in wildlife viewing and photography intentionally approach wildlife, which can be more disturbing than accidental encounters since encounters are generally more frequent and of longer duration (Boyle and Sampson 1985). Direct impacts from hunting include intentional approach and mortality. Indirectly, hunting can affect population levels and structure (e.g. age and sex ratios etc.).

In light of the above information, the outfitter/guide activities being considered under this project could cause disturbance to wildlife. In addition, outfitter/guide use is not distributed equally. Some areas have intensive disturbance, whereas others have less-intensive disturbance (Leung and Marion 2000). For example, at the large group areas, the larger groups of people and concentrated use of these areas could lead to increased disturbance and resource damage. Some factors affecting use in Southeast Alaska

include distance from communities and ease of access such as protected anchorages, landing sites, and facilities (e.g., cabins).

Because quantitative evaluation of recreation effects was not possible owing to data limitations for many species, a risk ranking was developed based upon the number of service days allocated to outfitter/guide use and the assumption that the risk of disturbing wildlife would increase as the number of days allocated to outfitter-guide use increased. This is similar to the assumption in Gaines et al. (2003) that as recreational demand increases, effects on wildlife also increase over space and time and that increasing recreational use results in decreasing species persistence and maintenance of ecosystem processes and function.

Should outfitter/guide use approach the levels allowed under any of these alternatives, it could result in a substantial increase in the impacts described for wildlife as outlined above. Some species, particularly those sensitive to disturbance from human activities, may experience negative consequences such as disruption of feeding, reproduction, or other factors affecting short-term population levels. During the implementation of the proposed action, small site-specific areas are likely to be impacted by outfitted and guided activities. As these sites are identified, each will require evaluation by the district biologist to determine what impacts are occurring. If warranted, site-specific mitigations will be developed and implemented to return the site to conditions similar to pre-disturbance.

Generally speaking, estimated disturbance to wildlife is greatest for Alternative 4, followed by Alternatives 2, 3, and 1, respectively. This is based solely on the number of service days allocated under each alternative. However, alternative rankings vary by use area based on the objectives of the alternative and the land use designation of the use area (e.g. wilderness etc.). Alternative 4 was ranked highest in allocated use in 42 of the use areas, and second highest in the remaining six. Alternative 1 had a fairly even distribution of use areas in which it was ranked highest through lowest, while Alternative 2 was ranked second or third highest in all use areas. Alternative 3 was ranked lowest in allocated use in 29 use areas but never ranked highest in any. Alternative 3 maintains low use in remote use areas, but increases use overall compared to the No Action (Alternative 1) by concentrating higher amounts of use in a relatively few use areas. These use areas tend to be the ones that support the highest amount of current use.

Management Indicator Species Direct and Indirect Effects

Alexander Archipelago Wolf

Wolves are highly sought after for wildlife viewing and occasionally for hunting. Wolves only occur in GMU 1 and therefore would only be affected by the allocations in the GMU 1 use areas. Based on the total service days allocated (all seasons) to use areas in GMU 1, Alternative 4 has the greatest risk for effects from disturbing wolves, followed by Alternatives 2, 1, and 3, respectively.

Wolf hunting is an authorized outfitter/guide activity only in Guide Use Area 01-05 within the analysis area. There is no difference between alternatives in how wolf hunts are managed.

Hunting effort and mortality from guided hunters is assumed the same across all alternatives. Harvest has the potential to affect wolf population levels and structure. However, current levels of effort and harvest by guided hunters is too small to constitute a population concern. No specific allocations are made for guided wolf hunting in any of the alternatives.

Effects from all four alternatives are expected to be minor, with individuals noticeably affected and some short-term consequences to population structure from harvest mortality and repeated disturbance at high quality habitat sites. All four alternatives will result in mortality due to harvest of wolves. Generally, Alternative 4 would result in the greatest risk to wolves, while Alternative 3 would result in the least risk. All alternatives allocate service days well above the current actual use which could result in greater disturbance to wolves if actual use increases to allocation levels.

Bald Eagle

Direct and indirect effects to bald eagles associated with this project relate to disturbance of eagles at nest sites. Bald eagles may respond in a variety of ways when disturbed by human activities near nest sites. The severity of their response can be context dependent, relating to frequency and severity of the disturbance, type of disturbance, novelty of the disturbance and distance from the nest (Steidl and Anthony 1996, 2000). During the nest-building period, eagles may inadequately construct or repair their nest, may expend energy defending the nest rather than tending to their young, or may abandon the nest, all of which can lead to failed nesting attempts. During the incubation and hatching period, human activities may startle adults or cause them to abruptly flush from the nest which can damage eggs or injure young. Prolonged absences of adults from their nests can jeopardize eggs by causing them to overheat or cool and fail to hatch. Young nestlings may die from hypothermia or heat stress if adults are forced away from the nest for an extended period of time. Eggs and juveniles are also subject to greater predation risk while they are unattended. If human activities disrupt the adults' foraging and feeding schedule, the young may be malnourished, affecting their development and ultimate survival. Older nestlings may be startled by loud or intrusive human activities and prematurely jump from the nest before they are able to fly (USDI FWS 2009). Human activities that cause any of these responses and lead to injury, a decrease in productivity, or nest abandonment are considered disturbance and are thus a violation of the Bald Eagle Protection Act (USDI FWS 2009).

Steidl and Anthony (2000) studied the effects of recreational activity on bald eagles in interior Alaska. Eagle behavior changed substantially when campers camped for 24 hours 100 meters [~330 feet or minimum required by regulation] from a nest as opposed to camps 500 meters [1,640 ft] from the nest. Where humans were camped closer to active eagle nests, eagles spent less time taking care of themselves, their nests, and their young and more time away from the nest. Steidl and Anthony (2000) concluded that presence of humans near active bald eagle nests caused changes in behavior that could ultimately result in population-level impacts through reductions in offspring survival.

No physical alteration of habitat is authorized under any alternative, so no impacts to habitat suitability are expected. Alternative 4 has the highest allocated service days and is likely to create the greatest disturbance to bald eagles of any alternative, followed by Alternatives 2, 3, and 1, respectively. While some use areas do not follow this general pattern of impact among alternatives, none are known to be particularly important to bald eagles relative to the other use areas. Generally, the same areas that receive the most use currently will see the most use under the different alternatives, but the degree of increase allocated is the difference. It is assumed that all applicable buffers and seasonal restrictions required by law will be followed. However, not all nest sites are known and inadvertent incursions are to be expected. In addition, sometimes disturbance can occur even when humans are beyond the 330-foot buffer because the impact distance and level of effect depends on whether the eagles can see and/or hear the activity from their nest and on how tolerant the birds are to human activity. Thus, occasional responses to disturbance by some individuals, but with no real interference with reproduction or foraging other than short-term disturbance and/or displacement from foraging areas are expected from all alternatives. Recommendations for minimizing impacts to eagles are outlined Appendix C, Stipulations and BMPs.

Black Bear and Brown Bears

Since habitat and disturbance factors are similar for both brown and black bears, the species were combined for effects analysis. Most research in Alaska focuses on brown bears, but available information on black bears supports similar habitat and disturbance. There are two main effects of outfitter/guide activities on bears: mortality associated with guided hunts, and disturbance at key foraging areas such as grass flats in the spring and salmon streams in the fall.

There is no difference between alternatives in how bear hunts are managed. The BBMS provides the primary guidance for guided brown bear hunt management, along with consultation with the ADF&G. For black bears, the ADF&G and the Forest Service will work together to set appropriate hunt allocations

for guides based on a variety of factors including, but not limited to, estimated population size and trend, and the amount and locations of interest from guides. The hunt allocation process will take place independently of this NEPA analysis. Currently, the Forest Service has determined that there is a competitive interest for guided black and brown bear hunting on the Juneau Ranger District (GMUs 1C and 1D). Therefore, no new bear hunts would be approved until such time as a prospectus is developed. There is no current timetable for the development of a prospectus.

Mortality due to guided harvest is anticipated under all four alternatives. Hunting effort and mortality from guided hunters is assumed the same across all alternatives. Harvest has the potential to affect bear population numbers and structure (e.g. trophy hunters target large, dominant males). Current information indicates that under the current ADF&G season and harvest limits, population numbers are meeting ADF&G's objectives. However, indirect effects on bear population structure may be occurring. Bears have a hierarchical society with large males being the most dominant. Selectively targeting this segment of the population may have indirect effects by changing foraging efficiency and population dynamics (e.g. see Gosselin et al. 2015, Gende and Quinn 2004). Most black bear harvest in GMU 1 is by resident and nonresident non-guided hunters. Guided black bear hunting constitutes a small percentage (3 percent) of the overall GMU 1 actual use and between 0 and 7 percent of the actual use in GMU 1 use areas. Most brown bear harvest is by non-resident, guided hunters. Brown bear hunting constitutes about 6 percent of overall guide use in the analysis area and between 0 and 76 percent of use in individual use areas. No specific allocations are made for guided bear hunting in any of the alternatives.

Authorizing brown bear hunts by GUA and season could create incentives for guides to not take clients hunting in multiple GUAs because it counts as multiple hunts toward the BBMS. This could reduce the percentage of successful hunts and indirectly reduce bear mortality. Currently, guides are limited in their total number of hunts, but not on the number of hunts they are authorized within their permitted GUAs. Theoretically, they could use all authorized hunts in one GUA or take each client hunting in each of their authorized GUAs. More-strictly managing the number of hunts per GUA and season would meet the recommendations of the BBMS and may benefit bears by reducing the harvest.

The remaining actions are primarily administrative in nature, although some could indirectly affect bears by changing guided hunt success rates. For example, a prospectus could focus on providing a variety of hunt types, such as muzzle-loaders or archery that might have a lower success rate. However, analysis of any such change is speculative at this time because the specifics of the prospectus are unknown. The action to rescind the "Outfitter and Guide Change in Ownership Direction 2009" would not likely affect bears because, now that the numbers of brown bear hunts and guides have been reduced to the BBMS recommendations, it is no longer needed.

Aside from mortality due to harvest, primary direct and indirect effects to bears are related to disturbance of bears by the presence of people in their habitats. Outfitter/guide use under all alternatives has the potential to disturb or displace bears, which can alter social patterns and affect energy balance and overall bear fitness or survival.

The primary concern for bears is disturbance at grass flats during the late spring season and salmon streams in the fall. In spring, bears are exiting their dens and foraging on the first available food which is concentrated along saltwater, particularly in estuary habitats. This is prime season for hunting bears, and they are a highly sought-after species for viewing during remote setting nature tours. In addition, freshwater fishermen are focusing on many of these same areas. Similarly in late summer and fall when the bears congregate in riparian areas along salmon streams, hunters, nature tours, and fishers focus on the same areas. Guided sports fishermen looking for trout or salmon in late summer or fall are likely to encounter bears, potentially disturbing the bears, causing stress and reducing their foraging efficiency. These encounters can also lead to potential defense of life and property mortalities in bears. As guides work to spread their operations out to reduce human encounters, this may leave few high-quality areas undisturbed. This may cause individual and population-level effects on bears such as displacement, loss

of foraging time, nutritional stress, increased competition, and greater risk of predation (i.e., by brown bears on black bears, or black bear boars on cubs) (Olson 1997, Hilderbrand et al. 1999, White et al. 1999, Crupi 2003). However, it is difficult to quantify the degree to which the presence of people recreating within bear habitats will disturb individual bears or affect long-term population viability.

Human activities in bear habitat can disturb or displace bears (Kasworm and Manley 1990, Smith *et al.* 2012, Costello *et al.* 2013). Human use on roads may result in mortality by both legal and illegal harvest. Remote setting nature tours and guided fishing often occur in tidal and riparian areas where the possibility of a bear encounter may be higher. Camping, hiking, and photography can also be stressful to bears. Improperly stored foods and trash can increase the likelihood of bear-human encounters that can lead to injuries and mortalities for both humans and bears, although no defense of life and property kills related to outfitter/guide activities have been reported. The Forest Plan provides standards and guidelines to minimize conflict with bears and maintain important bear habitat (USDA 2008a, p. 4-92). Brown bears occur throughout the analysis area and the general risk of disturbance effects based on total allocated service days are greatest under Alternative 4, followed by Alternatives 2, 3, and 1. Brown bear guided hunts are authorized and occur in GUAs 01-03 and 01-05 as well as all GUAs in GMU 4. Use areas with higher levels of guided brown bear hunts tend to be in areas with lower overall allocated use. Focusing on the concern for disturbing bears by multiple user groups during late spring and fall when they are most concentrated and vulnerable, Alternative 4 is expected to have the greatest risk of disturbance because it has the most allocated use during the Late Spring and Fall seasons in the use areas where guided brown bear hunting occurs; followed by Alternatives 1, 2, and 3. Note that Alternative 1 does not separate allocations into Early and Late Spring seasons, so all use could occur during the Late Spring season. These rankings reflect all spring use for Alternative 1 occurring during Late Spring. Based on current use patterns, this is reasonable because only about 5 percent of actual use occurs during the Early Spring season.

Black bears are limited to GMU 1 and therefore would only be affected by the alternative allocations in the GMU 1 use areas. Based on the total service days allocated (all seasons) to use areas in GMU 1, Alternative 4 has the greatest risk for effects from disturbing black bears, followed by Alternatives 2, 1, and 3, respectively. Alternatives 1 and 2 are very similar in service days allocated. Focusing on GUAs 01-03 and 01-05, which are the only areas within the analysis area where black bear guided hunts are authorized, Alternative 4 again has the greatest risk during the Late Spring and Fall seasons in the use areas within these GUAs; followed by Alternatives 1, 2, and 3. Under all alternatives, GUA 01-05 has a relatively high level of overall allocated use during Late Spring and Fall seasons, which could indicate a high level of disturbance to black bears from all activities.

Effects from all four alternatives have the potential to be minor, with individuals noticeably affected due to harvest and repeated disturbance. All four alternatives will result in mortality due to harvest of bears. Overall, Alternative 4 would result in the greatest risk of disturbance to bears, followed by Alternatives 2, 3, and 1. All alternatives allocate total use well above the current actual use, which could result in greater disturbance to bear if actual use increases to allocation levels.

Mountain Goat

The main effect of outfitter/guide activities on mountain goats is disturbance and mortality associated with guided hunts. Most shoreline based activity is far enough away from goats that disturbance is unlikely, except possibly during winter when goats are at lower elevation and may be close to shoreline areas. The mountain goat hunting season occurs during the summer and fall seasons defined in this analysis, although almost all guided hunts occur during the fall season.

There is no difference between alternatives in how mountain goat hunts are managed. There are no specific guided goat hunting allocations for any alternative. The Forest Service and the ADF&G will work together to set appropriate hunt allocations for guides based on a variety of factors including, but not limited to, estimated population size and trend, and the amount and locations of interest from guides.

The hunt allocation process will take place independently of this NEPA analysis. Currently the Forest Service has determined that there is a competitive interest for guided mountain goat hunting in the analysis area. Therefore, no new goat hunts would be approved until such time as a prospectus is developed. There is no current timetable for the development of a prospectus.

Mortality due to guided harvest is anticipated under all four alternatives. Hunting effort and mortality from guided hunters is assumed the same across all alternatives. Harvest has the potential to affect goat population levels. However, the hunts are closely managed by ADF&G and at current levels of effort and harvest, including guided hunters, the population numbers are within ADF&G's objectives.

Mountain goats are known to be sensitive to human disturbance (Foster and Rahs 1983, Frid 1997, Stankovich 2008). Disturbance can affect population dynamics indirectly by altering behavior which can result in greater energetic costs; animals perceiving increased risk may seek safety by running and/or moving to a different location. These behavioral changes can reduce foraging efficiency by increasing vigilance, and/or by forcing animals to forage in safer habitats but where food is less abundant. In addition to these overt responses, heart rates can become elevated, increasing metabolic rate and energy consumption. If disturbance is severe enough, increased energetic costs and reduced foraging efficiency could deteriorate the body condition of individuals to the point of reducing their reproductive success.

Alternative 4 has the highest risk of disturbance effects on goats based on the allocated guide use in the range of mountain goats (GMU 1 and Baranof Island), followed by Alternatives 2, 3, and 1. Considering just the winter use in this area, Alternative 4 again has the highest risk, and Alternatives 2 and 3 have equal risk as they have equal allocations. Alternative 1 does not allocate any use during the winter season.

Effects from all four alternatives are expected to be moderate. All four alternatives will result in mortality due to harvest of goats. Non-hunting related disturbance is expected to be minimal because goats are in alpine habitat during the high use summer season and there is little use during the winter season when goats may be in the shoreline zone. Generally, Alternative 4 would result in the greatest risk of disturbance to goats, while Alternative 3 would result in the least risk.

Sitka Black-tailed Deer

Direct and indirect effects to deer include mortality as a result of guided harvest and disturbance that may cause stress to the animals, increase metabolic costs due to stress and energy costs of flight, temporary displacement, reduce foraging efficiency, etc. However, it is difficult to quantify the degree to which the presence of people recreating within deer habitats will disturb individual deer or cause long-term population consequences. No physical alteration of habitat is authorized under any alternative, so no impacts to habitat suitability are expected. Some minor indirect habitat effects such as trampling of vegetation are expected but should be inconsequential compared to the available habitat.

There is no difference between alternatives in how deer hunts are managed. There are no specific guided deer hunting allocations for any alternative. The Forest Service and the ADF&G will work together to set appropriate hunt allocations for guides based on a variety of factors including, but not limited to, estimated population size and trend, and the amount and locations of interest from guides. The hunt allocation process will take place independently of this NEPA analysis. There is not a competitive demand for guided deer hunting in the analysis area.

Mortality due to guided harvest is anticipated under all four alternatives. Hunting effort and mortality from guided hunters is assumed the same across all alternatives. Harvest has the potential to affect deer population levels and structure. However, guided hunting for deer is generally incidental to or in combination with hunts for other big game species such as bear or goats. Overall deer hunting accounts 0.5 percent of guided activities in the analysis area and ranges from 0 to 29 percent by use area. Guided deer harvest contributes very little to overall deer harvest in the analysis area.

Effects from all four alternatives have the potential to be minor, with individuals noticeably affected due to harvest and repeated disturbance. All four alternatives will result in mortality due to harvest of deer. Overall, Alternative 4 would result in the greatest risk of disturbance to deer, followed by Alternatives 2, 3, and 1. All alternatives allocate service days well above the current actual use which could result in greater disturbance to deer if actual use increases to allocation levels.

Vancouver Canada Goose

No physical alteration of habitat is authorized under any alternative, so no impacts to habitat suitability are expected. Some minor indirect habitat effects such as trampling of vegetation are expected, but should be inconsequential compared to the available habitat.

There is no difference between alternatives in how guided goose hunts are managed. There are no specific guided goose hunting allocations for any alternative. A low level of mortality due to guided harvest is anticipated under all four alternatives. Hunting effort and mortality from guided hunters is assumed the same across all alternatives. Guided hunting for geese is generally incidental to or in combination with hunts for big game species such as bear or goats. Overall waterfowl hunting accounts for less than 0.1 percent of guided activities in the analysis area, and is inconsequential in relation to overall waterfowl harvest in the analysis area.

Geese would experience the direct and indirect effects associated with disturbance under all of the alternatives. Because Vancouver Canada geese remain in the analysis area year round, and the seasons, as defined for this project, do not correspond to their biological cycle, total allocations were used to rate the alternatives for likelihood to cause disturbance effects to geese. Thus, Alternative 4 is likely to cause the most disturbance effects, followed by Alternatives 2, 3, and 1.

In sites where human use is high, geese may stop using those sites if disturbance is too great. Given that most guided use occurs during the summer, effects to wintering geese should be limited. However, geese are more concentrated in winter so a single event could cause greater disturbance. Impacts to geese are expected to be minor under all alternatives.

Other Species of Concern Direct and Indirect Effects

Harbor Seals

No physical alteration of habitat is authorized under any alternative, so no impacts to habitat suitability are expected.

The primary concerns for harbor seals are disturbance related to boat activity and disturbance of seals at haul-outs. Marine waters are not within Forest Service jurisdiction, but the Forest Plan requires permittees to follow all regulations (in this case the Marine Mammal Protection Act [MMPA]) including NMFS guidelines. While this analysis assumes all outfitter/guides adhere to the MMPA and NMFS guidelines as required, there is still a chance that their activities could result in minor changes in behavior (e.g. alert, change direction) beyond the 100 yard regulated stand-off distance. There is no data on the number of boat trips made by permitted outfitter/guides, but for this analysis it is assumed to correlate with the allocation, i.e. the higher the allocation, the more boat trips. Thus, Alternative 4 would create the greatest risk for disturbing seals, followed by Alternatives 2, 3, and 1. Tracy and Endicott Arms are an area of particular concern because seals haul-out on icebergs and the area receives substantial tourism associated vessel traffic. Tracy and Endicott Arms include parts or all of use areas 01-05B, D, E and F. Williams Cove, a large group area in Tracy Arm, receives very high use (average 770 service days per year) under the current allocation. Alternatives 2, 3, and 4 would increase the allocation in use area 01-05B, which includes the Williams Cove LGA, and thus increase the risk of disturbing seals. There are no LGAs within 100 yards of harbor seal known haul-outs, but because of the wide-spread distribution of seals and their haul-outs, many LGA and general use sites are within sight and sound distance. While the

seals provide a valuable visitor viewing experience, care will need to be exercised when accessing and using these sites.

Effects to seals under all alternatives are expected to be minor. Some small changes in behavior by seals are possible (e.g. increases in alertness, changes in direction while swimming) but because outfitter and guides will be required to follow NMFS regulations and guidelines, they are not expected to rise to the level of take.

Seabirds

No physical alteration of habitat is authorized under any alternative, so no impacts to habitat suitability are expected.

Guided wildlife viewing tours most certainly pass by and observe some of these colonies, but many, if not most, occur at areas where landing a boat is difficult or dangerous, so there is likely little foot traffic in these areas. As with other species, Alternative 4 has the greatest risk of causing disturbance to seabird nesting colonies based on total allocations, followed by Alternatives 2, 3, and 1. However, the risk to individual colonies could vary by alternative. Alternative 4 allocates the most service days in almost all use areas, but service day allocation ranking for the other three alternatives varies by use area. In addition, the risk will vary depending on which species inhabit the colony. Overall, the available literature suggests that the Forest Plan buffer distance of 250 meters (820 feet) should protect seabird colonies from substantial disturbance.

Effects to seabirds under all alternatives are expected to be negligible. Some minor disturbance is likely, but because many colonies are hard to access and outfitters and guides will be required to follow Forest Plan 250-meter stand-off distances, no measureable effect is expected.

Migratory Birds

Boyle and Sampson (1985) summarized recreational impacts on wildlife in a review of 166 articles, 61 percent of which assessed birds as study subjects. The studies covered a wide range of recreation types including camping, hiking, boating, motorized and nonmotorized use. Approximately 73 percent of those studies found negative impacts to birds, roughly 23 percent found no impacts, and about 4 percent found benefits to birds. Species that benefitted were habitat generalists, particularly those able to take advantage of human foods at campgrounds. Negative impacts included disruption of breeding activities, flushing birds away from foraging areas, and changes to habitat such as trampling and pollution.

No physical alteration of habitat is authorized under any alternative, so no impacts to habitat suitability are expected. Direct effects to birds that may result from implementation of this project are mostly limited to disturbances that adversely affect individuals or young. Migratory birds are a diverse group with widely varying habitat needs and sensitive time periods in the analysis area. Most of the species (listed in Appendix 1 of the Wildlife Resource Report in the project record) can be found in the beach fringe at some time of year. Some prefer sand/gravel beaches and tide flats, others rocky beaches, and some are only found in the upland shrubs and forest habitats. Some may be there year round, while others may be there only briefly during migration. Some are plentiful and widely distributed while others are rare and have a patchy distribution. Some species are more sensitive to disturbance than others. All these factors affect the likelihood and intensity of disturbance effects.

Migratory birds would be most susceptible to disturbance from outfitter/guide activities occurring during the nesting/fledging period which generally begins in mid-April and ends about mid-July when young birds have fledged, which corresponds to the Late Spring and Summer seasons defined for this project. Summer has the highest rates of outfitter/guide use in the project area. Nesting birds that are repeatedly disturbed by people could abandon nesting attempts or abandon their nests. However, based on current use patterns, very few sites are expected to see sufficient repeated visits such that nest abandonment is

likely. These impacts would be confined to a fraction of the total habitat available across the analysis area.

Based on allocated service days during Late Spring and Summer seasons, Alternative 4 poses the highest risk of impact to migratory birds because it allocates the most service days and therefore the greatest risk for disturbance from outfitter/guides and their clients. Following Alternative 4, in order of decreasing risk are Alternatives 2, 3, and 1. Effects to migratory birds are expected to be minor under all alternatives, and at worst could include disturbance leading to nest abandonment at high-use sites.

Threatened and Endangered Species Direct and Indirect Effects

Humpback Whales and Sperm Whales

No physical changes to the marine environment are expected under any alternative. No habitat alterations or other impacts to whale prey species are expected. For all alternatives, humpback whales and sperm whales would be exposed to boating and float plane activities including noise and the physical presence of vessels.

Boats carrying guides and clients to various sites on the Forest have the potential to affect humpback whales. A variety of responses to boats have been noted (e.g. see Frankel and Clark 1998, Corkeron 1995). These responses include changes in respiration rates, diving behavior, and swimming direction. Vessel speed and distance from the whale can affect the whale's response. Vessels used by outfitters and guides for this project include a wide variety of vessels from kayaks to approximately 20 foot skiffs to 186 foot small-size cruise ships carrying up to about 75 guests plus crew.

The number of boat trips associated with each alternative is unknown but assumed to be proportional to the service days allocated. Thus, Alternative 4 would have the most trips, followed by Alternatives 2, 3, and 1. Alternative 1 is the No-action Alternative and represents the baseline condition. However, even under this alternative, there is considerable room for additional boat traffic because currently (2010-2014 average), overall actual use is only about 32 percent of the allowable allocation with a generally increasing trend. Therefore, all alternatives could increase the likelihood of disturbance to humpback whales or sperm whales compared to the existing condition. In addition, all alternatives could increase the likelihood of a vessel collision with humpbacks or sperm whales.

The Forest Plan requires that all permittees follow the laws and regulations for preventing "take" under the ESA and MMPA. These regulations have been included as "design criteria" in the Plan and included in permit stipulations. Thus, boat activity may cause some individual whales to experience changes in their behavioral states (e.g. slight avoidance), but are not likely to rise to the level of take and are considered insignificant. Based on mitigation measures to minimize exposure to vessel activities, and the lack of a known vessel strike or mortality from Forest Service permitted activities in the analysis area, the probability of a vessel associated with Forest Service permitted activities under any of the alternatives striking a humpback or sperm whale is rare as to be discountable.

Steller Sea Lion – Western DPS

No physical changes to the marine environment are expected under any alternative. No habitat alterations or other impacts to sea lion prey species are expected. For all alternatives, the noise and physical presence of boats may cause avoidance responses in sea lions and could increase the likelihood of a vessel collision with sea lions. However, Steller sea lions are agile and accustomed to vessel traffic so it is unlikely they would collide with a boat. In addition, there is potential for disturbance of hauled-out sea lions if vessels or shore based groups get too close.

Vessels may disturb Steller sea lions while they are in the water feeding or traveling. Their response is to dive and resurface some distance away from the vessel. They may mill around the vessel or disperse. Steller sea lions are also attracted to vessels when food is being captured or processed and some animals become habituated to this method of feeding (illegal shooting may occur in these instances). Although it

is possible for a Steller sea lion, particularly a young animal, to be harmed by a collision with a vessel (most likely caught by the propeller), they are generally very agile and successful at avoiding such encounters when in the water. Collisions with vessels are not believed to be a significant source of mortality of Steller sea lions (NMFS 2005). Vessel noise does not seem to strongly affect pinnipeds while they are in the water. The number of boat trips associated with each alternative is unknown but assumed to be proportional to the service days allocated. Thus, Alternative 4 would have the most trips, and the most potential risk, followed by Alternatives 2, 3, and 1. Alternative 1 is the No-action Alternative and represents the baseline condition. However, even under this alternative there is considerable room for additional boat traffic because currently (2010-2014 average), overall actual use is only about 32 percent of the allowable allocation with a generally increasing trend. Therefore, all alternatives could increase the likelihood of disturbance of Steller sea lions compared to the existing condition.

Encounters with western DPS sea lions would be uncommon given the low number of western DPS sea lions expected to be in the analysis area and large size of the area involved.

Sea lion haul-outs are distributed throughout the analysis area. For the most part, they do not lend themselves to viewing from onshore sites because their rugged shoreline characteristics prevent easy access. When viewing sea lions from a boat or from shore, outfitter/guides are required to follow ESA and MMPA regulations to prevent take. Therefore, although some guided activities permitted by all alternatives of this project may cause minor avoidance behaviors by sea lions, they are not likely to rise to the level of take.

Of the nine critical habitat sites in the analysis area, five are in exposed locations along the outer coast of Baranof, Chichagof, and Yakobi Islands and are in use areas that receive low guided use. Although some guided use certainly passes by these sites, their location protects them from much use due to tough conditions (waves, lack of protected anchorages, etc.). On the other hand, the Point Lull critical habitat haul-out is within use area 04-04B (Kelp Bay) which receives the highest use of any use area. However, the onshore use sites are not near the haul-out. Overall, Alternative 4 would allocate the most use to the use areas that contain sea lion critical habitat, followed by Alternatives 2, 3, and 1. No large group areas are within 3 kilometers (~2 miles) of any of the critical habitat sites.

Determinations for Threatened and Endangered Species

All alternatives for the Shoreline II Outfitter/Guide project may affect, but are not likely to adversely affect, the humpback and sperm whales and western DPS of the Steller sea lion. Disturbance from boat traffic could cause minor behavioral changes in a small number of individuals of these populations.

All alternatives for the Shoreline II Outfitter/Guide project will have no effect on Steller sea lion critical habitat. No project activities will occur in or adjacent to critical habitat.

Table 3-33: Summary of determinations for threatened and endangered species for the Shoreline II Outfitter/Guide Project

Name	Distinct Population Segment	ESA Status	Determination [1]	
			No Action	Proposed Action
Humpback whale *Megaptera novaeangliae*	*Mexico DPS*	Threatened	Not likely to adversely affect	Not likely to adversely affect
Sperm whale *Physeter macrocephalus*		Endangered	Not likely to adversely affect	Not likely to adversely affect
Steller sea lion *Eumetopias jubatus*	Western	Endangered	Not likely to adversely affect	Not likely to adversely affect
	Critical habitat		No effect	No effect

[1] - Possible determinations for T&E species and Designated Critical Habitat: “no effect”, “not likely to adversely affect”, or “likely to adversely affect”. Possible determinations for Proposed Species and Proposed Critical Habitat: “no effect”, "not likely to jeopardize proposed species, or adversely modify proposed critical habitat", or "likely to jeopardize proposed species, or adversely modify proposed critical habitat" (FSM 2672.42, Supplement R-10-2600-2005-1)

Sensitive Species Direct and Indirect Effects

Aleutian Tern

None of the alternatives would affect tern habitat. No disturbance to nesting colonies would occur because they do not exist in the analysis area. Individuals may occasionally occur in the analysis area, but would be rare, so no impacts from any alternative are expected for Aleutian terns.

Black Oystercatcher

Black oystercatchers spend essentially their whole lives in the shore zone and thus, are susceptible to disturbance from outfitter/guide activities. Documented disturbance impacts include disruption of courtship and breeding activities, abandonment of nests or fledglings, trampling or swamping of nests, reduction in the amount of parental care of young, reduction in the amount of time spent foraging and foraging success, increased predation, and/or desertion of otherwise suitable habitat (Tessler et al. 2007, Goldstein et al. 2009, Andres and Falxa 1995, Chatwin 2010). Andres (1998) contends that regular human disturbance results in very low black oystercatcher density. Conversely, Morse et al. (2006) found no evidence that recreation affected productivity in Kenai Fjords National Park, although the level of disturbance was low and started after peak of hatch. Poe et al. (2009) found that backcountry campers and black oystercatchers in Prince William Sound often selected similar habitat, but the distance between nest territories and campsites was still large. It is unknown if people and black oystercatchers select similar habitats in northern Southeast Alaska.

Alternative 4 would have the greatest risk of disturbance impacts on black oystercatchers, since it would allocate the most service days to outfitters and guides. The remaining alternatives, in order of greatest to least risk of impact, are Alternatives 2, 3, and 1, respectively. Effects are expected to be infrequent under all alternatives. These effects will consist of disturbance of breeding, foraging, and wintering birds and possible destruction of nests. Regular human use, such as that suggested by Andres (1998), would occur in relatively few, localized areas such as some large group areas and a few other popular sites. Most outfitter/guide activity is allocated to and occurs during the summer season, so most disturbance would likely occur after eggs have hatched, similar to the situation described by Morse et al. (2006). The Gulf of Alaska shorelines, where the most extensive habitat and highest densities are expected, receive relatively little guided use. Overall impacts to populations should be low under all alternatives.

Dusky Canada Goose

Disturbance and mortality to dusky Canada geese is possible, but so unlikely as to be negligible under any alternative. They do not generally stop in Southeast Alaska on their migrations and if they do, it’s for a short period. Waterfowl hunting is an outfitter/guide activity under all alternatives, but is usually conducted in combination with or incidental to other hunts. Only 14 service days of waterfowl and small game hunting were reported from 2010-2014. Hansen (1962) reported that only four dusky Canada geese out of 1,129 banded on the Copper River Delta from 1952-1960 were harvested in Southeast Alaska, and only one of those was in the analysis area.

Kittlitz’s Murrelet

The USFWS reviewed available literature for effects from recreational users on Kittlitz’s murrelets for their listing determination (78 Federal Register 192:61764-61801 [October 3, 2013]). They concluded that it is unlikely that boats would directly impact Kittlitz’s murrelets because of their ability to dive or flush from the water if within a vessel pathway and their maneuverability during flight. A number of

studies that they reviewed found evidence of indirect impacts such as increased energetic costs, increased predation risk, temporary changes to foraging habitat characteristics, displacement of murrelets and reduced ability to feed (e.g. see Day et al. 2003, Speckman et al. 2004, Agness et al. 2008, Agness et al. 2013). They determined that there is no evidence that these indirect impacts resulted in reduced fitness, such as reduced nest success or survival, affecting population(s) or individuals. Schoen et al. (2013) found that the average probability of an individual Kittlitz's murrelet encountering a vessel at least once per day in Yakutat Bay was extremely low (0.0097; SE=0.0031), and the proportion of the local population disturbed daily was 0.98 percent. Most of the waters within the analysis area are not expected to contain Kittlitz's murrelets, and where they do occur it's likely they will be less dense than in Yakutat Bay.

No physical effects to nesting habitat and no disturbance effects to nesting birds are expected. Nesting occurs well away from the shore zone. It is possible some birds could be disturbed in the marine environment while foraging as guides transport clients to use areas. Based on the low density of birds in the analysis area, the expected low rate of encounters with permitted boats, and the ability of murrelets to maneuver and avoid boats, impacts to Kittlitz's murrelets are expected to be inconsequential under all alternatives.

Queen Charlotte Goshawk

None of the outfitter/guide activities would alter productive old-growth habitat. Instead, effects would come from human disturbance in proximity to nesting and foraging goshawks. Goshawk nests are usually in heavily forested habitats, and since most recreation sites are along the shorelines, lakes, and rivers, recreation disturbance to known or unknown goshawk nests is expected to be uncommon. This disturbance is also likely to be temporary and localized rather than continuous. This type of disturbance could temporarily displace from nesting and foraging activities, but is not expected to cause nest abandonment. Forest Plan standards and guidelines to minimize disturbance during the nesting season will be included as permit stipulations.

Little work has been done on the effects of outfitter/guide activities on goshawks. Some goshawks appear to tolerate certain types and intensities of human disturbance. Rutz et al. (2006) found that goshawks in Europe are highly adaptable to human-altered landscapes and are tolerant of intense human activities in some areas. However, anthropogenic disturbances can cause goshawks to abandon territories even with suitable forest structure (Reynolds et al. 1992; Squires and Reynolds 1997). Disturbance can indirectly influence goshawk reproductive success by affecting the time female goshawks allocate to incubation and foraging (Morrison et al. 2011). Morrison et al. (2011) found a negative correlation between human activity, including recreation activities, and goshawk productivity.

Alternative 4 poses the highest risk of disturbance to goshawks because it allocates the most service days. Following Alternative 4, Alternatives 2, 3, and 1 would pose sequentially less risk based on allocated service days. Effects to goshawks are expected to be minor under all alternatives, and at worst could include disturbance to birds near nests that may temporarily disrupt breeding or brood-rearing activities.

Steller Sea Lion – Eastern DPS

Impacts to the eastern DPS Steller sea lions are expected to be the same as those described for the western DPS, except that eastern DPS sea lions are widely distributed and plentiful in the analysis area. Encounters with vessels conducting outfitter/guide activities would be likely. However, sea lions are agile and used to vessel traffic, and permittees are required to follow NMFS regulations pertaining to take under the MMPA, so these interactions should not result in take under the MMPA.

Determinations for Sensitive Species

All alternatives for the Shoreline II Outfitter/Guide project will have no impacts to Aleutian terns and dusky Canada geese. Individual may rarely occur in the analysis area but any disturbance would be discountable.

All alternatives for the Shoreline II Outfitter/Guide project may impact individuals, but not likely to result in a loss of viability in the project area, nor cause a trend toward Federal listing for the black oystercatcher. Some individuals may be disturbed by outfitter/guide activities in nesting and foraging areas, but disturbance is expected to be temporary and localized.

All alternatives for the Shoreline II Outfitter/Guide project will have no impacts to the Kittlitz's murrelet. Encounters between Kittlitz's murrelets and outfitter/guides is expected to be so rare as to be discountable.

All alternatives for the Shoreline II Outfitter/Guide project may impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward Federal listing for the Queen Charlotte goshawk. Some individuals may be disturbed by outfitter/guide activities in nesting and foraging areas, but they are expected to be temporary and localized.

All alternatives for the Shoreline II Outfitter/Guide project may impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward Federal listing for the Steller sea lion – eastern DPS. Boat traffic could cause minor changes in behavior but is not expected to result in take under the MMPA. A population level effect is not expected.

Table 3-34: Summary of determinations for sensitive species for the Shoreline II Outfitter/Guide Project.

Species	Determination [1]			
	No Action – Alternative 1	Proposed Action – Alternative 2	Alternative 3	Alternative 4
Aleutian tern	No impacts	No impacts	No impacts	No impacts
Black oystercatcher	May impact individuals	May impact individuals	May impact individuals	May impact individuals
Dusky Canada goose	No impacts	No impacts	No impacts	No impacts
Kittlitz's murrelet	No impacts	No impacts	No impacts	No impacts
Queen Charlotte goshawk	May impact individuals	May impact individuals	May impact individuals	May impact individuals
Steller sea lion – eastern DPS	May impact individuals	May impact individuals	May impact individuals	May impact individuals

[1] Potential determinations for Sensitive Species: "no impacts," "beneficial impacts," "may impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing," or "likely to result in a loss of viability in the Planning Area, or in a trend toward federal listing." (FSM 2672.42 Supplement R-10-2600-2005-1)

Cumulative Effects

Cumulative effects result from the incremental impact of the outfitter/guide activities implemented under this project, added to other past, present, and reasonably foreseeable future actions. This project will cumulatively add to the level of wildlife disturbance. Activities such as timber sales, salvage harvest, restoration projects, road closures and maintenance, recreation site maintenance and improvements, land exchanges, guided and unguided recreational activities, recreation use on non- Forest Service ownerships within the analysis area, flight-seeing tours and marine based tours not with Forest Service jurisdiction, consumptive use of wildlife, all boating activities from the largest ships to kayaks, and commercial and

recreational fishing of all types and others may disturb wildlife similarly to the direct and indirect effects described in this analysis. All past human endeavors and natural events within the analysis area created the baseline or existing conditions of which the most pertinent information to this project analysis is described for each species in the Affected Environment section. Therefore, the timeframe for cumulative effects analysis was from the time of harvest to the foreseeable future.

Past development activities have altered habitats, generally reducing habitat suitability for the forest-associated species addressed here. Timber sales and urban development have had substantial impacts to habitat within the analysis area. The Forest Plan estimates that 72 to 100 percent of old-growth habitat is expected to remain within the various biogeographic provinces of the analysis area after 100 years under the selected alternative (USDA Forest Service 2008b, 3-201). This estimate includes all ownerships. Shorelines are mostly unaltered except around communities. There is no estimate of cumulative changes to shoreline habitats within the analysis area. The direct and indirect effects analysis indicates that habitat loss is not a substantial impact of this project. Although a few isolated locations may see minor habitat degradation from trampling and similar indirect effects, this project is not expected to contribute substantially to the cumulative loss of habitat for wildlife species addressed in this analysis. If resource damage from heavy human use becomes substantive, mitigations would be implemented or a new project (e.g. trail hardening) initiated to address the issue.

The amount of unguided and unregulated use is unknown. The Forest Plan acknowledges that many local residents engage in dispersed recreation activities on the Forest and adjacent saltwater, but accurate data on this type of use are difficult to obtain and estimates tend to either underestimate the nature and extent of much of this use, or overcompensate in inconsistent ways (USDA Forest Service 2008b, 3-373). As described in the Direct and Indirect Effects section, the degree of disturbance is hard to quantify and varies between species and even individuals. These effects were similar across species and alternatives but vary in likelihood, extent, and intensity.

Overall vessel activities are similarly unquantified. Large commercial ships and barges are tracked (NUKA 2012) but numerically contribute a small number of trips compared to recreational boating, commercial fishing and other untracked boating. Large, fast ships are however, the most likely to cause serious injury or death to marine mammals through vessel strikes. In general, based on allocated service days, Alternative 4 would contribute the greatest cumulative effects followed by Alternatives 2, 3, and 1 in descending order of service day allocations. Cumulative effects from the Shoreline II Outfitter/Guide project are not expected to be significant under any alternative.

Consumptive use of wildlife (i.e. hunting and trapping) can reduce wildlife populations, but levels are regulated by the Alaska Board of Game and the Federal Subsistence Board to maintain sustainable population levels. Any conservation concerns would be addressed by emergency closure order or regulatory changes. The most substantial cumulative effects of this project on wildlife are guided harvest of big game species, particularly brown bears and mountain goats. Outfitters and guides permitted under this project would harvest a substantial portion of the total harvest of these two species within the analysis area. There are no differences between alternatives in management and expected harvest for big game species, so there would be no differences in expected cumulative effects between alternatives.

Cumulative Effects on Threatened and Endangered Species

Cumulative effects for ESA compliance include the effects of future State or private activities but not other Federal activities, because those actions are subject to future consultation (50 CFR 402.02). Mitigation measures may also be employed where applicable to offset or minimize potential adverse impacts.

Cumulative effects under NEPA include all Federal, State, and private activities. As discussed above and for ESA Cumulative Effects, this project is not expected to contribute to the cumulative loss of habitat for

humpback whales and western DPS Steller sea lions, but is expected to contribute to the cumulative vessel traffic including noise, vessel avoidance and ship strike. Quantifying the effects are not possible, but effects from this project are not expected to rise to the level of take.

Adaptive Management

The adaptive management strategy (Appendix D) may be implemented when any use area's actual use data fall within the range of 80 percent to 110 percent of the allocation for any use season (early spring, late spring, summer, fall, winter). The proposed 10 percent increase in use allowed through the implementation of adaptive management, for any alternative, is not expected to have effects to wildlife resources outside the range disclosed in the effects discussions above. If use is decreased within a use area through the implementation of adaptive management, effects would be the same, or lower due to decreased use levels, for all alternatives.

Project-level monitoring within the project area will include use areas that are being considered for adaptive management (those within the 80 percent actual use criteria). Monitoring for the type of effects that might occur if allocation numbers increase would relate to behavior response from wildlife (i.e. displacement, avoidance and/or habituated). This type of monitoring can be very difficult to conduct without having site-specific behavior data and the ability to make direct and frequent observations. Therefore, to monitor such types of effects, Forest Service biologists will work with the permit officer to develop surveys for the outfitter/guides. These surveys will be designed to target outfitter/guides using the 80 to 110 percent-allocated locations. Surveys will target items such as raptor nest abandonment, shorebird displacement, bear habituation and other animal responses. Permit stipulations, BMPs and mitigation measures will then be included for wildlife as part of the special use permitting process. If new mitigation measures are needed to address site-specific issues, those will be developed and included in permits issued for those areas.

Management considerations and mitigations are noted on the use area, and large group area cards located in Appendices A and B respectively, and project-specific Stipulations and BMPs related to aquatics, wildlife, and guided use are located in Appendix C.

Subsistence

Introduction

"Subsistence" means different things to different people. This analysis focuses on the legal description of subsistence in Title VIII of ANILCA (Public Law 96-487). Section 803 of ANILCA defines subsistence use as:

> the customary and traditional uses by rural Alaska residents of wild renewable resources for direct, personal, or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade.

With regard to consumptive uses, Section 804 of ANILCA states:

> [t]he taking on public lands of fish and wildlife for non-wasteful subsistence uses shall be accorded priority over the taking on such lands of fish and wildlife for other purposes. Whenever it is necessary to restrict the taking of populations of fish and wildlife on such lands for subsistence uses in order to protect the continued viability of such populations, or to continue such uses, such priority shall be implemented through appropriate limitations based on the application of the following criteria:
>
> 1. customary and direct dependence upon the populations as the mainstay of livelihood;
> 2. local residency; and
> 3. the availability of alternative resources

ANILCA also discusses project-level considerations of subsistence. Section 810 states:

> In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands under any provision of law authorizing such actions, the head of the Federal agency having primary jurisdiction over such lands or his designee shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes.

An ANILCA 810 analysis addresses three factors related to subsistence uses: 1) resources distribution and abundance; 2) access to resources; and 3) competition for the use of resources. The evaluation determines whether subsistence uses within the project area or portions thereof may be significantly restricted, as defined by the Alaska Land Use Council, by any of the proposed alternatives. Subsistence Standards and Guidelines are described starting on page 4-68 of the Forest Plan (USDA Forest Service 2008a).

The Alaska Land Use Council's definition of "significantly restrict subsistence use" is one guideline used in the evaluation: "a proposed action shall be considered to significantly restrict subsistence uses, if after any modification warranted by consideration of alternatives, conditions, or stipulations, it can be expected to result in a substantial reduction in the opportunity to continue subsistence uses of renewable resources." Considerations of abundance and distribution, access, and competition (by non-rural residents) are mentioned.

The U.S. District Court Decision of Record I Kunaknana v. Watt provided additional clarification. In part, it states: "restrictions for subsistence use would be significant if there were large reductions in abundance or major redistribution of these resources, substantial interference with harvestable access to active subsistence-use sites or major increases in non-rural resident hunting."

This subsistence analysis tiers to the Forest Plan standards and guidelines for subsistence (USDA Forest Service 2008a, pp. 4-68 to 4-69), and the Forest Plan FEIS (USDA Forest Service 2008b, pages 3-419 to 3-435; 3-561 to 3-714). The FEIS contains in-depth discussions on the history of subsistence use and community information. The Forest Plan ROD (p. 61) determined that the primary subsistence resource that may be significantly affected by Forest Plan actions was Sitka black-tailed deer. Deer are considered the "indicator" for potential subsistence resource consequences concerning the abundance and distribution of the resources (USDA Forest Service 2008b, p. 3-428) and will be the only species addressed in this analysis.

Affected Environment

The project and analysis area includes the shoreline generally extending ½ mile inland, with further extensions inland where specific outfitter/guide activities and locations are accessed from the shoreline, on the Sitka, Hoonah, Admiralty, and Juneau Ranger Districts. The area contains Federal, State, local government, and private lands. Different legal frameworks regulate subsistence on lands of different status. The State of Alaska administers the harvest of fish and wildlife on all lands in Alaska, including for subsistence purposes, except as specifically superseded by Federal law. When it is necessary to implement a Federal subsistence priority under the terms of Title VIII of ANILCA, the Federal Subsistence Board regulates subsistence hunting on federally administered uplands and fishing on waters where there is a Federal reserved water right. State, private, and Native-selected or -owned lands are generally not within the jurisdiction of the Federal subsistence management program and are regulated by the State of Alaska. This analysis only addresses subsistence uses by federally qualified subsistence users on NFS lands.

Nearly all rural Alaska communities depend on subsistence resources to meet at least part of their nutritional needs. The reasons for participating in subsistence vary. Some individuals participate in subsistence activities to supplement personal income and provide needed food. Others pursue subsistence activities to continue cultural customs and traditions. Many others participate in subsistence activities for personal reasons related to deeply held attitudes, values, and beliefs about where their food comes from, as well as the ability to supply their family directly through their own work.

Subsistence fishing, hunting, and gathering are important sources of nutrition in most rural communities. Statewide, subsistence harvests by rural residents consist primarily of fish (53 percent), followed by land mammals (23 percent), marine mammals (14 percent), plants (4 percent), shellfish (3 percent), and birds (3 percent) (Fall 2014). Fall's 2014 report estimated that the annual wild food harvest in Southeast Alaska was approximately 5,537,324 pounds, or 200 pounds per person per year. Subsistence harvest levels vary widely from one community to another and from year to year. Table 3-35 shows overall subsistence participation rates as well as estimated deer and fish harvest for the communities that have important deer harvest areas within the analysis area (ADF&G 2015).

The project area occurs in ADF&G Game Management GMUs 1C, 1D, and 4. Rural communities within the analysis area include Angoon, Elfin Cove, Hoonah, Pelican, Port Alexander, Sitka, and Tenakee Springs. Although not within the boundary of the analysis area, the rural communities of Gustavus, Haines, Kake, and Skagway have community use areas that include portions of the analysis area (USDA Forest Service 2008b). Juneau is within the analysis area but is a non-rural community so Juneau residents are not eligible to harvest subsistence resources under Federal regulations.

These rural communities use a wide range of subsistence resources as described in the Forest Plan FEIS (USDA Forest Service 2008b), but the Sitka black-tailed deer is the primary terrestrial mammal harvested by rural residents using the analysis area (ADF&G 2015). Almost all wildlife analysis areas (WAA) in GMU 4 provide important deer harvest areas for one or more rural communities (WAA are subdivisions of GMUs that are used by ADF&G for data collection purposes). Important deer harvest areas are described in the Forest Plan FEIS as the WAAs from which residents of a rural community obtained

approximately 75 percent of their average annual deer harvest (USDA Forest Service 2008b). In addition to the communities previously listed, there are WAAs in the project analysis area that provide important deer hunting areas for the communities of Meyers Chuck, Petersburg, and Yakutat.

Table 3-35: Subsistence resource use by communities with important deer harvest areas within the Shoreline II Outfitter/Guide project analysis area

Community	Year of Data	Resource	Percent of Community Using Subsistence Resources	Per Capita Pounds Harvested Annually
Angoon	2012	All	98	183
	2012	Deer	84	51
	2012	Fish	98	91
Elfin Cove	1987	All	100	263
	1987	Deer	92	72
	1987	Fish	100	139
Gustavus	1987	All	100	241
	1987	Deer	70	64
	1987	Fish	100	137
Haines	2012	All	98	137
	2012	Deer	30	7
	2012	Fish	95	86
Hoonah	2012	All	98	343
	2012	Deer	77	51
	2012	Fish	94	192
Kake	1996	All	99	179
	1996	Deer	80	50
	1996	Fish	99	85
Meyers Chuck	1987	All	100	414
	1987	Deer	80	21
	1987	Fish	100	279
Pelican	1987	All	100	355
	1987	Deer	91	105
	1987	Fish	100	179
Petersburg	2000	All	94	161
	2000	Deer	40	14
	2000	Fish	90	102
Port Alexander	1987	All	100	312
	1987	Deer	94	108
	1987	Fish	100	140
Sitka	1996	All	97	205
	1996	Deer	62	44
	1996	Fish	95	112
Skagway	1987	All	96	48
	1987	Deer	94	33
	1987	Fish	29	3
Tenakee Springs	1987	All	100	330
	1987	Deer	87	135
	1987	Fish	97	131

Community	Year of Data	Resource	Percent of Community Using Subsistence Resources	Per Capita Pounds Harvested Annually
Yakutat	2000	All	100	386
	2000	Deer	23	3
	2000	Fish	99	233

Environmental Consequences

Direct and Indirect Effects

Based on the MIS analysis for deer, no significant change in deer distribution or abundance is expected to result from implementing any of the alternatives. All alternatives are expected to result in some harvest mortality and minor disturbance of deer by guided clients. Although the overall harvest of deer by guided hunters is not known, guides provide on average, 24 hunts per year which is a very small percentage of the overall deer hunting effort. Guided hunting effort and mortality are not expected to vary by alternative. Other guided use-related disturbance effects would vary by alternative with Alternative 4 having the greatest risk of disturbance, followed by Alternatives 2, 3, and 1; based on total allocated service days.

No new roads, trails, or other infrastructure would be built under any alternative. Thus, there would be no infrastructure related increases in access to subsistence use areas. There are no policies (e.g. road closures) proposed under any alternative that would limit access to subsistence use areas by subsistence users.

Competition for wildlife and fisheries resources near rural communities results from a combination of factors, such as fish and wildlife regulations, mobility, the natural distribution of game species across the Tongass National Forest, decreases in resource populations as a result of habitat reductions, decreases in resource populations as a result of over-harvest, and access in the form of roads, ferries, commercial air carriers, and outfitters and guides. There are two ways in which guided hunters may compete with subsistence users: for resources (i.e. deer) and sites (i.e. hunting areas). There is little evidence that there is substantial competition for deer. While actual guided deer hunter harvest numbers are not known; based on reported effort guided deer hunters are about 1 percent of the total deer hunters in GMU 4. The level of competition for deer would not vary by alternative. It could increase under all alternatives, but there is no evidence of an increasing trend in guided deer harvest. No major increase in guided deer hunting is expected because much of the guided deer hunting is incidental or in combination with other hunts and deer are not a highly sought after trophy in the analysis area. In addition, if deer populations decline such that competition may become an issue, the ADF&G and/or the Federal Subsistence Board may issue emergency closures, change seasons, or restrict use by non-subsistence hunters. Such a situation happened in various parts of GMU 4 following severe snowfall winters in 2006-2009.

Competition between guided hunters and subsistence users for hunting areas may also occur. Generally, subsistence users harvest in traditional use areas surrounding their communities (fall 2014). If these areas are being used by guided hunters, subsistence users may be displaced, even if the target species is plentiful. Outfitters and guides can provide access to important subsistence use areas for people who would not likely be able to access these areas otherwise. Guided big game hunting allocations would not vary by alternative. Therefore, all alternatives could increase guided deer hunter access to important subsistence use areas. Concern about this type of competition is shown in a resolution submitted by the Angoon Community Association (ACA) in response to project scoping. The ACA stated that they oppose commercial outfitters and guides hunting deer around the community of Angoon. The area surrounding the community of Angoon is outside the project area (see Figure 1-1) and no outfitter/guide activities are

proposed there. In addition, the Admiralty National Monument Ranger has proposed to close use area 04-05A SW Admiralty, south of Angoon to guided deer hunting (see Appendix A, Use Areas). This would have minor effects on guided use as there is little reported guided deer hunting in the proposed closed area. Based on actual use reports, the area is not used yearly. From 2010-2014 guides reported using this area during 2 years for a total of 17 service days. This closure would not apply to other guided use activities. Competition at important subsistence use areas may be less of a concern with other guided uses because of different landscape and temporal use patterns by deer hunters compared to other guided use groups. Early in the deer hunting season, hunters predominantly pursue deer in higher-elevation habitats, outside the project area. Later in the deer hunting season, as harvest activity increases, guided activity decreases due to weather and other factors.

Overall, competition between guided hunters and subsistence users would be the same under all alternatives. At current levels of guided deer hunting and allocations, and with the proposed mitigation in place around Angoon, competition between guided hunters and subsistence users is not expected to be significant.

Cumulative Effects

Changes in habitat on National Forest System lands and other ownerships could affect the distribution and abundance of subsistence resources. The Forest Plan ROD and FEIS determined that implementation of the Forest Plan's selected alternative could result in a significant restriction to subsistence use of deer. This was based on the loss of habitat capability due to timber harvest and increased competition. This project is not expected to add cumulatively to changes in distribution and abundance of deer. Not enough guided deer harvest occurs to affect population levels. Disturbance is, however, likely and would be greatest under Alternative 4, followed by Alternatives 2, 3, and 1. However, for all alternatives disturbance is expected to be localized and short term, so that it would not measurably affect deer distribution.

No alternative for this project includes policies or environmental changes that would restrict subsistence users' access to resources. Therefore, no alternative of this project would contribute to cumulative effects to restrictions on subsistence users' access to resources.

Increased competition was part of the rationale for the Forest Plan FEIS determination that a significant restriction to subsistence uses of deer could occur. This was judged most likely to occur on Chichagof, Baranof, and/or Prince of Wales Islands, where competition for deer and some other land mammals is currently heavy, and habitat capability has been reduced as a result of timber harvest (USDA Forest Service 2008b). In general, past projects have increased access within the analysis area for all resource users. Increased access to important subsistence use areas by non-subsistence users could increase competition. While there is overlap between guided deer hunters and community use areas, the current and expected amount of guided deer hunting is low under all alternatives. Thus, the cumulative contribution of this project to competition for deer is expected to be negligible.

Subsistence Finding

Based on the MIS analysis for deer, no significant change in deer distribution or abundance is expected to result from implementing any of the alternatives. No restrictions to subsistence users' access to subsistence resources in proposed under any alternative. Under all alternatives, this project could slightly increase competition for deer, by improving access for non-subsistence users to important subsistence areas. However, this increase is not expected to be significant. Therefore, this evaluation concludes that all alternatives shall not result in a significant possibility of a significant restriction on subsistence uses.

Adaptive Management

The adaptive management strategy (Appendix D) may be implemented when any use area's actual use data fall within the range of 80 percent to 110 percent of the allocation for any use season (early spring, late spring, summer, fall, winter). The proposed 10 percent increase in use allowed through the implementation of adaptive management, for any alternative, is not expected to have effects to subsistence use outside the range disclosed in the effects discussions above. If use is decreased within a use area through the implementation of adaptive management, effects would be the same, or lower due to decreased use levels, for all alternatives.

Threatened, Endangered, Sensitive, and Rare Plants

Introduction

The 2008 Tongass Forest Plan includes standards and guidelines for analysis of effects of activities on threatened, endangered, sensitive, and rare plants. Threatened and endangered species are those listed in accordance with the Endangered Species Act of 1973. Federal law requires that an effects analysis be conducted for activities that could affect species listed as threatened or endangered by the U.S. Fish and Wildlife Service. The only plant in Alaska that is federally listed or proposed as threatened or endangered is Aleutian holly fern (*Polystichum aleuticum*), which occurs only in the Aleutian Islands chain and is not expected to occur on the Forest; therefore, it will not be addressed further in this analysis.

Sensitive species are identified by the Regional Forester as having potential for loss of viability, as evidenced by 1) significant current or predicted downward trends in population numbers or density, and/or 2) significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution (Goldstein et al. 2009). The Alaska Region Sensitive Species List was last revised and signed by the Regional Forester on February 2, 2009. The regulatory and policy framework concerning the management of sensitive plants is summarized in Dillman and Krosse (2009).

The 2008 Tongass Forest Plan includes standards and guidelines for the conservation, management, inventory, and monitoring, as well as the analysis of effects of activities on rare plants (exclusive of those listed as sensitive). The definition of rare plants on the Tongass National Forest is summarized by Dillman and Krosse (2009) and is based on the Alaska Natural Heritage Program rare plant tracking list (ANHP 2016) and generally includes species with a State conservation status rank of S1 (critically imperiled) or S2 (imperiled). The list of rare plants is dynamic, and species may be added or dropped according to changes in conservation or taxonomic status.

Consistency with the 2016 Forest Plan

A review of the 2016 Forest Plan indicates that applicable standards and guidelines for sensitive, rare, and invasive plants were not substantially altered or amended from those included in the 2008 Forest Plan. Forest-wide plan components that were added or modified in the 2016 Forest Plan (young-growth management, renewable energy development, or transportation system corridors development) are not being proposed under this project, and other plan components are consistent with those in the 2008 Forest Plan in regards to sensitive, rare, and invasive plants.

Analysis Methods

Analysis Area

The analysis area for direct and indirect effects to sensitive and rare plants is the project area, which is the total area designated for non-motorized activities that originate from the marine shoreline and generally extends ½ mile inland on the Juneau, Hoonah, and Sitka Ranger Districts and Admiralty National Monument (Figure 1-1). This would capture the majority of commercial marine shoreline-based use on all ranger districts. Although the majority of authorized use will be in the ½ mile zone, some exceptions may occur further inland for some specific activities and locations (e.g. goat/deer hunting, canoe route/portage, freshwater fishing on some streams and lakes, and designated wilderness), and these areas are also included in the project area boundary. The analysis area for cumulative effects to sensitive and rare plants is the administrative boundaries of Admiralty National Monument and the Hoonah, Juneau,

and Sitka Ranger Districts, because actions occurring anywhere in a district/monument could potentially have effects on sensitive plants or habitat in the project area.

Habitats within the project area commonly used by outfitters and guides include maritime beaches, upper beach meadows and estuaries, beach fringe forest, muskegs, and meadows, streams and riparian corridors. Habitats occasionally used are lakes and montane, subalpine, and alpine terrestrial areas. These occasionally used areas are most often visited by goat hunters during late summer to late fall. While these habitats typically do not fall within the ½ mile shoreline zone (e.g. the project area), some sites are considered in this analysis due to their potential use by outfitter/guides.

Review of Existing Information

A review of existing information was conducted to document known occurrences of sensitive and rare plants and to identify habitats likely to contain known or suspected sensitive plant species in the project area. The Forest Service Natural Resource Information System (NRIS) database for Threatened, Endangered, and Sensitive Plants (TESP) was searched for known sensitive and rare plant occurrences in the project area. Additionally, the University of Alaska Fairbanks ARCTOS herbarium database (UAMH 2015) was searched for other known locations of sensitive or rare plants in the project area. Sensitive plants that are suspected to occur in the project area were identified based on relevant literature, habitat descriptions from regional floras, and Forest species conservation assessments.

Effects Analysis

The project alternatives, including the No-action Alternative, were analyzed to determine the direct, indirect, and cumulative effects on rare and sensitive plants that are either known or suspected to occur in the project area. Direct environmental effects are those occurring at the same time and place as the initial cause or action. Direct effects mainly occur through physical damage and/or destruction of individual plants. Indirect effects are those that cause impacts to plants either later in time after the activity or in an area that is spatially distant from the activity. As with direct effects, indirect effects are also most likely to be caused by hiking or camping activities.

The exact location, type, frequency, and intensity of future outfitter/guide use are unknown and therefore difficult to anticipate due to the inherent variability of these factors. However, the potential impacts to known rare or sensitive plants or sensitive plant habitat from outfitter/guide use can be generally compared based on the maximum number of allocated service days. An increase in the number of allocated service days will likely increase the amount of foot traffic and camping in an area, which for this analysis is assumed to increase the risk of direct and indirect effects to rare or sensitive plant occurrences or sensitive plant habitat in that area. Therefore, the metrics used in this analysis to describe the likelihood and consequences of effects were assessed for each proposed alternative based on the maximum number of allocated service days, while taking into consideration project design criteria and mitigation for protection of rare and sensitive plants.

Cumulative impacts result from incremental effects of proposed actions, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. In addition to the types of direct and indirect effects described above, impacts may occur within the larger cumulative effects analysis area, which consists of the area within the administrative boundaries of the four ranger districts and national monument.

The interdisciplinary team (IDT) developed a list of past, present, and reasonably foreseeable activities to consider when analyzing the cumulative effects of the project. The list of evaluated activities is included as the Catalog of Events in the project record. The risk of impacts of each activity on sensitive or rare plants was evaluated based on available project documentation and maps. The project evaluations were then summarized by activity type (e.g. facilities, hydroelectric power, timber sale, recreation

improvements, etc.) and the overall cumulative risk of these projects to sensitive or rare plants when combined with the effects of the proposed action was determined.

Affected Environment

Sensitive Plants

Seventeen vascular plant species and one lichen species are designated as sensitive in the Alaska Region. Fourteen of these species are known to occur in the project area or are suspected to occur because the project is within their natural geographic range and suitable habitat for these species is present in the project area (Table 3-36).

Table 3-36: Alaska Region sensitive plant and lichen species known or suspected to occur in the project area

Scientific name	Common name	General Habitat	Presence in project area
Aphragmus eschscholtzianus	Eschscholtz's little nightmare	Moist to wet solifluction slopes, scree slopes, and rocky ridges in the alpine zone	Suspected. Project area contains suitable habitat within known or suspected geographic range of this species.
Botrychium spathulatum	spatulate moonwort	Dry to mesic sand dunes, old fields, and grassy railroad sidings in the montane zone	Known. Documented occurrences in the project area.
Botrychium tunux	moosewort fern	Beach sand deposits sparsely to densely vegetated by bryophytes and herbaceous plants; sparsely vegetated alpine scree slopes	Suspected. Project area contains suitable habitat within known or suspected geographic range of this species.
Botrychium yaaxudakeit	moonwort fern, no common name	Beach sand deposits sparsely to densely vegetated by bryophytes and herbaceous plants; in inland locations it occurs in grassy riverine meadows and mountain talus slopes	Suspected. Project area contains suitable habitat within known or suspected geographic range of this species.
Cypripedium montanum	mountain lady's slipper	Moist to dry open forests in the lowland, montane, and subalpine zones	Suspected. Project area contains suitable habitat within known or suspected geographic range of this species.
Cypripedium parviflorum var. pubescens	large yellow lady's slipper	Moist to mesic streambanks, river terraces, thickets, mossy bogs, and swamps in the steppe and montane zones	Suspected. Project area contains suitable habitat within known or suspected geographic range of this species.
Ligusticum caldera	Calder's loveage	Forest edges and subalpine meadows in calcareous areas.	Suspected. Project area contains suitable habitat within known or suspected geographic range of this species.
Lobaria amplissima	lung lichen	Trunks and main branches of Picea sitchensis, Malus fusca, and Tsuga heterophylla of old-growth beach fringe edges that are exposed to large bodies of marine waters.	Known. Documented occurrences in the project area.
Papaver alboroseum	pale poppy	Mesic to dry scree slopes in the alpine zone	Suspected. Project area contains suitable habitat within known or suspected geographic range of this species.

Scientific name	Common name	General Habitat	Presence in project area
Piperia unalascensis	Alaska rein orchid	Dry to moist coniferous forests, grassy slopes, meadows, thickets, and streambanks in the lowland, steppe, and montane zones	Known. Documented occurrences in the project area.
Polystichum kruckebergii	Kruckeberg's hollyfern	Dry to mesic ultramafic rock outcrops and talus in the montane and subalpine zones	Known. Documented occurrences in the project area.
Romanzoffia unalaschcensis	Alaska mistmaiden	Gravelly areas along streams, and on ledges and crevices in rock outcrops, often along the coast	Known. Documented occurrences in the project area.
Sidalcea hendersonii	Henderson's checkermallow	Wet meadows, estuaries and tidal flats in the lowland zone	Known. Documented occurrences in the project area.
Tanacetum bipinnatum ssp. huronense	dune tansy	Moist to mesic sand dunes in the lowland zone	Suspected. Project area contains suitable habitat within known or suspected geographic range of this species.

Six sensitive plant species are known to occur in the project area. The number and location of known sensitive plant occurrences in use areas is summarized in Table 3-37. No sensitive plant is known to occur in or adjacent to existing or proposed large group areas.

Table 3-37: Number of occurrences of sensitive plant species known to occur within the project area

Species	Known Occurrences	Use Area
Spatulate moonwort	1	04-03 Sitka Area
Lung lichen	3	04-03 Sitka Area
Lung lichen	3	04-02D SW Baranof
Alaska rein orchid	1	04-15D Portlock Harbor
Alaska rein orchid	1	04-03 Sitka Area
Kruckeberg's hollyfern	4	04-01A Gut Bay, Baranof
Alaska mistmaiden	1	04-03 Sitka Area
Henderson's checkermallow	1	01-03 East Chilkats

Rare Plants

Ten rare plant species were identified as having known occurrences in the project area. The number and location of these occurrences within guide use areas is summarized in Table 3-38.

Table 3-38:

Number of known occurrences of rare plant species within the project area

Scientific Name	Common Name	State/Global Rarity Rank	Number of Occurrences	Location (Use Area)
Ambrosia chamissonis	silver bur ragweed	S2/G4G5	5	04-03 Sitka Area
Asplenium trichomanes	maidenhair spleenwort	S2S3/G5	1	04-01A Gut Bay, Baranof
Botrychium ascendens	trianglelobe moonwort	S2S3/G3	3	01-03 East Chilkats
Botrychium ascendens	trianglelobe moonwort	S2S3/G3	2	04-03 Sitka Area
Chimaphila umbellata	pipsissewa	S2/G5	1	01-04C Taku Inlet

Juncus covillei var. obtusatus	Coville's rush	S1/G5	1	04-13 Peril Strait
Lactuca biennis	tall blue lettuce	S2S3/G5	3	01-03 East Chilkats
Lactuca biennis	tall blue lettuce	S2S3/G5	2	04-08 NE Admiralty
Melica subulata	Alaska oniongrass	S2S3/G5	2	04-03 Sitka Area
Mimulus lewisii	purple monkeyflower	S2S3/G5	2	04-01A Gut Bay, Baranof
Mimulus lewisii	purple monkeyflower	S2S3/G5	1	04-01B Port Armstrong
Mimulus lewisii	purple monkeyflower	S2S3/G5	5	04-02B Whale Bay
Mimulus lewisii	purple monkeyflower	S2S3/G5	1	04-03 Sitka Area
Myriophyllum farwellii	Farwell's watermilfoil	S1/G5	1	04-04B Kelp Bay
Saussurea americana	American saw-wort	S2S3/G5	1	04-02B Whale Bay

***State (S) and Global (G) rarity ranks are determined by the Alaska Natural Heritage Program (2013).**

A few rare plant populations are located in or adjacent to existing or proposed large group areas (Table 3-39). Under all action alternatives, large group areas may be subject to an increased proportion of service days of over 50 percent of allocations in a guide use area. Because the Shoals Point and Lake Eva Trail sites are hardened to accommodate increased use, the risk of impacts to rare plants is expected to be similar to other sites outside large group areas. Cordwood Creek is an unhardened site, which can have a higher risk of detrimental impacts to soils and could affect any rare plants that may occur on or adjacent to such impacts.

Table 3-39: Number of occurrences of rare plant species known to occur within large group areas

Scientific Name	Common Name	Number of Occurrences	Large Group Area
Ambrosia chamissonis	silver bur ragweed	4	04-03 Shoals Point
Lactuca biennis	tall blue lettuce	1	04-08 Cordwood Creek
Myriophyllum farwellii	Farwell's watermilfoil	1	04-04B Lake Eva Trail

Environmental Consequences

Direct and Indirect Effects

Direct effects mainly occur through physical damage and/or destruction of individual plants or entire occurrences. Direct impacts to sensitive or rare plants from outfitter/guide use are usually very limited in area and are most likely to be associated with trampling or crushing of individual plants. This could be the result of hiking or camping, which are common components of outfitter/guide activities. Cole and Trull (1992) found that vegetation cover declines with successive passes of a hiker. Similarly, Monz (1998) observed that vegetated sites in coastal areas of Alaska are susceptible to increased vegetation loss as recreation use increases. These impacts are most likely to occur during the summer, when the winter snow pack has melted and plants are actively growing. In fall, most plants are either dormant or in the process of dormancy. In winter and spring, most live plants have been reduced to dormant underground roots and may also be covered by an accumulated snowpack, so the risk of physical damage is low to none.

Indirect effects include soil erosion or compaction due to continuous trampling, or changes in solar exposure, due to decreased vegetation cover which may be caused by soil erosion or compaction. These effects could negatively impact the ability of an individual plant to thrive over time. As with direct

effects, indirect effects are most likely to occur in the summer. Some indirect impacts may occur in years subsequent to the initial impact.

For all alternatives, the likelihood of direct and indirect impacts on sensitive or rare plants is expected to be low because of the limited spatial extent of areas used by outfitter/guides, and the intensity of potential impacts is expected to be low because they would mainly result from infrequent hiking and camping activities of short duration. In addition, the project EIS includes project design features for use areas, mitigation measures, and an adaptive management framework, which should reduce the risk of effects to rare plants from the proposed allocations.

Comparison of Alternatives

Sensitive and Rare Plants

Tables 3-40 and 3-41 provides a comparison of service days by alternative to illustrate the relative differences in possible effects to sensitive and rare plants. As previously mentioned, the units of measure used in this analysis to describe the likelihood and consequences of effects were assessed for each proposed alternative based on the maximum number of allocated service days. An increase in the number of allocated service days will likely increase the amount of foot traffic and camping in an area, which for this analysis is assumed to increase the risk of direct and indirect effects to rare or sensitive plant occurrences or sensitive plant habitat in that area.

For all alternatives, the likelihood of impacts on sensitive and rare plants due to the allocated number of service days is expected to be low because of the limited number of locations and small size of areas used by outfitter/guides. The consequence of potential impacts is expected to be low because it would mainly result from infrequent and low-impact hiking and camping activities. In addition, design criteria, mitigation measures, and an adaptive management framework have been included under all project alternatives to limit the potential risk of effects to the rare plants within the proposed allocations. Therefore the overall effects of this project on sensitive and rare plants is expected to be minor.

Table 3-40: Allocated service days by alternative and season in use areas with known sensitive plant occurrences

	Service Days				
Alternative	**Early and Late Spring**	**Summer**	**Fall**	**Winter**	**Total**
1	1,232	5,463	1,002	0	7,697
2	1,550	9,465	1,770	805	13,590
3	1,165	7,105	1,335	805	10,410
4	2,520	15,410	2,885	1,310	22,125
Total	**6,467**	**37,443**	**6,992**	**2,920**	**53,822**

Table 3-41: Allocated service days by alternative and season in use areas with known rare plant occurrences

	Service Days				
Alternative	**Early and Late Spring**	**Summer**	**Fall**	**Winter**	**Total**
1	2,630	9,832	1,930	0	14,392
2	2,680	22,570	2,350	1,365	28,965
3	2,020	16,940	1,780	1,365	22,105
4	4,355	36,755	3,825	2,225	47,160

Adaptive Management

All alternatives include an adaptive management framework (Appendix D) that may be applied to outfitter/guide service day allocations for a use area. Implementation of design features and mitigation measures for protecting sensitive and rare plants will be evaluated on a site-specific basis through compliance monitoring as part of the special use permitting process. Sensitive and rare plant occurrences in areas of frequent use by outfitter/guides will be monitored at least once during the summer growing season for evidence of direct or indirect adverse impacts, including trampled or crushed individuals, soil erosion or compaction, or loss of vegetation cover. If the condition of a site is determined to be outside the expected range of conditions, appropriate Forest Plan standards and guidelines to protect sensitive and rare plants will be implemented, and additional monitoring will be conducted to inform site-specific permitting within the use area. Therefore, if adaptive management is implemented, the effects on sensitive and rare plants due to changes in service day allocations is expected to be minor.

Cumulative Effects

Potential sources of cumulative effects are described in the Methods discussion, earlier in this section. No known sensitive or rare plant occurrences have been or will be affected by any past, present, or reasonably foreseeable future activity. Most of these activities are considered to have negligible effects on sensitive plant habitat, while some may have minor effects. For example, activities such as facilities and recreation improvements or hydropower projects could affect relatively minor amounts of potential sensitive plant habitat. The effects of several small timber sales are negligible because they are either located in young-growth forest, which is not considered suitable habitat for sensitive or rare plants, or the entire sale area was surveyed and no sensitive or rare plants were found. These actions are generally limited in spatial extent and either do not overlap with known sensitive or rare plant occurrences, or are expected to have little or no impact to sensitive or rare plants.

Conclusions

Because of the limited spatial extent and generally low impact of outfitter/guide activities under all project alternatives, the likelihood and consequence of direct, indirect, and cumulative effects to sensitive and rare plants known or suspected to occur in the project area is expected to be low. Therefore, this project under all alternatives may affect the sensitive plant species that are known or suspected to occur in the project area, and the overall effects of this project on both sensitive and rare plants are expected to be minor.

Invasive Plants

Introduction

Executive Order 13112 defines an invasive species as an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Policy and direction for invasive plant management is provided by Forest Service Manual (FSM) 2900.

The Alaska Natural Heritage Program's weed ranking program results were used (http://aknhp.uaa.alaska.edu/botany/akepic/non-native-plants-alaska/) (ANHP 2016a) as one of several factors in identifying the invasive species to be included in this analysis. An invasiveness rank takes into account a species' biological characteristics, environmental requirements, and dispersal ability, current and potential distribution in Alaska, and feasibility of control. Species are ranked on a scale of 0-100, with 100 being the most invasive (ANHP 2016b). Not all non-native plant species known to occur in Alaska have been assigned an invasiveness rank.

2016 Forest Plan Amendment

A review of the 2016 Forest Plan indicates that applicable standards and guidelines for invasive plants were not substantially altered or amended from those included in the 2008 Forest Plan. Also, Forest-wide plan components that were added or modified in the 2016 Forest Plan (young-growth management, renewable energy development, or transportation system corridors development) are being proposed under this project, and other plan components are consistent with those in the 2008 Forest Plan in regards to rare plants. Therefore, this invasive plant resource report is consistent with the 2016 Forest Plan.

Analysis Methods

Analysis Area

The area for analyzing direct and indirect effects is the project area, which is the total area designated for non-motorized activities that originates from the marine shoreline and generally extends ½ mile inland on the Juneau, Hoonah, and Sitka Ranger Districts and Admiralty National Monument. This area captures the majority of commercial marine shoreline-based use on all four ranger districts. Although the majority of authorized use will be in the ½-mile zone, some exceptions may occur further inland for some specific activities and locations (e.g. goat/deer hunting, canoe route/portage, freshwater fishing on some streams and lakes, and designated wilderness), and these areas are also included in the project area boundary. The area considered for analysis of cumulative effects is the combined administrative boundaries of the Juneau, Hoonah, and Sitka Ranger Districts and Admiralty National Monument, because infestations in any one area of a ranger district/monument could potentially be spread to different areas within the districts/monument. The effects of past, present, and reasonably foreseeable actions in this area were evaluated to determine their relative risk of invasive plant infestation spread by examining available project documentation and maps regarding invasive plants, while considering the overall risk of these types of actions as well as their general location and extent.

Habitats within the project area commonly used by outfitters and guides include maritime beaches, upper beach meadows and estuaries, beach fringe forest, muskegs, and meadows, streams and riparian corridors. Habitats occasionally used are lakes and montane, subalpine, and alpine terrestrial areas. These occasionally used areas are most often visited by goat hunters during late summer to late fall. While these habitats typically do not fall within the ½ mile shoreline zone (e.g. the project area), some sites are considered in this analysis due to their potential use by outfitter/guides.

Review of Existing Information (Inventory)

All recorded invasive plant infestations documented in the Forest Service Natural Resource Inventory System (NRIS) were reviewed to develop a list of highly and moderately invasive plant species in the project area and determine the location of known highly invasive infestations in the project use areas. Botanical surveys have occurred in only 0.1 percent of the project area. Surveys were not focused on invasive plants until the mid-2000s, although invasive plants were sometimes reported before that time. Invasive plant surveys have been conducted in 24 of the 40 large group areas. Surveys have also been conducted on most Forest Highway road systems and other areas of human disturbance within the project area. Because much of the project area has not been surveyed, some current infestations may not have been detected. Most invasive plant occurrences are associated with areas that have soil disturbance (exposed mineral soil and/or compaction) and open sunlight, which correspond to the much of the areas that have been surveyed. Known infestations of invasive species are mostly isolated and relatively small in size.

Affected Environment

Over eighty non-native plant species have been documented within the general project area. Some of these species are only found near or within urban communities or have such a low invasive ranking that they will not be considered in this analysis.

Species that present a potentially high risk of new infestations or spread of existing infestations from project activities are considered a high priority for prevention and control (Table 3-42). Where feasible, the Forest Service may attempt to control or eradicate these species in the project area. Some species, such as meadow hawkweed, orange hawkweed, and perennial sowthistle, may already be so widespread in some areas that eradication may not be possible. Known invasive plant infestations in the project area with high invasiveness ranks are listed in Table 3-43. Generally, all high-risk infestations should be avoided by outfitter/guides to minimize the risk of spread of these species.

Table 3-42: Highly invasive plants that present a potential risk of new infestations or spread of existing infestations from outfitter/guide use in the project area

Scientific Name	Common Name	Invasiveness Rank[1]
Alliaria petiolata	Garlic mustard	70
Centaurea biebersteinii	Spotted knapweed	86
Hieracium aurantiacum	Orange hawkweed	79
Hieracium caespitosum	Meadow hawkweed	79
Impatiens glandulifera	Ornamental jewelweed	82
Linaria vulgaris	Butter and eggs	69
Sonchus arvensis	Field sowthistle	61
Vica cracca	Bird vetch	73

[1]Invasiveness ranks are determined by the Alaska Natural Heritage Program (2015).

Table 3-43: Known infestations of highly invasive plant species in the project area.

Area	Common name	Notes
01-01 Skagway Area	Butter and eggs	Existing treatment area on NFS land.
01-03 East Chikats	**Butter and eggs**	Existing treatment area on NFS land.
01-04B N. Juneau	Garlic mustard	Existing treatment area on NFS land.

01-04B N. Juneau	Japanese knotweed	Existing treatment area on NFS land.
01-04B N. Juneau	Orange hawkweed	Infestation on NFS land.
04-03 Sitka Area	Orange hawkweed	Existing treatment area on NFS land.
04-03 Sitka Area	Butter and Eggs	Existing treatment area on NFS land.
04-03 Sitka Area	Japanese knotweed	Existing treatment area on NFS land.
04-03 Sitka Area	Field sowthistle	Existing treatment area on NFS land.
04-08 NE Admiralty	Field sowthistle	Infestation on NFS land.
04-11A Port Frederick	Field sowthistle	Most infestations on city, State, corporate or private land. One known infestation on NFS land.
04-11B Freshwater	Orange hawkweed	Existing treatment area on NFS land.
04-12 Tenakee Inlet	Japanese knotweed	Infestation on NFS land.
04-12 Tenakee Inlet	Orange hawkweed	Infestation on NFS land.

Moderately invasive plant species occurring in the project area are listed in Table 3-44. Infestations of moderately invasive species are less likely to be spread by outfitter/guide activities. For example, reed canary grass is common on most roads and has invaded some rivers, meadows and beaches, but it is generally less common in more remote areas without persistent human disturbance. In some areas, a site closure may be considered if infestations pose a locally high risk. For example, if an infestation of Canada thistle is found to be spreading by seed in a high use area, site closure may be justified until it can be successfully treated. Both highly and moderately invasive species are analyzed similarly in this risk assessment.

Table 3-44: Moderately invasive plants known to occur in the project area

Scientific Name	Common Name	Invasiveness Rank[1]
Brassica rapa	Field mustard	50
Cirsium arvense	Canada thistle	76
Cirsium vulgare	Bull thistle	61
Crepis tectorum	Narrowleaf hawksbeard	56
Fallopia convolvulus	Black bindweed	50
Hypericum perforatum	St. Johnswort	52
Hypochaeris radicata	Hairy catsear	44
Leontodon autumnalis	Fall dandelion	51
Leucanthemum vulgare	Oxeye daisy	61
Melilotus alba	Sweetclover, white	81
Phalaris arundinacea	Reed canarygrass	83
Senecio jacobaea	Stinking willie	63
Tanacetum vulgare	Common tansy	57

[1]Invasiveness ranks are determined by the Alaska Natural Heritage Program (ANHP 2015a).

Habitat Vulnerability

Soil disturbance and adequate to abundant light are factors that favor the introduction and spread of invasive plants. Large areas of human-caused disturbance, especially associated with roads, often create the source and vectors for invasive plants to be introduced and to spread. Naturally-occurring ground

disturbance on ocean beaches, lakeshores or floodplains can also create habitats vulnerable to invasive plants.

Examples of low-risk areas include current roadless areas, undisturbed natural vegetation, and closed-canopy forest. Examples of moderate and high risk areas include beach meadows and estuaries, wetlands and riparian areas adjacent to infested roads, open forest with soil disturbance, and newly disturbed areas such as roads, clear-cut areas, timber landings, and rock quarries. Most areas used by outfitter/guides are remote and contain mostly undisturbed habitat. These areas are less vulnerable to infestation than disturbed areas near urban centers and/or large infestations.

Environmental Consequences

Direct and Indirect Effects Common to All Alternatives

Direct effects are those occurring at the same time and place. A new infestation caused by transportation of invasive plant seeds to previously unaffected areas is an example of a direct effect of outfitter/guide activities. Indirect effects are those that occur later in time or in a separate location. Indirect effects include vegetation damage and/or soil disturbance caused by repeated camping in or walking through an area, which creates favorable conditions for invasive plant infestations. An increase in the number of allocated service days will likely increase the amount of foot traffic and camping in an area, which for this analysis is assumed to increase the risk of direct and indirect effects to risk of invasive plant spread in that area.

The project alternatives have varying service day allocations, which would likely result in varying risk of spreading invasive plants. However, under all alternatives (including the No-action Alternative), the likelihood of direct and indirect effects on risk of spreading invasive plants is expected to be low because of the limited locations and small size of areas used by outfitter/guides. Likewise, the intensity of potential impacts is expected to be low because they would mainly result from infrequent hiking and camping activities of short duration. In addition, project design features for use areas (Appendix A), application of mitigation measures (Appendix C) and implementing adaptive management (Appendix D) limit the potential risk of invasive plant infestation within the proposed allocations.

Habitat Alteration Expected as a Result of the Project

Repeated use of unhardened surfaces by large or small groups results in vegetation trampling and soil compaction or soil exposure on drier sites. Potholes, trenches and exposed organic or mineral soil will occur on wet sites, and often leads to more disturbance adjacent to an existing path or trail. On sloping surfaces, this type of disturbance can lead to soil erosion and the affects may be long term. In combination with adequate light and a source of invasive plant propagules (seeds or roots), this type of disturbance can spread invasive plants. Interestingly, while protecting the soil from exposure and erosion, the process of hardening a trail with gravel may increase the potential for the introduction and spread of invasive plants if gravel containing invasive plants seeds or roots is used. Gravel trails are also a form of ground disturbance, which favors the spread of invasive plants.

The most vulnerable habitats include meadows, estuaries, wetlands, streambanks and open-canopy forest. Invasive plants can result in permanent change in plant community composition and loss of species diversity in these habitats. For example, reed canary grass is considered a threat to native wetland plant communities (Apfelbaum and Sams 1987), especially in wetlands with altered hydrology due to human disturbance. Knotweeds can also alter species composition of habitats, including soil macrofauna (Kappes et al. 2007). Altered species composition can result in a loss of forage quality and quantity for big game animals (Bedunah and Carpenter 1989; Rice et al. 1997; Trammell and Butler 1996).

Impacts to sites from outfitter and guide use are usually very limited in area and are most likely to be associated with trampling or crushing of vegetation from hiking or camping activities. Cole and Trull (1992) found that vegetation cover declines with successive passes of a hiker. Similarly, Monz (1998) observed that vegetated sites in coastal areas of Alaska are susceptible to increased vegetation loss as recreation use increases. However, because most of the physical vegetation and ground disturbance from outfitter/guide use is expected to be limited in area, low in intensity, and short-term in duration, the risk of habitat alteration under all alternatives is expected to be low.

Because of site hardening and implementation of mitigation measures and monitoring, large group areas are not expected to have a substantially greater risk of invasive plant infestation than other sites in the project area.

Increased Vectors as a Result of Project Implementation

Outfitter/guides and clients have the potential to unintentionally carry or spread the seeds of invasive plants to uninfested areas. Some use areas are very remote, with no documented invasive plant infestations. Outfitter/guide activities could substantially increase the vectors for infestation in these areas. In addition, these areas are rarely monitored, and new infestations may be able to spread extensively before they are detected.

Many invasive plant species produce large numbers of seeds which are can be transported by wind, water, or wildlife. But these seeds are also easily moved by humans. Seeds cling to clothing or get caught in pockets, cuffs, laces, or folds of clothing and may later fall off in an uninfested area. Seeds also stick to wet clothing, rain gear, or boots. Seeds can also be picked up with soil in the treads of boot soles.

Risk Assessment

Outfitter/guide activities create a low but persistent risk of spreading invasive plants to new locations. The project alternatives have varying levels of allocated service days and therefore have variable risk of invasive plant spread. Increased numbers of visitors increases opportunities for ground and native vegetation disturbance and for invasive plant propagules to be transported to uninfested areas. However, because of the small spatial scale and low intensity and duration of potential vegetation or ground disturbance from outfitter/guide activities, and because mitigation measures for prevention and control of invasive plants are included in the project design, all risk factors under all alternatives are expected to be similar (Table 3-45).

Table 3-45: Summary of invasive risk assessment of project alternatives

Factors	Condition	Risk (All Alternatives)
Inventory	Botanical surveys have occurred only in limited areas in the project area. Invasive plant focused surveys have been conducted at 24 of the 40 large group areas.	**Moderate** – because much of the project area has not been surveyed, some infestations may not have been detected. However, known infestations are mostly isolated and relatively small in size.
Known invasive plants	Several highly invasive and moderately invasive species have been documented in project area (see Tables 3-43 and 3-44).	**Moderate** – existing infestations of priority species can serve as a seed source for new infestations if transported by a vector.
Habitat vulnerability	Variable according to site location and characteristics. Habitats in or near areas of human-caused or natural disturbance, near existing invasive species infestations, and/or subject to high levels of outfitter guide use are	**Low** – most of the areas used by outfitter/guides are remote and contain mostly undisturbed habitat. These areas are less vulnerable to infestation

Factors	Condition	Risk (All Alternatives)
	the most vulnerable habitats. Soil disturbance, open sunlight, and reduced vegetative cover favor the introduction and spread of invasive plants.	than disturbed areas near urban centers and/or large infestations.
Non-project dependent vectors	Major non-project weed vectors include road construction, maintenance, and use; historical and permitted cabins; permitted and non-permitted camps; and dispersal of plant propagules by natural vectors (wind, water, and wildlife).	**Low** – although an extensive road system exists in some use areas, their use is relatively light. Cabins and camps are relatively few and widely dispersed across the project area. Infestations in remote areas often are the result of natural vectors such as wind and water transport, but the overall infestation rate appears to be low across the project area.
Habitat alteration expected as a result of the project	Vegetation trampling and soil compaction or soil exposure can occur due to outfitter/guide activities. Potholes, trenches and exposed organic or mineral soil can occur on wet sites, and often leads to more disturbances adjacent to an existing path or trail. On sloping surfaces, this type of disturbance can lead to soil erosion and the affects may be long term. In combination with adequate light and a source of invasive propagules, this type of disturbance can create favorable conditions for invasive plants.	**Low** - most of the physical vegetation and ground disturbance from outfitter/guide use is expected to be limited in area, low in intensity, and short term in duration.
Increased vectors as a result of project implementation	Moving groups of people from locations infested with invasive species to pristine areas carries a risk of spreading weed seeds.	**Moderate** – visitors traveling from urban centers to remote areas can transport invasive plant propagules, which can establish infestations in vulnerable habitat unless preventative measures are implemented.
Mitigation measures	If no prevention and avoidance mitigation measures implemented	**Moderate** risk of introduction of invasive plants
	If some prevention and avoidance mitigation measures implemented	**Moderate** risk of introduction of invasive plants
	If all prevention and avoidance mitigation measures implemented	**Low** risk of introduction of invasive plants
Anticipated invasive plant response to proposed action	Invasive plants tend to spread into available habitats through natural vectors over time, while human activities often accelerate this spread. Guided activities can spread invasive plants to new locations. Increased numbers of allocated use days create more opportunities for invasive plant propagules to be transported and established in a new location.	**Low** - permitting procedures and mitigation measures will reduce the risk of spreading invasive plants from outfitter/guide activities.

Comparison of Alternatives

Alternative 1 (No Action) in this analysis is the 2004 Shoreline Outfitter/Guide EIS ROD. Under this alternative, an allocation of 47,449 service days would be the same as allowed under the 2004 levels

(Table 3-46). Based on the number of allocated service days, this alternative would allow the least amount of use and therefore the lowest risk of spreading invasive plants by outfitter/guide activities. Alternative 2 allows for allocation of up to 80,305 service days for outfitter/guide use. The potential service day allocation for this alternative would therefore have a higher risk of invasive plant spread than Alternatives 1 and 3, but less risk than Alternative 4. Alternative 3 would allocate up to 63,940 days for outfitter/guide permitted use, which would have a higher risk of invasive plant spread than Alternative 1, but less risk than Alternatives 2 and 4. Alternative 4 allocates 130,655 service days to outfitter/guide use and therefore would present the highest risk of invasive plant spread of all the project alternatives.

Table 3-46: Allocated service days by alternative in all use areas

	Allocated Service Days				
Alternative	**Spring**	**Summer**	**Fall**	**Winter**	**Total**
1	8,403	32,224	6,822	0	**47,449**
2	10,350	57,120	9,430	3,405	**80,305**
3	8,040	44,920	7,575	3,405	**63,940**
4	16,760	93,015	15,345	5,535	**130,655**

Project design features, mitigation measures, and adaptive management framework help reduce the risk of spreading invasive plants from outfitter/guide activities; therefore, the overall risk of invasive plant infestation under all project alternatives is expected to be low. However, if recommended mitigation is not implemented or only partially implemented, the risk of invasive plant infestation under all project alternatives would increase to moderate.

Adaptive Management

All alternatives include an adaptive management strategy (Appendix D) that may be applied to commercial service day allocations for a use area. Implementation of design features and mitigation measures for reducing invasive plant infestation risk will be evaluated on a site-specific basis through compliance monitoring as part of the special use permitting process. Infestations of highly invasive plants and sites of potential new infestation in areas of frequent use by outfitter/guides will be monitored at least once during the summer growing season for evidence of direct or indirect adverse impacts, including new infestations or spread of existing infestations. If the condition of a site is determined to be outside the expected range of conditions, appropriate Forest Plan standards and guidelines to reduce invasive plant infestation risk will be implemented, and additional monitoring will be conducted to inform site-specific permitting within the use area. Therefore, if adaptive management is implemented, the effects on infestation risk due to due to changes in service day allocations is expected to be minor. If adaptive management is not implemented, infestation risk is expected to be moderate.

Cumulative Effects

The cumulative effects of invasive plant establishment and spread were determined by reviewing available documentation and maps of the other past, present, and reasonably foreseeable projects (see Direct, Indirect, and Cumulative Effects, p. 3-1). Potential cumulative impacts from these activities could include changes in the amount, intensity, and duration of ground disturbance, vectors for transport of invasive plants to uninfested areas, and spread of existing infestations. These cumulative impacts, along with the direct and indirect impacts of project alternatives, were considered when determining the overall risk of invasive plant spread.

The past, present, and reasonably foreseeable future actions in the cumulative effects analysis area are generally limited in spatial extent and either do not overlap with known invasive plant infestations or are expected to have minor to moderate effects on invasive plant spread. The overall cumulative effects of past, present, and reasonably foreseeable future action on invasive plant spread, when combined with the expected effects of this project under all project alternatives, is expected to be minor if mitigation measures and adaptive management are implemented, and moderate if none are implemented or they are only partially implemented.

Hydrology and Fisheries

Introduction

Aquatic Concerns

Aquatic concerns did not result in a specific issue which drove an alternative; however, since the issues do affect aquatic resources, analysis is necessary. Five general concerns include:

- Outfitter/guide activities may negatively affect riparian vegetation that plays a key role in streambank and lakeshore stability, erosional process, water quality and water quantity.
- Outfitted and guided sport fishing may lead to degraded habitats.
- Outfitted and guided sport fishing may negatively affect some species or stocks.
- Outfitted and guided sport fishing may introduce invasive or non-native aquatic species.
- Outfitted and guided sport fishing may negatively affect fisheries subsistence activities in fresh water.

Fisheries management in Southeast Alaska occurs at both the State and Federal level. On Federal lands when subsistence harvest is involved, guidance and regulations are set by the Federal Subsistence Board. The Alaska Board of Fisheries sets the seasons, bag limits, methods and means for State's subsistence, commercial, sport, guided, and personal use. It is the responsibility of the Alaska Department of Fish and Game (ADF&G) to regulate and manage based on the guidance provided by the Alaska Board of Fisheries. To help regulate fisheries on National Forest System lands in Southeast Alaska, outfitter/guides are required to be permitted by the Forest Service, and are also required to register with the State and abide by their regulations (Alaska Statute 16.05.395 and Alaska Administrative Code 5 AAC 75.075, 5 AAC 75.076, 5 AAC 75.077). Therefore, because guided uses including sport fishing are permitted activities on National Forest System lands, and because these activities often specifically target certain fish species, it is important for this report to consider the effects of these activities on fish populations.

Regulatory Framework

The Forest Plan (2008) provides strategic direction for lands administered by the Forest Service. Goals, objectives, and standards and guidelines provide managers with direction on how to best manage lands and resources (USDA Forest Service 2008a, Fish p. 4-9, Soil and Water p. 4-64). Applicable direction is included in Table 3-47.

Table 3-47: Forest Plan Goals and Objectives applicable to all use areas and activities

Category	Goal	Objective
Fish	Maintain or restore the natural range and frequency of aquatic habitat conditions on the Tongass National Forest to sustain the diversity and production of fish and other freshwater organisms.	Use baseline fish habitat objectives (identified in Fish Forest-wide Standards and Guidelines) to evaluate the relative health or condition of riparian and aquatic habitat. Design and implement fish habitat improvement projects annually across the Forest.
Soil and Water	Minimize sediment transported to streams from land-disturbing activities. Maintain and restore the biological, physical, and chemical integrity of Tongass National Forest waters.	Attain State of Alaska water quality standards Forest-wide.

A review of the Forest Plan shows all Fisheries and Watershed/Hydrology-specific standards and guidelines apply regardless of the LUD.

The Forest-wide standards and guidelines for Fisheries are located in the Forest Plan on pages 4-9 through 4-14 and those for Soil and Water are on pages 4-64 through 4-67.

Additional Executive Orders, Acts, and regulatory direction for aquatic management that are applicable to this project are listed and described in the Aquatics Resource Report.

Assumptions

Use seasons as defined for this project generally do not correspond with fishing seasons or fish life cycles. Therefore, effects are assumed to be correlated to the total allocated service days. However, in cases where a specific season or use area seems relevant, more-focused analysis of service days is used.

Analysis Methods

Analysis and Project Area Boundaries

In this section, the project and analysis area generally encompasses a ½ mile inland from the shoreline of Juneau, Hoonah, and Sitka Ranger Districts and Admiralty Island National Monument. The project area extends further inland where specific outfitter/guide activities and locations are accessed from the shoreline. The terms project area and analysis area are used interchangeably.

The analysis area intersects 48 geographic units defined as use areas. The three action alternatives include a winter season allocation for outfitter/guide use as well as newly defined allocations for all other seasons across the project area. The level of allocation for each use area varies from alternative to alternative, but in general, for the action alternatives, Alternative 4 has the highest allocations, Alternative 3 has the lowest, and Alternative 2 is in the middle for the use areas. For simplicity of analysis, unless specified for specific locations and season, effects analysis is based on total allocations for each alternative.

For ease of analysis, unless otherwise specified, large group areas were analyzed as part of the regular allocations for each use area.

Spatial and Temporal Analysis Boundaries

In order to more-clearly analyze effects of outfitted and guided activities on aquatic resources, it is necessary to define timeframes within which effects would occur. Short-term effects refer to those that would affect one or a few individuals and/or have temporary damage to habitat, typically lasting less than 1 day but could be up to a week or even last the season. Long-term effects refer to those effects that lower overall productivity and have longer effects on habitat, typically last longer than one season, and could be permanent.

In the project area, the typical outfitter/guide activities that might affect aquatic resources include fishing, hiking, kayaking, wildlife tours, and camping.

Effects to aquatic resources from outfitter/guide use will be analyzed within the entire project or analysis area, not specific to activity type. Analysis will focus on outfitter/guide activities occurring on streams and lakes or in riparian areas, water quality, and how they may affect habitat, species, stocks, invasive aquatic species and subsistence fishing in fresh water.

Effects are analyzed as though all applicable BMPs are being met. If BMPs were not met, there would be additional environmental effects.

Sources of Information

Several methods and sources of information were used during analysis of conditions and alternatives. Tongass GIS data was used to generate portions of the data reported in tables and text. Numerous site visits and interdisciplinary team field trips occurred within the analysis and project areas. Observations made during these trips added to the knowledge of the area. These sources of information were used to describe existing conditions, desired future conditions and as a basis for effects analysis.

Level of Effects and Related Definitions

The following definitions are used to describe relative levels of effect.

- Minimal – No measureable effects resulting from outfitted and guided activities to resources which affect aquatic resources are occurring, and no measurable change in aquatic habitats is detectable.
- Minor – Measurable effects from outfitted and guided activities to resources which indirectly affect aquatic resources may be occurring, but this effect is not expected to be long term and is localized to a small area.
- Major – Measurable effects to aquatic resources resulting from outfitted and guided activities can be measured. Major effects resulting from effects to resource are considered indirect and long-term and/or permanent.
- Adverse– A change that moves the resource away from a desired condition or detracts from its appearance or condition.
- Direct– An effect that is caused by an action and occurs in the same time and place.
- Indirect– An effect that is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable.
- Cumulative - An incremental effect by an action, together with impacts of past, present and reasonably foreseeable future actions.

Methodology

Effects analysis was conducted as follows for each alternative:

- Review actions associated with the alternative. Use services days as the unit of measure for comparing alternatives.
- Select a use area.
- Assume all applicable BMPs met.
- Group and summarize factors common to all use areas and action alternatives.
- Discuss direct and indirect effects specific to each alternative. If necessary break out individual use areas, otherwise group as “Effects Common to All Use Areas”.
- Discuss cumulative effects specific to each alternative. If necessary break out individual use areas.

Affected Environment

Habitat

A complex interaction of streamflow (discharge) and channel variables (gradient, sinuosity, etc.) forms the morphology of stream and river systems (Rosgen 1996). Each system has developed over time in a manner that they are able to successfully deal with water and sediment coming from within the watershed (Rosgen 1996). Changes, whether from natural causes or human-caused, in the channel variables will cause the channel to adjust as necessary to achieve a balance between water and sediment transport. This concept is referred to as dynamic equilibrium (Dunne and Leopold 1978).

Natural processes and/or human-caused changes have altered streams within the analysis area (i.e. harvest and road construction). Streams are better able to adapt to natural changes than human-caused changes because natural disturbances are typically low frequency and localized, while human-caused changes are typically higher frequency and widely distributed (Swantson 1991). Streams are often not able to effectively deal with these reoccurring and widespread effects.

The Forest Service Watershed Condition Framework (page 3-60 and 3-61 USDA 2016) established a nationally consistent approach for classifying watershed condition. The approach is designed to foster integrated watershed assessments, target restoration in priority watersheds, enhance collaboration with partners, and improve watershed condition. Based on this framework all watersheds in the project area are “functioning properly” with the exception of Katlian Watershed (Use Area 04-03) which is classified as “Functioning at Risk”.

The project area contains numerous watersheds of varying size and complexity. The streams and lakes are physically complex due to the moisture of island and mainland environments, steep topography, variable geology and past and present glacial activity. Systems range from single islands to large mainland systems.

Riparian Areas

Riparian habitats are usually densely forested with forest canopies completely shading stream channels. Stream banks are often covered by a dense layer of ground cover and shrubs resulting in little to no exposure of mineral soil. This small strip of vegetation with in a riparian zone provides a wide range of functions, including a buffering capability for overland sediment delivery, water temperature and pollution.

Desired Condition – The desired condition is to conserve or improve their ability to absorb water, filter sediment, and sustain stream channel integrity (USDA Forest Service 2016a, Appendix D). This would be achieved when native and desired non-native plant species are well established and robust throughout the riparian area.

Water Quality

The Forest Plan FEIS (2008) states “The State of Alaska sets water quality standards for chemical, physical and biological parameters for waters on National Forest System (NFS) lands. The Alaska Department of Environmental Conservation (ADEC) and the Forest Service have agreed that the Forest Service is the agency responsible for monitoring and protecting water quality on NFS lands for the purpose of meeting the Clean Water Act, as amended. Best management practices (BMPs), as described in the Soil and Water Conservation Handbook (FSH 2509.22, Region 10 Amendment, July 2006), the Alaska Nonpoint Source Pollution Control Strategy, and the Alaska Water Quality Standards (18 AAC 70) together form the ‘Forest Service Alaska Region Water Quality Management Plan,’ as agreed to in the Memorandum of Agreement dated April 6, 1992 (ADEC and USDA Forest Service 1992). With

implementation of this Plan, the State of Alaska recognizes that Forest Service BMPs are the primary means to protect water quality from nonpoint sources of pollution.

Desired Condition – The desired condition is to maintain water quality. Continued implementation of BMPs would achieve the desired condition for water quality (see Appendix C, Stipulations and BMPs).

Salmon

All five species of Pacific salmon are found within the project area. Pink (Oncorhynchus gorbuscha), chum (O. keta), sockeye (O. nerka), coho (O. kisutch), and king (O. tshawytscha) salmon can all be found at certain times of year in area fresh waters. Though salmon can merit a lengthy discussion because of their diversity, ecological and commercial significance, and existing knowledge base, etc., the following paragraphs highlight key features of each species and their relevance to sport fisheries.

Pink salmon are typically the most abundant in terms of sheer numbers, which can substantially fluctuate from year to year. They are widely distributed across the project area. They tend to prefer lower-gradient and larger streams, but can be found in most accessible streams. Though not highly prized for harvest by guided sport fishers, there are several outfitter/guides who target pink salmon. Their aggressive behavior and high abundance makes them an easy and fun target.

Chum salmon use similar spawning habitats to pink salmon. However, they tend to be less abundant and attain a greater size. Their distribution across the project area is considerably less than that of pink salmon. Like pink salmon, they are not highly prized for harvest but their aggressive behavior and larger size make them an easy and fun target for fisherman.

Sockeye salmon are typically found in watersheds containing large lakes, as the juvenile of this species mostly rears in these habitats. Sockeye have a limited distribution across the project area and run sizes usually number a few thousand fish, but can easily surpass 10,000 individuals in some systems during good return years (e.g. Redoubt Lake, Klag Bay, Hidden Falls Lake, and Sweatheart Creek). Sockeye are highly sought by subsistence fishers. Please refer to the Subsistence section for greater detail on subsistence fishing. The Snettisham Hatchery south of Juneau, Alaska produces sockeye fry and smolts for release at terminal locations (Snettisham hatchery, Sweetheart Lake, Tahltan Lake, Tuya Lake and Tatsmenie Lake). These are areas where personal use fishing has become important for the non-subsistence users in Juneau, Alaska.

Coho salmon can be very aggressive and are highly regarded as a sport fish because of their catchability, size, and quality as a food fish. Coho are widely distributed across the project area. They are a very successful species largely because they are extremely adaptable and can exploit a wide range of fresh water habitats. Runs in the project area are likely stable with minimal to moderate fluctuation from year to year. Coho are targeted by the guided public. The Macaulay Hatchery on the Juneau Ranger District has a terminal harvest location fishery at its facilities for coho salmon, but these are not associated with National Forest System lands.

King salmon are only found in a few systems in the project area, including Neka River, Wheeler Creek, King Salmon River, Taku River, Mendenhall River, Montana Creek, Chilkat River and Fish Creek. It should be noted that Fish Creek is a hatchery-enhanced system. Artificially-maintained runs exist due to hatcheries on a few systems; however, these are not on National Forest System lands.

Trout and Char

Coastal cutthroat trout (*Oncorhynchus clarki clarki*), coastal rainbow trout (*O. mykiss irideus)* and Dolly Varden char (*Salvelinus malma*) are the native trout and char species found in Southeast Alaska fresh waters (Behnke 1992, Behnke 2002). Cutthroat and Dolly Varden are found in both resident (permanent stream/lake dwelling) and anadromous (sea-going) populations throughout the area. Both species are

routinely sought after in sport fisheries. Anadromous varieties can be found in area streams and lakes in early spring and fall – these individuals spend their summers at sea taking advantage of the productive coastal environments.

Both resident and anadromous populations are likely stable due to general harvest restrictions published by ADF&G annually. The ADF&G manages cutthroat for limited harvest, and Dolly Varden for liberal harvest with additional restrictions in place to protect particularly high-quality fisheries. However, it is known that cutthroat are particularly susceptible to sport fishing over-harvest, and despite conservative restrictions, population declines can still occur when sport fishing pressure increases (Gresswell and Harding 1997).

Steelhead are the anadromous form of rainbow trout. Steelhead are prized as a popular sport fish because they are relatively 'catchable' with a variety of fishing gear, attain large sizes, and are extremely hard-fighting. Steelhead tend to prefer medium-sized and larger stream systems with abundant areas of turbulent, well-oxygenated flows (i.e., riffles) (Bisson et al. 1998). The majority of the steelhead systems in Southeast Alaska are believed to contain 200 or fewer adults (Coyle 2014, Harding and Coyle 2011).

Recent data suggest steelhead populations throughout Southeast Alaska were once more abundant than they are now (Lohr and Bryant 1999; Harding and Love 2008). Population declines in the late 1980s and early 1990s prompted ADF&G to restrict steelhead harvest starting in 1994 and continuing to the present day. Steelhead densities appear to have had a mixed response to these regulation changes, with some populations showing increased returns in some years while others remain stable at very low levels (Harding and Love 2008).

The project area populations are likely stable with annual fluctuations due to no changes in fishing regulations by ADF&G. Regardless of the trend of local populations, because of the small sizes of most Southeast Alaska populations they are sensitive to high levels of sport fishing pressure. Therefore, ADF&G has conservative regulations concerning steelhead populations and existing populations are believed to be sustainable under current sport fishing regulations (Coyle 2014, Love et al. 2012).

Management Indicator Species

The 2008 Forest Plan lists four species of fish as management indicator species (MIS). Pink salmon were selected to represent anadromous fish that are limited in their freshwater life period by spawning gravel quality and quantity. Coho salmon were selected to represent anadromous fish that are generally limited in their freshwater life period by stream and lake rearing area. Dolly Varden were chosen because of their ubiquitous distribution in freshwater habitats, and cutthroat trout because of their dependency on small freshwater streams.

Other Species of Interest

Eulachon (*Thaleichthys pacificus* (Girad)), also called hooligan, is one of seven species of smelt (Family: Osmeridae) found in Alaska. Eulachon are found in a few mainland river systems of the analysis area. The Berners Bay River (01-04A use card), Chilkat River (not on National Forest System lands), and Chilkoot Inlet (01-01 use card) are the most well-known areas on the Juneau Ranger District. Returning eulachon are typically found in March and April and not targeted by outfitter/guides.

In 2010, National Oceanic and Atmospheric Administration (NOAA) listed the southern distinct population segment of eulachon as threatened under the ESA. The listed population segment has a northern boundary of the Nass River in British Colombia. The Berners Bay, Chilkat River, and Chilkoot Inlet populations fall outside of southern distinct population segment area and are not protected under ESA. However, since the dramatic decline in southern populations of eulachon, it is important to make sure the northern populations are not at risk for future population declines through mitigation measures when necessary.

Endangered, Threatened, and Candidate Species

A review of all federally listed Endangered and Threatened fish and wildlife species within Alaska was completed using existing survey data, GIS layers and databases, communication with research personnel, literature reviews, and information in the 2008 Forest Plan FEIS. Species not occurring within Southeast Alaska inside waters and/or the Tongass National Forest were dropped from further analysis. Species known or suspected to occur within the project area were analyzed further.

Table 3-48: Threatened and Endangered Fish Species

Species/Stock	ESU/DPS Designation[1]	ESA Status	Likely Ranging Into Alaskan Waters
Sockeye Salmon (*Oncorhynchus nerka*)	Snake River	Endangered	Yes
King (Chinook) Salmon (*Oncorhynchus tshawytscha*)	Upper Columbia River Spring-run Snake River Spring/Summer-run Snake River Fall-run Puget Sound Lower Columbia River Upper Willamette River	Endangered Threatened Threatened Threatened Threatened Threatened	Yes Yes Yes Yes Yes Yes
Coho Salmon (*Oncorhynchus kisutch*)	Lower Columbia River	Threatened	Yes
Chum Salmon (*Oncorhynchus keta*)	Hood Canal Summer-run	Threatened	Yes
Steelhead (*Oncorhynchus mykiss*)	Snake River Basin Lower Columbia River Upper Columbia River Upper Willamette River Middle Columbia River	Threatened Threatened Threatened Threatened Threatened	Yes Yes Yes Yes Yes
Green Sturgeon (*Acipenser medirostris*)	Southern DPS	Threatened	Yes

Subsistence Fishing

Subsistence and personal use harvest occurs in both marine and freshwater environments. The State of Alaska manages all personal use and subsistence harvest for fish and shellfish in saltwater, and through delegation by the Federal Subsistence Board, the Tongass National Forest regulates the subsistence harvest of fishes within the fresh waters of its jurisdiction.

The Alaska Department of Fish and Game is responsible for the sustainability of fish, shellfish and wildlife on all lands in Alaska, and uses emergency orders to protect that sustainability when necessary. In addition to allocating fish, shellfish, and wildlife among all user groups, the Alaska Boards of Fisheries and Game provide a subsistence preference on all lands and can address both direct and indirect effects on fish, shellfish and wildlife. The Federal Subsistence Board assures a priority for subsistence use among consumptive uses of fish, shellfish, and wildlife by rural residents on Federal lands.

There are several known personal use and subsistence harvest areas in fresh waters within the analysis area. These areas have the highest potential to be adversely affected by guided use sport fishing. Intertidal areas where subsistence harvest of shellfish occurs are also recognized as a potential source of social interaction between outfitter/guide activities and subsistence users. However, any guided shellfish harvest in intertidal areas is very rare and regulated by ADF&G.

Invasive Species

There are no known invasive species such as New Zealand mud snail, Quagga mussel or whirling disease present at this time.

Atlantic salmon (*Salmon salar*) have been captured in salt waters adjacent to the analysis area as well as a few locations in fresh water. This Atlantic Ocean species is reared in net pen farms in British Columbia, Canada and the individuals captured in Southeast Alaska are thought to be escapees. No spawning Atlantic salmon have been documented within the analysis area. If Atlantic salmon were to become established in waters in the analysis area, they represent a serious competitive factor for the native salmonids. Escaped cultured Atlantic salmon present a risk to interbreed and compete with native species, introduce or spread pathogens, and may to some extent increase mortality and decrease fitness of wild fish (Naylor et al. 2005; Jonsson and Jonsson 2006).

Desired Condition – The desired condition is to maintain or improve habitat conditions to ensure sustainable use. This will aid in maintaining viable populations of native and desired non-native species. It will also reduce the risk of threats from invasive aquatic species.

During the implementation of the proposed action, small site-specific areas are likely to be impacted by outfitted and guided activities. As these sites are identified, each will require evaluation by the District fish biologist to determine what impacts are occurring. If warranted, site-specific mitigations will be developed and implemented to return the site to conditions similar to pre-disturbance.

Successful implementation of Forest Plan standards and guidelines and BMPs (FSH 2509.22, R-10 Supplement) will aid in achieving desired conditions.

Environmental Consequences

Past, Present, and Foreseeable Activities Relevant to Cumulative Effects Analysis

The list of past, present, and reasonably foreseeable actions found in the project record was used to determine actions relevant to cumulative effects analysis for fisheries resources.

Timber Sales

Timber sales and associated activities such as road construction have occurred within the analysis area. Past timber harvest has contributed to the existing conditions seen today. Based upon the documented effects of timber harvest and road construction on hydrological resources, and its effects on fish and fish habitat, it was determined these actions were relevant to cumulative effects analysis for all alternatives. There are two units from the Sitka Ranger District Young Growth sale that partially overlap the Shoreline II project boundary (i.e. within 1/2 mile from shoreline). These units are not located near any actively used guided areas. Prior NEPA analysis for these units determined a “no effects to Essential Fish Habitat and negligible effect to any fish species”. No known additional proposed timber sales fall in the project area and, therefore, no additional effects from future harvest activities are anticipated.

Effects Common to All Action Alternatives

The assumption that increased levels of outfitter/guide use cause a higher risk to aquatic resources is used in the following analysis. Other assumptions include that unregulated unguided use will occur and the capacity would not be exceeded in any use area.

Allocation

The action alternatives, Alternative 2 through Alternative 4, would cause effects to aquatic resources. Regardless of percent of capacity or actual number allocated, the Forest Plan direction and BMPs would be applied with the intent of minimizing or negating effects. However, risk of affecting aquatic resources differs due to differing allocations. These differences are addressed later.

Based upon the types of recreational activities occurring in the project area and knowledge of District personnel, it is realistic to suggest recreational activity produces similar influences, causes and impacts to aquatic resources as those documented in research. Many of the effects to aquatic resources are indirect effects and would be expressed following effects to other resource areas. Outfitted and guided use could cause removal and damage to streamside vegetation, and affect channel morphology. Activity could also affect water quality. Activity would not affect water quantity. The influences of recreational activities on and response of hydrologic resources is dependent on many linked causative agents (Clark and Gibbons 1991).

These causative agents would lead to a wide range of impacts. The impacts include, but not be limited to streambank and lake shore alteration due to use access which in turn would lead to increased erosion, increased sedimentation, increased water temperature and increased pollution (Clark and Gibbons 1991).

Guided sport fishing would affect fish within the analysis area. Individuals would be harvested as well as be subjected to low-level mortality from catch-and-release fishing (Muoneke and Childress 1994, Bartholomew and Bohnsack 2005). However, the number of fish actually harvested by guided sport fishing in freshwater is minimal and the angler-induced mortality resulting from catch- and-release fishing does not appear to affect populations. Salmon and trout populations appear stable (allowing for annual population fluctuations) across the analysis area and the majority of salmon harvest occurs in salt waters outside the jurisdiction of the Forest Service.

The risk and level of impact to aquatic resources from outfitted and guided activities would vary across the analysis area, and would be highest in areas that are heavily used, in high demand, provide easy access, have existing infrastructure and are sensitive to impacts associated with recreational activities (Clark and Gibbons 1991, Lewin et al. 2006). Despite the acknowledged effects, the action alternatives are designed to meet or exceed Forest Plan standards and guidelines, thus minimizing risk.

The following summarizes effects of the action alternatives on components of the aquatic resource area and fish.

Habitat

Recreational activity would affect channel morphology within and downstream of the location of use. Recreational activity is known to affect many aspects of channel morphology, displace fish and potentially damage spawning redds (Roberts and White 1992, Clark and Gibbons 1991, Lewin et al. 2006).

The action alternatives would continue to contribute minimal to minor amounts of sedimentation to streams and lakes. Localized effects would be most obvious in pools, backwaters and mouths of streams entering lakes. It is expected this minor effect would not be detectable over background levels a short distance downstream or on deltas. Periods of higher flow would scour these areas and redistribute the sediment. As a result, it would be unlikely to detect changes in fine sediment and attribute them to recreational use. Bank destabilization (i.e. bank slumping) is likely to occur in heavily used access and fishing sites.

Water Quality

In all alternatives, recreational activities would continue and inadequate disposal of human waste is the main way in which dispersed recreation can affect water quality (MacDonald et. al 1991). Water

pollution from human waste is typically described by the number of fecal coliform bacteria present (Clark and Gibbons 1991). Fecal coliform bacteria are also present in animal waste. This effect would be localized to streams and lakes, and current levels of bacteria are unknown. Bacteria levels would be expected to be highest in areas where human use is highest

None of the action alternatives would change the risk of bacterial contamination from human waste. Meeting BMPs and proper management of human waste would negate the risk of outfitter/guide activities leading to a measurable degradation in water quality.

A minor risk to water quality occurs from implementing any of the action alternatives. Measurable impacts such as erosion and increased turbidity may occur in localized and disjunct areas; however, no measureable impact to water quality would occur if BMPs and Forest Plan standards and guidelines were met.

Riparian Areas

Outfitter/guide use would affect vegetation with in the riparian zone. Physical damage to vegetation by trampling would occur. Removal of vegetation would occur in small localized areas such as campsites, user generated trails and stream access points. Damage and loss of vegetation can lead to a wide range of responses in the riparian area as well as the stream (Kauffman and Krueger 1984, Abouguendia 2001). Responses include but are not limited to decreased water quality, increased water temperature, and alteration of stream flow patterns. The effects of these responses may include reduced dissolved oxygen levels, increased risk of disease-bearing pathogens being present in the water, increased evaporation, alteration of food webs and a reduction or loss of habitat for aquatic species.

Current riparian conditions show minor effects. Visual effects to streamside vegetation are present. No measurable changes in channel morphology, or water quality resulting from guided use are known to occur, thus no impacts to fish or fish habitat resulting from riparian condition altered by guided use is expected.

Salmon

Harvest and delayed mortality of salmon would occur because of guided sport fishing. The level of harvest and incidental mortality are low enough to maintain self-sustaining populations. King salmon are uncommon and due to small run sizes, ADF&G prohibits fishing for wild stocks in freshwater systems on the Tongass. Coho salmon are the most abundant of the species targeted by outfitted and guided sport anglers and are the species most likely to be subjected to these effects. Pink, chum and sockeye are not targeted as much as coho due to their reduced desirability (pink, chum) or reduced success in capturing (sockeye) on sport angling gear in fresh waters. ADF&G data shows low levels of salmon harvest in fresh waters in the analysis area.

Trout and Char

Harvest and delayed mortality of trout and char would occur as a result of guided sport fishing. Cutthroat and Dolly Varden are also captured as incidental catch while angling for steelhead or salmon. The level of harvest and incidental mortality are low enough to maintain self-sustaining populations of resident trout, steelhead and Dolly Varden across the analysis area (Powers and Sigurdsson 2016).

Threatened, Endangered and Sensitive Species

Outfitter/guide use would not affect TES species in fresh waters because there are no TES species present. There is a small potential that some TES species might get displaced from the near-shore marine environment due to recreational access. However, this disturbance is expected to be negligible and have no effect on listed fish populations. Sports fishing in the marine environment is likely to increase as

recreational opportunities increase, but ADF&G regulates harvest limits of sports fisheries and will be able to mitigate such effects. Further analysis is not required.

Management Indicator Species

Management indicator species would be affected by outfitted and guided use. The effects would be the same as those discussed under the Salmon and Trout and Char headings in this section.

ANILCA

In compliance with Title VIII of ANILCA, this EIS analyzes the potential effects of outfitter/guide use on subsistence uses and needs, and includes a distinct finding on whether the proposed action may significantly restrict subsistence uses for fisheries.

This subsistence analysis tiers directly to the Forest Plan standards and guidelines for subsistence (USDA Forest Service 2008a, pp. 4-68 to 4-69), and the Forest Plan FEIS (USDA Forest Service 2008b, pp. 3-419 to 3-435, 3-561 to 3-714). The FEIS contain in-depth discussions on the history of subsistence use and community information.

Subsistence Fishing

Outfitted and guided activities have the potential to negatively affect subsistence and personal use fisheries activities several ways. Four components are addressed when analyzing impacts to a subsistence resource. The components are Abundance, Distribution, Competition and Access.

Abundance of trout, salmon and char would not be affected by outfitter/guide use in such a manner that impacts to subsistence activities would be measurable. For example, sockeye salmon are highly desired for their qualities as a food fish, and both outfitter/guide use and subsistence users may target this species. Sport anglers also target sockeye on occasion.

From 2010-2014, approximately 94,000 sockeye were harvested in the project area by subsistence and personal use individuals (USFWS 2016). However, less than 80 fish were reported harvested by outfitters and guides during the same time period (USFWS 2016). Exact numbers of subsistence-harvested salmon cannot be reported due to certain laws.

Although subsistence harvest of sockeye does occur in fresh water, the majority occurs in salt waters. Regulation of fisheries in salt waters is outside the jurisdiction of the Forest Service.

Distribution of trout, salmon and char would not be affected by outfitter/guide use. Outfitter/guide activities authorized under special use permits create minimal ground disturbance and would not affect fisheries in a manner to alter their distribution across the project area.

Competition for salmon could occur; however, because of the low level of subsistence harvest in the project area there is little potential for competition. Harvest is low by guided clients as well as subsistence users, and the sockeye population within the analysis area is large enough to support this type of harvest. Based upon the reported harvest by outfitter/guide clients and subsistence users, there is no concern that competition for a fisheries resource would occur. Focusing on fresh waters shows there is a low potential for overlap between outfitter/guide use and subsistence users. The lack of overlap should result in no competition for a fishery resource within the analysis area.

Access to fisheries resources by subsistence users would not be affected by this NEPA decision. This EIS does not regulate unguided users; therefore; access to fisheries resources would not be affected.

Despite no impacts to abundance, distribution, competition or access, there is a social concern that guided use could impact subsistence users. This social issue would occur if guided users and subsistence users were in an area at the same time. Social conflicts could occur, and design features and mitigation measures have been developed for certain sites to moderate any effects (see Appendix A).

Invasive Species

There are no known aquatic invasive species in fresh waters within the analysis area. However, guided sport fishing poses a risk of introducing an invasive species like New Zealand mud snail, or whirling disease. These aquatic invasives can be transported on fishing gear and remain viable for a considerable length of time when removed from water.

Effects Specific to Each Alternative

Alternative 1 - No Action: Direct and Indirect Effects Common to All Use Areas

Alternative 1, the No action Alternative, would implement current outfitter and guided use special use permits under existing regulations and permit stipulations (see Table 3-47). The inclusion of BMPs and Forest Plan standards and guidelines would minimize effects to aquatic resources.

Effects to aquatic resources would continue. Describing the exact level of effect is not possible due to the indirect nature of cause-and-effect relationships between outfitter/guide activities and fisheries. Trout, char and salmon would be subjected to harvest and a minimal level of indirect mortality caused by catch-and-release fishing. The direct effects of vegetation loss from high levels of foot-traffic would continue but through use of BMPs these effect would be minor. Indirect effects from stream bank vegetation loss, sediment erosion and decreased water quality would affect fish habitat and individual fish. However, these indirect effects would be minimal. Heavily used areas (i.e. easy stream access sites and good fishing holes) within the riparian zone would be most likely to contribute to affects to aquatic resources.

Subsistence Fishing – Implementation of Alternative 1 would not affect subsistence fishing. Authorizing outfitter/guide use within the project area would not affect the abundance or distribution of fish. This alternative would not limit access nor would it directly create competition for a fishery resource. There would be a social issue if guided users and subsistence users overlapped in time and space.

Alternative 2 – Proposed Action: Direct and Indirect Effects Common to All Use Areas

Alternative 2 – the Proposed Action, allocates increased service days within the project area to outfitter and guide use. It should be noted that the visitor capacity for this alternative does increase throughout the project area, but not all use areas experience the same increases in service days. In fact, for all the action alternatives some use areas might experience a slight decrease or increase in service days dependent on the season; however, in general as service day allocation increases or decreases with each alternative so does the total service day allocations for individual use areas. Therefore, when the analysis was conducted for each alternative, the total allocation across all seasons was evaluated as a whole. Approximately 12.6 percent (80,305 service days) of the project area visitor capacity is allocated to outfitted and guided use in Alternative 2.

Because this alternative allocates increased service days to outfitters and guides across the project area it would have a larger effect on aquatic resources than the No-action Alternative. As outfitted/guided use increases for a use area there is an increasing negative effect to aquatic resources. The more people in a use area, the higher the potential for fishing stress and pressure on stream banks, which leads to vegetation loss, causes elevated sediment erosion, and lowers water quality. However, stream systems are quite dynamic and appropriate BMPs and Forest Plan standards and guidelines will be implemented to minimize these effects. Therefore, the direct effects of vegetation loss would be minor and the indirect effects of sediment erosion and reduced water quality will be minimal. This alternative is the middle of the alternatives regarding risk of affecting aquatic resources, including Alternative 1, No Action.

Subsistence Fishing – Implementing Alternative 2 would not affect subsistence fishing in terms of the fishery resource. The reasons for this are the same as described in Alternative 1 and Effects Common to All Action Alternatives. As noted above, Alternative 2 represents the middle for allocation of service days to outfitter/guides, but even with increased use there would be no effect on abundance or distribution of fish. Subsistence fishing activities are known to occur in some of the use areas and social interactions between guided users and subsistence users could occur (see Appendix A for site-specific design features and mitigation).

Alternative 3: Direct and Indirect Effects Common to All Use Areas

Alternative 3 allocates 8.6 percent (63,940 service days) of recreational use to outfitters and guides across the project area.

Effects to aquatic resources would be similar to the effects described in Alternatives 1 and 2. However, when compared to the other action alternatives (2 and 4), Alternative 3 proposed the lowest level of outfitter/guide use and therefore has the lowest risk of affecting aquatic resources. The direct effect would be minor and all indirect effects would be minimal.

Subsistence Fishing –Of the action alternatives, Alternative 3 allocates the lowest level of use allocated to outfitted and guided clients and it would not affect abundance and distribution of fish, nor would it limit access or create direct competition for a resource. Subsistence fishing activities are known to occur in some of the use areas and social interactions between guided users and subsistence users could occur (see Appendix A for site-specific design features and mitigation).

Alternative 4: Direct and Indirect Effects Common to All Use Areas

Alternative 4 allocates about 20 percent (130,655 service days) of recreational use to outfitters and guides across the project area.

Effects to aquatic resources would be similar to the effects described in Alternatives 1, 2, and 3. However, Alternative 4 has the highest risk of affecting aquatic resources when compared to the other alternatives. This alternative allocates the highest number of service days to outfitter/guide use, increasing the risk of impacting aquatic resources. Even though the risk to aquatic resources is highest with this alternative, through use of BMPs and Forest Plan standards and guidelines the direct effect would be minor and all indirect effects would be minimal.

Subsistence Fishing – Alternative 4 would not affect the subsistence fishery resource for the same reasons described in Alternative 2 and Alternative 3. It does authorize outfitter/guide use; therefore, social encounters would occur between the two groups. This alternative has the highest risk of creating a situation where a social issue would occur due to the increased number of service days being allocated to outfitters and guides (see Appendix A for site-specific design features and mitigation).

Cumulative Effects

Although the likelihood of any aquatic impacts occurring would be at heavily used fishing sites, a clearer picture of watershed condition is obtained by looking at the watershed scale. Historic and current land management practices including past timber harvest has contributed to the existing condition in the analysis area. Typically, a watershed that has been harvested is more likely to be exhibiting some degraded conditions and might be more susceptible to disturbances. However, the continuation of outfitter/guide use under these alternatives would have minor effect on aquatic resources. Additionally, as identified in all alternatives, these effects would be in the form of loss of vegetation cover and lowered water quality. Best management practices and Forest Plan standards and guidelines would be implemented and would provide adequate protection for aquatic resources.

Essential Fish Habitat

Essential Fish Habitat (EFH) is the water and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. The marine EFH in Alaska includes estuarine and marine areas from tidally submerged habitat to the 200-mile exclusive economic zone (EEZ). The freshwater EFH includes streams, rivers, lakes, ponds, wetlands and other bodies of water currently and historically accessible to salmon. EFH for Pacific salmon recognizes six critical life history stages: (1) spawning and incubation of eggs, (2) juvenile rearing, (3) winter and summer rearing during freshwater residency, (4) juvenile migration between freshwater and estuarine rearing habitats, (5) marine residency of immature and maturing adults, and (6) adult spawning migration. Habitat requirements within these periods can differ significantly and any modification of the habitat within these periods can adversely affect EFH.

Section 305(b) (2) of the Magnuson-Stevens Fishery Conservation and Management Act states that all Federal agencies must consult the National Marine Fisheries Service (NMFS) for actions or proposed actions that may adversely affect EFH. The Act promotes the protection of EFH through review, assessment, and mitigation of activities that may adversely affect these habitats. On August 25, 2000 the Forest Service, Alaska Region, and NMFS came to an agreement on how consultation will be accomplished in Alaska.

This EIS satisfies the consultation requirements by providing a description and assessment of EFH in the project areas, a description of each alternative and its potential impacts on these habitats, and a description of the mitigation measures that would be implemented to protect these habitats. NMFS received a copy of the EIS with the EFH Assessment. NMFS warranted that no formal consultation was needed and chose not to respond citing that “no comments were necessary” (personal communication with Jeanne Hanson NOAA 1/12/2017). This EIS offers specific information about the affected resources and the alternatives under consideration.

The streams and lakes within the project area support a variety of anadromous and resident fish species. Anadromous species that spawn in freshwater streams or lakes in the project area include: pink salmon (*Oncorhynchus gorbuscha*), chum salmon (*O. keta*), sockeye salmon, (*O. nerka*), coho salmon (*O. kisutch*), Chinook salmon (*O. tshawytscha*), coastal cutthroat trout (*O. clarkii*), steelhead (rainbow) trout (*O. mykiss*), and Dolly Varden char (*Salvelinus malma*). The project area also supports resident populations of coastal cutthroat trout, rainbow trout, Dolly Varden char, and non-game fish species including sculpin (*Cottus spp.*) and three-spined stickleback (*Gasterosteus aculeatus*).

The analysis area provides a large amount of EFH and includes all of the fresh waters within. No alteration of marine access facilities is being proposed for any of the action alternatives. The proposed action would lead to increase boating activity but this activity would have minimal to no effect on marine habitat; therefore, the marine habitat is not analyzed with this project.

Conclusions

The Forest Service believes that the Shoreline II project may adversely affect EFH. However, the effects to aquatic resources, as described in the EIS and specialist reports, will be minimal. By implementing Forest Plan standards and guidelines, best management practices, and mitigation measures, effects to EFH will be minimal to no effect.

Adaptive Management

The adaptive management strategy (Appendix D) may be implemented when any use area’s actual use data fall within the range of 80 percent to 110 percent of the allocation for any use season (early spring, late spring, summer, fall, winter). The proposed 10 percent increase in use allowed through the implementation of adaptive management, for any alternative, is not expected to have effects to aquatic

resources outside the range disclosed in the effects discussions above. If use is decreased within a use area through the implementation of adaptive management, effects would be the same, or lower due to decreased use levels, for all alternatives.

Monitoring within the project area will include use areas that are being considered for adaptive management (those within the 80 percent actual use criteria). Monitoring would consist of site visits to locations receiving frequent guided fishing use. These visits would help to identify site-specific resource issues. Type of monitoring to occur will be consistent with the resource impairments identified in the Soils and Botany chapters (i.e. vegetation loss and bank slumping due to vegetation loss). Permit stipulations, BMPs and mitigation measures will then be included for Aquatics as part of the special use permitting process. If new mitigation measures are needed to address site-specific issues, those will be developed and included in permits issued for those areas.

Management considerations and mitigations are noted on the use area, and large group area cards located in Appendices A and B respectively, and project-specific Stipulations and BMPs related to aquatics and guided use are located in Appendix C.

Soils

Introduction

Soils are the foundation of terrestrial ecosystems. Soils release nutrients to microorganisms and plants, which become food and habitat for larger animals and people. Soils are a non-renewable resource because of the time it takes them to form. There are many types of soils, and their specific properties determine the type of ecosystem they support and their resiliency to land management.

Regulatory Framework

National Forest Management Act (NFMA) requires that national forests be managed under the principles of multiple use and sustained yield without permanent impairment of the land productivity, and to maintain or improve long-term soil productivity. The Region 10 Forest Service Manual Supplement (FSM 2554.05-13) defines soil productivity as the inherent capacity of a soil to support the growth of specific plant communities.

Soil productivity is inversely related to detrimental soil conditions. We maintain soil productivity by minimizing detrimental soil conditions.

Region 10 of the Forest Service established soil quality standards (FSM 2554). The soil quality standards require that 85 percent of an activity area be maintained in a condition of acceptable productivity. If R10 soil quality standards are met, then soil productivity will be maintained (FSM 2554). Project planning and implementation adhere to Forest Plan Soil and Water Standards and Guidelines (Forest Plan p. 4-64) and best management practices (BMPs) in Forest Service Handbook 2509.22 and the National Core BMP Technical Guide (USFS, 2012).

Analysis Methods

Analysis relies on existing GIS data, field work, soil quality monitoring data, and observations from other resources. Soil GIS data are the soil survey data, aerial photos, and slope layers.

Spatial and Temporal Analysis Boundaries

The analysis areas for the affected environment and environmental consequences for both soils and wetlands is the entire project area and the large group areas. The project area includes all areas used by non-motorized outfitter and guide activities that originate from the marine shoreline areas on the Admiralty National Monument, Hoonah, Juneau, and Sitka Ranger Districts. In general, the project area extends ½ mile inland, with further extensions inland where specific outfitter and guide activities and locations are accessed from the shoreline (i.e. goat/deer hunting, canoe route/portage, freshwater fishing on anadromous and other fish-bearing streams and lakes, etc.). This includes a large portion of Baranof and western Chichagof Islands where goat and deer hunting areas extend inland.

The large group areas are where concentrated use occurs and where there is more likely to be a negative impact to soils or wetlands. Effects to wetlands and soils can be long term (more than 30 years) if left unmitigated. If an area has become rutted or eroded, removing the activity will alleviate the problems and the site will heal in less than 30 years). Detrimental soil conditions affect the growth of or growth rates of the specified plants or plant communities. As such detrimental soil conditions have long lasting effects and will affect the growth of specified plants or plant communities.

Level of Effects

Degree of impact definitions for both soil and wetland resources are as follows:

- **Negligible:** There is no effect to the resource. User-created trails are not easily identifiable on the landscape.
- **Minor:** Impacts exist but do not affect the overall condition of the resource. For example, wetland function, soil productivity, or sediment production are essentially identical to the undisturbed or otherwise existing condition. User-developed trails are easily identifiable but less than 2 feet wide and no erosion is occurring.
- **Moderate:** Impact has a measurable or noticeable effect that may affect the overall condition or function of the soils. User developed trails are easily identifiable and wider than two feet in some areas and/or soil erosion is occurring in some areas. Users are widening the trail by walking around mucky spots, some disturbed soil areas are greater than 100 square feet in size but typically less than 5 feet wide. Users rarely have to endure mud more than ankle deep.
- **Severe:** Impact has an obvious detrimental effect on the overall condition or function of the soils resources. User-developed trails are easily identifiable, and in some areas wider than 5 feet and the soil surface is ruptured for areas greater than 100 square feet. User comfort is affected and mud is more than ankle deep in several areas.

Affected Environment

The landscape of the Shoreline II project area is shaped by a cool, wet climate and extensive glacial activity. The terrain varies from relatively gentle glacial plains to steep, heavily dissected mountain slopes. Numerous streams and wetlands meet saltwater, further diversifying this landscape. Within large group areas, the terrain is gentle and not landslide prone.

Although recreational and outfitter/guided uses on the Shoreline II project area are apparent and abundant, the uses are typically very low-impact. There is often little-to-no evidence of human impacts except in a few, highly-used places. These areas showing the highest damage to soils and wetlands share some similar traits - there are user-created trails through wetlands or other sensitive, generally non-forested areas. Minor impacts are typically found in the large group areas where user-created trails cross either wetlands or streams.

Existing Condition of Project Area Soils

The Shoreline II project can impact soils through user-developed trails, primarily at large group areas where outfitters bring larger groups of people to show them the environment of southeast Alaska. Impacts from users include soil compaction and soil puddling from foot traffic. Soil erosion can occur once the surface duff layer is removed. Landslides and soil displacements (removal of duff and topsoil from an area greater than 100 square feet) are not likely.

Soils across the project area vary greatly in their ability to support foot traffic without becoming muddy (soil puddling). Erosion is a concern where foot traffic occurs on streambanks or on slopes adjacent to live streams. Most well-drained soils on gentle, forested slopes have a thick duff layer and the duff layer over tree roots can support foot traffic without rupturing or becoming muddy. Non-forest wetland soils, estuaries, and beaches often have very low bearing strength due to high soil moisture and lack of woody roots to support traffic.

These non-forested wetlands, estuaries, and beaches are considered sensitive soils for the Shoreline II project area.

Existing Impacts

All existing use areas currently meet soil quality standards. Detrimental soil conditions occupy less than 1 percent of most use areas (Soil and Wetlands Resource Report). Where soil erosion and puddling is

associated with developed recreation activities it has been identified and mitigated. Mitigation involves rerouting trails or hardening trails or campsites.

There are two use areas that currently have a severe level of localized effects on the soil resource. These are Fox Creek on Hoonah District and Williams Cove on Juneau District. Both areas have wide, user-created trails through easily-rutted, sensitive soils.

Environmental Consequences

All alternatives and proposed activities will meet Region 10 soil quality standards in all use areas and large group areas (details of the analysis are in the Soil and Wetland Resource Report, Foss 2016). Use areas are tens of thousands of acres in size and the impacts to soils at this scale is negligible. All effects to soils are discussed for the large group areas.

Large group areas are use areas where outfitters and guides may bring larger groups of people. Large group areas will be subject to higher levels of foot traffic and therefore higher potential for oil puddling and soil compaction from foot traffic. Some large group areas are located on old roads or marine access facilities. These large group areas have a hard, shot rock or gravel surface that is already compacted and increased foot traffic will not affect these “hardened” large group areas. Other large group areas are located on native “unhardened” soils. The potential for detrimental soil conditions from users exists in unhardened large group areas only. Increasing use on unhardened large group areas carries the risk of higher soil and wetlands impacts. Sensitive soils are defined for Shoreline II as sensitive to impacts from foot traffic. These soils tend to puddle, compact, and rut under concentrated uses, as found in large group areas.

Direct and Indirect Effects

The action alternatives create new large group areas (see below). The assumptions and analysis for detrimental soil conditions by large group area can be found in the Soil and Wetland Resource Report (Foss 2016) in the project record.

Existing large group areas (LGAs):

- Hardened sites: Corner Bay Road, Eight Fathom Dock, George Island, Hanus Bay, Kennel Creek, Lake Eva Trail, Rodman Bay, Salt Lake Bay Dock, Sitkoh Bay Road
- Unhardened sites: Cordwood Creek, Iyoukeen Peninsula, Neka Bay North Bight, Neka Bay South Bight, Nismeni Point, North Windham Bay, Point Anmer, Point Elizabeth, Port Houghton, Red Cliff Islands, Sullivan Mountain, Three Hill Island, Williams Cove

Existing LGA with more than 30 percent sensitive soils or non-forested wetlands:

- Hardened sites: N/A
- Unhardened sites: Katzehin Falls, Pinta Cove, Point Coke, Saook Bay, Sunny Cove, West Gilbert Bay

Proposed LGAs:

- Hardened sites: False Island Camp, Middle Arm, Kelp Bay, Shoals Point, Ushk Bay Head
- Unhardened sites: Port Althorp, Head Of Bay; Port Althorp, Salt Chuck Bay

Proposed LGA with more than 30 percent sensitive soils or non-forested wetlands:

- Hardened sites: N/A
- Unhardened sites: Sashin Lake Trail

All large group areas are expected to have less than 5 percent detrimental soil conditions under all alternatives, meeting R10 SQS. The level of soil compaction and puddling is expected to be negligible or minor in all large group areas. Disturbance from foot traffic will occur in discreet areas throughout the project area in all alternatives, but will be minor due to the dispersed nature of the proposed activities.

Minor losses of vegetation may occur in some places from heavy foot traffic. If trails wider than 2 feet are noted in monitoring, a Tongass soil scientist should be notified and mitigation developed. Implementation of project design elements and mitigation measures are expected to be successful in preventing resource damage.

Sensitive soils are found in beaches, estuaries and non-forested wetlands. More than 30 percent of the area in the Fanshaw, Fowler Creek, Mallard Cove, Pinta Cove, Point Coke, Sand Bay, Saook Bay, Sunny Cove, and West Gilbert Bay LGAs have sensitive soils. All of these are existing LGAs. Although the Fox Creek and Williams Cove LGAs exhibit soil disturbance, they do not necessarily have a high percentage of sensitive soils.

- Fox Creek is and will continue to be a large group area but will have fewer service days, and users will be excluded from the damaged area until that area recovers or that area can be hardened with a trail (see Figure B-9 in Appendix B).
- Williams Cove may increase in use, but will continue to be actively monitored by District staff as it has been since at least 2004.

Port Althorp Head of Bay, Port Althorp Salt Chuck Bay, and Sashin Lake Trail are proposed, unhardened LGAs. The other proposed LGAs - Middle Arm, Kelp Bay, Shoals Point, and Ushk Bay Head - are all hardened. Existing, hardened LGAs are: Corner Bay Road, Eight Fathom Dock, False Island Camp, George Island, Hanus Bay, Kennel Creek, Salt Lake Bay Dock, and Sitkoh Bay Road.

Cumulative Effects

The cumulative effects analysis area is limited to the unhardened large group areas. The unhardened large group areas are areas where effects may rise above minor to moderate or severe. The analysis includes all past, present and reasonably foreseeable activities. The past and reasonably foreseeable future activities include timber harvest, road construction, recreational use, energy developments, and powerlines. The past present, and reasonably foreseeable activities considered for this project are listed on page 3-2 of this FEIS. The detailed cumulative effects analysis is described in the Soil and Wetlands Resource Report (Foss 2016). All large group areas and use areas will meet Regional 10 soil quality standards (SQS) under all alternatives. As long as the design criteria are implemented, effects to soils will be negligible or minor in all use areas and large group areas.

It is acknowledged that soil disturbance from foot traffic will occur at small discontinuous locations and in some of the large group areas, but these disturbances will not exceed R10 soil quality standards. Monitoring as described is designed to identify areas where negative impacts may occur, notably in the user-created trails, and gives managers the ability to take measures to reduce or relocate use and rehabilitate impacts. Quickly addressing resource issues will minimize the risk of recording a measurable effect to soil resources.

Adaptive Management

Adaptive management could authorize use of up to 110 percent of any use area's allocation. Monitoring data, including resource impact data, would be consulted to inform site specific permitting within the use area. This means that it is very important to track any new user-created trails or disturbance from outfitted/guided use (site inspections/monitoring reports). Use can increase to 110 percent of the allocation in all use areas and large group areas without causing further impacts to the soils and wetlands resources if user-created trails remain narrow as described in the project design and mitigation measures.

An ecologist or soil scientist will work with the permit administrators to evaluate any use areas proposed for increase in allocation above 100 percent to identify impacts to soils and wetlands. Monitoring will occur in “unhardened” large group areas with more than 30 percent sensitive soils or non-forested wetlands. This includes Fanshaw, Fowler Creek, Fox Creek, Katzehin Falls, Mallard Cove, Pinta Cove, Point Coke, Sand Bay, Saook Bay, Sunny Cove, West Gilbert Bay, and Sashin Lake Trail.

Reducing user days on a damaged site generally will not remediate a site. Instead, use should be eliminated or the site should be hardened. As recreation sites are discovered or planned, follow BMPs outlined in Appendix C.

Wetlands

Introduction

The Environmental Protection Agency and the Army Corps of Engineers jointly define wetlands as: "those areas that are inundated or saturated by surface or groundwater with a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Regulatory Framework

Section 404 of the Clean Water Act (33 CFR 323) directs the Forest Service to avoid alteration of and new construction on wetlands wherever there is a practical alternative. Outfitter/guide use permits generally do not include construction or modification of wetlands. Due to the large percentage of wetlands on the Shoreline II project area, it is impossible to avoid all wetlands. Policy and standards that guide wetlands analysis include:

- Forest Plan Wetland Standards and Guidelines (Forest Plan, 4-88);
- BMP 12.5, Wetland Identification, Evaluation, and Protection (FSH 2509.22);
- Executive Order 11990 Protection of Wetlands
- Executive Order 11988 Protection of Floodplains
- 33 CFR 323 (Permits for Discharges of Dredged or Fill Material Into Waters of the United States. Administered by the US Army Corps of Engineers)

Analysis Methods

Analysis relies on existing GIS data, field work, monitoring data, and observations from other resources. Wetland GIS data are the soil survey data, the National Wetlands Inventory (NWI), aerial photos, and hydrology layers.

Spatial and Temporal Analysis Boundaries

Like soils, the analysis areas for the affected environment and environmental consequences is calculated at two scales: all project area lands by use area, and for each of the large group areas. Please see the discussion of Spatial and Temporal Analysis Boundaries under Soils, above.

Level of Effects

Degree of impact definitions for both soil and wetland resources are as follows:

- **Negligible:** There is no effect to the resource. User-created trails are not easily identifiable on the landscape.
- **Minor:** Impacts exist but do not affect the overall condition of the resource. For example, wetland function, soil productivity, or sediment production are essentially identical to the undisturbed or otherwise existing condition. User-developed trails are easily identifiable but less than 2 feet wide and no erosion is occurring.
- **Moderate:** Impact has a measurable or noticeable effect that may affect the overall condition or function of the soils. User-developed trails are easily identifiable and wider than 2 feet in some areas

and/or soil erosion is occurring in some areas. Users are widening the trail by walking around mucky spots, some disturbed soil areas are greater than 100 square feet in size but typically less than 5 feet wide. Users rarely have to endure mud more than ankle deep.

- **Severe:** Impact has an obvious detrimental effect on the overall condition or function of the soils resources. User-developed trails are easily identifiable, and in some areas wider than 5 feet, and the soil surface is ruptured for areas greater than 100 square feet. User comfort is affected and mud is more than ankle deep in several areas.

Affected Environment

Sensitive wetland types, or wetlands most vulnerable to trampling are the non-forested wetlands on organic soils- the estuarine, palustrine moss-lichen palustrine emergent wetlands.

A discussion of wetland types in the project area can be found in the Soils and Wetlands Resource Report.

Existing Condition of Project Area Wetlands

Nearly all of the wetlands in the project area are in a natural, undisturbed condition. Please see the Soils Existing Condition section, above, for existing impacts to wetlands as well. The disturbed areas in Fox Creek LGA and Williams Cove LGA have wetlands that are susceptible to disturbance from human foot traffic.

Environmental Consequences

Direct and Indirect Effects

Alternatives 1, 2, 3, and 4

All alternatives are expected to have a negligible to minor effect to wetlands. Any user-created trails will cause minor impacts to wetlands. User-created trails are most likely to occur in the large group areas or other areas where groups of 21-75 people visit regularly. Implementation of project design criteria will prevent any user developed trails from reaching the level of moderate or severe effects. All areas will remain wetlands and no alternative results in wetland loss or fill in wetlands.

Direct disturbance to wetlands from activities is expected in some areas from foot traffic and will include soil puddling and loss of vegetation which will have a negligible to minor affect the ability of the wetland to store and release clean water. Non-forested wetlands are the most susceptible to impacts from foot traffic. User-created trails in non-forested wetlands would be the most prone to becoming wide and intercepting groundwater. User comfort may be affected and the aesthetics associated with a natural setting may be impacted.

Most of the impacts will occur where many people visit often, i.e. the large group areas. The most sensitive areas are the non-forested wetlands. All LGAs have some amount of non-forested wetlands. Fowler Creek, Mallard Cove, Sashin Lake Trail, and West Gilbert Bay have more than 50 percent of the LGA as non-forested wetlands. These areas are especially subject to trampling, rutting, and ponding from foot traffic. User-created trails in these LGAs would be the most prone to becoming wide and intercepting groundwater.

The action alternatives create new unhardened large group areas: Port Althorp Head of Bay, Port Althorp Salt Chuck Bay, and Sashin Lake Trail. There will be no outfitter/guide use of the Sashin Lake Trail until it is reconstructed. These four unhardened large group areas should be monitored more frequently to

ensure any trails remain within the limits outlined in the project design and mitigation (less than 2 feet wide). All other proposed large group areas are hardened and further impacts to wetlands are not expected. The Soils and Wetlands Resource Report (Foss, 2016) in the project record contains a more-detailed discussion of non-forested wetland in large group areas.

Cumulative Effects

Like Soils, the Wetlands cumulative effects analysis area is limited to the unhardened large group areas. This area encompasses all effects of individual actions and potential activities where concentrated outfitter/guide use occurs and where effects may rise above minor to moderate or severe. The list of past present and reasonably foreseeable activities are listed on page 3-2 of this FEIS. The detailed cumulative effects analysis is described in the Soil and Wetlands Resource Report (Foss 2016), and is summarized here.

The continuation and increase of outfitted and guided use under all alternatives would result in negligible to minor cumulative effect to wetlands because all wetlands are expected to remain wetlands. All effects from foot traffic are temporary and once traffic is removed, the site is highly likely to recover. Nearly all of the other projects considered for cumulative effects would require an Army Corps of Engineers Wetland Permit.

It is acknowledged that wetland disturbance will occur at small discontinuous locations and in some of the LGAs during the life of this document. However, the soil analysis shows that all LGAs will meet R10 soil quality standards. Since impacts to wetlands are similar to impacts to soils, it is expected that the cumulative effect to wetlands would also be minor. Monitoring as described is designed to identify areas where negative impacts may occur, notably in the user-created trails. The project design and mitigation measures are expected to be successful at minimizing impacts to wetlands. Quickly addressing resource issues will minimize the risk of recording a measurable effect to wetland resources.

Adaptive Management

See the Adaptive Management paragraph under Soils Cumulative Effects discussion, above.

Project Design and Mitigation Measures

The Soil and Wetland Resource Report (Foss 2016) lists BMPS that apply to this project. Appendix C, Stipulations and BMPs, contains the following permit stipulation which is critical for minimizing effects to wetlands and soil resources and will be included in all special use permits in the Shoreline II project area:

To minimize further impacts to non-forested wetlands, and to allow recovery from existing impacts, outfitter/guides and their clients should abandon any user-created trail wider than 2 feet to allow recovery, and instead use a route with a durable surface, or use a different site. Outfitter/guides should also report any user-created trail wider than 2 feet to the Forest Service, and encourage their clients to practice Leave No Trace principles, such as picking hiking routes with durable surfaces (e.g., unvegetated beaches, gravel bars, unvegetated forest duff), and spreading out when hiking over vegetation so no single plant receives multiple footfalls and a trail is less likely to form.

Other Required Disclosures

NEPA at 40 CFR 1502.25(a) directs “to the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with…other environmental review laws and executive orders.”

Endangered Species Act

All alternatives for the Shoreline II Outfitter/Guide EIS may affect but are not likely to adversely affect the humpback whale and western DPS of the Steller sea lion. Disturbance from boat traffic could cause minor behavioral changes in a small number of individuals of these populations.

All alternatives for the Shoreline II Outfitter/Guide EIS will have no effect on Steller sea lion critical habitat. No project activities will occur in or adjacent to critical habitat.

National Historic Preservation Act

In consultation with the Alaska State Historic Preservation Officer (AK SHPO) following standard 36 CFR 800 procedures, the District archeologist has determined, and the SHPO has concurred, that the activities proposed in all four alternatives for this FEIS will have “no adverse effect to historic properties” provided the stipulated conditions, which are described in Chapter 3, and Appendices A, B and C of this document, are implemented. Any change in proposed guided activities that are not currently listed in the permits and that have the potential to disturb the ground will require a case-by-case Section 106 review by a Forest Service archaeologist.

Alaska National Interest Lands Conservation Act (ANILCA)

An ANILCA Section 810 and 811 subsistence evaluation was conducted. As noted in the Subsistence section above, the primary subsistence resource likely to be significantly affected by Forest Plan actions is Sitka black-tailed deer. Competition between guided hunters and subsistence users would be the same under all alternatives. At current levels of guided deer hunting and allocations, and with the proposed mitigation in place around Angoon, competition between guided hunters and subsistence users is not expected to be significant. All alternatives shall not result in a significant restriction of subsistence uses.

Magnuson-Stevens Fishery Conservation and Management Act of 1996

The Magnuson-Stevens Fishery Conservation and Management Act of 1996 (hereafter referred to in this section as “the Act”) requires consultation with the National Marine Fisheries Service on activities that may affect essential fish habitat (EFH). EFH is defined as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH for Pacific salmon includes marine waters, intertidal habitats, and freshwater streams accessible to anadromous fish. Marine EFH for the salmon fisheries in Alaska includes all estuarine and marine areas used by Pacific salmon of Alaska origin, extending from the influence of tidewater and tidally submerged habitats to the limits of the U.S. exclusive economic zone. The Act promotes the protection of these habitats through review, assessment, and mitigation of activities that may adversely affect these habitats.

The formal consultation starts when NMFS receives a copy of the EIS with the EFH Assessment. NMFS may then respond in writing as to whether it concurs with the findings of the assessment or make conservation recommendations. The USDA Forest Service must respond to any recommendations made by NMFS within 30 days.

This EIS satisfies the consultation requirements by providing a description and assessment of EFH in the project areas, a description of each alternative and its potential impacts on these habitats, and a description of the mitigation measures that would be implemented to protect these habitats. NMFS received a copy of the EIS with the EFH Assessment. NMFS warranted that no formal consultation was

needed and chose not to respond citing that “no comments were necessary” (personal communication with Jeanne Hanson NOAA 1/12/2017).

Executive Order 13175 (2000) and 13084 (1998): Consultation and Coordination with Indian Tribal Governments

Executive Orders 13175 and 13084 direct Federal agencies to work with tribal governments in policy development and project implementation where significant tribal interests are affected by Federal policies or undertakings. Throughout the planning process the District archaeologists have been in contact with affected tribal governments (Chapter 1, Public Involvement), and their concerns and comments have been incorporated into this analysis.

Executive Order 13007

Alaska Natives will continue to have access to their traditional religious and spiritual sites protected under the American Indian Religious Freedom Act (AIRFA) and Forest Service standards and guidelines for the treatment of sacred sites (USDA Forest Service 2008a pp. 4-19) and be in compliance with the protection of sacred sites pursuant to Executive Order 13007.

Chapter 4
References and Lists

Chapter 4. References and Lists

List of Preparers

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Pete Schneider	Position:	Fisheries Biologist
	Experience:	Forest Service—14 years
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	Experience:	Forest Service—12 years
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	Experience:	Forest Service—14 years
	Education:	M.S., Conservation Social Sciences; B.S., Forestry

List of FEIS Recipients

Either a copy of the Shoreline II Outfitter/Guide Project Final EIS, a hardcopy letter with a link to the online copy, or email notifications via electronic mailing lists with a link to the online copy was sent to the following parties. These parties either commented on the project, requested a copy of the Final EIS during scoping or at some other time during the NEPA process, or are part of the Tongass National Forest mandatory mailing list (Forest Service Handbook 1909.15, Sections 23.2 and 63.1).

Agencies

Advisory Council on Historic Preservation
Alaska State Dept. of Transportation & Public Facilities
Alaska State Dept. of Fish and Game
Alaska State DNR Office of Project Management and Permitting
Alaska State DNR, Office of Project Management and Permitting
Alaska State ANILCA Implementation, OPMP Dir. of NEPA Policy & Compliance, Dept. of Energy Director, OEPC
Chief of Naval Operations, Energy and Environmental Readiness Division
Federal Aviation Administration
National Environmental Coordinator, NRCS
NEPA Coordinator, NOAA Office of Policy and Strategic Planning
NOAA Fisheries Service, Habitat Conservation Division, Alaska Region
US Coast Guard, Office of Environmental Management
University of Alaska Southeast
US Army Corps of Engineers
US Dept. of Transportation, Federal Highway Administration
US EPA, Region 10, EIS Review Coordinator
USDA FS Admiralty Island National Monument
USDA FS Hoonah Ranger District
USDA FS Juneau Ranger District
USDA FS Ketchikan Supervisors Office
USDA FS Petersburg Ranger District
USDA FS Sitka Ranger District
USDA Office of Civil Rights
USDA Deputy Director, APHIS PPD/EAD
USDI Office of Environmental Policy and Compliance

Libraries

Alaska State Library - Govt Publications
Esther Greenwald Library
Kake Community Library
Library of Congress
National Agricultural Library
Sitka Public Library
Skagway Public Library
UAS Ketchikan Campus Library

Media

KTKN/KGTW

Organizations and Businesses

Above and Beyond Alaska
Adams Alaskan Safaris, Inc.
Alaska Angling Inc.
Alaska Bear Excursions
Alaska Bear Guides LLC
Alaska Charters Service LLC
Alaska Coastal Guiding
Alaska Coastal Hunting
Alaska Coastal Outfitters
Alaska Discovery Inc.
Alaska Fly-N-Fish Charters
Alaska Getaway
Alaska Mountain Guides & Climbing School Inc.
Alaska NW Charters
Alaska Outdoor Recreation Services
Alaska Passages Inc.
Alaska Professional Hunters Association
Alaska Quest Charters Inc.
Alaska Raven Guides
Alaska Sailing Charters
Alaska Tonewood, LLC
Alaska Yacht Adventures
Alaska Yacht Charters
All Aboard Yacht Charters
Allen Marine Tours Inc.
Angling Unlimited Inc.
Annahootz Alaskan Adventure
Archipelago Adventures
Baranof Expeditions LLC
Baranof Wilderness Lodge/Beyond Boundaries Expeditions
Bear Creek Outfitters
Bluewater Adventures, Ltd.
Brown Bear Lodge
CEO Expeditions Inc.
Chichagof Charters
Chichagof Conservation Council
Citizens' Advisory Committee on Federal Areas
Classic Casting Adventures LLC
Coastal Alaska Adventures
Coastal Helicopters Inc.
Coastal Island Charters
Coastal Wilderness Charters, LLC

Crew International Tours
Dolphin Charters
Dolphin Tours LLC
Dove Island Lodge/Sitka Sportfishing Charters, LLC
Esther G. Sea Taxi
EverGreen and Capital Cab
False Island Wilderness Lodge
Fantasy Cruises
Fishing Bear Charters
Forest Service Employees for Environmental Ethics
FV Starship
Game Creek Guides
Gastineau Guides Inc.
Glacier Bay Sportfishing
Glacier Guides, Inc.
Glacier Taxi and Tours
Greenling Enterprises, LLC
Greenpeace
Gunsmoke, LLC
Harv & Marv's Outback Alaska
Hauling Bros. Crew Shuttle
Hobbit Hole Guesthouse & Charters
Holland America/Princess - Alaska Land Operations
Horizon West Guides and Outfitters
Icarus Aviation Ltd.
InnerSea Discoveries, LLC
Island Voyages, Inc. dba Alaska Sea Adventures
Juneau Freewheelers Bike Club
Juneau Limousine Services
Juneau Sightseeing Tours
Juneau Tours, LLC
Juneau Youth Services Visitor Center Unit
Kayak Academy Inc.
Kayak Transport Co, LLC
Latitude Adventures, LLC
LD's Crew Shuttle
Lindblad Expeditions, Inc.
M/V Sikumi, LLC
Maple Leaf Adventures
Mendenhall Glacier Transport
Misty Bay Lodge
Mitchell Enterprises
Nine Lives Charters
North Alaska Expeditions /Fishing Bear Lodge
Northstar Trekking, LLC
Northwest Navigation
NW Explorations

Overland Summers
Pacific Catalyst II Inc.
Packer Expeditions
Parker Guide Service/Alaska Boat Cruises
Phase One Consulting Group
POWWA
Riley Bus Service
S.E.A.R.H.C. dba Raven's Way
SAGA
Sea Buggy Charters
Sea Runner Guide Service
Seabear Adventures
SEACC
Sealaska Cruises Inc.
Shearwater Lodge & Charters
Sitka Bike and Hike
Sitka Conservation Society
Sitka Convention & Visitors Bureau
Sitka Sound Ocean Adventures
Small Business and Study
Sound Sailing
South Passage Outfitters
Southeast Alaska Guiding Service
Southeast Alaskan Adventures
Southeast Charters, Inc.
Spirit Walker Expeditions of Alaska, LLC
Starfish Inc.
Stikine Guide Service
Stoney Beach Charters
Surfbird Charters, LLC
Talon Charters, Inc.
Tamarack Camps McGinnis Unit
TECKK Outfitters
Temsco Helicopters Inc.
Tenakee Logging Company
The Boat Company
The Fishermen's Inn
Tongass Kayak Adventures
Tribal Tours
Trout Unlimited
Un-Cruise Adventures
Ursa Major Charters
Viaggio Charter, LLC
Weddings on Ice
Whisper Marine Charters
Wilderness Ventures
Wolfpak Guide-Outfitter

Tribes, Tribal Corporations, City Governments, and Publicly Elected Officials

Angoon City Council
Angoon Community Association
Central Council Tlingit & Haida Indian Tribes of Alaska
Chilkat Indian Village
Chilkoot Indian Association
City of Angoon
City of Gustavus
City of Pelican
City of Pelican
City of Port Alexander
City of Tenakee Springs
Douglas Indian Association
Elfin Cove Community
Goldbelt, Incorporated
Hoonah Indian Association
Huna Totem Corporation
Kake Tribal Corporation
Kavilco Inc.
Klukwan Inc.
Kootznoowoo Inc.
Organized Village of Kake
Petersburg Indian Association
Sealaska Corporation
Sealaska Heritage Institute
Senator Lisa Murkowski
Shee Atika Incorporated
Sitka Tribe of Alaska
Skagway Traditional Council

Individuals

The Tongass National Forest emailed a notification with a link to the EIS electronically via GovDelivery to a list of individuals who have requested to receive emails. Some individuals also requested a hard copy of the document. The list of individual email addresses and names is available in the Shoreline II Outfitter/Guide project record.

References

The following list of references includes both literature cited in this FEIS and other sources of information used in the Shoreline II Outfitter/Guide analysis. Complete reference lists are included in individual resource reports which are on file in the Shoreline II Outfitter/Guide project record.

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Glossary

Term	Definition
Adaptive Management	Adaptive Management is a planning process that provides a structure to evaluate how to best meet a project's short-term and long-term goals.
Alaska National Interest Lands Conservation Act (ANILCA)	The Alaska National Interest Lands Conservation Act of December 2, 1980, Public Law 96-487, 96th Congress, 94 Stat. 2371-2551. Passed by Congress in 1980, this legislation designated 14 national forest wilderness areas in Southeast Alaska. Section 810 requires evaluations of subsistence impacts before changing the use of these lands.
Best management practices (BMP)	These are common-sense actions required by law to keep soil and other pollutants out of streams and lakes. BMPs are designed to protect water quality and to prevent new non-point source pollution.
Big game guide	An outfitter/guide authorized to conduct hunting activities for big game wildlife species, as defined by ADF&G hunting regulations.
Biological assessment	A type of biological evaluation conducted for major federal actions requiring an environmental impact statement, in accordance with legal requirements under Section 7 of the Endangered Species Act (16 U.S.C.1536(c)). The purpose of the assessment and resulting document is to determine whether the proposed action is likely to affect a species that has been listed or proposed as an endangered or threatened species.
Biological evaluation	A documented Forest Service review of Forest Service programs or activities in sufficient detail to determine how an action or proposed action may affect any species that has been listed or proposed as threatened, endangered, or sensitive.
Biological opinion	An official report by the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) issued in response to a formal Forest Service request for consultation or conference. It states whether an action is likely to result in jeopardy to a species or adverse modification of its critical habitat.
Commercial use or activity	Any use or activity on National Forest System lands: 1. Where an entry or participation fee is charged, or 2. Where the primary purpose is the sale of a good or service and, in either case, regardless of whether the use or activity is intended to produce a profit (36 CFR 251.51). Guiding. Providing services or assistance (such as supervision, protection, education, training, packing, touring, subsistence, transporting
Cumulative effects	The impacts on the environment resulting from the addition of the incremental impacts of past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions occurring over time.
Desired future condition	A statement of the ultimate goal for resources and uses of an area.
Developed recreation	Recreation that requires facilities that, in turn, result in concentrated use of an area, such as campgrounds and picnic areas. Facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, and buildings (See Dispersed Recreation).
Direct effects	Environmental effects that occur at the same time and place as the initial cause or action.
Dispersed recreation	Recreation activities that are not confined to a specific place and are generally outside developed recreation sites. This includes activities such as scenic driving, hiking, backpacking, hunting, fishing, snowmobiling, cross-country skiing, and recreation in primitive environments (See Developed Recreation).
Displacement (recreation)	More of a long-term effect than dispersal, resulting in a decision by visitors to avoid an area based on previous experiences such as regulation or crowding.

Term	Definition
	Displacement could mean relocating to another area that is capable of providing the desired recreation experience.
Encounter	An encounter occurs when a person or group located on NFS lands becomes aware of the presence of another person or group located on or adjacent to NFS lands.
Endangered species	Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species are identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.
Environmental impact statement (EIS)	A statement of environmental effects of a proposed action and alternatives to it. A Draft EIS is released to the public and other agencies for review and comment. A Final EIS is issued after consideration of public comments. A Record of Decision (ROD) is based on the information and analysis in the Final EIS.
Fall season	September 15 – December 31.
Forbs	A category of herbaceous plants that are not included in the grass, shrub, or tree categories; generally smaller flowering plants.
Forest plan	The Tongass Land and Resource Management Plan is the source of management direction for the Tongass National Forest. It specifies activity and output levels for a 10–15 year period.
Forest-wide standards and guidelines	A set of rules and guidance that directs management activities and establishes the environmental quality, natural renewable and depletable resource requirements, conservation potential, and mitigation measures that apply to several land use designations.
Game management unit (GMU)	One of the 26 geographical areas listed under Game Management Units in the codified hunting and trapping regulations and the Game Unit Maps of Alaska
Geographic information system (GIS)	A computerized map database that is used to store and evaluate site-specific information.
Group	A group consists of one or more individuals recreating together as a social unit.
Guide use area (GUA)	Guide Use Areas are subunits of Game Management Units, which are delineated by ADF&G for the purpose of managing and sustaining populations of game species in the State of Alaska. See Use Area below.
Habitat	The sum total of environmental conditions of a specific place that is occupied by an organism, population, or community of plants or animals.
Heritage resources	The prehistoric or historical district, site, building, structure, or object including artifacts, records, and remains that are related to and located within such properties in, or eligible for inclusion in, the National Register of Historic Places.
Indirect effects	Effects that occur later in time or are spatially removed from the activity but would be significant in the foreseeable future.
Interdisciplinary team (IDT)	A group of individuals with different scientific and resource expertise. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately address natural resource management. Through interaction, participants bring different points of view and a broader range of expertise.
Irretrievable commitments	Loss of production or use of renewable natural resources for a period of time. The production or use lost is irretrievable, but not irreversible.
Irreversible commitments	Decisions causing changes that cannot be reversed. Often applies to nonrenewable resources such as minerals and cultural resources.

Term	Definition
Land use designation (LUD)	A defined area of land, identified by the Forest Plan, to which specific management direction is applied.
Large group	Group made up of a number of people that exceeds the general maximum group size for a specified type of recreation experience in the ROS. Large group size varies by LUD and ROS. In this EIS, large groups are defined as 21–75 people.
Large group area	For this EIS, specific areas where groups of 21–75 people may be allowed.
Management indicator species (MIS)	Vertebrate or invertebrate wildlife species whose response to land management activities can be used to predict the likely response of other species with similar habitat requirements. The National Forest Management Act regulations prescribe the use of management indicator species.
Mitigation	Measures designed to counteract or reduce environmental impacts. These measures may include: avoiding an impact by not taking a certain action or part of an action; minimizing an impact by limiting the degree or magnitude of an action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or compensating for the impact by replacing or providing substitute resources or environments.
Monitoring	A process of collecting information to evaluate whether or not objectives of a project and its mitigation plan are being realized. Monitoring can occur at different levels: to confirm whether mitigation measures were carried out in the matter called for (Implementation Monitoring); to confirm whether mitigation measures were effective (Effectiveness Monitoring); or, to validate whether overall goals and objectives were appropriate (Validation Monitoring).
Multiple use	The management of all the various renewable surface resources of the National Forest System so that they are used in the combination that will best meet the needs of the American people; harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources.
National Environmental Policy Act of 1969 (NEPA)	An act declaring a national policy to encourage productive harmony between humans and their environment, to promote efforts that will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of humans; to enrich the understanding of the ecological systems and natural resources important to the nation and to a Council on Environmental Quality.
National Forest Management Act (NFMA)	A law passed in 1976 that amends the Forest and Rangeland Renewable Resources Planning Act, requires the preparation of Forest plans, requires the identification of management indicator species, and defines parameters for timber suitability.
National Register of Historic Places	A register of cultural resources of national, state, or local significance, maintained by the Department of the Interior.
Non-commercial use	In this analysis, refers to unguided or unoutfitted use; use for which no special uses permit is necessary and for which no one receives financial remuneration or other gain for services provided on the national forest.
Old-growth forest	Ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics that may include larger tree size, higher accumulations of large dead woody material, multiple canopy layers, different species composition, and different ecosystem function. The structure and function of an old-growth ecosystem will be influenced by its stand size and landscape position and context.

Term	Definition
Old-growth habitat	A contiguous unit of old-growth forest habitat to be managed to maintain the integrity of the old-growth forest ecosystem.
Outfitter/guide	Those who, generally for compensation, facilitate the use, enjoyment, understanding, and appreciation of national forest recreation settings where the need for service has been identified and is compatible with objectives and management direction. Specifically defined as: Guiding. Providing services or assistance (such as supervision, protection, education, training, packing, touring, subsistence, transporting people, or interpretation) for pecuniary remuneration or other gain to individuals or groups on National Forest System lands. The term "guide" includes the holder's employees and agents. Outfitting. Renting on or delivering to National Forest System lands for pecuniary remuneration or other gain any saddle or pack animal, vehicle, boat, camping gear, or similar supplies or equipment. The term "outfitter" includes the holder's employees and agents.
Outfitting/guiding	Outfitting and guiding include but are not limited to packing, hunts, education, float trips, canoe liveries, shuttle services, ski touring, boat tours, and fishing trips and may be conducted by, among others, educational, rehabilitation, and interpretive ventures and outdoor institutional organizations, including both for-profit and non-profit entities. (see Tours, Package Trips, and Transporter)
Package trip	Package Trips include: a. Outfitted trips, which provide supplies, equipment, boats, vehicles, and so forth, either loaned or rented, onto National Forest System lands, improvements or resources. b. Guided trips that provide customer care, food, shelter, tutorage, interpretation, care of fish and game meat and trophies, or other services besides or in addition to strictly point-to-point transportation commonly included in guiding, on National Forest System lands, improvements or resources. c. Non-guided, non-outfitted trips onto National Forest System lands, improvements or resources with fees in excess of competitive point-to-point transportation rates. The principle purpose of a package trip is to provide or facilitate an outdoor recreation experience on National Forest System lands, improvements or resources. Package Trips are typically, but not necessarily, marketed by using words such as: "fishing," "hunting," "camping," "photography," "rafting," "kayaking," "mountain climbing," "nature education," or other type of outdoor recreation activity.
Primary use season	The primary use season refers to the season during which visitation to the forest is generally the highest. The primary use season may vary across the project area and is influenced by local factors of a given area or site. Factors may include fish run seasons, game management seasons, cruise ship schedules, typical weather patterns, etc.
Priority travel routes	Land adjacent to the Alaska Marine Highway, cruise ship routes, flightseeing routes, high use recreation areas, and other marine and land-based travel routes, that are seen by more people, more frequently and for a greater duration of time than other areas of the national forest.
Priority special use permit	Permit of use for up to 10-years, based on the holder's past use and performance and applicable programmatic or project decisions to allocate use. Except as provided in 36 CFR Part 251, Subpart E, authorizations providing for priority use are subject to renewal (sec. 53.1m).
Productive old growth	Old-growth stands of 8,000 or more board feet of timber per acre, capable of producing at least 20 cubic feet per acre per year.
Proposed action	An initial proposal by a federal agency to authorize, recommends, or implements an action.

Term	Definition
Recreation opportunity spectrum (ROS)	A system for planning and managing resources that categorizes recreation opportunities into seven classes. Each class defines the degree to which certain recreation experience needs are met. Classes are based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area, and the relative density of recreation use.
Recreation places	Identified geographical areas having one or more physical characteristics particularly attractive to recreationists. They may be beaches, streamsides or roadside areas, trail corridors, hunting areas near lakeshores.
Recreation site	A specific site and/or facility occurring within a recreation place. Some examples of recreation sites are: recreation cabins, trailheads, picnic areas, and wildlife viewing blinds.
Riparian management area	The area including water, land, and plants adjacent to perennial streams, lakes, and other bodies of water that is managed for the inherent qualities of the riparian ecosystem.
Roadless area	An area of undeveloped public land identified in the roadless area inventory of the Forest Plan within which there are no improved roads maintained for travel by means of motorized vehicles intended for highway use.
Scoping process	Early and open communication with the public used to determine the scope and significance of a proposed action, what level of analysis is required, what information is needed, and what level of public participation is appropriate. Scoping focuses on the issues surrounding the proposed action and the range of actions, alternatives, and impacts to be considered in an EA or EIS.
Sensitive species	Animal and plant species identified by the Forest Service Regional Forester as potentially susceptible or vulnerable to activity impacts or habitat alterations and, therefore, in need of special considerations during land management activity planning.
Service day	An allocation of use constituting a day or any part of a day on National Forest System lands for which an outfitter or guide provides services to a client. The total number of service days is calculated by multiplying each service day by the number of clients on the trip.
Significant issue	Under NEPA, refers to issues that are used to formulate alternatives, prescribe mitigation measures, or analyze environmental effects. Issues are 'significant' because of the extent of their geographic distributions, the duration of their effects, or the intensity of interest or resource conflict. 'Significantly' requires considerations of both context and intensity, as developed in the CEQ regulations, sec. 1508.27.
Special interest area	A designation for an area possessing unique or unusual scenic, historical, prehistoric, scientific, or other characteristics.
Spring season	March 15 – April 24 (Early Spring), April 25—May 31st (Late Spring). Some use areas' late spring seasons end on May 20th.
Stand	A group of trees occupying a specific area and sufficiently uniform in composition, age arrangement, and condition as to be distinguishable from the forest in adjoining areas.
Stream class	A way to categorize stream channels based on their fish production values. Also known as Aquatic Habitat Management Unit (AHMU) Class. There are four stream classes defined by the Forest Plan. They are: Class I Streams and lakes with anadromous or adfluvial fish habitat; or high quality resident fish waters listed in Appendix 68.1, Region 10 Aquatic Habitat Management Handbook (FSH 2609.24), June 1986; or habitat above fish migration barriers known to be reasonable enhancement opportunities for anadromous fish.

Term	Definition
	Class II Streams and lakes with resident fish populations and generally steep (6–15 percent) gradient (can also include streams from 0–5 percent gradient) where no anadromous fish occur, and otherwise not meeting Class I criteria. The fish populations have limited fisheries values and generally occur upstream of migration barriers, or the streams have other habitat features that preclude anadromous fish use. Class III Perennial and intermittent streams with no fish populations but which have sufficient flow or transport sediment and debris to have an immediate influence on downstream water quality or fish habitat capability. These streams generally have bankfull widths greater than five feet and are highly incised into the surrounding hillslope. Class IV Intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality or fish habitat capability. These streams generally are shallowly incised into the surrounding hillslope.
Subspecies	An aggregate of similar populations of a species generally inhabiting a geographic subdivision of the range of the species and differing taxonomically (for example, different size or color) from other populations of the species.
Summer season	June 1 (May 21 for some use areas)—Sept. 14
Threatened species	A plant or animal species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Threatened species are identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.
Tour	Tours include boat sight-seeing trips and flight-seeing trips that use National Forest System lands, improvements or resources. A tour is round-trip transportation regardless of the number of stops or landings--that is, a trip having the same general starting and ending point--the principal purpose of which is to view National Forest System lands or resources. Throughout the duration of a sight-seeing, flight-seeing, or other tour, including the time that the operator's client(s) is (are) present upon National Forest System lands, improvements or resources, the tour operator or a representative thereof remains within proximity of the client(s), or, if leaving the proximity of the client(s), returns thereto within a one-hour period. Other attributes of a tour typically include the offering of interpretative services by the tour operator or representative thereof. Fees for tours are usually charged per passenger, rather than per hour of operation or by distance traveled, and are set based upon the presence of a minimum number of passengers per trip. In addition, tours are generally marketed by using the words "tour," "sight-seeing," "flight-seeing" or similar words. However, none of these particular attributes need be present in order for round trip transportation to be deemed a tour.
Transporter or point-to-point services	Point- to- point charter transportation services at competitive fee rates to National Forest System lands, improvements or resources, that is, trips that are not a tour or package trip. These services do not require a permit. However, in areas where activities are causing conflicts with National Forest System land-based recreational users, operators must cooperate with the District Ranger in reducing user conflicts. (see Tours, Package Trips)
Use area	Distinct geographic area used in this analysis as the basis for defining and managing recreation use. Use Areas are subdivisions of Guide Use Areas used by the Alaska Department of Fish and Game to manage commercial big game guiding. Use Areas provide distinct geographical areas at a size that allows meaningful recreation management for specific areas of the national forest.

Term	Definition
Value comparison unit (VCU)	A distinct geographic area that generally encompasses a drainage basin containing one or more large stream systems. Boundaries usually follow easily recognizable watershed divides. These units were established in the Forest Plan to provide a common set of areas for which resource inventories could be conducted and resource value interpretations made.
Viewshed	A distinct area of land visible from identified travelways (boat route, recreation road, or trail) or recreation places (recreation cabin or anchorage).
Visitor capacity	The estimated number of recreation users that can be accommodated in a given area without loss of the quality of the natural environment and/or the visitor experience
Watershed	That area that contributes water to a drainage or stream; portion of a forest in which all surface water drains to a common point. Can range from a few tens of acres that drain a single small intermittent stream to many thousands of acres for a stream that drains hundreds of connected intermittent and perennial streams.
Wetlands	Areas that are inundated by surface or ground water with a frequency sufficient, under normal circumstances, to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include muskegs, marshes, bogs, sloughs, potholes, river overflows, mud flats, wet meadows, seeps, and springs.
Wilderness	Area designated under the 1964 Wilderness Act. Wilderness is defined as undeveloped federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions. In Alaska, the Tongass Timber Reform Act of 1990 and ANILCA also have designated wilderness areas.
Wildlife analysis area (WAA)	A division of land used by the Alaska Department of Fish and Game for wildlife analysis.
Winter range	An area, usually at lower elevations, used by big game during the winter months; usually smaller and better defined than summer ranges.
Winter season	January 1—March 14

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Chapter 4—References and Lists

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