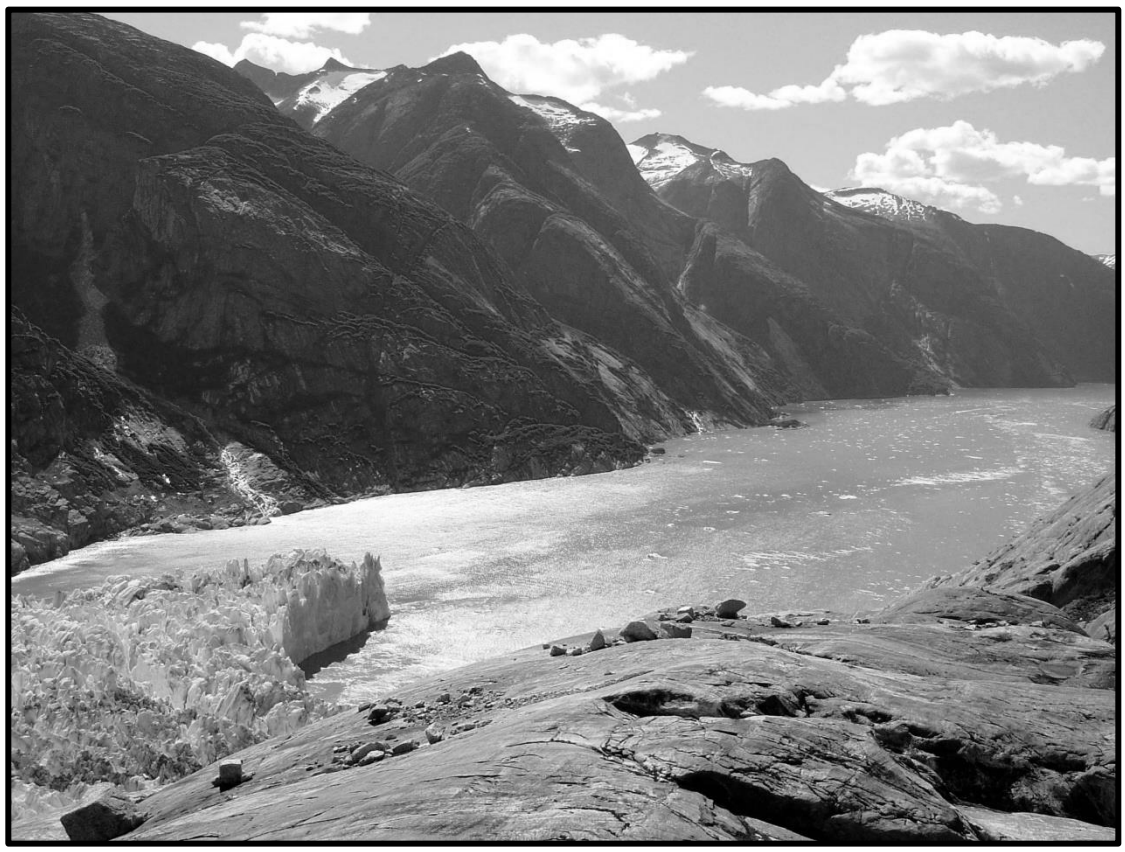
United States Department of Agriculture

Shoreline II Outfitter/Guide

Draft Environmental Impact Statement
Volume I



Forest Service
Alaska Region **Tongass National Forest** **R10-MB-793a** **January 2016**

Cover Photo: A photograph of Endicott Arm Glacier taken from an elevation of 1,115 feet.

Commonly Used Acronyms & Abbreviations

ABOG	Alaska Board of Game	**LAC**	Limits of Acceptable Change
ADEC	Alaska Department of Environmental Conservation	**LUD**	Land Use Designation
ADF&G	Alaska Department of Fish & Game	**LWCA**	Land and Water Conservation Act
AKDCBD	Alaska State Division of Community and Business Development	**MIS**	Management Indicator Species
ANILCA	Alaska National Interest Lands Conservation Act	**NAGPRA**	Native American Graves Protection and Repatriation Act
BBMT	Brown Bear Management Team	**NEPA**	National Environmental Policy Act
BE	Biological Evaluation	**NFMA**	National Forest Management Act
BMP	Best Management Practice	**NHPA**	National Historic Preservation Act
CEQ	Council on Environmental Quality	**NMFS**	National Marine Fisheries Service
CFR	Code of Federal Regulations	**NOI**	Notice of Intent
DEIS	Draft Environmental Impact Statement	**NRHP**	National Register of Historic Places
DNR	Department of Natural Resources	**NAGPRA**	Native American Graves Protection and Repatriation Act
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

USDA 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: January 13, 2016

Dear Planning Participant:

I am pleased to announce that the Shoreline II Outfitter and Guide Draft Environmental Impact Statement (DEIS) is available for your review and comment.

The Tongass National Forest is proposing new outfitter and guide allocations within the marine shoreline zone. 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. 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.).

The DEIS analyzes four alternatives, including a No Action Alternative. The proposed action (Alternative 2) 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 Forest Service's preferred alternative is Alternative 2.

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 requests to be on the mailing list. The DEIS is also available for review on-line at: http://www.fs.usda.gov/project/?project=38181. Hardcopies and CDs of the document are available upon request.

This project is subject to the objection process pursuant to 36 CFR § 218. Individuals or entities (as defined by 36 CFR §218.2) who submit timely and specific written comments (as defined by 36 CFR §218.2) about this proposed project or activity during this or another public comment period established by the responsible official will be eligible to file an objection. Other eligibility requirements are defined by 36 CFR §218.25(a)(3) and include name, postal address, title of the project, and signature or other verification of identity upon request. It is the responsibility of the sender to ensure timely receipt of any comments submitted. Comments should be within the scope of the proposed action, have a direct relationship to the proposed action, and must include supporting reasons for the responsible official to consider (36 CFR §218.2). Issues raised in objections must be based on previously submitted timely, specific written comments regarding the proposed project unless new information arises after designated opportunities (36 CFR §218.7).

Comments on this proposed project will be accepted for 45 days beginning on the first day after the date of publication of the Notice of Availability (NOA) of the DEIS in the Federal Register. While a public notice will also be placed in the Ketchikan Daily News, the newspaper of record, the publication date of the NOA is the exclusive means for calculating the comment period for a proposed action documented in a DEIS.

Specific written comments can be submitted by mail to: Carey Case, Team Leader, USDA Forest Service, Petersburg Ranger District, P.O. Box 1328, Petersburg, AK 99833. Comments may be e-mailed to: FS-comments-alaska-tongass-sitka@fs.fed.us with "Shoreline II Outfitter and Guide Project" in the subject

line, submitted through the project website at: http://www.fs.usda.gov/project/?project=38181 by clicking "Comment on Project," or faxed to: (907) 772-5995. The office business hours for those submitting hand-delivered comments are 8:00 a.m. to 4:30 p.m., Monday through Friday, excluding holidays. Comments received in response to this solicitation, including names and addresses of those who comment, will be part of the public record for this proposed action and will become a matter of public record. Comments submitted anonymously will be accepted and considered, but those submitting anonymous comments will not be eligible for objection per 36 CFR §218.5.

Please contact Carey Case at (907) 772-3871 if you have questions about the project or how to submit comments.

Sincerely,

M. EARL STEWART
Forest Supervisor, Tongass NF

cc: Carey Case; Karen Iwamoto

Shoreline II Outfitter/Guide

Draft Environmental Impact Statement

United States Department of Agriculture
Forest Service Alaska Region

Lead Agency: USDA Forest Service
Tongass National Forest

Responsible Official: M. Earl Stewart, Forest Supervisor
Tongass National Forest
Federal Building
648 Mission Street
Ketchikan, Alaska 99901-6593
(907) 225-3101

For Further Information Contact: Chad VanOrmer, Monument Ranger
Admiralty Island National Monument
8510 Mendenhall Loop Road
Juneau, AK 99801
(907) 586-8800

Carey Case, Team Leader
Petersburg Ranger District
12 North Nordic Drive
Petersburg, AK 99833
(907) 772-3871

Abstract

The Tongass National Forest is proposing new outfitter and guide allocations on the Tongass National Forest marine shoreline zone to be consistent with the 2008 Tongass Land and Resource Management 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 Draft Environmental Impact Statement (DEIS) 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 DEIS 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.

The project website, http://go.usa.gov/Pzi, is the preferred method for receiving comments. Click on the link, "Comment on Project", to submit comments electronically and attach documents.

Send Written Comments to:	**Carey Case, Team Leader** **Petersburg Ranger District** **12 North Nordic Drive** **Petersburg, AK 99833** **(907) 772-3871**
Send Comments via Email to:	**comments-alaska-tongass-sitka@fs.fed.us**

When submitting comments, be sure to include the project name, "Shoreline II"; if submitting an electronic comment, use the project name in the subject line. Please provide your name, address, and a telephone number if available in your comments. Your name and contact information will become part of the public record.

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 DEIS 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 (Appendix E) 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 DEIS 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.

Description of the 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 2016.

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, had a separate decision on April 21, 2015.

Purpose and Need for Action

The purpose of this action is to manage outfitters/guides 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 recently 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 brief summary of the proposed action. All alternatives are presented in more detail in Chapter 2 of this DEIS.

The Forest Service proposes to allocate a portion of the visitor capacity to outfitter/guide use. The Shoreline II Outfitter/Guide Project Visitor Capacity Analysis (Appendix F) 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 NFS lands. Service days were calculated and 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 March14), early spring (March 15 to April 24), late spring (April 25 tp May 20 or 31), and summer (May 21 or June 1 to September 14). Tables 1 to 6 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.

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 recommended number of hunts in the Alaska Board of Game Brown Bear Management Strategy (BBMS 2000). The number of hunts will be allocated by ADF&G guide use area (GUA) to the spring and fall seasons proportionally based on the 5-year average from actual use reports (2010-2014). For example, the BBMS recommends 10 hunts in the

[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.

04-01ADF&G GUA (which contains Shoreline II Outfitter/Guide Use Areas 04-01A, B, and C). Based on the 5-year average, 61percent of the hunts have occurred in the spring season and 39 percent have occurred in the fall season. The Forest Service proposes to allocate 6 of the 10 hunts (61 percent) to the spring season and 4 hunts (39 percent) to the fall season. Since Shoreline II Outfitter/Guide use areas are smaller subunits of the ADF&G GUAs, the location of the hunts could occur across multiple Shoreline II Outfitter/Guide use areas. The service days used for each hunt would be part of the total outfitter/guide allocation proposed for the use area and season.

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 hardened LGA sites. At hardened LGA sites the authorized officer 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 responsible official 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 cost recovery regulations.

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).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 through the development of two action alternatives:

Issue # 1: Effects to Economic Opportunities

Issue 1 addresses concerns that the number of service days included in the proposed action (80,305) 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 shows 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[i]) standards and guidelines for remoteness, including outstanding opportunities for solitude, and social encounters
- Popular or high-valued local areas

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 31st. 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 management 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. 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 one 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 proposed action provides the starting point for the IDT and helps focus public and other government agency comments. 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 commercial 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.

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, areas that historically have had low outfitter and guide use. Concerns were expressed about the increasing overlap of uses incompatible with each other such as bear hunting and bear 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 and 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 is 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 DEIS.

Items Common to All Action Alternatives

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

The Forest Service proposes to allocate guided brown bear hunts in the ADF&G GMU 4 based on the recommended number of hunts in the 2000 Southeast Alaska Unit 4 Brown Bear Management Strategy

(BBMS). The number of hunts will be allocated to each ADF&G Guide Use Area (GUA) in the spring and fall seasons proportionally based on the 5-year average from actual use reports (2010 to2014) (see Table 2-5).

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 commercial allocation for the season).

Adaptive Management

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 the proposed action and all alternatives and designed to meet the Shoreline II project's purpose and need. More specifically, the adaptive management framework may be implemented when any UAs 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. The authorized officer has discretion whether or not to implement adaptive management based on budget and workforce capacity. Outfitter guides requesting use the implements adaptive management may be subject to additional fees under cost recovery regulations.

Actual use data is the information that the 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 guides activities such as the location of their activities, the number of clients 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 determine 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. An under-reporting of actual use will result in an individual guide's authorization to be reduced; an over-reporting of use will require the guide to pay more for their permit.

The decision space for this adaptive management framework is 1) when any UA for any season that has between 80% and 110% of its allocation utilized in actual use and 2) whether or not to implement it considering agency capacity . To ensure adequate baseline information is collected, decisions based on the adaptive management framework will not be implemented until at least two years after the Record of Decision. The priority for collecting baseline information will be in those UAs and use seasons that currently have 75% to 80% of the allocation utilized in actual use.

While the Authorized Officer may take action in response to monitoring data collected ,the USFS could not, under any scenario, authorize more than 110% of the allocated use (the maximum number of days

evaluated under the selected alternative in the Selected Alternative) through adaptive management, unless additional National Environmental Policy Act (NEPA) compliance is completed

For more information about proposed adaptive management for this project, see Appendix D of this DEIS.

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 outfitters/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 altogetherby 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 Decision Framework section 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 National Forest management 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 a series of comparison tables for all of the alternatives. Numbers in parentheses are negative).

Table 1: Service days by season for each alternative

Alternative	Spring Allocation — Early	Spring Allocation — Late	Spring Allocation Total	Summer Allocation	Fall Allocation	Winter Allocation	Total
1	N/A	N/A	8400	32,225	6,827	0	**47,452**
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: Comparison of the action alternatives for the early spring season*

Early Spring (March 15 to April 24)														
Shoreline II se Areas	Estimated Visitor Capacity (service days)	Average O/G Annual Use (2010 to2014)	Highest O/G Annual Use (2010 to2014)	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	992	0	0	0%	0	16%	160	160	12%	120	120	26%	260	260
01-02 Haines Area	165	0	0	0%	0	18%	30	30	12%	20	20	27%	45	45
01-03 East Chilkats	1,169	0	0	0%	0	12%	140	140	9%	105	105	20%	230	230
01-04A Berners Bay	533	0	0	0%	0	11%	60	60	8%	45	45	19%	100	100
01-04B N. Juneau Coast	711	15	22	0%	0	15%	105	105	11%	80	80	23%	165	165
01-04C Taku Inlet	1,778	0	0	0%	0	7%	125	125	5%	95	95	12%	205	205
01-04D Slocum Inlet	178	0	0	0%	0	17%	30	30	17%	30	30	25%	45	45
01-05A Taku Harbor	198	0	0	0%	0	30%	60	60	23%	45	45	48%	95	95
01-05B Port Snettisham	3,638	0	0	0%	0	6%	220	220	5%	165	165	10%	360	360
01-05C Windham Bay	2,232	3	6	0%	0	5%	115	115	5%	115	115	8%	185	185
01-05D Tracy Arm	533	0	0	0%	0	8%	40	40	6%	30	30	12%	65	65
01-05E Fords Terror	356	0	0	0%	0	11%	40	40	8%	30	30	17%	60	60

Early Spring (March 15 to April 24)														
Shoreline II se Areas	**Estimated Visitor Capacity (service days)**	**Average O/G Annual Use (2010 to2014)**	**Highest O/G Annual Use (2010 to2014)**	**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)**
01-05F Endicott Arm	1,346	5	7	0%	0	7%	95	95	6%	75	75	12%	155	155
04-01A Gut Bay, Baranof	946	1	3	0%	0	6%	60	60	5%	45	45	10%	95	95
04-01B Port Armstrong	1,656	0	0	0%	0	6%	105	105	5%	80	80	10%	165	165
04-01C Nelson Bay	527	0	0	0%	0	7%	35	35	5%	25	25	10%	55	55
04-02A Redoubt Lake	1,066	0	0	0%	0	15%	165	165	12%	125	125	25%	265	265
04-02B Whale Bay	1,893	2	10	0%	0	5%	95	95	4%	75	75	8%	160	160
04-02C Necker Islands	1,066	0	0	0%	0	15%	165	165	12%	125	125	25%	265	265
04-02D SW Baranof	710	0	0	0%	0	15%	110	110	11%	80	80	25%	175	175
04-03 Sitka Area	6,548	51	150	0%	0	7%	460	460	5%	345	345	11%	750	750
04-04A Rodman Bay	611	0	0	0%	0	16%	95	95	16%	95	95	25%	150	150
04-04B Kelp Bay	1,757	5	8	0%	0	10%	180	180	8%	135	135	17%	290	290
04-04C Baranof Warm Springs	176	0	0	0%	0	11%	20	20	9%	15	15	17%	30	30
04-05A SE Admiralty	403	2	5	0%	0	22%	90	90	17%	70	70	36%	145	145
04-06A Pybus Bay	621	1	4	0%	0	12%	75	75	9%	55	55	20%	125	125
04-06B Eliza Harbor	617	0	0	0%	0	15%	95	95	11%	70	70	25%	155	155
04-07A Gambier Bay	703	2	6	0%	0	6%	45	45	5%	35	35	10%	70	70
04-07B Cross-Admiralty Canoe Rte	886	0	0	0%	0	10%	90	90	8%	70	70	16%	145	145
04-08 NE Admiralty	1,406	0	0	0%	0	5%	70	70	4%	55	55	8%	115	115
04-09A Seymour Canal	879	0	0	0%	0	10%	90	90	8%	70	70	16%	145	145
04-09B Pack Creek Zoological Area	879	0	0	0%	0	10%	90	90	8%	70	70	16%	145	145

Early Spring (March 15 to April 24)														
Shoreline II se Areas	**Estimated Visitor Capacity (service days)**	**Average O/G Annual Use (2010 to2014)**	**Highest O/G Annual Use (2010 to2014)**	**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)**
04-10A Greens Creek	176	0	0	0%	0	14%	25	25	11%	20	20	26%	45	45
04-10B NW Admiralty	1,933	0	1	0%	0	6%	120	120	5%	90	90	10%	190	190
04-11A Port Frederick	1,406	0	0	0%	0	10%	140	140	10%	140	140	16%	230	230
04-11B Freshwater Bay	1,406	0	1	0%	0	10%	140	140	10%	140	140	16%	230	230
04-12 Tenakee Inlet	981	2	4	0%	0	10%	100	100	8%	75	75	16%	160	160
04-13 Peril Strait	2,460	0	0	0%	0	10%	250	250	8%	185	185	16%	405	405
04-14 Slocum Arm	660	0	0	0%	0	11%	70	70	8%	50	50	17%	110	110
04-15A Lisianski	1,778	0	0	0%	0	8%	145	145	6%	110	110	13%	235	235
04-15B West Yakobi Island	1,600	0	0	0%	0	3%	50	50	3%	40	40	5%	80	80
04-15C Stag Bay	533	0	0	0%	0	4%	20	20	3%	15	15	6%	30	30
04-15D Portlock Harbor	1,244	0	0	0%	0	4%	50	50	3%	40	40	7%	85	85
04-16A Point Adolphus	711	0	0	0%	0	30%	215	215	23%	165	165	49%	350	350
04-16B North Chichagof	431	0	0	0%	0	26%	110	110	20%	85	85	42%	180	180
04-16C Idaho Inlet	2,902	0	0	0%	0	15%	435	435	11%	330	330	24%	710	710
04-16D PLI Wilderness	711	0	0	0%	0	6%	40	40	4%	30	30	9%	65	65
04-16E Port Althorp	2,952	0	0	0%	0	15%	445	445	11%	335	335	25%	725	725
Total	**59,063**	**89**	**227**		**0**		**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 3: 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)**	**Highest O/G Annual Use (2010 to2014)**	**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)
04-01B Port Armstrong	1,469	36	99	12%	171	6%	90	(81)	5%	70	(101)	10%	145	(26)

Late Spring (April 25 to May 20 or May 31)														
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)
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	899	20	48	17%	157	10%	90	(67)	10%	90	(67)	17%	150	(7)

Late Spring (April 25 to May 20 or May 31)														
Frederick														
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
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**

Table 4: Comparison of alternatives for the summer season

Summer														
Shoreline II Use Areas	**Estimated Visitor Capacity (service days)**	**Average O/G Annual Use (2010 to2014)**	**Highest O/G Annual Use (2010 to2014)**	**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
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

Summer														
Shoreline II Use Areas	**Estimated Visitor Capacity (service days)**	**Average O/G Annual Use (2010 to2014)**	**Highest O/G Annual Use (2010 to2014)**	**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)**
04-02D 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	1224	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
04-08 NE Admiralty	6,365	30	76	15%	983	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

Summer														
Shoreline II Use Areas	**Estimated Visitor Capacity (service days)**	**Average O/G Annual Use (2010 to2014)**	**Highest O/G Annual Use (2010 to2014)**	**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)**
04-15B 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	506	30%	1,095	141	65%	2,380	1,426
04-16B North Chichagof	4,888	206	347	20%	954	20%	980	26	15%	735	(219)	33%	1,595	641
04-16C Idaho Inlet	10,494	1188	1349	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	1183	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**

Table 5: Comparison of alternatives for the fall season

Fall														
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)**	**Differenc e (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	3,110	2	7	10%	312	5%	160	(152)	4%	120	(192)	8%	255	(57)

Fall														
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)**	**Differenc e (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
Chilkats														
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
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	2,074	0	0	1%	29	15%	315	286	12%	240	211	25%	510	481

Fall														
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)**	**Differenc e (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
Islands														
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
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

Fall														
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)**	**Differenc e (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
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
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 6: Comparison of alternatives for the winter season

Winter									
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

Winter									
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)**
04-04A Rodman Bay	934	0	0	7%	65	7%	65	12%	110
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

Winter									
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)**
04-16A Point Adolphus	934	0	0	7%	65	7%	65	12%	110
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 1
Purpose and Need

Chapter 1. Purpose and Need

Introduction

The Forest Service has prepared this Draft Environmental Impact Statement (DEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This DEIS 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 DEIS 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 (Appendix E) 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 DEIS 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 DEIS 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, local agencies through correspondence and public meetings. Federally recognized tribes and a Alaska Native Claims Settlement Act (ANCSA) corporation were consulted.

This DEIS 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 for Action

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, Including the Proposed Action

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. Affected Environment and Environmental Consequences

This chapter describes the environmental effects, to various resources, of implementing the proposed action and alternatives.

Chapter 4. List of Preparers, Distribution, Glossary, References, Index

This chapter provides a list of preparers, the distribution list for the DEIS, a glossary, and references used in DEIS development. The last section of this chapter is an index.

Appendices

The appendices provide more detailed information to support the analyses presented in the DEIS.

Additional documentation, 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 Sitka, Alaska. Other reference documents such as the 2008 Tongass National Forest Land and Resource Management Plan (Forest Plan) are available online, or at public libraries throughout Southeast Alaska as well as at the Forest Supervisor's Office in Sitka, 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 are 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.

Outfitters/ guides are important partners with the Forest Service because they 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 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 Tongass National Forest will use this analysis to determine an allocation of service days dedicated to outfitter/guides through special use permits. The Tongass National Forest 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.

Description of 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 approximately 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 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:

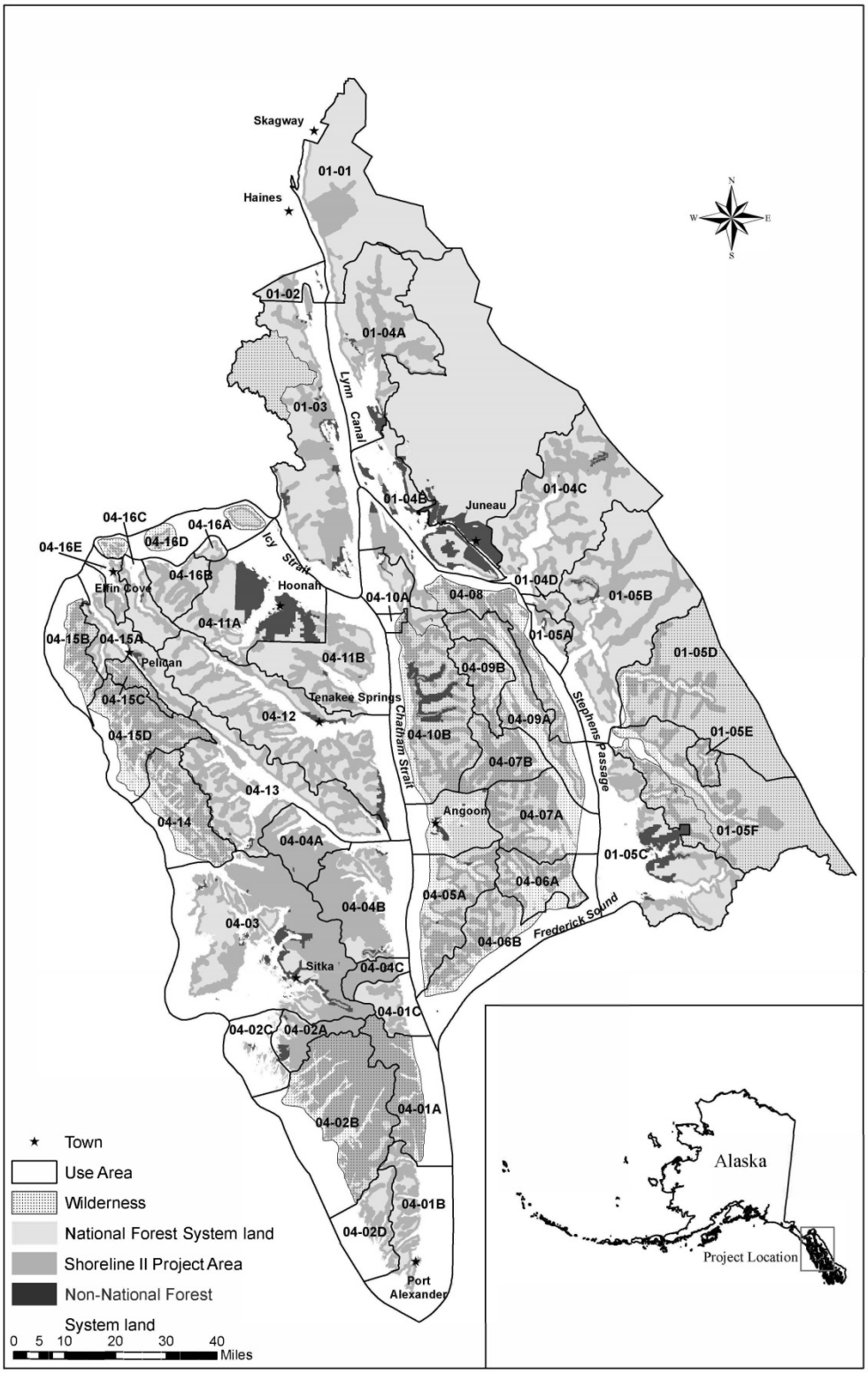
1. Private lands and other public lands and waters outside the jurisdiction of the Forest Service (i.e. submerged islands, marine waters, Alaska State Parks).
2. The summer (peak) season at the Pack Creek Zoological Area in Admiralty Island National Monument, which had a separate decision on March 21, 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 2016.
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, had a separate 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

Use Area	General Location	Acres	Use Area	General Location	Acres
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	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



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

Purpose and Need for Action

The purpose of this action is to manage outfitters/ guides 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 recently 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 brief summary of the proposed action. All alternatives are presented in more detail in Chapter 2 of this DEIS.

The Forest Service proposes to allocate a portion of the visitor capacity to outfitter /guide use. The Shoreline II Outfitter/Guide Project Visitor Capacity Analysis (Appendix F) 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 NFS lands. Service days were calculated and 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 1to 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.

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 recommended number of hunts in the Alaska Board of Game Brown Bear Management Strategy (BBMS 2000). The number of hunts will be allocated by ADF&G Guide Use Area (GUA) to the spring and fall seasons proportionally based on the 5-year average from actual use reports (2010-2014). For example, the BBMS recommends 10 hunts in the 04-01ADF&G GUA (which contains Shoreline II Outfitter/Guide Use Areas 04-01A, B, and C). Based on the 5-year average, 61 percent of the hunts have occurred in the spring season and 39 percent have occurred in the fall season. The Forest Service proposes to allocate 6 of the 10 hunts (61 percent) to the spring season and 4 hunts (39 percent) to the fall season. Since Shoreline II Outfitter/Guide use areas are smaller subunits of the ADF&G GUAs, the location of the hunts could occur across multiple Shoreline II Outfitter/Guide use areas. The service days used for each hunt would be part of the total outfitter/guide allocation proposed for the use area and season.

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 hardened LGA sites. At hardened LGA sites the authorized officer would have the flexibility to authorize

[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.

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 responsible official 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 cost recovery regulations.

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).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.

Decision Framework

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 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;
- Designate large group areas designed to accommodate large groups of visitors served by outfitter/guides;
- Incorporate design features to reduce impacts to natural, social, and cultural resources to incorporate into outfitter/guide special use permit stipulations;

- Adopt a Heritage Management Plan for large group areas (LGAs) to mitigate effects to historic properties located near these sites;
- Prescribe required monitoring and reporting of resource impacts;
- Allocate guided brown bear hunts by use area and season (spring and fall) in the Alaska Department of Fish and Game (ADF&G) game management unit 4 (Admiralty, Baranof, and Chichagof Islands) based on the recommended number of hunts in the Alaska Board of Game Brown Bear Management Strategy (2000);
- Determine whether to include the Big Game Guide Permit Administration Strategy; and
- Determine whether to include the Adaptive Management Strategy as part of the Selected Alternative.

Relationship to the Forest Plan and Related Management Direction

National forest planning takes place at several levels: national, regional, forest, and project. The Shoreline II Outfitter/Guide DEIS 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 DEIS tiers to the Forest Plan Final Environmental Impact Statement as encouraged by 40 CFR 1502.20.

The Forest Plan provides standards and guidelines for authorizing the services of qualified outfitters /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 2008, p. 4-46).

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
LUD 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 Rsrch Natural Area	3,675	0.1
Experimental Forest	17	>0.0
Grand Total	3,404,690	100.00

Goals, objectives, and desired future conditions of each LUD that apply to recreation and tourism are described in detail in the Forest Plan.

Public Involvement

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.

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

The following is a summary of the letters, contacts, and meetings that have taken place during the planning process of this project:

- April 1, 2012: Project first listed in the 4th quarter of the Schedule of Proposed Actions (SOPA) for the Tongass National Forest.
- 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
- October 18, 2013: Kootznoowoo Wilderness Commercial Needs Assessment completed.
- March 4, 2014: West Chicagof-Yakobi Wilderness Commercial Needs Assessment completed.
- March 7, 2014: South Baranof Wilderness Commercial Needs Assessment completed.
- March 10, 2014: Pleasant, Lemesurier, and Inian Islands Wilderness Needs Assessment completed.
- May 13, 2014: Tracy Arm-Ford's Terror and Chuck River Wilderness Commercial Needs Assessment completed.
- June 14, 2014: A scoping letter was sent 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 from individuals, groups, tribes, State agencies, and other organizations. Comments were received via email and letter. Copies of the letters and emails can be found in the project record.
- June 16, 2014: A Notice of Intent (NOI) to prepare an EIS was published in the Federal Register (Vol. 79, No. 115).
- 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.
- June 25, 2015: An updated NOI 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 was published in the Federal Register (Vol. 80, No. 115). A total of 9 individuals and businesses/organizations commented on the project during this public scoping period.

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 O/G EIS 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 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 have been consulted 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

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 O/G EIS project area. Additional, various (49) meetings were held during this time period with the abovementioned 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.

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 (ADFG) 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.

Office of History and Archaeology

Consultation with the Alaska State Historic Preservation Officer (SHPO), following standard 36 CFR 800 procedures, is ongoing. The district level archeologist assigned to this project has determined that the activities proposed in all four alternatives for this DEIS will not have any adverse effect to historic properties, provided the stipulated conditions, which are described in Chapter 3, and Appendices A,B and C are implemented. This determination has been submitted to SHPO concurrence, and consultation will be completed between the Draft and Final EIS.

Any change in proposed outfitted/guided activities not currently listed in the permits that have the potential to disturb the ground will require a case-by-case Section 106 review by the project archaeologist.

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 USDA Forest Service threatened, endangered, and sensitive (TES) plant and animal species policy (FSM 2670). The BE analyzes the effects of all alternatives on all TES species and is part of the project record. It was determined that the project will most likely not adversely affect either the humpback whales or the western Distinct Population Segment of the Stellar sea lion.

A Biological Assessment (BA) will be prepared and forwarded to the NMFS for concurrence as part of the Section 7 consultation process under the ESA. The BA will display the effects of the Selected Alternative on threatened and endangered species.

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.

A BE was prepared for the Shoreline II project as required under Section 7 of the ESA, as amended, and the USDA 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.

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 through the development of two action alternatives.

Issue # 1: Effects to Economic Opportunities

Issue # 1 addresses concerns that the number of service days included in the proposed action (80,305) 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 shows 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
- Popular or high-valued local areas

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

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.

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).

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

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: This issue is addressed by all action alternatives. 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 (http://www.commerce.state.ak.us/occ/pgui3.htm), 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 DEIS is reduction of paperwork specified in 40 CFR 1500.4. This DEIS 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 located at the Tongass National Forest Supervisor's office in Sitka, 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, including the District Office in Sitka. The Forest Plan and its FEIS are also available on CD-ROM and on the Internet (http://go.usa.gov/cQEnB; http://go.usa.gov/cQEnQ). The project record is also available electronically upon request.

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.

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.

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 dismissed 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 proposed Shoreline II Outfitter/Guide DEIS utilize 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. Utilizing 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 DEIS. 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 would prove to be beyond the capacity of the agency to successfully complete. Instead the Shoreline II Outfitter/Guide project utilized the indicator, monitor, and threshold aspects of the LAC model and applied it to develop an Adaptive Management alternative. The Adaptive Management alternative keeps the capacity allocation model and develops monitoring indicators and thresholds that would be applied in targeted use areas where 80 percent or more the allocation is used by outfitter/guides. In part, the suggestion to use LAC helped develop the Adaptive Management alternative.

Alternatives Considered in Detail

The Forest Service developed four alternatives, including the no action and proposed action alternatives. The no action 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, which could be incorporated into the final decision.

Each action alternative that is a part of the Shoreline II Outfitter/Guide project proposes to allocate a portion of the visitor capacity to outfitter/ guide use. The Shoreline II Outfitter/Guide Project Visitor Capacity Analysis (Appendix E) 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 NFS lands. Service days were calculated and allocated to 48 geographic units defined as Shoreline II Outfitter/Guide Use Areas (Figure 1-1).

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 47,452 service days. The no action alternative would continue the existing management practices of the outfitter/guide special uses management 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. 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
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

Shoreline II Use Areas	No Action (Service Days)--Spring	No Action (Service Days)--Summer	No Action (Service Days)--Fall	Total
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	47,452

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 one 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 proposed action provides the starting point for the IDT and helps focus public and other government agency comments. 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 commercial 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.

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**
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**

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
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 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, areas that historically have had low outfitter and guide use.

Alternative 3 was developed in response to concerns expressed about the increasing overlap of uses incompatible with each other such as bear hunting and bear 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 the proposed action or Alternative 4. The remaining 5 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 Service 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. These 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 and 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 four out of five 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 utilized 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 2).
- While 5 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 3 use areas are used by outfitter/guides for less than 30 percent of spring season calendar days.
- All but 1 use area is used by outfitter/guides for less than 20 percent of fall season calendar days.

These monitoring results and use data describe the context of why some members of the public feel that crowding is occurring. Limitations of the data include:

- Insufficient coverage to adequately monitor encounters in all use areas, especially for 5 days during all 3 seasons per the solitude monitoring protocol
- A lack of recorded noncommercial/public use on NFS lands
- A qualitative assessment: do certain types of use precipitate crowding concerns more than others, or are certain areas more likely to feel crowded?

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 the winter season (Table 2-3). The IDT analyzed various proportions for reducing the outfitter/guide allocation and found this option best addressed the issues while still meeting the purpose and need. The winter season was not reduced compared to the proposed action because the allocations were 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	1,085
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
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

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
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

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 and 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 is 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 two 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 US 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
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	145	95	0	225	0	465

Shoreline II Use Areas	(Service Days)--Spring Early	(Service Days)--Spring Late	(Service Days)--Summer	(Service Days)--Fall	(Service Days)--Winter	Total
Area						
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____

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

The Forest Service proposes to allocate guided brown bear hunts in the ADF&G GMU 4 based on the recommended number of hunts in the 2000 Southeast Alaska Unit 4 Brown Bear Management Strategy (BBMS). The number of hunts will be allocated to each ADF&G Guide Use Area (GUA) in the spring and fall seasons proportionally based on the 5-year average from actual use reports (2010- 2014) (see Table 2-5. For example, the BBMS recommends10 hunts in ADF&G's GUA 04-01, which contains Shoreline II Outfitter/Guide Use Areas 04-01A, B, and C. Based on the 5-year average, 61 percent of the hunts have occurred in the spring season and 39 percent have occurred in the fall season.

The Forest Service proposes to allocate 6 of the 10 hunts (61 percent) to the spring season and four hunts (39 percent) to the fall season. Since Shoreline II Outfitter/Guide use areas are smaller subunits of the ADF&G GUAs, the location of the hunts could occur across multiple Shoreline II Outfitter/Guide use

areas. The service days used for each hunt would be part of the total outfitter/guide allocation proposed for the use area and season.

Table 2-5. Proposed brown bear hunt allocation by group use area (GUA) and season

ADF&G GUA	BBMS Recommended Number of Guided Hunts	SPRING Percent of Hunts Based on Actual Use	FALL Percent of Hunts Based on Actual Use	SPRING Proposed Shoreline II Hunt Allocation	FALL Proposed Shoreline II Hunt Allocation
04-01	10	61	39	6	4
04-02	7	52	48	4	3
04-03	4	100	0	4	0
04-04	11	67	33	7	4
04-05	15	67	33	10	5
04-06	16	80	20	13	3
04-07	5	100	0	5	0
04-08	1	100	0	1	0
04-09	6	100	0	6	0
04-10	9	78	22	7	2
04-11	9	89	11	8	1
04-12	14	73	27	10	4
04-13	16	73	27	12	4
04-14	6	53	4	3	3
04-15	6	68	32	4	2
04-16	6	70	30	4	2
Total	**141**			**104**	**37**

To address the purpose and need of aligning outfitter/guide activities to updated national policies set forth in 2008, the following actions are proposed.

- Continue to follow the guidelines regarding the number of hunts and guides set forth in BBMS, or any future collaborative planning effort.
- Collaborate with 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. The BGCSB has primary responsibility for adopting regulations, licensing and holding accountable big game guide businesses in the interest of the State's wildlife resources. The ADF&G manages wildlife populations through the issuance of hunting permits for taking of wildlife. The Tongass National Forest manages access to NFS lands, habitat, and public recreation experiences through a variety of means including the issuance of outfitter/guide special use permits.
- Rescind in its entirety the Outfitter and Guide Change in Ownership Direction (2009) that established guidance relating to issuing special use permits to Limited Liability Corporations 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. Issue future permits for big game guides in accordance with existing Forest Service policies set forth in the Code of Federal Regulations, Forest Service Manual, Forest Service Handbook or other guidance.
- Special use permits for big game guiding issued to corporations or LLCs shall identify the maximum number of registered guides that can operate under such permit as determined by the authorized

officer on a case-by-case basis. For LLC's 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.

- Special use permits for big game guiding (except wolf) shall identify the number of permitted hunts specific to a GUA and season. In order to align with the Alaska Region fee schedule for outfitter/guide activities, special use permits for wolf hunting activities shall identify the number of service days (rather than hunts) specific to a GUA and season.
- Align all big game guide special use permits with policies set forth through the BGCSB and ADF&G. Only authorize up to the maximum number of GUAs allowed by State of Alaska policies.
- Competitive interest (i.e., where demand for special use permits exceeds supply) for outfitter/guide hunting of all big game species, except Sitka black-tail deer, exists in all of GMU 4 and only portions of GMU 1 within the project area. Issue future big game guide special use permits where there is competitive interest in accordance with Forest Service Manual direction, which is generally by prospectus or change of ownership policies.
- In order to consider the option to issue permits through prospectus policies, align the terms of all big game guide special use permits where there is competitive interest to expire in the same year (earliest option is 2023). Existing big game guide special use permits will expire on their own terms or terminate earlier if conditions warrant (e.g., change of ownership). Big game guide special use permits re-issued prior to 2023 will be set to expire no later than 2023. Thereafter, all big game guide permits will be set to the same expirations.

The actions are intended to address the fact that the number of brown bear hunts under special use permits and number of brown bear guides in GMU4 aligns with the recommendation in the BBMS. The 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 policies set forth in the Code of Federal Regulations, Forest Service Manual, Forest Service Handbook and other relevant 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 commercial allocation for the season).

The following sites are proposed LGA additions in all alternatives:

- 04-01B - Big Port Walter Cannery
- 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.

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:

1. Allow for adaptation in order to meet a project's environmental, social, and economic goals;
2. Involve stakeholders; and
3. 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?

This is a landscape-level project that recognizes demand for certain types and amounts of guided and non-guided use and resource conditions will change incrementally over time due to economic trends, peoples' preferences of recreation activities, and natural changes in ecological systems. Those changes may necessitate adjustments (increase/decrease in guided use) in the management of effects to resources in use areas (UA). While the Forest Service has gained much experience through years of managing guided use, there are still uncertainties surrounding how resources will respond to increased use, and the effects to the visitor experience. Based on the results, the Forest Service may adjust allocations in order to better protect resources and to improve visitor experiences.

When developing a framework for authorizing commercial recreation 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 Shoreline II project is a proposal to allocate a proportion of total (commercial and non-commercial) visitor capacity to commercial uses. The remainder of the total visitor capacity is reserved to represent the non-commercial recreation use that happens on the landscape. A business that obtains an outfitter/guide permit is authorized a portion of the total commercial allocation. In a typical use area, there are multiple businesses operating at the same time and collectively they utilize the allocation of commercial use service days. This is referred to as the allocated use, or what they are authorized to use in a single year.

Actual use is the amount of an individual guide's allocated use utilized by paying clients in a single year. Every year guide companies have some degree of uncertainty on how many clients they will 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). Most 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 turning clients away or asking the agency for more 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, and allows for a better assessment of use allocations and whether those allocations are meeting the project's purpose and need. Integrating Adaptive Management and the NEPA process gives the Forest Service a tool that provides the flexibility to address unanticipated results of project implementation and to adjust decisions regarding the amount and locations of guided use for practical reasons.

Goals and desired outcome for the Shoreline II Adaptive Management Strategy

The Shoreline II EIS will lay the foundation for a collaborative Adaptive Management strategy to inform and improve outfitter and 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 predicted in the EIS.
2. To provide baseline, and ongoing data regarding the impacts of outfitter/guide use and impacts within UAs to inform adaptive decisions to increase or decrease use within specific UAs.
3. To be able to track changes to the project area throughout the life of the project, in order to continue to offer quality recreation experiences, and expand economic opportunities if resource conditions allow.

Table 2-6. Phases of the Shoreline II Adaptive Management Process

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 will be introduced to the Adaptive Management plan in Winter of 2015/2016 when the DEIS is published and the comment period is initiated. Public meetings will be held, and written comments will be accepted during designated comment periods.

Phase	Step or Activity	Description
	Monitoring protocols/resource indicators	Will be 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 Record of Decision (ROD), but there is potential to make future adjustments within parameters of the FEIS analysis; metrics will be prioritized with public input (provided between Draft and Final EIS) and the FS decision maker 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 baseline data is required, before Adaptive Management decisions can be instituted. Special use permits will be amended to include Adaptive Management requirements for operator 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.
	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 the proposed action and all alternatives, and designed to meet the Shoreline II project's purpose and need. More specifically, the Adaptive Management framework may be implemented when any UAs' 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. The authorized officer has discretion whether or not to implement Adaptive Management based on budget and workforce capacity. 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 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 guides' activities such as the location of their activities, the number of clients 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 authorization; over-reporting of use will require the guide to pay more for their permit.

The decision space for this Adaptive Management strategy is 1) when any UA for any season is between 80 percent and 110 percent of its allocation utilized in actual use and 2) whether or not to implement it with the given capacity. Decisions based on the Adaptive Management framework will not be implemented until at least 2 years after the Record of Decision has been signed to ensure adequate baseline information is collected. The priority for collecting baseline information will be in those UAs and use seasons that currently utilize 75 percent to 80 percent of allocated actual use.

While the district ranger or responsible official 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 evaluated under the selected alternative in the Selected Alternative) through Adaptive Management, unless additional National Environmental Policy Act (NEPA) compliance is completed (see NEPA Review).

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 2-7. 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 locations more than 15 percent of the season of concern.	Require guides to monitor and report the number of encounters per day with their actual use report. If monitoring data is below threshold, authorize up to 95 percent of the use area allocation. Continue monitoring annually for two 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. Guides voluntarily reduce the number of authorized service days. Agency formally revokes authorized service days proportionally from all guides utilizing the use area.
Recreation: Conflict between user groups	Annually monitor UA and season conflicts through ad-hoc field	Conflicts between user groups result in a diminished recreation experience and are	Require guides to report the number of conflicts that result in a diminished recreation experience for their clients or public with their actual use report.

Resource: Indicator	Monitoring	Threshold/Trigger	Adaptive Action
	monitoring and reports from the public and outfitter/guide businesses.	recorded in any 2 of 5 year period in any single UA and season.	If monitoring data is below threshold, authorize up to 95 percent of the UA allocation. Continue monitoring annually for two 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. Guides voluntarily reduce the authorized number of service days. Agency formally revokes service days proportionally from all guides utilizing the UA.
Other Resources	Monitor botany and heritage resources in proposed use area at least once prior to implementing an Adaptive Management action. See Additional Monitoring section below.	Monitoring report concludes that botany and heritage resource conditions in the field are within the expected range of effects disclosed in the FEIS.	If monitoring data is below threshold, authorize up to 95 percent of the UA allocation. Continue monitoring annually for two 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 reduce encounters. Guides voluntarily reduce the authorized number of service days. Agency formally revokes service days proportionally from all guides utilizing the UA.

Additional Monitoring

Heritage

The Forest Service program for compliance with the National Historic Preservation Act (NHPA) includes locating, inventorying and evaluating the National Register of Historic Places eligibility of historic and archeological sites that may be directly or indirectly affected by scheduled activities. Regulations (36 CFR 800) implementing Section 106 of the NHPA require Federal agencies to consider the effects of their actions on sites that are determined eligible for inclusion in or are listed in the National Register of Historic Places (termed "historic properties"). A Forest Service archeologist will conduct a cultural resource survey in the area of potential effect and conduct a files review to ensure compliance with NHPA and ensure that no historic properties will be affected.

Botany

The most current information on sensitive, rare and invasive plants will be used to assess the need for additional avoidance or mitigation measures. This includes the most current versions of the Alaska Region sensitive species list, the Tongass National Forest rare plant list, and the Tongass National Forest high--priority invasive plant species list.

Any occurrence of previously undiscovered rare or sensitive plants before or during implementation will be evaluated to assess the need for additional avoidance or mitigation measures. Outfitter/guide permits will include site-specific practices to prevent the introduction and spread of invasive plants.

On a site-specific basis, other species may be of concern and warrant prevention practices. The 2008 Tongass Forest Plan Invasive Species Standards and Guidelines (USDA Forest Service 2008c) and 2011 Invasive Species Management manual direction (FSM 2900) provide policy for minimizing spread of invasive species.

Project specific management considerations and mitigation are noted on the use area, and large group area cards located in Appendices A and B, respectively. For further site specific design features and mitigation measures see Appendix C of this DEIS.

Scope of Work during Implementation

Commitment of project--level monitoring is a commitment of resources to manage the National Forest. If included in the Selected Alternative, Adaptive Management will be implemented contingent upon agency funding and capacity. The estimated scope of work to implement Adaptive Management in the first 2-5 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 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 seasons that will be at 75 percent or higher in each alternative.

Table 2-8: 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
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 2-9: 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
JRD	01-05E Fords Terror	Summer	293	125	234%
ANM	04-10A Greens Creek	Summer	190	250	76%

Table 2-10: 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
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 2-11: 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
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 outfitters/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, BMP’s, 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 Decision Framework 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 National Forest management 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.

Identification of the Preferred Alternative

The IDT has identified Alternative 2 (Proposed Action) as the preferred alternative based on the environmental analysis within this DEIS, 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.

Comparison of Alternatives

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

Table 2-12: 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	8400	32,225	6,827	0	**47,452**
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 2-13: Comparison of alternatives in 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
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

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)**
04-03 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
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

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)**
04-15C 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 2-14: 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)
04-01B Port Armstrong	1,469	36	99	12	171	6	90	(81)	5	70	(101)	10	145	(26)

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)**
04-01C 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)
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	562	5	19	0	0	11	60	60	8	45	45	17	95	95

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)**
Zoological Area														
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
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**

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

Summer (May 21 or June 1 to Sept. 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
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

Summer (May 21 or June 1 to Sept. 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)**
04-02B 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	1224	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
04-08 NE Admiralty	6,365	30	76	15	983	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

Summer (May 21 or June 1 to Sept. 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)**
04-13 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	506	30	1,095	141	65	2,380	1,426
04-16B North Chichagof	4,888	206	347	20	954	20	980	26	15	735	(219)	33	1,595	641
04-16C Idaho Inlet	10,494	1188	1349	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	1183	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**

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

	Fall (Sept. 15 to Dec. 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)**	**Differenc e (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
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	1,037	1	3	5	55	6	65	10	5%	50	(5)	10%	105	50

Fall (Sept. 15 to Dec. 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)**	**Differenc e (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
Bay														
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
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	1,728	19	27	0	0	8	140	140	6	105	105	13	225	225

Fall (Sept. 15 to Dec. 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)**	**Differenc e (Alt 3-Alt 1)**	**Alt 4 (% of Visitor Capacity)**	**Alt 4 (Service Days)**	**Difference (Alt 4-Alt 1)**
Creek Zoological Area														
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
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

Fall (Sept. 15 to Dec. 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)**
Totals	**115,846**	**769**	**1,704**		**6,822**		**9,430**	**2,608**		**7,575**	**753**		**15,345**	**8,523**

Table 2-17: Comparison of alternatives for the winter season

Winter (Jan.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 (Jan.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 (Jan.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

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.

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 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 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 rights-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 are applied as outlined in Appendix C are implemented. The action alternatives may reduce the amount of potential guided use in some recreation 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.

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 commercial 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 commercial 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. Finally, growth in tourism in communities with economies historically tied to traditional resource extraction activities may result in changes to social structure and local distribution of wealth.

The Shoreline II Outfitter/Guide EIS is limited to the management and allocation of commercial guiding and outfitting activities in the shoreline zone of four ranger districts in the northern portion of the Tongass National Forest including Admiralty Island National Monument, Juneau Ranger District, Hoonah Ranger District, and Sitka Ranger District. The socioeconomic effects section concentrates mainly on the social and economic aspects of recreation and tourism within the aforementioned 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 2015).

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.

Affected Environment

Northern Southeast Alaska is sparsely populated with isolated communities connected primarily via air and water service. The Alaska's 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 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 jet service. As gateway community to Glacier Bay National Park, Gustavus also receives jet service, but only during the summer season.

Community Overview

The affected environment, including four ranger districts, 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 tourism destination. Current socioeconomic information is provided by the Alaska Department of Commerce, Community, and Economic Development (https://www.commerce.alaska.gov/dcra/DCRAExternal/), the Alaska Department of Labor and Workforce Development (Alaska Local and Regional Information), and local and regional economic development organizations.

Table 3.1: 2014 Community Populations

Community	2014 Population Estimate
City and Borough of Juneau	33,026
City and Borough of Sitka	9,061
Baranof Warm Springs	Seasonal
Port Alexander	45
City of Hoonah	787
City of Angoon	416
City of Pelican	75
Elfin Cove	16
City of Tenakee Springs	128
Haines Borough	2,537
Municipality of Skagway	1,031
City of Gustavus	516
City of Kake	626
Petersburg Borough	2,964

City and Borough of Juneau

Juneau, Alaska's state capital, is the largest community in the Analysis Areas with an estimated population of 33,026. 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 at the Juneau International Airport. Marine facilities include multiple seaplane facilities, deep draft docks, small boat harbors, and a state government 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 9,061, Sitka is the second largest community in the affected environment and is a popular visitor destination. Sitka is also a port of call for many cruise ships, however, total cruise ships has significantly declined in recent years, likely attributable to the lack of a commercial cruise ship dock. Passengers arriving to Sitka via cruise ship disembark via anchor and lighter boat service. Despite steep declines in cruise ship visitation, 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 (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 everyday via floatplane or boat. The community and surrounding national and state lands provide a variety of recreation activities 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 affected areas (population 45) and is located on the south end of Baranof Island, 65 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 787 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 (416 population) is a Tlingit village and the only settlement on Admiralty Island located on the southwest coast of Kootznahoo Inlet. Angoon is located 55 miles southwest of Juneau and 41 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 Alaska Marine Highway System ferry terminal.

City of Pelican

Pelican (population 75) is 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 16), 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 opportunity. A state-owned seaplane base is available with air taxi service from Juneau. Skiffs provide local transportation.

City of Tenakee Springs

Tenakee Springs (population 128) 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 three-mile local path.

Haines Borough

Haines (population 2,537) 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 1,031) 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. The Klondike Highway and Alaska Highway provide a connection to British Columbia, the Yukon Territory, interior Alaska, and the lower 48 states. Skagway is accessed by air, road, water, and rail 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 affects 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 516) is 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 ten-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 from Gustavus.

City of Kake

Kake (population 626), a predominantly Tlingit village, is just south of Admiralty Island located on the west side of Kupreanof Island alongside Keku Strait. 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 2,964). Kupreanof is economically tied to Petersburg, where most residents find employment, purchase

goods, and attend school. Petersburg's economy is primarily based on the 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 from Petersburg.

Region-wide 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. The remaining federal lands are managed primarily by the National Park Service and the Bureau of Land Management. The State of Alaska manages only two percent of the total land base including Mental Health Trust Authority and University of Alaska lands. Local governments and Alaska Native regional and village corporations own and manage a limited amount of Southeast lands at less than one percent and three percent respectively. Total Southeast lands in other private ownership are less than one percent of the total land base. Notably, the lack of privately-owned land is unique in Southeast Alaska and is oftentimes viewed as an impediment to economic development.

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, but it would be another ten years before economic recovery.

From 2008 to 2012, Southeast Alaska's population and economy rebounded with six 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. The region reached historic highs in 2012 across nearly all socioeconomic indicators including population, income, and employment. Growth across Southeast plateaued in 2013 and 2014. Economists expect Southeast's economy will remain flat in the coming years, likely growing less than one percent per year. Previous regional economic drivers including government, mining, and timber will continue to decline while visitor industry jobs will continue to grow.

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

Over the past 15 years (1998 – 2014), Southeast's total cruise passenger volume has averaged approximately 850,000 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 two consecutive years of decline (2009 and 2010) related to the national

economic recession and prolonged period of recovery. Excluding recession-related years (2009 and 2010), total cruise volume to Southeast increases approximately five percent each year.

During the 2014 summer season, 975,000 out-of-state visitors traveled to Southeast via cruise ship between May and September. Notably, total cruise visitor volume decreased 24,600 (-2%) between 2013 (999,600) and 2014 (975,000). Although 2014 yielded a two percent decrease in total cruise volume, it was following on the heels of a strong 2013 cruise season. It is projected Southeast cruise passenger volume will increase in 2015, but still not reach the peak of 2008.

Long-term trends in Southeast's total cruise volume generally indicate sustained growth over time, in most communities, with the exception of 2009 and 2010. With the exception of 2014, total visitor 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.

Table 3-2: 1998-2014: 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	975,000	-2
Average	854,997	4
Average (exclude 2009 and 2010)		5

Table 3.3: 2007-2013: Community Cruise Visitor Volume 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 ships visit communities of all sizes. In total, there are approximately eight operators that offer over 100 Southeast small vessel voyages each year. During the 2011 season (May to September), an estimated total of 8,830 passengers visited Southeast via a small cruise ship (400 passengers or less), which represents approximately one percent of overall Southeast cruise visitation (DCCED, 2013).

Reliable data regarding Southeast's small cruise industry is limited and oftentimes privately held. However, trends can be observed via statewide wastewater discharge permits issued by Alaska Department of Environmental Conservation for vessels carrying 50 – 249 passengers. Over the past decade, 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 six percent per year.

Table 3-4: 2004-2013: Annual Maximum Passenger Capacity, Small Vessel Only

Year	Total	Annual Percent Change
2004	19,160	NA
2005	21,511	12
2006	20,294	6
2007	18,624	-8
2008	20,205	8
2009	14,174	-30
2010	10,230	-28
2011	7,206	-30
2012	10,540	46
2013	11,474	9
Average	15,342	-2
Average (exclude 2009 and 2010)		6

Source: Alaska Department of Environmental Conservation

Tongass National Forest Guided Clients

Over the past ten years (2004 – 2014), an average of 550,000 individuals accessed the Tongass National Forest per year using guided services provided by approximately 140 commercial outfitter/guide businesses. 2005 marked a decadal peak in client use at 616,275 clients followed directly by the decadal low at 446,592 in 2006. The year-to-year percent change is highly variable and ranges -38percent to +25 percent. Excluding annual high and low outliers during the 2004 to 2014 timeframe, guided client use of the Tongass National Forest increased on average two percent each year.

Table 3-5: 2004-2014: 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

Year	Total	Annual Percent Change
2011	533,385	-11
2012	545,520	2
2013	590,275	8
2014	579,808	-2
Average	557,863	0%
Average (excluding 2006 and 2007)		2

Source: USDA Forest Service

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. Early estimates indicate the 2015 cruise season brought approximately one million visitors to Southeast – nearly four times the cruise ship passengers reported to have visited Southeast Alaska two decades ago.

Implications of Expanding Commercial Vessel Activity

The magnitude and rapid growth of the 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 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 a poor 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). 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 probably somewhat higher, since it is not likely that the survey was able to identify all providers. Of the 736 businesses, slightly over half (58%) 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%). 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 six percent reported revenues above $1 million, including one firm with revenues exceeding $10 million. A similar distribution is noticeable 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.

USFS Commercial 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 actual commercial use permits 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 in question 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 certain 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 it will thus 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 recreation use are previously 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 use. However, while the total capacity exceeds total demand, outfitter/guide recreation use in specific use areas may be near or at capacity in some 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 not possible. 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 Non-Commercial 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 commercial recreation use will potentially impact the quality of the recreation experience for local residents. At the same time, non-commercial use can also lead to crowding, noise, and site degradation. Therefore, restricting only commercial use will not necessarily guarantee the quality and quantity of recreation opportunities for non-commercial 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 non-commercial users followed closely by Alternative 3. It is anticipated Alternative 4 will have the greatest impact on local non-commercial users as it recommends the largest increase in service days be allocated for outfitter/guides.

Socioeconomic Effects on the Commercial Recreation Industry

If past trends continue, commercial recreation use in the Analysis Area will continue to grow, although perhaps not at the robust pace of past decades. If the commercial recreation industry continues to grow, 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 non-commercial 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, the fastest growing alternative (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 current forest plan land use designations according to standards and guidelines. Of noteworthy importance, 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 economic driver enabling many communities in the Analysis Area to adapt to declines in the forest products industry and 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, as the “No Action” alternative with 47,449 service days, would not decrease commercial recreation 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 commercial use in wilderness and remote areas. Alternative 1 and Alternative 3, for all practical purposes, do not significantly support growth in commercial recreation 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 non-commercial use (i.e., local residents and independent visitors).

All action alternatives allow for stability in commercial recreation 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 commercial recreation, the greater potential for cumulative growth in this sector.

Applying Adaptive Management framework when actual commercial recreation 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 commercial recreation use through Adaptive Management. This would authorize additional use, applicable to all alternatives, which would support additional economic opportunity for the commercial recreation industry. Furthermore limiting any increase to 110 percent, without additional NEPA review, limits any potential impact to non-commercial 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 residents. This analysis focuses on how commercially-guided recreation fits within the context of non-commercial 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 section summarizes and examines the existing condition of wilderness resources within the Shoreline II Outfitter/Guide EIS project area which includes the shoreline portion of six congressionally designated wilderness areas. This information is used to evaluate the potential effects to these wilderness resources from outfitter/guide use. Public scoping identified the following significant issue.

Issue: Effects to wilderness areas and effects of outfitter/guide uses on non-outfitter/guide visitors

There are concerns that the wilderness areas are already too crowded with outfitters/guides. Any additional increase in outfitter/guide service day allocation would negatively impact wilderness character.

This wilderness section analyzes Shoreline II Outfitter/Guide EIS project effects on wilderness character.

Regulatory Framework

Congress designates wilderness areas with the prescribed intent of preserving wilderness character for the enjoyment of present and future generations. Executive branch agencies, such as the Forest Service, establish, with public review, plans for implementing congressional law. 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 is the congressional legislation that designated four of the six project area wildernesses, and 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, 1980 & 1990).
- The 2008 Tongass Land and Resource Management Plan (Forest Plan), 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).

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 outfitter/guide use in wilderness, and
- monitoring to ground-truth the status and trends of wilderness character.

The Forest Plan manages wilderness through specific wilderness LUDs and standards and guidelines. The needs assessment for the Kootznoowoo Wilderness was completed in 2013. The needs assessments for Pleasant, Lemesurier & Inian Islands Wilderness, South Baranof Wilderness, West Chichagof-Yakobi Wilderness, Tracy Arm-Ford’s Terror Wilderness and Chuck River Wilderness were completed in 2014.

Wilderness Character Monitoring and Wilderness Commercial Needs Assessments

In order to evaluate an area's wilderness character, the federal agencies administering wilderness have established protocol called wilderness character monitoring. 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).

Wilderness commercial needs assessments have been completed for the six wilderness areas affected the Shoreline II Outfitter/Guide EIS project (Appendix F). These assessments determine which, if any, outfitter/guide services are necessary in each wilderness and their findings are summarized below in the Affected Environment section.

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

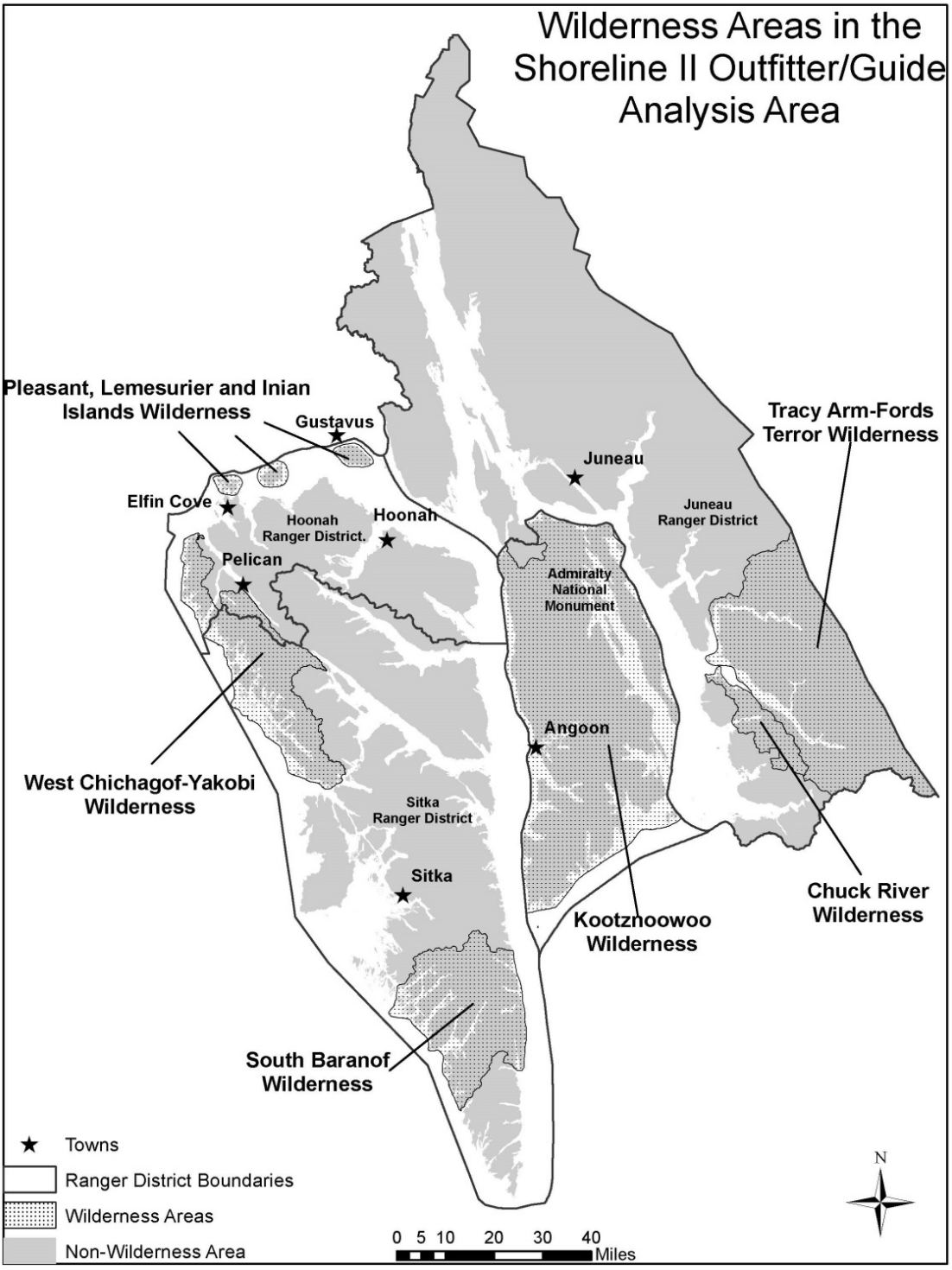


Table 3.6: Designated wilderness areas in the Shoreline II Outfitter/Guide EIS project area

Wilderness	National Forest acreage[1]	Administering District	Year of Designation[2]
Chuck River Wilderness	74,785 acres	Juneau Ranger District	1990
Kootznoowoo Wilderness	967,423 acres	Admiralty Island National Monument	1980
Pleasant/Lemusurier/Inian Islands Wilderness	23,267 acres	Hoonah Ranger District	1990
South Baranof Wilderness	316,704 acres	Sitka Ranger District	1980
Tracy Arm – Ford's Terror Wilderness	648,931 acres	Juneau Ranger District	1980
West Chichagof – Yakobi Wilderness	272,066 acres	Hoonah and Sitka Ranger Districts	1980

The outfitter/guide operations that would be authorized under the Shoreline II Outfitter/Guide EIS project would occur primarily within the shoreline zone of the designated wilderness areas with some activities extending further inland. It is worth noting that for some wilderness areas, the use areas represent a zone along the shore (e.g. in the Tracy Arm – Ford's Terror Wilderness Area) whereas for other wilderness areas, the use area extends far inland (e.g. South Baranof Wilderness Area). See use area cards in Appendix A.

Temporal Scale

The time period of direct, indirect and cumulative effects from this project are estimated to be ten 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 outfitter/guide 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 the area's wilderness character (U.S. Congress, 1964; Landres et al. 2015). This section describes the existing conditions of the wilderness character for the six wilderness areas in the project area. It then assesses the effects of the Proposed Action and alternatives on the wilderness character for the six wilderness areas.

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.

1 USDA Forest Service. 2014. Land Areas of the National Forest System: As of September 2013. Washington Office Lands Report FS-383.
2 www.wilderness.net

- **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 five qualities of wilderness character consist of subparts called indicators which in turn are composed of finer elements called measures (Landres et al. 2015).

Overall wilderness character is gauged 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.

In order to weigh measures, indicators and qualities using different metrics against each other, numerical scores from one to three are assigned for the condition, trend and data adequacy ratings of each measure. Good conditions are given a numerical value of 3, moderate concern a 2, and significant concern a 1. Improving trends score a 3, stable trends a 2 and degrading trends a 1. Similarly, good data adequacy scores a 3, medium data adequacy a 2, and low data adequacy a 1. Once all of the measures conditions, trends and data adequacies have been scored, the numbers are averaged under each indicator to tally the indicator scores. Once all of the indicators have been scored, the indicators are averaged to generate a quality score. Once the qualities have been scored, they are averaged to generate the overall wilderness character scores. Averages are carried out to the hundredths decimal place to better demonstrate how changes in measures ripple upward through the wilderness character monitoring protocol. It is important to understand that the indicator, quality and wilderness character ratings all derive from the averages generated from the initial scores for measure conditions, trends and data adequacies.

This wilderness analysis relies on the condition ratings more than the trend and data adequacy ratings. This is because the resource specialists have more expertise and data evaluating the conditions of their resources and discerning factors that contribute to resource conditions. Trends and data adequacy are important and still summarized, but emphasized less. As wilderness character monitoring protocol is developed and implemented further, trends and data adequacy should play increasingly relevant roles.

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

Wilderness character monitoring is based on a protocol assessing wilderness character qualities, indicators and measures. Broad national-scale 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) (note: the Forest Service Technical Guide is also being revised currently). The Tongass Forest Plan specifies that Tongass National Forest 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, 2008, 3-24). 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).

Not all qualities, indicators and measures that comprise wilderness character for an area will be affected by the Shoreline II Outfitter/Guide EIS project's Proposed Action and alternatives. The Environmental Consequences section explains why certain components will be unaffected. In particular, the Untrammeled Quality and Undeveloped Quality are unaffected by this project, as are the Natural and

Other Features of Value Qualities, assuming proper mitigations, 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 Outfitter/Guide EIS, Chapter 3, as well as in the resource reports prepared by appropriate specialists (e.g. wildlife, botany, air quality, and heritage and subsistence specialists) 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 analysis for this report will be on the Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality.

How This Analysis Uses Wilderness Resource Indicators and Units of Measure

The wilderness character monitoring protocol adopted in this section uses both national protocol from Keeping It Wild I & II (Landres et al., 2008 & Landres et al., 2015) and forest protocol from the Tongass Wilderness Character Monitoring Plan (USDA Forest Service, 2012). The following Outstanding Opportunities for Solitude measures from the Tongass Wilderness Character Monitoring Plan were modified for this report:

- Number of days with 0, 1-2, and 3+ groups encountered was replaced with Number of groups encountered per day. Reason: the number of onshore encounters is regularly less than three and what value would be gained by delineating such detail is off-set by the copious amount of data processing necessary to obtain it.
- Number of days of administrative use was dropped. Reason: The Shoreline II Outfitter/Guide EIS project is not expected to affect this measure.
- Percent of encounters involving motorized-mechanized transport was dropped. All onshore encounters recorded were of people hiking/walking and there is no expectation of encountering motorized-mechanized transport within the Shoreline II Outfitter/Guide EIS wilderness areas (the environmental analysis is only considering non-motorized access of upland wilderness from marine shoreline zones) as a result of Shoreline II Outfitter/Guide EIS allocations.
- Number of trail users is replaced by number and condition of user created trails. Reason: the Forest Service does not have good trail use data and the bigger wilderness resource concern is the proliferation of user created trails due to increased use.
- Percent of days monitored with Low-intensity or no encounters was added as a measure to assess how well wilderness areas are meeting the standard for Outstanding Opportunities for Solitude detailed in the Tongass Wilderness Character Monitoring Plan (USDA Forest Service, 2012).

Affected Environment

Descriptions of the 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 653,179 acres of the rugged mainland Coast Mountains bordering Holkham Bay, on the east side of Stephens Passage. It surrounds three dramatic glacial fjords—Tracy and Endicott Arms and Ford’s Terror—and extends eastward to the glaciers and high mountains of the Canadian border.

Tracy Arm-Ford's Terror is mountainous and heavily glaciated, with most of its terrain above treeline. Although a few low valleys host mature forest, most land along shore is covered in an early-successional mix of alder, willow and young spruce. Steep shores, swift streams, cliffs, narrow gorges, glaciers and thick vegetation make travel on land difficult. The wilderness has no cabins or maintained trails. However, protected waters, spectacular scenery and small beaches contribute to ideal sea kayaking in a temperate rain forest.

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 serve as an example of Pleistocene glaciation, with rounded domes, sheer walls and deep, U-shaped valleys.

Chuck River Wilderness Area

Chuck River reflects the rise of wilderness appreciation in modern society. The local Tlingit practiced trapping and fishing in Windham Bay. Settlers arrived in the 1890s seeking gold. They dug mines into the mountains, laid roads through the forests and built structures along the shore. The mining boom subsided around the 1920s, people moved on and their developments fell into disrepair. In the 1980s, timber resources were marked and potential roads were staked. But before it was logged, the American people embraced a new value - that of wilderness. In order to protect old-growth forest and riparian habitat, Congress designated the Chuck River Wilderness in 1990. The section adjoining the Tracy Arm – Ford's Terror Wilderness completes the protection of spectacular Endicott Arm. Many highlights for visitors to this area are its tranquility, scenic beauty, aged forests, healthy fish runs, hunting opportunities and protected anchorages.

The Tracy Arm – Ford's Terror and Chuck River Wilderness Areas include three use areas:

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

South Baranof Wilderness Area

The South Baranof Wilderness includes over 300,000 acres of coastal temperate rainforest. Numerous bays along the area's rugged 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 three miles from saltwater. Permanent snowfields and active glaciers blanket the higher elevations and several high-elevation lakes offer outstanding recreation opportunities. The South Baranof Wilderness is part of the temperate rainforest that extends along the Pacific coastline from northern California to Cook Inlet, Alaska. 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 South Baranof Wilderness receives an average of 200 inches of precipitation per year with temperatures ranging from mid-20s to high 60s. 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.

The area supports a full range of life zones, from the marine to the alpine. It is this combination of rugged 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 2 use areas:

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

Kootznoowoo Wilderness Area

Admiralty Island has long been associated with the brown bear (Urus arctos). The original name, The Bear Fort, indicates early Tlingit were well aware of the dense population of brown bear that distinguishes this island from others. The northern edge of the Kootznoowoo Wilderness lays just 12 boat-miles south of the capital city 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 find abundant solitude as they traverse from the traditional Tlingit village of Angoon to the historic homestead of Allen Hasselborg (the bear man of Mole Harbor), a distance of 27 miles. Totaling 956,255 acres (about 1,500 square miles) this Wilderness Area supports approximately one bear per square mile by latest estimate, one of the densest populations known.

Coastal forests of massive Sitka spruce and western hemlock dominate, and while Sitka black-tailed deer stay well hidden in the dense forest, bald eagles are easily found in treetops along most beaches. Harbor seals, Steller sea lions, and humpback whales feed near rafts of sea ducks such as scoters and harlequins. The forest floor lays thickly covered with mosses and blueberry, while muskegs open the tall forest canopy to sedge and sphagnum bogs. Rocky spires break through along the island's high crest with peaks above 3,000 feet. Protected as Admiralty Island National Monument in 1978, almost all but the northern end of the island was designated Wilderness in 1980 under the Alaska National Interest Lands Conservation Act. Additional lands around Admiralty Cove and Young Lake were added as wilderness in 1990 under the Tongass Timber Reform Act.

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 over 260,000 acres of coastal temperate rainforest, bounded to the west by the Gulf of Alaska. The Wilderness Area spans approximately 60 miles of coastline and includes hundreds of smaller islands in close 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. The village of Pelican lies only a short distance from the West Chichagof-Yakobi Wilderness Area boundary.

The West Chichagof-Yakobi Wilderness Area consists of numerous sheltered bays and a wild outer coast. 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 an abundance of 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.

Long before the Russians came, Tlingit Indians began utilizing this area for its rich natural resources. Centuries of human habitation have 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 4 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 23,096 acres located north of Hoonah as the Pleasant/Lemesurier/Inian Islands Wilderness. These scenic islands are located along the Icy Strait corridor near the entrance to Glacier Bay National Park and Preserve, north of the City of Hoonah.

Pleasant Island, the easternmost island, lies fairly flat with dense forest and vast muskegs; its highest point, The Knob, is at approximately 600 feet. 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. Residents hunt and gather here.

Lemesurier Island, the next island 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 satellites. A short distance north off of the Inian Peninsula and 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 for the Shoreline II Outfitter/Guide EIS wilderness areas

(Full Wilderness Commercial Needs Assessments are in Appendix F).

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

The Tracy Arm – Ford's Terror and Chuck River Wilderness Commercial Needs Assessment holds that four broad categories of outfitter/guide services – remote setting nature tours, camping, freshwater fishing and hunting – help realize the public purposes of wilderness and are compatible with the preservation of

wilderness character (USDA Forest Service, 2014c). These categories cover traditional wilderness pursuits, such as hiking, wildlife viewing, photography, and sightseeing, kayak camping, fishing and hunting game.

South Baranof Wilderness Area

The South Baranof Wilderness Commercial Needs Assessment holds that four broad categories of outfitter/guide services—remote setting nature tours, camping, freshwater fishing and hunting for deer, mountain goat and brown bear—help realize the public purposes of wilderness and are compatible with the preservation of wilderness character (USDA Forest Service, 2014b). These categories cover traditional wilderness pursuits, such as hiking, wildlife viewing, photography, and sightseeing, kayak camping, fishing and hunting game.

Kootznoowoo Wilderness Area

The Kootznoowoo Wilderness Commercial Needs Assessment holds that four broad categories of outfitter/guide services – remote setting nature tours, camping, freshwater fishing and hunting – help realize the public purposes of wilderness and are compatible with the preservation of wilderness character (USDA Forest Service, 2013a). These categories cover traditional wilderness pursuits, such as hiking, wildlife viewing, photography, and sightseeing, kayak camping, fishing and hunting game.

West Chichagof –Yakobi Wilderness Area

The West Chichagof – Yakobi Wilderness Commercial Needs Assessment holds that five categories of outfitter/guide services – remote setting nature tours, camping, freshwater fishing, brown bear hunting and deer hunting – help realize the public purposes of wilderness and are compatible with the preservation of wilderness character (USDA Forest Service, 2014a). These categories cover traditional wilderness pursuits, such as hiking, wildlife viewing, photography, and sightseeing, kayak camping, fishing and hunting game.

Pleasant, Lemesurier and Inian Islands Wilderness Area

The Pleasant, Lemesurier & Inian Islands Wilderness Commercial Needs Assessment holds that two broad categories of outfitter/guide services – remote setting nature tours and camping – help realize the public purposes of wilderness and are compatible with the preservation of wilderness character (USDA Forest Service, 2014c). These categories cover traditional wilderness pursuits, such as hiking, wildlife viewing, photography, sightseeing, and boat- or kayak-based camping.

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

Untrammeled Quality

The untrammeled quality essentially gauges how much management/people intervene in a wilderness area’s affairs. 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. Examples include invasive weed treatments, installing fish passages, and capturing wildlife for research purposes. The latter indicator covers unauthorized trammeling actions such as people clearing out vegetation to make a trail or poaching wildlife. 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.

The following 4 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

2 annual trammeling actions: treatment of two invasive plants - white clover and ox-eye daisies.

South Baranof Wilderness Area

3 instances of illegal tree removal in 2012 at Port Banks and Sandy Bay.

Pleasant, Lemesurier and Inian Islands Wilderness Area

1 instance (year undetermined but recent) of unauthorized logging of downed trees in a stream.

The 3 wilderness areas mentioned above 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 actions include the alteration of Kanalku Falls facilitating fish passage and the ongoing habituation of wild bears in the Pack Creek Zoological Area.

West Chichagof–Yakobi Wilderness Area

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

The 2 wilderness areas mentioned above have more numerous trammeling actions over the last five 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 have not been established 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 exceptional motorized or mechanical use. The quality has three indicators:

- Non-recreational Buildings and Non-recreational Installations and Developments, examples include non-public use cabins, administrative or research camps, radio repeaters and navigational aids;
- Inholdings, evaluating level of development and occupancy of non-national forest lands in wilderness; and
- Use of Motor Vehicle (administrative, emergency and unauthorized use), Motorized Equipment or Mechanical Transport not allowed by the Alaska National Interest Lands Conservation Act

The following 2 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. Substantial inholdings include the Chichagof Mine and other parcels. The Alaska Department of Fish & Game Ford Arm temporary camp has been given administrative use of a generator for the last 3 years. In 2012 there was also an instance of an emergency helicopter landing, as well as an unauthorized chainsaw use.

The cumulative 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.

One 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 mine claims, timber camps, navigational aids and research. Numerous inholdings including several with cabins and one recently renovated and operating outfitter/guide lodge. A few recent episodes of unauthorized and emergency helicopter use in the Tracy Arm – Ford's Terror Wilderness Area.

The lack of consolidated data and measure scores, along with unconfirmed trends and thresholds needing refining, combined with known development and uses, contribute to the quality condition warranting moderate concern with a stable trend based on low data adequacy.

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

Kootznoowoo Wilderness Area

Nineteen authorized cabins, 10 unauthorized crab pot storage sites with hundreds of crab pots, several authorized tent platforms, the Pack Creek administrative site, an ADF&G fish research camp and weir, an authorized lodge, a radio repeater, several authorized communications sites and many navigational markers. Over 30,000 acres of inholdings including large clearcut areas and some cabins and other structures. In 2013 there was also an instance of an unauthorized helicopter landing from a film crew. Authorized cabin owners use chainsaws and generators commonly which constitute administrative use.

The cumulative sum of these measures and indicators is an Undeveloped Quality for Kootznoowoo Wilderness Area warranting significant concern with a stable trend. The data adequacy is regarded as medium due to thresholds needing refining and unconfirmed trends.

Natural Quality

Natural quality represents the degree to which wilderness ecological systems are substantially free from the effects of modern civilization. This quality has two indicators: 1) Plant & Animal Species & Communities, and 2) Physical Resources. The Plant & Animal Species & 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, 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 increases the scores whereas the presence of these elements lowers scores.

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

No extirpations and no 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.

South Baranof Wilderness Area

No extirpations and no 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.

West Chichagof–Yakobi Wilderness Area

No extirpations and no 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.

Pleasant, Lemesurier and Inian Islands Wilderness Area

No extirpations and no non-native wildlife species. Unknown rare plant disturbances and extent of non-native plants: at least one sensitive plant species and one invasive species. Good scores for air quality contaminants.

At present, the good scores for the fish & 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 no 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 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

The Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality represents the experiential opportunities wilderness affords. 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 briefly first. A more detailed discussion follows examining the measures of the Solitude Indicators, as these are the ones raised as a significant issue by the public for how they might be affected by the Shoreline II Outfitter/Guide EIS project. This subsection concludes with a summary of the quality condition, trend and data adequacy for the six wilderness areas.

Unconfined Indicator: Management restrictions on visitor behavior

This indicator measures management restrictions on visitor behavior. As all six Shoreline II Outfitter/Guide EIS wilderness areas have minimal restrictions on visitors (only a group size limit of 12 and a required permit for Pack Creek with a daily quota of 24 during the peak summer season in the Kootznoowoo Wilderness Area but 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 Indicator: Facilities that decrease self-reliant recreation

This indicator gauges facilities that decrease self-reliant recreation. This includes national forest system trails and their number of constructed features, user-created facilities (trespass cabins and shelters), Forest Service-provided public use 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 use cabins; no trails; two installed cables for hanging food; no known user-created facilities.

South Baranof Wilderness Area

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

West Chichagof–Yakobi Wilderness Area

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

Pleasant, Lemesurier, Inian Islands Wilderness Area

No public use 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 use cabins; 10 public use shelters; 16 system trails (29.25 miles) with approximately 900 constructed features; one trespass cabin removed in 2015 and another known trespass cabin still standing.

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

The two solitude indicators and their measures are:

Solitude Indicator: Remoteness from sights and sounds of human activity inside the wilderness

- Number of cabin reservations (i.e., number of nights)per year;
- Number of outfitted/guided visitors in service days per year;
- Average number of groups encountered per day in wilderness;
- Number and condition of recreation sites; and
- Number of miles and condition of user created trails.

Solitude Indicator: Remoteness from sights and sounds of human activity adjacent to the wilderness

- Average number of groups encountered per day adjacent to wilderness (saltwater, air, non-wilderness lands); and
- 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

Table 3-7: A Summary of how the six wilderness areas score for the indicators and the overall outstanding opportunities 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 adequacy	Moderate concern (2.33) Undetermined trend Low adequacy	Moderate concern (2.33) Undetermined trend Low adequacy	Good condition (2.50) Undetermined trend Medium adequacy	Good condition (3.00) Undetermined trend Low adequacy
Solitude: Remoteness from sights and sounds of human activity adjacent to the wilderness	Moderate concern (1.50) Undetermined trend Medium adequacy	Significant concern (1.00) Undetermined trend Medium adequacy	Moderate concern (1.50) Undetermined trend Medium adequacy	Moderate concern (2.00) Undetermined trend Medium adequacy	Significant concern (1.00) Undetermined trend Low adequacy

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
Primitive Recreation: Facilities that decrease self-reliant recreation	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy	Moderate concern (1.50) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy
Unconfined Recreation: Management restrictions on visitor behavior	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy
Overall Quality Rating	Good condition (2.54) Undetermined trend Medium adequacy	Moderate concern (2.33) Undetermined trend Medium adequacy	Moderate Concern (2.08) Undetermined trend Medium adequacy	Good Condition (2.63) Undetermined trend Medium adequacy	Good Condition (2.50) Undetermined trend Medium adequacy

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 3-8).

Table 3-8: 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.

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, and
- West Chichagof – Yakobi Wilderness Area.

At present, the Pleasant, Lemesurier and Inian Islands Wilderness Area has not developed this quality.

Existing Wilderness Character

Table 3-9 displays the sum results for the qualities and the overall wilderness character condition score for each wilderness area.

Table 3-9: Summary of quality and wilderness character condition scores for the Shoreline II project wilderness areas

Existing Conditions of Wilderness Qualities					
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
Untrammeled	Good condition (3.00) Stable trend Medium adequacy	Good condition (2.50) Stable trend Good adequacy	Moderate concern (2.17) Stable trend Medium adequacy	Moderate concern (2.17) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy
Undeveloped	Moderate concern (2.33) Stable trend Low adequacy	Good condition 2.83) Stable trend Medium adequacy	Significant concern (1.44) Stable trend Medium adequacy	Moderate concern (2.00) Stable trend Medium adequacy	Good condition (2.50) Stable trend Medium adequacy
Natural	Good condition (2.75) Stable trend Medium adequacy	Good condition (2.75) Stable trend Medium adequacy	Good condition (2.50) Undetermined trend Low adequacy	Good condition (2.50) Stable trend Low adequacy	Good condition (2.75) Stable trend Medium adequacy
Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation	Good Condition (2.54) Undetermined trend Medium adequacy	Moderate Concern (2.33) Undetermined trend Medium adequacy	Moderate Concern (2.08) Undetermined trend Medium adequacy	Good Condition (2.63) Undetermined trend Medium adequacy	Good Condition (2.50) Undetermined trend Medium adequacy
Other Features of Values	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy	Good condition (3.00) Stable trend Medium adequacy	N/A
Existing Condition of Wilderness Character					
Wilderness Character	Good condition (2.73) Stable trend Medium adequacy	Good condition (2.68) Stable trend Medium adequacy	Moderate Concern (2.24) Stable trend Medium adequacy	Moderate Concern (2.46) Stable trend Medium adequacy	Good condition (2.69) Stable trend Medium adequacy

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 (low data adequacy),
- South Baranof Wilderness Area, and
- Pleasant, Lemsurier and Inian Islands Wilderness Area.

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

- Kootznoowoo Wilderness Area, and
- West Chichagof–Yakobi Wilderness Area.

This summary of the existing conditions for the six Shoreline II project wilderness areas makes sense when considering 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 extensive histories of human settlement and extraction, have substantial developments (non-recreational and recreational), and have the most hands-on management.

Environmental Consequences

Summary of Effects

The environmental consequences section describes the direct and indirect effects the Proposed Action and alternatives would have on wilderness character within the Shoreline II Outfitter/Guide EIS project area, and the cumulative effects the Proposed Action and alternatives would have combined with other anticipated, current, and past projects.

The direct effects analysis concludes with a summary table compiling the unaffected qualities with the affected qualities to assess how wilderness character will be affected. The degree of change to the measures, indicators, qualities and wilderness character determines the level of effect of the alternative (Table 3-10).

Table 3-10: 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.

It is worth noting that effects that change indicators, qualities or overall wilderness character – minor, moderate or major effects - may represent substantial impacts that change enough measures that the effects ripple upwards to create changes at higher levels, or it could be that indicators, qualities or overall

wilderness character are on a threshold and a modest impact on only one or a few measures is 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. To use an analogy: minor, moderate or major negative effects may reflect all of the straw impacts that break a camel's back, or the final straw that breaks a camel's back. The focus from the wilderness administration standpoint is on the fact that the camel's back is broken and should be mended.

Qualities, Indicators and Measures 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. The effects analysis of the Environmental Consequences section will focus more in-depth on the affected quality, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and its indicators and measures.

Untrammeled

The untrammeled quality signifies that wilderness is essentially unhindered and free from human control or manipulation. Examples of controls or manipulations include predator control, fire suppression, stocking lake with fish and other direct intentional management of plants, wildlife or ecological processes. 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

The undeveloped quality is an index of structures, installations, and inholdings, and of administrative/emergency/unauthorized use of motor vehicles, motorized equipment or mechanical transport normally prohibited by the Wilderness Act and not allowed under the Alaska National Interest Lands Conservation Act. There will be no effect to the undeveloped quality in all six wilderness areas because outfitter/guide use allocations described in the Proposed Action and alternatives do not authorize structures, installations, inholdings or exceptional cases of using normally prohibited motorized or mechanized means.

Natural

The natural quality has an indicator and several measures that are outside the effects of the Proposed Action and alternatives. The physical resources: air quality indicator will not be affected in all six wilderness areas and is not expected to be significantly impacted by the Shoreline II Outfitter/Guide EIS project. The cruise ships which are subject to visual emissions readings do not conduct outfitter/guide operations in wilderness and so they fall outside the scope of this project's considerations. Additionally the measures evaluating the number of extirpated fish and wildlife species and the number of non-indigenous fish and wildlife species are not expected to change as a result of Shoreline II Outfitter/Guide EIS activities.

Consequently, the natural quality analysis incorporates findings from this project's botany report to assess effects on the measures registering disturbed rare and sensitive plants and the number and extent of non-native plant species. The botany report indicates that with proper mitigation monitoring and adaptive measures in place, there should be no adverse effects from any of the four alternatives on rare and sensitive plants or in regards to proliferating non-native plant species. Thus the natural quality is regarded as being unaffected by this project contingent on proper mitigation, Adaptive Management and monitoring taking place.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation

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 are not foreseen as being affected by the Shoreline II Outfitter/Guide EIS and are regarded as being outside the scope of the project. Consequently, the analysis of this quality will focus on the two solitude indicators (remoteness from human activity inside wilderness and adjacent to wilderness). This is the main focus of the Environmental Consequences section.

Within the indicator: remoteness from sights and sounds of people inside the wilderness, there is a measure of number of cabin reservations per year. It is uncertain as to whether the varying amounts of outfitter-guide use offered by the Proposed Action and its alternatives would result in a change in the number of cabin reservations. Many of the cabins are remote and expensive to access and many of the commercial operators permitted to use wilderness areas already have vessels designed to accommodate clients. Additionally, the measure condition cannot be scored until a protocol is established regarding the relationship between cabin users and outstanding opportunities for solitude (determining thresholds for enjoyment of solitude opportunities and for impairment of solitude opportunities as relates to numbers of commercial and noncommercial cabin users). Absent more definitive data, effects are not projected regarding this measure.

Within the Indicator: Remoteness from sights and sounds of people inside the wilderness, there is a measure of Number of guided visitors in service days. While it is clear that for each alternative this number changes, the measure condition cannot be properly scored until a protocol is established regarding the relationship between guided clients and outstanding opportunities for solitude (determining thresholds for enjoyment of solitude opportunities and for impairment of solitude opportunities as relates to numbers of commercial and noncommercial visitors). Hence how differing amounts of guided visitors change the condition remains uncertain. Effects to this measure are not assessed in the alternative analyses, though the different numbers of service days offered under each alternative are presented.

Summary of Shoreline II alternatives on the outstanding opportunities for solitude or a primitive and unconfined type of recreation quality

By averaging the measures under the various alternatives, deriving indicator scores for both the remoteness from sights and sounds of human activity in wilderness and the remoteness from sights and sounds of human activity adjacent to wilderness, and then averaging those indicator scores against the existing indicator scores for management restrictions and facilities that decrease self-reliance, a composite Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation Quality score may be determined (Table 3-11).

Table 3-11: Summary of all four indicators as a composite quality score for outstanding opportunities for solitude or a primitive and unconfined type of recreation

	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) Negligible effects)	Moderate concern (1.71) (Moderate negative effects)	Good condition (2.58) (Minor negative effects)	Moderate concern (Major negative effects) (2.42)
Alternative 2 (Proposed Action)	Good condition (2.54) (No effect)	Moderate concern (2.33)Negligible effects)	Moderate concern(2.08) (No effect)	Good condition (2.58) (Minor negative effects)	Moderate concern (Major negative effects) (2.42)
Alternative 3	Good condition (2.54) (No effect)	Moderate concern (2.33)Negligible effects)	Moderate concern (2.08) (No effect)	Good condition (2.58) (Minor negative effects)	Moderate concern (Major negative effects) (2.42)
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) (Minor negative effects)	Moderate concern (Major negative effects) (2.33)

Additionally, 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). It is important to recognize that a condition rating might be weaker (or stronger) but still reflect the same score (for instance a 1.75 and a 2.25 average would both equate with a score of 2 = moderate concern, but the lower number is closer to a lower significant concern rating).

Other features of value

The wilderness areas that have adopted the other features of value quality have chosen indicators pertaining to features that are addressed in other resource specialist reports. The heritage section in this chapter pertains to cultural resources and human historic and prehistoric values. The subsistence section addresses subsistence opportunities. The wildlife section covers brown bears. 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 and mitigation measures section below, the Adaptive Management section above 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.

Environmental Consequences Summary

Tables 3-12 to 3-16 illustrate how the direct effects of the Shoreline II Outfitter/Guide EIS Proposed Action and alternatives impact the wilderness qualities and character of the six project area wildernesses.

Table 3.12: Environmental consequences summary for the Tracy Arm - Ford's Terror and Chuck River Wilderness Areas

Shoreline II alternative effects on wilderness qualities					
Quality	**Existing Condition**	**Alternative 1 (No Action)**	**Alternative 2 (Proposed Action)**	**Alternative 3**	**Alternative 4**
Untrammeled	Good condition (3.00)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)
Undeveloped	Moderate concern (2.33)	Moderate concern (2.33) (No effect)	Moderate concern (2.33) (No effect)	Moderate concern (2.33) (No effect)	Moderate concern (2.33) (No effect)
Natural	Good condition (2.75)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)
Outstanding opportunities for solitude or a primitive and unconfined type of recreation	Good condition (2.54)	Good condition (2.54) (No effect)	Good condition (2.54) (No effect)	Good condition (2.54) (No effect)	Moderate concern (2.38) (Major negative effects)
Other features of values	Good condition (3.00)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)
Shoreline II alternative effects on wilderness character					
Wilderness Character	Good condition (2.73)	Good condition (2.73) (No effect)	Good condition (2.73) (No effect)	Good condition (2.73) (No effect)	Good condition (2.69) (Major negative effects)

For much of the Tracy Arm – Ford's Terror and Chuck River Wilderness Areas, the severe geography concentrates use and impacts to specific sites. A consequence of this is that the projected effects from use under Alternatives 1 (No Action), 2 (Proposed Action) and 3 are expected to be similar to the effects already occurring in the Existing Condition; consequently, there is no change in the wilderness character condition scores of 2.73 – good condition - for Alternatives 1 (No Action), 2 (Proposed Action) and 3 and the Existing Condition.

Alternative 4 increases use more to where it is likely additional impacts will occur. The outstanding opportunities for solitude or a primitive and unconfined type of recreation quality drops from a 2.54 score to a 2.38. This crosses the threshold from good condition to being of moderate concern and is regarded as a major impact. The effect on the overall wilderness character condition score is to drop it from 2.73 to 2.69; it is still in good condition.

Table 3-13: Environmental consequences summary for the South Baranof Wilderness Area

Shoreline II Alternative Effects on Wilderness Qualities					
Quality	**Existing Condition**	**Alternative 1 (No Action)**	**Alternative 2 (Proposed Action)**	**Alternative 3**	**Alternative 4**
Untrammeled	Good condition (2.50)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)
Undeveloped	Good condition (2.83)	Good condition (2.83) (No effect)	Good condition (2.83) (No effect)	Good condition (2.83) (No effect)	Good condition (2.83) (No effect)
Natural	Good condition (2.75)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)
Outstanding opportunities for solitude or a primitive and unconfined type of recreation	Moderate concern (2.33)	Moderate concern (2.33) (No effect)	Moderate concern (2.33) (No effect)	Moderate concern (2.33) (No effect)	Moderate concern (2.08) (Minor negative effect)
Other features of values	Good condition (3.00)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)
Shoreline II Alternative Effects on Wilderness Character					
Wilderness character	Good condition (2.68)	Good condition (2.68) (No effect)	Good condition (2.68) (No effect)	Good condition (2.68) (No effect)	Good condition (2.63) (Minor negative effects)

For the South Baranof Wilderness Area, the projected effects of Alternatives 1 (No Action), 2 (Proposed Action) and 3 are expected to be similar to the effects already occurring in the Existing Condition. Alternative 4 does degrade the Indicator: Remoteness from human activity inside wilderness via effects to the rated measure conditions, and so it is listed as having a minor negative effect. The outstanding opportunities for solitude or a primitive and unconfined type of recreation quality remains one of moderate concern for all four alternatives – only Alternative 4 degrades its condition score.

The overall wilderness character for the South Baranof Wilderness Area remains in good condition for all four alternatives. Alternatives 1 (No Action), 2 (Proposed Action) and 3 do not affect the wilderness character condition score of 2.68; Alternative 4 lowers it to 2.63.

Table 3-14: Environmental consequences summary for the Kootznoowoo Wilderness Area

Shoreline II alternative effects on wilderness qualities					
Quality	**Existing Condition**	**Alternative 1 (No Action)**	**Alternative 2 (Proposed Action)**	**Alternative 3**	**Alternative 4**
Untrammeled	Moderate concern (2.17) (No effect)	Moderate concern (2.17) (No effect)	Moderate concern (2.17) (No effect)	Moderate concern (2.17) (No effect)	Moderate concern (2.17) (No effect)
Undeveloped	Significant concern (1.44) (No effect)	Significant concern (1.44) (No effect)	Significant concern (1.44) (No effect)	Significant concern (1.44) (No effect)	Significant concern (1.44) (No effect)
Natural	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect0	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)
Outstanding opportunities for solitude or a primitive and unconfined type of recreation	Moderate concern (2.08) (No effect)	Moderate concern (1.71) (Moderate negative effects)	Moderate concern (2.08) (No effect)	Moderate concern (2.08) (No effect)	Moderate concern (1.71) (Moderate negative effects)
Other features of values	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)
Shoreline II alternative effects on wilderness character					
Wilderness character	Moderate concern (2.24) (No effect)	Moderate concern (2.16) (Moderate negative effects)	Moderate concern (2.24) (No effect)	Moderate concern (2.24) (No effect)	Moderate concern (2.16) (Moderate negative effects)

For the Kootznoowoo Wilderness Area, Alternatives 2 (Proposed Action) and 3 have no effects on the wilderness character qualities or on the overall wilderness character condition which retains its condition score of 2.24 (the same as the existing condition) and condition rating of being of moderate concern.

Alternatives 1 (No Action) and 4 degrade the outstanding opportunities for solitude or a primitive and unconfined type of recreation quality, lowering its score to a 1.71, which is still within the threshold of being of moderate concern. This results in a degradation of the overall wilderness character condition, lowering it to 2.16, which is also still within the threshold of being of moderate concern.

Table 3-15: Environmental consequences summary for the West Chichagof-Yakobi Wilderness Area

Shoreline II alternative effects on wilderness qualities					
Quality	**Existing Condition**	**Alternative 1 (No Action)**	**Alternative 2 (Proposed Action)**	**Alternative 3**	**Alternative 4**
Untrammeled	Moderate concern (2.17)	Moderate concern (2.17) (No effect)	Moderate concern (2.17) (No effect)	Moderate concern (2.17) (No effect)	Moderate concern (2.17) (No effect)
Undeveloped	Moderate concern (2.00)	Moderate concern (2.00) (No effect)	Moderate concern (2.00) (No effect)	Moderate concern (2.00) (No effect)	Moderate concern (2.00) (No effect)
Natural	Good condition (2.50)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)
Outstanding opportunities for solitude or a primitive and unconfined type of recreation	Good condition (2.63)	Good condition (2.58) (Minor negative effect)	Good condition (2.58) (Minor negative effect)	Good condition (2.58) (Minor negative effect)	Moderate Concern (2.21) (Major negative effect)
Other features of values	Good condition (3.00)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)	Good condition (3.00) (No effect)
Shoreline II alternative effects on wilderness character					
Wilderness character	Good condition (2.68)	Good condition (2.68) (Negligible effects)	Good condition (2.68) (Negligible effects)	Good condition (2.68) (Negligible effects)	Good condition (2.63) (Minor negative effects)

For the West Chichagof–Yakobi Wilderness Area, Alternatives 1 (No Action), 2 (Proposed Action) and 3 degrade measures under the outstanding opportunities for solitude or a primitive and unconfined type of recreation quality such that the indicator: remoteness from human activity inside wilderness downgrades from good condition to being of moderate concern; however the quality remains in good condition.

Alternative 4 degrades the same indicator as well as the indicator: remoteness from human activity adjacent to wilderness. This in turn degrades the quality from good condition to being of moderate concern.

The overall wilderness character condition rating for the West Chichagof – Yakobi Wilderness Area remains one of moderate concern for all four alternatives. Alternative 4 lowers the wilderness character condition score down to 2.38; Alternatives 1 (No Action), 2 (Proposed Action) and 3 all score 2.45.

Table 3-16: Environmental consequences summary for the Pleasant, Lemesurier and Inian Islands Wilderness Areas

Shoreline II alternative effects on wilderness qualities					
Quality	**Existing Condition**	**Alternative 1 (No Action)**	**Alternative 2 (Proposed Action)**	**Alternative 3**	**Alternative 4**
Untrammeled	Good condition	Good condition	Good condition	Good condition	Good condition

Shoreline II alternative effects on wilderness qualities					
Quality	**Existing Condition**	**Alternative 1 (No Action)**	**Alternative 2 (Proposed Action)**	**Alternative 3**	**Alternative 4**
	(3.00)	(3.00) (No effect)	(No effect)	(No effect)	(No effect)
Undeveloped	Good condition (2.50)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)	Good condition (2.50) (No effect)
Natural	Good condition (2.75)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)	Good condition (2.75) (No effect)
Outstanding opportunities for solitude or a primitive and unconfined type of recreation	Good condition (2.50)	Moderate concern (2.42) (Major negative effect)	Moderate concern (2.42) (Major negative effect)	Moderate concern (2.42) (Major negative effect)	Moderate concern (2.42) (Major negative effect)
Shoreline II alternative effects on wilderness character					
Wilderness character	Good condition (2.69)	Good condition (2.67) (Major negative effect)	Good condition (2.67) (No effect)	Good condition (2.67) (No effect)	Good condition (2.65) (Major negative effect)

For the Pleasant, Lemesurier and Inian Islands Wilderness Area Alternatives 1 (No Action), 2 (Proposed Action), 3 and 4 degrade measures under the outstanding opportunities for solitude or a primitive and unconfined type of recreation quality such that the quality drops from good condition to being of moderate concern. This is partially due to the fact that the existing condition of the quality is impaired to where it is barely above the threshold for good condition.

The overall wilderness character condition for the Pleasant, Lemesurier and Inian Islands Wilderness Area degrades slightly yet remains good for all alternatives, with Alternatives 1 (No Action), 2 (Proposed Action) and 3 scoring a 2.67 and Alternative 4 scoring 2.65.

Direct Effects Conclusion

Generally speaking, the wilderness character of the six wilderness areas is fairly resilient in regards to the Shoreline II Outfitter/Guide EIS 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 Outfitter/Guide EIS 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 Outfitter/Guide EIS Proposed Action and alternatives tends to have a greater effect.

Indirect Effects

Indirect effects include how the Shoreline II Outfitter/Guide EIS project might affect people’s awareness and appreciation of wilderness. Members of the public 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 outfitter/guide services in wilderness may compromise these other values and benefits. Others may gain greater wilderness awareness and appreciation through hearing of their colleagues exploits while on an outfitted/guided trip.

It is not possible to quantify the effects of any action alternative on the concerns, values and awareness of wilderness visitors and wilderness advocates. It is likely that some would be anxious about crowding and outfitter/guides affecting wilderness, whereas others would be more receptive of such opportunities and use.

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 following projects have been determined as having cumulative effects on wilderness character.

Angoon Airport

The Alaska Department of Transportation & Public Facilities has proposed building an airport to serve the community of Angoon and the Federal Aviation Administration has completed a DEIS for the project. The State has applied under Title XI of the Alaska National Interest Lands Conservation Act of 1980 to build the airport and its access road in the Kootznoowoo Wilderness Area. Four of the Draft EIS alternatives place the airport and the access road in the wilderness across Favorite Bay from Angoon; 1 alternative places the airport and the access road on lands of mixed ownership within the community; this latter alternative would not be built in designated wilderness.

For the alternatives building the airport and road in wilderness, measures under all wilderness qualities would be negatively affected. The untrammeled, undeveloped and outstanding opportunities for solitude or a primitive and unconfined type of recreation qualities would likely have their trends turn to degrading and might also suffer degraded conditions. The other features of value cultural resources indicator would also be impaired; however the subsistence opportunities indicator might have an improving trend if the access road affords more subsistence opportunities without a loss of subsistence resources. The in-wilderness alternatives could potentially impair the overall wilderness character condition and/or regress its trend to degrading.

Thayer Lake Hydropower Project

In 2009 the Forest issued a Record of Decision authorizing Kootznoowoo Inc., the Angoon village corporation, to construct a small hydropower plant in Thayer Creek north of town in the Kootznoowoo Wilderness Area in order to provide Angoon with more affordable energy. Kootznoowoo Inc. is now working with project designers to develop an economical plan for constructing the small hydro plant. The construction of such a plant for Angoon’s benefit is specifically provided for in the Alaska National Interest Lands Conservation Act (which also designated the Kootznoowoo Wilderness Area).

This project includes construction of a diversion dam, penstock, powerhouse, underground transmission lines and access roads. The construction of the hydro power plant 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.

Cumulative Effects Summary

The cumulative effects of the aforementioned projects combined with the direct effects would degrade the wilderness character of the Kootznoowoo Wilderness. The natural quality is on the cusp between being in a good condition and being of moderate concern (score = 2.50 which just equals good condition). This quality would likely degrade to a condition of moderate concern. The other qualities would also degrade,

but they are not as close to thresholds. The overall effect would be an incremental degradation across the qualities that would shift the condition within moderate concern closer to being of significant concern and farther from being in good condition.

Project Design Features and Mitigation Measures

Adaptive Management

Adaptive Management would be triggered for all use areas that reach (or have already surpassed) 80 percent of a season's outfitter/guide capacity. 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 the Adaptive Management section for details). The recreation site and user-created trail mitigations subsection below provides guidelines for triggering Adaptive Management measures sooner when unacceptable conditions are found prior to reaching the 80 percent capacity threshold.

Recreation site and user-created trail mitigations

Establish acceptable condition ratings where outfitter/guide use occurs. Use existing Forest Service Level II inventory standards for recreation sites and Forest Service trail standards for user-created trails. For instance, establish for recreation sites whether their minimal acceptable condition rating is 1 (lightly impacted), 2 (moderately impacted) or 3 (heavily impacted) and monitor and administer the site such that it doesn't degrade below the acceptable condition.

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

- Suspend additional authorization of outfitter/guide use at the site,
- Reduce existing authorized use, and/or
- Work with outfitters/guides to improve recreation site or trail conditions

It may be proper to assign sites for outfitter/guide users in such instances in order to allow for a phased approach that assesses how new outfitter/guide use affects others' opportunities and the physical resources. Assigned sites could be continued or relaxed depending on the findings of subsequent monitoring.

Additional Mitigations

Additional mitigations may be found under the appropriate resource section of this document and in Appendix A (Use Area Cards).

Consistency with Direction and Regulation

The Wilderness Act of 1964 provides for the use and enjoyment of wilderness areas and requires that their wilderness character be preserved (U.S. Congress, 1964) creating a spectrum under tension between use and preservation. The Shoreline II Outfitter/Guide EIS Proposed Action and alternatives comply with the law by proposing varying amounts of outfitter/guide use that fall in different places on the spectrum. It must be emphasized that monitoring will be essential for ensuring compliance with the law and for ensuring that authorized activities realize public purposes of wilderness and only create acceptable impacts. (U.S. Congress, 1964, Section 2(a)).

Recreation

Introduction

This section summarizes and examines the existing condition of recreation resources within the Shoreline II 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" 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." (Forest Service Handbook 2709.14, 53.1, p. 3))

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

Issue: Effects to wilderness areas and effects of outfitter/guide uses on unoufitted/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 unoutfitted/unguided visitors. (This part of the issue is addressed in this section.)

Issue: 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 section 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 unoutfitted/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/guide 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 unoutfitted/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

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.

Recreation management in the Shoreline II Outfitter/Guide EIS project area must also 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 in Appendix A of the Recreation Resource Report in the project record.

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 appropriate 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 3-17 provides a full list of the LUDs within the Shoreline II project area and the associated prescribed ROS class(s).

Table 3-17: Forest Plan ROS prescription by LUD

LUD	ROS Prescription
Experimental Forest	Existing ROS unless scheduled activities cause a change.
LUD II	Semi-Primitive
Minerals	Existing ROS unless scheduled activities cause a change. Change to Semi-Primitive Motorized, Roaded Natural, or Roaded Modified is allowed.

LUD	ROS Prescription
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
Recreational River	Existing ROS unless scheduled activities cause a change.
Remote Recreation	Primitive
Research Natural Area	No specific direction in the Forest Plan. Primitive is usually appropriate.
Scenic River	Existing ROS unless scheduled activities cause a change.
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, Enclaves up to Rural
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.
Transportation/Utility Systems	Manage changed setting within appropriate ROS guidelines.
Wild River	Primitive and Semi-Primitive
Wilderness	Primitive and Semi-Primitive
Wilderness National Monument	Primitive and Semi-Primitive

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 the NFS. This area is divided into 48 use areas, as identified in the Shoreline II Outfitter/Guide project area map (Figure 1-1). These use areas are the individual analysis units for this report 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 are estimated to be 10 years, which is the 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 outfitter/guide use has been occurring, or has been requested, in all four seasons. 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 in the year to accommodate growing 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 3-18) and a scale of effect from “negligible” to “major” is defined (Table 3-19) to provide a means of analyzing the effects on the ROS setting. Also, the magnitude of change between the proposed allocations 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 proposed alternatives on the recreation resources.

Table3-18: 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 50% or less of the visitor capacity for each season is allocated to outfitter/guide use (USDA Forest Service 2008a pp. 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)

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 pp. 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 unoutfitted/unguided users. The Forest Plan guideline for this indicator is that generally a maximum of 50 percent of the visitor capacity can be allocated to outfitter/guide use.

Social Encounters

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 immediately adjacent to NFS lands. 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.

For this analysis, the number of encounters is estimated for each use area by calculating the number of outfitter/guide and unoutfitted/unguided groups per day for the primary use season for each alternative and comparing that to the number of known use locations where people recreate. The primary use season is determined by local factors of a given site or area and is generally not the same date range across the Analysis Area. Factors may include fish run seasons, game management seasons, cruise ship schedules, typical weather patterns, etc. The primary use season for each area is described in the Affected Environment section. Use locations are the areas identified in the Shoreline II Visitor Capacity Analysis (USDA Forest Service, 2014e; also in Appendix E) as “capacity locations.” Comparing the number of estimated groups per day with the number of known use locations will provide an indication whether crowding, or encountering more than the prescribed number of groups identified in the Forest Plan, will occur under each alternative.

The number of outfitter/guide groups per day is estimated by dividing the number of service days allocated for each alternative by the number of days in the primary use season (=service days/day). This value is then divided by the maximum number of persons per group allowed within the predominant ROS class of each use area (=groups/day). Unoutfitted/unguided groups per day is estimated by subtracting the number of service days allocated for each alternative from the total visitor capacity (=number of service days available for unoutfitted/unguided use). This value is then divided by the number of days in the primary use season (=service days/day) and then divided by the ROS group maximum as described previously. The outfitter/guide and unoutfitted/unguided groups/day values are totaled to provide an estimate of the maximum number of groups per day expected under each alternative in the primary use

season. This number is then compared to the number of available use locations in each use area. If the groups/day number exceeds the number of use locations, then encounters among groups may occur.

When performing the calculations to estimate the number of encounters within a use area, it is assumed that visitor use is spread evenly over time and space. The reality of recreation use patterns are rarely this uniform. The analysis uses the calculations 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 guide companies, public comments and monitoring data.

Thresholds for group sizes and encounters are based on Forest Plan ROS standards and guidelines. To evaluate effects of each alternative on the social setting, this estimate is compared to the Forest Plan maximum number of encounters per day (defined by ROS class).

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 3-18).

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 areas are important to outfitter/guide and unoutfitted/unguided users on the 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, but 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 3-19) are based upon the analyst’s judgment of the magnitude of the change, the context and extent of the impact, and the timing and nature of activities taking place.

Sources of Information

Several sources of information are used for this section, which include: Tongass Outfitter and 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.

Table 3-19: 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[1].	Effect would be readily apparent, affect multiple locations, occurs more than 15% but less than 80% of the primary use season[1].	Effect would be highly noticeable, extensive (entire Use Area), occurs on most days of primary use season[1] (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.
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.
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 unoutfitted/unguided users.

Assumptions

Continued Demand for Outfitter/Guide Permits

Statewide and regional long-term visitor industry trends indicate sustained periods of growth spanning over two 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 sustained path of growth. The 2016 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 Visitor Use is Stable

There is limited quantifiable information available about unoutfitted/unguided use levels and related trends. However, examining economic and population trends for those communities within and affected by the Shoreline II Outfitter/Guide EIS can provide an approximation of unoutfitted/unguided visitor trends. Unoutfitted/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 one percent per year. Previous regional economic drivers including government, mining, and timber will continue to decline while visitor industry jobs will continue to grow.

Based on the expectation of flat growth trends, this section assumes that unoutfitted/unguided visitor use will remain relatively stable over the next 5 to 10 years.

Future Use Patterns are Similar to Existing Use Patterns

Recreation use impacts vary widely 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 (5 to 10 years), including the type of activities occurring, the method of transportation used, and the spatial and temporal distribution of use, will be similar to existing patterns of use.

Affected Environment

The Shoreline II Outfitter/Guide EIS Analysis Area lies within a land of spectacular scenery and abundant wildlife. The 17-million-acre Tongass National Forest encompasses about 80 percent of the land in Southeast Alaska, including most of the coastal rainforest.

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.

The rest of this section includes the following:

- Summary of the Recreation Opportunity Spectrum classes (current condition) within the project area
- Recreation use levels
- Recreation facilities
- Large Group Areas
- Access considerations

- Summary of recent monitoring results of the recreation resources within the project area

Recreation Opportunity Spectrum (ROS)

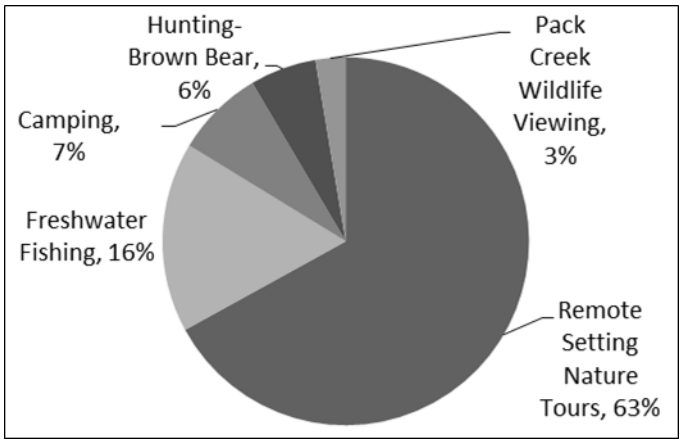
As described in the Analysis Methods section (above), the Forest Plan uses the ROS for project analysis and planning. It also uses the ROS to help describe the types of recreation settings that are provided by the Tongass National Forest. Overall, 53 percent of the Shoreline II Outfitter/Guide EIS project 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

The large amount of land area in the Tongass National Forest provides a great diversity of recreation attractions and opportunities. 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 only locally 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. When people use the Tongass 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.

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



Unoutfitted/Unguided Recreation

Precise information on unoutfitted/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 Recreation

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 most current five year period (2010-2014; USDA Forest Service, 2015a).

There were 122 outfitter/guide businesses or institutional operators that provided services to national forest visitors within the Shoreline II Outfitter/Guide EIS 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, Fox Creek, Williams Cove, and George Island 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).

Recreation Facilities

A current inventory of Forest Service facilities that are accessible from saltwater is presented in Table 3-20. Recreation facilities can help visitors experience their national forest lands. All facilities are available for unoutfitted/unguided use; some facilities are available for outfitted/guided 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 is available for guides and is reserved for their clients.

Table 1-20: Recreation facilities in the analysis area

Type of Facility	Number
Anchor Buoys	
Bathhouses	1
Day Use/Picnic Sites	4
Docks	5
Public Recreation Cabins	38
Shelters	17
Trails	21
Trails (number of miles)	
Wildlife Viewing Sites	1

Bathhouses

White Sulphur Springs bathhouse is located in the 04-15D Use Area. This facility is available for outfitter/guide use under Shoreline I and will continue to be available under the Shoreline II O/G EIS, with stipulations (see Design Features 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 the Shoreline II O/G EIS. Less than 5 service days of use annually have been reported by outfitter/guides at the 04-11B sites; no outfitter/guide use has occurred 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 Shoreline I and will continue to be available under the Shoreline II O/G EIS for non-motorized activities, with stipulations (see Design Features section). 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 Forest Service 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 National Forest, 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 unoutfitted/unguided users. Table 3-21 lists the cabins that are accessible from saltwater in the Shoreline II O/G EIS project area, as well as the availability for outfitter/guide (O/G) use under the Shoreline II O/G EIS and actual use levels by outfitter/guides (2010 to 2014). See the Design Features section for specific cabin stipulations.

Table 3-21: 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	6
04-03	Brent's Beach	Institutional O/Gs only	58
04-03	Fred's Creek	Institutional O/Gs only	12
04-03	Piper Island	Institutional O/Gs only	0
04-03	Salmon Lake	Yes	0
04-03	Samsing Cove	Institutional O/Gs only	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	0
04-14	Lake Suloia	Yes	0
04-15B	Greentop	Yes	0
04-15D	White Sulphur Springs	Institutional O/Gs only	0

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 the Shoreline II O/G EIS; many were not available in the past or were only available on a case-by-case basis.

Table 3-22: 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 hiking opportunities are limited across the Shoreline II O/G EIS 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 3-23: 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

Use Area	Trail	Approximate Length (miles)	Available for O/G Use in Shoreline II?	Average Annual O/G Use (service days)
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
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 is available for outfitter/guide use under the Shoreline II O/G EIS project. 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 LGAs identified within the Shoreline II Outfitter/Guide EIS project area, seven of which are new proposed LGAs. The other 33 LGAs were designated in the 2004 Shoreline Outfitter/Guide FEIS and ROD project and are carried forward in this EIS. The intent of designating specific LGAs is to provide a known set of 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 Outfitter/Guide EIS 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 and challenging 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 O/G EIS 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 O/G EIS 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, 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 unoutfitted/unguided use is factored into the ROS standards and guidelines. However, this particular report focused only on outfitter/guide use because reliable data for unoutfitted/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 in the spring season. In the summer season, the highest use (42 percent) occurred at Point Adolphus. In the fall season, the highest use (16 percent) occurred at Endicott Arm.

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 during the summer season, where vessels regularly cruise saltwater, without going ashore. Although this activity is not within the Shoreline II O/G EIS project area, it contributes to an increased sense of crowding for those present (whether the beholder 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 further intervention by the Forest Service.

The project area on the Juneau Ranger District receives very low to low levels of overall, with a few exceptions. Higher levels of use, relative to available outfitter/guide allocation, occur at Williams Cove LGA, Fords Terror and Endicott Arm 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 Fords Terror narrows. 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 Fords Terror narrows.

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 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 further intervention by the Forest Service. Hood, Chaik, Whitewater, and Gambier Bays 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 use overall, with a few exceptions. For example, higher levels of use, relative to available outfitter/guide allocation, occur at the Brothers Islands 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 (04-01C) to high (04-03, 04-04B, 04-13) 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 04-01A, 04-02A, 04-02B, 04-02C, 04-03, 04-04B, 04-13, 04-14, and 04-15D. 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 are having an impact on the ability for wilderness visitors to experience solitude and may be disrupting the natural behaviors of brown bear that frequent the area (e.g., Red Bluff Bay).

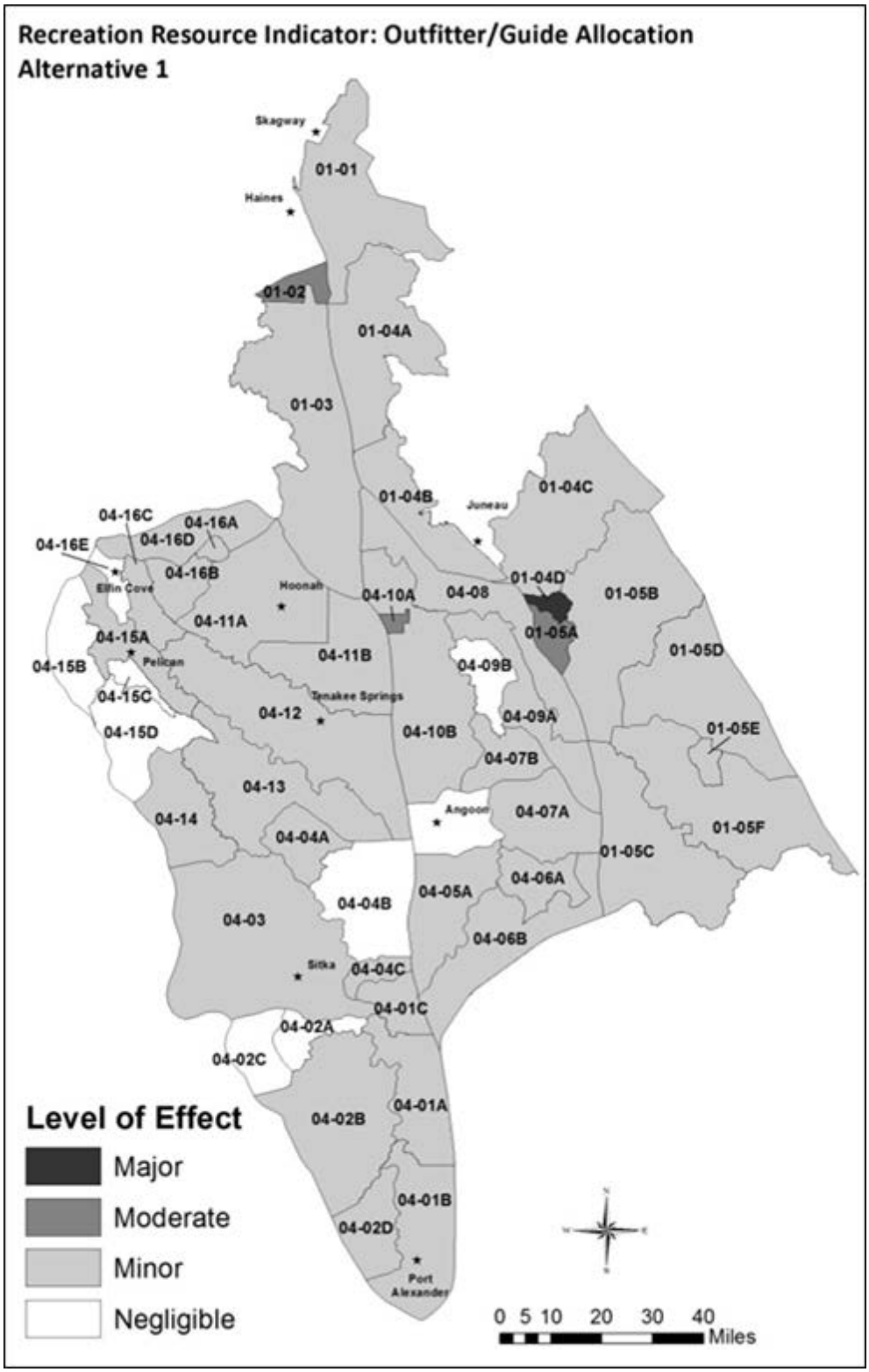
Hoonah Ranger District

Levels of use on the Hoonah Ranger District range from very low (04-15A, 04-15B) to high (04-16A) during the primary use seasons. Crowding has been reported in some areas associated with day use and camping activities (Pinta Cove and Point Adolphus) and a popular trail at George Island.

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, 04-16D) and user trail impacts occurring at Marble Creek and Fox Creek. Overall, sites used by outfitter/guides are kept clean and in good condition.

There has 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 04-11B, 04-16B, and 04-16E that are attributed to unoutfitted/unguided visitors.

Figure 3-3. Alternative 1 effects summary map, outfitter/guide allocation indicator



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 anticipated projects. 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 analyzed using the recreation resource indicators and measures that were described in the Analysis Methods section of this Recreation section.

The following is included in this section:

- Summary of the direct/indirect effects of each of the alternatives
- Direct/indirect effects of actions common to Alternatives 2, 3, and 4
- Cumulative effects analysis

Direct/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 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 area 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).

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 (26 use areas) or Semi-Primitive (22 use areas) 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 areas are expected to be below the Forest Plan threshold for number of encounters and remoteness standards for Alternative 1. 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 1. A moderate level of effect for Alternative 1 is expected within 16 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. These 16 areas are: 01-04A Berners Bay, 01-04D Slocum Inlet, 01-05A Taku Harbor, 01-05E Fords Terror, 04-02B Whale Bay, 04-03 Sitka Area, 04-04C Baranof Warm Springs, 04-05A SW Admiralty, 04-09A Seymour

Canal, 04-10A Greens Creek, 04-11A Port Frederick, 04-12 Tenakee Inlet, 04-16A Point Adolphus, 04-16B North Chichagof, 04-16C Idaho Inlet, and 04-16D PLI Wilderness. The remaining 8 use areas are expected to have negligible effects with no increases or decreases of encounters or sights/sounds of humans (Figure 3-4).

Figure 3-4. Alternative 1 effects summary map, social encounters and remoteness indicators

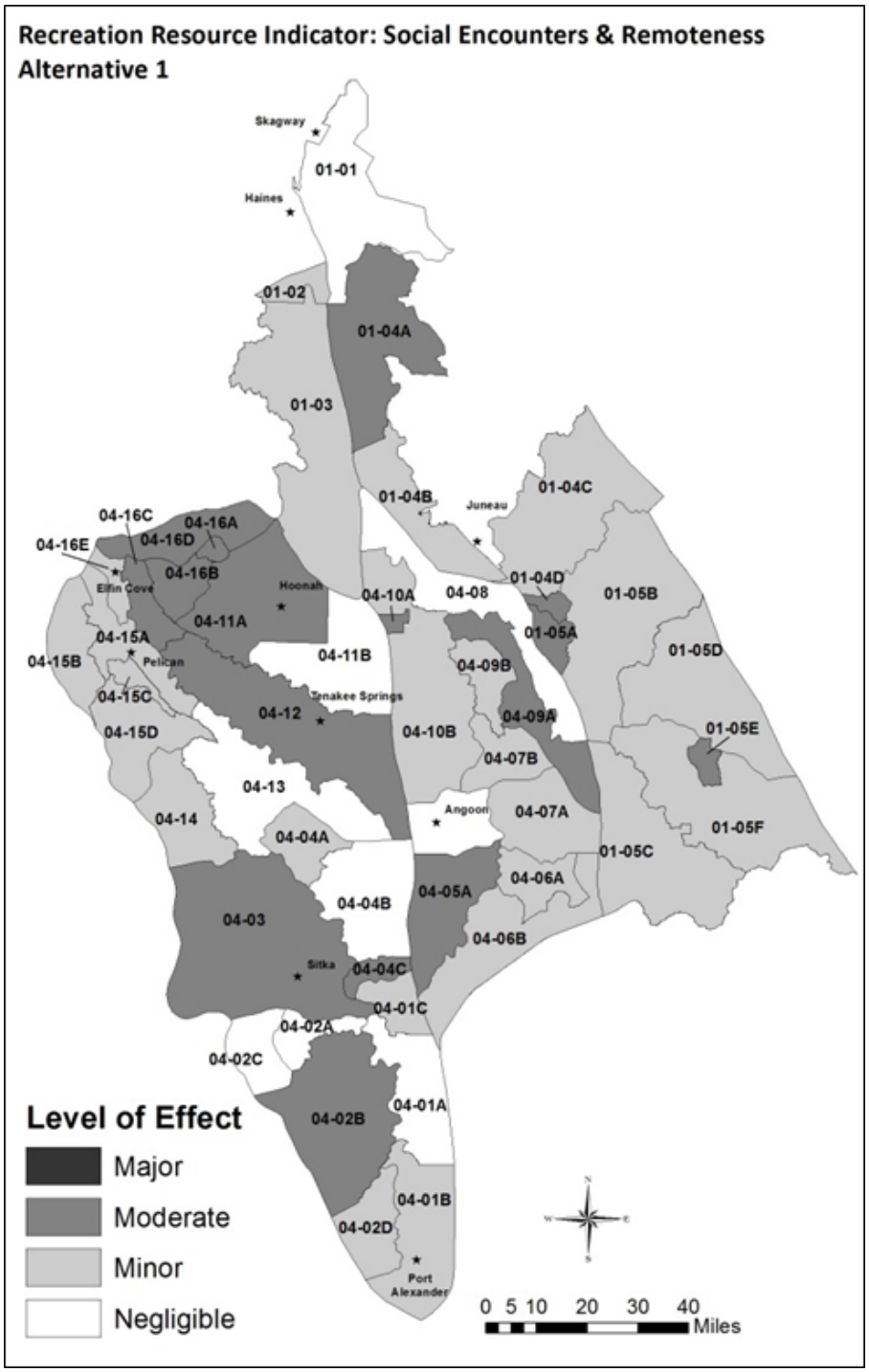
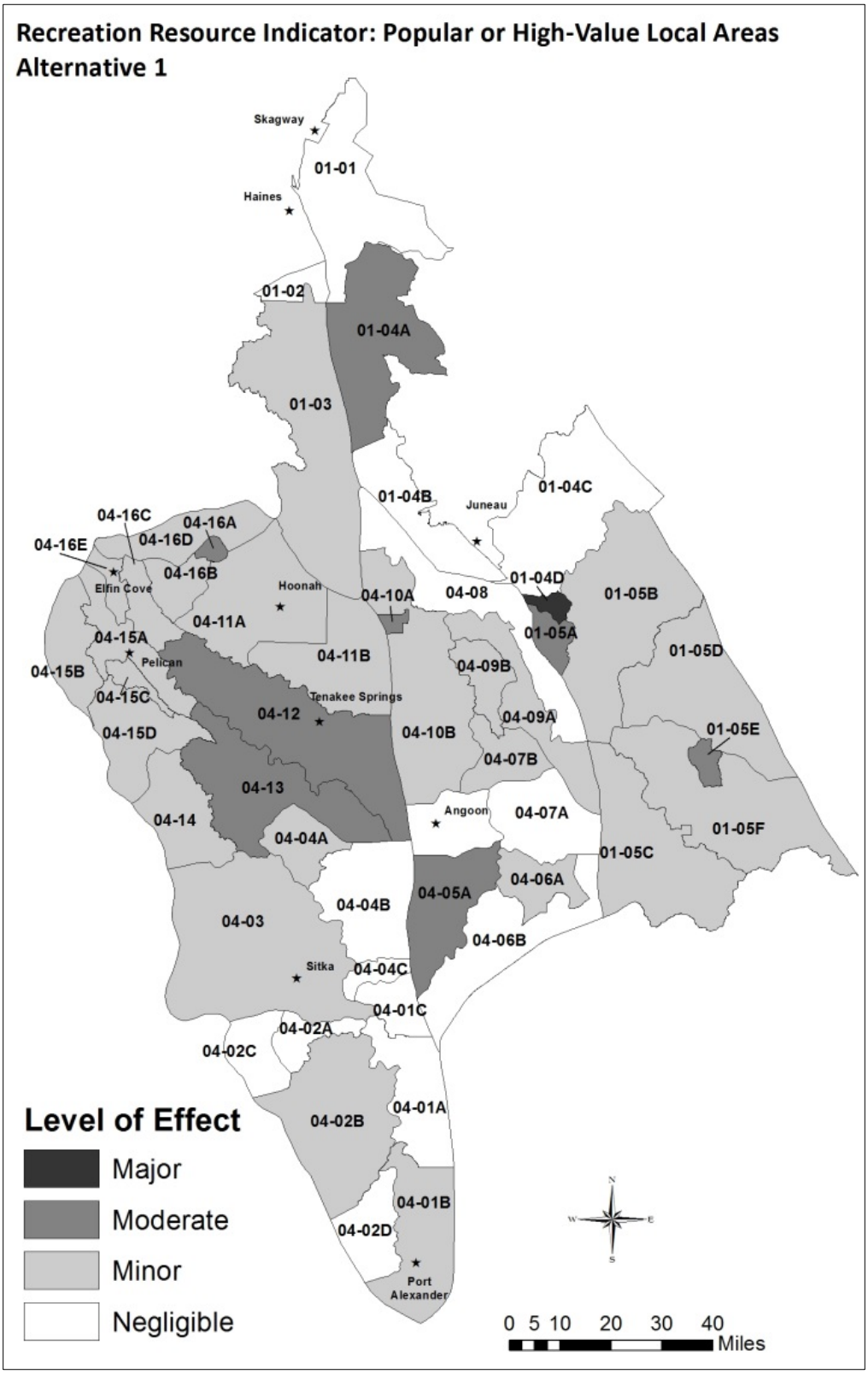


Figure 3-5. Alternative 1 effects summary map, popular or high-value local areas indicator

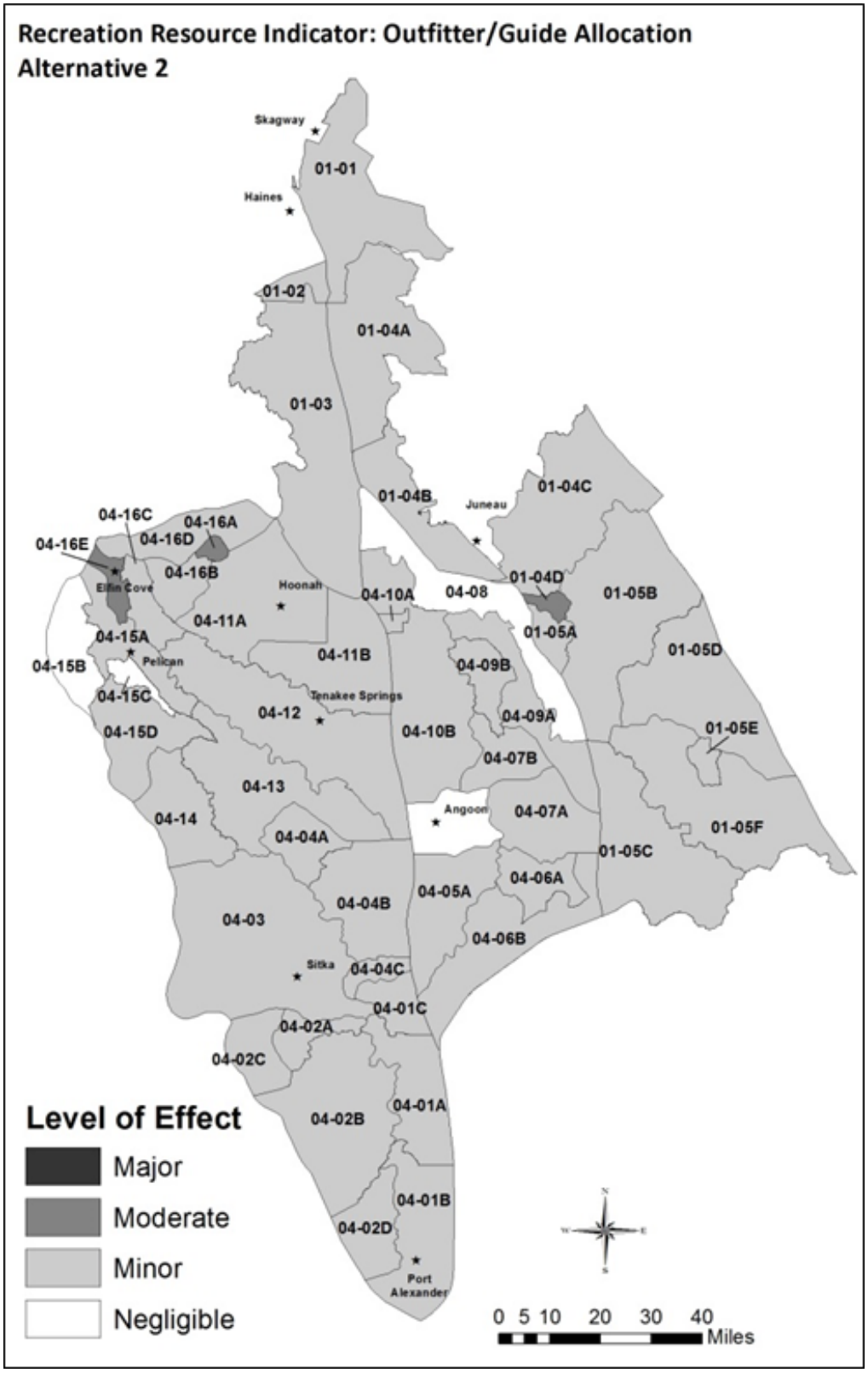


Popular or High-valued Local Areas

Popular or high-value areas are important to outfitter/guide and unoutfitted/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, but one or more of them could be described as a popular or high-value area. Recreation issues associated with this indicator include incompatible uses, crowding, and displacement of visitors to other use locations.

Under Alternative 1, major effects are expected in 1 use area (01-04D Slocum Inlet), which may include encounters and displacement of unoutfitted/unguided users. Some adverse impacts are expected (moderate effects) at 8 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).

Figure3-6. Alternative 2 effects summary map, outfitter/guide allocation indicator



Alternative 2

Outfitter/Guide Allocation

On average, the total outfitter/guide allocation for Alternative 2 across all seasons 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).

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).

Popular or High-valued Local Areas

Under Alternative 2, some adverse impacts are expected (moderate effects) at 9 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).

Figure3-7. Alternative 2 effects summary map, social encounters and remoteness indicators

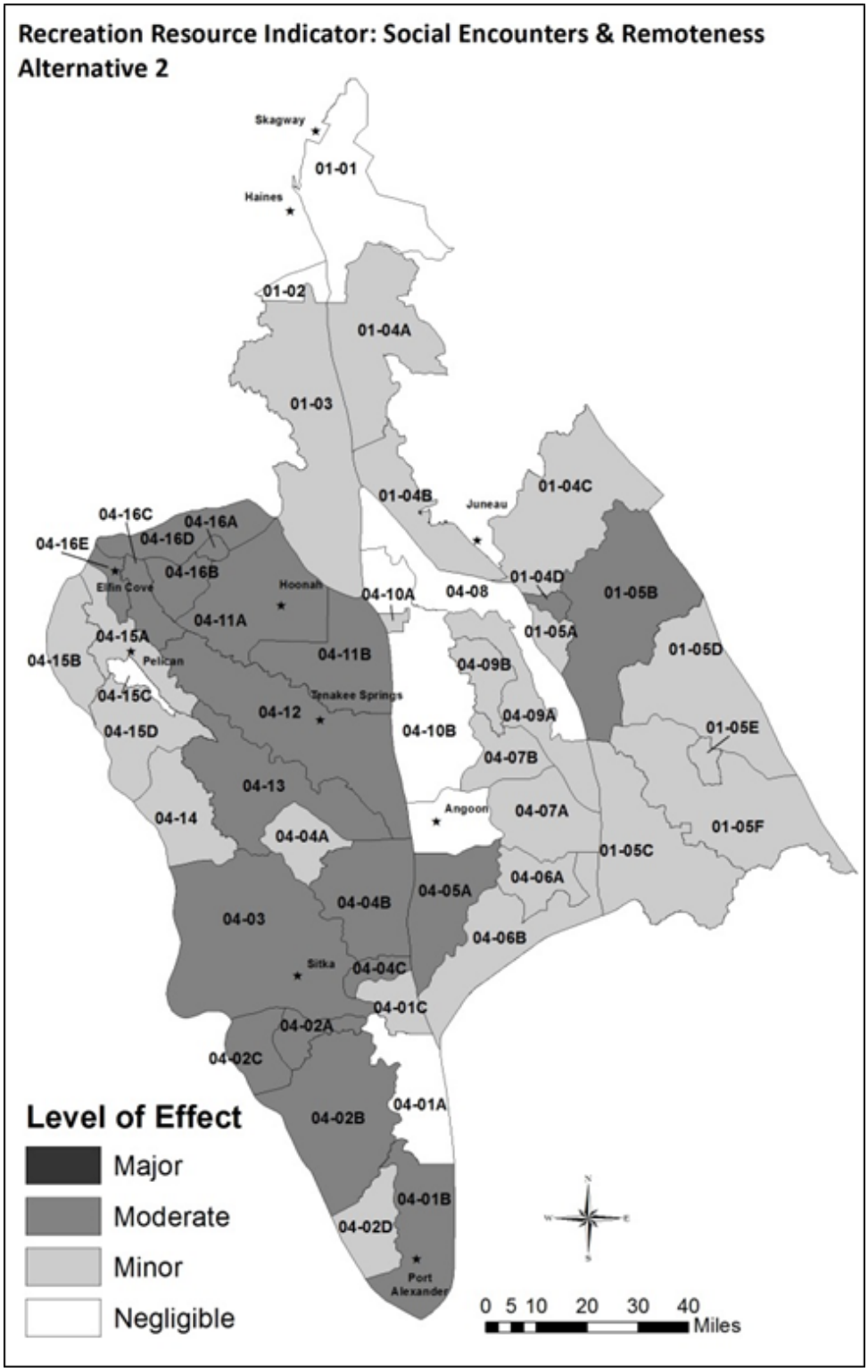
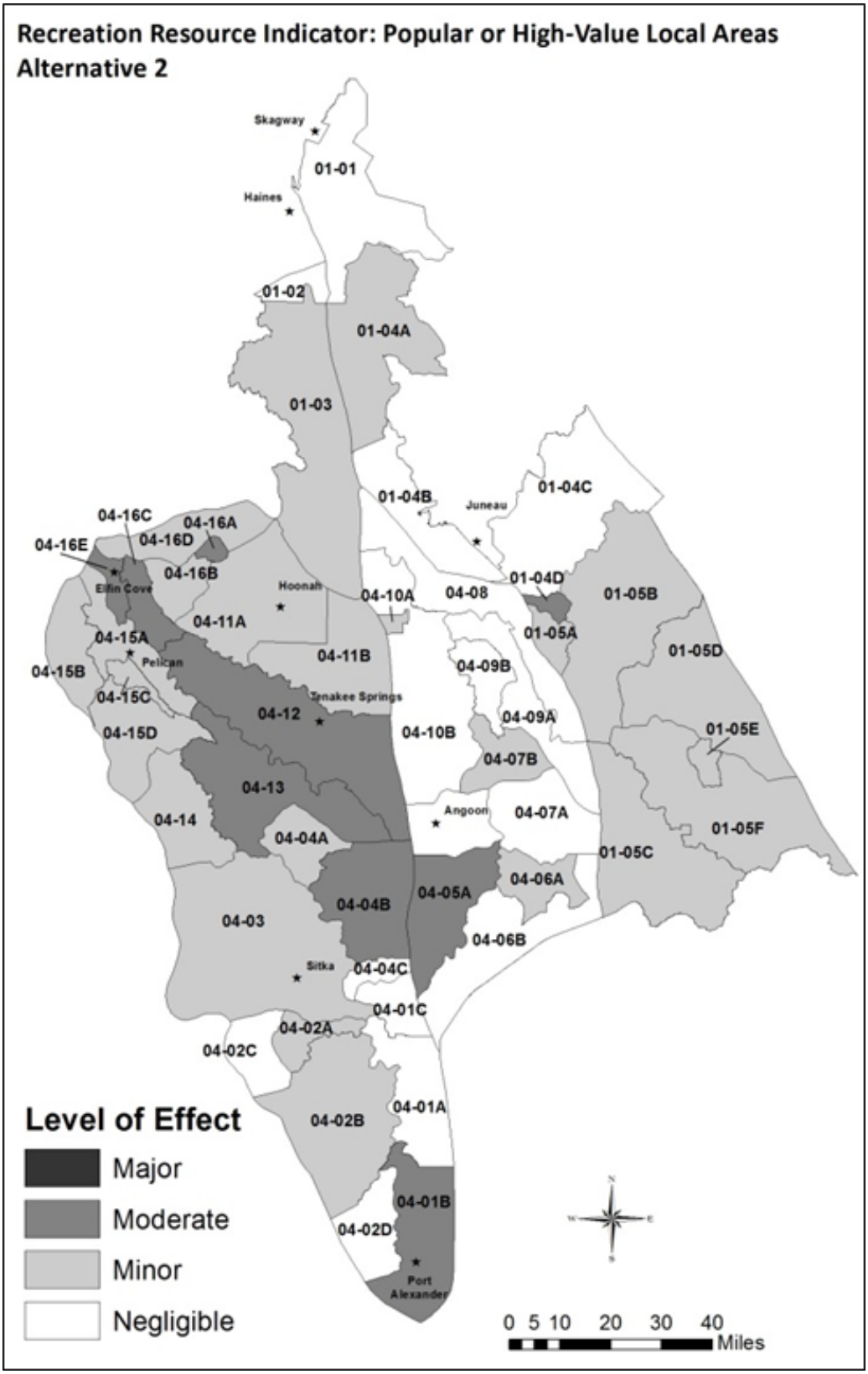


Figure 3-8. Alternative 2 effects summary map, popular or high-value local areas indicator



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 6 use areas are expected to have a negligible effect overall on the recreation setting (Figure 3-9).

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 7 use areas are expected to have negligible effects with no increases or decreases of encounters or sights/sounds of humans (Figure 3-10).

Popular or High-valued Local Areas

Under Alternative 3, some adverse impacts are expected (moderate effects) at 6 use areas: 01-04A Berners Bay, 04-04B Kelp Bay, 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. The remaining use areas expect negligible (14 use areas) to minor effects (27 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).

Figure 3-9. Alternative 3 effects summary map, outfitter/guide allocation indicator

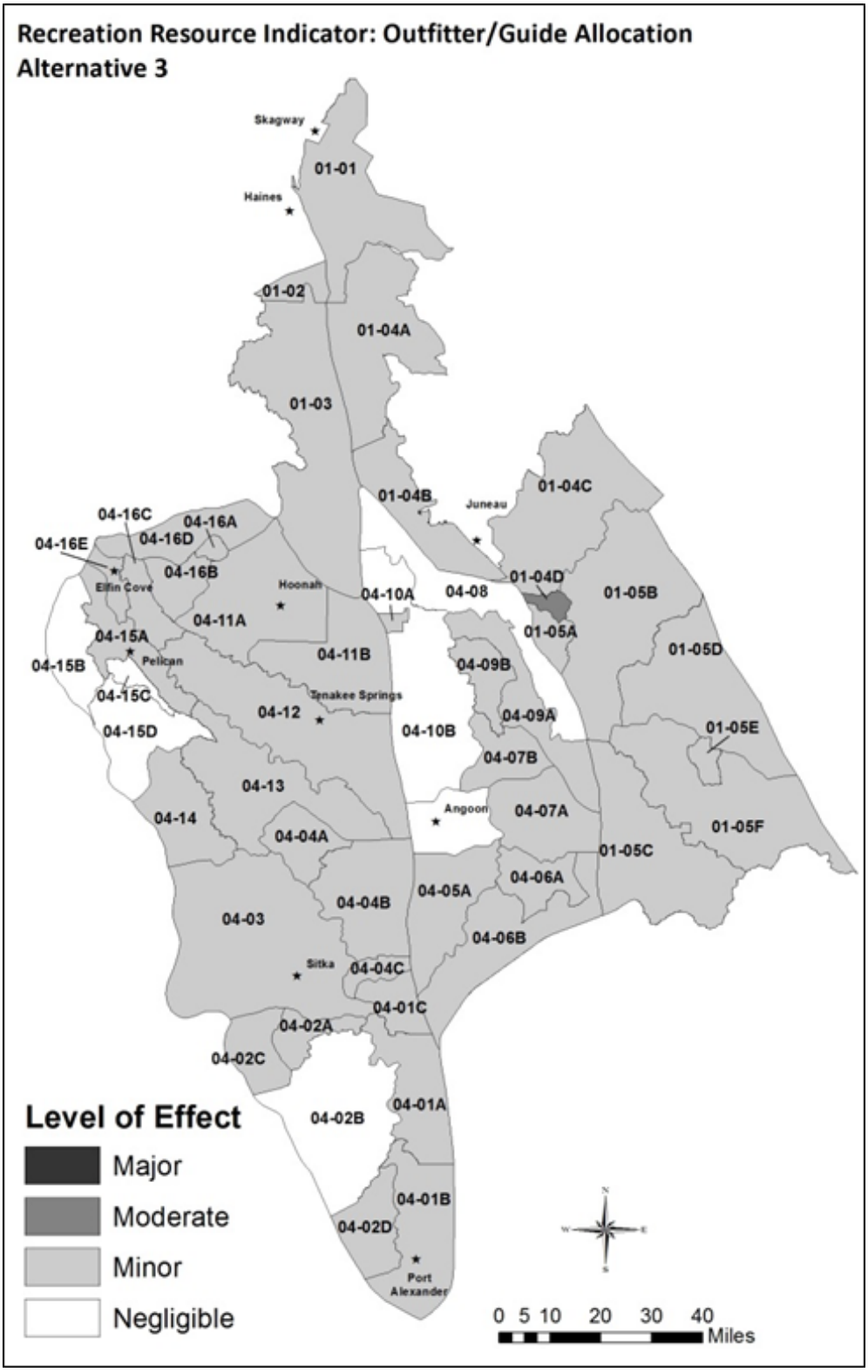


Figure 3-10. Alternative 3, effects summary map, social encounters and remoteness indicators

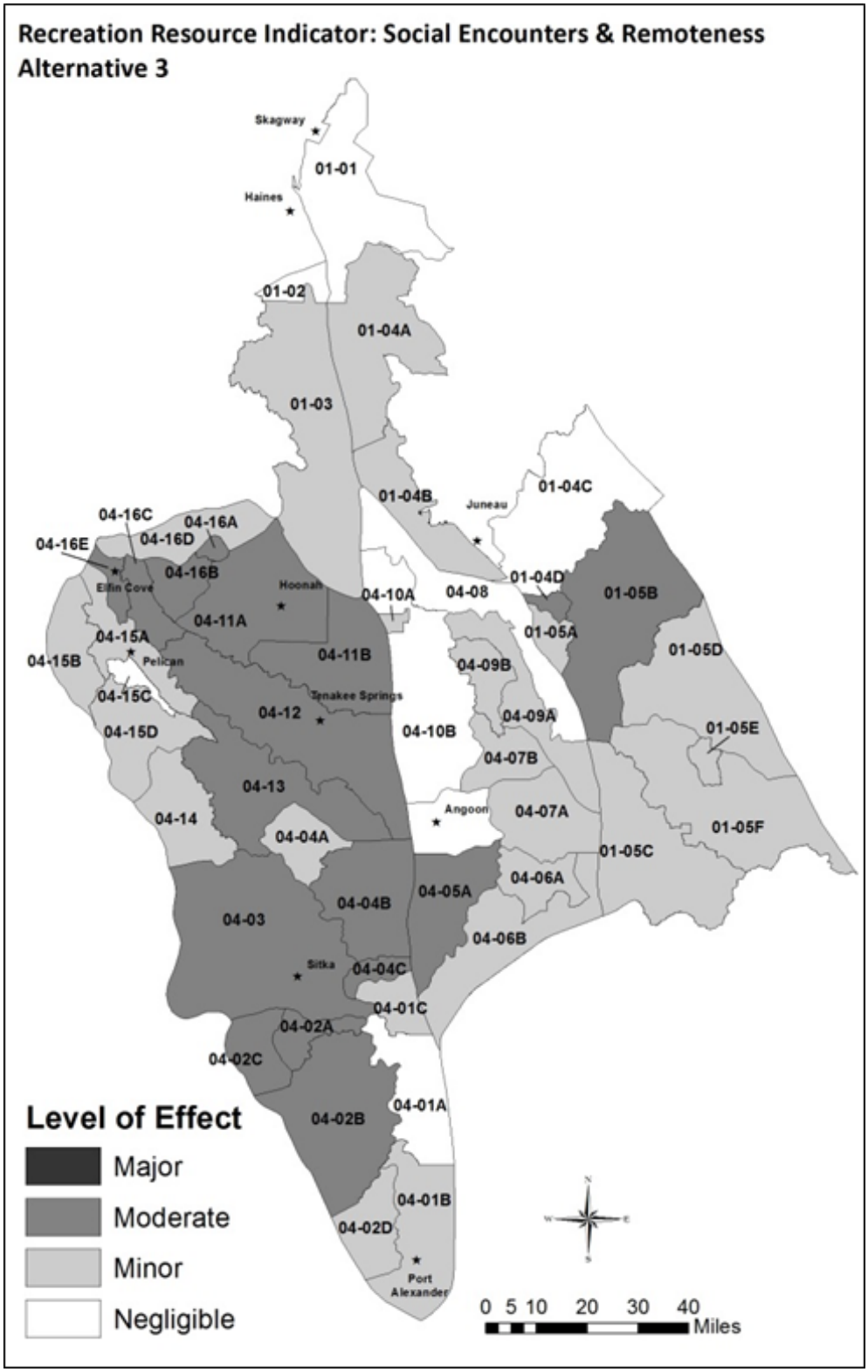
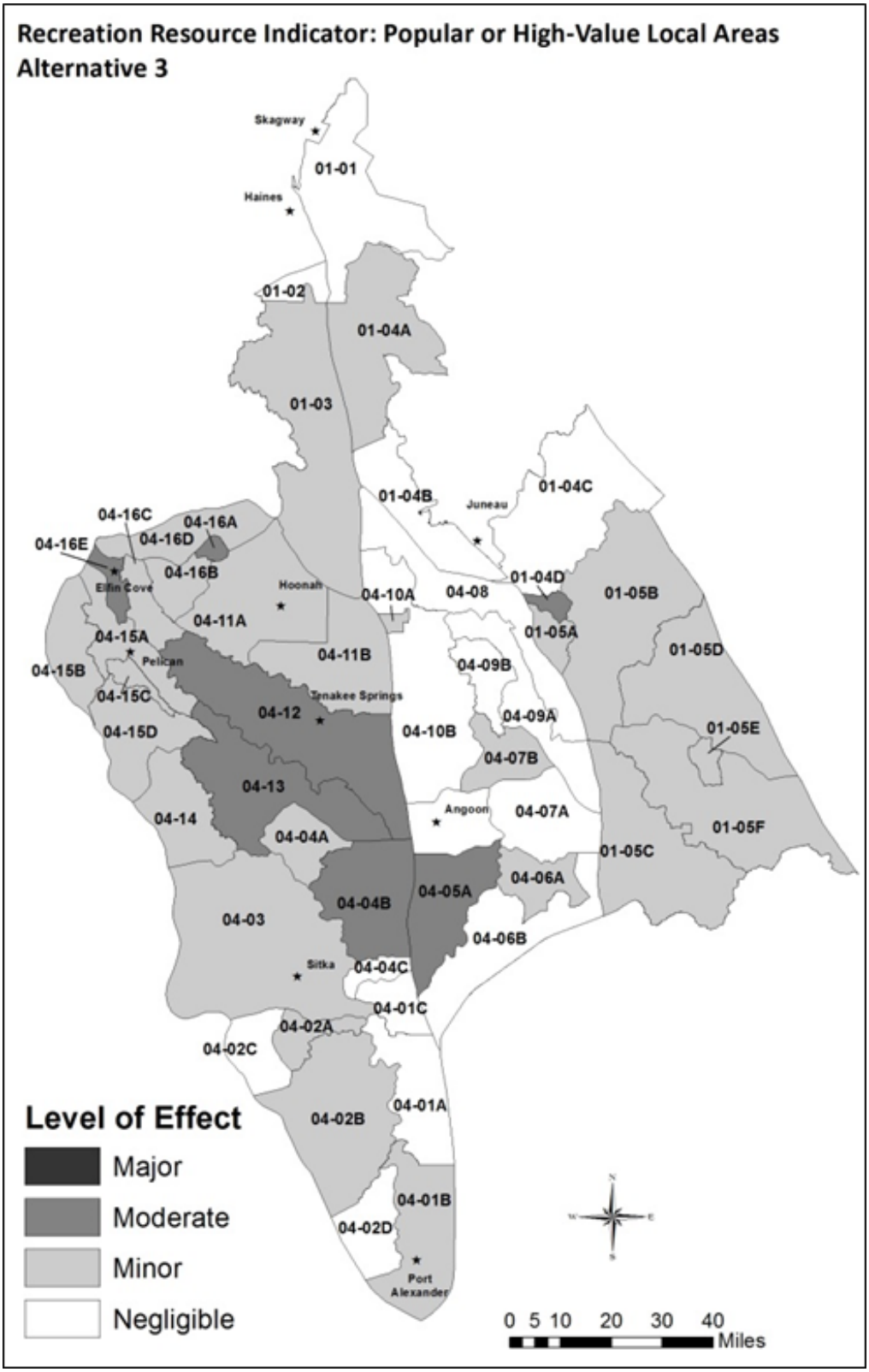


Figure 3-11. Alternative 3 effects summary map, popular or high-value local areas indicator



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% (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).

Social Encounters and Remoteness

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 23 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 5 use areas are expected to have negligible effects with no increases or decreases of encounters or sights/sounds of humans (Figure 3-13).

Popular or High-valued Local Areas

Under Alternative 4, adverse impacts are expected (major effect) at 3 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 unoutfitted/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).

Figure 3-12. Alternative 4 effects summary map, outfitter/guide allocation indicator

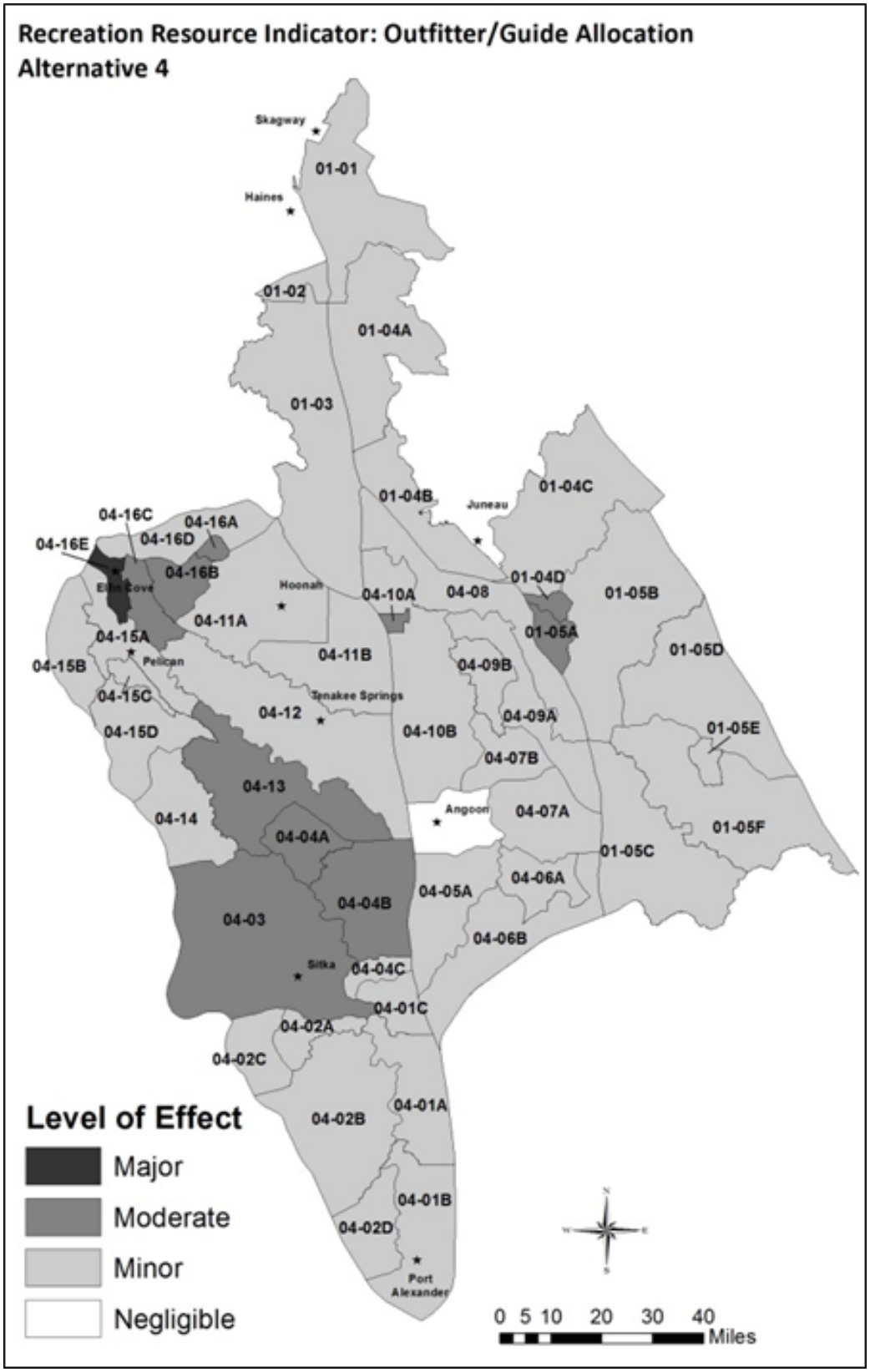


Figure 3-13. Alternative 4 effects summary map, social encounters and remoteness indicators

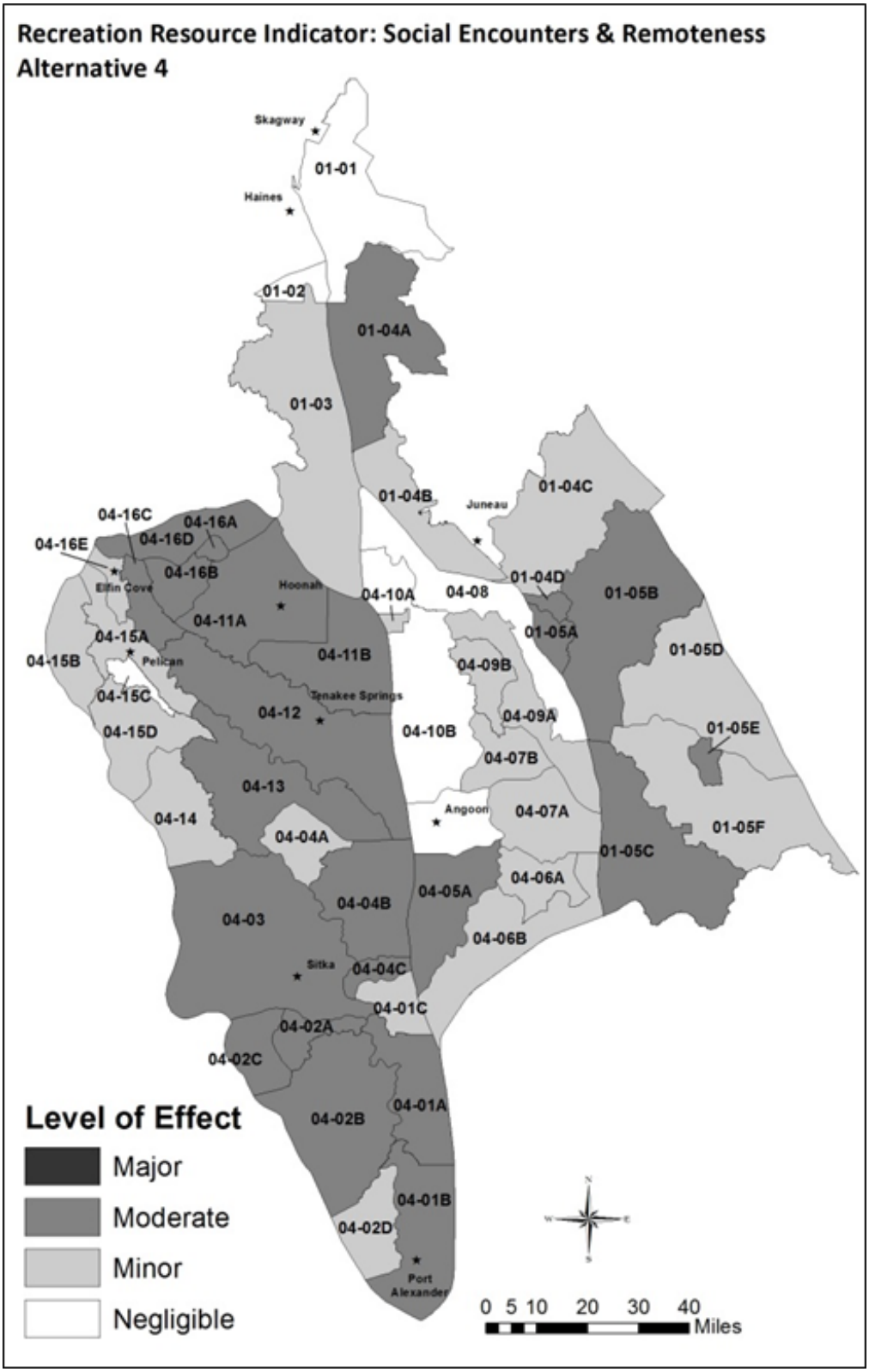
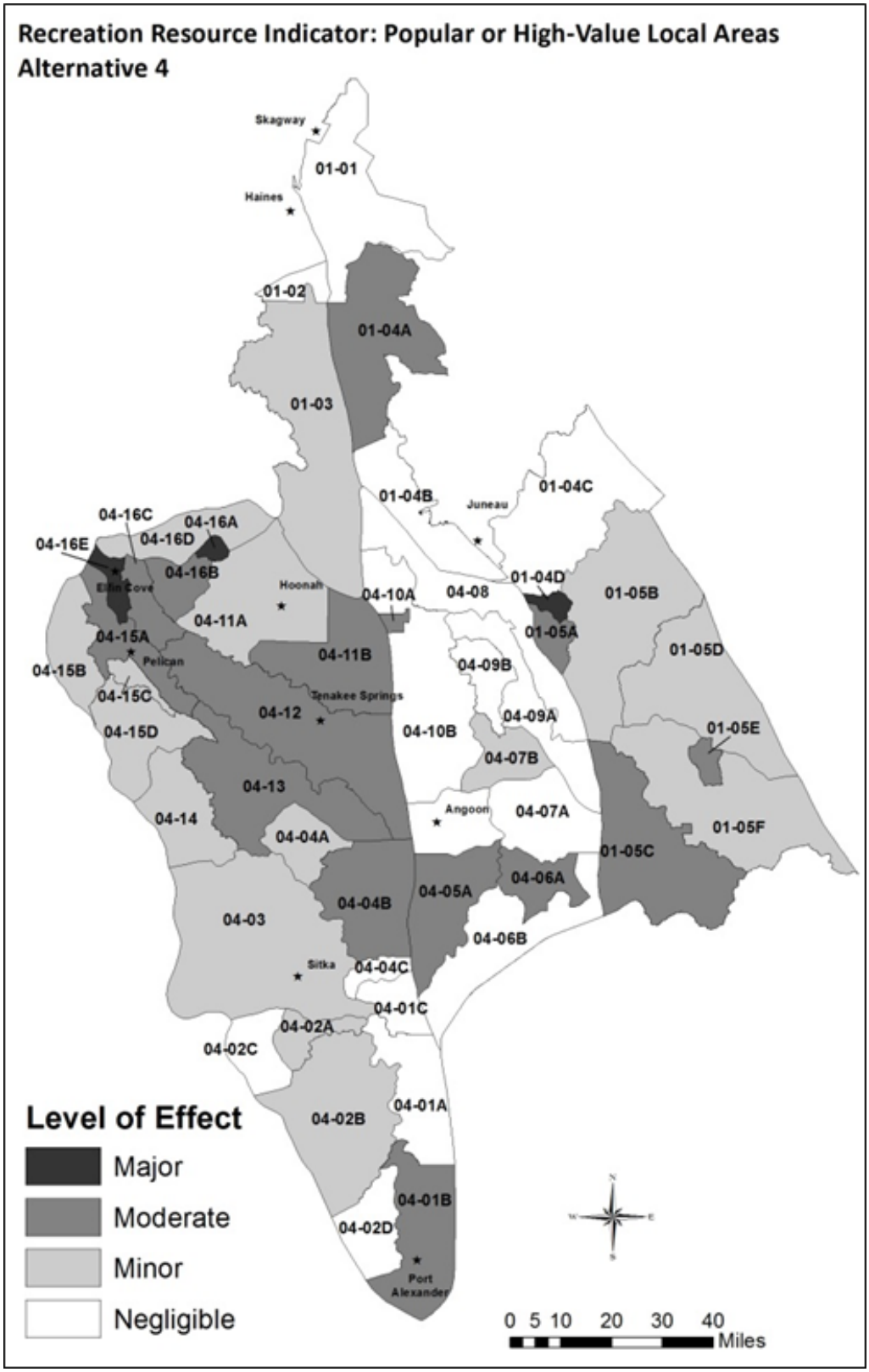


Figure 3-14. Alternative 4, effects summary map, popular or high-value local areas indicator



Direct/Indirect Effects Analysis for Actions Common to Alternatives 2, 3, and 4

Big Game Management

Brown Bear Hunt Allocation

Outfitter/Guide Allocation

This EIS proposes a Big Game Management strategy (see DEIS, Chapter 2) for brown bear hunts that would allocate hunts by ADF&G guide use area (GUA) to the spring and fall seasons based on the recommended number of hunts per GUA in the 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 ten 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 would be 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/Indirect Effects Summary section (above) for Alternatives 2, 3, and 4.

In addition, since the number of hunts would be capped for each GUA under this new strategy, this would limit some of the flexibility guides currently have to conduct hunts across GUA boundaries. As a result, there should be greater predictability amongst forest users for when and where hunts may occur. Guides would continue to have some flexibility within GUAs to conduct hunts across multiple Shoreline II use areas (since these areas are smaller subunits of the ADF&G GUAs).

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 4 use areas: 01-04B N. 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. With an average group size of 3.2 during the fall season (USDA Forest Service, 2014c); 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 ten 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 should be able to be addressed through guide communication and coordination. This EIS does not prescribe allocations by activity in specific locations. The burden of communication and coordination is on the outfitter/guide representatives operating within 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 residents 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 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. For 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

This EIS proposes to restrict the number of permitted brown bear guides to the number specified in the BBMS, or any future collaborative planning outcome. To maintain a high quality hunt experience and avoid impacts to other users from overcrowding, the BBMS specifies 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 O/G EIS project area unless an existing guide relinquishes their permit (e.g., change of ownership), or a prospectus is offered. As a result, a high level of communication, coordination, and cooperation amongst the current operators, and with other outfitter/guides and unoutfitted/unguided groups, is expected to 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 continued communications are critical to maintaining the desired range of recreation experiences being sought by all public lands visitors.

This EIS also proposes to specify the number of registered big game guides (brown bear guides and/or other big game guides) that can operate under a permit issued to a corporation or LLC permit. 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 authorizing official.

Number of Permitted Hunts for Other Big Game Species

Similar to the brown bear hunt allocation strategy described above, this project proposes to specify by GUA and season the number of outfitter/guide big game hunts permitted for each species. Unlike the BBMS, there are no management documents that provide a maximum number of hunts for other species. As requests for outfitter/guide big game hunting activities are received, the Forest Service works closely with ADF&G to evaluate proposals to ensure population sustainability, and this practice will continue under this project. The intent of this action is not to put a cap on the number of outfitter/guide big game hunts, but instead to provide for more predictability in where and when the already permitted hunts occur. Currently, big game guide permits typically allow for species to be hunted in multiple GUAs and seasons. By specifying the GUA and season in which hunts can occur, this should provide greater awareness of when and where big game guide hunting activities are most likely to occur and allow other users to coordinate and avoid user conflicts.

Maximum Number of GUAs

Currently, the State allows big game guides to register for up to three GUAs for conducting guided hunts. The Forest Service 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 intent of this action is similar to the previous action, and should provide for greater awareness of where big game hunting activities are most likely to occur. This should allow for better coordination and minimize user conflicts.

Competitive Interest and Prospectus

Federal regulation and Forest Service policy require the use of a prospectus when a competitive interest exists. 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 Chapter 2), the outfitter/guide allocation could be up to 10% 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, 2 use areas (04-04B Kelp Bay and 04-16E Port Althorp) would move from a negligible to minor effect. Under Alternative 3, 1 use area (04-10B NW Admiralty) would move from a negligible to minor effect and 1 use area (04-16E Port Althorp) would go from a minor to moderate effect. Under Alternative 4, 2 use areas (04-02C Necker Islands and 04-02D SW Baranof) would move from a minor to moderate level of effect and 2 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 distribution of use is likely to fluctuate depending on local conditions, there may be localized increases in encounters, effects to the remoteness setting, and 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 standards 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 the proposed LGA strategy (Chapter 2), the service days allocated for LGA use would be 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/Indirect Effects Summary section (above) for Alternatives 2, 3, and 4.

There are 40 Large Group Areas (LGA) identified within the Shoreline II Outfitter/Guide EIS project area, 7 of which are new proposed LGAs. The other 33 LGAs were designated in the 2004 Shoreline O/G FEIS and ROD project and are carried forward in this project. For social encounters, remoteness, and popular/high-valued local areas, effects were analyzed for the 7 new proposed LGA sites.

04-01B - Sashin Lake Trail

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 and this is the only proposed LGA within the 04-01B 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 – Shoals Point

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 use area (Eagle River Road LGA is now managed under a separate NEPA decision). Assuming conservatively a minimum group size of 22 persons (21 + 1 guide), this translates into approximately 275 groups per season (18 groups per week) could occur at this site. Considering the site access limitations requiring good sea and weather conditions to land at Shoals Point, 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 site access limitations, those days that are accessible are likely to also be used by unoutfitted/unguided groups. As a result, more encounters and sights/sounds of humans are expected to occur more than 15 percent but less than 80 pe3rcent of the primary use season – a moderate effect. Effects from Alternatives 2 and 3 are expected to be similar.

04-04B – Middle Arm, Kelp Bay

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 is used on average 1,630 service days in the summer season; Hanus Bay LGA is used five service days. 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. 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 8 groups per week) that could occur at the Middle Arm 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, 5 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 and Hanus Bay only, this leaves about 850 service days available for LGA use at Middle Arm (i.e., 39 groups per season; two groups per week). In reality, more use is likely to occur at Lake Eva leaving fewer service days available for other LGAs under Alternative 3. Effects under this alternative are expected to be minor.

04-13 – False Island Camp and Ushk Bay Head

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 total 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, Salt Chuck and Head of the Bay

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 total 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, the highest allocation alternative, 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, next highest allocation, 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, the lowest allocation, 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 describes the anticipated cumulative effects to recreation resources.

Alternatives 1, 2, 3, and 4

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. Issues have been identified with this project that relate to increased visitor use and outfitter/guide activity at this site. It is expected that this EIS will result

in a site specific visitor management plan for Hidden Falls Fish Hatchery, which may include setting a maximum allocation for outfitter/guide use at this location.

Social Encounters and Remoteness

Trail and Recreation Improvements

Trail improvements are in process at Bohemia Basin (04-15A) and Salmon Lake Trail (04-03), which is expected to improve access to NFS lands for recreation visitors. Windfall Harbor shelter (04-09B) has been rehabilitated and moved, which will provide an improved overnight stay experience for recreation visitors in this area. 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, 2 cabins are in the process of being removed (Rezanof Lake and Maksoutof Lake, 04-02B) and one cabin (Distin Lake, 04-07B) is in the process of being converted to a three-sided shelter. Removal of the cabins in 04-02B 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 more primitive facility at Distin Lake is expected to maintain the same visitation level and is not expected to increase or decrease encounters.

ANILCA Cabins and Tent Platform Permit Renewals

These projects include permit renewals for existing cabins authorized under the authority of ANILCA and permit renewals for existing tent platforms. The project area includes permit renewals for 30 ANILCA cabins and 2 tent platforms. Since these are all permit renewals for existing improvements, there is no expectation of increased effects to social encounters or remoteness settings. It is anticipated that activities at these sites will continue as they have been occurring.

Hydropower Projects

There are 5 hydropower development projects in process within the Analysis Area: Sweetheart Lake (01-05B), Lake Osprey (04-01B), Thayer Lake (04-10B), Tenakee Springs/Indian River (04-12), and Crooked Creek/Jim's Lake (04-16E). All of these projects involve a period of time during which construction activities will take place and some level of infrastructure that 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) that is adjacent to a designated large group area (Eight Fathom Dock). 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). 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.

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), Hanus Bay (04-04B), Corner Bay (04-12), Kook Lake (04-12), False Island (04-13), and Sitkoh Lake (04-13). Associated with these projects are

permit renewals for 2 temporary sawmills at False Island and Corner Bay. In addition, the Forest Plan is undergoing an amendment to transition away from old growth timber harvesting and offer more opportunities for young growth management. 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 Projects

There is one fisheries project in process at Davidson Creek Falls (01-04C), where fish passage improvements were done. 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.

Land Conveyances

There is a parcel of NFS land near Kook Lake (04-12) that is in process of being conveyed to Kootznoowoo Inc., and a parcel of land at Redoubt Falls (04-02A) that is in the process of being conveyed to Sealaska Corporation. Currently, outfitter/guide activities are not authorized at Redoubt Falls; however, the Shoreline II project is proposing to prohibit outfitter/guide use at Redoubt Falls only 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.

Adjacent Projects and Activities

An airport is proposed to service the community of Angoon. The project is still in the planning phase and includes some alternatives that may take place on NFS lands, but outside of the project area. This project may result in increased visitor use on NFS lands near Angoon including the 04-05A and 04-10B 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 Outfitter and Guide 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 Outfitter/Guide EIS project area.

Activities occurring on along 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 9 (of 146 identified) popular or high-value local areas associated with the past, present, and future projects discussed previously. These 9 areas were referenced above in the individual use area Environmental Consequences section.

Table 3-24: Popular or high-value local areas associated with past, present, or future projects

Use Area	Popular/High-Value Area
01-05B	Sweetheart Creek
04-03	Salmon Lake Trail
04-04A	Appleton Cove
04-04B	Hanus Bay
04-11A	Eight Fathom
04-12	Kook Lake
04-13	False Island
04-13	Sitkoh Lake
04-15A	Bohemia Basin

The Sweetheart Lake hydropower project is expected to maintain adequate habitat conditions for sockeye salmon; no cumulative effects to the recreation resources at this location are anticipated.

At Salmon Lake Trail, it is expected that short term negative effects will occur during trail reconstruction due to access limitations. However, improvements are expected to have positive affects overall for the recreation resources of this site by improving the hiking experience for the forest visitor.

Thinning projects at Appleton Cove, Hanus Bay, Kook Lake, False Island, and Sitkoh Lake 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. Local residents 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 include cabin use, camping, hiking, fishing, hunting, water fowling, subsistence use, and gathering forest products. It is expected these activities will not be affected by rock pit expansion and forest visitors will continue to have opportunities to participate in these activities in this area.

At Bohemia Basin, 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 EIS is expected to be positive for this high-value area.

Cumulative Effects for Actions Common to Alternatives 2, 3, and 4

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 included a prohibition on 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 from other outfitter/guide operators during that timeframe.

Adaptive Management

The 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 future projects, effects to outfitter/guide activities and allocation are expected to be the same as those previously discussed.

Large Group Area Management

There is one rock pit expansion project at Eight Fathom (04-11A) 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). While these projects are underway, more encounters and frequents sights and sounds of humans is 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 4 LGAs (04-04B Hanus Bay, 04-12 Corner Bay Road, 04-13 False Island Camp, and 04-13 Sitkoh Bay Road) likely to be affected by timber harvest and thinning activities, and permit renewals for 2 temporary sawmills at False Island and Corner Bay. Short-term negative effects are expected 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 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.

Summary of Cumulative Effects

In summary, all of the projects analyzed for cumulative effects involve site specific activities. Individually, there are short term negative affects 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. Other projects are expected to have no effect on encounters and sights/sounds of humans in the long term after project implementation (e.g., fish passage improvements). And some projects are expected to result in more encounters and sights/sounds of humans over the long-term, which include trail and recreation facility improvements, airport services, as well as outfitter/guide allocation projects adjacent to the project area (i.e., Pack Creek Zoological Area decision, Kruzof Island Outfitter/Guide decision, and Angoon-Mitchell Bay Outfitter and Guide environmental assessment to be completed early 2016). 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 and Eight Fathom. Overall positive cumulative effects are expected at Salmon Lake Trail, Appleton Cove, Hanus Bay, Kook Lake, False Island, Sitkoh Lake, and Bohemia Basin. 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 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.

Affected Environment

Prehistory

Archeological investigations indicate that people have occupied Southeast Alaska for the last 10,000 years and that human occupation centered on the ocean, especially the resources near shore of this biologically rich region (Moss 1998). Site location, artifacts, and faunal assemblages all indicate the importance of maritime resources as the basis for human occupation. However, several major changes in lifestyle and subsistence took place during the next several thousand years. The native peoples had an early stage or period represented by flaked stone technology, especially the presence of microblades, with subsistence focused on marine mammals rather than fish. Ground Hog Bay II and the Hidden Falls Sites, both located within this region, date to this period and represent mainland and island locations.

Ground stone tools and the development of techniques for mass harvest and storage of salmon characterize later periods. Defining characteristics of the middle period or stage is an increase in the number and size of archaeological sites, more diversified bone tool assemblages and wood stake fish weirs and traps. This shift appears to mark the beginning of the Northwest Coast culture pattern in the assessment area.

Further, the number of sites identified as forts and dated by radiocarbon analysis suggests an increase in conflict during the most recent period in both chronologies. A continuation of site types and an increase in fort sites, supplemented with written historical accounts, help define the period leading up to the historic era.

Tlingit migration and settlement theories often center on events rather than dates. A major theme in Tlingit legend depicts a great flood. Many clans claim local origin while others claim settlement after the flood. The latter groups are said to have sought refuge from the flood on mountains and returned to the coast after the waters receded (Arndt et al. 1987). Resident groups encountered during Tlingit migration and settlement were either absorbed or pushed out (Arndt et al. 1987).

Historic Era

Although it was an inauspicious beginning, Russia was the first European country to explore Alaska. First contact occurred in 1741 when Vitus Bering and Aleksei Chirikov sailed from Kamchatka in two ships. Shortly after the journey began these ships separated. Although Chirikov sighted land on July 15, he continued north for several days until a potential landing place was identified at 57° 50’N. This would be

at the south end of Lisianski Inlet between Yakobi and Chichagof Islands. During the next few days, Chirikov sent 2 longboats and 15 men ashore to investigate but none returned. Bering and his crew abandoned ship on the Commander Islands, east of the Kamchatka Peninsula where they spent the winter, and Bering died of scurvy. His crew rebuilt the ship and returned to Russia in the spring carrying sea otter pelts that eventually commanded high prices in China. These pelts and the stories of their abundance brought Siberian hunters to the Aleutian Islands who claimed Alaska for Russia. These events led to the formation of the Russian-American Company and settlements in Yakutat (1796) and Sitka (1799) both of which were the locations of battles with the local Tlingit. Russia eventually made Sitka its colonial capital city and center of the Russian-American Company.

The fur trade expanded and attracted the attention of Spanish explorers, already exploring American's Pacific coast in the mid eighteenth century. Captain James Cook, with the English Royal Navy, started exploring the Alaskan coast, naming a number of places in 1778. Unlike Russia, England focused on terrestrial mammals and the Hudson's Bay Company was the principle participant. To control this trade they built a network of posts at the mouths of large rivers that connected to the interior of British Columbia.

France was also eager to explore and possibly enter the fur trade and sent La Perouse to claim possession of territory for France in Alaska. By 1800, the coastline from California to the Aleutian Island had been charted. American whalers had traded freely along the shores of Bering Strait since the 1840s. Throughout the 1850s and 60s Russia felt the pressure of expanding American and British interests on the American coast.

With the Treaty of Cessation, the United States claimed Alaska as a territory in 1867 and entered a period of military rule, represented at first by the U.S. Army (1867-1877), with Sitka as its sole garrison. For few brief years, the newly acquired territory was a U.S. Customs District (1877- 1879) and Sitka was a port of entry. A sole naval vessel was assigned to Alaska, based in Sitka, when the territory came under U.S. Navy rule (1879-1884).

Following the transfer from Russia, the fish industry and mining became important industries, both relying heavily upon associated timber harvest. The first salmon canneries in Alaska were at Klawock and Old Sitka, followed by one at Chilkat Inlet and Boca de Quadra by 1883. Eventually canneries were located in several locations on the Taku River, Admiralty Island, Port Snettisham, Chichagof and Baranof Islands. Fishing techniques changed from traditional methods to include purse seines, pile-driven traps, and floating traps. Improved packing technology and the establishment of the salmon canneries caused the development of seasonal communities around those canneries. These canneries had diverse populations, typically Euro-American fishermen and Asian and Native-American cannery crews.

Herring were also commercially harvested with herring reduction plants beginning as early as 1879. The Northwest Trading Company began experimenting with the extraction of oil and manufacture of fertilizer at its Killisnoo station on Admiralty Island. By 1919, there were 3 more herring reduction plants along Chatham Strait, and by 1927, there were 18 large plants involved in the industry. Production peaked in 1929, and the fishery continued on a limited basis into the 1960s (Arndt et al 1987).

Three shore-based whaling facilities were established in Southeast Alaska. Around 1880 the Northwest Trading Company established a whaling station at Killisnoo that processed finback whales for oil and baleen. In 1907, the Tyee Whaling Company constructed a station on Admiralty Island to process humpback, finback, and blue whales for baleen and oil. The whales were processed into fertilizer after rendering the oil. Finally, in 1912, the United States Whaling Company began operations at Port Armstrong on Baranof Island; the company's three steamers hunted finback, humpback, blue, and sperm whales, using all parts of the whale as at Tyee. The plant could process 500 whales per season, but actual production never reached that mark, and by 1923 the company was bankrupt (Arndt et al 1987).

Gold, while known to exist in the area prior to the Russian transfer of Alaska to the US, had not been commercially exploited. In the 1870s, small-scale placer finds in the Sitka area and Windham Bay gave rise to additional exploration. The discovery of gold in the Juneau area in 1880 however, was the beginning of large-scale mining in the region and resulting in an influx of people moving to mining centers. Other early mining efforts occurred but it was within the Juneau area that mining operations were most sustained and intense. The native population was brought into the cash-economy through these early mining efforts.

Salteries and canneries needed large amount of lumber and represent the earliest industrial logging and milling operations. By 1889, both steam and water sawmills were reported and timber was produced for docks and buildings, plus lumber for boats, barrels and boxes. In the early 20th century timber was used by the mine and quarry operators for buildings and railroads and by the fishing industry for their wharves, buildings and netting constructions.

On August 20, 1902 the Alexander Archipelago Forest Reserve was established and the Tongass Forest in July 1907. In 1908, the Alexander Archipelago and the Tongass Forest consolidated into a single national forest, the Tongass National Forest, with a total area of 6.7 million acres. It was enlarged again in 1909 adding another 8.7 million acres (Rakestraw, 2002). The early 20th century saw the beginning of the significant government involvement in the regions and the effects on the region and to the Native population, as access to traditional lands and resources became limited.

The first decade of the 20th century were years of great experimentation in fur farming. Blue foxes proved to be the most profitable but farms also tried mink, marten, skunk, raccoon, beaver, and muskrat. The fur industry grew sporadically until 1911 when legislation to protect fur seals and sea otter was passed. This drove the price of a single pelt from about $12.50 to an average of $185 in 1919. By the early 1920s, blue fox farming was flourishing, and by 1928, Alaska had 391 fur farm permits. Populating small islands with free-roaming fox was common, and once a breeding population was established, fox could be profitably harvested for fur or breeding stock. Nine thousand three hundred fox pelts sold in 1929 for $900,000, making it the third largest industry in the State behind fishing and mining. The Great Depression spelled the end of the industry as pelt prices dropped to $32 by 1931.

During the 20th Century, several events increased the need for lumber, most were short-term and could not support a regular industry. Examples of this kind of demand include spruce suitable for airplane construction during World War I, wood for cannery construction and shipping crates for the salmon industry, and the early pulp industry. In 1910, the Forest Service began to negotiate over several pulp sales; none was ever finalized. Eventually the Alaska Paper and Pulp Company built a small mill the head of Speel Arm in Port Snettisham in 1921 and shipped more than 100 tons of pulp to Seattle. However, shipping proved too costly and the company soon closed down. However, after World War II, depletion of the forests of the Pacific Northwest and rising prices for pulp and paper made the development of Southeast Alaska's pulp industry possible (Arndt et al 1987). Several mills were constructed during the 1950s that continued until the mid-1990s.

Henry Villard organized the first large tourist excursion to the Alexander Archipelago. He brought 80 passengers to view the Inside Passage in 1881 and in 1883; he linked the newly completed Northern Pacific Railroad to his Oregon Railway and Navigation Company. This provided access from the East Coast and the Midwest all the way to Alaska (Arndt et al 1987). By 1884, as many as 1,650 people visited Southeast Alaska; however, the lack of adequate accommodations hindered the expansion of tourism. The Pacific Coast Steamship Company began monthly sailings through the Panhandle in 1881 and by 1884 had begun to offer a regularly scheduled 'Inside Passage Tour." By the late 1880s, additional steamship companies had taken up the route. The Alaska Steamship Company, founded in 1894 became one of the largest (Hall 2007).

By 1905, Alaska was spotlighted on the world stage as a fashionable tourist destination. Early travelers to the region like John Muir wrote of a unique and exotic wilderness frontier, still untrammeled by man.

Prior to the Alaska Highway, the only practical way for tourists to reach Alaska was by boat. Boats remain a common means of access to the region today.

Before development of road infrastructure in coastal communities, in particular in Juneau, steamship companies offered stops at tidewater glaciers such as the Taku, Davidson and the Muir. As steamship routes expanded, travel to the south central coast of Alaska became possible, and with the infrastructure that came, hand-in-hand with gold rushes, more and more of Alaska's non-coastal territory became accessible. However, the lure of Alaska's southeast coast never diminished. Henry Gannet, a geographer on the 1899 Harriman Expedition, was quoted as predicting "[t]he Alaska coast is to become the showplace of the earth and pilgrims, not only from the United States, but from far beyond the seas, will throng in endless procession to it" (Hall 2007). He was right. The number of tourists visiting Alaska's southeast shores has been on an ever-increasing trend since the late 1880s. With very few downturns, the number has grown from the first regularly scheduled steamboat tours which carried a total of 1650 'excursionists' on a loop through the Panhandle in 1884 (Hall 2007) to the staggering 1 million plus (JEDC 2009) who now come aboard massive cruise ships to experience the wonders of this inland coast.

Ethnographic Overview and Traditional Territories

An overview of Tlingit social organization is helpful in order to understand land use patterns and current consultation responsibilities in regards to Tribal relations. The following discussion is summarized from several sources including Goldschmidt and Haas (1998), Emmons (1991), and DeLaguna (1990).

When Europeans arrived, they found 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 and Haas (1998), but Table 3-24 presents an overview of these territories. 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 3-25: 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

On the other hand, Tlingit social structure has subdivisions (moiety, clan, and house) that have defined leaders or perform important social functions. An example of the latter is the moiety, which does not have defined leaders, but serves critical roles. Tlingit society has two moieties (halves), and every Tlingit belongs to one or the other. Members of each moiety are present in all communities. These moieties are matrilineal and exogamous; lineages are traced through the female parent, and members are required to marry a member of the opposite moiety. Raven and Eagle (or Wolf) is the recognized moieties among the Tlingit.

Moieties are then subdivided into clans that may be present in more than one territory. Each clan remains an independent body under its own leader. Emmons described the clan as "the active principle of life, the law, and the religion of the Tlingit. It takes precedence over every other organization" (1991:23), while de Laguna states that clans "held primary territorial rights" (1990:204). Within the clan are households governed by a house chief whose influence is relatively the same as the clan chief. Waterways were free for all to use, but land was divided among clans and subdivided by house and family. Each house had rights to designated salmon streams and areas for fishing, hunting, and berry collection (Emmons 1991). Travelers through another's territory could gather food but not for profit (Emmons 1991). Goldschmidt and Haas(1998) concluded that:

- Tlingit and Haida were divided into tribes, each of which has been recognized;
- Each tribe had one or more major communities;
- Each had a distinct territory recognized by themselves and the neighboring communities;
- Territories were held under a recognized tenure system by the clans of each community;
- Ownership of land was recorded in tradition by means of the potlatch and totem pole;
- Lands, beaches, and waters were used intensively by the ancestors of the people now dwelling in this area, according to the Native customs of matrilineal succession;
- Use of these lands, beaches, and waters continued to be significant in the daily life of the Natives living in this area; and
- Outfitter/guide use of land is made along with the home use and, together with the latter, form the basis for the livelihood of the inhabitants.

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), in 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 Nations' inventory of significant historic places. The Criteria for Evaluation (36 CFR 60.4) are written broadly to recognize the wide variety of historic properties associated with our Nation's history and prehistory (USDI, 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:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded or may be likely to yield, information important in prehistory or history.

At every step in 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.

- 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'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 Alaska."

Tribal Consultation

Chapter 1 contains a brief mention of tribal consultation for this EIS. A complete list of tribal consultation is available in the project record.

Previous Heritage Resource Investigations

The Heritage Resource Sensitivity Zone Model, developed from over 35 years of investigations on the Tongass National Forest, informs the Forest Service's 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 mean low water 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);
- 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; and
- Other areas identified through historical, ethnographic or oral history research and information sources.

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.

This analysis is primarily built upon work done prior to and including the work done in 1999 – 2003 in support of the 2004 Shoreline O/G FEIS and ROD (USDA, 2004). At that time inventories were conducted at most of the LGAs, rather than across the entire Analysis Area as it was believed that these areas would receive the most intensive use and potential for effects to historic properties. As described in the Project Description, the size of the Analysis Area, the concentrated use within the LGAs, the types of recreational 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 LGAs in detail.

In the 2004 Record of Decision, the Forest Service stipulated that each LGA would be monitored at least once over the life the decision (5 to 7 years). Additionally the Forest Service stipulated that field observations at four of the LGAs (North Windham, George Island, Todd Road and Sand Bay) would be conducted annually.

The numerous archaeological surveys within the Shoreline II O/G EIS project area, beginning in the 1970s, have resulted in the location and documentation of 721 sites recorded 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 3-26 presents a summary of these investigations; number of surveys completed prior to 2004, miles surveyed by 2004, and the number of sites documented, in each of the use areas, in 2004 and in 2015. These investigations examined in excess of 718 miles of shoreline, including 40 of the LGAs, and identified 721 sites recorded

on the National Forest system lands. Twenty-four sites are within LGAs. Additionally, 4 sites are in the immediate vicinity (within 500 feet) of the LGA 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 has been increased 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 within the project area. The increased number of sites in 2015 reflect those recently documented, or sites that are wholly or partially on National Forest 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 on either state lands, if below mean high tide, or on national forest system 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 the purpose of this EIS. In the 2004 Shoreline O/G FEIS and ROD there were 37 use areas and for this EIS there are 48 use areas.

Table 3-26: Previous 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	5	2.00	5	10
01-02	2	2.00	0	0
01-03	9	15.00	13	13
01-04A	11	29.00	6	56
01-04B	3	4.00	13	20
01-04C	5	1.00	4	27
01-04D	1	5.00	0	2
01-04E	-	-	-	3
01-05A	2	0.50	1	4
01-05B	1	0.25	2	13
01-05C	30	52.00	14	26
01-05D	16	4.50	4	0
01-05E	-	-	-	-
01-05F	-	-	-	8
04-01A	8	3.50	3	7
04-01B	78	28.00	6	12
04-01C	-	-	-	-
04-02A	9	2.50	8	5
04-02B	22	4.00	15	22
04-02C	-	-	-	9
04-02D	-	-	-	2
04-03	76	76.50	53	75
04-04A	17	41.50	8	6
04-04B	28	73.50	16	24
04-04C	1	0.50	1	0

Use Area	Number of Surveys Prior to 2004	Miles Surveyed (2004)	Number of Sites Documented Prior to 2004	Number of Sites Documented (2015)
04-05A	35	14.00	23	46
04-05B	-	-	-	-
04-06A	14	8.50	8	11
04-06B	17	6.00	8	10
04-07A	38	16.00	18	19
04-07B	-	-	-	18
04-08	13	10.50	5	12
04-09A	16	10.50	6	9
04-09B	-	-	-	5
04-10A	2	3.00	4	4
04-10B	4	2.50	3	10
04-11A	41	63.50	36	22
04-11B	-	-	-	37
04-12	49	129.00	55	41
04-13	80	72.50	36	52
04-14	26	5.50	10	21
04-15	61	19.00	22	-
04-15A	-	-	-	8
04-15B	-	-	-	7
04-15C	-	-	-	-
04-15D	-	-	-	28
04-16A	8	5.00	0	-
04-16B	6	2.50	4	5
04-16C	8	2.00	3	3
04-16D	8	3.00	2	2
04-16E	-	-	-	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 Shoreline II O/G EIS project area. 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 their undertakings. Issuing special use authorizations for outfitter/guide recreation has the potential to effect historic properties throughout the APE. However, the most concentrated use is anticipated to be within the LGAs. Table 3-27 lists the LGAs with sites and

historic properties. Nineteen LGAs have one or more sites within their boundaries. Twenty-four sites are located within LGAs. Table 3-27 also shows the 6 LGAs that have one or more historic properties (eligible sites) within their boundaries and need to have a management plan that clearly articulates the manner in which agencies will avoid or minimize effects to these historic properties prior to issuing or re-issuing special use authorization for outfitter/guide use within these LGAs.

Consultation occurred with Haa Léelk'w Hás AaníSaax'ú Our Grandparents' Names on the Land and found that 14 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, both names were provided (Table 3-27).

Seventeen sites within LGAs have not yet been evaluated for eligibility and are therefore managed as eligible, per the Forest Plan. Those sites need to have determinations of eligibility 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 or minimize effects to these historic properties prior to issuing or re-issuing special use authorization for outfitter/guide use within these LGAs. If the sites are determined not eligible then the Forest Service has no further responsibilities to protect the site. This information is shown in Table 3-27 below:

Table 3-27: LGAs that have significant sites and Native Place Names (within the LGA as discernible)

Use Areas	Large Group Area	AHRS Sites Present to be evaluated or Interpreted	Management Plan Needed	Native Place Name and Translation (Thorton, 2012)
01-01	Katzehin Falls	SKG-566 - Unevaluated	If Determined Eligible	
01-02	Sullivan Mountain			*Yaana.eit Xágu* – Wild Celery Spit (*Jilk̲áat and Jilk̲oot K̲wáan)*
01-05C	North Windham	*SUM-022 - Eligible	Yes	S'iknax̲sáani- Black Bear Community Freshwater Bay (*K̲éex̲' K̲wáan, Kooyú K̲wáan and S'awdáan K̲wáan*)
01-05C	Sand Bay	SUM-040 - Unevaluated SUM-041- Unevaluated SUM-123 - Unevaluated	If Determined Eligible	
04-01B	Sashin Lake Trail	XPA-350 - Unevaluated XPA-297 - Unevaluated	If Determined Eligible	
04-03	Shoals Point	SIT - 457 - Eligible	Yes	
04-04B	Lake Eva Trail	**SIT-778 – Unevaluated	If Determined Eligible	*G̲áchkw Yayuwaa G̲atheéeni* – G̲áchkw Shoreline Sockeye Stream (*Sheet'ká K̲wáan*) *G̲áchgu Héen* – G̲áchgu Creek (*Xutsnoowú K̲wáan*)
04-04A	Point Elizabeth			*Dadzi X'aaui* – Firestone Point (*Sheet'ká K̲wáan*)

Use Areas	Large Group Area	AHRS Sites Present to be evaluated or Interpreted	Management Plan Needed	Native Place Name and Translation (Thorton, 2012)
04-04A	Rodman Bay	**SIT-778 – Unevaluated	If Determined Eligible	
04-04B	Middle Arm, Kelp Bay			*Tsisk'u Sáani* – Owl Freshwater Bay (*Xutsnoowú Kwáan*) *Yéikheen.áa* – Spirit Water Lagoon (*Xutsnoowú Kwáan*)
04-08	Cordwood Creek	JUN-917 - Unevaluated	If Determined Eligible	
04-08	Fowler Creek	JUN-918 - Unevaluated	If Determined Eligible	*Weineidei Aan (Weineideiyan*) – Alkali Deposit Village – (*Áak'w Kwáan*)
04-11B	Iyoukeen Peninsula	SIT-675 - Unevaluated	If Determined Eligible	*Aawateeni Héen* – Water Storming Off (*Xunaa Káawu*)
04-11B	Kennel Creek	SIT-092 - Unevaluated	If Determined Eligible	
04-11A	Neka Bay South Bight	JUN-612 - Eligible JUN-914 - Unevaluated	Yes	
04-11A	Neka Bay North Bight			*Neeká* – Chookaneidi's slave's name *(Xunaa Káawu*)
04-11B	Red Cliff Island	SIT-643 - Unevaluated	If Determined Eligible	
04-12	Corner Bay Road	SIT-122 - Eligible	Yes	
04-13	False Island Camp	SIT-351 - Eligible SIT-121 - Eligible	Yes	
04-13	Nismeni Point			*Kaa Ts'akool Noowk'* - Man _____Little Fort (*Sheet'ká Kwáan*)
04-13	Sitkoh Bay Road	SIT-514 - Unevaluated	If Determined Eligible	*Ataheen* – Creek at the Head (*Sheet'ká Kwáan, Xutsnoowú Kwáan)* *L'ukhéenak'u* – Coho Salmon Little Creek (*Xutsnoowú Kwáan)*
04-13	Ushk Bay Head	SIT - 495 - Unevaluated	If Determined Eligible	*Áshgu Tlein Aan* – Big Áshgu Village (*Sheet'ká Kwáan*) *Ata'x aan hitx'I áa yéi téeyin*- Used to be a smokehouse there (proper name uncertain) (*Sheet'ká Kwáan*)
04-15A	Three Hill Island	XMF-073 - Unevaluated XMF-074 - Unevaluated	If Determined Eligible	*L'ilguk* – Little Penis; *Kanax Aan Gashu* – Lands Extends Across It (*Sheet'ká Kwáan*)
04-16A	Pinta			*Tsaa X'aayi* – Seal Point (*Xunaa Káawu*)

Use Areas	Large Group Area	AHRS Sites Present to be evaluated or Interpreted	Management Plan Needed	Native Place Name and Translation (Thorton, 2012)
	Cove			
04-16E	George Island	XMF-043 - Eligible	Yes	*Kooshnáax'i* – Tumbling Water Shelter (*Xunaa Káawu*) *Wéinaa Té* – White Stone (*Xunaa Káawu*)

*** 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.**

****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 EIS, the APE includes areas used by non-motorized outfitter/guides that originate from the marine shoreline. Motorized activities, floatplane landing tours, helicopter tours, and ATV and road-based nature tours that take place within the project area are beyond the scope of this analysis. The Shoreline II O/G EIS project area generally extends ½ mile inland from the shoreline of the National Forest managed lands encompassing the Juneau, Sitka, Hoonah and Admiralty Ranger Districts of the Tongass National Forest. The project areas extends further inland where specific outfitter/guide activities and locations are accessed from the shoreline. Additionally, the Cross Admiralty Canoe Trail, extending from east to west across the center of Admiralty Island is included in this EIS.

Areas excluded from the analysis 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 are being considered under a separate analysis.
- Private lands and other public lands and water outside the jurisdiction of the Forest Service
- The Mud Bay and Eagle River road systems on Kruzof Island are being considered under a separate analysis.

The Shoreline II O/G EIS project area contains six congressionally designated wilderness areas. The Wilderness Act of 1964 prohibits outfitter/guide services, except for those that may be necessary to meet the recreational or other purposes of the area. Wilderness Commercial Needs Assessments for each wilderness area were completed.

Outfitter/guide use would be authorized by special use permits and may be temporary in nature (less than one year) or for multiple years. For outfitter/guides who have demonstrated satisfactory performance, the authorized officer may issue priority use permits, for up to ten years, in accordance with Forest Service Handbook 2709.14. None of the alternatives limit any non-outfitter/guide use by the general public.

The Shoreline II O/G EIS project area is almost entirely within the high sensitivity zone for the presence of archaeological and historical resources. Several factors concerning outfitter/guide recreational activities are important due to the implications they have on potential impacts to heritage resources: group size, activity type and duration of visit.

Outfitter/Guide Group Size

The Forest Service has recognized three sizes of outfitter/guide recreation groups: 1) small - up to 6guided clients; 2) specialty tours of up to 20 clients; and 3) mid-sized tour boats with 20-75 passengers. 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 over time 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.

Recreational Activities

Common 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 recreation is generally non-consumptive. The types of recreation 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. The principles of “Leave No Trace” include:

- Preserve the past: examine, but do not touch, cultural or historic structures and artifacts.
- Leave rocks, plants and other natural objects as you find them.
- Avoid introducing or transporting non-native species.
- Do not build structures, furniture, or dig trenches.
- Travel and camp on durable surfaces; Durable surfaces include established trails and campsites, rock, gravel, dry grasses or snow.
- Good campsites are found, not made. Altering a site is not necessary.
- Concentrate use on existing trails and campsites.

An analysis of potential effects of outfitters and guide activities to significant cultural resources has only been conducted on a limited basis in the past. The actual effects to date and potential effects of future permitted outfitter/guides must be determined with selective annual inventory and monitoring of previous and proposed outfitter/guide permit locations.

Permit Stipulations

Outfitter/guide guides must obtain a Special Use Permit that identifies their desired use areas and takes into account a variety of potential effects to different resources. Forest Service permit administrators 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 (ARPA) as well as potentially having their permits revoked.

Types of Activities Permitted/Potential for Effect

Camping is the type of permitted activity that potentially has the highest probability of ground disturbance due to the length of stay and the range of activities that 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 is an activity that 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, including a focus on barrier falls locations in such systems are high sensitivity. Additionally, walking along streams and in stream banks can lead to bank erosion resulting in the displacement of archaeological material.

Nature walking, bird watching, hiking and photography are types of activities that have less potential to affect historic properties when done in small groups and in dispersed places. However, when done repeatedly in the same location and in large groups over time can result in user-created trails leading to trampling, erosion and exposure or degradation of significant cultural features.

Guided Hunting is a type of activity that has little potential to affect historic properties. Hunting is done is small groups and over a dispersed area and therefore has less potential to affect historic properties.

Sightseeing and beachcombing 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 a type of activity that the Forest Service intends to monitor at known historic sites, especially in LGAs.

Effects Common to all Alternatives

For all of the alternatives, the potential effects to known significant cultural resources are difficult to determine because an evaluation of the effects of outfitter/guide recreation on historic properties has been completed on only on a very limited basis in the past. The actual effects to date and potential effects of future permitted outfitter/guides must be evaluated in the future with monitoring of outfitter/guide actual use. Overall, camping is the activity that seems to have the highest potential for direct effect to significant cultural 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 group creates trails, leading to erosion and exposure or degradation of significant cultural sites. Historic sites with above ground features are at risk from casual recreational users as they present an attractive place to pick up and examine, and even possibly collect, historic artifacts that are scattered on the surface.

However, ultimately it is the volume of actual use that is the metric that is used to predict effects, the higher the use numbers, the higher the potential for effects. For example, those uses in areas designated wilderness will have less outfitter/guide allocation under all of the alternatives and no LGAs designated, therefore the effect to historic properties is anticipated to be minimal. In fact, the wilderness designation actually pushes and concentrates outfitter/guide uses into some areas that are in the vicinity of wilderness but not within the wilderness boundary. There are some use areas that will see significant increases in

outfitter/guide allocated service days and they are the areas that are anticipated to effects, potentially adverse, to historic properties.

The LGAs are also anticipated to have higher actual use numbers and therefore the potential to affect historic properties disproportionately. The Forest Service identified 6 LGAs with 7 historic properties within the boundary of the LGA. For these LGAs, the Forest Service would develop a Management Plan that clearly articulates the manner in which the agency will avoid or minimize effects to these historic properties prior to issuing or reissuing special use authorization for outfitter/guide 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 to be protected are historic and in some cases pre-date the historic era. In some instances, the resource is related to a broad pattern of our history, such as World War II (National Register Criterion A) and in some cases, the site potentially would add to the public's understanding of Alaska's prehistory (National Register Criterion D). 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 LGAs; 19 LGAs have one or more sites within their boundaries. Seventeen unevaluated sites within LGAs are therefore 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 authorization for outfitter/guide use within these LGAs. If the sites are determined not eligible then the Forest Service has no further responsibilities to protect the site.

Alternative 1 - No Action

National Environmental Policy Act (NEPA) requires the study of the "No Action" alternative as a basis for comparing the effects of No Action to the action alternatives. The No Action Alternative considered for this analysis is the 2004 Shoreline Outfitter/Guide FEIS ROD. Under this alternative, allocation would remain the same as the 2004 levels. In the 2004 FEIS/ROD, allocation was measured in "group days" where a group of six people on shore in a single day equals one "group day".

Alternatives in this analysis consider allocation in measures of service days. A service day is defined as one person on National Forest System (NFS) lands for any period of time during one 24 hour period. The "No Action" alternative would continue the existing management practices of the outfitter guide special uses management program and allocate up to 47,449 service days for outfitter/guide use. Under this alternative, there would be no winter season, as that was not part of the 2004 Shoreline Outfitter/Guide EIS ROD. If selected, this alternative would use the service day unit of measure rather than the group day unit of measure. The additional LGAs would not be added to the inventory of LGA and the Forest Service would only have 35 LGAs, as currently described in the 2004 Shoreline FEIS and ROD.

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. However, this alternative has the lowest number of allocated days in only 18 of the 48 use areas. In the remaining 29 use areas the service days allocated, and thus the potential effects to historic properties, is higher. If based on numbers of service days only, it is the alternative that will have the least potential to affect historic properties in 18 of the use areas. In 6 of the use areas, it presents the highest potential to affect historic properties.

Between the years 2010 and 2014, on average only 34 percent of the threshold authorization was used (15,966 as compared to the allocation of 47,449). If fully implemented and all available use allowed under the No Action Alternative was permitted and used there would be a 197 percent increase in use days compared to the current average annual reported use total. In 40 of the use areas demand has not come

close to the 2004 Shoreline FEIS and ROD threshold; however in 5 of the use area there has been an excess of reported use in at least one of seasons' 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 use area. 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 and Wilderness Act.

This alternative represents an increase of 69 percent over the No Action Alternative across the proposed Shoreline II O/G EIS project area. This Alternative would have the potential to affect historic properties, known or yet unknown. This alternative has more potential to affect historic properties than Alternative 3 and 4 based on the total number of service days and more potential than the No Action Alternative. However, this alternative has the lowest number of allocated days in only one use area, Slocum Inlet, for both Alternative 2 and Alternative 3. In 20 of the remaining 48 use areas this alternative allocated the second smallest number of outfitter/guide service days.

Alternative 3—Lower Allocation

This alternative would allocate 63,940 service days across the four districts for use by outfitter/guides. It creates less-crowded opportunities for national forest users by offering lower outfitter/guide allocations for use areas in designated wilderness and areas designated remote/semi-remote than the Proposed Action alternative. It was crafted in response to scoping comments expressing concern about outfitter/guide use crowding in areas that historically have had low use.

While this alternative has fewer service days than the Proposed Action, it is higher across the project area than the Alternative 1-No Action. This alternative has the lowest allocation in 29 of the use areas and is the same allocation as Alternative 2 in four of the use areas. In the remaining 15 use areas the allocated service days in this alternative represent the second smallest 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 would be ranked as the one with the next to least potential to affect historic properties, second only to the No Action Alternative. In 5 use areas, the allocated days (Alternative 3) are the same of the allocation for 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/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 is developed with a specific focus on supporting local and regional economies by recommending increased outfitter/guide opportunity for outfitter/guide businesses to operate in the shoreline zone based on observed visitor industry trends.

The Higher Allocation Alternative has the most potential to affect historic properties, known or as yet unknown. This alternative has the highest potential to affect historic properties overall as the total number of service days is the highest over the project area. Additionally, this alternative has the highest number of allocated days in all but 6 (UA 01-02 Haines Area, UA01-04D Slocum Inlet, UA01-05A Taku Harbor, UA 04-08 NE Admiralty, UA04-09A Seymour Canal, UA 04-10A Green Creek) of the 48 use areas. If based on numbers of service days only, the alternative will have the most potential to affect historic properties in 42 of the use areas. See Table 3-28 below for more information.

Table 3-28: Allocations by alternative sorted from lowest to =highest for each UA

This Table summarizes the analysis of effects by Alternative in each use area. Column A lists each use area. Columns B through F provide numerical data, representative of actual averaged annual reported use data (A) and the allocations for Alternatives 1 through 4 (1/ to 4/). Column G provides a listing in order by alternative (where "actual" is represented by "A") from lowest to highest allocation.

When considered purely based on total numbers by use area, the potential for effect is greatest in the alternative represented in Column F, and least in Column B. Alternative 3 offers the least potential for effect in 29 use areas, and Alternative 1 represents the lowest potential for effect in 19 use areas. Alternative 4 presents the highest potential in 42 use areas and Alternative 1 presents the highest potential for effect in 6 use areas.

Key:

- **A= Current Average Annual Use based on 2010-2014 O/G reported data**
- **1/= Alt. 1 No Action**
- **2/= Alt. 2 Proposed Action**
- **3/= Alt. 3**
- **4/= Alt. 4**

UA Number and Name	Ranking – Lowest to Highest					Ranking (low to high)
01-01 Skagway Area	A=0	3/=1,085	1/=1,357	2/=1,400	4/=2,275	A 3 1 2 4
01-02 Haines Area	A=0	3/=195	2/=245	4/=395	1/=612	A 3 2 4 1
01-03 East Chilkats	A=259	3/=1,035	2/=1,325	1/=1,513	4/=2,150	A 3 2 1 4
01-04A Berners Bay	A=55	3/=480	2/=620	1/=845	4/=1,000	A 3 2 1 4
01-04B N. Juneau Coast	A=97	3/=675	1/=794	2/=865	4/=1,405	A 3 1 2 4
01-04C Taku Inlet	A=9	3/=1,085	1/=1,306	2/=1,380	4/=2,255	A 3 1 2 4
01-04D Slocum Inlet	A=138	2/=455	3/=455	4/=735	1/=845	A 2/3 4 1
01-05A Taku Harbor	A=97	3/=370	2/=475	4/=765	1/=794	A 3 2 4 1
01-05B Port Snettisham	A=853	1/=2,404	3/=3,050	2/=4,010	4/=6,530	A 1 3 2 4
01-05C Windham Bay	A=579	1/=2,299	2/=2,745	3/=2,745	4/=4,470	A 1 2/3 4
01-05D Tracy Arm	A=106	3/=265	1/=284	2/=345	4/=560	A 3 1 2 4
01-05E Fords Terror	A=157	3/=205	2/=270	1/=335	4/=430	A 3 2 1 4
01-05F Endicott Arm	A=391	3/=590	1/=663	2/=775	4/=1,270	A 3 1 2 4
04-01A Gut Bay, Baranof	A=321	3/=455	1/=469	2/=605	4/=975	A 3 1 2 4

UA Number and Name	Ranking – Lowest to Highest					Ranking (low to high)
04-01B Port Armstrong	A=167	1/=681	3/=840	2/=1,075	4/=1,740	A 1 3 2 4
04-01C Nelson Bay	A=7	1/=380	3/=505	2/=655	4/=1,055	A 1 3 2 4
04-02A Redoubt Lake	1/=160	A=278	3/=1,670	2/=2,185	4/=3,550	1 A 3 2 4
04-02B Whale Bay	A=256	3/=615	2/=810	1/=866	4/=1,330	A 3 2 1 4
04-02C Necker Islands	A=75	1/=163	3/=1,635	2/=2,135	4/=3,460	A 1 3 2 4
04-02D SW Baranof	A=28	1/=680	3/=1,020	2/=1,315	4/=2,135	A 1 3 2 4
04-03 Sitka Area	A=1,149	1/=4,683	3/=7,550	2/=9,885	4/=16,105	A 1 3 2 4
04-04A Rodman Bay	A=429	1/=1,511	2/=2,990	3/=2,990	4/=4,865	A 1 2/3 4
04-04B Kelp Bay	1/=1,521	A=3,070	3/=5,525	2/=7,305	4/=11,895	1 A 3 2 4
04-04C Baranof Warm Springs	A=114	3/=255	1/=297	2/=330	4/=530	A 3 1 2 4
04-05A SE Admiralty	A=308	3/=585	2/=775	1/=912	4/=1,255	A 3 2 1 4
04-06A Pybus Bay	A=652	3/=685	1/=801	2/=910	4/=1,485	A 3 1 2 4
04-06B Eliza Harbor	A=135	3/=435	1/=534	2/=575	4/=940	A 3 1 2 4
04-07A Gambier Bay	A=123	3/=355	2/=465	1/=551	4/=745	A 3 2 1 4
04-07B Cross-Admiralty Canoe Route	A=92	3/=520	2/=685	1/=689	4/=1,110	A 3 2 1 4
04-08 NE Admiralty	A=32	3/-435	2/=575	4/=935	1/=1,419	A 3 2 4 1
04-09A Seymour Canal	A=52	3/=460	2/=610	4/=985	1/=1,567	A 3 2 4 1
04-09B Pack Creek Zoological Area[3]	1/=0	A=24	3/=220	2/=290	4/=465	1 A 3 2 4
04-10A Greens Creek	A=228	3/=335	2/=440	4/=720	1/=827	A 3 2 4 1
04-10B NW Admiralty	A=78	3/=610	2/=800	1/=1,027	4/=1,300	A 3 2 1 4

[3] **Pack Creek Zoological Area allocations reflect only fall and spring allocations**

UA Number and Name	Ranking – Lowest to Highest					Ranking (low to high)
04-11A Port Frederick	A=127	1/=1,257	2/=1,630	3/=1,630	4/=2,650	A 1 2/3 4
04-11B Freshwater Bay	A=374	1/=1,362	2/=3,290	3/=3,290	4/=5,370	A 1 2/3 4
04-12 Tenakee Inlet	A=188	3/=1,115	2/=1,415	1/=1,450	4/=2,290	A 3 2 1 4
04-13 Peril Strait	A=865	1/=1,934	3/=4,565	2/=6,005	4/=9,775	A 1 3 2 4
04-14 Slocum Arm	A=91	3/=400	2/=535	1/=666	4/=875	A 3 2 1 4
04-15A Lisianski	A=29	1/=857	3/=1,475	2/=1,910	4/=3,105	A 1 3 2 4
04-15B West Yakobi Island	A=9	3/=365	1/=454	2/=475	4/=770	A 3 1 2 4
04-15C Stag Bay	A=9	3/=125	1/=152	2/=160	4/=265	A 3 1 2 4
04-15D Portlock Harbor	A=60	3/=350	1/=352	2/=460	4/=760	A 3 1 2 4
04-16A Point Adolphus	A=473	1/=1,294	3/=1,690	2/=2,220	4/=3,625	A 1 3 2 4
04-16B North Chichagof	A=236	3/=1,085	1/=1,294	2/=1,415	4/=2,295	A 3 1 2 4
04-16C Idaho Inlet	1/=1,294	A=1,340	3/=3,115	2/=4,110	4/=6,700	1 A 3 2 4
04-16D PLI Wilderness	A=83	3/=300	2/=395	1/=471	4/=645	A 3 2 1 4
04-16E Port Althorp	A=823	1/=1,117	3/=4,500	2/=5,960	4/=9,710	A 1 3 2 4
Totals	A=15,966	1/=47,449	3/=63,940	2/=80,305	4/=130,655	A 1 2 3 4

Cumulative Effects

Significant cultural sites have the potential to be impacted from forces beyond those of outfitter/guides, 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 visitation by outfitter/guides could add to the cumulative effects on extant significant cultural resources. This increased visitation could lead to degradation of the site by erosion, theft or vandalism. Archaeological inventory and monitoring of outfitter/guide activities near known historic properties and in areas with high sensitivity for such sites would help detect any potential damage to those sites, which could lead to mitigation measures, depending on the level of damage.

There are no expected cumulative effects from other projects near the LGAs as they are strategically placed away from other forest projects, especially those of industrial projects such as large working mines, airports or hydroelectric projects. Other recreation projects, such as trail improvements and recreation cabins in the vicinity will not result in cumulative effects from outfitter/guide recreation. Trails in the area could potentially be used by outfitter/guides. There could be a potential for cumulative effects

from several recent decisions or analysis for project areas where outfitter/guide recreation 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 are being considered under a separate analysis, the Angoon-Mitchell Bay Ecotourism EA.
- The Mud Bay and Eagle River road systems on Kruzof Island are being considered under a separate analysis.

In each of these 3 cases, as they are being considered separately, the result might be an increase of overall numbers of outfitter/guide recreation in the area, potentially resulting in effects to documented or as-yet undocumented historic or archaeological sites in the 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, proposing generally non-ground disturbing activities such as guided hiking, fresh water angling, and bear viewing. However, it might also include permits for camping that has more potential for ground disturbance; with the wilderness stipulations of group size of 12 of less, there is lower potential to affect historic properties. The area of cumulative impact could potentially be at the western end of the Cross Admiralty Canoe Trail as this area is permitted under the Ecotourism Proposal as well as being permitted under this analysis resulting in higher allocations and therefore more potential effects, possibly adverse 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 while its 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 Kootzoonoo Wilderness Area the numbers are not expected to be large, and summer visitors to the area are very restricted in the area that they can use and therefore the impacts are not expected to be adverse.

The Mud Bay and Eagle River road system allocation for outfitter/guide use of Kruzof Island were considered under a separate decision document, potentially resulting in cumulative higher use numbers. 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 use on Kruzof Island 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 amount of archaeological investigation of permit areas. No known cumulative effects on significant cultural resources 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 permitted ground-disturbing activities, combined with periodic monitoring of outfitter/guide activities, and adding potential mitigation measures, administrative oversight, and enforcement of regulations, it is expected that proposed activities should result in minimal effects on extant significant cultural resources. If the aforementioned provisions (Leave No Trace, Practices, Special use Permit Clauses, Development of Management Plans, monitoring, and so forth) are adhered to, the cumulative effects for any of the alternatives are not likely to result in adverse impacts to the significant cultural resources. Inventory and monitoring will confirm or refute this supposition.

Wildlife

Introduction

The Forest Plan incorporates laws, regulations and Forest Service policies to provide specific information on how management indicator species (MIS), threatened, endangered and sensitive species (TES), and other wildlife and fish species will be managed on NFS lands. Forest-wide desired conditions and goals are included in Chapter 2 of the Forest Plan. The Forest is organized into LUDs 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) 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), migratory birds, and other species of concern (USDA Forest Service 2008b).

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 Action on MIS, migratory birds, and other species and habitats in the Analysis Area.

Direct and indirect effects can occur as a result of project activities and their connected actions. A direct effect is an effect caused by an action that occurs in the same time and place as the action. An indirect effect is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable. Under NEPA, cumulative effects represent the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Mitigation measures may also be employed where applicable to offset or minimize potential adverse impacts.

Collection of population trend information for MIS specific to the Shoreline O/G 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 USDA Forest Service general technical reports and monitoring reports, 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 four districts and the immediately adjacent marine environment that would be used by permitted outfitter/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.

There are 48 use areas in the project/Analysis Area (Table 1-1). Additionally, within the project area the Forest Service has identified 41 LGAs, where large guided groups (21-75 people at one time) can come ashore (Table B-1). Specific information on these areas is included in the use area and LGA cards in Appendices A and B of the Shoreline II O/G EIS.

Assumptions

Recreation use seasons as defined for this project generally do not correspond with hunting seasons or wildlife breeding, foraging, migrating, or wintering lifecycles. 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. Non-guided uses were addressed subjectively due to the lack of quantifiable information on non-guided use. Non-guided use on NFS lands is currently not quantified or easily quantifiable.

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 guidelines 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. However, 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 to MIS be assessed and that the Forest Plan requirements, goals and objectives for these species are met at the project level.

Thirteen wildlife MIS were selected for the Tongass (USDA Forest Service 2008b). All are associated with productive old-growth forest (POG). Six of the MIS also specifically use riparian habitats and 5 of the species use estuarine habitats.

MIS Selected for analysis

The following Forest Plan MIS species were selected for the Shoreline II O/G EIS Plan 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 (TNF) MIS because of population viability concerns in some areas of the TNF. 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 JRD within the Analysis Area. Based on trapper reports, ADF&G considers wolves common and increasing in GMU 1C (Scott 2012a) and stable in GMU1D (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 FS 2008b). Human access on roads may result in wolf mortality by both legal and illegal harvest (USDA FS 2008b). 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 FS 2008a).

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 forty 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 EIS 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 DI FWS 2009). Most bald eagles nest in old-growth trees within 328 ft./100 m of saltwater shorelines. Bald eagles in Alaska may begin attending to nest building in preparation for nesting in early February (US DI FWS 2007). Egg laying occurs between April and June with a peak in late April and early May (US DI FWS 2007). Hatching and rearing young occurs starting in mid-May through mid-September while fledging occurs in August through mid-October (US DI FWS 2007). Young birds stay in the vicinity of the nest for about 6 weeks after fledging because they are dependent on their parents for food (US DI FWS 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 the protection of beach fringe habitat and managing bald eagle habitat in accordance with an Interagency Agreement between the Forest Service and US DI FWS (USDA Forest Service 2008a). Based on agreement with the US DI FWS the TNF manages bald eagle habitat consistent with the National Bald Eagle Management Guidelines (US DI FWS 2007). This plan provides recommendations for avoiding habitat alterations and disturbance (including repeated human activity) within 330-660 ft. (depending on the activity type) of bald eagles nests and that aircraft avoid flying within 1000 ft. 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 ft. 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 (US DI FWS 2007).

There are 4,529 known historic bald eagle nests in the Analysis Area (US DI FWS 2014), although data is lacking for much of Baranof Island and some other areas. Nest maps for bald eagles in Southeast Alaska are maintained by US DI FWS and are infrequently updated, so good sources of active nest locations are not available. These nests are evenly distributed along the coastal 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 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 JRD within the Analysis Area. Population estimates are not available for black bears in GMU 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 FS 2008b). 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.

Human activities in bear habitat can disturb or displace bears (Kasworm and Manley 1990, Smith et al. 2012, Costello et al. 2013). Human access 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 (DLP) 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 Forest Service 2008a, p. 4-92).

The GMU 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 lands where roads provide easy access. Boats are consistently the dominant mode of transportation for successful black bear hunters in 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).

Resident hunters historically accounted for 60-70% 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 non-residents take about 20% 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 EIS 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 (ADFG 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, 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 suggest 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.

Human activities in bear habitat can disturb or displace bears. 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 (Warner 1987). 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 (DLP) 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 Forest Service 2008a, p. 4-92).

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% of the brown bears harvested in GMU 4 are taken by nonresidents (Mooney 2013a) and 58% 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 the Shoreline II Outfitter/Guide EIS 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 is eight miles southeast of Sitka on the west side of Baranof Island. The Port Althorp 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. 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 Kootzhahoo 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 Shoreline II O/G EIS project area and will be analyzed in a separate outfitter/guide analysis. However, they are within the Analysis Area. Some tour operators take visitors 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 (ABOG 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 EIS).
- 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 GUAs 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 ADFG'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.

The Forest Service has not instituted a moratorium on new bear hunting guides in GMU 4 or GMU 1. However, when a guide sells their business to a new guide, the Forest Service retains 1/3 of the hunts. Thus, 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 9 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 Unit 4 indicates that, in 2014, 125 hunts were used with a five year average of 130. In the late 1990s, the historical average number of guided hunts in GMU 4 was 147 per year (ABOG 2000). Table 3-29 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 3-29 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 3-29. GMU 4 Brown bear guided hunts for 2010-2014 compared to the Brown Bear Management Strategy recommendations (ADF&G 2000)

Group Use Area	Total Fall Actual Use	Total Spring Actual Use	Avg Fall Actual Use	Avg Spring Actual Use	Yearly Avg Actual Use	Fall Percent of Total	Spring Percent of Total	BBMS Guided Hunters	BBMS Actual (I-F)
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)

Group Use Area	Total Fall Actual Use	Total Spring Actual Use	Avg Fall Actual Use	Avg Spring Actual Use	Yearly Avg Actual Use	Fall Percent of Total	Spring Percent of Total	BBMS Guided Hunters	BBMS Actual (I-F)
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)**

Notes:

1- Total Spring and Fall Actual Use are the cumulative number of hunts that occurred in each 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 (2010-2014 Yearly Average Actual Use). Numbers in parentheses indicate where the 2010-2014 actual use 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 formally considered in the BBMS. However, 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 TNF MIS to represent species using cliffs, alpine and subalpine, and old-growth forest habitats. They were selected as a MIS for this EIS 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 1000-1500 ft. 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.

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.

For regulatory years 2001 to 2010 goat harvest in GMU 1C averaged 43 goats and GMU 1D averaged 32 goats per year. For regulatory years 2006 to 2010 GMU 4 averaged 37 goats harvested per year.

Seven guiding businesses are operating 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 5 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 FS 2008a, p. 4-96).

Sitka Black-tailed Deer

The Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) was selected as a TNF MIS because it is an important game and subsistence species in Southeast Alaska. They were selected as an MIS for this EIS 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 2006-09 (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 ft. 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 FS 2008b).

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 2007-2011GMU 1C approximately 813 hunters participated and harvested an estimated 345 deer per year (Scott 2013). For regulatory years 2007-2011 in GMU 4 approximately 2,524 hunters participated and harvested an estimated 4,160 deer per year (Mooney 2013b).

Guided deer hunting would be authorized 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 FS 2008a).

Vancouver Canada Goose

The Vancouver Canada goose (*Branta canadensis fulva*) was selected as a TNF 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 (e.g. 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 Fool Inlet and various places in Tracy Arm/Fords Terror. 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 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 FS 2008a). 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 FS 2008a).

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 TNF 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 Shoreline II O/G EIS Analysis Area, and popular on wildlife viewing tours. In addition, there are numerous haul-outs in the Analysis Area, several LGAs 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% ice cover;
- target visits during early morning and evening hours when fewer seals are hauled out; and
- specific travel areas for Tracy Arm are recommended.

Forest Plan direction for harbor seals includes (USDA Forest Service 2008a):

- 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 12 stocks of harbor seals in Alaska, with 5 in southeast Alaska, and 3 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 (approximately 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 and Endicott Arms and Stephens Passage 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 m. (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 m. (approximately 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 m. 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 authorizations (USDA Forest Service 2008a).

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 Forest Service activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory birds when conducting Forest Service actions. A memorandum of understanding (MOU) was entered into between the Forest Service and the US DOI FWS 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 Forest Service actions on migratory birds, focusing first on species of management concern along with their priority habitat and key risk factors. 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 FS 2008b). Species most likely to be affected by this EIS 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 4 important bird areas (IBA). These are sites, identified by Birdlife International and partners, which provide essential habitat for one or more species of bird 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, and Stephens Passage and Tracy-Endicott Arms. 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 and 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 US DOI FWS and NMFS websites on August 13, 2015 (Table 3-30, US DOI FWS 2015a; Table 3-31 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. In addition the US DOI FWS is currently considering a petition for the Alexander Archipelago wolf, but it is not currently listed under the ESA.

Table 3-30: 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 (US DOI FWS 2012a).
Short-tailed albatross	*Phoebastria albatrus*	Endangered	Occupies coastal waters in the Gulf of Alaska and the Aleutian Islands (US DOI FWS 2015b).
Spectacled eider	*Somateria fischeri*	Threatened	Occupies coastal waters in northern and western Alaska (US DOI FWS 2012b).
Steller's eider	*Polysticta stelleri*	Threatened	Occurs in northern and western Alaska (US DOI FWS 2014a).
Northern sea otter, SW Alaska population	*Enhydra lutris kenyoni*	Threatened	Inhabits the Aleutian Islands, Alaska Peninsula coast, and Kodiak Archipelago (US DOI FWS 2013a).
Polar bear	*Ursus maritimus*	Threatened	Lives only in the arctic (US DOI FWS 2014b).
Wood bison	*Bison bison athabascae*	Threatened	Meadows interspersed with forest, peat, and shrub lands in interior Alaska and western Canada (US DOI FWS 2011).
Pacific walrus	*Odobenus rosmarus divergens*	Candidate	Continental shelf waters of the Bering and Chukchi Seas (Garlich-Miller *et al*. 2011).

Table 3-31: 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 action 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 permitted outfitter-guide use sites requires interdependent actions such as use of motorized boats or fixed-wing aircraft to reach sites.

The northern Tongass NF is an expansive area with 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).

Use sites addressed in this EIS 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 EIS 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. 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 Not Addressed in Detail

The species in this section are not expected to occur in the Analysis Area and their habitat will not be affected by the Shoreline II O/G EIS. Therefore no direct, indirect, or cumulative effects are expected and they will not be addressed further.

Species Managed by the US Fish & Wildlife Service

None of the species listed as threatened or endangered by the US DOI FWS (Table 3-30) occur in Southeast Alaska; therefore, they do not occur in or around the Analysis Area. The Forest Service does not address candidate species in the biological evaluation, but Region 10 policy is that candidate species are automatically designated as sensitive species (R10 Supplement, FSM 2672.11). Therefore, the Pacific walrus, plus the pinto abalone and Iliamna Lake harbor seal, are addressed as sensitive species below.

Whales (except humpback)

Blue, fin, sei, and sperm whales are generally found in off-shore marine waters of the Bering Sea, Chukchi Sea, North Pacific Ocean, and/or Gulf of Alaska (NMFS 1998a, NMFS 1998b, NMFS 2006a, NMFS 2006b). No critical habitat has been designated for these species in Alaskan waters. Bowhead whales are distributed in seasonally ice-covered waters of the Arctic and near-Arctic, generally north of 54°N and south of 75°N in the western Arctic Basin. The majority of the Western Arctic stock migrates annually from wintering areas in the northern Bering Sea, through the Chukchi Sea in the spring, to the Beaufort Sea where they spend much of the summer before returning again to the Bering Sea in the fall to overwinter (Shelden and Rugh 1995). The western North Pacific gray whale occurs off the coast of eastern Asia (Weller et al. 2002). It is genetically and geographically isolated from the eastern North Pacific gray whale population (Weller et al. 2002). NMFS range maps for the western North Pacific gray whale show its range extending into the eastern Gulf of Alaska, but not into southeast Alaska waters (NMFS 2014). No critical habitat has been designated for these species in Alaskan waters. The north Pacific right whale generally occurs in continental shelf waters (NMFS 1991a) of the North Pacific

Ocean, Gulf of Alaska, and Bering Sea between 40 and 60 degrees north latitude, and has critical habitat designated in the southeastern Bering Sea and the shelf and slope waters south of Kodiak Island (NOAA 2008). Beluga whales are closely associated with open leads and polynyas in ice-covered regions. Depending on season and region, beluga whales may occur in both offshore and coastal waters. The Cook Inlet belugas occur in the Gulf of Alaska as far southeast as Yakutat in winter. They do not occur in the waters of the Alexander Archipelago (NMFS 1998c).

Seals

Bearded and ringed seals were petitioned for listing in March of 2008 and listed in December 2012 (NOAA 2012). These species are referred to as "ice seals" because they are directly associated with sea-ice habitats (NOAA 2008). These species occur from the Arctic Ocean to the western Pacific and do not occur in Southeast Alaska (Allen and Angliss 2014).

Salmon and green sturgeon

Information on fish species is included in hydrology and fisheries below.

Turtles

Marine turtles are highly migratory and typically associated with warm temperate to tropical waters. Although all turtle species in Table 3-31 have been observed in southeast Alaska waters, Alaska is not considered part of their normal range and occurrence here is rare. There is no nesting by any of these marine turtles on Alaskan or other United States beaches in the Pacific (NMFS and USFWS 1998a, 1998b, 1998c, 1998d).

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 (US DOI FWS 1970), and have been listed under the ESA since its implementation in 1973. There have traditionally been four recognized stocks of humpback whales in the North Pacific. The Central North Pacific stock occurs in the southeast Alaska area (NMFS 1998d), but there appears to be a low level of interchange between stocks (Calambokidis et al. 2001). No critical habitat has been designated for this species in Alaskan waters.

In April 2013 the NMFS received a petition to list the North Pacific population of the humpback whale as a Distinct Population Segment (DPS) and to delist it under the Endangered Species Act. In August 2013 the NMFS announced its 90-day petition finding that the petitioned action may be warranted (NOAA 2013). Additionally, in February 2014, the State of Alaska petitioned NMFS to designate the Central North Pacific Stock of the humpback whale as a DPS and remove the DPS from the list of endangered and threatened species under the Endangered Species Act. In June 2014 the NMFS announced its 90-day petition finding that the petitioned action may be warranted (NMFS 2014). NMFS reviewed the status of the humpback whale globally to determine whether endangered listing for the entire species is still appropriate. Based on this review, NMFS proposed to change the status of the humpback whale under the ESA (NOAA 2015). NMFS proposed 14 DPS world-wide. The Hawaii DPS (currently Central North Pacific Stock) would not be listed as threatened or endangered under this proposal. Final action on this proposal is not expected prior to a decision on this EIS. If the Hawaii DPS is delisted under the ESA, it would remain protected under the MMPA, and would become a Forest Service Alaska Region sensitive species for at least 5 years following delisting.

The available data suggest that the central North Pacific stock is increasing in abundance. The estimated rate of increase varies by methodology and area studied but ranges between 5.5 – 10% per year (Allen and Angliss 2014). Calambokidis et al. (2008) estimated the annual rate of increase for the stock at around

5.5-6% since the early 1990s. Hendrix et al. (2012) estimated a 5.1% annual increase in northern southeast Alaska (from Frederick Sound north) between 1986 and 2008.

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 gill-nets (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 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. They also documented movement between subareas of 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).

Boats transporting 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 permitted outfitter/guides for this project include a wide variety of vessels from kayaks to small approximately 20 foot skiffs to 186 foot small size cruise ships carrying up to about 75 guests plus crew.

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 FS 2008b, 4-99) includes protecting habitat and ensuring FS permittees follow regulations for preventing take. Take includes harassing or pursuing or attempting such activities.

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 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 FS policy (USDA FSM 2600), the eastern DPS of the Steller sea lion will be a FS sensitive species for at least five years following delisting and will be addressed in the sensitive species section of this analysis. 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 (NOAA 2013a).

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.

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.

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. 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 are not documented or mapped (such as navigation markers).

Table 3-32: 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% 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 2008) 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 but by Alaska Region policy also includes species more recently designated as candidates by the NMFS or US DOI FWS.

Table 3-33 lists the US 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 3-33: 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 (US DOI FWS 2006a). They nest in coastal colonies in a variety of habitats including islands, shrub-tundra, grass or sedge meadows, and freshwater coastal marshes (US DOI FWS 2006a). On the Tongass NF 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 (US DOI FWS 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, US DOI FWS 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.

There is no specific Forest Plan direction for this species but general direction for seabirds and shorebird habitats apply (USDA Forest Service 2008a, pp. 4-93 to 94). Direction for the protection of beach, estuary, and riparian habitats maintain habitat most likely to be used by this species.

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 close 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 four weeks. Chicks can leave the nest bowl within one day of hatching, but it takes about three 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.

There is no specific Forest Plan direction for this species but general direction for seabirds and shorebird habitats apply (USDA FS 2008a, pp. 4-93 to 94). Direction for the protection of beach, estuary and riparian habitats also helps maintain habitat for this species.

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 NF, 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 FS 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 (US DOI FWS 2004) that listing of the Kittlitz’s murrlet was warranted but precluded, indicating Candidate species status. In October 2013 the US DOI FWS determined that listing the Kittlitz’s murrelet was not warranted (US DOI FWS 2013). Therefore, the species is no longer a US DOI FWS 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 (US DOI FWS 2013). The range-wide population is estimated to be around 33,500 birds (US DOI FWS 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) (US DOI FWS 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 ft. (200 m.) 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 NF. General Forest Plan direction for seabirds and shorebird habitats apply (USDA FS 2008a, pp. 4-93 to 94).

The USFWS reviewed available literature for recreational effects on Kittlitz's murrelets for their listing determination (US DOI FWS 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.

Queen Charlotte goshawk

The Queen Charlotte goshawk has been the subject of listing petitions and several other legal challenges under the ESA. The US DI FWS 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 (US DI FWS 2007a). In 2012 the US DI FWS listed the British Columbia DPS as threatened, but again, the southeast Alaska DPS was not listed (US DOI FWS 2012). The US DI FWS did not support listing the southeast Alaska DPS because of differences in conservation status, habitat management, and regulatory mechanisms (US DI FWS 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 NF, the goshawk is a year-round resident and may occupy different or overlapping winter and breeding territories (USDA FS 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 under-story 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 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 US DOI FWS estimated the goshawk population at 261 to 336 breeding pairs on the Tongass National Forest and 300 to 400 pairs across Southeast Alaska (US DOI FWS 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 2 fledglings per nest with a 93% success rate of greater than 1 young fledged.

The major threat to goshawks is the loss of old growth habitat due to logging. 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 (US DOI FWS 2007).

Little work has been done on the effects of recreation disturbance 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.

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, pp. 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 ft. of the nest are not permitted 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 LUD) 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 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% 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). 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 recreation 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).

In light of the above information, all authorized outfitter-guide activities being considered under this management plan could cause disturbance to wildlife. In addition, recreational use is not distributed

equally. Some areas have intensive disturbance whereas others have less intensive disturbance (Leung and Marion 2000). For example, at the LGAs, 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 based upon the number of service days allocated to outfitter-guide activities and the assumption that the risk of disturbing wildlife would increase as the number of days allocated to outfitter-guide activities 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. Each Alternative was ranked for each use area from 1 to 4 based on the allocated use. A ranking of 1 indicated the highest allocation and the highest estimated risk. When the allocation was the same between alternatives the alternatives received the same rank.

All of the alternatives would allocate more service days to most use areas than have been used in the past. From 2010 through 2014, the highest number of service days reported for any year was in 2014 at 17,707 service days for all use areas combined. This amounts to approximately 37% of the days allocated in Alternative 1, 22% of the days allocated in Alternative 2, 28% of the days allocated in Alternative 3, and 14% of the days allocated in Alternative 4. However, there are eight use areas where the 2010-2014 average annual actual use is greater than the allocation for one or more alternatives for one or more seasons, including Tracy Arm, Fords Terror, Gut Bay, Redoubt Lake, Kelp Bay, Pybus Bay, Idaho Inlet, and Port Althorp.

Should outfitter-guide use rise to 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. Though this analysis has assumed full implementation of allocations under each alternative, impacts to human recreation and social factors would likely cause a re-evaluation of these allocations before major effects would occur to wildlife, particularly given the nature of some of the scoping comments received. Adaptive management may be implemented to change allocations or other outfitter/guide management based on monitoring, observations, or feedback we receive during implementation of this project. If it is included in the final decision, Adaptive Management should mitigate some of the effects to wildlife at high levels of use in particular use areas.

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 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). 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

Alexander Archipelago Wolf, Alternatives 1 - 4

Wolves are an iconic species, highly sought after for wildlife viewing and occasionally for hunting. Wolves only occur in 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 wolves, followed by Alternatives 2, 1, and 3, respectively. Authorized activities would not affect important management components.

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.

Occasional 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 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.

Bald Eagle, Alternatives 1 – 4

Primary 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 (USFWS 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 (USFWS 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 (approximately 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-ft 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 in the Project Design and Mitigation Measures section.

Black Bear and Brown Bears, Alternatives 1-4

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 permitted 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 demand for guided black and brown bear hunting on the JRD (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%) of the overall GMU1 actual use and between 0% and 7% 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% of overall guide use in the Analysis Area and between 0 and 76% of use in individual use areas. No specific allocations are made for guided bear hunting in any of the alternatives.

One of the decisions to be made, which would apply to all alternatives, is whether the Forest Service will allocate guided brown bear hunts in GMU 4 based on the recommended number of hunts (by GUA and season) in the BBMS. Additionally, there are a number of actions proposed that would change how the Forest Service administers big game outfitter/guiding permits (BBMS pp. 1-7). Two of these actions mirror the BBMS (bullets one and five). 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.

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% of current 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 (14,051 and 14,910 service days, respectively). 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 GMAs; 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 are expected to be moderate, with individuals noticeably affected and some long-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 black bears. Generally, Alternative 4 would result in the greatest risk to bears, while Alternative 3 would result in the least risk. All alternatives allocate total use well above the current actual use which could result in greater disturbance to bears if actual use increases to allocation levels.

Mountain goat, Alternatives 1 - 4

The main effect of permitted 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 demand 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, populations numbers are within ADF&G's objectives.

Alternative 4 has the highest overall risk of disturbance effects on goats based on the most overall allocated guide use within the range of mountain goats (GMU 1and 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, Alternatives 1 - 4

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, and reduce foraging efficiency. 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% of guided activities in the Analysis Area and ranges from 0% to 29% 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 moderate, 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 total use well above the current actual use which could result in greater disturbance to deer if actual use increases to allocation levels.

Vancouver Canada goose, Alternatives 1 - 4

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% of guided activities in the Analysis Area. Guided waterfowl harvest 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 these 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

Harbor seals, Alternatives 1 - 4

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 guides adhere to the MMPA and NMFS guidelines, 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 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 LGA in Tracy Arm, receives “very high” use (average 770 service days per year) under the current plan. 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/guides will be required to follow NMFS regulations and guidelines they are not expected to rise to the level of take.

Seabirds, Alternatives 1 - 4

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 overall 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 stand–off distance of 250 meters 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 outfitter/guides will be required to follow Forest Plan 250 meter buffer distances no measureable effect is expected.

Migratory Birds, Alternatives 1 – 4

Boyle and Sampson (1985) summarized recreational impacts on wildlife in a review of 166 articles, 61% 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% of those studies found negative impacts to birds, roughly 23% found no impacts, and about 4% 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. Many migratory bird species 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 recreational 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 guided 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 days and therefore the greatest risk for disturbance from 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

Humpback whale, Alternatives 1 – 4

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 would be exposed to boating activities including noise and the physical presence of vessels.

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 to 2014 average), overall actual use is only about 32% of the allowable allocation with a generally increasing trend. Therefore, all alternatives could increase the likelihood of disturbance of humpback whales compared to the existing condition. In addition all alternatives could increase the likelihood of a vessel collision with humpbacks.

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, this 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 FS permitted activities under any of the alternatives, striking a humpback whale is sufficiently small as to be discountable.

Steller Sea Lion – western DPS, Alternatives 1 – 4

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.

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% 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, 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 LGAs are within 3 km of any of the critical habitat sites.

Determinations

All alternatives for the Shoreline Outfitter/Guide Project 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 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 3-34: Summary of determinations for threatened and endangered species for the Shoreline II Outfitter/Guide EIS Project

Name	Distinct Population Segment	ESA Status	Determination [1]	
			No Action	Proposed Action
Humpback whale *Megaptera novaeangliae*		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

Aleutian tern, Alternatives 1 - 4

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, Alternatives 1 - 4

Black oystercatchers spend essentially their whole lives in the shore zone and thus, are susceptible to disturbance from the types of activities permitted by this project. 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 camp sites 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 outfitter/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 guided 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, Alternatives 1 - 4

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 a permitted 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, Alternatives 1 - 4

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, Alternatives 1 - 4

None of the authorized outfitter-guide activities would alter productive old-growth habitat. Instead, effects would come from human disturbance in close 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 design stipulations.

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, Alternatives 1 - 4

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 project related 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

All alternatives for the Shoreline II O/G EIS 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 EIS 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 black oystercatcher. Some individuals may be disturbed by guided activities in nesting and foraging areas, but disturbance is expected to be temporary and localized.

All alternatives for the Shoreline II Outfitter/Guide EIS Project will have no impacts to the Kittlitz's murrelet. Encounters between Kittlitz's murrelets and authorized permittees is expected to be so rare as to be discountable.

All alternatives for the Shoreline II Outfitter/Guide EIS 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 guided activities in nesting and foraging areas, but they are expected to be temporary and localized.

All alternatives for the Shoreline II Outfitter/Guide EIS 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 3-35: Summary of determinations for sensitive species for the Shoreline II Outfitter/Guide EIS 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 added to other relevant past, present, and reasonably foreseeable future actions. The list of past, present, or foreseeable future projects that may contribute cumulative effects for wildlife is long, and contains a wide variety of influences such as timber sales, salvage harvest, restoration projects, road closures and maintenance, recreation site maintenance and improvements, land exchanges, guided and unguided recreational activities, recreational use on non-Forest Service ownerships within the Analysis Area, flight-seeing tours

and marine based tours not within Forest Service jurisdiction, consumptive use of wildlife, and others. 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. Past development activities have altered habitats, generally reducing habitat suitability for most the species addressed here. Timber sales and urban development have had substantial impacts to habitat within the Analysis Area. The Forest Plan estimates that 72% - 100% of old growth habitat is expected to remain within the various biogeographic provinces of Analysis Area after 100 years under the selected alternative (USDA FS 2008b, 3-201). This estimate includes all ownerships. Shorelines are mostly unaltered except around communities. There is no estimate on 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 EIS. 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.

Activities such as guided and unguided recreational activities, recreational use on non-Forest Service ownerships within the analysis boundary, flight-seeing tours and marine based tours not within Forest Service jurisdiction, and consumptive use of wildlife may disturb wildlife similarly to the Direct and Indirect effects described in this EIS. The amount of unguided and unregulated use is unknown. The Forest Plan acknowledges that many local residents engage in dispersed recreation activities on National 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 FS 2008b, 3-373). This project will cumulatively add to the level of wildlife disturbance. 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. The alternative allocating the highest number of service days (Alternative 4) would pose the greatest risk of cumulative disturbance impact to wildlife, followed by the other alternatives 2, 3, and 1 in descending order of service day allocations.

Consumptive use of wildlife (i.e. hunting and trapping) can reduce wildlife populations, but levels are regulated by the ADFG 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. Outfitter/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.

Threatened and Endangered Species

Cumulative Effects

Cumulative effects for ESA compliance include the effects of future State or private activities but do not include other Federal activities because those actions are subject to future consultation.

This project would contribute cumulative marine traffic and noise effects to ongoing and future activities including visitor use/tours on State and private lands, or solely in the marine environment, commercial and recreational fishing, and any other marine activities. Tourism is anticipated to increase. Logging on State and private lands is expected to increase following the Sealaska Land Exchange. The current general trend is to use barges to transport logs, but companies are still allowed to raft logs with the correct permits. Barges generally maintain a constant speed and consistent course which is thought to be less disruptive to marine mammals than vessels that travel faster and vary their speed and direction. Increases in recreational and logging activities would add to current marine traffic, associated acoustic disturbance, and chance of vessel strikes. The magnitude of these increases is unknown. Fishing, both commercial and

recreational, would continue and could lead to additional fisheries related injuries and deaths as described in Allen and Angliss (2014).

This EIS 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. The cumulative effects with implementation of any of the action alternatives of this EIS are not expected to rise to the level of take.

Subsistence

Introduction

"Subsistence" means different things to different people, but 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 FS 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), and the Forest Plan FEIS (USDA Forest Service 2008b). The FEIS contains in-depth discussions on the history of subsistence use and community information. The Forest Plan determined that the primary subsistence resource likely to 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) and will be the only species addressed in this analysis.

Affected Environment

The Analysis 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 section 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%), followed by land mammals (23%), marine mammals (14%), plants (4%), shellfish (3%), and birds (3%) (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 3-36 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 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% 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 provides important deer hunting areas for the communities of Meyers Chuck, Petersburg, and Yakutat.

Table 3-36: Subsistence resource use by communities with important deer harvest areas within the Shoreline 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

Community	Year of Data	Resource	Percent of Community Using Subsistence Resources	Per Capita Pounds Harvested Annually
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
Yakutat	2000	All	100	386
	2000	Deer	23	3
	2000	Fish	99	233

Guided deer hunting would be authorized under all alternatives, and the permitted allocation would not differ between alternatives. See the Sitka black-tailed deer discussion above for details on numbers of guided hunts and overall deer harvest in the Analysis Area.

Environmental Consequences

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 recreationists. 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 recreation 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 numbers.

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 outfitter/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 one 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. Outfitter/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 showing in a resolution submitted by the Angoon Community Association (ACA) in response to project scoping. The ACA stated they oppose outfitter/guides hunting deer around the community of Angoon. To address this, the Admiralty National Monument Ranger has proposed to close the area between Parker Point on the west side of Admiralty Island north of Angoon to Point Gardner on the southwest tip of Admiralty Island south of Angoon (see project Design and Mitigation Measures section) to guided deer hunting. This would have minor effects on guided use as there is little reported guided deer hunting in the proposed exclusion area. Based on guide use reports, the area is not used yearly. From 2010-2014 guides reported using this area during two years for a total of 17 service days. This exclusion would not apply to other guided use clients. Competition at important subsistence use areas may be less of a concern with other guided use 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 recreation 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 managed lands and other ownerships could affect the distribution and abundance of subsistence resources. The Forest Plan ROD and FEIS determined that implementation of the 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 EIS 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 likely and would be greatest under Alternative 4, followed by Alternative 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 EIS includes policies or environmental changes that would restrict subsistence users' access to resources. Therefore, no alternative of this EIS 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 FS 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 insignificant.

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 restriction of subsistence uses.

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 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 generally based on the Alaska Natural Heritage Program rare plant tracking list (ANHP 2013). The list of rare plants is dynamic, and species may be added or dropped according to changes in conservation or taxonomic status.

Methods

Analysis Area

The Analysis Area for direct and indirect effects to sensitive and rare plants and invasive plant risk is the project area, which is the total area designated for non-motorized activities that originate from the marine shoreline and generally extend 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 and invasive plant risk is the administrative boundaries of Admiralty National Monument and the Hoonah, Juneau, and Sitka Ranger Districts.

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 alpine areas. Alpine areas are most often visited by goat hunters during late summer to late fall. While alpine habitats typically do not fall within the ½ mile shoreline zone (e.g. the project area), some alpine 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 the occurrence of 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 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 plants known to occur in the project area 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. 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 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. The interdisciplinary team (IDT) developed a list of activities to consider when analyzing the cumulative effects of the project. The list of activities included but was not limited to:

- Kruzof Integrated Resource Project
- Hidden Falls Fish Hatchery Repermit
- Sweetheart 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 project record.

The cumulative impacts of these actions on sensitive and rare plants were determined by reviewing available documentation and maps of the listed projects to determine the impact of project actions located within the cumulative effects Analysis Area relative to known sensitive and rare plant occurrences. These cumulative impacts, along with the direct and indirect impacts of project alternatives, were considered when determining the overall risk to sensitive plants.

Affected Environment

Sensitive Plants

According to the Forest Service NRM database, 1,006 botanical surveys have been conducted in the project area in the past, with a total of 3,167 acres surveyed. This represents approximately 0.1 percent of the total project area of 3,212,225 acres. It is possible that the majority of potential sensitive plant habitat in the project area has not been surveyed, and undetected occurrences of sensitive plant species may exist in the project area.

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 3-37).

Table 3-37: Alaska Region sensitive plant and lichen species known or suspected to occur in the project area

Scientific name	Common name	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	Suspected. Project area

Scientific name	Common name	Habitat	Presence in project area
		calcareous areas.	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 ocean	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.
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 swordfern	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 3-38. No sensitive plant is known to occur in or adjacent to existing or proposed LGAs.

Table 3-38: 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
	3	04-02D SW Baranof
Alaska rein orchid	1	04-15D Portlock Harbor
	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 use areas is summarized in Table 3-39. A few rare plant occurrences are located in or adjacent to existing or proposed Large Group Areas (Table 3-40). 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 use area. However, these sites are hardened to accommodate increased use, so the risk of impacts to rare plants is expected to be similar to areas with fewer allocated service days.

Table 3-39: Number of occurrences of rare plant species known to occur 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
			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
			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
			1	04-01B Port Armstrong
			5	04-02B Whale Bay
			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).**

Table 3-40: Number of occurrences of rare plant species known to occur within the 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	04-04A Lake Eva Trail

Environmental Consequences

Effects Common to all Alternatives

Direct effects mainly occur through physical damage and/or destruction of individual plants or entire occurrences. Direct impacts to sensitive 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, or changes in solar exposure, decreased vegetation cover, or species composition. 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 locations and small size 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, project design features for use areas (Appendix A), application of mitigation measures (Appendix C) and implementing Adaptive Management (Chapter 2) limit the potential risk of effects to the sensitive or rare plants within the proposed allocations.

Comparison of Alternatives

Sensitive Plants

Alternative 1 (No Action) is the 2004 Shoreline Outfitter/Guide FEIS ROD. The 2004 allocation was measured in group days in which a group of six people on shore in a single day equals one group day. Under Alternative 1, the allocation would remain the same as the 2004 levels, and the Forest Service methods for allocating permits will remain the same as they are now. A total of 7,697 service days are allocated in use areas with known occurrences of sensitive plants, including 5,463 days in the summer growing season (Table 3-41). This allocation, based on the number of service days, would have the least risk of impact to sensitive plants of all project alternatives. Under Alternative 2 (Proposed Action), a total of 13,590 service days are allocated in use areas with known occurrences of sensitive plants, including 9,465 days in the summer growing season. This allocation would have higher risk of impacts to sensitive plants of than Alternatives 1 and 3, but lower risk than Alternative 4. Under Alternative 3, a total of 10,410 service days are allocated in UAs with known occurrences of sensitive plants, including 7,105 days in the summer growing season. This allocation would have less potential risk than Alternatives 2 and 4, but would have a higher level of risk of impacts to sensitive plants than under Alternative 1. Under Alternative 4, a total of 22,125 service days are allocated in UAs with known occurrences of sensitive plants, including 15,410 days in the summer growing season. The maximum number of service days allocated under this alternative would be higher than the maximum allowed under Alternatives 1, 2, and 3. This alternative, based on the number of service days, would have the highest risk of impacts to sensitive plants of all project alternatives.

Table 3-41: Allocated service days by alternative and season in use areas with known sensitive plant occurrences

	Service Days				
Alternative	**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**

Rare Plants

Alternative 1 (No Action) is the 2004 Shoreline O/G FEIS ROD. Under this alternative, in the 2004 Shoreline O/G FEIS ROD allocation was measured in group days where a group of six people on shore in a single day equals one group day. Under Alternative 1, the allocation would remain the same as the 2004 levels our methods for allocating permits will remain the same as they are now. A total of 14,392 service days are allocated in use areas with known occurrences of rare plants, including 9,832 days in the summer growing season (Table 3-42). This allocation, based on the number of service days, would have the least risk of impact to rare plants of all project alternatives. Under Alternative 2, a total of 28,965 service days are allocated in UAs with known occurrences of rare plants, including 22,570 days in the summer growing season. This allocation would have higher potential risk of impacts to rare plants than Alternatives 1 and 3, but less than Alternative 4. Under Alternative 3, a total of 22,105 service days are allocated in UAs with known occurrences of rare plants, including 16,940 days in the summer growing season. This allocation would have less potential risk than Alternatives 2 and 4, but would have a higher level of risk of impacts to rare plants than under Alternative 1. Under Alternative 4, a total of 47,362 service days are allocated in UAs with known occurrences of rare plants, including 36,755 days in the summer growing season. The maximum number of service days allocated under this alternative would be higher than the maximum allowed under Alternatives 1, 2, and 3. This alternative, based on the number of service days, would have the highest risk of impacts to rare plants of all project alternatives.

For all alternatives, the spatial scale of impacts on rare plants is expected to be small because of the limited location and size of areas impacted by outfitter/guide use, and the intensity of potential impacts is expected to be low because they would mainly result from infrequent hiking and camping activities. In addition, project design criteria, mitigation measures, and monitoring have been included to limit the potential risk of effects to the rare plants within the proposed allocations. Potential sources of cumulative effects are discussed in the Methods section. Board of Game, Federal Subsistence Board, and Board of Fisheries decisions are expected to have little or no impact to rare plants, since they are mainly concerned with level of harvest of fish and wildlife. Since the other listed actions are generally limited in spatial extent and either do not overlap with known rare plant occurrences or are not expected to have little or no impact to rare plants, the likelihood of cumulative impacts to rare plants is expected to be low. Also, the majority of these actions were, are, or will be located on National Forest System lands, an environmental analysis has been or will be completed for these activities, and Forest Plan standards and guidelines for rare plants must be considered. Therefore, the likelihood and consequence of impacts to rare plants under all project alternatives is expected to be low.

Table 3-42: Allocated service days by alternative and season in use areas with known rare plant occurrences

	Service Days				
Alternative	**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

Cumulative Effects

Potential sources of cumulative effects are discussed in the Methods section. Board of Game, Federal Subsistence Board, and Board of Fisheries decisions are expected to have little or no impact to sensitive or rare plants, since they are mainly concerned with level of harvest of fish and wildlife. Since the other listed 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, the likelihood of

cumulative impacts to sensitive or rare plants is expected to be low. Also, because the majority of these actions were, are, or will be located on National Forest System lands, an environmental analysis has been or will be completed for these activities, and Forest Plan standards and guidelines for sensitive and rare plants must be considered in the analysis. Therefore, the likelihood and consequence of impacts to sensitive or rare plants under all project alternatives is expected to be low.

Invasive Plants

Introduction

Policy and direction for invasive plant management is provided by the Forest Service Manual 2900. The Tongass National Forest has developed a list of plants that are a priority for treatment, where feasible. The Alaska Natural Heritage Program invasiveness ranks were used as one of several factors in identifying the target species (ANHP 2015). Generally speaking, a plant with an invasiveness ranking higher than 60 is a priority for treatment and control; however, there are other important factors used in the development of the target list (e.g., feasibility of treating the weed in certain locations).

Methods

Analysis Area

The Analysis Area for direct and indirect effects to invasive plant risk is the project area, which is the total area designated for non-motorized activities that originate from the marine shoreline and generally extend 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 invasive plant risk is the administrative boundaries of Admiralty National Monument and the Hoonah, Juneau, and Sitka Ranger Districts.

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 alpine areas. Alpine areas are most often visited by goat hunters during late summer to late fall. While alpine habitats typically do not fall within the ½ mile shoreline zone (e.g. the project area), some alpine sites are considered in this analysis due to their potential use by outfitter/guides.

Review of Existing Information

All recorded invasive plant infestations documented in the Forest Service Natural Resource Inventory System (NRIS) were reviewed to develop a list of high and medium priority invasive plant species in the project area and determine the location of known high priority infestations in the project use areas. However, botanical surveys have occurred in only 0.1 percent of the project area. Many of these 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 LGAs. Surveys have also been conducted on most Forest Highway road systems and other areas of human disturbance within the project area.

Effects Analysis

An invasive plant risk assessment was conducted for the project alternatives based on several factors. Definitions of risk assessment criteria are included in the project invasive plant risk assessment, which is included in the project record. This information was used to analyze potential effects from outfitter guide activities and determine the overall level of risk of each project alternative for spread of invasive plants. The project alternatives, including the no-action alternative, were analyzed to determine the direct, indirect, and cumulative effects on risk of invasive plant spread. Direct environmental effects are those occurring at the same time and place as the initial cause or action. Direct effects from outfitter/guide use mainly occur during hiking or camping activities through physical damage of natural vegetation or soil disturbance that creates conditions favorable for introduction or spread of invasive plants. Transportation of invasive plant propagules on equipment or clothing to unaffected areas is also a direct effect. Indirect effects occur later in time or are spatially removed from the activity, such as new infestations that are established as a result of project activities. 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. However, the potential effect on risk of invasive plant spread 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 invasive plant spread in that area. Therefore, 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 sensitive plant occurrences and habitat.

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

- Kruzof Integrated Resource Project
- Hidden Falls Fish Hatchery Repermit
- Sweetheart 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 project record.

The cumulative impacts of these actions on invasive plant risk were determined by reviewing available documentation and maps of the listed projects to determine the impact of project actions located within the cumulative effects Analysis Area relative to the risk of invasive plant spread. 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.

Affected Environment

Over 80 invasive or 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. Invasive plants that are considered a substantial threat to certain vulnerable habitats will be discussed below as High Priority Species. Medium Priority Species generally have a lower invasiveness ranking and/or are not currently known to be spreading by seed, and therefore are less likely to be spread by outfitter/guide activities.

High priority species that present a potential risk of new infestations or spread of existing infestations from project activities are listed in Table 3-43. 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 high priority invasive plant infestations in the project area are listed in Table 3-44. All high priority weed infestations should be avoided by outfitter/guides to minimize the risk of spreading these species.

Table 3-43: High priority invasive plants that present a potential risk of new infestations or spread of existing infestations in the project area

Scientific Name	Common Name	Invasiveness Rank*
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	Perennial sowthistle	61
Vica cracca	Bird vetch	73

***Invasiveness ranks are determined by the Alaska Natural Heritage Program (2015).**

Table 3-44: Known high priority invasive infestations in the project area

Area	Common name	Notes
01-01 Skagway Area	Butter and Eggs	Existing Treatment area on NFS land.
01-04B N. Juneau Coast	Garlic Mustard	Existing Treatment area on NFS land.
01-04B N. Juneau Coast	Orange Hawkweed	Infestation on NFS land.
04-08 NE Admiralty	Perennial Sowthistle	Infestation on NFS land.
04-11A Port Frederick	Perennial Sowthistle	Most infestations on city, state, corporate or private land. One known infestation on NFS land.
04-11B Freshwater Bay	Orange Hawkweed	Existing Treatment area on NFS land.

Medium priority invasive plant species occurring in the project area are listed in Table 3-45. Although infestations of these species occur in some use areas, they 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 substantial human disturbance. In some cases, a site closure may be considered if particular infestations of these species 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, that infestation may justify avoidance or site closure until it can be treated.

Table 3-45: Medium priority invasive plants known to occur in the project area

Scientific Name	Common Name	Invasiveness Rank*
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
Melilotus alba	Sweetclover, white	81
Phalaris arundinacea	Reed canarygrass	83
Senecio jacobaea	Tansy ragwort	63

***Invasiveness ranks are determined by the Alaska Natural Heritage Program (ANHP 2013).**

Environmental Consequences

Risk Assessment

An invasive plant risk assessment conducted for the project alternatives is presented in Table 3-46. This information was used to analyze effects from potential outfitter guide activities and to determine the overall level of risk of each project alternative for spread of invasive plants. In summary, the alternatives have varying levels of allocated service days and therefore variable risk of invasive plant spread. However, because of the small spatial scale and low intensity and duration of potential vegetation or ground disturbance from outfitter/guide activities, and because standard mitigation measures for prevention and control of invasive plants are included in the project design, the risk factors under all alternatives is expected to be similar.

Table 3-46: 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 surveys have been conducted at 24 of the 40 large group areas. Over 80 invasive or non-native plant species have been documented within the general project area.	**Moderate** – because large areas have not been surveyed, some infestations may not have been detected. However, known infestations of priority species are mostly isolated and relatively small in size.
Known invasive plants	High and medium priority invasive species documented in project area (see Tables 3-37 and 3-38)	**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 the most vulnerable habitats. Soil disturbance, open sunlight, and reduced vegetative cover favor the introduction and spread of invasive plants.	**Low** – most of the 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.

Factors	Condition	Risk (All Alternatives)
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 should reduce the risk of spreading invasive species from outfitter guide activities.

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 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, 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, project design features for use areas (Appendix A), application of mitigation measures (Appendix C) and implementing Adaptive Management (Chapter 2) limit the potential risk of invasive plant infestation within the proposed allocations.

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 3-47). 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 5, 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 3-47: Allocated service days by alternative in all use areas

	Allocated Service Days				
Alternative	**Spring**	**Summer**	**Fall**	**Winter**	**Total**
1	8,400	32,225	6,827	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**

Cumulative Effects

Potential sources of cumulative effects are discussed in the Methods section. Board of Game, Federal Subsistence Board, and Board of Fisheries decisions are expected to have little or no effect on invasive plant spread, since they are mainly concerned with level of harvest of fish and wildlife. Since the other listed actions are generally limited in spatial extent and either do not overlap with known priority invasive plant infestations or are expected to have low risk of invasive plant spread, the likelihood of cumulative risk of invasive plant spread is expected to be low. Also, because the majority of these actions were, are, or will be located on National Forest System lands, an environmental analysis has been or will be completed for these activities, and Forest Plan standards and guidelines for invasive plants must be considered. Therefore, the cumulative risk of invasive plant spread under all project alternatives is expected to be low.

Hydrology and Fisheries

Introduction

Aquatic Concerns

Aquatic concerns did not result in a specific issue which drove an alternative, however; the issues do affect aquatic resources therefore analysis is necessary. Five general concerns arise.

- Recreational 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 species.
- Outfitted and guided sport fishing may negatively affect fisheries subsistence activities in fresh water.

It is important to understand that the management and regulation of fish populations is wholly the responsibility of ADF&G. Sport fish populations are managed by applying regulations.

However, because guided use including sport fishing are permitted activities on Forest Service lands and because these activities often specifically target certain fish species, it is important for this section to consider the effects of these activities on fish populations.

Regulatory Framework

The Forest Plan (2008) provides strategic direction for lands administered by the TNF. Goals, objectives, standards and guidelines provide managers with direction on how to best manage resources. Applicable direction is included in Table 3-48.

Table 3-48: 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.
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.	Design and implement fish habitat improvement projects annually across the Forest.
Soil and Water	Minimize sediment transported to streams from land-disturbing activities.	Attain State of Alaska water quality standards Forest-wide.
Soil and Water	Maintain and restore the biological, physical, and chemical integrity of Tongass National Forest waters.	Attain State of Alaska water quality standards Forest-wide.

Management Prescriptions

A review of 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 are on pages 4-9 through 4-14 and those for Soil and Water can be found on pages 4-64 through 4-67.

The following are additional regulatory orders and acts that are applicable to this project.

Executive Order 12962 – Recreational Fisheries, of 1995. This EO orders Federal agencies, to the extent permitted by law and where practicable, and in cooperation with States and Tribes, improve the quantity, function, sustainable productivity and distribution of U.S. aquatic resource for increased recreational fishing opportunities.

Fish and Wildlife Act of 1956 (16 U.S.C. 742a-d, and e-j). The Act of August 8, 1956, as frequently amended, establishes a comprehensive national fish, shellfish, and wildlife resources policy with emphasis on the commercial fishing industry but also with a direction to administer the Act with regard to the inherent right of every citizen and resident to fish for pleasure, enjoyment, and betterment and to maintain and increase public opportunities for recreational use of fish and wildlife resources.

Fish and Wildlife Coordination Act (16 U.S.C. 661-666c). The Act of March 10, 1934, authorizes the Secretaries of Agriculture and Commerce to provide assistance to and cooperate with Federal and State agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife.

Clean Water Act of 1972. The Act was amended in 1977 and 1987(Public Law 100-4) to protect and improve the quality of water resources and maintain their beneficial uses. Section 313 of the Clean Water Act and EO 12088 of January 23, 1987 address Federal agency compliance and consistency with water pollution control mandates. Agencies must be consistent with requirements that apply to “any governmental entity” or person.

Compliance is to be in line with “all Federal, State, interstate and local requirements, administrative authority and processes and sanctions respecting the control and abatement of water pollution.”

The Clean Water Act (Sections 208 and 319) recognized the need for control strategies for nonpoint source pollution. The National Nonpoint source Policy (December12, 1984), the Forest Service Nonpoint Strategy (January 29, 1985), and the USDA Nonpoint Source Water Quality Policy (December 5, 1986) provide a protection and improvement emphasis for soil and water resources and water-related beneficial uses. Soil and water conservation practices (BMPs) were recognized as the primary control mechanisms for nonpoint source pollution on National Forest System Lands. The Environmental Protection Agency supports this perspective.

The Forest Service and the Tongass National Forest must apply best management practices that are consistent with the Alaska Department of Environmental Conservation and Environmental Protection Agency to achieve Alaska Water Quality Standards. The site-specific application of BMPs, with a monitoring and feedback mechanism, is the approved strategy for controlling nonpoint source pollution.

Executive Order 11990. This 1977 executive order requires the Forest Service to take action to minimize destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

Executive Order 11988. This 1977 executive order requires the Forest Service to take action to:

- Minimize adverse impacts associated with the occupancy and modification of flood plains and reduce risks of flood loss.

- Minimize impacts of floods on human safety, health, and welfare. Restore and preserve the natural and beneficial values of wetlands.
- Other pertinent statues, which conserve, restore and enhance water resources, are also applicable.

Magnuson-Stevens Fishery Conservation and Management Act

- The Magnuson-Stevens Fishery Conservation and Management Act of 1996 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 utilized 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. Individual outfitter guide permits will contain BMP's and if necessary mitigation measures to limit impacts.

Analysis Methods

Analysis and Project Area Boundaries

In this section the project and Analysis Area generally encompasses a ½ mile inland of all four districts, Sitka, Hoonah, Admiralty, and Juneau Ranger Districts. The project area extends further inland where specific outfitter/guide activities and locations are accessed from the shoreline. Hereafter, project area and Analysis Area are used interchangeably.

The Analysis Area intersects 48 geographic units defined as use areas. The 3 action alternatives include winter season allocation for outfitter/guide use as well as newly defined allocations for all other seasons across the projects area (Table 3-49). The level of allocation for each use area can vary from alternative to alternative but in general, for the action alternative, Alternative 4 has the highest allocations, Alternative 3 has the lowest and Alternative 2 is the in the middle for the defined use areas. For simplicity of analysis, unless specified for specific locations and season, effects analysis will be based on total allocations for each alternative.

Table 3-49: Allocation days by season for each alternative

Season	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4
Early Spring	N/A	5,710	4,445	9,245
Late Spring	8,400	4,640	3,595	7,515
Summer	32,225	57,120	44,920	93,015
Fall	6,827	9,430	7,575	15,345
Winter	NA	3,405	3,405	5,535
Total	**47,449**	**80,305**	**63,940**	**130,655**

All three action alternatives include the addition of 7 new LGAs:

- 04-01B – Big Port Walter Cannery

- 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

LGAs: For ease of analysis, unless otherwise specified, LGAs were analyzed as part of the regular allocations for each use area.

Streams and Lakes: The Analysis Area includes all streams and lakes that fall with a ½ mile of the shoreline.

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 that would occur within. Short-term effects refer to those occurring within, or lasting 5 years or less. Long-term effects refer to those occurring after or lasting greater than 5 years.

In the Shoreline II O/G EIS project area the typical recreational activities that might affect aquatic resources include fishing, hiking, kayaking, wildlife tours, and camping.

Specific recreational activities are not analyzed for this section. Activity type is not used in determining the allocation. Therefore, effects to aquatic resources from guided use will be analyzed within the entire project or Analysis Area, not specific to activity type. Analysis will focus on recreational activities occurring on streams and lakes, 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 all applicable BMPs are being met. If BMPs were not met, there would be additional environmental effects. Monitoring is intended to measure BMP implementation and effectiveness and adjustments to outfitted and guided activities would be made based upon this monitoring.

Sources of Information

Several methods and sources were used during analysis of conditions and alternatives. TNF GIS data was used to generate portions of the data reported in tables and text. Numerous site visits and interdisciplinary team (IDT) field trips occurred within the analysis and project areas. Observations made during these trips added to the specialists' knowledge of the area. Referred literature and several books were used to provide examples of documented effects of dispersed recreation on fisheries and aquatic resources. These sources of information were used to describe existing conditions, desired future conditions and as a basis for effects analysis.

Level of Effects

The following definitions are used to describe relative levels of effect.

Minimal–No measureable effects resulting from outfitted and guided activities to other resource areas which affect aquatic resources are occurring, and no measurable change in aquatic habitats is detectable.

Minor–Measurable effects from outfitted and guided activities to other resource areas 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 other resource areas are considered indirect and long-term and/or permanent.

Beneficial–A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

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.

Short-term–An effect that within a short period of time would no longer be detectable as the resource is returned to its pre-disturbance condition or appearance. Short-term impacts may range from a few hours up to 5 years.

Long-term–A change in a resource or its condition that does not return the resource to pre-disturbance condition or appearance and for all practical purposes is considered permanent.

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.
- Assure all applicable BMPs met.
- Group and summarize factors common to all use areas and action alternatives.
- Use aquatic parameters such as turbidity, bank erosion and fish harvested to evaluate effects to resource.
- Discuss direct and indirect effects specific to each alternative. If necessary break out individual use areas, otherwise group as “Effects Common to All Recreation Use Areas”.
- Discuss cumulative effects specific to each alternative. If necessary break out individual use areas.

Service days were used as the unit of measure for comparing alternatives.

Affected Environment

Habitat

A complex interaction of streamflow (discharge) and channel variables (gradient, sinuosity) 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 man-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 human-caused changes have altered all streams within the Analysis Area. Streams are better able to adapt to natural changes than man-caused changes because natural disturbances are typically low frequency and localized, while man-caused changes are typically higher frequency and widely distributed (Swantson 1991). Streams are often not able to effectively deal with these reoccurring and wide spread effects.

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.

Overall, systems tend to be resistant and resilient to most disturbances aside from indiscriminant land management practices or major natural occurrences like landslides and windthrow.

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 (FSH 2509.25, zero code). This would be achieved when native and desired non-native plant species are well established and robust throughout the riparian zone.

Water Quality

The Tongass Land and Resource Management Plan Final Environmental Impact Statement (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 USDA 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. In 1997, ADEC determined that the Forest Service BMPs meet or exceed the BMPs contained in the Alaska Forest Resources and Practices Act and Regulations (11 AAC 95) (Brown 1997)".

Based upon the above statements and continued implementation of the Forest Plan the water quality in the project area is assumed to meet water quality standards.

Desired Condition–The desired condition is to maintain water quality. Continued implementation of BMPs would achieve the desired condition for water quality.

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, the following text highlights 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 Shoreline II O/G EIS project area. They tend to prefer lower gradient and larger streams, but can be found in most accessible streams. Though not highly pursued by sport fishers, they can offer the angler a sporty fight on light tackle. There is likely little harvest of this species by sport fishers because their flesh tends to be pale and soft once they enter fresh water in preparation for spawning.

Chum salmon use similar habitats to pink salmon and share similar life histories. 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 typically not highly sought after by sport fishers. The majority of chum salmon in the project area are raised and released at hatcheries. Many of these salt water release sights are managed as commercial terminal harvest locations.

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, Clag 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 this area are likely stable with minimal to moderate fluctuation from year to year. Summer run 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 Forest Service lands.

King salmon are only found in a few systems in the project area examples include Neka River, Wheeler Creek, King Salmon River, Taku River, Mendenhall River, Montana Creek, Fish Creek, and Chilkat river. Artificially maintained runs exist due to hatcheries on a few systems however these are not on Forest Service 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 in 2010. 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 is the anadromous form of rainbow trout, and is a prized sport fish. Steelhead are a popular sport fish because they are relatively catchable with a variety of fishing gear, attain large sizes, and are extremely hard-fighting. Steelhead tends to prefer medium-sized and larger stream systems with abundant areas of turbulent, well-oxygenated flows (i.e., riffles) (Bisson et al. 1988).

Recent data suggest steelhead populations throughout Southeast Alaska were more abundant than they are now (Lohr and Bryant 1999; Harding and Love 2008). Population declines in the late 1980s and early 1990 have 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 Shoreline II O/G EIS project area populations are likely stable with annual fluctuations due to no changes in fishing regulations by ADF&G. Regardless, it appears evident that steelhead populations are or can be highly sensitive to high levels of sport fishing pressure, especially when regulations allow for moderate harvest.

Management Indicator Species

The 2008 Forest Plan listed four species of fish as 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 was chosen because of their ubiquitous distribution in freshwater habitats and cutthroat trout because of their dependency on small freshwater streams.

These species are well distributed throughout the project area in appropriate habitats.

Other Species of Interest

Eulachon (*Thaleichthys pacificus* (Girad)) also called hooligan, is one of seven species of smelt (*Osmeridae* family) found in Alaska. Eulachon are found in a few mainland river systems of Analysis Area. The Berners Bay River (01-04A Use Card), Chilkat River (not on Forest Service lands), and Chilkoot Inlet (01-01 Use Card) are the most well know areas on the Juneau Ranger District. Returning eulachon are typically found in March and April and not targeted by guided clients.

In 2010 the National Marine Fisheries Service, National Oceanic and Atmospheric Administration (NMFS) 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 and Chilkoot river populations fall outside of southern distinct population segment area and is 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 (Table 3- 50) 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 southern portion of the Tongass National Forest were dropped from further analysis. Species known or suspected to occur within the project area were analyzed further. These species are displayed in Table 3-50. There is no critical habitat designated within or adjacent to project area.

Table 3-50: Threatened and endangered fish species occurring on or adjacent to the Tongass National Forest from NMFS

Species/Stock	ESU/DPS Designation[1]	ESA Status	Likely Ranging Into Alaskan Waters
Sockeye Salmon (*Oncorhynchus nerka*)	Snake River	Endangered	Yes
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 of fishes occurs in both marine and freshwater environments. The State of Alaska manages all personal use and subsistence harvest 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 and wildlife on all lands in Alaska and uses emergency orders to protect that sustainability when necessary. In addition to allocating fish 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 and wildlife. The Federal Subsistence Board assures a priority for subsistence use among consumptive uses of fish 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.

Sockeye salmon are the species harvested the most in subsistence and personal use fisheries in the project area. However, these areas such as Redoubt Lake are typically not permitted for outfitter/guide use (Table 3-51).

There is little subsistence or personal use harvest of any other salmonid across all districts (Table 3-51).

Table 3-51: Reported subsistence and personal use fisheries data from unpublished ADFG data

Year	Number of Permits	Chinook	Sockeye	Coho	Chum	Pink
2010	893	65	18,708	831	205	792
2011	779	109	15,875	814	107	1,442
2012	912	93	21,776	714	176	736
2013	997	49	21,986	613	193	588
2014	806	54	15,879	513	240	698

Invasive Species

There are no known invasive species such as New Zealand mud snail, Quagga mussel or whirling disease present.

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 life of this document (10 years) small site specific areas are likely to be impacted by outfitted and guided activities. As these sites are discovered, 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

Review of Potential Effects from Recreational Activities

This section illustrates the range of direct and indirect effects considered during effects analysis. The effects reviewed are some of the most common. This is not a comprehensive review of effects of recreational activities on aquatic resources. This review is not an effects analysis. Analysis of effects occurs in a later section.

Recreation has documented and demonstrated effects on aquatic resources (Clark and Gibbons 1991). The relationship between fish and varying components of their habitat has been extensively studied. Examples from the Pacific Northwest include Bjornn and Reiser (1991), Bisson et al. (1991), Quinn and Peterson (1996), Beechie and Sibley (1996) and Rosenfeld et al. (1999). A literature search can result in hundreds of peer-reviewed articles.

The effects of sport angling on salmonids fish have been well-studied. The effects of hooking mortality and angler induced stress are reported in Warner (1978), Dotson (1982), Nuhfer and Alexander (1992), Bendock and Alexandersdottir (1993), Schill (1996) and Meka (2004) as well as numerous other publications.

What is less easy to demonstrate are the indirect effects recreation has on fish due to habitat alteration. Hicks et al. (1991) presents a more thorough discussion of responses by salmonids to habitat changes. The authors cover responses of salmonids to changes in habitat specific components such as temperature, large woody debris, stream flow as well as their response to forest management and natural processes such as geology and climate.

Research has documented recreation caused effects to riparian vegetation (Marion and Cole 1996) which in turn can indirectly affect fish habitat and fish. Riparian vegetation plays a critical role in influencing the health and condition of fish habitat and aquatic communities.

Binns and Eiserman (1979) found cover a significant predictor of biomass in Wyoming trout streams.

Li et al. (1994) reported a negative correlation between trout abundance and solar input. Campbell et al. (2011) found timber harvest intensifies the effects of spawning salmon disturbance of macroinvertebrates.

Fuchs et al. (2003) found riparian timber harvest to enhance primary and secondary production in sub-boreal forests in British Columbia and suggested this increase may only be evident for the first two decades following harvest.

Piccolo and Wipfli (2002) found young red alder (*Alnus rubra*) to produce significantly more numbers and biomass densities of macroinvertebrates than young-conifer, old red alter or old conifer riparian zones. The authors suggest an alder component be maintained in previously harvested riparian areas to potentially offset negative effects of timber harvest such as sedimentation and loss of large woody debris recruitment on the downstream salmonid-bearing food webs.

The above studies are a few examples of the volume of research conducted on the intricate and complex interactions between fish, aquatic habitats and upland influences.

Connected Actions, Past, Present, and Foreseeable Activities Relevant to Cumulative Effects Analysis

The list of past, concurrent and reasonably foreseeable actions in the DEIS was used to determine actions relevant to cumulative effects analysis for fisheries resources.

Activities considered relevant

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, especially timber harvest and road construction, on hydrological resources and its ultimate effects on fish and fish habitat it was determined these actions were relevant to cumulative effects analysis for all alternatives. There are no proposed timber sales in immediate project area and therefore no additional effects from future harvest activities.

Activities not considered relevant to cumulative effects

Energy Projects– There are 18 energy projects within the Analysis Area; 12 FERC hydroelectric, 6 non-hydro, 1 geothermal and 1 wind energy feasibility projects. These projects are at varying stages in the licensing process and have all gone or will go through their only effects analysis. The construction of a dam and resulting flooding of existing fish habitats have documented effects to fish and fish habitats. It is unknown what the impact of guided use would be in these areas. Use could increase or decrease depending on the condition of the reservoir and the fishery following flooding. Any incremental impact

that guided use would have on these areas would be masked by the large level impact that is associated with energy projects. Additionally, a large number of these energy projects are either considered low interest areas by outfitters guides and/or are outside the designated Shoreline II O/G EIS project area. Therefore it was determined no further cumulative effects analysis was necessary with energy projects.

Mining Projects by District

Juneau Ranger District

Kensington: There is an existing large underground gold operation, and yearly surface exploration drilling. Current expected mine life is 10-12 years

Herbert Gold Project: There is an existing surface exploration drilling. The potential for moving to advanced exploration or development is low. There is no other really foreseeable locatable development.

Admiralty Ranger District

Greens Creek: There is an existing large underground polymetallic operation, and yearly surface exploration drilling. Current expected mine life is 10-12 years.

Hoonah Ranger District

There is no existing or foreseeable large locatable development. There is the potential for small scale operations or surface exploration exists; however that is probably unlikely.

Sitka Ranger District

There is no existing or foreseeable large locatable mining development. There is some proposed small scale operations. The potential for small scale operations or surface exploration drilling exists.

Impacts from Activities Adjacent to NFS Lands

The majority of non-NFS lands are downstream of NFS lands and impacts to hydrological resources and those effects on fish and fish habitats are not expressed on NFS lands.

Saltwater Conditions

Guided use on saltwater does not affect fresh water under the jurisdiction of any of the four ranger districts. This action is not relevant to cumulative effects analysis.

*State of Alaska **a**dministrative **c**amps*

These field camps are permitted under special use permits and are subject to BMPs and standards and guidelines. The inclusion of this direction negates impacts to fisheries resources therefore no cumulative addition to authorization of guided use would occur. This action is not relevant to cumulative effects analysis.

Construction and Reconstruction of Developed Recreation

Any new construction or reconstruction is subject to implementation of BMPs and standards and guidelines. Successful implementation of these measures negates impacts to fisheries resources therefore no cumulative addition to authorization of guided use would occur. This action is not relevant to cumulative effects analysis.

Recreation Cabin Decommissioning

The decommissioning of cabins would not affect aquatic resources. There would be no cumulative impact when combined with authorization of use. This action is not relevant to cumulative effects analysis.

Changes in Recreational Visitor Numbers

Changes in the number of visitors affect the outfitter/guides, but are outside the control of the Forest Service. This EIS allocates service days to outfitter/guides and ends there. There would be no cumulative impacts. This action is not relevant to the cumulative effects analysis.

Katlian Road construction on Baranof Island

This activity would occur on both Forest Service and non-NFS lands. The effects of the construction of this road are not fully known. There is a probability that once the road is completed an outfitter/guide may use it to access a permitted area. This activity would not add cumulatively to guided use on NFS lands.

Effects Common to All Action Alternatives

Riparian and stream systems are complicated and dynamic making it difficult to write the exact effects recreation activities has on them. However, it is generally accepted that recreational activities can affect water resources (Clark and Gibbons 1991), which in turn affect fisheries. These indirect and complex linkages warrant an effect analysis.

The following description of effects assumes Forest Plan direction and applicable BMPSs are being followed and met. If standards, guidelines and BMPs were not being met there would be additional environmental effects not considered in this document.

The assumption that increased levels of guided use cause a higher risk to aquatic resources is used in the following analysis. This assumption allows comparison of the alternatives, which provides information useful to the reader and the decision maker. Other assumptions include unregulated unguided recreation will occur and the capacity would not be exceeded in any recreation 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 same 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 Shoreline II O/G EIS 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 Guided use would cause removal and damage to streamside vegetation, and affect channel morphology. Activity would 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 are limited to streambank and lake shore alteration, 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 most severe 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. To mitigate for these effects Adaptive Management measures will be used and appropriate BMP’s and mitigation measure will be implemented. Displacement and damaging of spawning redds will be greatest in heavily used area. To mitigate for this Adaptive Management protocols will be used to limit the level of affect.

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. It is thought water quality is within State guidelines for fecal coliform.

No 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 recreational activities leading to a measurable degradation in water quality.

Sediment yields can also accelerate when a watershed is affected by urbanization, road construction, timber management, or livestock grazing. This acceleration usually results in some level of degradation to water quality and watershed health in the form of non-point source pollution as sediment. None of these activities is proposed, and effects of increased sediment yield from these activities do not need further analysis.

A minor risk to water quality occurs from implementing any of the action alternatives. Measurable impacts to other resource areas may occur in localized and disjunct areas, however no measureable impact to water quality would occur if BMPs and Standards and Guidelines were met.

Riparian Areas

Guided 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; however, 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 known to occur.

Salmon

Harvest and delayed morality of salmon would occur because of guided sport fishing. The level of harvest and incidental mortality are low enough to maintain self-sustaining populations. Kings salmon are uncommon and due to small run sizes, the ADF&G prohibits fishing for them in freshwater systems on the Tongass. Coho salmon are the most abundant of the targeted species 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 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.

Threatened, Endangered and Sensitive Species

Guided 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 populations. Sport 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 the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), this section also analyzes the potential effects of proposed land use activities 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 FS 2008a), the Forest Plan FEIS (USDA FS 2008b), and the Forest Plan Supplemental EIS (SEIS) (USDA FS 2003). The FEIS and the SEIS contain in-depth discussions on the history of subsistence use and community information.

Subsistence Fishing

Outfitted and guided recreational activities have the potential to negatively affect subsistence and personal use fisheries activities several ways. Four components should be 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 guided 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 guided use and subsistence users may target this species. Sport anglers also target sockeye on occasion.

Reported harvest of sockeye by permitted outfitter/guides was less than 80 fish during the period 2010-2014. Approximately 94,000 sockeye were harvested in the same period by subsistence and personal use individuals. 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 guided use. Recreational activities authorized under special use permits are not ground disturbing and would not affect fisheries in a manner to alter their distribution across the project area.

Competition for salmon could occur, however; the above sockeye example shows 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 guided 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 guided use and subsistence users. The lack of overlaps results 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 decisions. 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 currently there is no direction or regulation to reduce the risk of this effect. This is a social issue, not a resource issue and is addressed elsewhere within the project record.

Invasive Species

There are no known invasive species present, 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 invasive 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 Recreation Use Areas

Alternative 1, the No Action Alternative would implement current outfitter /guided use special use permits under existing regulations and permit stipulations. The inclusion of BMPs and Forest Plan direction 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 recreational 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 proper use of BMPs these effect would be minor. Indirect effect from stream bank vegetation loss, sediment erosion and decrease water quality, would affect fish habitat and individual fish. However, these indirect effects would be minimal. Heavily used areas 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 guided 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 Recreation Use Areas

Alternative 2, the Proposed Action, allocates increased recreational use to outfitter/guides across the project area, guide allocations apply and Adaptive Management would be implemented. It needs to be noted that the carrying capacity for this alternative does increase throughout the project area but not all use areas experience the same incremental increases in service days. In fact for all the action alternatives some use areas might experience a slight decrease or increase in user access dependent on the season, however, in general as service days allocation increase or decrease 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 anticipated project area capacity is allocated to outfitted/guided use in this Proposed Action.

Because the Proposed Action allocates increased recreational use to outfitter/guides across the project area it would have a larger effect on aquatic resources than the No Action alternative. As guided use increases for a use area there is an increasing negative effect to aquatic resource. The more people in a use area the higher the potential for fishing stress and pressure on stream banks, which leads to vegetation loss and causes elevated sediment erosion and lowers water quality. However, stream systems are quite dynamic and appropriate BMPs and Forest Plan directions would be implemented to minimize these effects. Therefore the direct effect of vegetation loss would be minor and the indirect effects of sediment erosion and reduced water quality would be minimal. This alternative is the middle ground of the alternatives regarding risk of affecting aquatic resources, including Alternative 1, the No Action Alternative.

Subsistence Fishing– Implementing Alternative 2 would not affect subsistence fishing. 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 ground for allocation of service days to outfitter/guides but even with increase use there would be no effect on abundance or distribution of fish. Subsistence fishing

activities are known to occur in these recreation use areas and social interactions between guided users and subsistence users would occur.

Alternative 3: Direct and Indirect Effects Common to All Recreation Use Areas

Alternative 3 allocates 8.6 percent (63,940 service days) of all recreational use to outfitter/guides across the project area, carrying capacity applies and Adaptive Management would be implemented.

Effects to aquatic resources would be similar to the effects described in Alternative 1 and 2. However, when compared to the other action alternatives (2 and 4), Alternative 3 proposes 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 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 these recreation use areas and social interactions between guided users and subsistence users would occur.

Alternative 4: Direct and Indirect Effects Common to All Recreation Use Areas

Alternative 4 allocates 20 percent (130,655 service days) of all recreational use to outfitter/guides across the project area, carrying capacity applies and Adaptive Management would be implemented.

Effects to aquatic resources would be similar to the effects described in Alternative 1, 2 and 3. However, Alternative 4 has the highest risk of affecting aquatic resources when compared to the other alternatives (1, 2 and 3). This alternative allocates the highest number of service days to guided use, increasing the risk of guide use impacting aquatic resources. Even though the risk to aquatic resources is highest with this alternative through proper use of BMPs and Forest Plan directions, the direct effects 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 guided use and 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 increase number of service days being allocated to outfitter/guides.

Cumulative Effects

Although most impacts occur at the approximately 575 documented recreational 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. However, the continuation of guided recreational use under this alternative 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 direction 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 fresh water 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. The formal consultation will start 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.

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. Since no alteration of Marine Access Facilities is being proposed for any of the action alternatives, marine habitats would not be affected and are therefore not analyzed with this EIS.

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 or virtually immeasurable. By implementing Forest Plan Standards and Guidelines, Best Management Practices, and Outfitter and Guide permit stipulations, effects to EFH should not occur. Additional impacts to EFH may occur only from unforeseen events.

Adaptive Management and Mitigation Measures

All the concerns identified through the effects analysis might be avoided if properly monitored and appropriate mitigation measures are used, even with the implementation of the Adaptive Management strategy. See Appendices A, B and C for specific mitigation measures.

Table 3-52: Resource indicators and mitigation measures for potential concerns

Resource: Indicator	Monitoring	Threshold/Trigger	Adaptive Action
Stream bank erosion	Monitor the use area and heavily used access point	Bank slumping and/or loss of vegetation leading to the exposure of bare	Require guides to monitor and report use areas and site within these areas that have exceeded these thresholds.

Resource: Indicator	Monitoring	Threshold/Trigger	Adaptive Action
	along the stream.	soil in more than 10% of the stream bank area.	**Mitigation** Change access sites. Develop rotating access sites with long periods of rest and short periods of use. Potentially utilize game trails to access the stream channel.
Fish displacement	Monitor heavily used in-stream fishing spots.	Limit fishing time to less than 30 minutes in one location.	Require guides to monitor and report use areas and site within these areas that have exceeded these thresholds. **Mitigation** Develop outfitter/guide communication to encourage fisherman to not to over fish any one location. Avoid standing in heavy populated fish area. Instead find a location away from the area and fish to the spot.
Spawning redd disturbance/destruction	Monitor heavily used in-stream fishing spots.	Salmonid eggs turned up from substrate disturbance.	Require guides to monitor and report use areas and site within these areas that have exceeded these thresholds. **Mitigation** Develop outfitter/guide communication to encourage fisherman to avoid disturbing spawning redds. Develop outfitter/guide communication to encourage fisherman to “tread lightly.” Communicate the importance of avoiding spawning areas and to walk softly when traveling in the stream.

Soils

Introduction

Soils are the foundation of terrestrial ecosystems. Soil absorbs nutrient-rich water and releases it to form 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.

Affected Environment

Although recreational and guided use on the shoreline project area is apparent and abundant, they are 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: they are user-created trails through wetlands or other sensitive, generally nonforested, areas. Impacts from users are

typically found in the LGAs where user-created trails cross either wetlands or streams. A discussion of the wetland types for each use area is in the Soils and Wetlands resource report in the project record.

Past outfitter/guide use has not resulted in any reported significant impacts on soils or wetlands within the project area. 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 areas of recreation use that currently have a severe level of 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. The west trail in Williams Cove has been monitored since 2004 by district personnel. The trail looks about the same now as in 2004 and outfitter/guides using this trail are careful to keep the trails from getting wider and muddy.

Soil types

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. On steeper slopes the duff layer is naturally thinner and more susceptible to disturbance from foot traffic or vehicle traffic. 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 project area.

Environmental Consequences

Direct and Indirect Effects

There is no difference between the No Action (Alternative 1) and any of the action alternatives (Alternatives 2 through 4). The action alternatives create new LGAs: Port Althorp, Head of Bay; Port Althorp, Salt Chuck Bay; Middle Arm, Kelp Bay; Sahsin Lake Trail; Shoals Point; and Ushk Bay. All alternatives are expected to have a slight level of effect to the soil resource. Trampling and disturbance from foot traffic will occur in discreet areas throughout the project area in all alternatives but will be minor.

Adverse effects on the soil resource are not anticipated from proposed activities. No ground disturbing activities are proposed. Minor losses of vegetation may occur in some places from heavy foot traffic. If soil erosion is noted in future monitoring, a Tongass soil scientist should be notified and mitigation developed. However, other than those areas previously discussed, there are no existing effects or effects from activities to soils from any alternative.

Implementation of project design elements and mitigation measures is expected to be highly successful in preventing resource damage.

Sensitive soils are found in beaches, estuaries and non-forested wetlands. More than half of the area in the Fanshaw, Fowler Creek, Mallard Cove, and Sand Bay LGAs has sensitive soils. All of these are existing LGAs. Note that the Fox Creek and Williams Cove LGAs exhibit soil disturbance but do not necessarily have a high percentage of sensitive soils.

Port Althorp, Head of Bay and Port Althorp, Salt Chuck Bay are proposed, unhardened LGAs. The other proposed LGAs 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

Alternative 1 would have the same effects cumulatively as alternatives that are increasing the overall use days, from what is being implemented from the Shoreline 2004 O/G EIS. All the alternatives would cause slight effects to soil resources.

Past and current recreational activity and land management practices, including past timber harvest, have contributed to the existing condition in the Analysis Area. The continuation of guided recreational use under these alternatives would not add cumulatively to those impacts. Because effects would be so slight, they would not add cumulatively to effects from timber sales, hydropower development or mining exploration.

It is acknowledged that soil disturbance will occur at small discontinuous locations and in some of the LGAs during the life of this document. All areas will meet R10 soil quality standards (SQS). Monitoring is designed to identify areas where negative impacts may occur and gives managers the ability to apply Adaptive Management at that site to meet resource needs and issues.

Quickly addressing resource issues will minimize the risk of recording a measurable effect to soil resources.

Adaptive Management

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 16.1 (Recreation Facilities Planning and Location), 12.10 (Control of Activities under Special Use Permit), and 12.5 (Wetland Identification, Evaluation, and Protection). Moving campsites to upland sites may alleviate some impacts.

Wetlands

Introduction

The Environmental Protection Agency (EPA) and the Army Corps of Engineers (COE) 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.”

Wetlands are valued for their physical, chemical and biological functions. Physical functions include flood conveyance, surface and ground water regulation, sediment retention and temperature moderation. Chemical functions include nutrient storage, pH moderation and carbon storage. Biological function include habitat for terrestrial, aquatic and marine plants and animals.

Affected Environment

Sensitive wetland types, or wetlands most vulnerable to trampling are the non-forested wetlands—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.

Environmental Consequences

Direct and Indirect Effects

There is no difference between the No Action (Alternative 1) and any of the action alternatives (Alternatives 2 through 4). The action alternatives create new LGAs: Port Althorp, Head of Bay; Port Althorp, Salt Chuck Bay; Middle Arm, Kelp Bay; Sahsin Lake Trail; Shoals Point; and Ushk Bay. All alternatives are expected to have a slight level of effect to the wetland resource. Trampling and disturbance from foot traffic will occur in discreet areas throughout the project area in all alternatives but will be minor.

Adverse effects on wetlands are not anticipated from proposed activities. Filling or draining of wetlands is not proposed in any alternatives. Direct disturbance to wetland from activities is expected to predominantly result from foot traffic, viewing areas, and picnic areas.

The total wetland area impacted under any alternative is anticipated to be slight for the project area as a whole. Disturbance may be low to high at any given site or LGA, depending on the number of individuals visiting the site and frequency of site visits. The impacts will occur primarily in the more open wetlands (palustrine emergent and estuarine), since these areas are attractive to visitors and most easily traveled through.

Disturbance impacts on wetlands may be short-term if visitors are few and infrequent. On the other hand impacts may be long-term if visitors are many and frequent—like at Fox Creek and Williams Cove.

Most of the impacts will occur where many people visit often, i.e. the LGAs. The most sensitive areas are the non-forested wetlands and steeply sloped 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.

Port Althorp, Head of Bay and Port Althorp, Salt Chuck Bay are proposed, unhardened LGAs. The other proposed LGAs, Middle Arm, Kelp Bay, Sahsin Lake Trail, Shoals Point, and Ushk Bay Head are all hardened LGAs.

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 the entire project area. This area encompasses all effects of individual actions and potential activities.

Alternative 1 would have the same effects cumulatively as alternatives that are increasing the overall use days, from what has been implemented from the Shoreline 2004 O/G EIS. All the alternatives would cause slight effects to wetland resources.

Past and current recreational activity and land management practices, including past timber harvest, have contributed to the existing condition in the Analysis Area. The continuation of guided recreational use under these alternatives would not add cumulatively to those impacts. Because effects would be so slight, they would not add cumulatively to effects from timber sales, hydropower development or mining exploration.

It is acknowledged that wetland disturbance will occur at small discontinuous locations and in some of the LGAs during the life of this document, but not beyond R10 SQS. Monitoring is designed to identify areas where negative impacts may occur and gives managers the ability to apply Adaptive Management at that site to meet resource needs and issues. Quickly addressing resource issues will minimize the risk of recording a measurable effect to wetland resources.

Adaptive Management

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 16.1 (Recreation Facilities Planning and Location), 12.10 (Control of Activities under Special Use Permit), and 12.5 (Wetland Identification, Evaluation and Protection). Moving campsites to upland sites may alleviate some impacts.

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 O/G 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 O/G 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 DEIS 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 or that have the potential to disturb the ground will require a case-by-case Section 106 review by the District 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”) require 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.

This DEIS 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. The formal consultation will start 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.

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

Barbara Adams	Position:	Fisheries Biologist
	Experience:	Forest Service—9 years; USGS—5 years
	Education:	M.S., Zoology with fisheries emphasis; B.S. Biology
Jim Baichtal	Position:	Forest Geologist
	Experience:	Forest Service—31 years; U.S. Army COE, 2 years
	Education:	Honorary Ph.D.; M.S., Geology; B.S., Geology
Marty Becker	Position:	Watershed Program Coordinator
	Experience:	Forest Service—20 years; Bureau of Land Management—1 year
	Education:	B.S., Watershed Management/Soils
Jennifer Berger	Position:	Special Uses, Wilderness and Heritage Staff
	Experience:	Forest Service—21 years; Bureau of Land Management—1 year; National Park Service—1 year; State of Utah—1 year
	Education:	B.S., Forestry with Recreation emphasis
Gabi Bosch	Position:	GIS Database Administrator
	Experience:	Forest Service—32 years
	Education:	High School
Arthur Burbank	Position:	District Ranger for Hoonah Ranger District
	Experience:	Forest Service—21 years
	Education:	M.S., Metallurgical Engineering; B.S., Zoology, minor in Microbiology
Carey Case	Position:	Interdisciplinary Team Leader for Shoreline II project since May 2015
	Experience:	Forest Service—15 years
	Education:	B.A., Political Science
Dennis Chester	Position:	Wildlife Biologist
	Experience:	Forest Service—26 years; US FWS—5 years
	Education:	M.S., Wildlife Ecology; B.S., Wildlife Ecology
Geno Cisneros	Position:	Recreation Technician
	Experience:	Forest Service—20 years
	Education:	B.S., Natural Resources
Clay Davis	Position:	Lands, Minerals, and Special Uses Administrator
	Experience:	Forest Service—4 years; Retired U.S. Army
	Education:	M.S., Biology; B.S.S., Political Science and Art

Mike Dilger	Position:	Recreation Resources Specialist
	Experience:	Forest Service—22 years
	Education:	B.S., Biological Services
Joe Edmonds	Position:	Writer-Editor for Shoreline II project since December 2014
	Experience:	Forest Service—1 year; BLM/VISTA—1 year; AmeriCorps—2 years; Cow Creek Band of Umpqua Tribe of Indians—10 months
	Education:	M.S., Environmental Policy; B.A. English
J. Perry Edwards	Position:	District Ranger for Sitka Ranger District
	Experience:	Forest Service—22 years
	Education:	B.S., Wildlife Management
Jacqueline Foss	Position:	Soil Scientist
	Experience:	Forest Service—12 years
	Education:	B.S., General Engineering/Social Science
Nicole Grewe	Position:	Economist
	Experience:	Forest Service—1 year; State of Alaska Department of Commerce—11 years
	Education:	Ph.D., Rural Sociology; MCRP, Small Town Planning and Economic Development; M.S., Rural Sociology; M.S., Sociology
Myra Gilliam	Position:	Archaeologist
	Experience:	Forest Service—20 years
	Education:	B.A., Archaeology
Barth Hamberg	Position:	Landscape Architect
	Experience:	Forest Service—30 years
	Education:	M.S., Landscape Architecture; B.S. Agricultural Economics
Kevin Hood	Position:	Wilderness Program Manager
	Experience:	Forest Service—20 years
	Education:	Working on M.S., Environmental Studies with/emphasis in Conservation Biology; B.A., English Literature
Shane King	Position:	Natural Resources Specialist
	Experience:	Forest Service—5 years; retired Marine Corps
	Education:	B.S., Natural Resources; Graduate studies
Jay Kinsman	Position:	Interdisciplinary Team Leader for Shoreline II project from April 2015
	Experience:	Forest Service—13 years; Coast Guard and Department of Defense—7 years
	Education:	B.A., Archaeology

Brad Krieckhaus	Position:	Botanist, Invasive Species Specialist
	Experience:	Forest Service—10 years; Forestry Sciences Lab—5 years
	Education:	B.S., Psychology; 3 years coursework in botany, soils, and natural resources
Annemarie LaPalme	Position:	Recreation, Lands, Minerals, and Special Uses Staff
	Experience:	Forest Service—35 years
	Education:	B.S., Forest Management
Chris Leeseberg	Position:	Wildlife Biologist
	Experience:	Forest Service—1 year; USGS—1 year; Idaho Fish and Game—6 months; Klamath Tribes—5 years
	Education:	M.S., Biology; B.S., Biology
Jennifer MacDonald	Position:	Special Uses Permit Administrator/Wilderness Manager
	Experience:	Forest Service—10 years
	Education:	M.S., Recreation Resource and Tourism; B.S., Recreation Resource Management
Rachael Myron	Position:	Heritage Archaeologist
	Experience:	Forest Service—21 years
	Education:	MAT—Masters of Teaching; B.A., Archaeology
Brad Orr	Position:	District Ranger for Juneau Ranger District
	Experience:	Forest Service—35 years
	Education:	B.S., Biology
Wendy Schuyler	Position:	Writer-Editor for Shoreline II project from July to November 2014
	Experience:	Forest Service—10 years
	Education:	B.S., Wildlife Management & Biology
Pete Schneider	Position:	Fisheries Biologist
	Experience:	Forest Service—14 years
	Education:	B.S., Zoology
Rick Turner	Position:	Vegetation Ecologist
	Experience:	Forest Service—12 years
	Education:	M.S., Biology; B.S., Forestry
Chad VanOrmer	Position:	Lead District Ranger for the Shoreline II project; Monument Ranger, Admiralty National Monument
	Experience:	Forest Service—14 years
	Education:	M.S., Conservation Social Sciences; B.S., Forestry

List of DEIS Recipients

The following is a list of agencies, organizations, and persons to whom the Shoreline II Outfitter/Guide Draft Environmental Impact Statement was sent.

Agencies

Advisory Council on Historic Preservation ANILCA Implementation Program

Department Of Energy, Director, NEPA Policy & Compliance

Deputy Director, U.S. Department of Agriculture, APHIS PPD/EAD

Director OEPC Federal Aviation Administration

Regional Director, Alaska Region Federal Highway Administration

National Environmental Coordinator, Natural Resource Conservation Service, NOAA Office of Policy and Strategic Planning

U.S. Coast Guard, Commandant CG-47, Department of Homeland Security

USDA Forest Service, Tongass National Forest, Hoonah Ranger District

USDA Forest Service, Tongass National Forest, Admiralty National Monument

USDA Forest Service, Tongass National Forest, Juneau Ranger District

USDA Forest Service, Tongass National Forest, Sitka Ranger District

Libraries

Alaska State Library

National Agricultural Library, Acquisitions & Serials Branch

Media

Juneau Empire

Raven Radio

KFSK

KTOO

Organizations and Businesses

Alaska Coastal Hunting

Citizens' Advisory Committee on Federal Areas

Coastal Wilderness Charters LLC

Crew International Tours

EverGreen and Capital Cab

Glacier Taxi and Tours

Glacier Guides, Inc.

Hauling Bros. Crew Shuttle

Juneau Tours LLC

LD's Crew Shuttle

Mendenhall Glacier Transport

Riley Bus Service

SAGA

SE Alaska Cruises, Inc.

Shearwater Lodge & Charters Tribal Tours

Southeast Alaska Guidance Association

Tribes, Tribal Corporations, City Governments, and Publicly Elected Officials

Alaska Native Brotherhood, Camp #1

Alaska Native Sisterhood, Camp #4

Angoon Community Association

Central Council Tlingit & Haida Indian Tribes of Alaska

Chilkat Indian Village

Chilkoot Indian Association

City & Borough of Sitka

City of Angoon

City of Elfin Cove

City of Gustavus

City of Pelican

City of Port Alexander

City of Tenakee Springs

Congressman Don Young

Douglas Indian Association

Goldbelt, Inc.

Hoonah Indian Association

Huna Totem Corporation

Kake Tribal Corporation

Kavilco Inc.

Klukwan Inc.

Kootznoowoo Inc.

Organized Village of Kake

Petersburg Indian Association

Sealaska Corporation

Senator Lisa Murkowski

Senator Mark Begich

Shee Atika Inc.

Sitka Tribe of Alaska

Skagway Traditional Council

Individuals (hardcopy)

John Geddie

Karen Nemecek

Jack Ozment

Molly Kemp

Debra Gifford

Peter Neyhart

Connie Oen

Uriah Strong

Bruce Baker

Individuals (electronic)

The Tongass National Forest mailed the EIS electronically via GovDelivery to a list of 252 individuals who are registered to receive emails The list of individual email addresses is available in the Shoreline II Outfitter/Guide project record.

References

The following list of references includes both literature cited in this DEIS 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).

Term	Definition
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. Displacement could mean relocating to another area that is capable of providing the desired recreation experience.
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.

Term	Definition
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.
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.
Land use designation (LUD)	A defined area of land, identified by the Forest Plan, to which specific management direction is applied.

Term	Definition
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.

Term	Definition
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.
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.

Term	Definition
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 summer season during which visitation to the forest is generally the highest.
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.

Term	Definition
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. 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.

Term	Definition
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)

Term	Definition
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.
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).
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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