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National Park Service  
U.S. Department of the Interior



Lake Clark National Park and Preserve  
Alaska

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## **Tanalian, Inc. and National Park Service Land Exchange Environmental Assessment September 2009**

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Comments on this environmental assessment (EA) may be submitted during the 45-day open comment period via the national planning web site at <http://parkplanning.nps.gov>.

Comments may also be submitted in writing to:

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### APPENDICES

- Appendix A ANILCA §810 Summary Evaluation and Findings

## ACRONYMS AND ABBREVIATIONS

§	Section
ADCCED	Alaska Department of Commerce, Community and Economic Development
ADFG	Alaska Department of Fish and Game
ADOT&PF	Alaska Department of Transportation and Public Facilities
AKRO	Alaska Regional Office
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
bgs	below ground surface
BIA	Bureau of Indian Affairs
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DO	Director's Order
EA	Environmental Assessment
EIS	Environmental Impact Statement
E.O.	Executive Order
ESA	Endangered Species Act 1973
FONSI	Finding of No Significant Impact
GMP	General Management Plan
KATM	Katmai National Park and Preserve
LACL	Lake Clark National Park and Preserve
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
ORV	off-road vehicle
RFFA	reasonably foreseeable future action
Secretary	Secretary of the Interior
SHPO	State Historic Preservation Office
U.S.	United States
USC	United States Code
USDOI	U.S. Department of Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

## **1.0 PURPOSE AND NEED**

### **1.1 Purpose and Need for Action**

The National Park Service (NPS) is considering a land exchange in Lake Clark National Park and Preserve (LACL) with Tanalian, Inc.<sup>1</sup> near Port Alsworth, Alaska, near the south shore of Lake Clark (Figure 1). Tanalian, Inc. requested subsurface rights<sup>2</sup> from NPS for two 15-acre parcels; Tanalian, Inc. owns the surface rights to these parcels. In exchange, Tanalian, Inc. proposes to convey to NPS the surface rights of a 16-acre parcel abutting the south shore of Hardenburg Bay. The amount of subsurface acreage in exchange may change following appraisal of the parcels. None of the subject properties for the proposed land exchange lies within existing or proposed wilderness areas.

The purpose of this land exchange is to preserve the watershed and fish habitat in LACL pursuant to the Alaska National Interest Lands Conservation Act (ANILCA) of 1980 and the LACL General Management Plan (NPS 1984). The secondary purpose is to fulfill the Tanalian, Inc. request for access to subsurface estate for sand and gravel extraction and the ability to bury non-toxic solid waste.

This Environmental Assessment (EA) analyzes the Proposed Land Exchange and No-Action alternatives and their impacts on the environment. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1508.9).

#### **1.1.1 History of the Sites**

Tanalian, Inc. was recognized in 1990 under Section (§) 14(h)(2) of the Alaska Native Claims Settlement Act (ANCSA) and received approximately 2,000 acres of surface estate that had been part of LACL, including all three subject parcels.

#### **Hardenburg Bay Parcel**

This 16-acre parcel lies on the south side of Hardenburg Bay (in the southwest quarter of Section 3 [T1N R29W, U.S. Geological Survey (USGS) Quad Lake Clark A4]). West of this parcel is a small lodge and the post office, and two smaller lots, one of which belongs to the NPS with employee housing at “Birch Hill.” A well head for the Birch Hill lot lies near the boundary of the 16-acre parcel and may actually be inside that parcel. South of the parcel is a pond, and east of it lies another pond and uplands. North of this parcel along the east side of Hardenburg Bay are additional Tanalian, Inc. lands (Figure 2).

#### **NPS Parcels**

The two NPS 15-acre subsurface parcels lie south of Port Alsworth under Tanalian, Inc. surface estate. One is west of the Tanalian Falls Trail (in the northeast quarter of Section 9 [T1N R29W, USGS Quad Lake Clark A4]), and the other is south and west of the Tanalian River (in the southeast quarter of Section 16 [T1N R29W, USGS Quad Lake Clark A4]). Both parcels were once part of LACL until surface lands were transferred to Tanalian, Inc. (Figure 2).

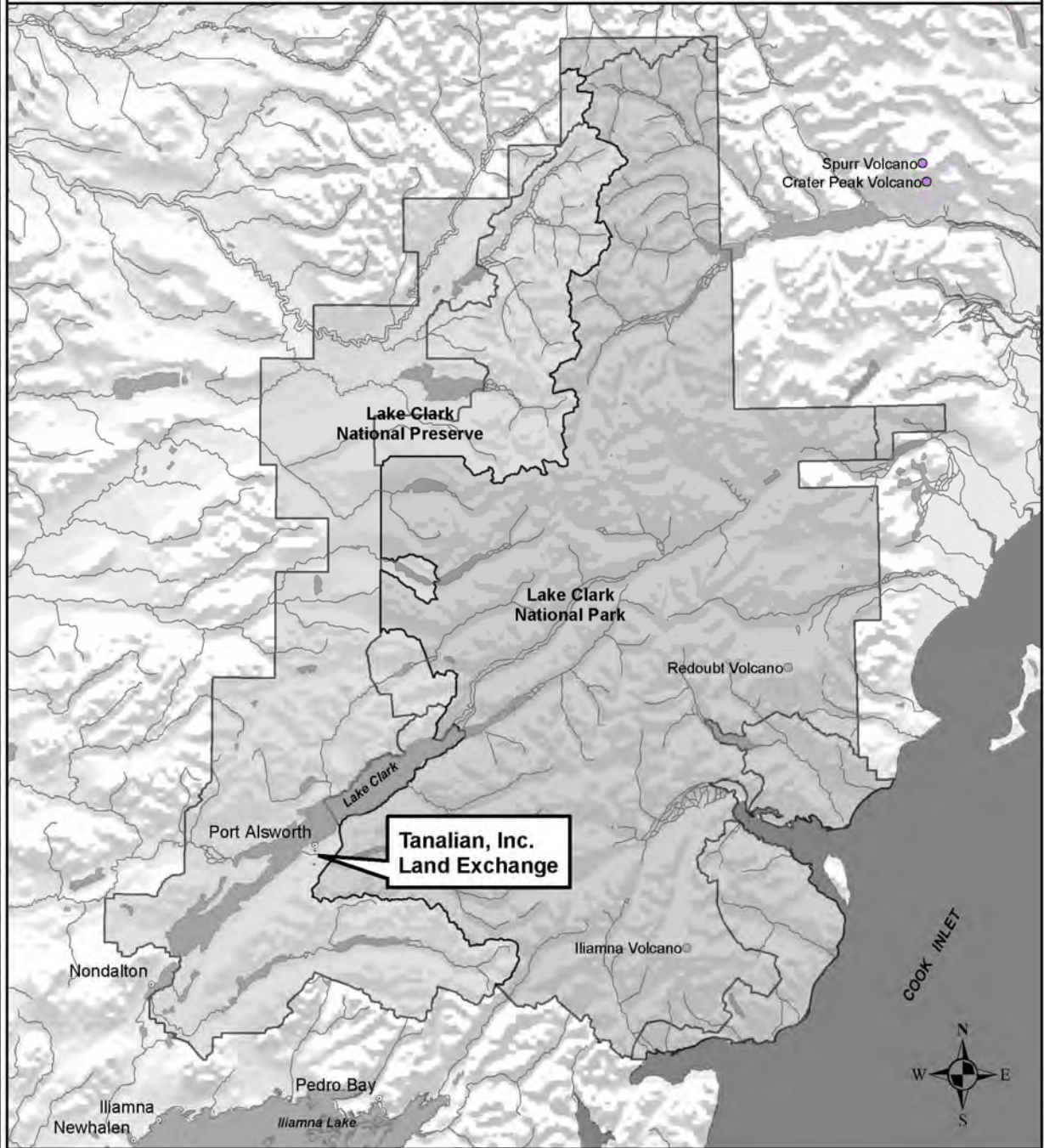
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<sup>1</sup> Tanalian, Incorporated is a Native Group pursuant to the Alaska Native Claims Settlement Act, which was granted lands within LACL near Port Alsworth, Alaska. The NPS retained subsurface rights to lands and Tanalian, Inc. obtained surface rights to about 2,000 acres of land.

<sup>2</sup> NPS would convey the subsurface estate, but reserve to the United States coal, oil, gas, metalliferous minerals, and geothermal resources.

**FIGURE 1**

**Project Location in Lake Clark National Park and Preserve**



**Legend**

-  Lake Clark National Park
-  Lake Clark National Preserve

Sources:  
USGS 1:63,360 Topographic Map Series, Lake Clark (A5) Quadrangle



**Lake Clark National Park and Preserve  
National Park Service**

**Tanalian, Inc. Land Exchange**

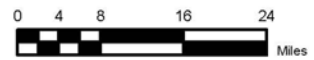
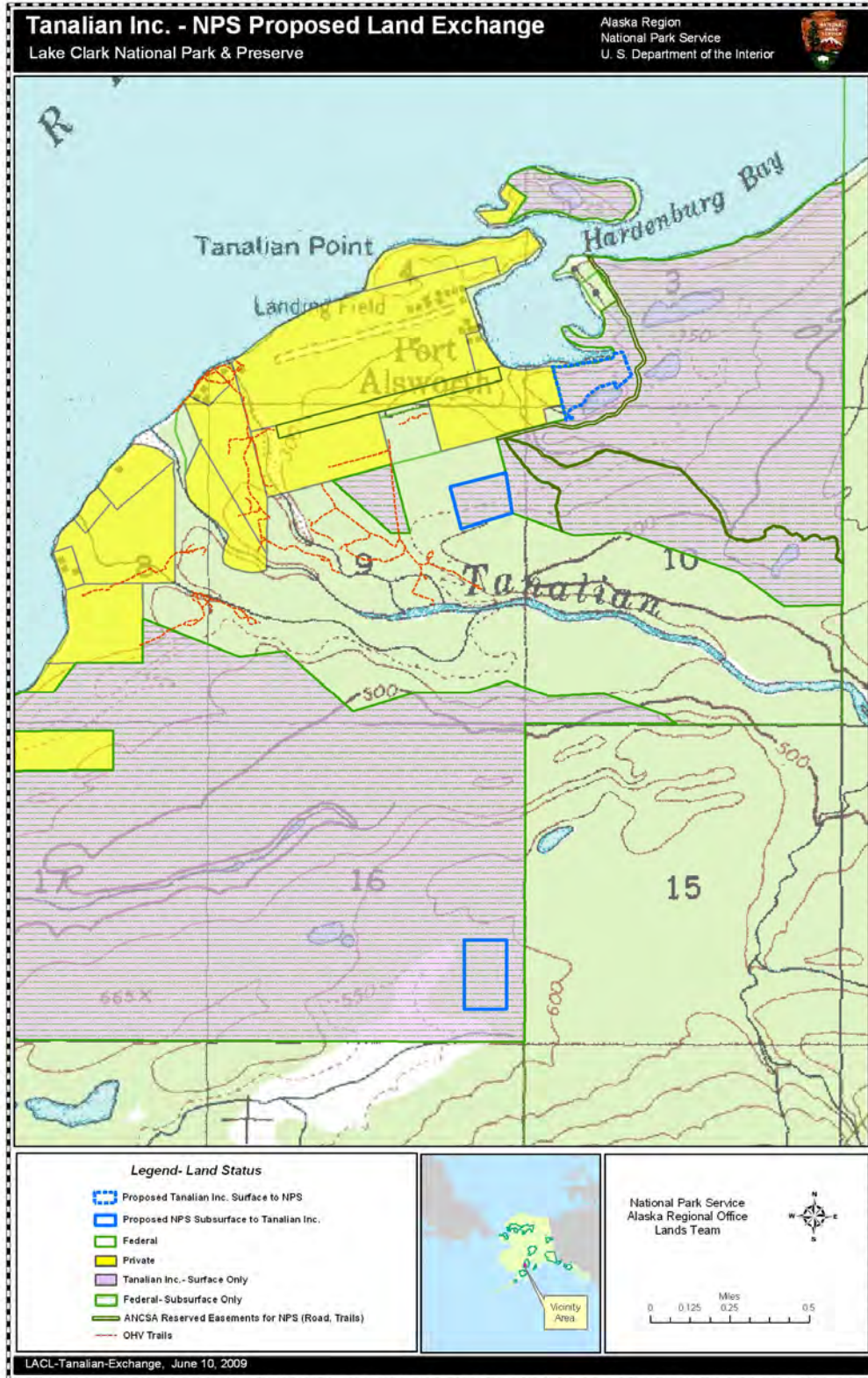


Figure 2. Land Status in the Port Alsworth Area





### **1.1.2 Park Purpose and Significance**

ANILCA established LACL to preserve approximately 4 million acres of public land (NPS 2004). Title I of ANILCA directs the NPS to preserve the natural and cultural resources in these conservation system units for the benefit, use, education, and inspiration of present and future generations. ANILCA §201(7)(a) states:

“[LACL] shall be managed for the following purposes, among others: To protect the watershed necessary for perpetuation of the red salmon fishery in Bristol Bay; to maintain unimpaired the scenic beauty and quality of portions of the Alaska Range and the Aleutian Range, including active volcanoes, glaciers, wild rivers, lakes, waterfalls, and alpine meadows in their natural state; and to protect habitat for and populations of fish and wildlife including but not limited to caribou, Dall sheep, brown/grizzly bears, bald eagles, and peregrine falcons.”

The General Management Plan (GMP) for LACL is a broad planning document, setting general management direction for the park (NPS 1984). The GMP indicates,

“On the ... shoreline of Lake Clark the National Park Service will examine a full range of options for protection, management, and use of existing nonfederal lands. Exchange will be given highest priority for native allotment lands if suitable exchange lands can be found.”

### **1.1.3 Laws, Regulations, and Policies**

#### **NPS Organic Act and General Authorities Act**

The NPS Organic Act of 1916 directed the Secretary of the Interior (Secretary) and the NPS to manage national parks and monuments to:

“...conserve the scenery and the natural and historic objects and the wild life [sic] therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (16 United States Code [USC] 1).

The NPS Organic Act also granted the Secretary the authority to implement “rules and regulations as he may deem necessary or proper for the use and management of the parks, monuments, and reservations under the jurisdiction of the National Park Service” (16 USC 3).

The General Authorities Act of 1970 and amendments passed in 1978 to the NPS Organic Act expressly articulated the role of the national park system in ecosystem protection. The amendments further reinforce the primary mandate of preservation by stating:

“The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the national park system and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided for by Congress” (16 USC 1-a1).

Further, the NPS Organic Act and General Authorities Act prohibit the impairment of park resources and values. The 2001 NPS Management Policies use the terms “resources and values” to mean the full spectrum of tangible and intangible attributes for which the park is established and managed, including the NPS Organic Act’s fundamental purpose and any additional purposes as stated in the park’s establishing legislation. The park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

#### **Alaska National Interest Lands Conservation Act**

ANILCA §1302(a) authorizes the Secretary to “acquire by purchase, donation, exchange, or otherwise any lands within the boundaries of any conservation system unit.” ANILCA §1302(h) states “the

Secretary is authorized to exchange lands... or interests therein... with corporations organized by the Native Groups...” An exchange would need to be based on “equal value,” with the option of using cash to equalize values as needed. However, if the parties agree and the exchange is in the public interest, the exchange could be made for other than equal value.

### **1.1.4 Relationship of Proposal to Other Planning Projects**

The *Port Alsworth Airport Master Plan* (ADOT&PF 2007) has been under development for several years. It describes a new airport south of the Tanalian River built with access to the community of Port Alsworth. The planning for the project, including alternative/site selection is not yet complete. Should the airport be developed, there would be a need for locally available gravel. If the airport project moves forward to development, Tanalian, Inc. could provide sand and gravel used for construction of access roads and runways from the subsurface lands acquired in this proposed land exchange with NPS. Before the new airport could be built, an ANILCA Title XI access permit would be required to cross NPS lands along the river corridor. Development of such a future airport and associated access would be addressed in a future NEPA effort.

## **1.2 Issues**

To focus this EA, specific issues were selected for further analysis and others were eliminated from evaluation. The issues in this EA are evaluated in Section 4.0, Environmental Consequences.

### **1.2.1 Issues Selected for Detailed Analysis**

#### **Cultural Resources**

Consideration of cultural resources is required under the National Historic Preservation Act (NHPA) of 1966 and NEPA. No known cultural or archeological resources are present in either of the subsurface properties on either side of the Tanalian River. However, only the parcel in Section 9 has been surveyed. A documented archeological site is located on both NPS and Tanalian, Inc. land north of the Section 9 parcel, but it would not be affected by the land exchange. There is a higher probability that archeological resources may be present on the south side of Hardenburg Bay, judging from the presence of archeological resources found on the north shore of the bay.

#### **Land Status and Use**

The proposed land exchange would change existing land ownership and uses in the areas. The surface estate on the 16-acre Hardenburg Bay parcel and two 15-acre parcels in Sections 9 and 16 are currently private land holdings where public and NPS access can be curtailed. Public access does occur across Hardenburg Bay below the high water mark and on a public easement around this parcel. The land exchange would open the 16-acre parcel to area residents and park visitors for recreation, sport fishing, hunting, and subsistence activities for qualified rural residents. The exchange would also enable Tanalian, Inc. to extract sand and gravel resources from the two 15-acre parcels.

#### **Vegetation, Wetlands, and Soils**

The proposed land exchange would provide resource protection to 16 acres of vegetation and soils adjacent to Hardenburg Bay in accordance with the LACL GMP. Vegetation, wetlands, and soils could be removed from the two 15-acre parcels (Sections 9 and 16) after a land exchange. E.O. 11990, *Protection of Wetlands*, requires all federal agencies to minimize the destruction, loss, or degradation of wetlands; and preserve and enhance the natural beneficial values of wetlands in the conduct of the agency’s responsibilities for: 1) acquiring, managing, and disposing of federal lands and facilities; 2) providing federally undertaken, financed, or assisted construction and improvements; and 3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. The proposed land exchange may result in future adverse and beneficial effects on wetlands or wetland values in the project areas. Because the wetlands on the

subject parcels are surficial wetlands that Tanalian, Inc. could develop at any time, an NPS wetlands statement of findings is not required.

### Wildlife and Fish Habitat

The proposed land exchange would add about 16 additional acres of fish and wildlife habitat to LACL in the Port Alsworth area, which would be protected from potential future development pursuant to the LACL GMP. The Hardenburg Bay property (Section 3 parcel) is located on the shores of Lake Clark where sockeye salmon and other fish species have been observed to spawn and rear young. The protection of fish and their habitat is a primary purpose of LACL.

### Visual Resources/Aesthetics

The proposed land exchange would convey 16 acres of scenic waterfront to the NPS, which would be protected in accordance with the LACL GMP. Future access roads and gravel extraction from the Section 9 parcel could adversely affect visual resources and scenery in the area.

### Visitor Use and Recreation

The Hardenburg Bay property (Section 3 parcel) is a private inholding; therefore the landowner may restrict public access. The exchange would make the parcel open to public access. Public recreation activities on the other two 15-acre properties would not change and are subject to permission from Tanalian, Inc. Any current recreational activities on these parcels by the public or Tanalian, Inc. shareholders could be displaced by future gravel extraction.

### **1.2.2 Issues Dismissed from Further Analysis**

NEPA regulations emphasize the importance of adjusting the scope of each EA to the particulars of the project and its setting, and focusing on the specific potential impacts of the project. There is no need, according to the regulations, to include information on resources that would not be affected by the project. The following impact topics were considered but dismissed from detailed analysis and are therefore not addressed further in this EA.

#### Air Quality

There would be no anticipated direct or indirect impacts to air quality within LACL from the land exchange; therefore this topic was dismissed from further analysis in this EA.

#### Environmental Justice

Executive Order (E.O.) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. This project would not result in disproportionate changes in the socioeconomic environment of the area; therefore, the proposed land exchange would not be expected to have any impacts to minority or low-income populations or communities.

#### Floodplains

E.O. 11988, *Floodplain Management*, requires all federal agencies to take action to reduce the risk of flood loss, to restore and preserve the natural beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. The proposed land exchange would not have any measurable impact on floodplains or floodplain values in the project areas; therefore, this topic was dismissed from further analysis in this EA.

## Subsistence

The ANILCA §810(a) Summary Evaluation and Finding concluded that the Proposed Action would not result in a significant restriction of subsistence uses in the Port Alsworth area. An ANILCA §810(a) Summary Evaluation and Findings is included in Appendix A.

## Threatened and Endangered Species

The Endangered Species Act (ESA) requires an analysis of impacts on all federally listed threatened and endangered species, as well as species of special concern listed by the state of Alaska. No federally designated threatened or endangered species are known to occur within the interior of the park, and none would be anticipated to be affected by this proposed land exchange. On June 30, 2009 the NPS initiated an ESA Section 7 informal consultation with the USFWS regarding threatened and endangered species (Lance 2009). USFWS consultation determined that the proposed land exchange would not affect any threatened and endangered species.

## Water Resources

The subject inland parcels are located over 1/4 mile from any waters. The site closest to Lake Clark and the Tanalian River is about 1/3 mile from either water body. The more southerly site is located over one mile from the Tanalian River. Human activities on these parcels likely would not have any adverse impacts on water resources. No streams or rivers cross the Hardenburg Bay property (Section 3 parcel); however it does abut Lake Clark shores and a freshwater pond to the south. These values are addressed under Wildlife and Fish Habitat (Chapter 3.5).

## Wilderness

The proposed land exchange is not within an existing or eligible wilderness area; therefore, this topic was dismissed from further analysis in this EA.

### **1.3 Permits and Approvals Needed to Implement the Project**

No permits are required for the land exchange. The act of exchanging titles of the subject properties does not include uses or activities that would require a consistency review of applicable Alaska and district coastal management enforceable policies. The NPS does not propose any developments on the 16-acre Hardenburg Bay property (Section 3 parcel). Future developments by Tanalian, Inc. for sand and gravel extraction may require a coastal consistency review and appropriate permits from the U.S. Army Corps of Engineers. Disposal of non-toxic solid waste may require an Alaska Department of Environmental Conservation permit for a landfill. Because Tanalian Inc. would be creating a solid waste disposal site within LACL boundaries, the landfill must also comply with NPS regulations at 36 CFR § 13.1604 and 36 CFR Ch. 1, Part 6.

## **2.0 ALTERNATIVES**

This chapter includes a description of the no action and action alternatives and a brief summary of the impacts of the alternatives. Also discussed are any alternatives and actions that have been considered but dismissed from further analysis. Table 2-1 summarizes the components and attributes of each alternative. Table 2-2 summarizes the predicted impacts for each alternative on the issues of concern.

### **2.1 Alternative 1: No Action Alternative**

The No Action Alternative describes the status quo. Under this alternative, the NPS and Tanalian, Inc. would not complete a land exchange. The NPS would retain its subsurface rights on two 15-acre parcels near Port Alsworth, and Tanalian, Inc. would retain surface rights to its 16-acre parcel abutting the south shore of Hardenburg Bay at Port Alsworth (Figure 2). This alternative provides a baseline against which to measure the impacts of the Proposed Action.

Under the current land ownership, Tanalian, Inc. retains the ability to develop, subdivide, and sell its parcels. Tanalian, Inc. has posted advertisements online to sell some of its existing waterfront property (<http://alaskalakefrontproperty.com/landforsale.html>). This is evidence that the desirable location of the Section 3 parcel could be sold to private individuals. The minimum lot size is 3 acres, pursuant to the land settlement with the NPS, but the range of development potential is broad. The maximum potential impact to the surface estate could entail clearing of the entire 16 acre parcel, but a likely scenario would be a 50 percent clearing to accommodate lodging, support facilities and vehicles associated with private residence or vacation property.

### **2.2 Alternative 2: Proposed Action**

The NPS would convey subsurface rights to two parcels, approximately 15 acres each, near Port Alsworth (in the northeast quarter of Section 9 and the southeast quarter of Section 16) for use by Tanalian, Inc. In exchange, Tanalian, Inc. would convey to NPS the surface rights to a 16-acre tract, located near Port Alsworth along the south shore of Hardenburg Bay (the southwest quarter of Section 3). All three parcels are located within LACL. The following stipulations would apply to the land exchange.

Tanalian, Inc. would identify preferred subsurface lands in consultation with NPS and provide a survey of the Tanalian, Inc. land to be exchanged near Port Alsworth.

NPS would complete appraisals of the land parcels and adjust boundaries of the NPS subsurface estate to achieve parity in land values. NPS would complete the EA for the land exchange with one of its NEPA contractors.

The deed from NPS to Tanalian Inc. would convey the subsurface estate but reserve to the United States coal, oil, gas, metaliferous minerals, and geothermal resources. The NPS and Tanalian, Inc. would cooperate and collaborate to develop terms in the exchange agreement whereby NPS would be willing to assist with any cultural resource protection subject to available funding, and Tanalian Inc. would work with the NPS to minimize impacts to the Tanalian Falls Trail from gravel (and trash) trucks and other equipment.

### **2.3 Description of Alternatives and Actions Considered but Eliminated from Detailed Study**

No other alternatives or actions were considered for this land exchange.

Table 2-1 provides a brief overview of the alternatives evaluated in this EA.

**Table 2-1. Summary of Alternatives**

	<b>Description</b>	<b>Attributes</b>
<b>Alternative 1 – No Action</b>	No action. No land exchange would occur.	Maintains status quo. NPS retains subsurface estate for all parcels. Tanalian, Inc. retains surface estate for all parcels, including the right to develop or sell parcels.
<b>Alternative 2 – Proposed Action (Preferred Alternative)</b>	<p>The NPS would convey subsurface rights to Tanalian, Inc. for two parcels, approximately 15 acres each (Sections 9 and 16).</p> <p>Tanalian, Inc. would convey surface rights to the NPS for a 16-acre parcel (Section 3).</p>	<p>Conveys subsurface estate for two parcels from NPS to Tanalian, Inc. approximately 15 acres each (Sections 9 and 16), including the right to development of the subsurface estate for extraction of sand and gravel.</p> <p>Conveys surface estate for a parcel on Hardenburg Bay from Tanalian, Inc. to NPS; the transfer would enable NPS to manage the parcel in the future to protect park resources and values and provide for appropriate public uses (Section 3).</p>

## 2.4 Environmentally Preferred Alternative

As stated in §2.7 (D) of the NPS Director’s Orders (DO) 12 Handbook (NPS’ implementation guidelines for NEPA), “The environmentally preferred alternative is the alternative that would best promote the national environmental policy expressed in NEPA (§101(b)).” The environmentally preferred alternative is the alternative that not only results in the least damage to the biological and physical environment, but that also best protects, preserves, and enhances historic, cultural, and natural resources.

### *NEPA §101 Goal Statements:*

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
2. Assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health and safety, or other undesirable and unintended consequences.
4. Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.
5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources (42 USC 4321-4347).

The No Action Alternative, Alternative 1, is not the environmentally preferred alternative because it would not accomplish the LACL GMP primary goal to protect the watershed and fish habitat along the shores of Lake Clark. Tanalian, Inc. would retain surface rights to all parcels, including the right to develop these lands.

The Proposed Action, Alternative 2, is the environmentally preferred alternative because it would result in a gain of 16 acres of surface wildlife habitat and lakefront uplands at Hardenburg Bay in LACL to address purposes for LACL in ANILCA and goals outlined in the LACL GMP. Fish and wildlife habitat and visual resources would be protected along the shoreline portion of the Section 3 parcel in Hardenburg Bay because the parcel would become part of LACL. The Lake Clark watershed provides habitat for one of the most economically important salmon runs in Bristol Bay. Protection of this watershed is mandated in ANILCA §201(7)(a) as previously outlined in Chapter 1.2.2 of this document. The alternative would further the conservation goals of the NPS protection of the Lake Clark watershed as well as the protection of the shoreline of Hardenburg Bay and habitat for sockeye salmon. Furthermore, NPS ownership of the 16-acre parcel on Hardenburg Bay would result in management to maintain or restore unimpaired visual resources and aesthetics of the parcel, as well as allow visitor use, but this protection could be partially offset with the loss of up 30 acres of inland forested habitat for gravel extraction sites.

## **2.5 Mitigation Measures**

Mitigation measures are specific actions that would reduce impacts, protect park resources, and protect visitors. There would be no direct ground-disturbing activities associated with the No Action Alternative or the Proposed Action Alternative, but future foreseeable effects to the Hardenburg Bay parcel could occur under the no-action alternative and the development of at least 15 acres for sand and gravel extraction and burial of non-toxic solid waste could occur subsequent to the proposed land exchange. The following mitigation measures would be implemented by the proposed action alternative and are assumed in the analysis of impacts:

### **2.5.1 Land Use**

The NPS would convey to Tanalian, Inc. interests in subsurface estate limited to the extraction of sand and gravel and the burying of nontoxic waste pursuant to 36 CFR 13.1604 and ADEC regulations. The NPS would approve of the use of a portion of the NPS-reserved Tanalian Falls trail easement for vehicle access to the Section 9 parcel. This access route is entirely on Tanalian, Inc. surface land. It would skirt private property between the nearest air strip and the Section 9 parcel; it is the shortest route to the subsurface estate from existing community roads.

### **2.5.2 Cultural Resources**

The NPS conducted an archeological survey of the Section 9 parcel because a reasonably foreseeable result of the land exchange would be gravel extraction that could impact eligible cultural resources. Future development of the Section 16 parcel south of Tanalian River would require further cultural resource surveys prior to permitting access across LACL to remote parcels. LACL is willing to provide advice and expertise in protecting, evaluating, and preserving archeological, paleontological, or geological resources that may be inadvertently discovered during development in the Port Alsworth area whether on private, federal, or split estate lands.

## **2.6 Summary Impacts of the Alternatives**

Table 2-2 provides a brief summary of impacts of each alternative. A complete discussion of impacts is provided in Chapter 4 of this EA.

**Table 2-2. Summary Impacts of the Alternatives**

Impact Topic	Alternative 1 – No Action	Alternative 2 – Proposed Action (Preferred Alternative)
<b>Cultural Resources</b>	Indirect impact because cultural resources potentially located in Section 3 would not be protected from subdivision, sale, and long-term private developments.	Impacts could occur to cultural resources potentially located in subject parcels in Sections 9 and 16. However, federal permits would be required to access the Section 16 parcel. Cultural resources potentially located in Section 3 parcel would be protected from subdivision, sale, and long-term private developments.
<b>Land Status and Use</b>	No land exchange would occur, so no impacts to current land status would occur.  Indirect impact to land use would include potential for development or sale of the properties.	Minor impact. Direct beneficial impact of medium intensity that is long-term in duration to a common resource; approximately 16 acres of surface estate in Section 3 would be added to LACL.  Impact to land use in Section 9 is likely due to the potential extraction of the subsurface estate for sand and gravel extraction or burial of non-toxic solid waste.
<b>Vegetation, Wetlands, and Soils</b>	No land exchange would occur.  Minor indirect impact related to potential future development of parcel in Section 3. Maximum impact to 16 acres that contain estimated 5 acres of forested wetlands and less than 1 acre of lakeshore and pond freshwater emergent wetlands.	Minor beneficial impact. Direct beneficial impact of low intensity that is long-term in duration and the context of which is important to the park; approximately 16 acres of vegetation, wetlands, and soils and would be added to LACL in Section 3.  No direct impacts to parcels in Sections 9 and 16. Indirect impacts to up to 15 acres of forest (and of that, 4 acres of forested wetlands) in Section 9 parcel from potential subsurface development and access road construction.
<b>Wildlife and Fish Habitat</b>	No land exchange would occur.  Potential future development of Section 3 parcel. Indirect impact of low intensity to fish habitat due to potential compromise of up to 880 feet of nearshore fish habitat. Maximum potential wildlife habitat impact of 16 acres.	Moderate beneficial impact. Direct beneficial impact of low intensity that is long-term in duration and the context of which is important to the park; approximately 16 acres of common value wildlife and fish habitat would be added to LACL in Section 3.  No direct impacts due to exchange of rights for subsurface parcels in Sections 9 and 16. Indirect impacts to up to 15 acres of wildlife and fish habitat in Section 9 parcel from potential subsurface development and access road construction.
<b>Visual Resources/Aesthetics</b>	No land exchange would occur, but likely future sale and development of Section 3 parcel. Moderate impact to visual resources.	Minor impact. Direct beneficial impact of low intensity that is long-term in duration and the context of which is important to the park; approximately 16 acres of important value visual resources would be added to LACL in Section 3.  No direct impacts to subsurface parcels in Sections 9 and 16. Indirect impacts to up to 15 acres of natural forest scenery on Section 9 parcel from Tanalian, Inc. potentially accessing and developing the subsurface sand and gravel resources.
<b>Visitor Use and Recreation</b>	No impacts. No land exchange would occur therefore public recreation opportunities would not change.	Minor beneficial impact. Direct beneficial impact of low intensity that is long-term in duration and the context to a common resource; approximately 16 acres would be added to LACL in Section 3, which would be available for public access, including visitor use and recreation.  No direct impacts to subsurface parcels in Sections 9 and 16. Indirect impacts to Section 9 parcel from Tanalian, Inc. potentially developing the subsurface estate and using a portion of the Tanalian Falls Trail for gravel truck and equipment access.



### **3.0 AFFECTED ENVIRONMENT**

This chapter describes the existing conditions in the project area.

#### **3.1 Project Area**

LACL encompasses approximately 4,030,000 acres in south central Alaska, including State and private lands, and is located approximately 100 miles southwest of Anchorage at the convergence of the Alaska and Aleutian mountain ranges (Figure 1). This proposed land exchange includes three parcels near Port Alsworth, Alaska (Figures 2 and 3).

One proposed parcel for exchange is located on the southern shore of Lake Clark on the south side of Hardenburg Bay within the preserve. It is situated approximately 1/3 of a mile east of Port Alsworth in the southwest quarter of Section 3.

The two NPS 15-acre subsurface parcels lie south of Port Alsworth under Tanalian, Inc. surface estate. One is west of the Tanalian Falls Trail in the northeast quarter of Section 9, and the other is south and west of the Tanalian River in the southeast quarter of Section 16. Both parcels were once part of the LACL until surface lands were transferred to Tanalian, Inc.

#### **3.2 Cultural Resources**

Congress established conservation units, including LACL, “[i]n order to preserve for the benefit, use, education and inspiration of present and future generations certain lands and waters in the State of Alaska that contain nationally significant natural, scenic, historic, archeological, geological, scientific, wilderness, cultural, recreational, and wildlife values...” (ANILCA, Title I). Cultural resources in the LACL area include: archeological sites related to early prehistoric cultures, prehistoric and historic Dena’ina archeological sites, sites related to historic Russian-American era fur trading, the development of regional travel, and ethnographic values related to contemporary Dena’ina and “Bush” life styles (NPS 2008).

##### Section 3 Parcel

There are no known cultural or archeological resources within the Section 3 parcel; however, there have been no cultural resource surveys conducted. Historically significant cultural resources are located north of the Section 3 parcel. A documented archeological site is located partly on Tanalian, Inc. land and partly on NPS land near the head of the Tanalian Falls Trail. The Bly House (used as a ranger station) is listed on the National Register of Historic Places and is located on the northern end of “The Point” (NPS 2005). The Earl Woodward Cabin is another historic cabin located just south of the Bly House where an NPS archeologist recently discovered a campfire and flake scatter (Branson 2009) that produced radiocarbon ages of 3,700 and 2,400 years before present (Vinson 2009).

The likelihood of cultural resources existing in the Section 3 parcel is greater than the Section 9 or 16 parcels because of its proximity to Hardenburg Bay and the presence of other cultural resources around the bay.

##### Section 9 and Section 16 Parcels

There are no known cultural resources in the Section 9 parcel or the Section 16 parcel; a Bureau of Indian Affairs Section 106 survey for a proposed air strip and road identified no historic properties in these Sections (BIA 1995). This 1995 report identified four resources on the coast of Lake Clark (west of Port Alsworth) and indicated that no other field surveys had been conducted within the project area. NPS archeologists conducted an archeological survey of the Section 9 parcel in June 2009 and located no eligible cultural resources.

The potential for the presence of archeological resources at the surface or subsurface (beneath recent glacial till) is relatively low in the Section 16 parcel because it does not border a body of water or include a ridgeline where human activity may have focused in the past (Vinson 2009).

### **3.3 Land Status and Use**

Lands in the Port Alsworth area are owned by private individuals, Tanalian, Inc., and the NPS. As part of the land conveyance to Tanalian, Inc. the NPS retained subsurface rights and recreational trail easements across Tanalian, Inc. surface lands to the park public lands. Figure 2 demonstrates land status in the Port Alsworth area.

Land use on NPS surface estate includes subsistence, general, and guided hunting throughout the preserve portion of LACL, depending on eligibility of the user. Qualified rural residents may participate in subsistence hunting throughout the park and preserve. General and guided hunting may only occur on preserve lands. Three concession contracts provide for guided hunting within the preserve.

Tanalian, Inc. surface estate land use of the exchange parcels may include some general and guided hunting only with permission from the corporation and under State seasons and bag limits. Shareholders may hunt on their lands until they are sold to private parties. Tanalian, Inc. has lands for sale in the Port Alsworth area.

A few current and historic trails connect Port Alsworth in Hardenburg Bay to other communities on Lake Clark. These trails are used for hiking, berry picking, wood gathering, hunting, and other recreational and subsistence activities. None of the exchange parcels overlap historic or modern trails. The NPS does not currently manage the surface estate or land use of any of the parcels proposed for exchange. Tanalian Falls Trail, Beaver Pond Loop Trail, and Tanalian Mountain Route are all trails suggested by the NPS to visitors. While no trails cross these exchange parcels, the trails to the Tanalian River area are located near the Section 9 parcel (see Figure 2).

#### **Section 3 Parcel**

The surface estate of Section 3 parcel is privately held by Tanalian, Inc. and the public needs permission for access. Though this site is not currently listed for sale, due the exchange effort with the NPS, this accessible and scenic lakeside parcel could become a prime candidate for sale. The public can access Hardenburg Bay through a public easement that is west of the parcel (Branson 2009). The easement is the basis of a proposed road starting at the main trailhead (west of the parcel) and traveling around the southern edge of the parcel towards “The Point” (NPS 2005). Land use adjacent to the Section 3 parcel includes area resident and park visitor recreation, sport fishing, and subsistence activity for resident zone communities.

The historic and current use of the Section 3 parcel is for berry picking, walking through on a hunt, and possibly firewood cutting or logging for small subsistence-scale use by Tanalian, Inc. shareholders (Branson 2009). The parcel can be accessed by boat or floatplane. The record of land use activities for the area is limited to a couple histories and journals (McNab 1996; Seversen 2003).

The proposed Tanalian, Inc. surface exchange site is adjacent to Port Alsworth community facilities, including the post office and lodge, and two air strips (ADOT&PF 2007). Floatplanes land on Hardenburg Bay adjacent to the air strips, on the northeast end of the community.

#### **Section 9 and Section 16 Parcels**

The surface estate of Section 9 and Section 16 parcels is privately owned by Tanalian, Inc. which curtails public recreational activity. These exchange parcels are fairly remote; however, the Section 9 parcel is near an existing trail easement and accessible to an existing road across Tanalian, Inc. land. The Section 16 parcel is without road, trail, or airplane access. Activities are likely limited to day hiking, backpacking, hunting, and berry picking (NPS 2008; Branson 2009).

### 3.4 Vegetation, Wetlands, and Soils

#### 3.4.1 Vegetation

The project area is located within the Alaska Range Transition ecoregion of western Alaska (Nowacki, et al. 2001). The dominant vegetation cover in undisturbed areas around Port Alsworth is open mixed needleleaf and deciduous forest of white spruce (*Picea glauca*), paper birch (*Betula papyifera*), and balsam poplar (*Populus balsamifera*). A deep mat of mosses (mostly *Sphagnum* sp. and *Hylocomium splendens*) was noted on subject parcels (Rice, B. Personal communication).

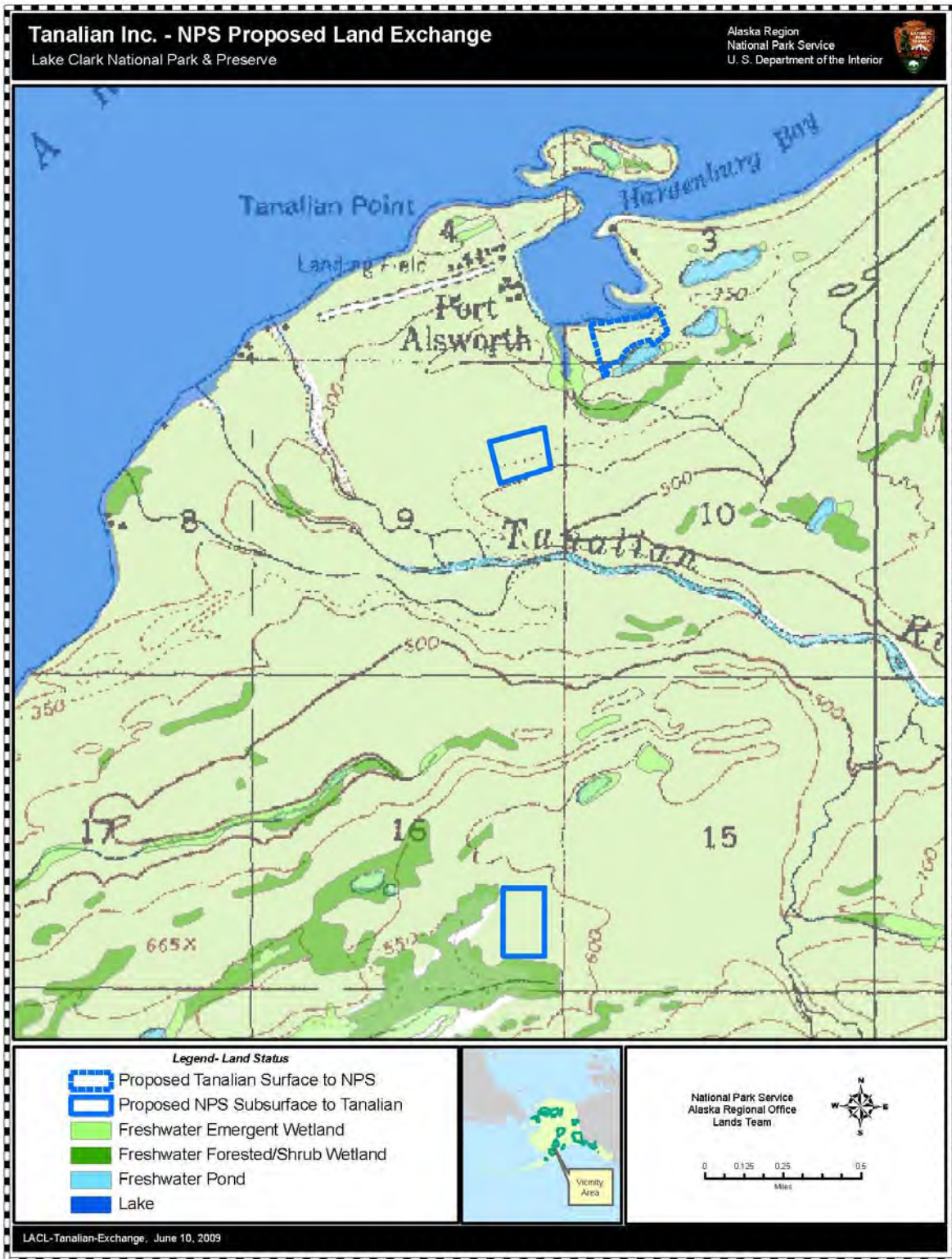
Tall shrubs in these communities include Sitka alder (*Alnus sinuata*), resin birch (*Betula glandulosa*) and several species of willow (*Salix* spp., Bebb willow [*Salix bebbiana*], Scoulers willow [*S. scouleriana*]). Low shrubs include prickly rose (*Rosa acicularis*), highbush cranberry (*Viburnum edule*), Labrador tea (*Ledum* spp.), and red currant (*Ribes triste*). Dwarf shrub species include shrubs such as bog blueberry (*Vaccinium uliginosm*), black crowberry (*Empetrum nigrum*), dwarf birch (*Betula nana*), and lingonberry (*Vaccinium vitis-idea*). Common forbs include several species of ferns, bunchberry (*Cornus suecica*), pumpkin berry (*Geocaulon lividum*), horsetail (*Equisetum* spp.), and spirea (*Spirea beauverdiana*). The common grass in this region is the bluejoint reedgrass (*Calamagrostis canadensis*) (NPS 2003; NPS 2008; Rice 2008).

#### 3.4.2 Wetlands

Wetlands that occur in the project area appear to be typical of wetlands throughout the Lake Clark region. These wetlands include palustrine (freshwater) scrub-shrub (shrub bogs), forested wetlands, palustrine emergent wetlands (freshwater marshes), and small open water ponds less than 20 acres in size (NPS 2008a). Other waters of the United States (U.S.) in the project area include lacustrine systems (lakes over 20 acres) and riverine systems, the wetted portions of rivers and streams (NPS 2008a). In the poorly drained areas inland from Port Alsworth, black spruce (*Picea maritima*) replaces the white spruce as the dominant tree species in areas of saturated soils (NPS 2003; NPS 2008). Understory species include Scouler's willow, Sitka alder, dwarf birch, lingonberry, and Labrador tea. Sphagnum moss and lichens (*Peltigera* sp., *Cladina* spp.) often form the ground cover (Rice 2008). In the wetter areas such as bogs and areas adjacent to aquatic sites, shrubs are the dominant cover and often include resin birch, bog blueberry, bog cranberry (*Vaccinium oxycoccus*), cloudberry (*Rubus chamaemorus*), shrubby cinquefoil (*Dasiphora fruticosa*) and Labrador tea. Sedges (*Carex* spp.) and cotton grass (*Eriophorum* spp.) occupy the wettest areas, often with standing water (Rice 2008).

Figure 3 shows the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) wetlands mapped in the vicinity of the land exchange parcels. Furthermore, the U.S. Army Corps of Engineers mapped a small freshwater emergent wetland between the two ponds south and east of the Hardenburg Bay parcel in Section 3 where an NPS-reserved easement traverses Tanalian, Inc. surface property between the community of Port Alsworth and the Point. In a one-day field trip on October 2, 2008, NPS staff found forested wetlands on north-facing slopes on the exchange parcels in Section 3 and 9, which were not shown on the NWI map data (Rice 2008). These are black spruce-dominated wetlands with thick sphagnum moss and wetlands shrubs and herbs in the understory. From photo-interpretation, about 4 acres of forested wetlands are estimated on the 15-acre parcel on Section 9. On the 16-acre Hardenburg Bay parcel, an estimate of 5 acres of forested wetlands and less than 1 acre of lakeshore and pond freshwater emergent wetlands exists on the south and north margins of the parcel. No wetlands field testing have been conducted on the more remote parcel of land in Section 16; however, the NPS adjusted the location of this parcel to avoid NWI mapped scrub-shrub and forested wetlands near the headwaters of an anadromous stream draining into Lake Clark.

Figure 3. Wetlands in the Port Alsworth Area



### **3.4.3 Soils**

Port Alsworth is located along the southeast shore of Lake Clark, and is bordered to the south by the east-west trending Tanalian River and its tributary streams. The proposed land exchange sites lie among rolling foothills of the Chigmit Mountains at elevations of 330 to 600 feet (USGS 1954). Glaciology in LACL has sculpted the majority of the surficial terrain as it appears today, with jagged peaks, spires, and broad U-shaped valleys in this region.

Surface soils in the Port Alsworth area are composed primarily of Humic Cryorthods that are very gravelly and occur on hills and steep slopes, and lesser amounts of Pergelic Cryofibrists on nearly level terrain. These soil types extend along the southeast shore of Lake Clark covering foot slopes and moraine hills of the Chigmit Mountains. This soil type typically occurs beneath a thick organic mat, and is formed primarily in very gravelly glacial till capped by a mantle of volcanic ash (up to two feet thick). Fibrous peat also occurs in muskegs and valley bottoms of the area (Soil Conservation Service 1979).

Shallow subsurface soils in the Port Alsworth area consist mainly of coarse-grained sand and gravel with minor admixtures of colluvium, typically ranging from 3 to 34 feet thick (Wilson 2009). Hart Crowser Inc. installed four groundwater monitoring wells in the vicinity of the NPS Headquarters in Port Alsworth. Subsurface materials encountered in borings consisted mainly of brownish-gray sandy gravel at shallow elevations (0 to 4.5 feet bgs) turning to sandy gravel with cobbles and sandy gravel with silt towards the bottom of the borings (at 45 feet bgs) (NPS 2004a).

## **3.5 Wildlife and Fish Habitat**

### **3.5.1 Mammals**

Large mammals found in the vicinity of the proposed land exchange sites include moose (*Alces alces*), black bear (*Ursus americanus*), and brown/grizzly bears (*U. arctos*). Brown bear are common in the area and regularly travel along the Lake Clark shoreline. Caribou (*Rangifer tarandus*) from the Mulchatna herd occasionally occur in the area. Dall sheep (*Ovis dalli dalli*) occur in the mountainous areas east of Lake Clark but do not occur in the forested areas along the shoreline.

The full suite of furbearers that include red fox (*Vulpes vulpes*), gray wolves (*Canis lupus*), coyote (*C. latrans incoloratus*), and lynx (*Lynx canadensis*) occur in the LACL area. Other furbearers include marten (*Martes americana*), river otter (*Lutra canadensis*), wolverine (*Gulo gulo*), ermine (*Mustela* spp.), mink (*Mustela vison*), hare (*Lepus* spp.), muskrat (*Ondatra zibethicus*), and beaver (*Castor canadensis*). Other common mammals that occur throughout the Port Alsworth area include red squirrels (*Tamiasciurus hudsonicus*), porcupines (*Erethizon dorsatum*), several species of voles, lemmings, and field mice (*Myodes rutilus*, *Microtus* spp.), and shrews (*Sorex* spp.).

### **3.5.2 Fish**

Lake Clark supports approximately 19 species of fish including: Arctic grayling (*Thymallus arcticus*), lake trout (*Salvelinus namaycush*), northern pike (*Esox lucius*), burbot (*Lota lota*), round whitefish (*Prosopium cylindraceum*), sockeye salmon (*Oncorhynchus nerka*), Chinook salmon (*Oncorhynchus tshawytscha*), Dolly Varden (*Salvelinus malma*). The Lake Clark watershed is an important spawning and rearing habitat for sockeye salmon and provides habitat for one of the most economically important salmon runs in Bristol Bay. Sockeye salmon, numbering in the hundreds of thousands (in some years, millions), annually enter Lake Clark to spawn in its tributaries as well as along the lakeshore. The Tanalian River and several unnamed drainages to the south are catalogued as anadromous streams by Alaska Department of Fish and Game (AFDG) (ADFG 2008). Resident fish species that are found in the Tanalian River are round whitefish, burbot, Arctic grayling, Dolly Varden, and slimy sculpin (*Cottus cognatus*).

Spawning sockeye salmon use the near shore beach habitats in Lake Clark as well as the both glacial and clear-water tributaries of the lake (Young 2004; Young D.B. and Woody 2007). Beach spawning has

been documented in the turbid lake waters along the shoreline of the outwash plain of the Tanalian River at Port Alsworth, including the waters of Hardenburg Bay (Young 2009). This beach spawning habitat is one of the five primary spawning areas within the lake system (Young D.B. and Woody 2007).

### **3.5.3 Birds**

The LACL provides important feeding and nesting grounds for native and migratory birds that include waterfowl, shorebirds, falcons, owls, songbirds, grouse, and ptarmigan (ADOT&PF 2007). Some of the common passerines or perching birds in this area include chickadees (*Parus* sp.), redpolls (*Carduelis* sp.), warblers (*Dendroica* sp.), ruby-crowned kinglets (*Regulus calendula*), robins (*Turdus migratorius*), and gray jays (*Perisoreus canadensis*) (NPS 2003). The woodland habitats support the largest number of species (28) and mixed spruce birch forests support the second largest number of species (27) (ADOT&PF 1991). One bald eagle (*Haliaeetus leucocephalus*) nest was reported in the vicinity of Port Alsworth in the 1990s (ADOT&PF 1991). Waterfowl utilize shallow tundra pond habitat and the deeper lacustrine habitat of LACL. Diving ducks and mergansers are the major breeding waterfowl species which occur in the surrounding area. American peregrine falcons (*Falco peregrinus anatum*) have been observed in the area but are not considered resident in the project area.

Currently there are no federally designated threatened or endangered species in the project area listed under the jurisdiction of the ESA or State of Alaska Species of Special Concern.

### **3.6 Visual Resources/Aesthetics**

The scenic beauty of LACL is one of the specific resources identified as unique and important to the area within the park's enabling legislation. NPS management objectives include minimizing potential effects to visual resources resulting from development activities. The landscape in the vicinity of the proposed project areas is dominated by natural features such as: open mixed needleleaf and deciduous forests (white spruce, paper birch, and balsam poplar), the Tanalian River and Hardenburg Bay, vegetated uplands, and distant views of the Alaska and Aleutian Ranges. The lowland areas of the region offer little variety in the visual landscape, with a slow progression into rolling hills and uplands. There is sparse human settlement and development in the region, allowing the area to retain almost total natural characteristics.

The Section 3 parcel is located on the south side of Hardenburg Bay (Photo 1). There is a small lodge, post office, and NPS "Birch Hill" employee housing located near the western boundary of this parcel. South of the parcel are several ponds that transition to uplands. The parcel offers spectacular views of surrounding mountains, including Tanalian Mountain to the east.

Most NPS management, housing, and maintenance functions are located on the west side of Hardenburg Bay, near the air strip. Existing NPS facilities at the air strip site include the headquarters office building, the resources office building, visitor center/hangar, two permanent housing units, four weatherports used for seasonal housing, several outbuildings, maintenance shop, warehouse, incinerator building, a fuel tank farm, a sewage lagoon and leach field, and a long-term outside storage yard. These buildings are typically painted dark colors and blend in with the forested environment. A small number of NPS facilities are also located on "The Point", a small peninsula that forms the southern boundary of the bay.



**Photo 1: Hardenburg Bay, looking south from Lake Clark, showing some existing structures (NPS)**

The two NPS 15-acre subsurface parcels (view of Section 9 parcel in Photo 2) are also thickly vegetated with deciduous forest of white spruce, paper birch, and balsam poplar. The ground surface on north-facing slopes is thickly mantled with sphagnum moss. The first parcel is located west of the Tanalian Falls Trail, and north of the Tanalian River. Openings along the trail allow good views of the beaver pond and Lake Clark itself. There is also an off-road vehicle (ORV) trail network on NPS land along the Tanalian River. It has been expanding, which has resulted in the degradation of the scenic quality of the area (NPS 2008). These trails bisect the natural landscape; however, their linear forms are often buffered by surrounding vegetation.



**Photo 2: View to the northwest from 15-acre NPS subsurface parcel (Section 9) located west of the Tanalian Falls Trail (NPS)**

### **3.7 Visitor Use and Recreation**

Port Alsworth, with a population of approximately 110, is a tourist-oriented community that primarily consists of private lodges and outfitters/guides serving fishermen, hunters, and other outdoor enthusiasts. Camping is allowed around Lake Clark on park lands or by permit on private lands. Port Alsworth is accessible only by aircraft from Anchorage (approximately 175 air miles to the northeast) or Iliamna (approximately 38 air miles to the southwest), or by boat from Nondalton. There are two privately-owned

and operated air strips in the area, a 3,000-by-100-foot dirt/gravel air strip operated by Glen Alsworth and the Farm Lodge, and a 4,200-foot gravel air strip operated by Jackie and David Wilder (ADCCED 2009).

Since 1982, the NPS has maintained its field headquarters at Port Alsworth. Wilderness travel, backpacking, hiking, rafting/kayaking, canoeing, hunting, and fishing are the primary activities in LACL. Other outdoor activities are possible in the park, including: aurora borealis viewing, rock climbing, backcountry skiing, dog mushing, mountaineering, snowmobiling, snowshoeing, and wildlife viewing (Photo 3) (NPS 2009b).

There is a staffed visitor center run by the NPS in Port Alsworth that provides interpretive displays, a gift shop, and up-to-date information regarding activities and conditions in the area. Approximately 500-700 visitors sign in annually at the visitor center, mostly within the summer months (Rice 2008a).

The Tanalian Falls Trail is a trunk trail that originates in Port Alsworth and allows access to other popular trails (NPS 2009b). Additional day hiking locations can be reached by plane or boat. The trail to the falls is 2.5 miles long, and is not heavily marked. Wildlife also uses the trail, providing visitors with opportunities for quality wildlife viewing. Other trails can be accessed from the Tanalian Falls trailhead.



**Photo 3: Black bear tracks along Hardenburg Bay, Port Alsworth (NPS)**

The NPS has been tracking visitor use at the Tanalian Falls Trail register. This register is also used by visitors hiking to Kontrashibuna Lake. Due to the lack of an official sign-in sheet at times, data collection is incomplete, but the data show trail use has declined from 755 registered users in 2004 to 223 registered users in 2007 (with four months of missing data) (Rice 2008a).

There are several established ORV trails between the Section 9 parcel and Dry Creek and the Tanalian River. ORV use is quite common in the area, primarily for access to firewood resources near Port Alsworth. These woodlot trails, located to the south of the Section 9 parcel (see Figure 2), also serve as one of the trunk trails to access the hiking trail system to Tanalian Mountain, Tanalian Falls, and Kontrashibuna Lake (NPS 2008). Another established ORV trail is located east of the Section 9 parcel, which runs north-south and connects into the Kontrashibuna Trail. This trail was assessed to be in fair to degraded condition (NPS 2008). Trails are shown in Figure 2.

Over time, the ORV trail network expanded along the Tanalian River with about 3.5 miles of trails on national parkland before the park was established. This network has resulted in trails providing duplicate access and vehicles degrading habitat by compacting soils and trampling vegetation as well as the scenic quality of the area (NPS 2008). Most existing ORV trail segments in the Port Alsworth area are rated in



fair or good or good condition (about 95 percent), with a few trail segments characterized as degraded (NPS 2008). The 2008 NPS Management of ORV near Port Alsworth EA resulted in a decision to designate 1.54 miles of ORV trails for any uses and to eliminate duplicate ORV trails where reasonable.

## 4.0 ENVIRONMENTAL CONSEQUENCES

Chapter 4 provides an evaluation of the potential effects or impacts of each of the alternatives on the resources described in the issue statements presented in Chapter 1.3.1, Issues Selected for Detailed Analysis.

### 4.1 Methodology and Impact Criteria

The direct, indirect, and cumulative impacts are described for each issue (impact topic) that was selected for detailed analysis (see Section 1.3.1). The impacts for each issue are based on the intensity (magnitude), duration, and context (extent) of the impact. Summary impact levels (negligible, minor, moderate, or major) are given for each issue. Definitions are provided below.

#### Intensity

- Low: A change in a resource condition is perceptible, but it does not noticeably alter the resource's function in the park's ecosystem, cultural context, or visitor experience.
- Medium: A change in a resource condition is measurable or observable, and an alteration to the resource's function in the park's ecosystem, cultural context, or visitor experience is detectable.
- High: A change in a resource condition is measurable or observable, and an alteration to the resource's function in the park's ecosystem, cultural context, or visitor experience is clearly and consistently observable.

#### Duration

- Temporary: Impacts would last only a single visitor season or for the duration of discreet activity, such as construction of a trail (generally less than two years).
- Long-term: Impacts would extend from several years up to the life of the plan.
- Permanent: Impacts are a permanent change in the resource that would last beyond the life of the plan even if the actions that caused the impacts were to cease.

#### Context

- Common: The affected resource is not identified in enabling legislation and is not rare either within or outside the park. The portion of the resource affected does not fill a unique role within the park or its region of the park.
- Important: The affected resource is identified by enabling legislation or is rare either within or outside the park. The portion of the resource affected does not fill a unique role within the park or its region of the park.
- Unique: The affected resource is identified by enabling legislation and the portion of the resource affected uniquely fills a role within the park or its region of the park.

### *Overall Summary Impact Levels*

Summaries about the overall impacts on the resource synthesize information about context, intensity, and duration, which are weighed against each other to produce a final assessment. While each summary reflects a judgment call about the relative importance of the various factors involved, the following descriptors provide a general guide for how summaries are reached.

- Negligible: Impacts are generally extremely low in intensity (often they cannot be measured or observed), are temporary, and do not affect unique resources.
- Minor: Impacts tend to be low intensity or of short duration, although common resources may have more intense, longer-term impacts.
- Moderate: Impacts can be of any intensity or duration, although common resources are affected by higher intensity, longer impacts while unique resources are affected by medium or low intensity, shorter-duration impacts.
- Major: Impacts are generally medium or high intensity, long-term or permanent in duration, and affect important or unique resources.

### *Impairment*

Impairment of a park resource(s) occurs when a resource would no longer fulfill the specific purposes identified in the park's establishing legislation (or proclamation) or its role in maintaining the natural or cultural integrity of the park, as described in the park's GMP, foundation document, or other significant guiding plan.

### *Cumulative Impacts*

Cumulative impacts are the additive or interactive effects that would result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions (RFFAs) regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). Interactive impacts may be either *countervailing* – where the net cumulative impact is less than the sum of the individual impacts or *synergistic* – where the net cumulative impact is greater than the sum of the individual impacts. Cumulative impacts were assessed by combining the potential environmental impacts of the alternatives with the impacts of projects that have occurred in the past, are currently occurring, or are proposed in the future within the Port Alsworth area.

Past projects in the Port Alsworth area include actions on NPS lands as well as on private lands. NPS has constructed several facilities including offices, storage areas, and residential structures. On nearby private lands, past actions include the construction of two private airstrips, private residences, and commercial lodges. In addition, utilities, roads, and trails (including 3.5 miles of ORV trails) have been constructed in the area. The total area of these effects is estimated at 175 acres.

Future activities include the potential subdivision and development of private lands. Tanalian, Inc. has made efforts to subdivide and sell land for private residences or commercial uses. ADOT&PF is considering development of a state airport in the Port Alsworth area; an airport planning process is underway. A draft master plan was issued in 2007, but a final decision has not been made on the project. This, the extent, location, and associated infrastructure of the proposed project are unknown and cannot be fully evaluated at this time.

## 4.2 Analysis of Impacts

### 4.2.1 Cultural Resources

#### Alternative 1: No Action (Cultural Resources)

Tanalian, Inc. would retain the surface rights to the parcels in Sections 3, 9, and 16, including any cultural artifacts contained in the surface layer. NPS would retain subsurface ownership of all three subject parcels, which could contain archeological deposits deeply buried beneath glacial deposits. The Section 3 parcel has the greatest likelihood for containing cultural resources; the parcels in Sections 9 and 16 have low probability for containing cultural resources.

Under the No Action Alternative, there is no change to Tanalian, Inc.'s ability to sell the surface rights to private entities for future development. If the land exchange does not occur, it is likely that Tanalian, Inc. would sell the Section 3 parcel. The third party or parties purchasing the land would not be subject to the agreement between Tanalian, Inc. and the NPS for cultural resource mitigation (described in Chapter 2.5.2). Thus, it is estimated that the No Action Alternative would have an indirect adverse effect on cultural resources in the project area; it would be a low intensity, long-term impact to important resources.

#### *Cumulative Impacts*

Past and present activities that have impacted cultural resources include land development and facility construction activities in the Port Alsworth area. While not all surface-disturbing activities have impacted cultural resources, approximately 175 acres have been disturbed in the project area. If Alternative 1 is implemented, the indirect impacts to cultural resources would have a minor contribution to cumulative impacts, as an additional 16 acres are likely to be sold for development.

#### *Alternative 1 Conclusion (Cultural Resources)*

There would be moderate impacts to cultural resources from implementation of Alternative 1. The level of impact on cultural resources from implementation of this alternative would not result in impairment of park resources that fulfill the specific purposes identified in the enabling legislation or that are essential to the natural or cultural integrity of the park.

#### Alternative 2: Proposed Action (Cultural Resources)

Cultural resources potentially located in Section 3 would be transferred to NPS management and would be protected from subdivision, sale, and long-term development.

It is foreseen that Tanalian, Inc. would extract sand and gravel from the Section 9 parcel, but systematic, subsurface archeological investigation of that parcel in June 2009 identified no cultural resources. However, road construction would be required to access the Section 9 parcel for gravel development. The road would extend from the existing Port Alsworth road system, across Tanalian, Inc. land, to the parcel. Road construction would likely impact a documented archaeological site on NPS and Tanalian, Inc. land near the Tanalian Falls trailhead. Mitigation measures would include NPS providing expertise to assist in documenting and protecting any cultural resources encountered.

The transfer of subsurface rights to the Section 16 parcel has little potential to impact cultural resources.

Implementation of the Proposed Action would have a low intensity, long-term impact to important resources.

#### *Cumulative Impacts*

If Alternative 2 is implemented, the anticipated development of the road to access the Section 9 parcel would contribute to cumulative impacts to cultural resources. However, the long-term management of the Section 3 parcel to protect potential cultural resources would have a countervailing contribution to the

cumulative effects (or beneficial impacts would offset some of the adverse impacts), as 16 acres of lands potentially containing cultural resources would be protected.

### ***Alternative 2 Conclusion (Cultural Resources)***

There would be moderate impacts to cultural resources from implementation of Alternative 2. The level of impact on cultural resources from implementation of this alternative would not result in impairment of park resources that fulfill the specific purposes identified in the enabling legislation or that are essential to the natural or cultural integrity of the park.

### **4.2.2 Land Status and Use**

#### **Alternative 1: No Action (Land Status and Use)**

Tanalian, Inc. would retain the surface rights to the parcels in Sections 3, 9, and 16, including the right to development. The private ownership and management of these parcels would continue to prohibit public access to this land, except through an easement or via permit. NPS would retain subsurface ownership of all three subject parcels, with no intent for development of subsurface resources.

There could be indirect impacts to land status and use of the Section 3 parcel as a result of the No Action Alternative because the accessibility and waterfront values may lead Tanalian, Inc. to sell the parcel. The land use could change from vacant to residential or commercial with the sale to private parties. Potential uses could include the construction of cabins, lodges, storage structures, docks, and the use of motorized boats, planes, and ORVs. A maximum of 16 acres could be cleared for development under Alternative 1, but more likely less than half of the 16 acres would be developed.

The No Action Alternative would have an indirect effect on land status and use in the project area; it would be a low intensity, long-term impact to an important resource. This resource is considered an important resource due to the waterfront values of the Section 3 parcel and the direction for management of the shoreline outlined in the LACL GMP (1984).

#### ***Cumulative Impacts***

Past developments on about 175 acres in the Port Alsworth area and future activities on lands being actively sold by Tanalian Inc. have and could impact land status and use in the project area. Past activities include prior land transfers, land development, and facility construction. RFFAs include the incremental subdivision and development of private lands, including lake-front properties. If Alternative 1 is implemented, the indirect impacts to land status and use would contribute to cumulative impacts, as the Section 3 parcel is considered likely for development.

#### ***Alternative 1 Conclusion (Land Status and Use)***

Implementation of Alternative 1 would have a moderate overall impact on land status and use. The level of impact on land status and use from implementation of this alternative would not result in impairment of park resources that fulfill the specific purposes identified in the enabling legislation or that are essential to the natural or cultural integrity of the park.

#### **Alternative 2: Proposed Action (Land Status and Use)**

The transfer of surface rights of the parcel in Section 3 from Tanalian, Inc. to NPS would have a direct impact to land status and use. The land exchange would connect the adjacent parcels' land ownership; NPS would own the surface estate in contiguous parcels. NPS ownership of this parcel would add to the amount of surface estate NPS owns on the shorefront of Hardenburg Bay, furthering the LACL GMP objective to consolidate ownership of the Lake Clark shoreline.

The transfer of subsurface rights for the parcels in Sections 9 and 16 from NPS to Tanalian, Inc. would not have an impact to current land use because the surface rights would be unchanged. Tanalian, Inc.

would retain the surface rights for these parcels, including the right to development. The indirect effect of the proposed land transfer would include the potential for Tanalian, Inc. to develop the subsurface estate.

NPS ownership of the additional 16-acre parcel in Section 3 would further LACL management objectives regarding protection and management of the shoreline and would be considered a long-term, low intensity, impact to land use. The Section 3 parcel is considered an important resource due to the waterfront values and the direction for management of the shoreline outlined in the LACL GMP (1984). The parcels in Sections 9 and 16 are considered a common resource; transfer of ownership to Tanalian, Inc. would have a long-term, low intensity impact to land use.

### *Cumulative Impacts*

The Port Alsworth area contains the largest aggregation of development on the Lake Clark shoreline because of the patented small tracts (NPS 1984). Past and present actions that have occurred in the vicinity have included development to serve recreational and management services, such as: conversion and expansion of private structures including offices, storage facilities, maintenance facilities, a visitor center, commercial lodge, private residences, utilities, roads, trails, and two private air strips (NPS 2005). These past actions have shaped present land status and use.

RFFAs include Tanalian, Inc.'s proposal for development of the parcel in Section 9; up to 15 acres could be developed for sand and gravel extraction or non-toxic solid waste burial. Tanalian, Inc. would also like to develop the Section 16 parcel, but access to it would require a future permit through NPS land, and is considered a speculative action at this time.

The Proposed Action would have a direct impact to land status and use because the NPS would acquire the surface estate to the parcel in Section 3; this action would have countervailing contribution to cumulative impacts to land status and use (or beneficial impacts would offset some of the adverse impacts). The Proposed Action would also contribute to the potential for cumulative impact to land status and use related to the parcel in Section 9; if the parcel is developed as proposed, a local gravel source would be available in the community and non-toxic solid waste could be stored, potentially accommodating additional development in the area. Access along the lower portion of the Tanalian Falls Trail would be affected by gravel hauling activities to the Section 9 parcel, which would require a road sturdy enough to support small dump trucks (5 cubic yards) over about 2,000 feet between the Port Alsworth roads and the Section 9 parcel. There would be no contribution to cumulative impacts to land use related to the parcel in Section 16 until access across NPS lands along the Tanalian River is obtained.

### *Alternative 2 Conclusion (Land Status and Use)*

The proposed transfer of 16 acres of surface lands to NPS (Section 3) would further the goals of the LACL GMP. The transfer of the rights to Tanalian, Inc. for subsurface development would contribute to cumulative effects to land status and use (Section 9). The scale of the proposed transfers is small, relative to the size of LACL; the overall summary impact level to land status and use is minor.

The level of impact to land status and use from this land exchange would not result in impairment of those park resources that fulfill the specific purposes identified in the enabling legislation or that are essential to the natural or cultural integrity of the park.

### **4.2.3 Vegetation, Wetlands, and Soils**

#### **Alternative 1: No Action (Vegetation, Wetlands, and Soils)**

Indirect impacts to native vegetation, wetlands, and soils may occur due to implementation of the No Action Alternative. Most of the existing current conditions of the native vegetation, wetlands, and soils would remain; however, Tanalian, Inc. has advertised its intent to subdivide and develop access to its surface lands south and east of Hardenburg Bay. Tanalian, Inc. would subdivide the lands into parcels no less than 3 acres. If Alternative 1 is implemented, the Section 3 parcel could easily be sold and developed.

Approximately one third of available acreage (16 acres) could be developed for access roads and buildings, resulting in a minor impact to area vegetation, wetlands, and soils. With the No Action Alternative, it is conceivable up to 4 acres of upland vegetation and soils and up to 2 acres of forested and freshwater emergent wetlands could be impacted on the parcel in Section 3. The degree of change in the soil stratigraphy or local soils distribution would depend on the level of development, but it is likely that only a very limited disturbance to soils on the parcel would occur.

There would be no extraction of sand or gravel at any of the three parcels. The levels of use are not likely to increase markedly on the parcels in the more remote locations (Sections 9 and 16), and there would be no foreseeable change in the native plant cover, wetlands, and soils on these parcels under the no action alternative. Implementation of Alternative 1 would result in a low-intensity, long-term impact to common resources.

#### *Cumulative Impacts (Vegetation, Wetlands, and Soils)*

Past and present actions in the Port Alsworth area have resulted in disturbance to vegetation, wetlands, and soils in the general area totaling approximately 175 acres. Actions have included development of park facilities, residential and commercial development, roads and trails, and construction of the air strip. RFFAs include continued development of private lands.

The No Action Alternative would contribute to the cumulative impact to vegetation, wetland, and soil resources; this action would afford no protection from development for the 16-acre surface parcel adjacent to Lake Clark.

#### *Alternative 1 Conclusion (Vegetation, Wetlands, and Soils)*

Under the No Action Alternative, existing conditions of vegetation, wetlands, and soils would likely persist on the parcels at Section 9 and 16 in the foreseeable future. A portion of the vegetation, wetlands, and soils would probably be removed from the 16-acre parcel on Section 3 if it is sold. Implementation of Alternative 1 would have a minor impact on vegetation, wetlands, and soils. This alternative would not result in impairment of park resources that fulfill the specific purposes identified in the enabling legislation or that are essential to the natural or cultural integrity of the park.

#### Alternative 2: Proposed Action (Vegetation, Wetlands, and Soils)

The Proposed Action would increase the surface acreage and decrease the subsurface acreage under management of NPS. This alternative would transfer the subsurface estate from the NPS to Tanalian, Inc. for approximately 30 acres (parcels in Sections 9 and 16). Direct impacts to the native vegetation, wetlands, and soils would not occur; these resources would remain in their present condition, as the surface estate of these parcels is currently under private ownership and subject to development.

Indirect impacts would include the right of Tanalian, Inc. to develop the subsurface estate of these parcels, potentially affecting vegetation, wetlands, and soils. Likely future development of the Section 9 parcel (for sand and gravel resources) would result in the clearing of some portion of the approximately 15 acres of mixed forest, including up to 4 acres of forested wetlands.

The proposed land exchange of approximately 16 acres of surface estate along Hardenburg Bay (Section 3) to NPS would result in a direct beneficial impact to native vegetation and wetlands along the lake because it would bring approximately 16 acres of surface estate under long-term management by the NPS. About 5 acres of forested wetlands and one acre of freshwater emergent wetland would be protected adjacent to Hardenburg Bay.

The impacts to vegetation, wetlands, and soils would be of low intensity, due to the small area affected. The duration of the action would be long-term, and the context of this impact is important as the native vegetation, wetlands, and soils provide primary production and habitat functions for fish wildlife, as identified by enabling legislation for the park.

### *Cumulative Impacts*

Past and present actions in the Port Alsworth area from development of park facilities, residential and commercial development, roads and trails, and construction of the air strip have resulted in a persistent, but low intensity loss of native vegetation in the general area (NPS 2005). RFFAs include the Tanalian, Inc. proposal to develop the parcel in Section 9 for sand and gravel resources, which could impact up to 15 acres of native vegetation, remote from the shoreline of Hardenburg Bay, and up to 0.5 acre for an access road to the Section 9 parcel.

The Proposed Action would have a countervailing contribution to the cumulative impact to vegetation resources; this action would afford protection of the shoreline adjacent to Lake Clark with the acquisition of the 16-acre surface parcel (Section 3). The Proposed Action would also contribute to the potential for cumulative impact to vegetation related to the parcel in Section 9; if the parcel is developed as proposed, up to 15 acres of common vegetation, wetlands, and soils could be impacted. There would be no contribution to cumulative impacts to vegetation, wetlands, and soils related to the parcel in Section 16.

### *Alternative 2 Conclusion (Vegetation, Wetlands, and Soils)*

The proposed land exchange of approximately 16 acres of surface estate (Section 3) for 30 acres of subsurface estate (Sections 9 and 16) would have a minor beneficial impact on native vegetation, wetlands, and soils by providing an additional 16 acres of surface protection to support fish and wildlife habitat along the south shore of Hardenburg Bay. This action would help maintain shoreline stability, reduce runoff and habitat alterations, and maintain the quality of the coastal resources for fish in Lake Clark and the surrounding watershed.

The level of impact to native vegetation, wetland, and soil resources from this land exchange would not result in impairment of resources fulfilling specific purposes identified in LACL enabling legislation or that are essential to the natural or cultural integrity of the park.

### **4.2.4 Wildlife and Fish Habitat**

#### **Alternative 1: No Action (Wildlife and Fish Habitat)**

Indirect impacts to wildlife and fish may occur due to implementation of the No Action Alternative. Most of the existing current conditions of the wildlife habitat would remain; however, Tanalian, Inc. could subdivide and develop access to its surface lands. The parcel in Section 3 is likely to be developed if the land is retained by Tanalian, Inc., resulting in a minor impact to wildlife habitat. Development of the Hardenburg Bay parcel (Section 3) could potentially have minor impacts to sockeye salmon beach spawning habitat in the nearshore waters of the bay or in the general areas as a result of increased human activities on or near this parcel.

However, there would be no foreseeable change in the wildlife habitat on the parcels in the more remote locations (Sections 9 and 16); fish habitat is not present on or near these parcels.

Implementation of Alternative 1 would result in a low-intensity, long-term impact to important resources. These resources are considered important resources, as protection of fish and wildlife habitat are identified as specific purposes for the establishment of LACL.

### *Cumulative Impacts*

Past and present actions affecting fish and wildlife habitat in the project area include human activities, including land development that alters fish and wildlife habitat. Past development included development of park facilities, residential and commercial development, roads and trails, and construction of the air strip. Approximately 175 acres of habitat has been disturbed in the project area. RFFAs include continued development of private lands.



The No Action Alternative would contribute to the cumulative impact to wildlife and fish habitat; this action would not afford protection of the nearshore waters and riparian habitat of the shoreline adjacent to Lake Clark (associated with Section 3 parcel).

#### *Alternative 1 Conclusion (Wildlife and Fish Habitat)*

Under the No Action Alternative, existing conditions of wildlife habitat would likely persist on the parcels at Section 9 and 16 in the foreseeable future. A portion of the wildlife habitat would probably be removed from the 16-acre parcel on Section 3 if it is subdivided and sold. There is also the potential for indirect impacts on salmon beach spawning habitat in the general area from increased human activity in the vicinity of the Section 3 parcel. This alternative would result in a minor impact on fish and wildlife habitat. This alternative would not result in impairment of park resources that fulfill the specific purposes identified in the enabling legislation or that are essential to the natural or cultural integrity of the park.

#### Alternative 2: Proposed Action (Wildlife and Fish Habitat)

The Proposed Action Alternative would increase the surface acreage and decrease the subsurface acreage under management of NPS. The surface estate is generally considered to provide habitat for wildlife and contribute to habitat for fish.

Impacts to fish and wildlife habitat resulting from this land exchange would include an increase in wildlife habitat (surface acreage) under long-term management by the NPS and the protection of waterfront property (Section 3 parcel). Near-shore salmon beach spawning habitat in the vicinity of Hardenburg Bay would be further protected from disturbances associated with increased shoreline development in this area.

The loss of 30 acres of subsurface estate (parcels in Sections 9 and 16) would not have direct impacts to wildlife and fish habitat, but the surface estate of these parcels are currently under private ownership and already subject to potential surface developments. However, the Section 9 parcel would likely be developed in the near future for sand and gravel extraction and non-toxic waste burial; these actions would create an indirect impact to wildlife habitat.

This transfer would be considered a direct beneficial impact to nearshore fish habitat and wildlife habitat, as it would add approximately 16 acres of surface estate (Section 3 parcel) into the protection of the park and estimated 880 feet of lakefront habitat, and shoreline for a small pond, which provides important habitat for migrating waterfowl. Considering the size of the park and the parcels in question, the impacts would be of low intensity and would not noticeably alter the existing conditions to wildlife and fish habitat. The duration of the action would be long-term; while additional land transfers could occur, NPS management of the land would likely continue into the future. The context of this impact is important, as wildlife and fish habitat were identified in the enabling legislation for the park.

The exchange and addition of 16 acres of surface estate would further NPS' conservation goals for the Lake Clark watershed and habitat for sockeye salmon. This action is in keeping with the GMP and legislation on which the park was established to provide for the protection of the red salmon fishery, wildlife, and habitat.

#### *Cumulative Impacts*

Past and present impacts on wildlife and fish habitat in the Port Alsworth area include loss of habitat to actions such as resident and commercial developments, roads and trails, and air strips. An estimated 175 acres of habitat have been impacted. In addition to surface vegetation clearing, disturbance to wildlife has occurred through a range of human activities such as air and surface transportation, subsistence activities and general human presence in the area. Recreational boat traffic along the shoreline of Lake Clark, including Hardenburg Bay, has occurred over many decades and continues to the present. These past and present actions have created persistent but low intensity impacts to wildlife and fish habitat. RFFAs include the future land transfers and development in the community.

The development of the Section 9 parcel by Tanalian, Inc. would impact up to 15 acres of common wildlife habitat, away from the shoreline of Hardenburg Bay. However, the Proposed Action would also have a beneficial direct impact to wildlife and fish habitat because this action would afford protection of the shoreline adjacent to Lake Clark with the acquisition of the 16-acre surface parcel (Section 3). Thus the Proposed Action would have a countervailing contribution to cumulative impacts to wildlife and fish habitat (or beneficial impacts would offset some of the adverse impacts).

#### *Alternative 2 Conclusion (Wildlife and Fish Habitat)*

The proposed land exchange of approximately 16 acres of surface estate (Section 3) for 30 acres of subsurface estate (Sections 9 and 16) would have a moderate impact to wildlife and fish habitat, which would be considered beneficial. This action would help maintain the quality of the water resources for fish and wildlife (esp. sockeye salmon, moose, and waterfowl) in Lake Clark and the surrounding watershed. This alternative would result in a moderate beneficial impact to wildlife and fish habitat in the project area. The level of impact to wildlife and fish habitat from this land exchange would not result in impairment of these resources fulfilling specific purposes identified in LACL enabling legislation or that are essential to the natural or cultural integrity of the park.

#### **4.2.5 Visual Resources/Aesthetics**

##### Alternative 1: No Action (Visual Resources/Aesthetics)

There would be no direct impact to visual resources because land ownership and use would not change at the three parcels.

Indirect impacts to visual resources may occur due to implementation of the No Action Alternative. The accessibility and waterfront values of the Section 3 parcel may lead Tanalian, Inc. to sell this land for private development; the corporation has other lands for sale in the vicinity. The sale of the Section 3 parcel could alter the existing landscapes and viewsheds (up to 16 acres) due to land clearing and construction of residences or commercial lodging thereby changing the natural visual setting.

The No Action Alternative would have a low intensity, long-term impact to important resources; visual resources are considered important because the scenic resources were identified as a purpose for establishing LACL.

##### *Cumulative Impacts*

Past and present activities that have impacted visual resources in the project area include development of approximately 175 acres. RFFAs include the continued incremental development of private lands, including lake-front properties; approximately 1,160 feet of shoreline lots are advertised for sale in the vicinity of Port Alsworth. Implementation of Alternative 1 would contribute to the cumulative impact on visual resources; this alternative would have the potential for up to 880 feet of shoreline clearing.

##### *Alternative 1 Conclusion (Visual Resources/Aesthetics)*

Implementation of the No Action Alternative would result in moderate impacts to visual resources. The level of impact on visual resources from implementation of this alternative would not result in impairment of park resources that fulfill the specific purposes identified in the enabling legislation or that are essential to the natural or cultural integrity of the park.

##### Alternative 2: Proposed Action (Visual Resources/Aesthetics)

Transfer of approximately 16 acres of surface estate along Hardenburg Bay (Section 3) from Tanalian, Inc. to the NPS would be a direct beneficial impact to visual resources along Lake Clark. Transfer of approximately 30 acres of subsurface estate from NPS to Tanalian, Inc. (Sections 9 and 16) would have no direct impacts to visual resources.

Indirect impacts to visual resources would include the potential for Tanalian, Inc. to develop the subsurface estate of the Section 9 parcel, potentially affecting visual resources in the area from the clearing of 15-acres of natural vegetation and an additional 0.5 acre of clearing for access roads. This parcel is thickly vegetated, and located near the Tanalian Falls Trail. Development of this parcel for sand and gravel resources would produce a disturbance in the natural landscape of the area, creating a negative impact to visual resources for users of the north part of the Tanalian Falls Trail, unless there was a sufficient vegetative buffer between the disturbed area and the trail. The ridge would obscure views of the development from the south part of the Tanalian Falls Trail beyond one half mile from the trail head.

The impacts of acquisition of surface estate by the NPS and the transfer of rights for subsurface development would be of low intensity, due to the small relative area affected; the existing conditions of visual resources in the area would not noticeably be altered. The duration of the action would be long-term, and add to the protection of resources identified within the park's enabling legislation and GMP. The context of the resources would be important; the visual resources of the area are identified within the park's enabling legislation.

#### *Cumulative Impacts*

Cumulative impacts to visual resources have grown as a result of past and present actions that have altered the natural environment, landscapes, and viewsheds around Port Alsworth and within LACL (estimated 175 acres). Development activities including residential and commercial development, development of NPS facilities, creation of roads and trails, and creation of the air strip have altered the visual landscape of the area. These past and present actions have created persistent but low intensity impacts to visual resources. RFFAs include the continued incremental development of private lands, including lake-front properties.

The transfer of the 16-acre Hardenburg Bay parcel (Section 3) to NPS would have a beneficial direct impact to visual resources and a countervailing contribution to cumulative impacts because this action would safeguard the pristine views of the shoreline adjacent to Lake Clark. The Proposed Action would also contribute to the potential for cumulative impact to visual resources related to the parcel in Section 9; if the parcel is developed as proposed, views from the Tanalian Falls Trail could be impacted. There would be no near term contribution to cumulative impacts to visual resources related to the parcel in Section 16. These impacts would be evaluated in a future request for access across NPS lands around Tanalian River.

#### *Alternative 2 Conclusion (Visual Resources/Aesthetics)*

The proposed exchange of one 16-acre parcel of surface estate (Section 3) to the NPS for 30 acres of subsurface estate to Tanalian, Inc. (Sections 9 and 16) would have a minor beneficial long-term effect to visual resources in the Hardenburg Bay area and likely short-term adverse impacts at the Section 9 parcel. The level of impact to visual resources from this land exchange would not result in impairment of these resources fulfilling specific purposes identified in LACL enabling legislation or that are essential to the natural or cultural integrity of the park.

### **4.2.6 Visitor Use and Recreation**

#### **Alternative 1: No Action (Visitor Use and Recreation)**

There would be no impacts to visitor use and recreation as a result of the No Action Alternative. Existing surface uses of the parcels would be expected to continue. Tanalian, Inc. would retain surface ownership of the three parcels. Due to the private ownership, public access is restricted without a permit.

#### *Cumulative Impacts*

As there are no impacts to visitor use and recreation under the No Action Alternative, there would be no contribution to cumulative impacts.

### *Alternative 1 Conclusion (Visitor Use and Recreation)*

The No Action Alternative would not result in impacts to visitor use and recreation. Existing surface uses of the three parcels would not change.

### Alternative 2: Proposed Action (Visitor Use and Recreation)

Transfer of approximately 16 acres of surface estate along Hardenburg Bay (Section 3) from Tanalian, Inc. to the NPS would be a direct beneficial impact to visitor use and recreation along Lake Clark. Approximately 500-700 visitors per year sign in at the NPS Visitor Center located nearby. Adding more acreage to NPS management would help to maintain the remote and wild experience offered by LACL. Also, as ORV use along Hardenburg Bay continues to increase, impacts may be mitigated or minimized through NPS management of contiguous parcels.

No direct impacts to visitor use and recreation are anticipated as a result of transferring approximately 30 acres of subsurface estate (Sections 9 and 16) from the NPS to Tanalian, Inc. There is presently no public access to these parcels in private ownership.

Indirect impacts include the potential for Tanalian, Inc. to develop the subsurface estate of these parcels, potentially affecting visitor use and recreation through increased road traffic, dust, and noise associated with gravel operations. The Section 9 parcel is likely to be developed in the near future; it is located near the Tanalian Falls Trail, which serves as the primary day hiking trail out of Port Alsworth and has recorded an average of nearly 400 registered users per season between 2004 and 2008. Development of this parcel for sand and gravel resources could produce a disturbance in the natural landscape and soundscape of the area, creating a negative impact to recreational users of the trail. Creation of an access road to Section 9 for sand and gravel extraction would increase the size and volume of vehicle traffic along the first segment of the Tanalian Falls Trail and affect recreational users in the area; however, this section of trail is on an easement NPS retained on lands conveyed to Tanalian, Inc. Creation of the sand and gravel site could also lead to an expansion of the ORV trail network, which could have negative impacts on recreation and visitor use through degradation of the scenic quality of the area, or decreasing opportunities for wildlife viewing.

The impacts of acquisition of surface estate by the NPS and acquisition of subsurface development rights by Tanalian, Inc. would be of low intensity, due to the small relative area affected, and would not noticeably alter the current recreation and visitor use in the area. The duration of the action would be long-term; gravel development in the Section 9 parcel would continue for several years, and NPS management of the Section 3 parcel would likely continue into the future. The context of the Proposed Action would be common, as this resource does not fill a unique roll within LACL.

### *Cumulative Impacts*

Cumulative impacts to visitor use and recreation have steadily increased as a result of past and present actions that have altered the environment around Port Alsworth and within LACL. Development activities including residential and commercial development, development of NPS facilities, creation of roads and trails, and creation of the air strip have all contributed to the visitor experience or recreation opportunities possible within the area. These past and present actions have created persistent, but low intensity impacts to visitor use and recreation. RFFAs include the continued incremental development of private lands, including lake-front properties.

The transfer of the 16-acre Hardenburg Bay parcel to NPS (Section 3) would have a beneficial direct impact to visitor use and recreation and a beneficial or countervailing contribution to cumulative impacts because this action would safeguard the visitor experience in the front-country of LACL around Port Alsworth. The Proposed Action would also contribute to the potential for cumulative impact to visitor use and recreation related to the parcel in Section 9; if the parcel is developed as proposed, visitor use and recreation in the vicinity of the Tanalian Falls Trail could be negatively impacted through increased

vehicle traffic, noise and dust associated with gravel truck and equipment access. There would be no contribution to cumulative impacts to visitor use and recreation related to the parcel in Section 16.

*Alternative 2 Conclusion (Visitor Use and Recreation)*

The proposed exchange of one 16-acre parcel of surface estate (Section 3) to the NPS for 30 acres of subsurface estate (Sections 9 and 16) to Tanalian, Inc. would have a minor beneficial impact to visitor use and recreation on the Section 3 parcel adjacent to Hardenburg Bay and a minor adverse effect along the Tanalian Falls Trail. The level of impact on visitor use and recreation from the proposed land exchange would not result in impairment of resources fulfilling specific purposes identified in LACL enabling legislation or that are essential to the natural or cultural integrity of the park.

## **5.0 CONSULTATION AND COORDINATION**

### **5.1 Agency Consultation and Coordination**

The NPS has determined that there are no Threatened and Endangered Species expected in the project area; therefore §7 consultation with the U.S. Fish and Wildlife Service (USFWS) is not required (Lance 2009).

### **5.2 List of Preparers**

This EA was developed under an NPS contract by URS Group, Inc. of Anchorage, Alaska. The NPS holds final responsibility for all content.

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**APPENDIX A**  
**ANILCA §810 SUBSISTENCE**  
**SUMMARY EVALUATION AND FINDINGS**

# **ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT (ANILCA), SECTION 810(A) SUMMARY EVALUATIONS AND FINDINGS**

## **I. INTRODUCTION**

This section was prepared to comply with Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA). It summarizes the evaluations of potential restrictions to subsistence uses that could result from the proposed exchange of interests in land in Lake Clark National Preserve. In short, Tanalian, Inc. requested from the NPS subsurface rights to two approximately 15-acre areas under their surface lands in exchange to the NPS a 16-acre surface parcel along the south shore of Hardenburg Bay. The proposed agreement between the National Park Service (NPS) and Tanalian Incorporated (Inc.) would be implemented through an ANILCA Section 1302 - land acquisition authority. Tanalian Inc. was recognized as a Native group in 1988 under the Alaska Native Claims Settlement Act of 1971. Corporation shareholders include local residents of Port Alsworth.

## **II. EVALUATION PROCESS**

Section 810(a) states:

“In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands...the head of the Federal agency...over such lands...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 such lands which would significantly restrict subsistence uses shall be effected until the head of such Federal agency—

(1) Gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to Section 805;

(2) Gives notice of, and holds, a hearing in the vicinity of the area involved; and

(3) Determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary...and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.”

When Congress passed ANILCA in 1980, it expanded the national park system in Alaska by creating new parks, monuments and preserves and making additions to existing units. In establishing these new park areas, ANILCA states the purposes for which Congress created each unit and outlines the allowed or permitted human uses and activities. ANILCA Title II Section 201(7)(a) states the following purposes for Lake Clark National Park and Preserve:

“To protect the watershed necessary for perpetuation of the red salmon fishery in Bristol Bay; to maintain unimpaired the scenic beauty and quality of portions of the Alaska Range and the Aleutian Range, including active volcanoes, glaciers, wild rivers, lakes, waterfalls, and alpine meadows in their natural state; and to protect habitat for and populations of fish and wildlife including but not limited to caribou, Dall sheep, brown/grizzly bears, bald eagles, and peregrine falcons.... Subsistence uses by local

residents shall be permitted in the park where such uses are traditional in accordance with the provisions of Title VIII.”

### **III. PROPOSED ACTION ON FEDERAL PUBLIC LANDS**

The proposed action would complete an exchange of interests in lands between the NPS and Tanalian Inc. The agreement would convey NPS subsurface rights and interests in two 15-acre tracts to Tanalian Inc. The NPS would receive surface rights and interests in a 16-acre tract located on the south shore of Hardenburg Bay from Tanalian, Inc. Currently Tanalian Inc. owns the surface estate of the two 15-acre tracts and the 16-acre tract, and the NPS owns the subsurface rights to all of Tanalian Inc’s land. Tanalian Inc. plans to use the 15 acre tracts to extract sand and gravel and construct a landfill in the future. The three tracts are now closed to ANILCA Title VIII subsistence uses. Federal subsistence regulations do not apply to State or private lands; however, State of Alaska regulations provide opportunities for residents and non-residents to take fish and wildlife on private lands, such as the Tanalian tracts involved in this land exchange. NPS acquisition of the surface rights would allow NPS qualified users to engage in ANILCA Title VIII subsistence uses on the 16-acre tract near Hardenburg Bay.

### **IV. AFFECTED ENVIRONMENT**

This section presents summaries of the affected environments pertinent to subsistence uses at Lake Clark National Park and Preserve. For a comprehensive description of the study area, see the “Affected Environment” chapter of the environmental assessment.

#### **LAKE CLARK NATIONAL PARK AND PRESERVE**

Lake Clark National Park and Preserve is located in South-central Alaska adjacent to Cook Inlet to the east and Iliamna Lake to the south. Subsistence uses are allowed within Lake Clark National Park and Preserve in accordance with Sections 201(7) (b) and 203 and Title VIII of ANILCA.

Section 803 of ANILCA defines subsistence uses 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 by-products of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade.”

In accordance with regulations in 36 CFR Part 13, residents of the NPS designated resident zone communities of Iliamna, Lime Village, Newhalen, Nondalton, Pedro Bay and Port Alsworth and people who reside inside the boundaries of the park are qualified to engage in subsistence activities in Lake Clark National Park. Local rural residents who do not live in these communities or in the park, but who have customarily and traditionally engaged in subsistence activities within the park may continue to do so with a subsistence use permit issued by the park superintendent. NPS qualified local rural residents are allowed to engage in Federal subsistence activities in Lake Clark National Preserve pursuant to ANILCA Section 203.

Resources utilized by NPS qualified subsistence users in Lake Clark National Park and Preserve include caribou, moose, brown and black bears, Dall sheep, beaver, snowshoe hare, fox, lynx, mink, wolf, wolverine, ptarmigan, waterfowl, salmon, trout, Dolly Varden, grayling, pike, suckers, various species of whitefish, burbot, berries, wild edible plants, plant materials and wood.

The land exchange area is characterized by alpine tundra and spruce-hardwood forest composed of white spruce, black spruce, white birch, quaking aspen, and balsam poplar. Hardenburg Bay is a small, enclosed bay with both sand and cobble beaches and surrounded by private lands. Five commercially operated lodges, the Tanalian Bible Camp, and the NPS administrative site with a tank farm, seasonal housing, and two historic buildings are located in the area.

Sport fishing is allowed in Lake Clark National Park and Preserve under State of Alaska sport fishing regulations. State regulations for the Kvichak River drainage apply to water adjacent to the land exchange. While Hardenburg Bay is open to sport fishing, most anglers prefer to fish in other areas of the park and preserve. Port Alsworth residents sport and subsistence fish in and near Hardenburg Bay for sockeye salmon, lake trout, pike, whitefish and suckers.

NPS qualified subsistence users are allowed to engage in subsistence fishing in Lake Clark National Park and Preserve under Federal subsistence fishing regulations.

Subsistence fishing takes place throughout the Lake Clark area but is generally concentrated near communities and permanent residences, seasonal fish camps, and areas where fish are known to spawn or congregate at specific times of the year. According to the Alaska Department of Fish and Game (ADFG) Subsistence Division, sockeye salmon (including redfish, or spawn-outs) accounts for over 60 percent of all fish and wildlife harvested by residents of Port Alsworth and Nondalton, the two resident zone communities in closest proximity to the area of the proposed action.

The most significant subsistence fishery relies on the runs of sockeye salmon that return to Lake Clark and its tributaries throughout the summer months. Port Alsworth residents harvest nearly 88 pounds of sockeye salmon per person each year. Subsistence salmon fishing generally takes place at family fish camps or fishing sites located close to home where salmon can be quickly butchered and processed by smoking, canning, freezing or salting. These fisheries are generally conducted using gill nets, which may be shared by several households. Port Alsworth residents utilize the Lake Clark shoreline southwest of Hardenburg Bay for gillnet sites to harvest sockeye salmon for subsistence use.

The following table summarizes the number of sockeye salmon taken for subsistence by residents of Port Alsworth for the years 2001 through 2005:

	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
<b>Port Alsworth</b>	1958	1201	1370	2455	2457

Subsistence harvest numbers for freshwater fish other than salmon are not regularly collected by ADF&G or NPS, so comparable numbers for rainbow trout, northern pike, whitefish and burbot are not available. Data collected from periodic community subsistence harvest surveys by ADF&G show that fish other than sockeye salmon account for less than five percent of the total fish and wildlife annually harvested by Port Alsworth residents.

NPS qualified subsistence users are allowed to engage in subsistence hunting and trapping in Lake Clark National Park and Preserve under Federal regulations. The following information summarizes the total harvest of key subsistence species by Port Alsworth residents, which may include Port Alsworth and the Hardenburg Bay area. The table below represents the number of each species taken between 1998 and 2007 by Port Alsworth residents.

## RECENT ANNUAL PORT ALSWORTH WILDLIFE HARVESTS

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
<b>Black Bear</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Brown Bear</b>	3	3	1	0	1	0	1	0	0	0	9
<b>Caribou</b>	13	32	4	0	0	1	1	5	7	0	63
<b>Moose</b>	3	3	2	1	0	2	1	2	1	0	15
<b>Sheep</b>	3	2	1	0	0	0	1	1	0	0	8

## SUBSISTENCE USE OF PLANT MATERIALS

Port Alsworth residents collect a variety of wild plants for subsistence use including berries, various green plants and most significantly, firewood. The majority of the berry, plant, and wood harvests occur close to Port Alsworth where resources can be accessed by foot or ORV in the summer months and by snowmachine in the winter.

According to the most recent ADF&G community subsistence harvest survey, Port Alsworth residents harvest approximately 4 pounds of berries per person each year. Use of other plants, greens and mushrooms is negligible with only 0.1 pounds collected per capita annually. Firewood accounts for the greatest use of vegetation in the park and preserve with an estimated 70 cords of wood harvested each year by community residents.

## V. ALTERNATIVES CONSIDERED

Two alternatives regarding the proposed land exchange have been evaluated:

Alternative 1 (No-Action Alternative): The no-action alternative describes the status quo. The NPS and Tanalian, Inc. would not complete a land exchange. The NPS would retain the subsurface rights to all of the Tanalian, Inc. lands, including the two 15-acre tracts, and Tanalian, Inc. would retain the surface estate to all 3 tracts, including the 16-acre tract on the south side of Hardenburg Bay. These private lands would remain closed to ANILCA Title VIII subsistence uses.

Alternative 2 (Proposed Action): The second alternative describes the proposed action. The NPS and Tanalian, Inc. would complete a land exchange and Tanalian, Inc. would acquire the subsurface rights to two approximately 15-acre areas under their surface lands. In exchange, Tanalian, Inc. would convey to the NPS a 16-acre surface tract on the south shore of Hardenburg Bay. NPS acquisition of the surface rights would allow NPS qualified subsistence users to engage in ANILCA Title VIII subsistence uses on the 16-acre tract.

## VI. SUBSISTENCE USES AND NEEDS EVALUATION

Both alternatives have been analyzed using the following three evaluation criteria to determine potential impacts on subsistence activities:

1. The potential to reduce important subsistence fish and wildlife populations by (a) reductions in abundance; (b) redistribution of subsistence resources; or (c) loss of habitat.

2. Potential impacts the action may have on access for subsistence hunters and fishermen

The potential for the action to increase competition among hunters and fishermen for subsistence resources.

### **1. The potential to reduce populations:**

**Alternative 1 (No-Action Alternative):** The no-action alternative would maintain the status quo with the NPS retaining the subsurface rights to all of the parcels under consideration and Tanalian, Inc. retaining the surface estate. The NPS would not acquire surface rights to the 16-acre parcel on Hardenburg Bay. Maintaining the status quo would not significantly reduce or redistribute populations of fish and wildlife used for subsistence or result in a significant loss of habitat.

**Alternative 2 (Proposed Action):** The proposed action would complete a land exchange between the NPS and Tanalian, Inc. Tanalian, Inc. would acquire the subsurface rights to two approximately 15-acre areas under their surface lands. In exchange, Tanalian, Inc. would convey to the NPS the surface rights to a 16-acre parcel abutting the south shore of Hardenburg Bay.

A reduction in populations of subsistence fish and wildlife resources is not anticipated. Fishing, berry picking, and woodcutting are the primary subsistence activities taking place in the immediate vicinity of Port Alsworth. The proposed action should have no long-term effect on fish populations. The loss of some berry bushes, wild edible plants, and trees may occur where sand and gravel extraction sites would eventually be developed. This would have no significant reduction on the availability and overall abundance of plant resources in the area, and 16 acres of land would become available for federal subsistence uses

The proposed land exchange properties are located near developed areas in Port Alsworth. The future construction of sand and gravel extraction sites or a new landfill in the area should not significantly affect wildlife populations. The proposed action is not expected to significantly affect subsistence habitats or result in any measurable reduction in or redistribution of wildlife or other subsistence resources. Provisions of ANILCA and State and Federal regulations provide protection for fish and wildlife populations within Lake Clark National Park and Preserve.

### **2. Restriction of Access:**

**Alternative 1 (No-Action Alternative):** The surface lands of the two 15-acre parcels and the 16-acre parcel along Hardenburg Bay are privately owned by Tanalian, Inc. Maintaining the status quo would not significantly limit or restrict access to subsistence resources in Lake Clark National Park and Preserve.

**Alternative 2 (Proposed Action):** The proposed land trade would enable Tanalian, Inc. to develop a landfill for the community of Port Alsworth. The two 15-acre parcels would remain closed to ANILCA Title VIII subsistence uses. The proposed action will not limit or restrict the access of subsistence users to natural resources within the park or preserve. NPS acquisition of the surface rights on the 16-acre tract would allow NPS qualified users to engage in ANILCA Title VIII subsistence uses on that tract. Federal and State regulations assure the continued viability of fish and wildlife populations.

### **3. Increase in Competition:**

**Alternative 1 (No-Action Alternative):** The surface estate of the two 15-acre parcels and the 16-acre parcel is privately owned and access to subsistence resources on the property is controlled by Tanalian,

Inc. Maintaining the status quo would not result in increased competition for fish, wildlife or other resources that would significantly impact subsistence users in Lake Clark National Park and Preserve.

**Alternative 2 (Proposed Action):** The proposed action would not result in increased competition for fish, wildlife or other resources that would significantly impact subsistence users in Lake Clark National Park and Preserve. Federal and State regulations assure the continued viability of particular fish or wildlife populations. If it is necessary to restrict the taking of fish and wildlife to assure the continued viability of a fish or wildlife population or the continuation of subsistence uses of such population, subsistence uses are given a priority over other consumptive uses.

## **VII. AVAILABILITY OF OTHER LANDS**

Tanalian Inc. has over 2,000 acres of surface lands it could exchange for NPS subsurface rights under the same area, but the two parties discussed and agreed upon the parcels of land being considered in the proposed land exchange.

## **VIII. FINDINGS**

This analysis concludes that the proposed action *will not* result in a significant restriction of subsistence uses.

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