Mention by the U.S. Department of the Interior National Park Service of trade names or commercial products does not constitute endorsement or recommendation for use.

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to assure that their development is in the best interests of all. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The National Park Service, Alaska Support Office, provided publication services.

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1.0 PURPOSE AND NEED

The National Park Service (NPS) is considering improvements to the Silver Salmon Creek Ranger Station and employee quarters in Lake Clark National Park and Preserve with the construction of a modest-sized cabin, two toilets, and modest systems for potable water and waste water disposal. The cabin would replace a wall tent platform and frame. No toilet or potable water system is now available at the ranger station. Nor is there a public toilet in the area, which area has seen a dramatic increase in public use in recent years. Figure 1 shows the location of the seasonal ranger station in Lake Clark National Park and Preserve, which is outside the park's designated wilderness.

1.1 Purpose of Project

The primary purpose of the project is to improve human health and safety for both park rangers and the visiting public to the area. Proposed developments would also provide a base from which the NPS could improve the quantity and quality of visitor contacts.. Improvements could also protect area resources such as water quality, visual quality, and fish and wildlife habitat. This would be accomplished by constructing a 20-foot by 26-foot hard-sided log cabin at the existing wall tent platform site, a shallow sand-point water well with filter and treatment system, a gray-water disposal system at the station, and two outhouses, one serving the visiting public. Figure 2 shows the location of the Silver Salmon Creek Project area.

1.2 Need for Project

The seasonal ranger is exposed at all times to high concentrations of brown bears in the area. While electric fences are probably sufficient to deter most bears from a temporary site, they are not optimal for the seasonal operation as exists at Silver Salmon Creek. A partial hard-sided wall tent provides insufficient shelter from bears while the ranger is cooking and sleeping. Rodents have access to all parts of the wall tent and most of the food and equipment stored there. Furthermore, adverse weather on the Cook Inlet Coast of Alaska compromises the integrity of the existing structure. Tents are inadequate for drying clothing and equipment in wet weather conditions.

An improved water source is needed for the health of NPS staff. Current Department and NPS safety directives compel the park to provide a safer and healthier working and residential environment for employees at Silver Salmon Creek.

Park Incidental Business Permit (IBP) operations have increased over 50% since 1994, with many operators increasing their bear viewing and sport fishing opportunities at Silver Salmon Creek. In response to increased pressures on resources the NPS has enhanced its presence in this location to protect important park resources and assure visitors a safe and favorable experience. A permanent ranger quarters and public contact facility is proposed for the existing ranger quarter tent site adjacent to the beach landing area. This facility provides a base for park employees to monitor impacts to fish and wildlife habitat and to provide critical information, guidance, and emergency support. A

public toilet would improve conditions for visitor and environmental health and safety. At present the seasonal ranger and public either dig shallow latrine holes or deposit human waste directly on the ground. In summary, the proposed permanent structures at the seasonal ranger facility at Silver Salmon Creek would enhance the NPS interpretive and interactive efforts at minimal cost, ultimately improving both the quality of visitor experiences and compliance with resource protection regulations.

This environmental assessment (EA) analyzes the proposed action and alternatives and their impacts on the environment. The EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9).

1.3 NPS Policies and Purpose of the Park

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

> "…conserve the scenery and the natural and historic objects and the wild life 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 U.S.C. 1.)

The 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 U.S.C. 3.)

1978 amendments to the 1916 NPS Organic Act and 1970 NPS General Authorities 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 U.S.C. 1-a1.)

The Alaska National Interest Lands and Conservation Act of 1980 (ANILCA) established Lake Clark National Park and Preserve. 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:

> Lake Clark National Park and Preserve … shall be managed for the following purposes, among others: … to maintain unimpaired the scenic beauty and quality of portions of the Alaska Range and Aleutian Range, including active volcanoes, glaciers, wild rivers, lakes, … 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 NPS Organic Act and the General Authorities Act prohibit impairment of park resources and values. The 2001 NPS Management Policies uses 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 Organic Act's fundamental purpose and any additional purposes as stated in the park's establishing legislation. The impairment of park resources and values may not be allowed unless directly and specifically provided by statute. The primary responsibility of the NPS is to ensure that 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.

The evaluation of whether impacts of a proposed action would lead to an impairment of park resources and values is included in this environmental assessment. Impairment is more likely when there are potential impacts to a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

1.4 Relationship to Other Park Planning

The Lake Clark National Park and Preserve General Management Plan (GMP) calls for the development of seasonal ranger stations, including at Silver Salmon Creek (NPS 1984). Though the plan calls initially for temporary tents on platforms, as exist now, this option has outrun its usefulness at Silver Salmon Creek. New facilities are to be architecturally harmonious with the natural and cultural setting and designed and built with the most suitable materials and equipment to conserve resources and protect the environment. The plan also identifies waste disposal as a significant problem throughout the park and preserve.

In the GMP Preliminary Wilderness Suitability Review, most of Area 3 between Tuxedni and Chinitna Bays is suitable as wilderness though there are several private parcels in the vicinity of the mouth of Silver Salmon Creek. In the Wilderness Recommendation Final Environmental Impact Statement for the park the NPS proposed recommending to Congress no more wilderness designation in the park because of private land uses (NPS

1988). This proposal was not forwarded by the Secretary of the Interior to the President for a recommendation to Congress.

1.5 Background Information

Wild resources have generated huge economic benefits for Alaska in recent years. Lake Clark National Park and Preserve has been no exception. According to the U.S. Fish and Wildlife Service, in the year 2000 hunters and anglers in Alaska spent $217 and $536 million, respectively. Since 1990 license holders have increased by 39%. Guided sport fishing charters and bear viewing expeditions have burgeoned along the Cook Inlet coast where these industries look to new areas to distance themselves from the congestion on the Kenai Peninsula, Matanuska-Susitna Valley, and more popular destinations in Southwest Alaska.

Difficulties caused by geography, distance, and weather continue to impact the NPS' ability to address resource use pressures from visitors originating from the park's neighboring communities on the Kenai Peninsula.

The proposed project would be consistent with the findings of a Kenai Peninsula community panel convened in 2002 to identify actions to improve compliance with regional resource protection regulations. These gateway communities to Lake Clark's coastal region identified a growing concern for more consistent presence of NPS personnel to address the large influx of tourist traffic to this pristine environment.

Resource protection in Alaska's coastal environments is of broad common interest to both the State and Federal governments. However, these large geographic expanses suffer an absence of infrastructure to support patrols, visitor interaction, and related activities. This is a critical issue for Lake Clark National Park and Preserve resource protection priorities.

1.6 Issues Considered for Evaluation

To focus the EA the NPS identified specific issues for analyses and eliminated others, which have little bearing on the project. Descriptions in the affected environment and impact analyses in the environmental consequences relate to these issues for each alternative. A brief rationale for the selection of each topic is given below.

1.6.1 Cultural Resources: No archeological survey has occurred at the project area; therefore ground disturbing aspects of the project including excavations for the evaporative toilets or outhouses or the well could impact presently unknown archeological resources including possible human remains.

1.6.2 Human Health and Safety: The existing ranger residence and storage area is not secure from brown bears. The station lacks an acceptable toilet or outhouse facility for the seasonal ranger and visiting public, and no potable water is available at the station.

1.6.3 Park Management: The NPS lacks a secure and attractive ranger station to project professionalism and attract the public to ranger services for information and assistance.

1.6.4 Soils and Vegetation: Soil surfaces could be scarified or compacted during transport of materials to the site and construction of the new facilities.

1.6.5 Visual Quality/Aesthetics: Large bright tents and human trash, debris, and waste detract from and are not harmonious with the natural setting of the area.

1.6.6 Water Quality and Aquatic Resources: Shallow deposits of human waste near an active salmon spawning stream and beach area could adversely affect surface and ground water quality.

1.6.7 Wildlife and Habitat: The area is renowned as high quality brown bear habitat and silver salmon fishing, and growing human use in the area needs to be carefully managed to prevent habitat deterioration and adverse bear-human interactions.

1.7 Issues Dismissed from Further Evaluation:

1.7.1 Air Quality: No measurable effect to ambient air quality would likely occur from the project.

1.7.2 Coastal Zone Management: A negative determination for coastal zone effects is documented in appendix A because no adverse affects to the coastal zone would occur with this project.

1.7.3 Floodplain: The project would not likely have any measurable effect on floodplains or floodplain values in the area.

1.7.4 Noise: There would be negligible effect on the natural sound environment from the sounds of materials transport and facilities construction.

1.7.5 Socioeconomic Values: The small project would have a negligible effect on adjacent area businesses.

1.7.6 Subsistence: An ANILCA Section 810 Evaluation is included in appendix B, but no effects on subsistence resources or uses are expected from the ranger station project.

1.7.7 Threatened and Endangered Species: No known threatened or endangered species are known to occur in the area, except the migratory spectacled and Steller's eiders. These species, however, would likely be unaffected by the proposed project because they use the area in winter when operations are shut down. A letter from the U.S. Fish and Wildlife Service confirms no impacts to threatened and endangered species are likely from the proposed project (appendix C).

1.8 Permits and Approvals Needed to Complete the Project

The NPS barge landing is a generally allowed use on state land below mean high tide (11 AAC 96.020). The NPS would need to comply with Alaska Department of Environmental Conservation (ADEC) standards for the toilet facilities would follow pertinent regulations and would not adversely affect surface or ground water quality in the area (18 AAC 72.030).

2.0 ALTERNATIVES

2.1 Alternative A- No Action

Under this alternative, no new structures would be constructed, no structures would be relocated and no existing structures would be reconstructed. NPS operations would continue as they have in recent years with the existing facilities. (See cover sheet and Figure 3.)

Ranger Quarters and Weatherport Storage
The ranger station consists of a canvas 12 ft. X 12 ft. tent frame structure with a 4 ft. porch and plywood floor elevated on wood skids and partial plywood walls four feet in height. The remainder of the walls and roof are treated (waxed) canvas. A 12 ft. X 16 ft. Weatherport is located next to the wall tent and is used for storage and occasional sleeping quarters for visiting NPS employees. The existing wall tent and Weatherport each cover 192 sq. feet for a total of about 384 sq. ft. All buildings are either placed on skids or erected directly on the ground with no grading or site modification necessary. The structures are encircled by an electrical fence to deter bears from entering the compound for a total enclosed area of 3,485 sq. feet. Voles and their sign are found throughout these structures.

Power and fuel
The ranger cabin has limited electrical power from batteries and a solar panel and a back-up generator used during periods of slow solar gain (autumn and heavy cloud cover in this coastal environment). No more than 5 gallons of fuel are stored at the site. Propane is used for cooking and gives off moisture, which causes mildew in the tent.

Sanitary Disposal
During the first summer season in 2002, the seasonal ranger used a portable chemical toilet and transferred waste to Port Alsworth or the Kenai Peninsula periodically. This unwieldy practice was subsequently abandoned and the ranger and visiting public dig shallow cat-holes to dispose of human waste. Wash water is carried to the beach during low tide and broadcast over the sediments where particles are covered with sea water, degraded by intertidal biota, or washed away.

Water source
In 2003 a ranger became ill with a waterborne parasite from filtered water. Since that incident NPS employees get drinking water from a nearby lodge with well. The well is approximately 22 ft. deep and is purified to ADEC standards by a U/V decontamination system.

Costs
The no-action alternative would not cost the NPS any additional money. There would be costs in terms of low staff availability to contact the public and respond to emergent issues due to time away from the duty station to accomplish daily subsistence chores.

2.2 Alternative B – Proposed Action *(NPS Preferred Alternative)*

Under this alternative, NPS facilities at Silver Salmon Creek would be improved with a hard-sided cabin, two outhouses, a well, and a waste water disposal system. The cabin would be in essentially the current location of the wall tent. There would be minimal or no excavation for leveling of the cabin. All buildings would be built on skids so that they can be moved if necessary. The footprint of all of the proposed structures would be 836 sq. ft. (See Figure 3.)

Ranger Station
A 20 ft. X 26 ft. ranger quarters and public contact station would be constructed using a preassembled log cabin package with a pitched metal roof in the present location of the canvas wall tent and Weatherport tent. The building would have 6 ft. X 20 ft. covered deck. The purpose for the building would be expanded from quarters to a point-of-contact with visitors. The footprint of this building would be 520 sq. ft. (See Figure 4.)

Storage Shed
The wall tent frame would be moved southwest from its present location to an open area 20 to 30 yards from the ranger station behind the ranger cabin. Total area of impact would be 144 ft^2 minus the deck area. This frame would be enclosed in plywood, topped with a metal roof, and relegated to storage. The Weatherport would be dismantled and removed from the compound.

Power and Fuel
The ranger cabin would have limited electrical power from batteries and a solar panel and a back-up generator used during periods of slow solar gain (autumn and heavy cloud cover in this coastal environment). Lighting, cooking and refrigeration would be from bottled propane. When necessary, heat would be provided by an oil stove or woodstove.

Sanitary Disposal-Construction of Outhouses
There are two options for outhouse construction. If possible by ADEC standards, a single stool 4 ft. X 4 ft. plywood pit outhouse would be constructed and located behind the ranger cabin from view of the visiting public. The NPS employee outhouse would be located within 30 feet of the ranger station.

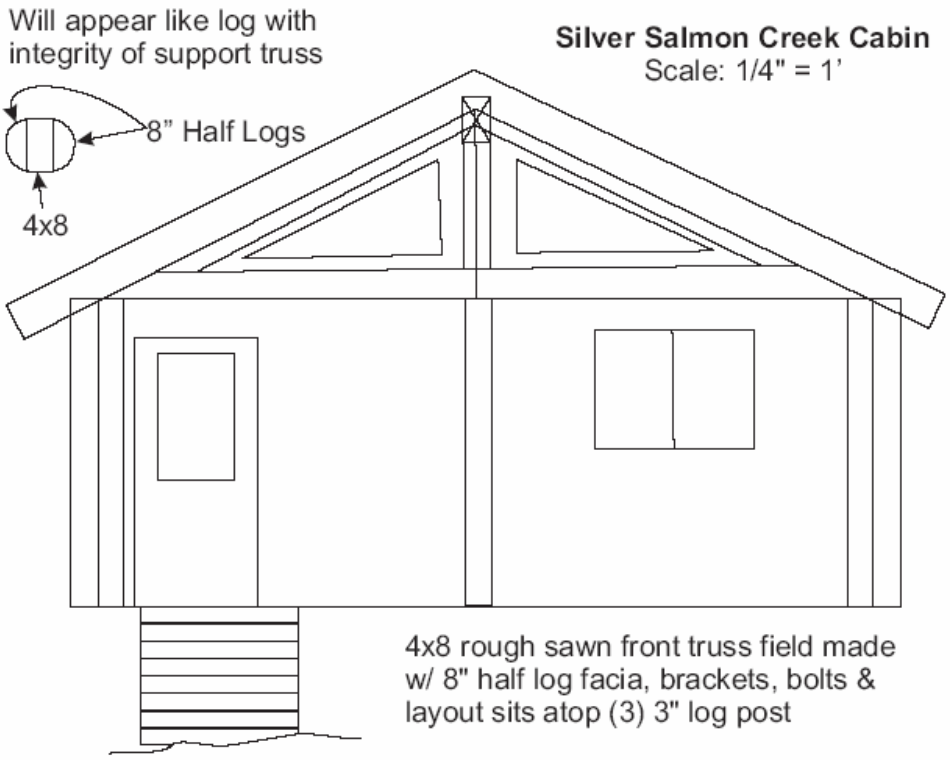


Figure 4. Ranger Station Cabin Plan

According to ADEC standards, the minimum horizontal separation distance between the outhouse pit and surface waters should be 100 feet, and the separation between the lowest point of the privy and the water table must be at least four feet The vertical distance to standing water below the project site is unknown at this time. If groundwater depth is too shallow to allow a pit outhouse, an evaporative toilet would be installed to reduce and remove waste in a manner that protects public health and the environment. This structure would be slightly larger than a pit outhouse, and would include a holding tank and solar panels to drive fans to evaporate liquids from the waste (appendix D).

The public outhouse would be constructed and located next to an access trail in view of the visiting public. Total area of impact would be between 25 and 36 ft^2, depending on the type of construction.

Sanitary Disposal-Wastewater
A system to treat and dispose of "grey" water generated by such household functions as dishwashing and cooking is currently being evaluated. The system will comply with ADEC regulations regarding grey water disposal. All leached water from the system would be 4 feet above the water table.

Water Well
Rain water would be collected from the roof of both buildings for non-potable purposes. For potable water, a sand point well would be drilled at the nearest possible location on the landward side of Silver Salmon Creek. The well depth would probably be 15 to 25 feet deep and would need to be filtered with a particle filter that removes 99% of all giardia-sized particles and disinfected with a U/V system or chlorine tablets to comply with EPA surface water treatment rule. Water would be collected from this location and transported as necessary to the ranger cabin along existing access trails (appendix D).

Methods of Construction
Construction would be accomplished using hand tools. A small gasoline generator may be used to power electrical hand tools. A backhoe may be borrowed from local residents and used to set the cabin ridgepole and excavate holes for privies and wash water treatment. The seasonal rangers and construction crew would be housed in tents inside the bear fence during the construction period.

Methods of Transportation of Materials to the Site
A four-wheel OHV and trailer would be used to transport materials from the beach along a five-foot wide existing access trail to the cabin site. A backhoe from a nearby lodge could access the construction site via the beach below mean high water.

Schedule for Development
- May 20, 2005, NPS spring site visit tests depth to groundwater for pit toilets.
- June 10, 2005, supply barge delivers materials
- June 10, 2005, field crew unloads materials
- June 10 - July 15, field crew assembles log cabin package and constructs ranger toilet facilities and installs well and waste water facilities
- September 20-30, 2005, field crew constructs the public use toilet facilities

Costs
The ranger station facility improvements are estimated to cost a total of $80,000. This estimate includes the purchase of a pre-fabricated cabin and outhouses, transport to the site, and construction.

2.3 Alternative Considered but Eliminated from Further Consideration

Cabin building sites on the landward side of the creek were considered. One of the primary purposes for the proposed facility, however, is frequent visitor contact and education. The main visitor access trail is near the current tent site, making that site preferable for achieving park management and visitor service goals.

NPS personnel have used portable toilets with chemical treatment for personal use in the past. NPS employees found portable toilets impractical because of long intervals between occasions for removal to sewage systems and the cost of hauling refuse to sewage systems in Pt. Alsworth or across Cook Inlet.

2.4 Environmentally Preferred Alternative

Alternative B, the NPS Proposed Action, is the environmentally preferred alternative because it would reduce sanitation and human health and safety issues in the Silver Salmon Creek area. The hard-sided ranger cabin would replace a wall tent and better protect seasonal rangers, their food, and other resources from curious local area bears. Bears would be less likely to become food habituated and therefore less likely to be killed in defense of life and property. The cabin and developed fresh water supplies would enable the seasonal rangers to be present a greater percentage of the time to contact first-time visitors to the area to provide information on sport fishing regulations and best practices to avoid adverse bear-human encounters. This alternative would also provide public and ranger resident outhouses to eliminate potential local area pollution from human waste.

2.5 Summary Table of Alternative Impacts

Impact Topics	Alternative A: No Action	Alternative B: NPS Proposed Action
1. Cultural Resources	Low potential for adverse impacts to cultural resources from continued practice of “cat holes” for disposal of human waste and the erosion of unidentified archeological resources from access trails.	Excavation of sites for toilets, a wash water disposal barrel, and sand point well would have a low potential to adversely affect unidentified cultural resources because of the archeological testing before construction.
2. Human Health and Safety	The impact to health and human safety would be moderate because of continuing potential of food-conditioning bears and potentially	The impacts would be long-term and beneficial with a measurable decrease in human health hazards from bear food-conditioning and

2.5 Summary Table of Alternative Impacts		
Impact Topics	**Alternative A: No Action**	**Alternative B: NPS Proposed Action**
	degrading environmental quality through human fecal deposition in the riparian area.	improper disposal of human wastes.
3. Park Management	The impact to park management would be minor negative impact because of the reduced availability of rangers to contact first-time visitors and monitor conditions. This alternative would continue to negatively impact park management operations, both in the short-term and the long-term as a result of inadequate administrative support facilities.	The positive impacts of this project are likely to be localized, long-term, and moderate in intensity. Anticipated measurable management impacts may include reduction in food-conditioned bear incidents and/or negative bear encounters, and better compliance with park guidelines for food and fish storage. Park rangers would be able to operate more efficiently where they are needed without relying on local residents for support functions.
3. Soils and Vegetation	Under the no action alternative impacts to soil and vegetation resources would be negligible.	Impacts to soil and vegetation resources would be minor under the proposed action.
4. Visual Quality/ Aesthetics	The temporary wall tent and Weatherport would continue to have a minor adverse affect on the visual quality of area.	Impacts to visual quality would be localized, long-term, and of minor adverse impact to the area, though a log cabin would be more aesthetic than a wall tent.
5. Water Quality and Fish	Overall, there would be a minor adverse effect on water quality and management of the sport fishery.	There would be a local, minor beneficial effect on water quality and sport fishery management.
6. Wildlife and Habitat	There could be a localized minor adverse effect on bears because rangers would not always be available to contact an increasing number of first-time visitors to provide them with critical information on behavior in bear country.	The new structures would cover a small but measurable area of habitat; however, these effects to wildlife habitat would be minor. There would be a localized long-term moderate beneficial effect on bears because rangers would be available to contact a greater number of first-time visitors.

3.0 AFFECTED ENVIRONMENT

This chapter describes the existing conditions at the project site and vicinity.

3.1 Cultural Resources

The location of the Silver Salmon ranger station on a well-drained landform adjacent to a productive salmon stream indicates increased potential for the presence of archeological resources related to historic or prehistoric occupation of this location by the Dena'ina or possibly earlier occupants. To prevent adverse impacts to unidentified archeological resources NPS archeologists would conduct a subsurface testing program at the sites of ground disturbing activities associated with this project.

3.2 Human Health and Safety

There are two lodges in the area that bring in clients in addition to guide/outfitters from other locations. In 2004, over 250 people disembarked from private planes that landed on the beach, most of them for the purpose of sport fishing in the creek. Park staff estimated that visitation to Silver Salmon Creek increased by 44% in the past 3 years, which reached an estimated 2,311 visitor use days at Silver Salmon Creek in 2004. There are 10-12 seasonal residents who spend all or part of their summer in the area also. Health issues for visitors and residents include food-conditioning of bears, public sanitation, and water quality.

Human/bear encounters
There are lots of chances for visitors and residents to interact with the brown bears that fish in the creek and graze in the abundant sedge flats. Food-conditioning of bears occurs when people passively or actively allow a bear to get food, garbage, or fish. Bears that obtain food from people, their gear, or their dwellings may return to the site or approach another person looking for a repeat food reward. Being approached by a bear or having a bear destroy property is a safety issue and should be avoided at all costs. Close approach by a food-conditioned bear may lead to injury or death for either the person or the bear.

NPS personnel at Silver Salmon Creek work to protect visitors and bears in three ways: 1) Staff keep their food, garbage, and fish in steel barrels surrounded by an electric fence; and 2) Staff contact and educate visitors about best practices for storing food, fish, or garbage in bear country; and 3) Staff talk to visitors about best practices to avoid negative bear encounters.

Rangers on site typically contact all visitors as they arrive at the creek to fish. Visitors are welcomed and the ranger reviews the park rules and state regulations. The sources for bear safety information are the state and federally authored "Best Practices for Bear Viewing in Western Cook Inlet and the Katmai" and the Alaska Interagency Bear Safety Committee's "Updated Bear Safety Messages." NPS has an incomplete history of incidents where bears obtained food, fish, or garbage from people. A seasonal ranger who has been on site for 3 years, however, says that the number of food-conditioning incidents has diminished.

Environmental Health
Public sanitation is a health issue for both humans and natural resources at Silver Salmon Creek. There are no public facilities for human waste elimination. For sport fishing lodge guests, it is a long walk back to the lodge facilities from the preferred fishing area. Human excrement and toilet paper litter the wetland edges and brush-covered banks of the creek. Runoff from these wet and/or riparian areas is clearly not good for environmental health.

Some visitors go into the dense brush beside the stream for the purpose of elimination. Besides the threat posed to environmental health, forays into dense cover increase the chances for dangerous surprise encounters with a bears at very close distances.

Employees now dig shallow "cat holes" for elimination. This method is less than optimal to protect environmental health.

3.3 Park Management

Silver Salmon Creek is staffed seasonally from June to September by one NPS ranger. Other park employees and cooperating researchers are present at times. The present wall tent and Weatherport were erected in 2002. Equipment and supplies are moved to the ranger station from the beach landing areas along existing access trails.

NPS rangers try to meet every visitor as they arrive on the beach before they disperse to fishing areas or lodging. They are asked if they are first-time visitors and are apprised of regulations that are particular to National Parks in general and Lake Clark National Park & Preserve in particular. Rangers have found that most first-time visitors have no idea that they are entering a National Park and are eager to learn how to safely interact with brown bears in close proximity. They are advised to follow state sport fishing regulations and to clean and gut their fish only in salt water to prevent build-up of bear attractants. They are informed about best practices for interactions with brown bears, especially while fishing. These ranger contacts are important to keep people from food-conditioning bears. They are also important for passing on bear safety advice such as avoiding surprising bears and never running from bears. Lake Clark National Park & Preserve Compendium of park-specific regulations can be found at http://www.nps.gov/akso/compendium under Lake Clark National Park and Preserve.

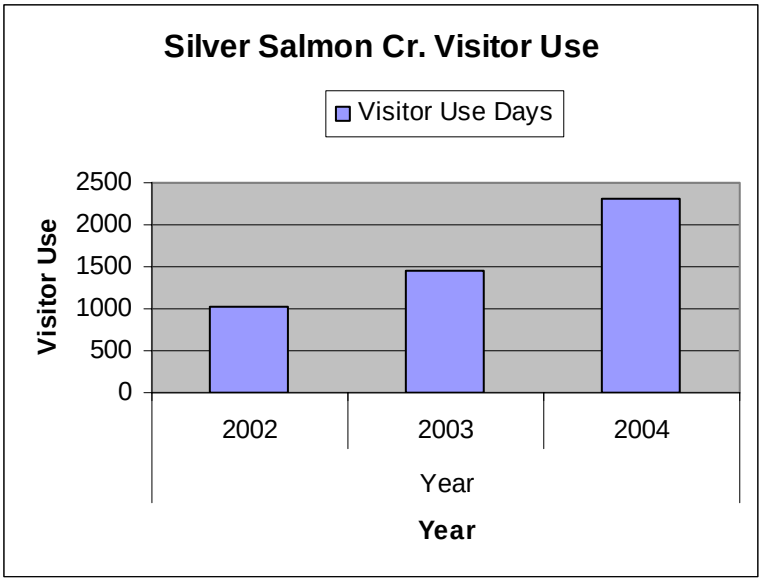
Park employees occasionally rely on the generosity of local residents and business owners for drinking water, vole-proof storage, telephone calls, and an occasional shower. The wall tent and Weatherport provide shelter, but no water, refrigeration, toilet facilities or vole-proof storage.

Park employees monitor bear-human encounters, compliance with state sport fishing regulations, and impacts to water quality, wildlife habitat, and scenic values. In 2004 they distributed the state and federally-generated "Bear Viewing Guidelines" and the Alaska Interagency Bear Safety Education Committee's "Alaska Bear Safety Guidelines" to Silver Salmon Creek visitors. They met with sport fishing guides, bear-viewing guides,

Incidental Business Permit (IBP) holders, and private landowners. Park employees evaluate the best methods and practices for avoiding negative bear-human encounters and storage of kept fish. Consistent park staff presence over the past 3 years has yielded information about visitation trends as captured in the following table and figure:

Silver Salmon Creek Visitor Use Days			
	Year		
	2002	2003	2004
Visitor Use Days	1023	1460	2311

Kevyn Jalone, pers. comm.



3.4 Soils and Vegetation

The subject ranger station site is located in a small stand (approximately 8 acres) of Sitka spruce on the southwest side of Silver Salmon Creek near its mouth into Cook Inlet. The substrate in this area is primarily alluvial and marine deposits of sand derived from Pleistocene glaciers, which filled much of Cook Inlet at least four times during the past 100,000 years. The beach and inland berms are gradually rising, as evidenced by the bands of alder and young spruce spreading out from the mature spruce forest on the east and north side of Silver Salmon Creek. The proposed site is likely an old beach line which has risen above salt water flooding and storm tides. The ranger station site defined by the electric bear fence is well drained and contains no wetlands (Figure 5).

The vegetation at the ranger station site is an opening in the young Sitka spruce. This forest is actively expanding and filling in with new trees. The understory is primarily meadow of grasses and forbes with beach ryegrass, lupine, *Angelica,* beach pea, and sedges. The access trail from the beach traverses a zone of sand and grass meadow. Old storm tide lines are evident perpendicular to the trail, and the entire area was at one time subject to tidal inundation. The invasion of spruce into the area indicates, however, that

the soils are fairly dry and rain and snow have washed the salt out of the sand. The ranger station site is above any normal tidal or storm surges.

The area surrounding the ranger station site has about 9,500 linear feet (1.8 miles) of off-highway vehicle (OHV) trails, which average about four feet wide. About 38,900 ft^2 of surface vegetation and topsoil have been damaged by these trails, or almost 0.9 acres. Much of this surface impact is below mean high tide.

3.5 Visual Quality/Aesthetics

The view from the project site foreground is of young spruce, most no more than 20 feet high, with younger spruce of various ages growing below. The ground cover beneath the trees is low growing and grassy. The spruce grove on the east side of the creek is sparse, and there are views the lodge buildings and residents on the bluff to the north and a view of the foothills and mountains to the west. There are access trails through the grass and salt marsh vegetation in the area (see Figures 3 and 5).

A preeminent feature of the Silver Salmon Creek area is found in the middle ground view of salt marshes near the meandering creek. These productive flat areas attract grazing and consorting brown bears in May, June, and early July. Some Silver Salmon Creek businesses and Kenai Peninsula businesses advertise bear-viewing in these marshes to their clients (Brock, pers. comm., commercial business brochures and websites).

The background view is of foothills on the eastern edge of Iliamna Volcano. To the north Slope Mountain, and to the west Saddle Mountain and Triangle Peak, rise above 3,000 ft. Though visible from the air, the three glaciers that flow west down the slopes of Iliamna Volcano are not visible.

3.6 Water Quality and Aquatic Resources

Water Quality
No potable water is provided by NPS. Drinking from Silver Salmon Creek is discouraged by NPS. Rangers rely on the generosity of local residents and lodges for potable water from their wells. A local resident's well on the landward side of the creek is 22 ft. deep.

Aquatic Resources
Silver Salmon Creek originates in Silver Salmon Lake. Total length of the stream is approximately 1.5 miles. In the intertidal area the stream's maximum width is probably 200 feet. Above the intertidal area the width decreases to 30-50 feet. Average depth in this area is 2-3 feet depending on rainfall and seasonal variation.

There are Alaska Department of Fish and Game aerial survey counts of coho salmon for Silver Salmon Creek beginning in 2000. Only a few surveys have been conducted, and

they have not been collected systematically and reveal no reliable trends in the escapement for that stream.

A strong coho salmon run attracts anglers to the area in the last half of the summer. The stream is closed to salmon fishing within ½ mile of the outlet of Silver Salmon Lake and the lake itself is closed to salmon fishing. Some floatplanes land in the lake where people fish for Dolly Varden.

The sport fishery at Silver Salmon Creek is small according to the Alaska Department of Fish and Game Sport Fish Division mail survey results. Coho salmon are the target species and catch and release is a common practice. The harvest of few pink salmon and Dolly Varden is reported in some years. The magnitude of the fishery in Silver Salmon Creek cannot be estimated accurately due to the small number of anglers that fish there.

3.7 Wildlife and Habitat

The Silver Salmon Creek area is one of nine important salt marsh areas along the 200-kilometer Cook Inlet coast of the park, which provides critical foraging habitat for coastal brown bears (Bennett 1996). The largest salt marsh areas and greatest density of coastal brown bears are found near the heads of Tuxedni and Chinitna Bays. Brown bear densities (bears/km^2) were 7.1 at Glacier Spit Marsh in Chinitna Bay, 5.2 at on the south side of Tuxedni Bay, and 0.8 at Silver Salmon Creek. Nevertheless, salt marsh habitat provides extremely important forage for coastal brown bears from May until August, when silver salmon appear in the local streams.

Wolf (*Canus lupus*) and coyote (*C. latrans*) were observed in Tuxedni and Chinitna Bays from 2001 to 2003 (Judy Putera, personal communication) and undoubtedly occur along Lake Clark National Park's coastline.

River otter are abundant along the Lake Clark coastline. Otter sign was most commonly observed in sand flats and rocky intertidal zones (Bennett 1996). Otters are long-lived top trophic-level carnivores (Larsen 1984) that may occur in densities of 0.2 to 0.8 animals/km of shoreline in the Gulf of Alaska (Testa et al. 1994).

Small mammal inventories were conducted in the Silver Salmon Lakes area and along the Johnson River, July 2003 (Cook and MacDonald 2004). Documented species included *Sorex cinereus* (cinereus shrew), *S. monticolus* (montane shrew), *Zapus hudsonius* (meadow jumping mouse), *Clethrionomys rutilis* (northern red-backed vole), and *Microtus pennsylvanicus* (meadow jumping mouse). All of these species are widely distributed and fairly common throughout their range.

At least one bald eagle nest likely occurs in the Silver Salmon Creek vicinity. Coastal bald eagles generally nest in Sitka spruce within 100 meters of a water body (Bennett 1996). Bald eagles are commonly seen especially when coho salmon run in the creek.

Other viewable species found in salt-marshes include sandhill cranes, mergansers, and shorebirds in ponds, sloughs, and muddy margins.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Effects on Cultural Resources

4.1.1 No Action Alternative

Continued use of cat holes by NPS personnel and visitors carries a small risk that unidentified surficial archeological resources are being or would continue to be adversely impacted.

Cumulative Effects: Impacts to archeological resources could have occurred on private property near Silver Salmon Creek and on park lands before NPS personnel began monitoring activities in the area.

Conclusion: Under the no action alternative impacts to cultural resources would likely be minor. These impacts would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the cultural integrity of the park.

4.1.2 NPS Proposed Action

Archeological testing of locations for outhouses and a well before ground disturbance would help prevent or mitigate impacts to unidentified archeological resources. Additional survey of the immediate project area would help NPS avoid impacts to archeological resources, if any, at alternative sites in the project area.

Cumulative Effects: Impacts to archeological resources could have occurred on private property near Silver Salmon Creek and on park lands before NPS personnel began monitoring human activities in the area. Archeological testing of the ranger station area would help NPS managers identify, mitigate, or prevent future impacts to archeological sites if any facilities need to be moved in the future, such as outhouses.

Conclusion: Under the proposed alternative impacts to cultural resources would likely be negligible. These impacts would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the cultural integrity of the park.

4.2 Effects on Human Health and Safety

4.2.1 No Action Alternative

Bear Encounters
Under the no-action alternative, the electric fence around the wall tent and Weatherport would remain. During the three months park staff are present, however, the electric fence fails to operate occasionally, thereby leaving food, garbage, and gear vulnerable to bears.

Some visitors would continue to going into riparian shrubs in order to relieve themselves privately. This would leave them vulnerable to surprise bear encounters.

The no action alternative requires considerable time on the part of rangers to perform daily maintenance tasks such as hauling water, showering, cooking, etc. These tasks may cause NPS employees to be distant from landing areas where they need to be to contact first-time visitors. The ranger contacts are important for improving visitor behavior around bears. Without an initial contact with an NPS employee, there is an increased potential for adverse bear-human encounters.

Environmental Sanitation
The no-action alternative would result in the continued practice of NPS employees using shallow cat holes and surface deposition of human waste in the area, resulting in continued potential degradation of the surface grounds and surface waters. Visitors would continue to relieve themselves near Silver Salmon Creek. NPS employees would continue to depend on residents' wells (and their generosity) for their drinking water.

Cumulative Effects: There was a 44% increase in visitor days between 2003 and 2004. If this trend continues, there would likely be more bear/human encounters and chances for food-conditioning of bears. If the visitation continues to increase, environmental and water quality would continue to degrade at an increasing rate.

Conclusion: The impact to health and human safety would be moderate because of the continuing possibility of food-conditioning a small number of bears and degrading environmental and water quality through human fecal deposition in a riparian area of the park.

4.2.2 NPS Proposed Action

Bear Encounters
The NPS proposal to construct a hard-sided facility would increase protection of ranger food and equipment from brown bears.

Visitor education regarding avoidance of negative bear encounters is a key tool in protecting human health and safety. Rangers make public contact with visitors to Silver Salmon Creek to impart important information about avoidance of food-conditioning and other dangerous encounters with bears. The construction of an attractive, hard-sided "ranger station" would attract visitor inquiries and increase both the number and length of

visitor contacts. Furthermore, rangers would be present more of the time to make visitor contacts because they would not have to make forays to area lodges for potable water and other personal needs.

Environmental Sanitation
The NPS proposed construction of a staff outhouse would enhance health and safety by greatly reducing the need to dig "cat holes."

The public and NPS personnel pit privies would conform to ADEC standards for pit toilets. Otherwise, evaporative toilets would be installed to reduce and remove waste in a manner that protects public health.

Cumulative Effects: Prior to the establishment of the temporary ranger wall tent, there were many reports of bears in the area feeding on fish, food, and garbage and becoming food-conditioned. These incidents decreased with more consistent visitor education begun by NPS staff in 2002. Construction of the proposed facilities would support staff and allow them to continue to reduce negative bear/human encounters. Construction of ranger resident and public privies would reduce degradation of the environment and water from human fecal deposition.

Conclusion: The impacts to human health and safety would be long-term and beneficial with a measurable decrease in bear conditioning to human foods and a decrease in improper disposal of human wastes.

4.3 Effects on Park Management

4.3.1 No Action Alternative

In the no-action alternative, rangers would continue to live in temporary structures. Continued temporary facility deterioration such as mildew on tent walls would occur under the no-action alternative, resulting in increased makeshift repair and less efficiency of park management. Rangers would continue to rely on the generosity of residents and business owners for some storage, drinking water, and occasional showers. The time that rangers spend attending to daily household needs such as hauling water, disposing of grey water, and going to residents for various amenities would take away from their availability to contact first-time visitors and monitor impacts. Most contacts with visitors would take place on the beach as planes or boats land. These contacts would likely be the first time visitors recognize that they are entering a National Park.

Cumulative Effects: If the increasing trend in visitation continues, then the ability of rangers to contact first-time visitors decreases because of their attendance to daily living needs.

Conclusion: The impact to park management would be minor negative impact because of the reduced availability of rangers to contact first-time visitors and monitor conditions. This alternative would continue to negatively impact park management operations, both

in the short-term and the long-term as a result of inadequate administrative support facilities.

4.3.2 NPS Proposed Action

There would be short-term disruption of park management activities during construction as facilities are displaced and the temporary living site becomes the construction site. Temporary tents would be erected nearby to house seasonal rangers and construction personnel.

The effect on park management would result in an improved infrastructure at Silver Salmon Creek due to improved living and working facilities; safer storage of park equipment, food and supply; and reduced maintenance needs.

The construction of the proposed facility would likely increase the number of visitor contacts. Visitors are more likely to 1) recognize Silver Salmon Creek as part of a National Park or Preserve, and 2) initiate contact NPS staff in an established permanent station rather than a wall tent. Better visitor contact may lead to better education regarding best practices for fishing and interacting with brown bears. Ultimately, incidents of food or angler-conditioning may be reduced.

The proposed facility alternative would reduce NPS employee dependence on local residents and businesses for storage, telephone calls, drinking water and refrigeration.

Cumulative Impacts: The trend of increasing visitation could be accommodated because rangers would be able to spend more time contacting visitors and monitoring impacts. Relationships with local residents and businesses would improve because rangers would depend on them less for help and amenities.

Conclusion: The positive impacts of this project are likely to be localized, long-term and moderate in intensity. Anticipated measurable management impacts may be reduction in food-conditioned bear incidents and/or negative bear encounters and better compliance with park guidelines for food and fish storage. Park rangers would be able to operate more efficiently where they are needed without relying on local residents for support functions.

4.4 Effects on Soils and Vegetation

4.4.1 No Action Alternative

The total area currently encompassed by the electric fence around the tent compound is approximately 3,500 ft^2. Traffic in this area would probably compress the shallow litter/organic layer of the soil and denude vegetation from about half of the fenced area. Sand does not really compress, so impacts to soil structure would be minimal. The most obvious impact would be continued “cat holes” used by the rangers and public for sanitation. Over time, this impact will become widespread along the creek banks and in nearby forest/shrubs. Removal of the organic layer and roots of the meadow vegetation would contribute to soils instability and increased erosion.

The meadow vegetation in the forest opening would likely become depressed from foot and tire traffic, and eventually the trampled area may become barren sand. The bare area could be up to 1500-2000 $ft^{2.}$ Approximately 384 ft^2 is covered by various structures, which is already becoming barren due to lack of light and water to sustain vegetation growth.

Cumulative Effects
Up to 2,000 sq. ft. of grass meadow would become depressed or barren with continued traffic in the ranger station enclosure. Thousand of cat holes would be excavated through vegetation and surface soils over future years. When considered with the existing 0.9 acre of access trails in the immediate vicinity of the ranger station site, the additional 0.05 acre of impacted surface area would be a minor additional impact.

Conclusion: Under the no action alternative impacts to soil and vegetation resources would be minor. These impacts would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the natural and cultural integrity of the park.

4.4.2 NPS Proposed Action
Impacts to soils and vegetation would be localized and long term. The trampled area adjacent to the ranger station structures would be nearly the same as the current situation (1,500-2,000 sq. ft.). This area would become impacted from construction activities and subsequent foot and limited OHV traffic. As sand does not really compress, the soil structure would not be affected by the proposed action. Excavation of outhouse facilities and a waste water system at the ranger cabin and an outhouse for the public should alleviate the current practice of digging shallow holes for human waste. The outhouses would concentrate the ground disturbance into small areas.

The hard-sided cabin may alleviate the need for the electric fence, so there would not be continued trampling along the fence line for maintenance. Approximately 820 sq. ft. would be covered by buildings at the cabin site, approximately doubling the area now covered by buildings. This larger area (additional 436 sq. ft.) would become bare as the vegetation is trampled during construction and it is deprived of light and water under the structures.

Cumulative Effects
The amount of ground disturbance would be reduced from current levels through the use of centralized toilet facilities rather than random “cat holes”. Another 0.01 acre would become barren under the new buildings. This is a minor increment to the existing 0.9 acres of access trails in the Silver Salmon Creek area.

Conclusion
Impacts to soil and vegetation resources would be minor under the proposed action. These impacts would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the natural and cultural integrity of the park.

4.5 Effects on Visual Quality/Aesthetics

4.5.1 No Action Alternative
People traveling by boat in the creek or traveling along the access trails may see the white-sided wall tent covered by a green tarp and partially obscured. Adjacent to the wall tent is a beige-colored Weatherport. Neither of these structures is marked as an NPS facility. The two local lodges also have a view of the temporary structures from a bluff to the north.

Cumulative Impacts
The temporary wall tent and Weatherport intrude on the natural scenic qualities of a small part of the Silver Salmon Creek area. This intrusion into the natural view is small, however, when compared to the numerous access trails adversely affecting the pristine scenic qualities of the area.

Conclusion
The temporary wall tent and Weatherport would continue to have a minor adverse affect on the visual quality of area. These impacts would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the natural and cultural integrity of the park.

4.5.2 NPS Proposed Action
The proposed cabin would likely be built of spruce logs. People traveling by boat in the creek or traveling along the access trails may see the cabin tucked in the sparse spruce grove. Since the cabin would be one-story tall, it would not rise above the existing trees. Lodge guests and residents on the bluff to the north may have partial views of the proposed structures and solar panels. The new cabin would be clearly signed an NPS facility and would encourage visitor contacts.

The NPS staff outhouse would be sited within 20 yards of the proposed cabin and would probably not be visible from passersby on the creek or on the trail. A well head shelter may be visible to a small number of visitors traveling west of Silver Salmon Creek.

A public outhouse would be sited near to the access trail and be more visible to travelers on the creek or the access trail than the other structures.

Cumulative Impacts
The proposed log structure would improve the visual aesthetic of the ranger facilities. The outhouses and well head shelter would introduce small new intrusions to the viewshed. These intrusions into the natural view are small, however, when compared to the numerous access trails adversely affecting the pristine scenic qualities of the area.

Conclusion
Impacts to visual quality would be localized, long-term, and of minor adverse impact to the area, though a log cabin would be more aesthetic in appearance than a wall tent. These impacts would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the natural and cultural integrity of the park.

4.6 Effects on Water Quality and Fish

4.6.1 No Action Alternative
Water Quality
Under the no-action alternative, local surface water quality would continue to be degraded from runoff contaminated by human fecal deposition.

Fish Resources
The ranger would continue to monitor the sport fishery minus the time they would spend tending to daily chores under primitive camping conditions. Because of the time they would need to be away from the landing area and creek, they would not contact a percentage of first-time visitors, thereby failing to impart State sport fishing regulation information to these visitors. Furthermore, NPS Rangers assimilate State fishing regulations in park areas and time away from the creek means they would see and correct fewer fishing violations.

Cumulative Impacts
As the number of visitor increases, the adverse affects on water quality from human fecal deposition would likely increase. Rangers would likely miss an increasing number of first-time visitors and educating them about fishing regulations.

Conclusion
Overall, there would be a minor adverse effect on water quality and aquatic resources. These impacts would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the natural and cultural integrity of the park.

4.6.2 NPS Proposed Action
Water Quality
The NPS proposed construction of a public outhouse and a staff outhouse would improve water quality by greatly reducing individual fecal deposits in the riparian and wetland areas. The public and the NPS staff outhouses would follow Alaska Department of Conservation Standards for pit toilets, or if achievement of the standards is impossible, privies using evaporative technology to dispose of waste would be constructed.

Fish Resources
The sport fishery would be better managed because the rangers would be available to greet first-time visitors a greater percentage of their time. They would also be able to

monitor anglers along the creek more readily and assure greater compliance with State fishing regulations.

Cumulative Impacts
As the number of visitors increases, the amount of human fecal deposition would likely decrease in the vicinity of the creek and water quality would improve. Rangers would be able to contact more first-time visitors and educate them about fishing regulations.

Conclusion
There would be a localized, minor beneficial effect on both water quality and management of the sport fishery. These effects would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the natural and cultural integrity of the park.

4.7 Effects on Wildlife and Habitat

4.7.1 No Action Alternative
The no action alternative requires more time on the part of rangers to perform daily maintenance tasks such as hauling water, showering, cooking, etc. These tasks may keep NPS employees from contacting some first-time visitors. The ranger contacts are important for improving visitor behavior around bears. Without an initial contact with an NPS employee, there is an increased potential for adverse bear-human encounters. Also, the electric fence that protects the tents from bears tends to need attention that may be impossible while NPS personnel are in the field. Sporadic loss of electric power at the fence could lead to bear food-conditioning incidents at the ranger station site. A small area of bear habitat would be lost to bears due to the ranger station compound and associated human activities,

Cumulative Impacts
If the increasing trend in visitation continues, rangers would likely miss an increasing number of first-time visitors and educating them about best practices for bear encounters. Lodges and associated activities may have displaced a small area of bear habitat in the area.

Conclusion
There could be a localized minor adverse effect on bears because rangers would not always be available to contact an increasing number of first-time visitors to provide them with critical information on behavior in bear country. These impacts would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the natural and cultural integrity of the park.

4.7.2 NPS Proposed Action

The proposed cabin would more than double the existing footprint, but the electric fence would continue to displace the same area of bear habitat as in the no action alternative. The NPS staff outhouse and the public outhouse would each permanently displace another 36 square feet of vegetation. A narrow footpath to the public outhouse would likely develop over time and persist long-term.

The proposed hard-sided cabin would be unlikely to attract significant bear interest or damage. If bears are interested in the outhouses and cause damage to these facilities, an electric fence powered by solar panels and batteries would be erected.

Cumulative Impacts

If the increasing trend in visitation continues, rangers would have more time to contact the increasing number of first-time visitors and educating them about best practices for bear encounters. Lodges and associated human activities may have displaced a small area of bear habitat in the area.

Conclusion

The new structures would cover a small but measurable area of habitat; however, these effects to wildlife habitat would be minor. There would be a localized long-term moderate beneficial effect on bears because rangers would be available to contact a greater number of first-time visitors. These effects would not result in the impairment of park resources that fulfill specific purposes identified in the enabling legislation or are fundamental to the natural and cultural integrity of the park.

5.0 CONSULTATION AND COORDINATION

The EA was prepared by Colleen Matt and Bud Rice.

The following NPS staff served on the interdisciplinary scoping team for the project or on the EA development and review team.

Becky Brock, Chief of Concessions, Katmai National Park and Preserve
Paul Button, Chief of Maintenance, Lake Clark National Park and Preserve
Joel Cusick, Cartographic Specialist, Alaska Regional Office, National Park Service
Joan B. Darnell, Environmental Resources Team Manager, Alaska Regional Office, National Park Service
Lee Fink, Chief of Operations, Lake Clark National Park and Preserve
Adrienne Fleek, Management Assistant, Lake Clark National Park and Preserve
Joel Hard, Superintendent, Lake Clark National Park and Preserve
Shay Hurd, Park Ranger, Lake Clark National Park and Preserve
Helen Lons, NEPA Coordinator-Biologist, Katmai National Park and Preserve
Colleen Matt, Chief or Resources Management, Lake Clark National Park and Preserve
Mary McBurney, Subsistence Manager, Lake Clark National Park and Preserve
Judy Putera, Wildlife Biologist, Lake Clark National Park and Preserve
Bud Rice, Environmental Protection Specialist, Alaska Regional Office, National Park Service
Page Spencer, Ecologist, Alaska Regional Office, National Park Service
Dale Vinson, Historic Preservation Coordinator, Katmai National Park and Preserve

The following experts provided information and/or review of parts of this document:

Nicky Szarzi, Area Sport Fish Biologist, Alaska Department of Fish and Game
Greg Risdahl, Biologist, U.S. Fish and Wildlife, Ecological Services Division

6.0 REFERENCES CITED

Alaska Department of Fish and Game and National Park Service and National Park Service. 2003. “Best Practices for Bear Viewing in Western Cook Inlet and the Katmai Coast. Alaska Department of Fish and Game, 333 Raspberry Rd. Anchorage, AK 99518.

Alaska Interagency Bear Safety Education Committee. 2004. “Updated Bear Safety Messages.” Alaska Department of Fish and Game, 333 Raspberry Rd. Anchorage, AK 99518.

Cook, J.A., and S.O. MacDonald. 2004. Mammal Inventory of Alaska’s National Parks and Preserves. Lake Clark National Park & Preserve. Annual Report 2003. 34pp.

Larson, 1984. in Bennett, Alan J. 1996. Physical & Biological Resource Inventory of the Lake Clark National Park-Cook Inlet Coastline, 1994-96. Lake Clark National Park and Preserve, Kenai Coastal Office, p. 75.

Testa, et. al. 1994 in Bennett, Alan J. 1996. Physical & Biological Resource Inventory of the Lake Clark National Park-Cook Inlet Coastline, 1994-96. Lake Clark National Park and Preserve, Kenai Coastal Office, p. 75.

U.S. Department of the Interior, National Park Service. 1984. General Management Plan Environmental Assessment, Lake Clark National Park and Preserve. NPS D-10.

U.S. Department of the Interior, National Park Service. 1988. Wilderness Recommendation, Final Environmental Impact Statement, Lake Clark National Park and Preserve. NPS D-11A.

APPENDIX A

COASTAL ZONE MANAGEMENT NEGATIVE DETERMINATION

United States Department of the Interior

National Park Service
Lake Clark National Park and Preserve
4230 University Drive, Suite 311
Anchorage, Alaska 99508

Ms.Cynthia Zuelow Osborne
Office of Project Management and Permitting
Alaska Department of Natural Resources
550West 7th Avenue, Suite 1660
Anchorage, Alaska 99501

April 19, 2005

Subject: Negative Determination for the Construction of a Ranger Station with cabin, private and public outhouses, and potable water system in the Silver Salmon Creek Area of Lake Clark National Park and Preserve, Alaska

Ms: Zuelow Osborne:

The National Park Service (NPS) is considering construction of a log cabin, two outhouses, and a potable water system for the Silver Salmon Creek Ranger Station along the Cook Inlet coast of Lake Clark National Park and Preserve, Alaska (see attached project description and figures). A temporary wall tent and Quonset hut tent exist at the site now with no outhouse or potable water system. The ACMP "Coastal Zone Boundaries of Alaska" Map #90 shows the existing site within the Kenai Peninsula Borough coastal management zone, which zone is at or below the 1,000-foot elevation contour. The site is owned by the U.S. National Park Service, which by definition is outside the state's coastal zone.

NPS is submitting this letter to obtain the state's concurrence with our negative determination that the proposed action would have no effects on the uses or resources of the Kenai Peninsula Borough coastal zone.

The proposed project would have negligible to minor environmental effects which would not extend beyond the federal property boundary. The project would entail removal of vegetation as necessary to facilitate construction and allow for placement of pilings or skids to bring the proposed cabin to level. Outhouses would be located so as not to affect groundwater pursuant to Alaska Department of Environmental Conservation (ADEC) requirements to protect groundwater, or, contained evaporative toilets would be installed. No Sitka spruce trees would be removed to construct the cabin, and existing ATV trails would be used to haul the construction materials to the building site from a barge landing on the beach. The project site is inhabited and utilized by mammals such as brown bears, river otters, red squirrels, and several species of migratory birds such as northwestern crows, ravens, thrushes, sparrows, kinglets, and warblers. Large mammals are generally excluded from the cabin site by an electric fence. Construction actions would occur during spring and early summer so not to coincide with the silver salmon run and active bear foraging in the area. It is also expected that any displaced wildlife would easily become established in adjacent areas. For these reasons, combined with the relatively

small scope of the project, negligible impacts to wildlife would be expected. No federally or state listed wildlife is known to inhabit the project area. No actions would be taken that would impact groundwater in the area. The project area does not lie within any mapped or known 100-year floodplain. No effects on nearby private properties would result from the proposed action. There are surface waters and wetlands in adjacent areas, but the proposed project would have no effect except to reduce human waste impacts to waters in the area. No cultural resources would be affected by the proposed project because none are known to exist in the project area. The project is located within a federal park area and is therefore identified as a recreational use area. This development would lead to enhanced public education and awareness in the area with regards to fish and wildlife habitat and uses and reduce human waste impacts to this important sport fishing and bear viewing area.

Based on the above analysis, NPS has determined the proposed facility construction on NPS lands near Silver Salmon Creek in Lake Clark National Park and Preserve would not have any effects on land or water resources in the Kenai Peninsula Borough coastal zone. The negligible to minor impacts would be confined to the federal property. Please let us know if the state concurs with this determination.

Thank you for your time and attention to this manner. If you have any questions, please feel free to contact me at (907) 271-1548. I'll look forward to your reply.

Sincerely,

Colleen Matt
Chief, Resources Management
Lake Clark National Park and Preserve

Enclosures

APPENDIX B

Alaska National Interest Land 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 Lands Conservation Act (ANILCA). It summarizes the evaluations of potential restrictions to subsistence uses that could result from the proposed action by the National Park Service (NPS) to construct a backcountry ranger cabin, two outhouses, and a potable water system at the Silver Salmon Creek ranger station site in Lake Clark National Park and Preserve.

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."

ANILCA created new units and additions to existing units of the national park system in Alaska. Lake Clark National Park and Preserve was created by ANILCA Title II Section 201(7)(a) for the following purposes:

> "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 potential for significant restriction of subsistence uses must be evaluated for the proposed action's effect upon "...the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes." (Section 810 (a) of ANILCA).

III. PROPOSED ACTION ON FEDERAL PUBLIC LANDS

The NPS proposes to construct a backcountry ranger cabin, two outhouses, and a potable water system at the Silver Salmon Creek ranger station in Lake Clark National Park and Preserve on lower Cook Inlet. Activities would include dismantling the existing tent frame and platform; constructing an 20-foot by 26-foot log cabin; excavating sumps and building shelters for two outhouses, digging a well and installing a water filtration and treatment system. All activities would occur adjacent to the existing tent frame and platform in an area that has been previously disturbed by existing outbuildings and backcountry facilities.

IV. AFFECTED ENVIRONMENT

A summary of the affected environment pertinent to subsistence uses is presented here.

Lake Clark National Park and Preserve is located in South-central Alaska adjacent to Cook Inlet and was established in 1980 by Title II Section 201(7) of ANILCA. Subsistence uses are allowed within Lake Clark National Park and Preserve in accordance with Title II, Section 201(1) 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 Title 36 CFR Part 13 regulations, residents of the NPS designated resident zone communities of Iliamna, Lime Village, Newhalen, Nondalton, Pedro Bay and Port Alsworth are qualified to engage in subsistence uses within Lake Clark National Park and Preserve. Local rural residents who do not live in these communities, but who have customarily and traditionally engaged in subsistence activities within the park and

preserve may continue to do so with a subsistence use permit issued by the park superintendent.

Major resources used for subsistence by resident zone communities include caribou, brown bear, moose, beaver, Dall sheep, snowshoe hare, fox, lynx, mink, wolf, wolverine, ptarmigan, waterfowl, otter, marine mammals, salmon, trout, Dolly Varden, grayling, pike, suckers, humpback and round whitefish, halibut, crab, clams, berries, wild edible plants, and wood.

Lake Clark National Park (2,439,000 acres) and Preserve (1,214,000 acres) include Game Management Units (GMUs) 9A, 9B, 16B, 17B and 19B. These GMUs also include other federal public lands such BLM administered lands in 9B, 16B and 17B; the Denali National Park and Preserve in 16B; and the Upper Mulchatna Controlled Use Area in 17B.

The proposed actions at Silver Salmon Creek are located in the Southcentral Area, GMU 9A, on the west side of Cook Inlet within the boundaries of Lake Clark National Park. Federal subsistence fishery regulations currently allow Federally-qualified rural residents to take all fish other than salmon, Dolly Varden, trout, grayling, char and burbot for subsistence purposes. Federal subsistence game regulations allow residents of GMU 9A to harvest black bears, caribou, Dall sheep, moose, coyote, arctic fox, red fox, hares, wolves, wolverine, beaver, lynx, marten, mink, muskrat, otter, grouse and ptarmigan for subsistence uses. Only residents of Pedro Bay may harvest brown bears for subsistence in Unit 9A.

The following harvest figures represent rough estimates extrapolated from several sources for a relatively typical year for the region and the 1983 estimates for the park and preserve. These figures are based on harvest assessments for Port Alsworth, Pedro Bay, Iliamna, Newhalen, Nondalton and Lime Village. There are no harvest data specific to residents of Chinitna Bay and Silver Salmon Creek.

Subsistence Resources Portion	**Annual Regional Harvest**	**1983 Estimated Park/Preserve**
Bears	107 animals	10 animals
Moose	164 animals	65 animals
Caribou	179 animals	100 animals
Dall sheep	107 animals	7 animals
Furbearers	2,421 animals	530 animals
Small game	1,786 animals	1,200 animals
Waterfowl	1,750 animals	930 animals
Fish	164,286 fish	16,560 fish
Berries	67,429 pounds	7,200 pounds
Plants	16,186 pounds	2,000 pounds
Firewood	1,321 cords	75 cords
House logs	714 logs	100 logs

"Bears" includes both brown and black bears. "Furbearers" include beaver, coyote, ground and red squirrel, land otter, lynx, marten, mink, muskrat, red fox, weasel, wolverine, and wolf. "Small game" includes gallinaceous birds such as rock and willow ptarmigan and spruce grouse, as well as porcupines and snowshoe hares. "Waterfowl" include bufflehead, eider, golden-eye, harlequin, mallard, old-squaw, pintail, scaup, scoter, green-wing teal, wigeons, cranes, geese and swans. "Fish"—in approximate order of importance—include sockeye salmon, whitefish, northern pike, longnose suckers, grayling, Dolly Varden, arctic char, rainbow trout, lake trout, and burbot. "Berries" include several varieties from blueberries to salmonberries. "Plants" include wild celery, Labrador tea, rose hips and other edible plants. "Firewood" refers to spruce, birch and cottonwood cut into cords for home heating. These wood species, in addition to willows and alders, are also used for crafts. "House logs" are primarily white spruce.

A subsistence harvest in any given year may vary considerably from one year to the next due to spatial and temporal factors and natural causes such as weather, climate change and natural population cycles. The primary species taken for subsistence are moose, caribou, fish (primarily sockeye salmon) and berries. By weight in pounds, the overall subsistence pattern of the region is characterized by the following proportions:

Edible Subsistence Resource	**Percentage**
Bears	1
Moose	35
Caribou	10
Dall Sheep	3
Furbearers	5
Small Game	2
Waterfowl	2
Fish	20
Berries	15
Plants	7
TOTAL	**100**

Studies of subsistence use in the area include: Final Environmental Statement for the Proposed Lake Clark National Park (NPS); the park general management plan; Resource Use and Subsistence in the Vicinity of the Proposed Lake Clark National Park (Behnke 1978); Subsistence Production and Exchange in the Iliamna Lake Region, Southwest Alaska, 1982-1983 (Morris 1983); Land Use and Economy of Lime Village (Russell-Kari 1983); Lake Clark National Park and Preserve: Historic Uses of Cook Inlet Natural Resources (McNabb and Petrivelli 1992); Subsistence Uses of Vegetal Resources In and Around Lake Clark National Park and Preserve (Johnson et. al. 1998), and Community Profile Database (Alaska Department of Fish and Game Subsistence Division 2001).

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on subsistence activities, three evaluation criteria were analyzed relative to current subsistence resources that could be impacted.

The evaluation criteria are:

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

1. The potential to reduce populations:

No significant reductions in populations of subsistence fish and wildlife resources are anticipated as a result of the proposed action. Silver Salmon Creek is primarily a sport fishing destination and very little subsistence activity takes place on park lands in the area. The proposed construction may result in the loss of some willows, alders, berry bushes and other vegetation but should have no long-term impacts on local bear, moose or salmon populations.

The potential to impact wildlife and wildlife habitat is minimal since activities will primarily occur in previously developed areas, however small areas of previously undisturbed ground may be affected. The cabin and outhouse facilities are located in a remote area of Lake Clark National Park and not in close proximity to any resident zone community. The occasional subsistence hunting, trapping, fishing and gathering activities that may occur in the vicinity of the cabin and outhouse site should not be affected.

The proposed project is not expected to alter habitats important for subsistence or result in any measurable reduction in or redistribution of wildlife or other subsistence resources. Provisions of ANILCA, the Federal Subsistence Board, and NPS regulations provide the tools for adequate protection of fish and wildlife populations within Lake Clark National Park and Preserve while ensuring a subsistence priority for local rural residents. In addition, the superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

2. Restriction of Access:

All rights of access for subsistence harvest on NPS lands are granted by Section 811 of ANILCA. Lake Clark National Park and Preserve are managed according to legislative mandates, NPS management policies and guidelines within the approved LACL General Management Plan. The proposed action is not expected to limit or restrict the access of subsistence users to natural resources within the park or preserve. The superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

3. Increase in Competition:

The construction of a backcountry cabin, two outhouses and a potable water system at Silver Salmon Creek is not expected to result in increased competition for fish, wildlife or other resources that would significantly impact subsistence users. NPS regulations and provisions of ANILCA mandate that if and when it is necessary to restrict taking of fish or wildlife, subsistence users will be given a priority over other user groups. Continued implementation of the ANILCA provisions should mitigate any increased competition from resource users other than subsistence users. The superintendent may enact closures and/or restrictions if necessary to protect subsistence opportunities or to assure the continued viability of a particular fish or wildlife population.

VI. AVAILABILITY OF OTHER LANDS

The proposed action is site-specific to backcountry facilities currently located at Silver Salmon Creek. Since there are no inholdings available in the project area, no other lands are suitable for the project. The proposed action is consistent with NPS mandates and the General Management Plan and is not expected to impact subsistence uses. Subsistence users have access to and utilize other Federal, State and private lands within the region for subsistence activities.

VII. ALTERNATIVES CONSIDERED

A “no action alternative” to preserve the status quo and continue maintaining the existing facilities at Silver Salmon Creek was considered in preparing this analysis. This alternative was rejected in favor of the proposed action alternative for several reasons. First, it did not provide adequate shelter to protect park rangers from bears and inclement weather. Second, it did not provide secure storage to keep bears and other animals out of food and other backcountry stores. Finally, it did not provide solutions for disposing of human waste and providing a safe water supply for rangers and the visiting public. No other alternatives were considered in this analysis since the proposed action is both site and project-specific.

VIII. FINDINGS

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

APPENDIX C

THREATENED AND ENDANGERED SPECIES ACT COORDINATION WITH USFWS

2005-134

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Anchorage Fish and Wildlife Field Office
605 West 4th Avenue, Room G-61
Anchorage, Alaska 99501-2249

April 14, 2005

Colleen Matt
Chief of Natural Resources
Lake Clark National Park
4230 University Drive, suite 311
Anchorage, Alaska 99508-4626

Re: Lake Clark National Park Silver Salmon Ranger Cabin (*consultation number 2005-134*)

Dear Ms. Matt,

Thank you for the opportunity to review the Lake Clark National Park Silver Salmon Ranger Cabin Environmental Assessment and your April 13, 2005 letter asking for concurrence that construction of the project is not likely to adversely affect endangered, threatened or candidate species or their habitat within the area of the proposed project. The U.S. Fish and Wildlife Service (Service) has reviewed the information on this project and is providing the comments below in accordance with section 7 (a) (2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended, 16 U.S.C. 1531 *et seq.*).

The Steller's eider (*Polysticta stelleri*), listed as threatened under the ESA in 1997, occurs regularly in this area during the winter. The Northern sea otter (*Enhydra lutris kenyoni*), a proposed species, also occurs there. Nevertheless, the Service does not believe that construction of the 18 x 24 ranger cabin, associated two evaporative outhouses and shallow, sand-point water well as proposed are likely to adversely affect these species. In addition, there are no other species proposed for listing and there are no areas designated or proposed as critical habitat within the action area of the proposed project.

Preparation of a biological assessment or further consultation under section 7 of the Act regarding this project is therefore not necessary at this time. If project plans change, additional information on listed or proposed species becomes available, or new species are listed that may be affected by the project, consultation should be reinitiated.

This letter relates only to species listed or proposed under ESA and/or designated or proposed critical habitat under our jurisdiction. It does not address species under the jurisdiction of National Marine Fisheries Service, or other legislation or responsibilities

under the Fish and Wildlife Coordination Act, Clean Water Act, National Environmental Policy Act, Bald and Golden Eagle Protection Act, or Migratory Bird Treaty Act.

This concludes section 7 consultation for the proposed Lake Clark National Park Silver Salmon Ranger Cabin construction project. Thank you for your cooperation in meeting our joint responsibilities under section 7 of the Endangered Species Act. If you have any further endangered species questions, please contact me at (907) 271-2807. Please refer to consultation number 2005-134 in future correspondence on this project.

Sincerely,

Gregory S Risdahl

Gregory Risdahl
Fish and Wildlife Biologist