National Park Service
U.S. Department of the Interior

Glacier Bay National Park and Preserve
Alaska

Finding of No Significant Impact

Climate Monitoring Program

August 2015

Recommended: Philip N. Hooge 8/10/15
Superintendent, Glacier Bay National Park and Preserve Date

Approved: _____ 8/20/2015
Regional Director, Alaska Date

FINDING OF NO SIGNIFICANT IMPACT

Climate Monitoring Program
Glacier Bay National Park and Preserve
August 2015

The National Park Service (NPS) prepared an environmental assessment (EA) to evaluate potential environmental impacts from the expansion of the weather and climate monitoring program in Glacier Bay National Park and Preserve (GLBA).

The NPS has selected Alternative B (NPS Preferred Alternative) that includes installation of up to eight Remote Automated Weather Stations (RAWS) and two data-logging thermistors at sites in the park and preserve.

Appendix B to the FONSI provides NPS's responses to substantive comments received during the comment period. A total of 725 written comments were received during the 30-day public review period.

ALTERNATIVES

Two alternatives were evaluated in the EA.

Alternative A: No Action

This alternative represents a continuation of existing conditions and provides a baseline for evaluating the changes and impacts of the action alternatives. Additional climate monitoring stations would not be placed in the park or preserve. This is the environmentally preferable alternative because no new adverse impacts to the environment would occur.

Alternative B: Proposed Action

This alternative will expand the existing observational network to include ten additional instrument sites within GLBA. Of these ten stations, eight will include complete RAWS instrumentation, and two will consist of a HOBO data-logging thermistor attached to existing NPS radio repeaters. Eight of the sites will be located within designated park wilderness Figure 2-2). Data logging thermistors will be placed at the Beartrack and Idaho Ridge sites. The Lone Island site is selected for the Lower West Arm Area.

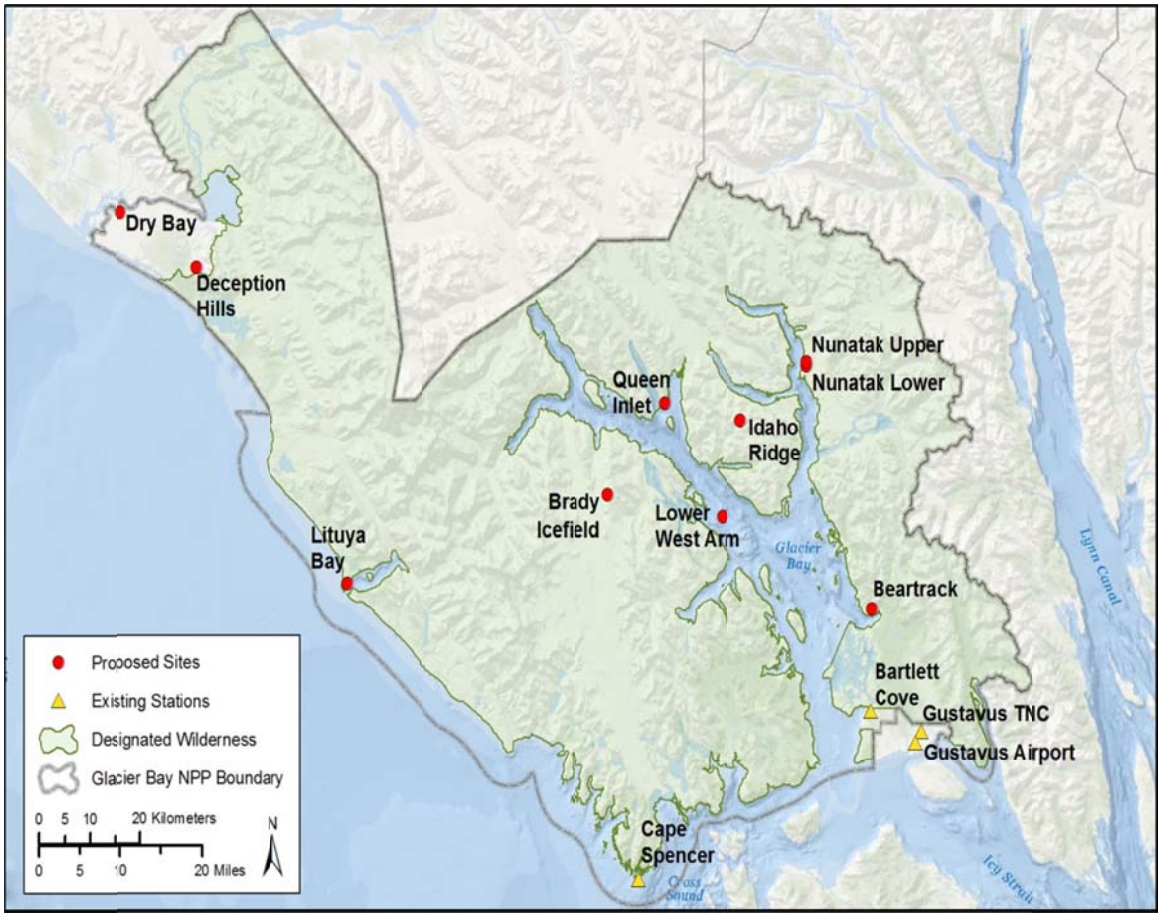

Figure 2-2. Climate monitoring station sites proposed under Alternative B.

Each proposed RAWS station will collect basic weather observations including air and soil temperature, precipitation, relative humidity, wind speed and direction, solar radiation, and snow depth, and transmit these observations hourly via satellite. These observations will be posted to the Western Regional Climate Center web site or comparable data repository in near real-time. The two thermistor sites will record and store temperature information only, and the data will be collected annually.

When less intrusive technological improvements (i.e. wireless instruments, portable instruments, remote sensing) become available that can duplicate existing data collection methods, existing station equipment will be removed. Stations that do not meet the data criteria of the NPS climate monitoring program or are determined to be duplicated by stations in other locations outside the park will be removed. Park management will monitor and ensure that this review takes place within 5 years. As part of this operational review, an NPS proposal to establish an additional climate monitoring station (along with the potential for removal of others) could be considered, in which case a separate NEPA environmental effects analysis will be required.

For normal operations, each station will be visited annually. The Dry Bay station site will be accessed by motor vehicle on an established soft-surface road. Access to the Deception Hills site will be by helicopter through coordination with the USCG. Access to the Lituya Bay site will be by motor vessel, fixed-wing floatplane, and foot, and through coordination with the USCG.

Access to the Deception Hills, Beartrack, Idaho Ridge, and Brady Icefield sites will be by helicopter. Access to Queen Inlet, Lone Island, Nunatak Lower, and Nunatak Upper will be by motorboat and foot.

PUBLIC INVOLVEMENT

The proposed climate monitoring program was announced to the public and scoping comments were solicited through local flyers, the National Park Service Planning, Environment, and Public Comment (PEPC) website, the park's public website, and electronic news releases to regional agencies, tribal governments, local businesses and private interest groups in June, 2013. Two local residents attended the public meeting held on June 26, 2013 in Gustavus, AK. The 30-day issue scoping period ended on July 17, 2013.

The EA was released for a 30 day public review and comment period on May 12, 2015. A public meeting was held on May 19, 2015, in Gustavus, AK with 5 local residents in attendance. The NPS received 3 individual comment letters and 726 comment statements. The State of Alaska ANILCA Implementation Program and Friends of Glacier Bay submitted individual letters to the Superintendent. Wilderness Watch and 722 individuals submitted comments electronically through the PEPC website.

Tribal and Agency Consultation

NPS staff consulted with the Hoonah Indian Association on May 23, 2013 and October 29, 2013. The project and updates were presented to the Yakutat Tribe during government-to-government meetings on April 5, 2013 and April 22, 2014. The Alaska State Historic Preservation Office and Office of History and Archeology concurred with the NPS determination that no historic properties would be adversely affected by the preferred alternative on August 12, 2015.

In September 2014, the NPS initiated informal consultation with the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act. The NPS determined that the proposed action may affect, but is not likely to adversely affect the endangered humpback whale, the endangered western Distinct Population Segment of Steller sea lion, or Steller sea lion critical habitat, and received concurrence from NMFS on August 17, 2015.

DECISION

The NPS decision is to select Alternative B (NPS Proposed Action) along with the following mitigating measures.

MITIGATING MEASURES

General

The order of implementation of the climate stations will be conducted in such a manner as to insure first that the least impactful sites are producing quality data before implementing those

sites with greater impacts to wilderness or park visitors such as the Brady Icefield and Lone Island climate stations.

Wilderness

To minimize impacts on wilderness values the stations will be as compact as possible. Aircraft landings at Beartrack, Idaho Ridge and Brady Icefield will be minimized by coordinating with other missions. Mitigation measures as described under Visitor Experience and Soundscape will also apply to Wilderness areas.

Wildlife

To the extent possible, installation and maintenance activities will be timed to avoid sensitive periods such as bird nesting seasons. Clearing of woody vegetation will not occur from April 15 to July 15 to protect nesting migratory birds unless an on-site nest search is conducted by a qualified biologist that determines that no migratory birds or nests will be disturbed.

Installation and maintenance of the Lone Island station will occur between October 1 and April 30 to protect colonies of nesting seabirds. Unscheduled maintenance that is needed outside of the regularly scheduled October 1 through April 30 time period will require Superintendent authorization to ensure protection of park resources and values. Marine mammals will not be disturbed at haul-out sites at any time without appropriate consultation with and/or permitting by the National Marine Fisheries Service and/or the U. S. Fish and Wildlife Service. Guy wires will be installed in ways that minimize entanglement risks to birds.

In addition to meeting all Federal Aviation Administration and NPS helicopter policy and aircraft requirements, mitigations for both fixed-wing and helicopter flights to the Lituya Bay, Beartrack, Idaho Ridge, Deception Hills, and Brady Icefield sites will include:

- Maintenance of a recommended 5,000 feet vertical or horizontal distance from mountain goats. Pilots will not hover over, circle, harass, or pursue wildlife in any way.
- Where feasible, flight paths will avoid known bald eagle nests and a minimum quarter-mile clearance will be maintained from all active eagle nests. All nests are considered active March 1 to May 31, and occupied nests are considered active through August 31.
- Aircraft approach routes will be planned to avoid known seabird colonies and migrating birds

Vegetation

Surface disturbance to lichen-covered rock will be minimized. Rocks with lichen cover will be left in their original locations when possible or left with lichen surfaces facing upward. Where other vegetation is present, care will be taken to minimize disturbance (e.g., stepping on rocks where possible rather than on plants, and clearing the minimum amount of vegetation necessary).

In order to minimize the possibility of introducing invasive plants, mud, dirt, and plant material will be removed from project equipment, footwear, and clothing prior to traveling to the weather

station sites. Weather station sites will be monitored for the presence of invasive species during annual maintenance visits.

Visitor Experience

Travel routes will be as efficient as possible to minimize disturbance to visitors. Whenever possible, access will be limited to foot travel or motor vessel through non-wilderness waters. Signs will be posted on the weather station equipment explaining its purpose and listing a person to contact if visitors who happen upon the site have questions.

Where possible, station towers will be sited so as not to protrude beyond the silhouette/horizon of nunataks or ridges, as viewed from the water. In general, all equipment will be as concealed by topography/vegetation as possible while still allowing for effective operation. At sites where minimizing visibility (of the station to park visitors) is anticipated to be a special challenge, NPS will implement a RAWS station with the least amount of visual impact. For the Lone Island, a monopole will replace the more visible tri-leg tower, an ultrasonic wind speed sensor will replace the conventional spinning-cup anemometer, and a fuel cell could replace the solar panel.

Soundscape

In order to reduce adverse noise impacts to recreational users, aircraft will maintain a minimum altitude of 2,000-2,500 feet above the ground surface except during landing and takeoff, or when visibility is limited by cloud cover, pursuant to Federal Aviation Administration (FAA) Advisory Circular (AC91-36C) “Visual Flight Rules (VFR) Near Noise Sensitive Areas.”

Cultural Resources

Archeological site clearance will be conducted concurrent with installation of equipment, as necessary. Ground disturbance will be minimized. If archaeological features are encountered during equipment installation, work will cease immediately and the Superintendent and park Cultural Resource Specialist will be notified. Procedures will be followed as per Director's Order 28 and the guiding regulations in 36 CFR 800.13. No further action will take place until the NPS provides clearance.

RATIONALE for the DECISION

The selected alternative will result in the Glacier Bay National Park and Preserve obtaining data necessary for the proper management of the unit. The data obtained will help the park to meet one of its principle legislative directives to serve as a living laboratory for ecological process after glaciation. The data will ensure that the park can identify the pattern of climate change, respond in appropriate ways to these changes, and pursue any adaptive responses consistent with mission goals. The data will help to ensure that Wilderness values are not impacted unnecessarily in response to climate change.

What impacts that exist are local in their effect and are reversible if unforeseen effects are encountered in the future. The identified mitigation measures help to ensure restraint. Wilderness impacts due to the climate stations are unlikely to be direct impacts to visitor experience.

As this proposed action represents the first climate change network established in the park and the entire network of stations has been evaluated as a whole, the cumulative impacts of weather monitoring have been addressed. The proposed action meets high standards for scientific quality and does not go beyond the necessary impacts to park resources and values necessary to obtain valid data to meet the identified goals. Suitable professional and financial resources exist to ensure program goals are met. The GLBA program impacts are below the level seen in other Alaska park climate monitoring programs primarily due to greater accessibility of the station sites by normal means, lessons learned from other climate networks, and substantial efforts to minimize impacts.

SIGNIFICANCE CRITERIA

The selected alternative will not have a significant effect on the human environment. This conclusion is based on the following examination of applicable significance criteria defined in 40 CFR Section 1508.27.

**** Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.***

The selected alternative will have a minor long term adverse impact on wilderness due to the installation and maintenance of eight new weather stations in designated wilderness. Wilderness is considered an important resource because it is identified in the park's enabling legislation. Six of the ten new monitoring station sites are within designated wilderness and will have minor adverse impacts on undeveloped quality and to the opportunities for solitude or primitive and unconfined recreation. The natural quality of the GLBA wilderness area will be enhanced, as the information generated by climate monitoring will help managers plan for and make decisions that will promote naturalness and allow natural changes to occur.

The selected alternative will have minor temporary adverse impacts to wildlife and minor long-term adverse impacts to wildlife habitat from displacement of wildlife and disturbance of wildlife habitat during installation and periodic maintenance of weather stations.

The selected alternative will have minor long-term adverse impacts to vegetation at most weather monitoring station sites; impacts would be limited to the effects of equipment anchoring and mostly temporary and short-lived trampling during installation and maintenance. At sites with heavier brush periodic pruning may be necessary to maintain clearances for instrumentation and solar panels.

The selected alternative will have minor long term adverse impacts to visitor experience from direct encounters with the stations and temporary, short-lived noise and activity associated with station installation and periodic maintenance.

The selected alternative will have minor temporary adverse impacts on soundscape from noise intrusions during the installation and maintenance of the proposed climate monitoring stations.

The selected alternative will have negligible adverse impacts to cultural resources from the installation of new climate monitoring stations.

**** The degree to which the proposed action affects public health or safety.***

Real-time weather information collected by the RAWS and transmitted by satellite will be available to the public through the National Weather Service. The information will improve visitor as well as administrative safety and trip planning in the GLBA backcountry.

**** Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetland, wild and scenic rivers, or ecologically critical areas.***

The project area is located within Glacier Bay National Park and the National Preserve which was established to "*…preserve an area significant for the following reasons:*

-a number of tidewater glaciers of the first rank in a magnificent setting of lofty peaks, and more accessible to ordinary travel than other similar regions of Alaska.

-a great variety of forest covering consisting of mature areas, bodies of youthful trees which have become established since the retreat of the ice which should be preserved in absolutely natural condition, and great stretches now bare that will become forested in the course of the next century

-a unique opportunity for the scientific study of glacial behavior and of resulting movements and developments of flora and fauna and of certain valuable relics of interglacial forests

-historic interest, having been visited by explorers and scientists since the early voyages of Vancouver in 1794 who left valuable records of such visits and explorations."

None of the stations will affect known historical or cultural areas, wetlands, wild and scenic rivers, or ecologically critical areas.

**** The degree to which effects on the quality of the human environment are likely to be highly controversial.***

Of the 725 public comments received, 723 questioned the appropriateness of placing such permanent facilities in wilderness for management purposes, as well as the necessity to actively monitor climate change in order to protect wilderness character for the future.

The NPS conducted a Minimum Requirements Analysis to determine whether monitoring climate within the designated wilderness is necessary to understanding the impacts of anthropogenic change on the natural quality of GLBA's wilderness character as well as ensuring

that the scientific purpose of wilderness and of GLBA is fulfilled. The MRA determined that Alternative B was the minimum activity for monitoring weather and climate in GLBA.

**** Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.***

The selected alternative will have negligible to minor impacts to one Traditional Cultural Property in Lituya Bay. No historic districts or structures listed on the National Register will be affected.

**** The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.***

The selected alternative may affect but is not likely to adversely affect the endangered humpback whale, the endangered western Distinct Population Segment (DPS) of the Steller sea lion, or Steller sea lion critical habitat.

**** Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.***

The selected alternative will not violate any Federal, State, or local law.

FINDINGS

The selected alternative complies with the Endangered Species Act, the National Historic Preservation Act, and Executive Orders

The National Park Service has determined that the selected alternative does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, in accordance with the National Environmental Policy Act of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9), an environmental impact statement is not needed and will not be prepared for this project.

APPENDIX A
DETERMINATION OF NON-IMPAIRMENT

A determination of impairment is made for each park resource referenced in the Organic Act of 1916 for which impacts were analyzed in the environmental assessment for the preferred alternative. The description of park significance in Chapter 1 was used as a basis for determining if a resource is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified in the park's general management plan or other relevant NPS planning documents as being of significance.

Impairment findings are not necessary for wilderness character, visitor experience, and soundscapes, because impairment findings relate back to park resources and values as identified in the unit's enabling legislation. These impact areas are not generally considered to be park resources or values as referenced in the Organic Act, and cannot be impaired the same way that an action can impair park resources and values. For this project the NPS resources evaluated in the impairment analyses are wildlife, vegetation, and cultural resources.

Wildlife

The Preferred Alternative will result in temporary adverse impacts to wildlife and localized long term adverse impacts to wildlife habitat from displacement of wildlife and disturbance of wildlife habitat during installation and periodic maintenance of ten new weather stations. The impacts will be minor since human activity during installation and maintenance will be temporary and of short duration, and very little habitat will be disturbed when considering the extent of unaffected habitat in the surrounding area. Because the impacts will be minor and mostly temporary, selecting the Preferred Alternative will not result in impairment of park resources. Preservation of the wildlife resource is listed as a purpose for GLBA under the National Monument enabling legislation in 1925 as well as in Section 101 of ANILCA (1980).

Vegetation

Healthy, native terrestrial vegetation is necessary to fulfill the purposes for which the park was established and key to the natural integrity of the park. The preferred alternative will result in adverse localized impacts from additional foot traffic around some monitoring station sites and informal trailing from landing sites or beaches. Adverse impacts, even if potentially long term will be mostly temporary and minor when compared to the extent of undisturbed vegetation in surrounding areas. Some of the proposed RAWS sites naturally support little to no vegetation.

Because there will only be slight adverse impacts, the preferred alternative will not result in impairment. Preservation of native vegetation is listed as a purpose for GLBA under the National Monument enabling legislation in 1925 as well as in Section 101 of ANILCA (1980).

Cultural Resources

Eight of the ten proposed station sites are not located near known archeological or historical sites. Only two of the proposed monitoring sites are located near areas considered eligible for listing on the National Register as TCPs by the NPS. However, the stations will have negligible effects on the potential TCPs because the stations will occupy previously disturbed areas that have already undergone archeological review. Because of the low potential for adverse impacts, the preferred alternative will not result in impairment of cultural resources. Preservation of historic, archeological, and cultural resources is listed are general purposes for GLBA in Section 101 of ANILCA (1980).

The levels of adverse impacts to park resources anticipated from the selected alternative will not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or that are key to the natural or cultural integrity of the park.

APPENDIX B

NPS RESPONSES TO PUBLIC COMMENTS
CLIMATE MONITORING PROGRAM

In response to the environmental assessment, the NPS received 3 individual comment letters and 726 comment statements. The State of Alaska ANILCA Implementation Program and Friends of Glacier Bay submitted individual letters to the Superintendent. Wilderness Watch and 722 individuals submitted comments electronically through the PEPC website.

Described below are the most frequently expressed comments and the NPS responses to them.

Comment 1: *Commenters stated that the Preferred Alternative (Alternative B) would degrade the wilderness character of the park because it included activities prohibited by the Wilderness Act: placing permanent structures with instrumentation within wilderness, using a helicopter to access several of the station sites, and the use of a motorized rock drill to anchor station equipment at some sites.*

NPS Response: Activities such as placement of installations within wilderness, helicopter landings, and use of a motorized rock drill are prohibited by the Wilderness Act *unless* they are determined to be those minimally necessary for the administration of the area for the purpose of wilderness. Through the Minimum Requirements Analysis process included in Appendix A of the EA, the NPS has determined that these activities are necessary for administration of the area for the purpose of wilderness.

The purpose of the Wilderness Act is to protect "wilderness character" which is defined by four qualities: untrammeled, undeveloped, natural, and the opportunity for solitude or primitive and unconfined recreation. One feature of value is also identified for the GLBA wilderness; the opportunity for scientific study tied to the unique history of glaciation. Each quality or feature may be affected differently by a proposed action. While two qualities of wilderness character will be degraded, one quality will not be impacted and one quality and one significant feature within the Glacier Bay wilderness will be enhanced. The potential effects of the Preferred Alternative on each quality as well as the opportunity for scientific study were described in detail in the Minimum Requirements Analysis but are also summarized below:

**the extent to which the area is untrammeled (ecological processes are not controlled or manipulated* - Climate monitoring activities will not control or manipulate any ecological processes within the park's wilderness.

**the extent to which the area is undeveloped*- The NPS acknowledges that the presence of the monitoring stations as well as their installation and maintenance will affect the undeveloped quality of the Glacier Bay wilderness. The footprint of each station is small though each station will be present long term. Some station sites may require use of a rock drill during station installation, though every effort will be made to use hand tools to accomplish the same tasks. The

amount of motor vessel use, landing of fixed wing aircraft, and helicopters will also increase over the long term to maintain the station instrumentation.

**the extent to which the area is in a natural state*- The natural conditions of the park wilderness will continue to be protected, as data generated by the climate monitoring program will help managers make decisions that will promote the area's naturalness. It will also help managers distinguish between human activity-driven resource changes and change due to natural processes.

**whether the area provides outstanding opportunities for solitude or primitive and unconfined recreation*- Throughout the majority of the park wilderness, visitors will continue to have the opportunity for solitude or primitive or unconfined recreation. However, the NPS acknowledges that the Preferred Alternative can impact these opportunities for some visitors in specific areas. The Lower West Arm station sites are located in waters used by most vessels traveling the West Arm of Glacier Bay during the summer season. As the RAWS sites will be near sea level they can be sighted by wilderness visitors more frequently than stations at higher elevations farther from the bay. Noise or views of low flying aircraft on maintenance visits can disturb visitors, though the frequency and duration of these visits will be low. The availability of weather data provided by the monitoring program itself, even if a visitor chooses not to view it, can decrease the sense of the area being unknown and unexplored. In this sense, the Preferred Alternative can diminish the positive sense of mystery, exploration, discovery, and risk associated with the wilderness area.

**whether the area provides opportunities for scientific study of the unique deglaciated environment*- The Preferred Alternative will enhance this significant feature by providing foundational data for understanding changes in the Glacier Bay ecosystem that can be used by a myriad of researchers and park staff to understand other research and monitoring questions. As managers and scientists strive to understand climate change and its potential to impair park resources, access to local and down-scaled climate data is essential. Weather and climate data are a basic and vital link supporting nearly all internal and external research conducted in the park and preserve. Numerous studies describe the effects of climate change on selected ecosystems, but it is important to quantitatively monitor meteorological conditions directly so that a reliable record of long-term change can be established.

Comment 2: *In general, the majority of commenters expressed concern that the NPS did not consider a greater range of alternatives in the EA including the option to place RAWS monitoring stations outside Glacier Bay National Park designated wilderness.*

NPS Response: Over 99% of the land within the park is either designated or eligible wilderness. Therefore, options for using non-wilderness lands are essentially restricted to lands in the Preserve (which is entirely non-wilderness) and near park headquarters, lands outside of the park, or privately owned parcels within the park. No alternative station sites that meet the same monitoring site criteria of the SEAN proposal have been identified on publicly managed land outside the park. Placing RAWS stations inside the park will provide site-specific data on those local conditions and processes that are driving change in other park resources. The EA described two alternatives that were considered but dismissed because they would not meet the purpose or

program objectives to monitor weather and climate within the park. Continuing the previous U.S. Army Corps of Engineers CRREL weather monitoring project and upgrading a subset of those stations would not produce reliable data meeting the standards of the SEAN monitoring program. One alternative that did not include a RAWS station on the Brady Icefield was also dismissed because the lack of data from a location above the zone of icefield formation would make it much more difficult to predict the effects of climate change on glacial volume and mass within the Park.

Comment 3: *A number of commenters felt that the proposed climate monitoring program was not "necessary to meet minimum requirements for the administration of the area".*

NPS Response: As managers and scientists strive to understand climate change and its potential to impair park resources, access to local and down-scaled climate data is essential. Weather and climate data are a basic and vital link supporting nearly all internal and external research conducted in the park and preserve. Numerous studies describe the effects of climate change on selected ecosystems, but it is important to quantitatively monitor meteorological conditions directly so that a reliable record of long-term change can be established. These data will be used by a myriad of researchers and park staff to understand other research and monitoring questions; it is the foundation data for understanding changes in Southeast Alaska ecosystems. Understanding sources and magnitude of change of fundamental drivers such as weather and climate is critical to understanding whether the changes that are observed within the Glacier Bay ecosystem are caused by natural, external forces or whether they are caused by some anthropogenic factor over which the NPS has management control. In this manner, climate data will be one tool used in the administration of the area and preservation of wilderness character.

Comment 4: *Helicopter landings and installations are illegal in designated wilderness.*

NPS Response: Whether or not specific proposed activities would be permitted within a designated wilderness area depends on the Minimum Requirements Analysis for each proposal. The MRA for the climate monitoring proposal was used to determine whether three prohibited activities will be deemed the minimum necessary to manage the area for the purposes of the Wilderness Act: installations, helicopter landings, and use of a motorized rock drill at some station sites. The conclusions of the MRA are summarized below.

The NPS believes that the presence of a well-designed and maintained network of climate stations will help preserve the wilderness character of GLBA over the long term. The network described in the Preferred Alternative represents the minimum in terms of number of stations and station locations that will achieve the project objectives while minimizing impacts.

The Wilderness Act is very specific that landing of aircraft in wilderness is prohibited unless allowed by law, to satisfy an existing private right, or is the minimum necessary to administer and protect the wilderness. The impacts on wilderness character of the limited helicopter use described in the Preferred Alternative are the minimum necessary to successfully install and maintain a Brady Icefield station. A Brady Icefield station is essential to fully achieving the project objectives, and a successful project is necessary for effectively administering and protecting the wilderness.

Comment 5: *A number of commenters expressed the concern that permitting this project in wilderness would trigger future requests for even more installations and incompatible uses.*

NPS Response: This comment extends beyond the scope of the project. However, any future requests for such "incompatible uses" within the Glacier Bay wilderness will be evaluated on a case by case basis using the Minimum Requirements Analysis process and will comply with the National Environmental Policy Act.

Comment 6: *Friends of Glacier Bay specifically commented on the siting of the Lower West Arm station: "One proposed site, Lone Island, does raise concerns due to its value as a safe, remote site for nesting birds and resting harbor seals.…For the mid-Bay, we much prefer an installation at Hugh Miller Island to one at Lone Island."*

NPS Response: NPS has carefully evaluated potential sites to fill the need for a Lower West Arm RAWS station and has decided to site the station at Lone Island. The Lone Island site represents the single station characterizing marine weather conditions within Glacier Bay proper, with a unique 360° exposure to prevailing marine weather condition. Data from Lone Island has the potential to improve marine weather forecasts and will also be displayed in near real-time at the Visitor Information Station at Bartlett Cove and over the internet to assist visitors, concessionaires, and park staff in planning trips up-bay.

In addition, the Lone Island station has a lower impact to wilderness character compared to other mainland sites located within wilderness in the lower West Arm. All visitors that encounter the Lone Island RAWS station will not be in wilderness when potentially viewing that station, as they will be aboard a cruise ship, tour vessel, charter vessel or private vessel transiting the West Arm within non-wilderness waters. Thus, there will be a lower expectation of wilderness experience within the vicinity of Lone Island. In contrast, visitors that would encounter an alternative Lower West Arm site on the mainland would predominantly be kayakers and visitors aboard smaller vessels, and arguably, these visitors might be more sensitive to the sight of developments within wilderness than passengers aboard larger motorized vessels. These visitors could be physically within wilderness areas (on land) and thus, be more impacted by the sight of the installation on a mainland site.

In regards to impacts to nesting seabirds and marine mammals, installation and regularly scheduled maintenance of the Lone Island site will occur during October 1 through April 30, a time period when seabirds are not nesting and harbor seals are likely not present in large numbers. Unscheduled maintenance that is needed outside of the regularly scheduled October 1 through April 30 time period will require Superintendent authorization to ensure protection of park resources and values. Marine mammals will not be disturbed at the Lone Island haul out site without proper consultation with and/or permitting by National Marine Fisheries Service and the U. S. Fish and Wildlife Service.

ERRATA

CLIMATE MONITORING PROGRAM

1. Chapter 4, Page 4-17, 4.4.6 Cultural Resources, Direct and Indirect Effects, paragraph 2, last sentence.

The reference to previous archeological reviews was inaccurate. The area has not been surveyed. Surveys will be conducted concurrently with RAWS installation.