National Park Service
U.S. Department of the Interior

Katmai National Park and Preserve
Kenai Fjords National Park
Lake Clark National Park and Preserve
Alaska

Finding of No Significant Impact

Climate Monitoring Program in Katmai National Park and Preserve, Kenai Fjords National Park, and Lake Clark National Park and Preserve

April 2008

Recommended: Ralph Moore 4/21/08
Superintendent, Katmai National Park and Preserve — Date

Recommended: 4/11/2008
Superintendent, Kenai Fjords National Park — Date

Recommended: 4/22/08
Superintendent, Lake Clark National Park and Preserve — Date

Approved: Marcia Blaszak 4/22/08
Regional Director, Alaska — Date

FINDING OF NO SIGNIFICANT IMPACT

Climate Monitoring Program
Katmai National Park and Preserve
Kenai Fjords National Park
Lake Clark National Park and Preserve
April 2008

The National Park Service (NPS) is considering expansion of the remote automated weather station (RAWS) network in three of the Southwest Alaska Network (SWAN) Parks: Katmai National Park and Preserve (KATM), Kenai Fjords National Park (KEFJ), and Lake Clark National Park and Preserve (LACL). The proposed action would expand the RAWS program by establishing additional stations to collect basic climatological data including air and soil temperature, precipitation, relative humidity, wind speed and direction, solar radiation, and snow depth.

The NPS has selected Alternative 2 (NPS Preferred Alternative) with mitigating measures which would establish permanent remote automated weather stations in Katmai National Park and Preserve (six sites), Kenai Fjords National Park (three sites, and Lake Clark National Park and Preserve (four sites).

Four written comments were received on the EA during the 30-day public comment period. The alternative was not modified by public comment. An attachment to the FONSI provides NPS's responses to substantive comments.

ALTERNATIVES

Two alternatives were evaluated in the EA.

Alternative A, No Action

Under the No Action alternative, no additional weather stations would be established in Katmai National Park and Preserve, Kenai Fjords National Park, or Lake Clark National Park and Preserve.

Alternative B – Expand the Climate Monitoring Program in KATM, KEFJ, and LACL (NPS Preferred Alternative)

In support of the Southwest Alaska Inventory and Monitoring Program, the National Park Service would establish permanent remote automated weather stations (RAWS) in Katmai National Park and Preserve (six sites), Kenai Fjords National Park (three sites), and Lake Clark National Park and Preserve (four sites).

The weather stations would collect basic weather observations including air temperature, precipitation, relative humidity, wind speed and direction, solar radiation and snow depth and transmit these observations hourly via satellite. These observations would be posted to the

Western Regional Climate Center's (WRCC) web site in near real-time (http://www.wrcc.dri.edu/NPS.html).

Each weather station would be composed of two towers: the tri-leg tower hosting all the sensors except the precipitation gauge, and the precipitation tower.

The tri-leg tower would house the temperature, relative humidity, solar radiation, wind speed and direction, and snow depth sensors, a GPS antenna, and a GOES satellite transmission antenna. A steel equipment enclosure located near the base of the structure houses the electronic equipment cabinet such as the datalogger, geostationary satellite transmitter (GOES) and batteries. The batteries are sealed, starved electrolyte-type SUNlyte™ 12-5000x batteries. The wind speed and direction sensors are located on the top of the 20 foot tall mast mounted to the north leg of the tri-leg tower. The footprint of the tri-leg is approximately 12 feet per side. A 48"x13" solar panel would also be attached to the south side of the structure. The tower is typically anchored to the ground with 3-foot long steel pins, though in some cases gabions may be necessary. The gabions are wire cages approximately 2-feet wide, 6-feet long and 18-inches high filled with rock from the surrounding area. Where pins can not be driven into the ground and gabions cannot be installed, holes would be drilled into the bedrock and the steel pins secured in the holes with epoxy. The tower components are assembled on site.

The precipitation tower would be approximately 15.5-foot tall, made of steel tubing and securely anchored to the ground with steel pins and/or gabions (Photo 2-2). The gabions are wire cages about 2-feet wide, 6-feet long and 18-inches high filled with rock from the surrounding area. The base of the tower would also be weighted with rock-filled baskets. The tower has three legs on a 5-foot wide base and tapers to 1.5 feet wide at the top. A 4-foot diameter windscreen made up of aluminum flaps is situated on the top. This tower would hold a precipitation gauge and possibly other instruments. An 8-inch diameter PVC pipe antifreeze reservoir would extend through the length of the tower. The pipe would be filled with an antifreeze mixture consisting of 45% propylene glycol, 45% ethyl alcohol and 10% water. The antifreeze mixture melts frozen precipitation (snow, sleet, hail) and is displaced by the accumulating precipitation. The displaced fluid flows through a tube and into a tipping-bucket rain gauge, and then flows through a tube into 5-gallon steel jerry cans or other similar containers located at the base of the tower. The concentration of the antifreeze mixture (which is constantly diluted as precipitation is added) must remain strong enough to prevent freezing during anticipated winter temperatures as low as -40 degrees F. The gage is recharged with fresh antifreeze annually and the diluted mixture is removed from the site for approved disposal. All containers would be highly resistant to damage by animals. The tower structure would be constructed in Anchorage.

PUBLIC INVOLVEMENT

The EA was issued for public review and comment from February 27, 2008 to March 28, 2008. The EA was sent by mail to 71 agencies, organizations, and individuals and was posted on the NPS Planning, Environment, and Public Comment website.

Comments on the EA were received from the State of Alaska (SOA), National Parks and Conservation Association (NPCA), The Wilderness Society (TWS), and a native corporation.

The public comment did not change the conclusions in the EA concerning the environmental effects of the proposed action. The comments from the SOA, NPCA, and TWS required a formal NPS response. NPS responses to substantive comments are attached to the FONSI.

DECISION

The NPS decision is to select Alternative B (Expand the Climate Monitoring Program in KATM, KEFJ, and LACL) with mitigating measures.

MITIGATING MEASURES

Vegetation: Where the surfaces of rocks are covered with lichen, disturbance of those rocks will be minimized. If rocks need to be moved or used to fill gabions, the surface rocks with lichen on them will be carefully set aside and rocks from underneath will be used. Rocks with lichens on them will be left lichen-side up and in their original location when possible. Where other plants are present, care will be taken to minimize disturbance (e.g., stepping on rocks where possible rather than on plants and clearing the minimal amount of vegetation necessary).

Mud, dirt, and plant material will be removed from project equipment, footwear, and clothing prior to traveling to the weather station sites, to minimize the possibility of introducing invasive plants to the parks. Weather station sites will be monitored, during the annual maintenance visit, for the presence of invasive species.

Wildlife: To the extent possible, installation and maintenance activities will be timed to avoid sensitive periods, such as nesting season.

In areas with suitable nesting habitat for Kittlitz's murrelets the installation and maintenance of weather stations will be conducted after August 20 to eliminate possible disturbance to nesting and chick-rearing murrelets.

In addition to meeting all Federal Aviation Administration and NPS helicopter policy and aircraft requirements, mitigation common to all alternatives for both fixed wing and helicopter flight paths will include:

- Maintenance of a 1,500 foot vertical or horizontal clearance from traditional summer and calving or other habitats supporting reproduction as well as adult animals whenever feasible. This includes brown and black bear, moose, caribou, Dall sheep, wolves, mountain goats, wolverines, harbor seals, and Steller's sea lions.
- 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 from March 1 to May 31. Nests used for nesting activity are considered active through August 31.
- To comply with the Migratory Bird Treaty Act, helicopter activity will be scheduled to avoid sensitive bird migration or nesting periods in the project areas. Known seabird colony areas will be avoided.

Visual Quality: Where possible, the antenna/tower will be installed in such a way so as not to protrude beyond the silhouette/horizon of a nunatak or ridge.

Visitor Experience: 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 any questions. Use of helicopters during hunting season in areas of known hunting will be avoided. Flight paths will avoid known wilderness users and high use visitor areas, such as Brooks Camp and Three Forks overlook in Katmai National Park, where users are known to concentrate.

In planning flight paths, all feasible measures will be undertaken to avoid and/or minimize impacts to backcountry users. Planned flight routes will be approved by the park superintendent. Travel routes will be as efficient as possible to minimize flights over conflict areas. Helicopter and aircraft altitude and horizontal distances will be maintained according to the park policy.

Soundscape: To reduce adverse noise impacts to recreational users and wildlife in the parks, helicopters will maintain a minimum altitude of 2,000 to 2,500 feet above ground surface, other than 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."

Wilderness: To minimize impacts on wilderness values the stations will be as compact as possible. Mitigation measures as described under Visual Quality, Soundscape, and Visitor Experience will also apply to Wilderness 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 found in the guiding regulations in 36 CFR 800.13. No further action will take place until the NPS provides clearance.

RATIONALE for the DECISION

Alternative B (Expand the Climate Monitoring Program in KATM, KEFJ, and LACL) will satisfy the purpose and need for the project better than the no-action alternative. Climate is a fundamental driver of ecological condition and the patterns of plant and animal communities found in NPS park units. Changes in climate will impact these ecosystems. Climate Monitoring has been identified as a Vital Sign for the Southwest Alaska Network Parks (SWAN).

Deployment of remote automated weather stations (RAWS) within the SWAN parks will allow the NPS to achieve the goal of the Climate Monitoring vital sign and track climate change and how these changes affect park resources. This information will contribute resource data for park management decisions and will also contribute to future efforts in broader-scale climate monitoring and modeling efforts. Currently, two RAWS occur in LACL, one RAWS in KEFJ and no RAWS occur in KATM.

SIGNIFICANCE CRITERIA

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

(1) 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 EA evaluated the effects of Alternative B on vegetation, wildlife, visual quality, soundscape, visitor experience, wilderness and cultural resources. As documented in the EA the effects of the proposed action would range from negligible to minor depending on the resource. There would be no significant restriction of subsistence uses.

(2) The degree to which the proposed action affects public health or safety.

The selected alternative would not affect public health or safety.

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

The 13 weather station sites would be located in designated or eligible wilderness in national parks and preserves. The EA evaluated the effects of weather station installation and maintenance and concluded that the impacts on wilderness would be minor.

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

The effects on the quality of the human environment would not be controversial. The NPS sent the EA to 71 agencies, organizations, and individuals for public review. Only four comment letters were received. The environmental analysis concluded that installation and maintenance of 13 weather stations would have negligible to minor impacts on park resources. The commenters did not question these findings.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The effects of the selected alternative do not involve unique or unknown risks.

(6) The degree to which the action may establish a precedent of future actions with significant effects or represents a decision in principle about a future consideration.

The climate monitoring program would not set a precedent for future actions.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant

impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

The EA considered all existing facilities in the backcountry (seismic stations, plate boundary observatory stations, communication sites, weather stations) of the three SWAN parks in its cumulative impact analysis. The analysis concluded that the impacts of all existing facilities including the proposed remote automated weather stations would be minor.

(8) Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in 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 would not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places.

(9) 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 would not adversely affect an endangered or threatened species or its habitat. The action would include a measure to avoid disturbance to nesting and chick-rearing Kittlitz's murrelets (a candidate species).

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

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

FINDINGS

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.

The selected alternative complies with the Endangered Species Act, the National Historic Preservation Act, and Executive Orders 11988 and 11990]. There will be no restriction of subsistence activities as documented by the Alaska National Interest Lands Conservation Act, Title VIII, Section 810(a) Summary Evaluation and Findings.

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.

NPS RESPONSE TO PUBLIC COMMENTS AND ERRATA
for the
CLIMATE MONITORING PROGRAM
ENVIRONMENTAL ASSESSMENT

In response to the environmental assessment, the NPS received four comment letters. Described below are the substantive comments and the NPS responses.

1. Comment #1. State of Alaska: While we recognize ANILCA Section 1310(b) is referenced as supporting legislation for the proposal in the Minimum Requirements Decision Guide (Appendix B), it would have also been appropriate to include it in the *Laws, Regulations, and Policies* section of the EA, under the ANILCA subsection on Page 9.

NPS Response: Reference to ANILCA Section 1310(b) was not included in the *Laws, Regulations, and Policies* section of the EA. Section 1310(b) of ANILCA is applicable to agencies, other than the conservation unit manager, seeking the establishment, operation, and maintenance of navigation aids and other facilities in conservation system units.

2. Comment #2. State of Alaska. Section 4.4.1 Wildlife, Cumulative Impacts: While we found correct references in the document that clarify where hunting is allowed in LACL, the following sentence on page 51 incorrectly implies that subsistence hunting is only allowed in the preserve. *"Subsistence and sport hunting are not permitted on KEFJ lands, but are permitted in the KATM and LACL preserves."*

NPS Response: The NPS agrees that the text is misleading. The misleading text has been deleted from the cumulative analysis (see errata).

3. Comment #3. State of Alaska. Appendix A, ANILCA Section 810 analysis. While the State of Alaska agreed that the proposed action would not result in a significant restriction of subsistence resources they did comment on the standard language of the analysis.

NPS Response. The NPS is reviewing the standard language in light of the State's comments and will make textual modifications as appropriate.

4. Comment # 4. National Parks and Conservation Association. "We feel there is a serious lack of standards, projects are approved in a piecemeal manner, and there is no method to evaluate the significance of one project compared to another. Most importantly this is no direction regarding *how many is too many* and how to *say no*." "We recommend that guidelines be developed for the region as a whole, as well as individual parks develop a comprehensive plan, similar to what Yellowstone is in the process of doing. We request the opportunity to sit down with NPS staff to begin addressing solutions to this problem."

NPS Response: The NPS Alaska Region is currently working on a process to improve consistency in decision making for scientific work in wilderness areas; however, this is not yet completed. The working group will take a broader look at communications facilities in the backcountry and examine the past decision processes and criteria used when these facilities have

been approved. The goal is to develop a consistent approach that can be used by Alaska parks for siting and evaluating the significance of existing and proposed projects in wilderness. Until this guidance is completed, NPS will continue to address these proposals on a case-by-case basis. We agree that cumulative effects criteria and thresholds for accepting or rejecting scientific research and monitoring facilities in NPS wilderness areas would be preferred, but for the present time we rely on best professional judgment and the Minimum Requirements/ Minimum Tool analysis.

5. Comment # 5. National Parks and Conservation Association. We appreciated the cumulative impacts sections but found it was lacking information, and was not as thorough as we would have liked. For example, for the Dumpling Mountain site in Katmai, this EA proposes two towers (a tri-leg tower and precipitation tower) and mentions the NPS radio repeater also at this site. However the cumulative impacts section for Visual Quality (p. 52) fails to mention a communication tower for a bear cam is also planned for Dumpling Mountain, even though that EA is expected in just a few weeks.

NPS Response: Information on the communication upgrade on Dumpling Mountain to support the Bear Viewing Web Cam installation has been included in the listing of projects for KATM on page 43 of the EA. The visual resources and wilderness cumulative analysis (pages 52 and 56) has been amended to include the Dumpling Mountain communication upgrade. See the Errata for specific language.

6. Comment #6. The Wilderness Society. I am left to trust that the methods for site selection, which are only summarized starting on page 11 of the EA in the section titled "Criteria for Selection of Potential Weather Station Sites in the SWAN Network", were as rigorous as they can be.

NPS Response: The methodology for weather station site selection is detailed in the Western Regional Climate Center Report (Redmond et al., 2005) and Giffen (2007). These documents are available from the NPS.

7. Comment #7. The Wilderness Society. I am less familiar with the extent of this monitoring program at a statewide level than my colleagues at NPCA are, and they have raised some concerns in their comments that I believe are important to address. Notably, the cumulative effects of future needs of the monitoring network and other park management entities to travel, install infrastructure and maintain equipment in wilderness areas. I did not feel that the EA adequately addressed potential future actions and their cumulative effects sufficiently, and would like to see this treated in a comprehensive approach where actions are ranked by priority.

NPS Response: See NPS response to Comment # 4.

8. Comments #8. The Wilderness Society. Finally, what is the lifespan for this monitoring equipment and what will be the impacts of upgrading and/or removing components as they age? How does the lifespan of the equipment compare to the funding available for maintaining equipment and processing data? Clearly the goal should be to promote continuous monitoring for decades to come, and thinking ahead to insure that equipment will stand the test of time is an

important component of evaluating the environmental impact. Thus, I would like to see this addressed in the EA.

NPS Response: Weather stations are intended to be permanent installations. The weather station towers are quite rugged, and though they can't be expected to last forever, the lifespan of the towers is measured in decades. As for the various weather sensors attached to the towers, maintenance will be conducted annually by replacing sensors with recalibrated sensors. As technologies advance, sensors will be replaced with the next generation of sensors during these annual maintenance visits. Impacts from annual maintenance will be limited minor vegetation trampling for most sites, to periodic brush removal at a few sites.

The SWAN Climate Monitoring effort is part of the larger National Park Service (NPS) Inventory and Monitoring (I&M) Program. I&M program funding is secure and continued funding into the future is expected.

ERRATA

Page 43, Section 4.2.1 Katmai National Park and Preserve, 1st paragraph. Add the following paragraph after the last sentence of the 1st paragraph .

In conjunction with the Brooks River area communication upgrade and bear viewing web camera installation the NPS is proposing to build a portable relay station within designated wilderness at an approximate elevation of between 2,000 and 2,400 feet on the southeast facing slope of Dumpling Mountain. The station would consist of a 4 ft. x 4 ft. x 4 ft. metal enclosure and two 10- to 15-foot antenna towers attached to the side of the enclosure. In addition an existing communications tower on the summit of Dumpling Mountain would be upgraded by extending the height of the tower 15 to 20 feet and installing a 36-inch dish antenna and a 24 by 24 inch square antenna on the tower.

Page 51, Section 4.4.2 Wildlife, Cumulative Impacts, 5th sentence. The following sentence has been deleted from the text.

"Subsistence and sport hunting are not permitted on KEFJ lands, but are permitted in the KATM and LACL preserves."

Page 52, Section 4.4.3 Visual Resources, Cumulative Impacts. The following language has been added to the text after the 3rd sentence in the paragraph.

Visual resources in the Dumpling Mountain area of KATM would be additionally altered by the proposed placement of a small portable relay station with antenna on the southeast facing slope of Dumpling Mountain. This facility would be in addition to the existing communication station and future RAWS station on the Dumpling Mountain summit.

Page 56, Section 4.4.6 Wilderness, Cumulative Impacts. The following language has been added to the text after the 2nd paragraph.

Designated wilderness in the Dumpling Mountain area of KATM would be additionally altered by the proposed placement of a small portable relay station with antenna on the southeast facing slope of Dumpling Mountain. This facility would be in addition to the existing communication station and future RAWS station on the Dumpling Mountain summit.