STATEMENT OF WORK (SOW)
USAF PRSC 611TH CIVIL ENGINEER SQUADRON
THE IMPLICATIONS ASSOCIATED WITH SEA ICE LOSS TO POLAR BEARS AND HUMAN SAFETY AT USAF SITES IN NORTHERN ALASKA
CESU 17-30

Projects for execution under this Cooperative Agreement (CA) by the U.S. Army Corps of Engineers (USACE) do not include any functions to be performed that are inherently governmental. This determination is made with the assessment that places emphasis on the degree to which conditions and facts restrict the discretionary authority, decision-making responsibility, or accountability of Government officials using Non-Federal Entity (NFE) services or work products.

This CA shall not be used for performance of personal services. These tasks provided by the customer for execution under this CA by USACE do not include functions to be performed that are personal services.

Any modifications to Cooperative Agreement activities as outlined by this SOW must be channeled through the Grants Officer's Technical Representative (GOTR) and Grants Officer (GO) prior to NFE implementation.

NFE personnel shall also wear a distinctive NFE furnished security (ID) badge/lanyard readily identifying the individual as a NFE employee. The badge shall be worn in a conspicuous place at all times when performing work under the Cooperative Agreement including attendance at Government meetings and conferences that take place outside of the Government facility.

NFE personnel shall identify themselves as an NFE employee when answering or placing calls on a Government telephone and when leaving outgoing or incoming messages on voice mail. Use of acronyms in this identification is insufficient to meet this requirement.

All NFE email signatures shall identify them as such and will include their employer's name.

PERIOD OF PERFORMANCE: 18 Months.

GOVERNMENT POCS:

1. USACE Omaha District POC: Ms. Sarah Miller PM, (402) 995-2625, sarah.miller@usace.army.mil
2. USACE Omaha District POC: Ms. Kali Evans, GOTR, (402) 995-2295, kali.l.evans@usace.army.mil
3. USACE Omaha District POC: Ms. Stephanie Rostermundt, Grants Officer, (402) 995-2083, stephanie.a.rostermundt@usace.army.mil

This scope of work addresses the following projects:

PROJECT NUMBER	TITLE	LOCATION
VNMH175555	SEA ICE LOSS TO POLAR BEARS	Multiple Installations

1.0 INTRODUCTION

The intent of this project is to build a scientific understanding of how sea ice will influence changes in polar bear distributions and behaviors in relation to northern located US Air Force installations in the state of Alaska. The majority of these locales function as communication centers or more specifically, "Long Range Radar Sites" (LRRS). The results of this research shall assist the Pacific Air Forces Regional Support Center (PRSC) with determining where increases in polar bear encounters may result due to projected sea ice changes. Habitat utilization patterns are likely to shift as a function of sea ice change. The PRSC anticipates observing differences in the geographical and temporal distribution of current polar bear populations, and an associated change in foraging and potentially breeding behaviors. These behavioral and geographical changes may result in a need to change a certain installations approach to bear management, as well as the actual infrastructure. In order to plan effectively, the PRSC seeks to obtain modeling results which can provide insights into future ice conditions, and furthermore, how those sea ice changes will change polar bear distributions as a result of sea ice loss, and other applicable variables. The PRSC is also interested in understanding how sea ice loss will affect current polar behaviors and how such behavioral shifts may or may not increase or decrease human safety at the below northerly locations.

The NFE shall identify how polar bear distributions will alter due to sea ice changes and how such distributions and behavior shifts will or will not increase safety risks posed to installation staff working at the following locales:

Table 1. USAF PRSC INSTALLATIONS OF INTEREST
Cape Lisburne LRSS
Point Lay LRRS
Wainwright SRRS
Point Barrow LRRS
Lonely SRRS
Oliktok LRRS
Bullen Point SRRS
Barter Island LRRS

This project shall assist the USAF PRSC in its endeavors to achieve the goals and objectives of the Final 2013 Alaska Remote Sites Integrated Natural Resources Management Plan (INRMP), specifically INRMP Goals No. 3 and 4, Objectives 3.2 and 4.1, respectively.

2.0 TASKS

The tasks and deliverables described within this Section of the SOW shall be completed during the course of the period of performance. The NFE shall perform site visits during the period of performance prior to submittal of draft and final reports. Tasks 1 – 6 below shall be completed by the NFE.

2.1 TASK 1. DRAFT WORK PLAN

A Draft Work Plan: A Draft Work Plan shall be submitted to the government within 21 calendar days of date of project award. The government shall be afforded a 14 calendar day review period and shall provide the NFE with comments to utilize for finalization of the document.

The draft work plan shall demonstrate how and when the work will be completed over the course of the period of performance. Within the work plan, the NFE shall populate a Project Planning Chart (PPC) which details the project schedule. All site visits and their date of occurrence shall be depicted within the gantt chart. The use of gantt charts to depict project schedule is preferred to depict scheduling of actions and submittals. The project budget shall be displayed with itemization using the following categories: salary, travel, and equipment, to include a list of employees, inclusive of their educational certifications and licenses.

The NFE may require usage of a sub-NFE for logistics, vehicle, and other site specific support; such sub-NFE costs shall be displayed within the draft work plans budget, as well as submitted with the NFE proposal. Any services the NFE intends to subcontract from the on-site support shall be described in the draft work plan. Scientific support for the model(s) of choice and source data shall also be depicted in the work plan. The work plan shall identify how successful other modeling efforts have been using the support data the NFE wishes to utilize and make reference to how it was collected and by whom. The work plan contents shall support the NFE's selection of input data and model type

2.2 TASK 2. FINAL WORK PLAN

The NFE shall utilize the government comments to make final edits and changes to the work plan. A response to each government comment shall be documented by the NFE within a response to comment matrix, which shall be submitted alongside the Final Work Plan. The NFE shall submit a Final Revised Work Plan with accompanying populated response to comment matrix within 21 calendar days of receiving government comments.

2.3 TASK 3. ALASKA PRSC INSTALLATION SITE VISITS

The locations depicted in Table 1 shall each be visited once for two days in order to document vulnerabilities to polar bear interactions and infrastructure damage. At each site the researchers shall document outside installation staff behaviors which are or will be vulnerable to polar bear interactions. An effort shall be made to monitor differing actions, such as waste disposal, vehicle staging, equipment movements, plane offloads, recreation, and other human actions on each installation. Any actions or infrastructure the researchers believe are or may be vulnerable to polar bear interactions or initiate a polar bear interaction shall be documented and depicted in the draft reports.

The Site visits shall also afford the researcher opportunities to collect any fine scale site specific data needed for input into models which shall depict if polar bear movements will increase through the site or utilization of the site are likely to increase or decrease at each site from a temporal perspective. Interviews shall be conducted with the installation's personnel at the site in order to gather pertinent information which may be utilized as supporting information to the sea ice and polar bear modeling efforts.

2.4 TASK 4. SEA ICE AND POLAR BEAR DISTRIBUTION ANALYSIS

Utilizing available sea ice prediction data for sea ice surrounding the installations depicted in table 1, the NFE shall utilize modeling tools to predict where polar bear distributions are likely to change and which USAF military installations are likely to be impacted. Location data will be provided upon award of this cooperative agreement. The modeling results shall be converted to graphic depictions in order to show readers current geographic range as well as forecasted ranges in out years. The USAF PRSC installations listed in Table 1 shall be depicted in such graphics. The analysis shall be used to help the NFE identify installations which may see an increase in Polar Bear utilization or visitation.

The modeling results should be discussed in a draft report alongside maps and graphics explaining the input data, output and tools used to create such results. The results shall also be incorporated into a simplistic risk assessment based on observations from the site visits. This risk assessment shall be a section within the draft and final report. Risks to human life, property and mission execution are of specific interests. In the event sea ice changes and polar bear geographic ranges alter, causing increased risks to certain sites, the draft and final reports, shall elaborate on those sites to a greater degree in the draft and final reports.

2.5 TASK 5. DRAFT PROJECT SUMMARY REPORT

Upon completion of field duties and modeling, the NFE shall take information collected over the course of the project and develop a draft project summary report. The report shall include maps of the areas within Northern Alaska within polar bear range, with a specific focus on the installations depicted in Table 1 of this SOW. The NFE shall utilize the report format of the Journal of Wildlife Management for the draft and final report. The draft report shall be

submitted to the government within 15 Months of project award. The government shall be afforded a 14 calendar day review period.

2.6 TASK 6. FINAL PROJECT SUMMARY REPORT

The NFE shall utilize the government comments to make final edits and changes to the draft project summary report. A response to each government comment shall be documented by the NFE within a response to comment matrix, which shall be submitted alongside the Final Project Summary Report.

The NFE shall submit a Final Project Summary report with accompanying populated response to comment matrix within 16.5 Months of date of project award. The NFE shall submit GIS shape files used to make maps within the report. GIS mapping restrictions are detailed in section 10.0 of this SOW.

3.0 SUPPLIES AND MATERIALS

All supplies and materials required to complete the SOW must be purchased or leased by the NFE. Personal protection equipment (PPE) shall be utilized during visits to remote sites. The PPE utilized shall be defined by weather conditions and risks posed to the NFE during the season of visit. Vehicle rental, gas purchases or procurement of any other equipment is the requirement of the NFE. Shipping of any materials to the remote sites shall be done so at the cost of the NFE.

4.0 PROFESSIONAL REQUIREMENTS

The NFE shall have recent experience (within the past 5 years) performing modeling of sea ice changes and the influences sea ice change may have on large mammals. A master's level degree shall be required for the principal investigator assigned to this project. Associated support researchers must demonstrate prior scientific expertise (within the past 5 years) and a minimum of a bachelor's degree in a scientific field of study from an accredited university. A Senior Biologist, and Biologist (or similar field(s)) are anticipated for work completed under this Cooperative Agreement.

5.0 PROJECT MANAGEMENT, PLANNING, AND REPORTING SERVICES

The NFE shall plan project activities, including: the development, implementation, and maintenance of project schedules, events, status of resources, report(s) on the activities, and progress toward accomplishing project objectives. The NFE shall document the results of the project efforts for this TO for government review and approval on a quarterly basis. The results shall be documented in the Draft and Final Summary Report.

6.0 NFE PROGRESS, STATUS, AND MANAGEMENT REPORT

NFE shall prepare and submit a Cooperator's Progress, Status, and Management Report (CPSMR) to the USACE GOTR, on a monthly basis throughout the period of performance. The CPSMR shall be used to review and evaluate the overall progress of the project, along with any existing or potential problem areas. The CPSMR shall include a summary of the events that occurred during the monthly reporting period, discussion of performance, identification of problems, proposed solutions, corrective actions taken, and outstanding issues. Cost information associated with the tasks being performed, shall be included in this report as required in this TO. This information includes, but is not limited to:

a. Number of days, locations, and activities in travel status
b. List of plans, reports, and briefings prepared or reviewed
c. List of meetings attended including purpose/objective and attendees
d. List of major action item support and tasks accomplished
e. Status of project progress, problems identified, solutions implemented, and schedule adjustments if appropriate
f. Any critical communications not reported in other sections

7.0 NOTIFICATION REQUIREMENTS

The NFE is required to notify the Grants Officer (GO) and GOTR of critical issues that may affect the cooperative agreement performance and/or human health and the environment. The types of issues that require notification include, but are not limited to: health risks, spills, unexpected utility crossings, unusual weather conditions, unacceptable materials, changes in critical personnel, and Unexploded Ordinance (UXO).

As an example, if UXO was discovered during field activities, the NFE would be required to immediately stop work, report the discovery to the base POC and GOTR, and implement the appropriate safety precautions. Commencement of field activities could not continue until clearance was received from the GO. On critical issues, oral notification should be made immediately, followed by written notification as soon as practical.

8.0 WORK SITE CONDITIONS

Coordinate work site activities to ensure the protection of human health and the environment; the prevention of damage to property, utilities, materials, supplies, and equipment; and the avoidance of work interruptions. Provide physical security to the work area with security equipment and personnel as specified in this TO. The NFE and Sub-NFEs must comply with Occupational Safety and Health Administration (OSHA) safety and health regulations and local safety office requirements.

The NFE is required to provide the GO copies of any OSHA report(s) submitted during the duration of the TO. The NFE shall coordinate work site activities with the 611th Civil Engineering Squadron (CES) Environmental Office to ensure no nesting birds will be affected during implementation of this SOW. Also, the NFE must work with the base to coordinate on

other general matters. Examples of the offices/departments that the NFE shall coordinate activities with include, but are not limited to:

Transportation Planning	Police/Security/Safety Office Utilities
Hazardous Materials Operations	Fire Department
Pass and Identification	Environmental
Facility Management	Base Civil Engineer
Local Reuse Authority	Public Works Field Operations
Local and State Regulators	Federal Regulators
Off Site Emergency Facilities Communications	U.S. Customs and Border Protection

9.0 LOGISTICS

The NFE will work with PRSC's Air Support Squadron to receive permissions to access northerly USAF sites. Site Arrival Notices will be issued for population by the NFE after award. It is the NFE's responsibility to submit site visit request documents within 2 business days of notice of a need for a site visit. The NFE is financially responsible for all travel costs to and from the sites.

10.0 SPATIAL DATA AND MAPPING REQUIREMENTS

All products associated with this cooperative agreement that provide a map representation of the location of installation features (historical, existing, or planned) including installation maps, site plans, area development plans, walls-out as-built depictions, or other related overhead (plan) views of an installation (partial or entire) must adhere to the following requirements, (NOTE: This requirement does not currently involve walls-in facility floor plans or interior renderings.):

a. All maps and associated data must comply with the latest version of Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) available from the SDSFIE website: http://www.sdsfie.org/.
b. These data will be organized using the current version of the standard approved by the Headquarters Air Force Geo Integration Office (HAF GIO) as the functional lead for installation mapping and visualization.
c. The SDSFIE will determine file and feature class identification and definition, attribution and valid domain values. When any geospatial information collected as a result of the cooperative agreement includes information identified in the Common Installation Picture (CIP) or recognized Mission Data Set (MDS) the NFE will deliver data consistent with the established requirements for the data and will ensure functionality with the receiving system.
d. Information must be collected at no less than 1:1200 scales for base cantonment areas and 1:4800 scales for larger undeveloped base areas. Spatial data will meet or exceed National Map Accuracy Standards at those scales.

e. Metadata will be provided and will use Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata (CSDGM) for organization.
f. Geospatial data must be delivered in a geo-referenced GIS (Geographic Information System) format (feature-based file structures with one-to-one cardinality between spatial records and attribute records) which would include Environmental Systems Research Institute's (ESRI) shape file and geodatabase formats.
g. All attribute data as specifically outlined in the project must be included either in the GIS data file or as a separate table with a SDSFIE key variable that may be used to relationally join the separate table with the GIS data file.
h. All geospatial data must be delivered in the North American Datum 1983 (NAD83) projection, State Plane Coordinate System, using feet or metric coordinate units. Further guidance on mapping units, coordinate systems and projections is available from the Installation GIO.
i. Mapping- or Survey-Grade Global Positioning Systems (GPS) or comparable traditional survey methods will be used to collect geospatial data. The use of mapping- or survey-grade GPS will depend on the precision requirements of the product data. These requirements will be specified later in this SOW for all cooperative agreement activities where geospatial data are involved.
j. In the case of contracts involving utility construction, location and attribute data will be obtained at the time of excavation. Further information about precision requirements should be obtained from the installation GIO.
k. Source data and product data remain the property of the US Government. The NFE may be required to explain and demonstrate their process for protecting all geospatial data, including, but not limited to:
    i. geometry, attributes, metadata, topologies, and relational database schemas and operations used in association with this SOW.
l. The NFE may be required to sign a non-disclosure agreement attesting to the same before source data are released. Further information about security and nondisclosure requirements should be obtained from the installation GIO.
m. Some installation map data, source and/or product, may be considered by the government to be "sensitive, but unclassified." The intent of this clause is to prevent intentional or unintentional dissemination of "sensitive, but unclassified" information to include unauthorized access to the source and product data by any entity wishing to do harm to the USAF or United States Government while the data resides on the NFE's computer network. The NFE shall be diligent in securing "sensitive, but unclassified" information to prevent unintentional distribution of GIS Shapefiles.
n. The NFE is not authorized to release this information to any third party without the explicit written consent of the Grants Officer. All source information must be returned to GOTR or destroyed upon completion of this project. Special requirements for handling classified map data, if applicable, will be addressed elsewhere in this SOW.

11.0 PUBLICATIONS AND COMMUNICATIONS WITH OUTSIDE PARTIES

The NFE shall not publish results of the project tasks without obtaining express, written permission from the Grants Officer. The NFE shall not communicate the results of the project with any state or federal regulator or member of the media, but rather give the respect to the funding entity to provide such results to the regulatory entities and press in accordance with the Endangered Species Act and USAF public affairs process. In those instance when NFE staff associated with the project are contacted by the regulator or media, they shall direct such inquiries to the 11 Air Force Public Affairs office and forward the inquiry or contact to this public affairs office. Email contacts and phone numbers for the 11 Air Force Public Affairs office shall be provided to the NFE after award. The NFE shall follow guidelines set forth in 2 CFR 200.

12.0 DELIVERABLE SCHEDULE

Deliverable Title	***Submission Schedule***
Draft Work Plan	Submitted to the USACE GOTR within 21 calendar days of date of project award.
Final Work Plan and Response to Comment Matrix	Submitted to the USACE GOTR within 21 calendar days of receipt of government comments.
Draft Project Summary Report	Submitted to the USACE GOTR within 15 Months of project award.
Final Project Summary Report and Response to Comment Matrix	Submitted to the USACE GOTR within 16.5 Months of project award.
Project Management, Planning, and Reporting Services	Submitted to the USACE GOTR on a quarterly basis.