BOEM ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Study Area(s): Beaufort Sea, Chukchi Sea, Cook Inlet

Administered By: Alaska OCS Region

Title: Community Based Monitoring: LEO Network (AK-16-05)

BOEM Information Need(s) to be Addressed: BOEM needs information on a variety of environmental variables to effectively conduct environmental analyses against a backdrop of changing environmental conditions. The Arctic is undergoing climate change affecting subsistence harvests on the land and at sea. Frontline observations are made by residents of rural communities including Alaska Native subsistence harvesters, who can readily identify abnormalities in local habitat, prey availability, species composition, and seasonal timing of ecological processes. In an effort to capture and document such observational data, the Alaska Native Tribal Health Consortium (ANTHC) Center for Climate and Health has developed the Local Environmental Observer (LEO) Network. Now the program has come to a programmatic crossroads and requires new funding support. BOEM intends to collaborate on this established observation network and enhance its utility for scientific decision-making. The data will be used to support NEPA analyses both to document changing environmental conditions and to assess the range of implications for human communities.

Total Cost: TBD **Period of Performance:** FY 2016-2020

Conducting Organization: TBD

BOEM Contact: TBD

Description:
Background: LEO is the acronym for the Local Environmental Observer Network, a volunteer program of mostly tribal environmental professionals who share information about environmental events where they live, post observations on public Google maps, and coordinate with technical experts to identify appropriate actions. The purpose is to increase understanding about climate change and other drivers of environmental conditions to facilitate development of appropriate adaptation strategies. To achieve this, LEO strives to integrate science, traditional knowledge, and modern technology to achieve a robust and effective observation system.

Members self-enroll via the LEO Network website. Since the program was initiated in January 2012, over 250 individuals in 120 communities have enrolled across Alaska and in western Canada. They receive training on how to be effective observers and use of the tools available through the LEO Network. Posted observations are reviewed in monthly webinars and annual conferences. Updates on new LEO posts are communicated through social media and a weekly e-news that is distributed to network members as well as a list-serve of over 1500 subscribers nationally and around the circumpolar north. Dozens of State, Tribal and Federal agencies and academic institutions provide technical consultation support to LEO based on their topical expertise. Most of these

communities are coastal, but there is growing participation in interior Alaska as well. The Network maintains a database of community based observations on a wide range of topics including extreme weather, floods, erosion, ice changes, permafrost thaw, invasive species, infrastructure damage, environmental contamination, and changes in the health, range, and behavior of fish, insects, birds and wildlife.

LEO was originally developed by the ANTHC Center for Climate and Health, with supplemental funding from the Environmental Protection Agency and the Western Alaska Landscape Conservation Cooperative, a partnership of Federal agencies addressing climate change impacts on the nation's landscapes. ANTHC serves as the hub for the LEO Network.

Objectives: This study would identify and promote pathways for incorporating observations and real time documentation in the coastal northern and Cook Inlet regions for the following variables:

- Sea ice formation, significant ice events, and transitions to open water;
- Subsistence activities in the marine environment for sea mammals, fishes, and birds, and observations regarding variations attributable to changing environmental conditions;
- Loss of permafrost and its effects on habitat, health, behavior, and infrastructure;
- Coastal erosion and its effects on habitat, health, cultural resources, and infrastructure;
- Changes in migratory patterns and its effects on abundance, phenology, etc.
- Changes in habitat range that may be indicative of regime shifts.

Further institutional objectives include:

- Increase understanding about environmental change;
- Enhance tools available at the community and regional level to assess impacts;
- Improve communication and collaboration among communities, State of Alaska and Federal government, and other institutions;
- Facilitate development of healthy and effective adaptation strategies.
- Document community-based valuations of environmental resources.

Methods: The following processes are maintained by LEO Network managers in order to sustain the program systems: enrollment and training of new members; management of observation posts and consultations; transfer of observation content to data systems; connecting observers with technical experts in partner organizations; publishing new observations on Google maps; outreach on observations to the Network, social media, and the website; weekly publication of Climate and Health E-News; planning and hosting monthly webinars and annual conferences; synthesize data for education, policy development and management decision through the Alaska One Health Working Group.

Current Status: In procurement

Final Report Due: TBD

Publications Completed: None

Affiliated WWW Sites: http://www.boem.gov/akstudies/

Revised Date: August 2016

ESPIS: Environmental Studies Program Information System
All *completed* ESP studies can be found
here: http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp