

Protocol Development Summary

Protocol: Subsistence/Harvest

Parks Where Protocol will be Implemented: Bering Land Bridge National Preserve (BELA), Cape Krusenstern National Monument (CAKR), Gates of the Arctic National Park and Preserve (GAAR), Kobuk Valley National Park (KOVA), Noatak National Preserve (NOAT)

Justification/Issues being addressed:

The enabling legislation for ARCN parklands (ANILCA Public Law 96-487) provides for the traditional subsistence use of resources by 21 neighboring and resident zone communities. These resources include but are not limited to: fish, wildlife, timber resources (for subsistence cabins and firewood), water, and berries and other edible plant material. Additionally, Noatak National Preserve, Bering Land Bridge National Preserve, and the preserve portions of Gates of the Arctic are open to sport hunting and fishing. Increasing human populations within the region and increasing sport hunting in the preserve lands raise concerns about the long-term health of fish, wildlife, and plant populations; landscape impacts from consumptive use; and the status of the resources available for harvest. Monitoring for this vital sign includes understanding the status and health of harvested resources, and of the surrounding habitat, because of the importance of these resources to local residents for subsistence use. Additionally, changes in subsistence activities may indicate changes in the presence/absence or distribution of a species, and Local or Traditional Ecological Knowledge based on long-term resource use and observation can significantly enhance information about local ecological linkages for park managers and the monitoring program (Drew 2005, Huntington et al. 2004). This vital sign is linked to the Bird Assemblages, Fish Assemblages, Terrestrial Vegetation and Soils, Lake Communities and Ecosystems, Stream Communities and Ecosystems, Lagoon Communities and Ecosystems, Point Source Human Impacts, Visitor Use, and various mammal vital signs.

Specific Monitoring Questions and Monitoring Objectives to be Addressed by the Protocol

Monitoring Questions:

- How do harvest patterns change over time in terms of spatial distribution, magnitude, composition, and seasonality?
- How are populations of harvested species changing according to past and current harvest practices?
- What are the impacts of consumptive use on stream, lake, and lagoon ecosystems?

Monitoring Objectives:

1. Summarize harvest data from studies and databases maintained by the Alaska Department of Fish and Game, the Federal Subsistence Board, regional and local Native corporations and organizations, and other resource management entities.
2. Collaborate with other agencies and organizations to conduct community or household surveys to collect data about the number harvested per species or resource category.
3. Establish outreach venues whereby information about subsistence resources, which is collected for other vital signs' protocols, is reported back to local residents.

Basic Approach:

Subsistence and sport harvest data are collected and maintained by the Alaska Department of Fish and Game, the Federal Subsistence Board, and some of the Alaska Native Corporations in northwestern Alaska. The Subsistence/Harvest protocol for ARCEN relies on collaboration with these agencies and organizations to acquire this data and incorporate it into ARCEN data streams. Our data focus will be for those species targeted by other protocols including brown bear, caribou, Dall's sheep, moose, muskox, and fish assemblages (in particular those fish species monitored for contaminants). Additionally, where there may be data gaps, ARCEN and NPS subsistence staff will coordinate with other agencies and organizations to conduct additional harvest surveys at the community and household level. Comprehensive baseline surveys about all harvested species are recommended at least once per human generation (approximately every 20 to 30 years) for each of the resident zone communities. The protocol for this vital sign will include collaborative arrangements with village and tribal organizations that establish a mutually agreed upon exchange of information including harvest surveys; Local and Traditional Ecological Knowledge about harvested resources; reporting to local residents about data collected on subsistence resources; and local residents' input into the monitoring programs for other vital signs such as Fish, Birds, and various mammal vital signs.

Principal Investigators and NPS Lead:

The NPS Lead is Kumi Rattenbury, ARCEN Ecologist. Collaborators include Scott Miller, ARCEN Data Manager; Ken Adkisson, BELA Chief of Subsistence; Fred Tocktoo, BELA Subsistence Ranger; Willie Goodwin, WEAR Subsistence Coordinator and Community Liaison; Dave Krupa, GAAR Subsistence Coordinator; Greta Burkart, ARCEN Aquatic Ecologist; Tara Whitesell, ARCEN Biotech.

Development Schedule, Budget, and Expected Interim Products:

Protocol development: FY 2009 and 2010

Implement and test: FY 2011

Peer review and finalize: FY 2012

Literature Cited:

Drew, J.A. 2005. Use of traditional ecological knowledge in marine conservation. *Conservation Biology*. 19:1286-1293.

Huntington, H. T. Callaghan, S. Fox, and I. Krupnik. 2004. Matching traditional and scientific observations to detect environmental change: A discussion on Arctic terrestrial ecosystems. *Ambio Special Report* 13:18-23.