

# Arctic Landscape Conservation Cooperative

## Inventory and rescue of hydro-climate data

### The Big Picture

Global climate models project a warmer and potentially wetter future for northern Alaska. How and where water will be distributed on the landscape is a crucial aspect of habitat change. We need to know how hydrologic processes may change under different climate scenarios, and to do that we need the most complete historical baseline possible. A first step is to inventory and compile available hydrologic and climate data.

**Project ID:** ARCT2010-04

**Year Funded** – 2010

**Start** – July 2010

**End** – February 2012

**Budget** – \$268,000

#### Research Partners:

University of Alaska Fairbanks  
International Arctic  
Research Center  
Water and Environmental  
Research Center

### First step toward developing a hydrology monitoring network in Arctic Alaska

#### Project Description

Researchers from the University of Alaska Fairbanks are working with state, federal, and private entities in an effort to inventory and compile data related to hydrology and climate in Arctic Alaska. These data will be used in an analysis that identifies key locations for future environmental monitoring efforts in Arctic Alaska and parameters to measure at these locations (e.g., stream flow, air and soil temperature, snow depth, and solar radiation)

#### Why We Are Interested

This project gathers together scarce hydrology data, currently scattered among many places and institutions, and places it within one data structure and location. While there are many uses for these data, we are most interested in their ability to inform the design of a long-term hydrologic observation network for the Arctic LCC.



Upper Kuparuk River near the Dalton Highway. Photo credit: Rob Gieck/WERC.  
[http://ine.uaf.edu/werc/projects/NorthSlope/upper\\_kuparuk/images](http://ine.uaf.edu/werc/projects/NorthSlope/upper_kuparuk/images)

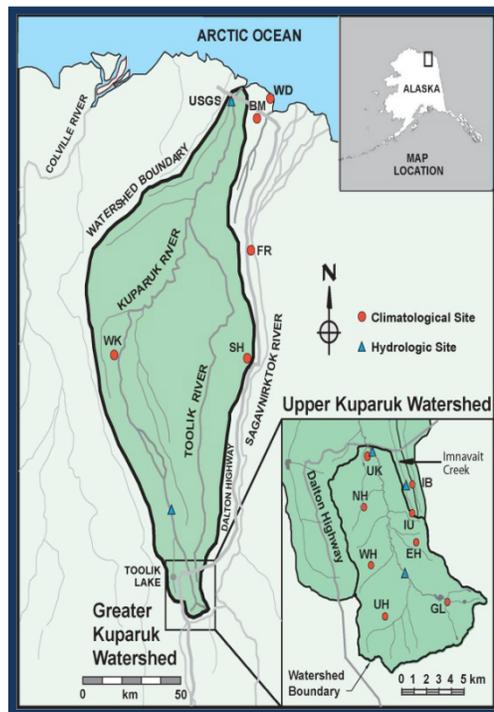


## What Will Be Done

This work will be completed in two phases. During phase one, we will inventory available data related to hydrology and climate in Arctic Alaska and start to compile data within a relational geodatabase. During the second phase, we will make the data accessible through the web, and use it to design an improved climate and hydrologic monitoring network for Arctic Alaska.

## Expected Outcomes

This work is the first step towards developing a network of long-term monitoring sites designed to enhance our understanding of water balance in arctic habitats and improve forecasts of future habitat conditions. In the near-term, the scientific, conservation, and engineering community will benefit from the existence of a comprehensive hydro-climate database.



The Greater Kuaruk Watershed is one of the few rivers systems in Arctic Alaska with a history of long-term hydrologic monitoring. Map courtesy of Erica Betts/UAF.

## Timeline

2010-2011: Inventory available hydro-climate data; design database; compile records.

February 2012: Final report that identifies key location for maintaining or re-establishing long-term monitoring.



The mission of the Arctic LCC is to identify and provide information needed to conserve natural and cultural resources in the face of landscape scale stressors, focusing on climate change, through a multidisciplinary program that supports coordinated actions among management agencies, conservation organizations, communities, and other stakeholders.

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Changes in water balance are expected to occur as the Arctic warms, but given the scant historical record, they may be difficult to document. Compiling data collected by numerous institution into a single database will help analyze trends.

June 2011

To learn more about this project and other Arctic LCC projects visit: [arcticlcc.org](http://arcticlcc.org)  
or contact Greg Balogh, Coordinator at [greg\\_balogh@fws.gov](mailto:greg_balogh@fws.gov)  
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