Stitching Water: Building Collaborative Monitoring Networks in Alaska

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Promote better understanding of the main drivers of change in ecosystems and habitats, at landscape to regional scales.
From Reach to Region: promoting a voluntary, statewide freshwater temperature monitoring network in Alaska

Western AK LCC FY13/14 Program: Freshwater Temperature Change & Impacts
Convening

Road Map of 12 Tasks
- Generating Interest
- Eliminating Barriers to Participation
Inventory Observing Activities

Google “AK –OATS”
Stream Temperature Data Collection Standards and Protocol for Alaska:
Minimum Standards to Generate Data Useful for Regional-scale Analyses

Alaska Natural Heritage Program
University of Alaska Anchorage
December 2014
Pilot Implementation Strategies

Sensor Season
Interval = Continuous
Status = Active
Frequency ≤ 60 min.

- year round, n=211
- open water, n=159
- unknown, n=17
Exploratory Analysis

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Tasks In Progress

Statewide Spatial Design Assessment & Strategy

Data Management Architecture
Share / Curate
TEON: A Long-term Terrestrial Environmental Observation Network for Northern Alaska

Photo: Ken Tape, Arctic Circle Photography
Purpose of the Terrestrial Environmental Observation Network (TEON)

- Collect, distribute, and synthesize long-term observational data needed to detect and forecast effects of a changing climate, hydrology, and permafrost regime on fish and wildlife habitat, and infrastructure in northern Alaska.
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- Collect, distribute, and synthesize long-term observational data needed to detect and forecast effects of a changing climate, hydrology, and permafrost regime on wildlife, habitat, and infrastructure in northern Alaska.

**TEON GOALS**

- **Long-term** (i.e., multi-decadal)
- **Coordinated** (i.e., cross-discipline & cross-organization)
- **Focal watershed approach**
TEON Technical Advisory Group

Multi-Discipline
- Weather
- Surface Water
- Soils/Permafrost
- Vegetation

Multi-Organization

Logos of various organizations and institutions related to environmental and natural resources.
http://arcticlcc.org/projects/imiq
Selection Criteria for Focal Watersheds

- **Minimize the cost** of installation, operation, access and maintenance

- **Maximize continuity** of existing data archives, and

- **Responsive to management concerns** (e.g., proposed oil and gas development)
Selection Criteria for Focal Watersheds

- Represent *spatial and temporal variability* across major ecological gradients.
Implementation Strategy

Coastal Plain

Arctic Foothills

Brooks Mountains

Weather
Surface Water
Soils/Permafrost
Vegetation
Collaborative Observing Network
Necessary Integrative Activities

• Convene the players
• Inventory current and past efforts
• Identify priority data sets
• Select protocols, standards for data collection
• Design spatial layout
• Implement!
  • Fill gaps
  • Organize logistics
• Create and maintain data system
Obstacles to Creating Collaborative Long-term Observing Networks

- Academic culture that incentivizes short-term process-based research.
- Agency culture/regulations that discourage long-term financial commitments.
- Legal/regulatory barriers to commingling funds
- Lack of awareness and institutional support for integrative activities that serve the common good.