

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Extended Analysis of Rivers and River Basins Within Central Alaska

Discipline: Natural

Type of Project: Research

Funding Agency: National Park Service

Other Partners/Cooperators: University of Colorado at Boulder and Denver

Effective Dates: 9/1/2003 - 7/31/2006

Funding Amount: \$66,480.00

Investigators and Agency Representative:

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Investigator: Robert Stallard, University of Colorado, Boulder, Institute of Arctic and Alpine Research, 1560 30th Street Boulder, CO 80309-0450, 303-735-7811, stallard@colorado.edu

Project Abstract:

The NPS Central Alaska Network (CAKN) is in the early design phase of developing a long-term vital signs monitoring program for five National Park Units that total 22.7 million acres. The CAKN is rich in water resources, with thousands of small ponds and lakes. Two of Alaska's largest rivers, the Yukon and Copper, traverse these massive parks. These parks also support a wide variety of lotic systems including clear water, glacial and brown water, yet water resource data is very limited. Selecting systems for monitoring over such a vast area can be greatly assisted through hydrographic modeling.

Robert Stallard, USGS -National Research Program and Institute for Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, and his associates, agree to cooperatively work with CAKN personnel towards producing a RiverTools hydrographic model for the CAKN park units. Since digital elevation models (DEMs) and other databases necessary for developing this model are of unknown quality, this project will be developed in three stages. After each stage, the INSTAAR group and NPS will evaluate the quality of the resulting product and determine if it is advisable to proceed to the next stage.

This project includes funds obligated in FY 03 and FY 05 for work with the Central Alaska Inventory and Monitoring Network. The primary objectives of the phase 2 of this project are to 1) add new data to original analysis, 2) allow for a collaborative effort to generate a useful watershed typology for NPS scientists, 3) develop a focused and detailed description of several watersheds of particular interest to the NPS, and 4) produce a USGS publication summarizing general hydrologic features of the Central Alaska Network, the watershed typology methods and results, and the focused analyses of selected basins.

Outcomes with Completion Dates:

Phase 1

1. Detailed hydrography of each park unit
2. Registered set of GIS coverages
3. Characterization of basin characteristics for selected basins, including selection of representative larger basins
4. Identification of river reaches within representative larger basins for possible discharge gaging sites.
5. A summary report describing:
 - a. Quality of data
 - b. Unique observations or interpretations (if any)

Recommendations for future steps and applications of the data

Phase 2

Task 1: Integration of Additional and Improved Data

Task 2: Typological Analysis of Watersheds

Task 3: Focused Analysis of Specific Watersheds

Task 4: USGS Scientific Investigations Report

Due 07-31-2006

Keywords: watershed analysis, hydrologic survey, Central Alaska Inventory and Monitoring Network, University of Colorado at Boulder,

For Administrative Use Only:

Date Annual Report Received:

Date Final Report Received:

Publications, etc. on file: