

NNA PLANNING: COMMUNITY-BASED MITIGATION AND ADAPTIVE STRATEGIES FOR RIVER FLOODING AND EROSION IN ALASKA NATIVE COMMUNITIES

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ABSTRACT

Climate-driven changes in river systems are occurring across Alaska as a result of thawing permafrost, melting glaciers, increased rainfall, and warming temperatures. In the Yukon-Kuskokwim Delta (Y-K Delta), erosion and flooding are becoming a serious threat to many Native Alaska communities. These events threaten infrastructure, disrupt travel, and hinder traditional harvesting and cultural practices. Here we present preliminary planning work to inform village and regional decision making on mitigation and adaptation strategies. This work has been completed in collaboration with communities on the Kuskokwim River between 2021 and 2022, with the goal of co-generating a research design and approach for a multi-site study integrating local knowledge, Indigenous science, and western science.

COLLABORATORS

Iowa State University
University of Washington
Yupitit School District
Akiak Native Community
Organized Village of Kwethluk
Akiachak Native Community
Tuluksak Native Community
Orutsararmiut Traditional
Native Council
Bethel Community Services
Foundation



Erosion in Akiak (Photo: Amelia Wells)

METHODS

Interviews: conducted with members of the community of Akiak between August 16-25, 2022.

Community Workshop: On August 21, 2022, an initial regional workshop was held in Bethel, which consisted of 20 participants from Bethel, Akiak, Kwethluk, and Tuluksak communities. Discussions were held to identify pressing threats, needs and potential solutions.

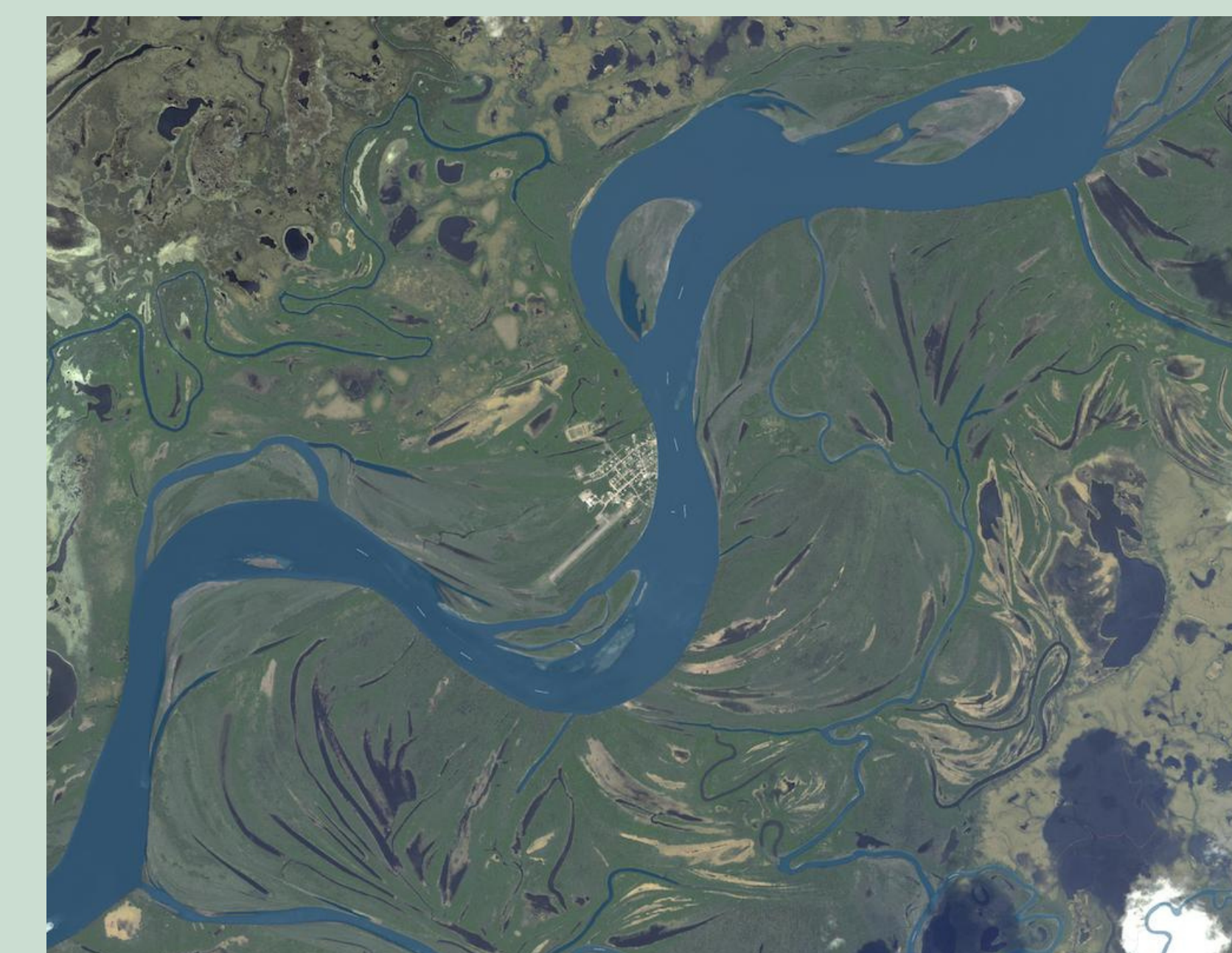
Collaborative Mapping: satellite images of the Kuskokwim watershed and the surrounding villages were printed on posters and participants marked areas where they may have witnessed events of erosion, flooding, permafrost thawing, sandbars forming or ice jams occurring.

Soil Sampling: Samples were taken at different locations along the river to be analyzed for soil makeup and characteristics

Student Engagement: A short video is being co-produced with teachers and students in Akiak in addition to the development of lesson plans to prioritize student involvement.

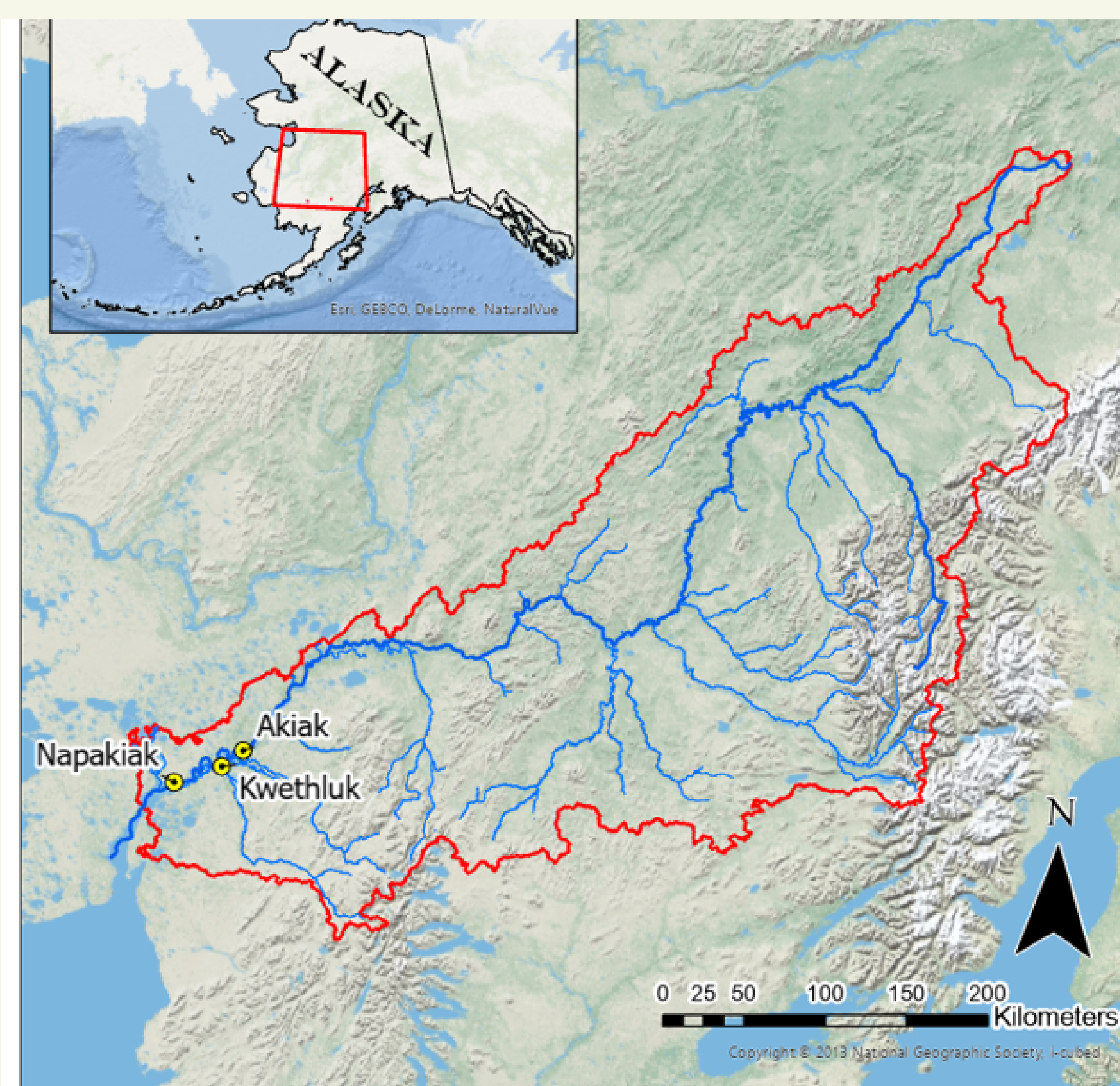


PI Cassandra Rutherford
(Photo: Amelia Wells)



Akiak Native Community Aerial Map
(Source: USGS The National Map Viewer)

STUDY AREA



Kuskokwim River Watershed

(Source: Pratik Proudell, Iowa State University)

OBJECTIVES

- Advance existing hydro-geological and social science related data and models
- Co-generate regionally relevant research in collaboration with Native Alaskan communities in the Y-K Delta
- Better understand and identify the priorities related to erosion and approaches to address it by community members and leaders
- Build connections and trust with community members
- Engage youth in research

FUTURE DIRECTIONS

During the process of this planning grant period, collaborators and community members confirmed that future funding and research should focus on:

- Erosion and its impacts to infrastructure
- Acquiring funding for adaption
- Developing tools to understand river changes
- Centering cultural continuance and youth engagement

ACKNOWLEDGEMENTS

Advisory Board: Chief Mike Williams Sr. , Mr. Joel Neimeyer, P.E., Mr. Woody Woodgate, Mr. Bob Hoffman, Mr. Brandon Leary



Boats tied up in Akiak (Photo: Amelia Wells)