





What we've heard...

- The Colville is experiencing heavy erosion with rates that seem to be accelerating in recent years
 - The river is becoming very shallow in spots, making it harder to access traditional subsistence harvest sites
 - These access issues are contributing to a shortage of subsistence foods in Nuiqsut
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Remote Sensing of River Navigability on the Colville River, Nuiqsut AK

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Hypothesis

- Climate Change is causing accelerated rates of erosion as well as river shallowing on the Colville
 - Warmer temperatures are causing earlier breakup, creating more time for running water to erode river banks
 - Warmer temperatures are thawing the permafrost bluffs around river, causing large chunks of land to collapse into the river
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Project Goals

Question 1: Erosion

Has erosion on the Colville been accelerating in recent years like residents believe, and if so, where are these sites of accelerated erosion and how much sediment has been eroded into the river?

- Map river channel from 1950's to present
- Identify areas of heavy erosion
- Calculate rate of erosion as well as quantity of sediment being eroded



Community Involvement

Science that's useful to people

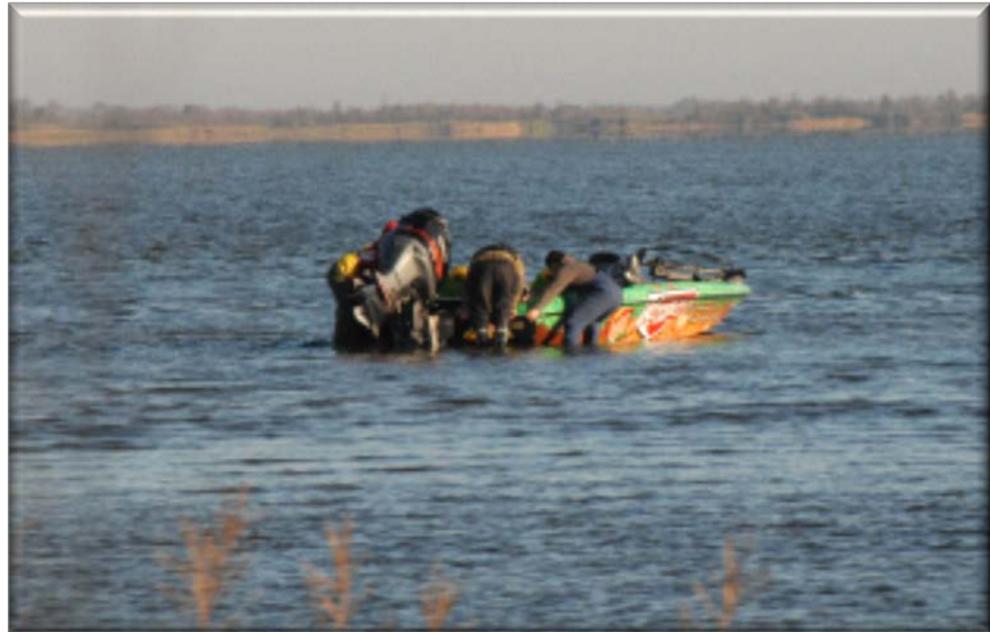
1. Do the goals and objectives of this project seem useful to the community of Nuiqsut?
2. What kind of “deliverables” would be most beneficial to the community in terms of river navigability issues?

Project Goals

Question 2: Water Depth

Where has the river gotten shallower over the years and how is this affecting community member's ability to travel for subsistence hunting needs?

- Calculate water depth for the Colville with satellite imagery
- Create water depth maps showing dangerously shallow parts of the river









Community Involvement

Science that's useful to people

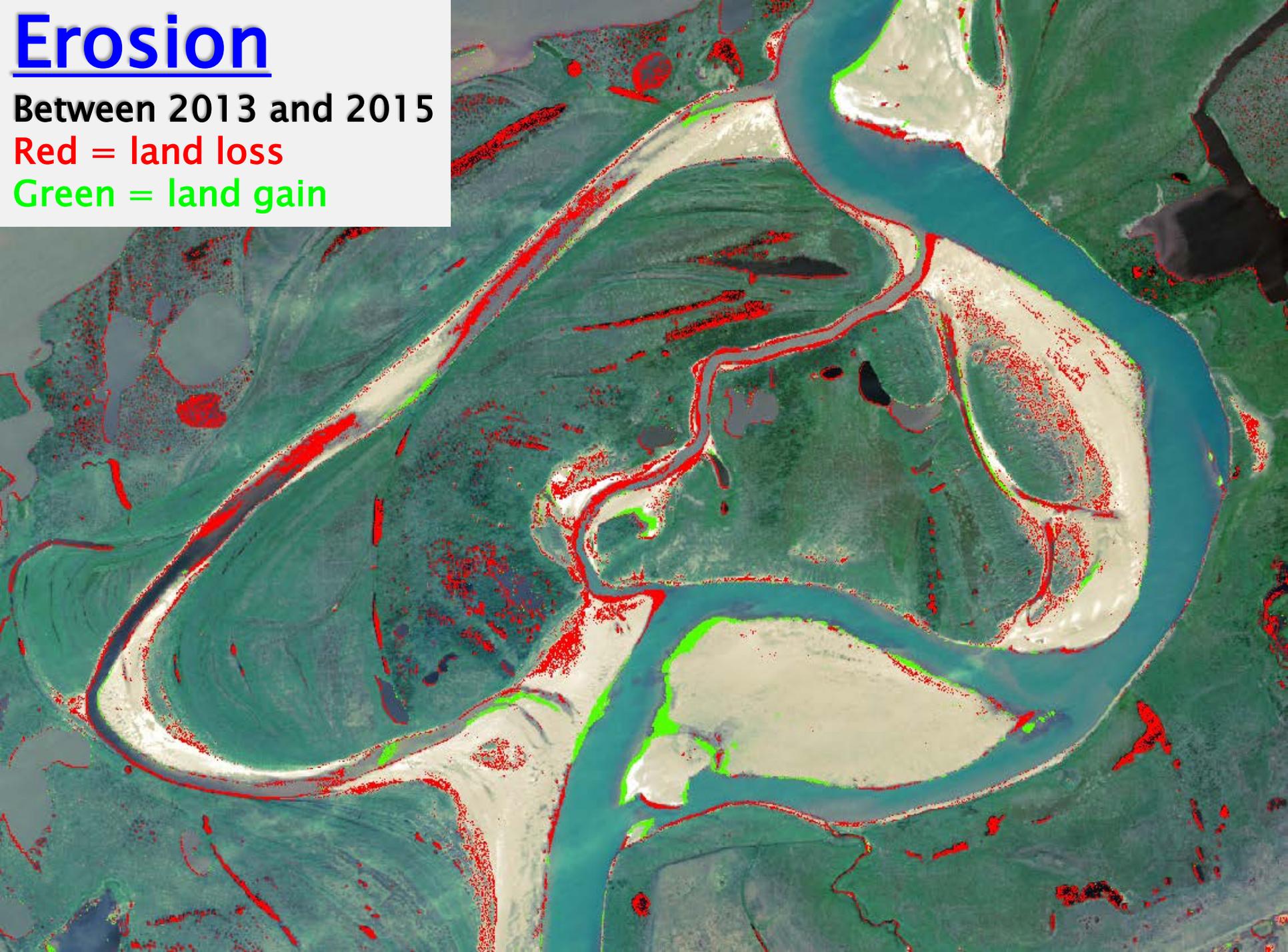
1. Do the goals and objectives of this project seem useful to the community of Nuiqsut?
2. What kind of “deliverables” would be most beneficial to the community in terms of this project?

Erosion

Between 2013 and 2015

Red = land loss

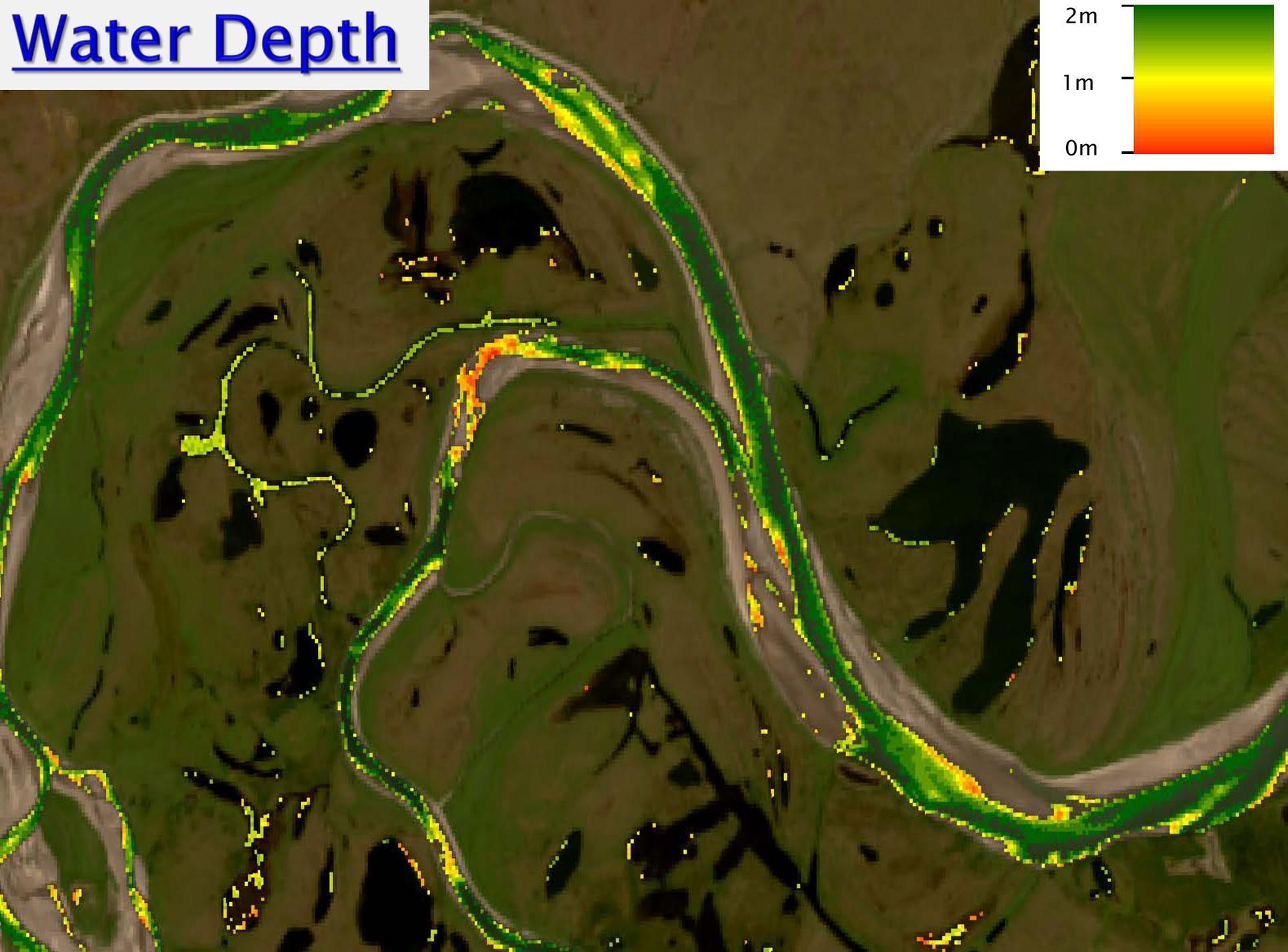
Green = land gain



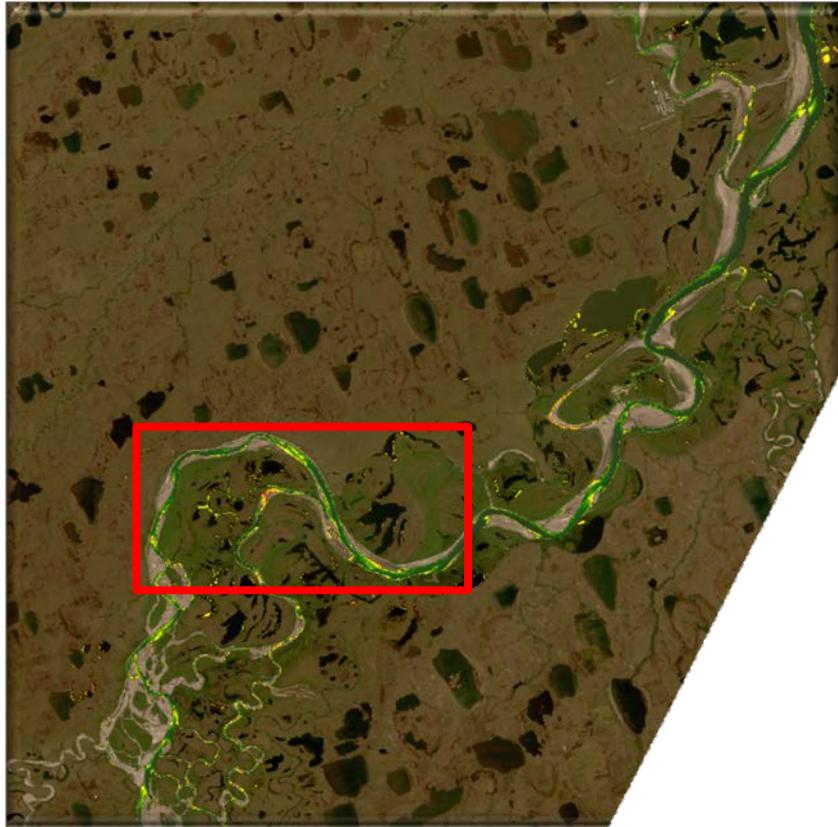
Erosion



Water Depth



Water Depth



Identify

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Pixel value	118.927368

Identified 1 feature

Identify

Identify from:

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Identified 1 feature

Identify

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Identified 1 feature

