

Strategic Needs of Water in the Yukon (SNOWY)

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The Snowy Team

Researchers from:

- The Yukon River Inter-Tribal Watershed Council: Indigenous, Non-Profit Organization
- The US Geological Survey: Federal Science Agency, part of the Department of the Interior
- The US Forest Service: Department of Agriculture
- Colorado State University: Research University in Fort Collins, Colorado
- St. Mary's, Pilot Station, Kotlik, and Chevak: Local communities of the Lower Yukon River



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What is SNOWY?

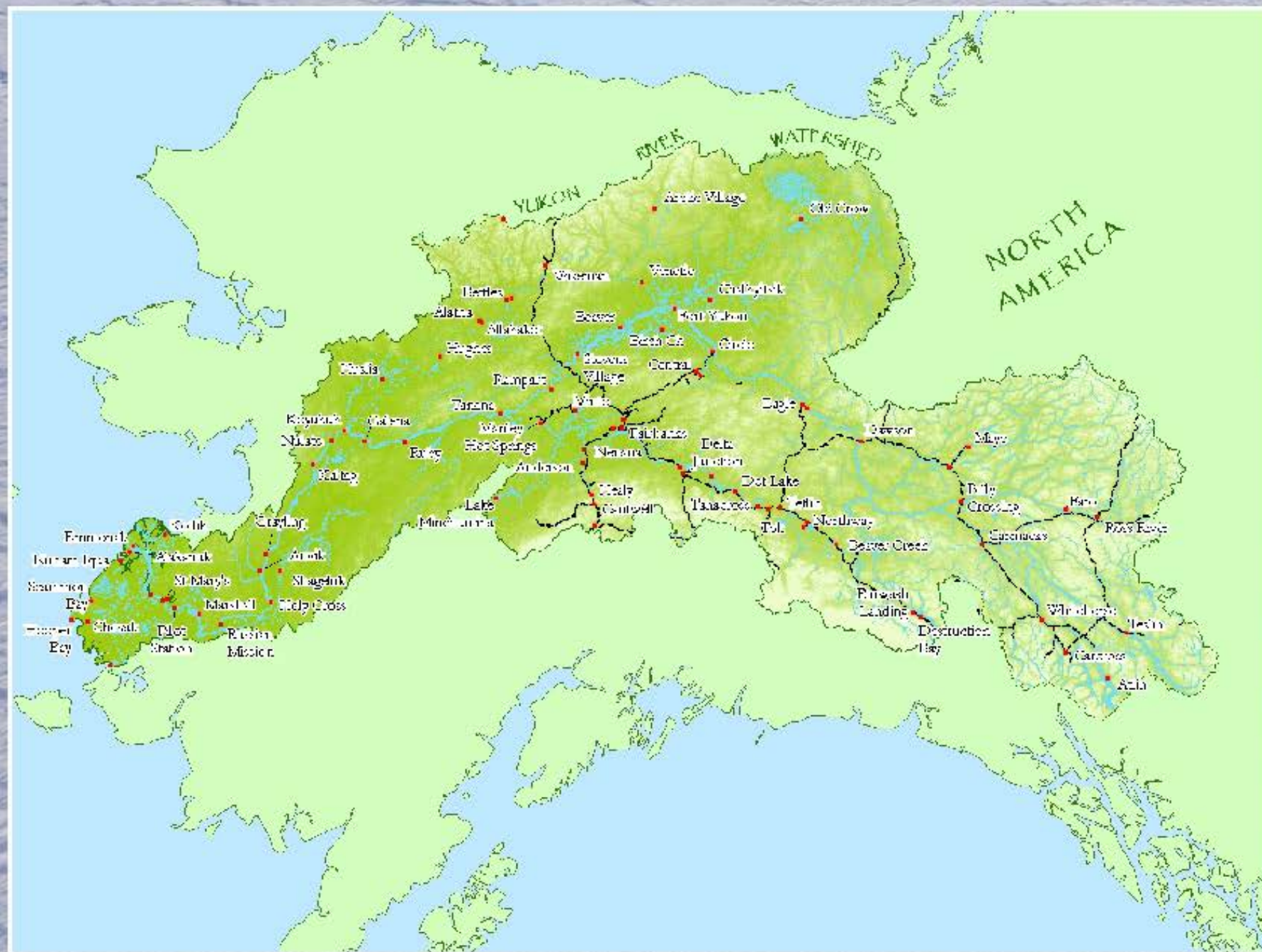
- A collaborative project
- Objective: to understand the yearly hydrologic cycle and seasonal change in the Lower Yukon River in relation to local observations of the environment
- Collect snow and water measurements that have not been previously collected
- Collect local stories of livelihood change and adaptation
- Work with local schools



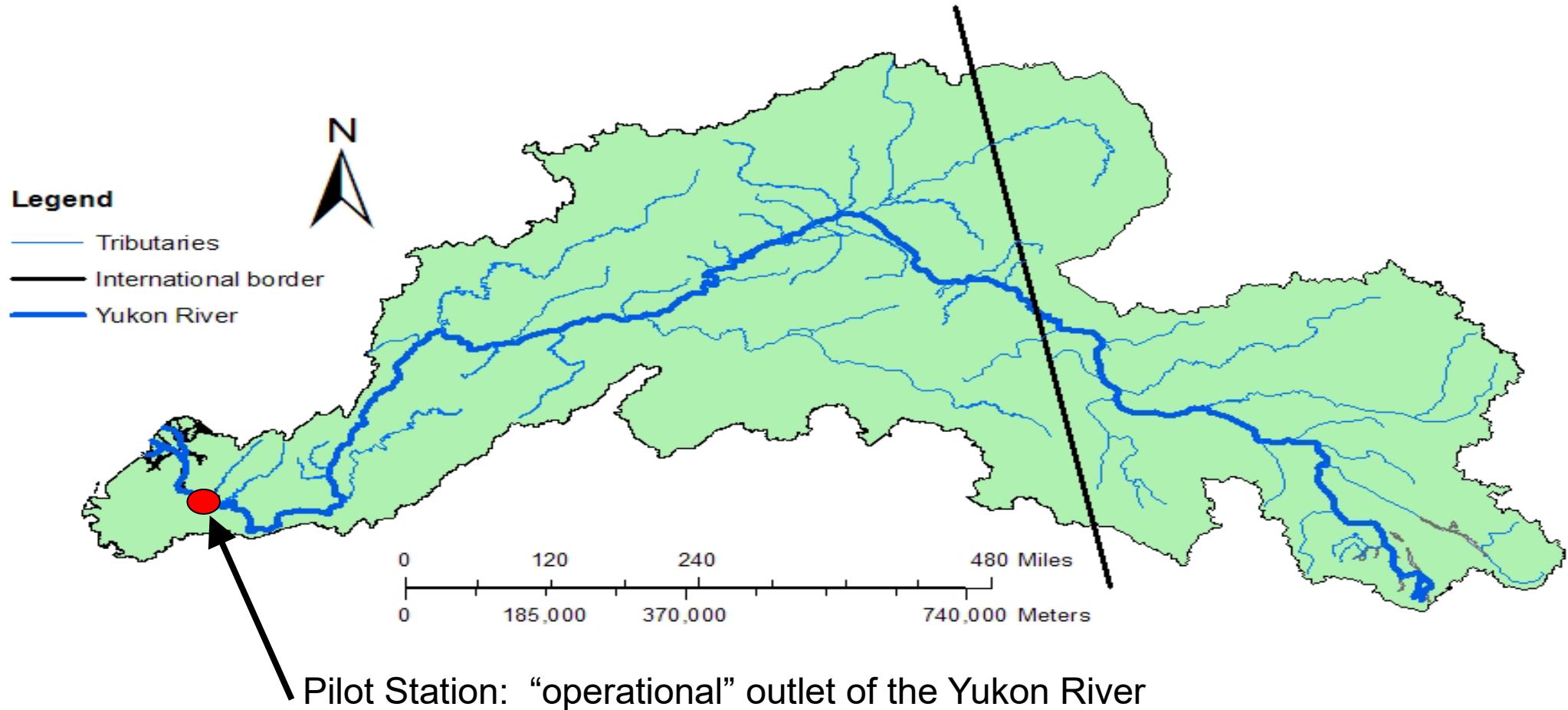
SNOWY: Everything all at once



Environmental Story of
the Lower Yukon River
Basin/Yukon Delta
Region



Yukon River Basin

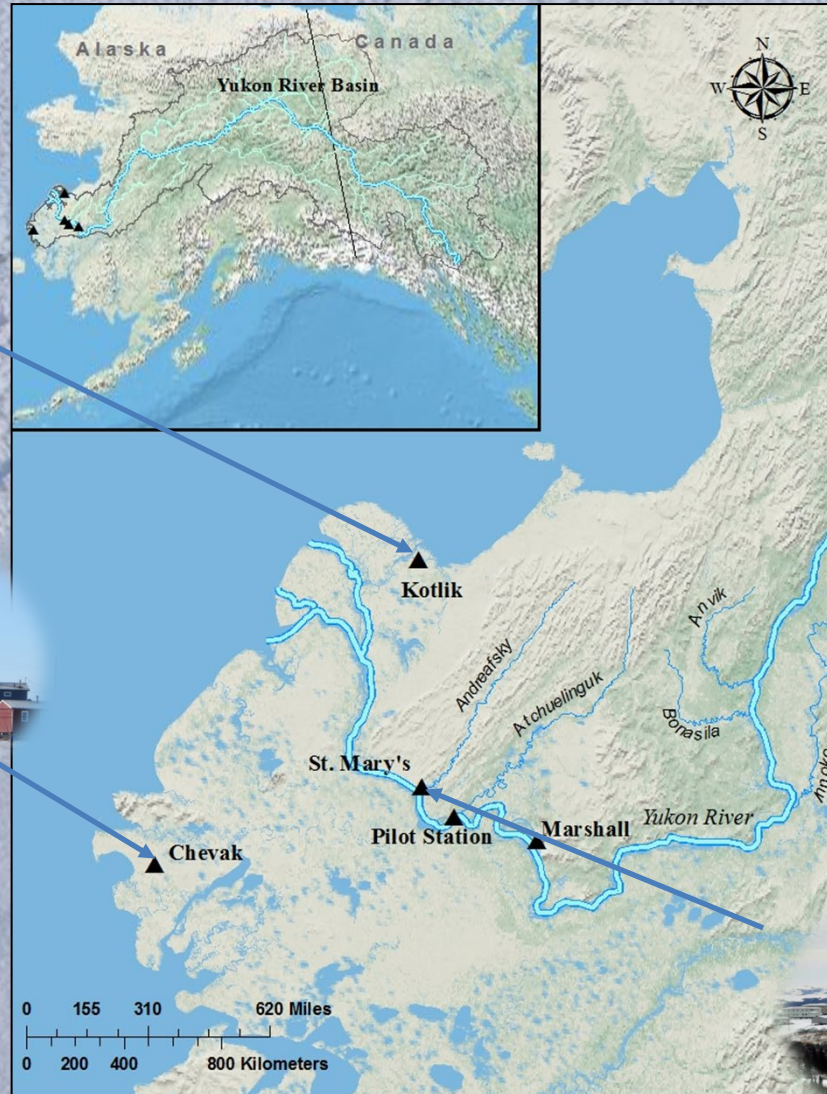


The Yukon River at St Marys is integrating of ALL water draining the YRB (an area twice the size of California)





HOW?



SNOWY Measurements:

- Under-ice water samples
- Snow measurements (ALN)
- Community Collaborative Rain, Hail, and Snow Network (CoCORaHS)

SNOWY Stories

- Interviews
- Mapping Workshop
- PhotoVoice

Healing Journey

- Under-ice water samples
- Snow measurements
- Community interaction



The Villages



Kotlik:

Population: 700
3 tribes; Yup'ik
2013 flood



St. Mary's:

Population: 1,000
2 tribes; Yup'ik
Subsistence issues



Chevak:

Population: 900
1 tribe; Cup'ik
No snow

SNOWY Measurements

- Under-ice water samples to complement open water samples taken in the fall.
- Existing partnership with USGS, YRITWC and local communities.
- Include local schools to complement their curricular needs and demonstrate water data collection



SNOWY Measurements

Point and regional snow measurements

- Active Layer Network (ALN): measure permafrost in fall; snow in winter
- Yukon Healing Journey: winter transect
- CoCoRaHs - Community collaborative rain, hail, and snow network



Saint Mary's ALN site



Snow tube – SWE, Kotlik



Snow depth, Chevak



SNOWY STORIES

- **Interviews:** Local observations and stories

“We had all the seasons in January this year.”

“We are hunting further out than we used to.”

“Nature’s pulse is changing.”

“Lower 48 switched climates with us!”



SNOWY Stories

- **Mapping workshop and seasonal community calendar:**

What changes and what stays the same on the landscape?

Seasonal vs. environmental change (seasonal realignment)

- Seasonal Activities: Camps, Foods – where?
- Changes in the river bank – erosion
- Hunting – changes where animals are found; migration patterns
- Fishing – spawning, migration
- Wind and snow conditions – where certain conditions are found
- Ice forming conditions – where this occurs
- Transportation – Trails
- Water points – tributaries, water sources, water treatment, septic systems, leach fields

Seasonal community calendar: Activities by season

Seasonal Community Calendar 12 Feb 2014 St. Mary's

Oct.

Jan - May - under ice fishing, black fish trapping

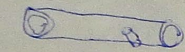
Winter

XXXXXX

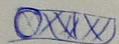
Ice fishing



Rabbit hunting



Logging



Black fish trap



ptarmigan

caribou hunting

Spring



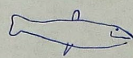
Bird Hunting



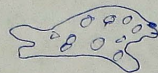
egg hunting



greens



pike fishing



Seal hunting



Tom cod



Logging

Summer

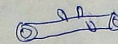


subsistence fishing



assorted berries
(salmon)

seal hunting



logging

inland hunting

Fall



moose

hooking



caribou/Black bears

seal hunting

whale hunting

logging

trapping

Participatory activity

- Mapping with St. Mary's, Kotlik, Chevak

St Mary's Mapping



Chevak Mapping



Kotlik Mapping

Process

★ Fan
Hook for Bering CISCO

Land map

- Post office
- Clinic
- Store
- TRIBAL

Winter Season

Trees

Winter trail

Hills

Over flows

Water

House or Camps

group 1

group 1

Norton Sound

Ocean

Light house

Light house

OP Light house

black fish

Draw map

Identify key, common land

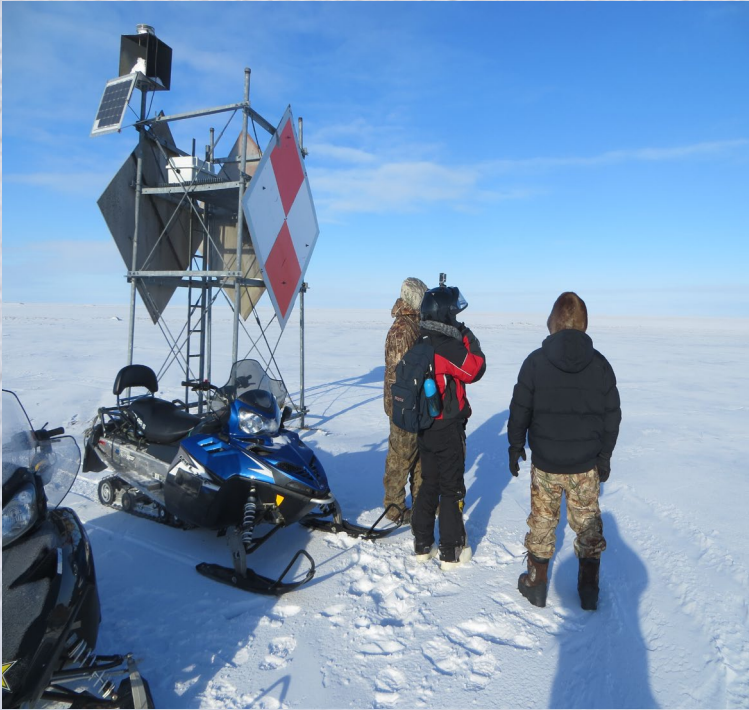
Draw map

Create symbols of activities

SHARING MAPS



Gathering GPS Points



Bering Sea and Yukon River



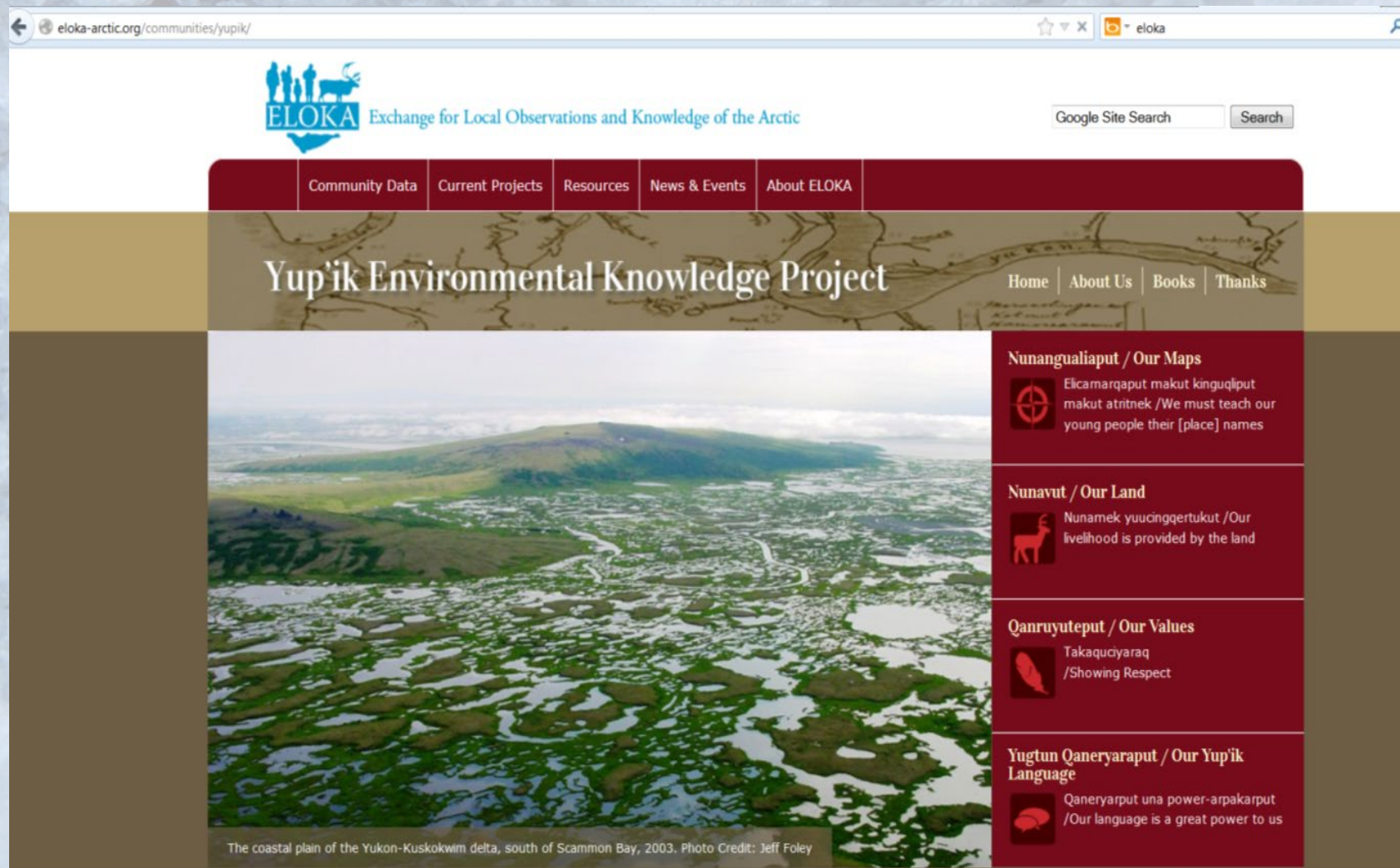
Fishing hut in abandoned village



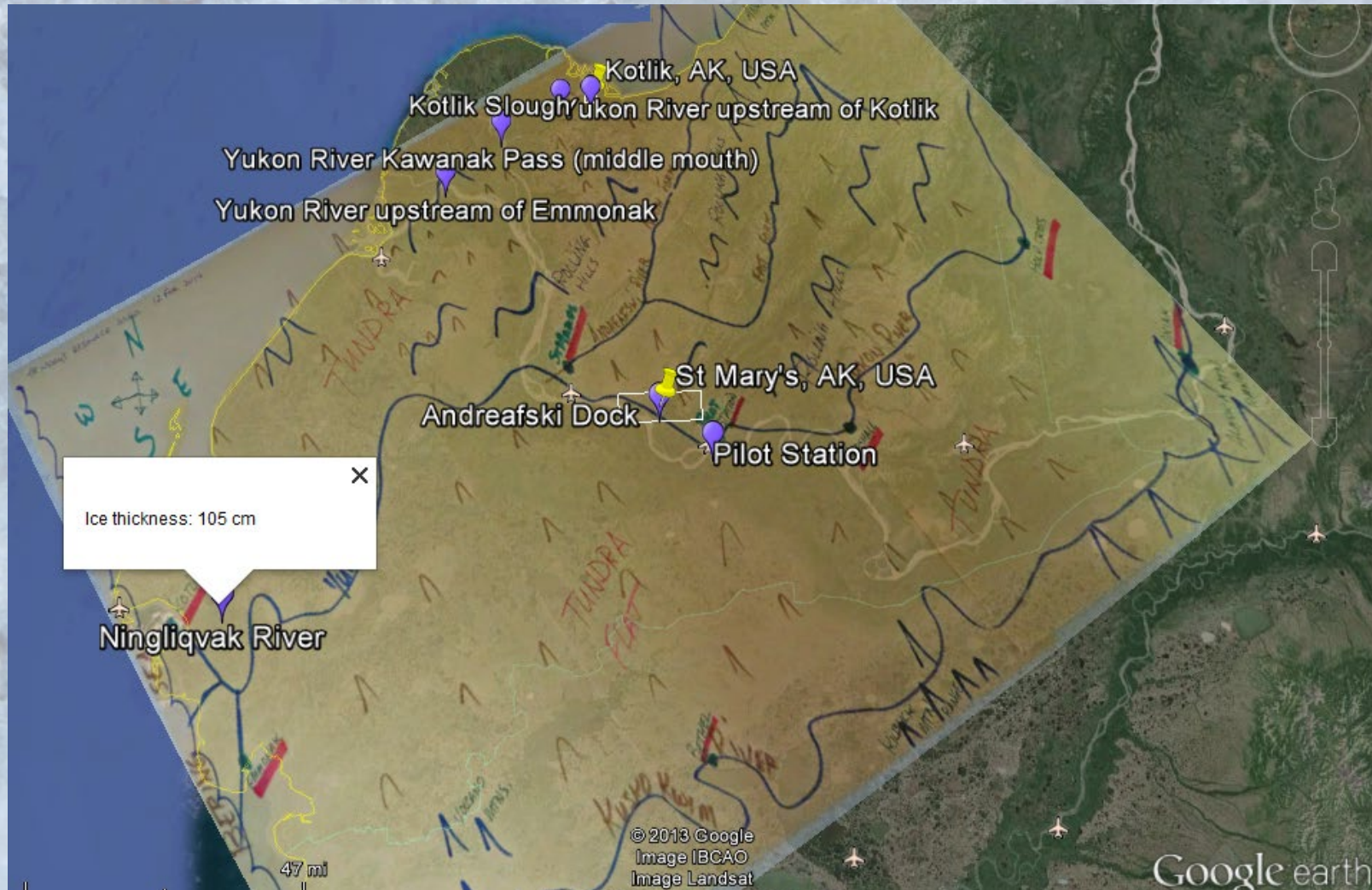
Yukon River/Kotlik Slough
confluence

DIGITAL ATLAS:

Sharing, Storing, maintaining the story



INTEGRATING and SHARING DATA



ACCOMPLISHMENTS

- Collected winter water and snow sample in the Yukon River delta
- Worked with three schools to establish partnerships
- 4 new CoCoRaHs sites in Alaska
- Interviewed 51 people in four villages
- 42 people participated in mapping workshops in three villages



NEXT STEPS

- Return in May to validate preliminary findings and maps with villages
- Present demonstration atlas
- Team workshop
- Process audio/video interview data

Thanks to Kelly for all the great slides and backgrounds...

