Vittrekwa River Char

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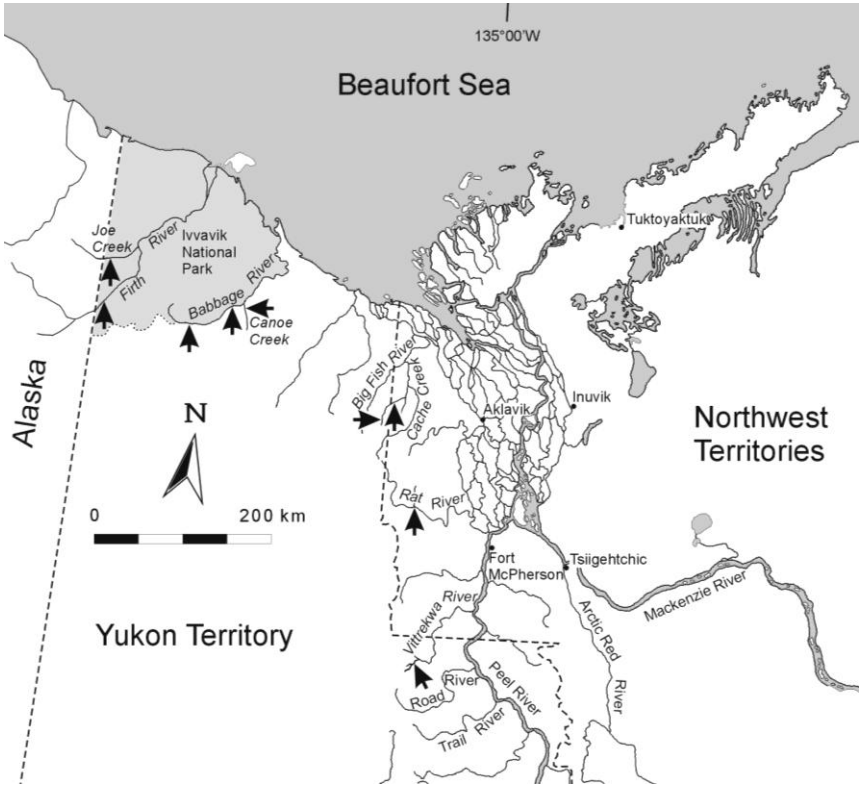
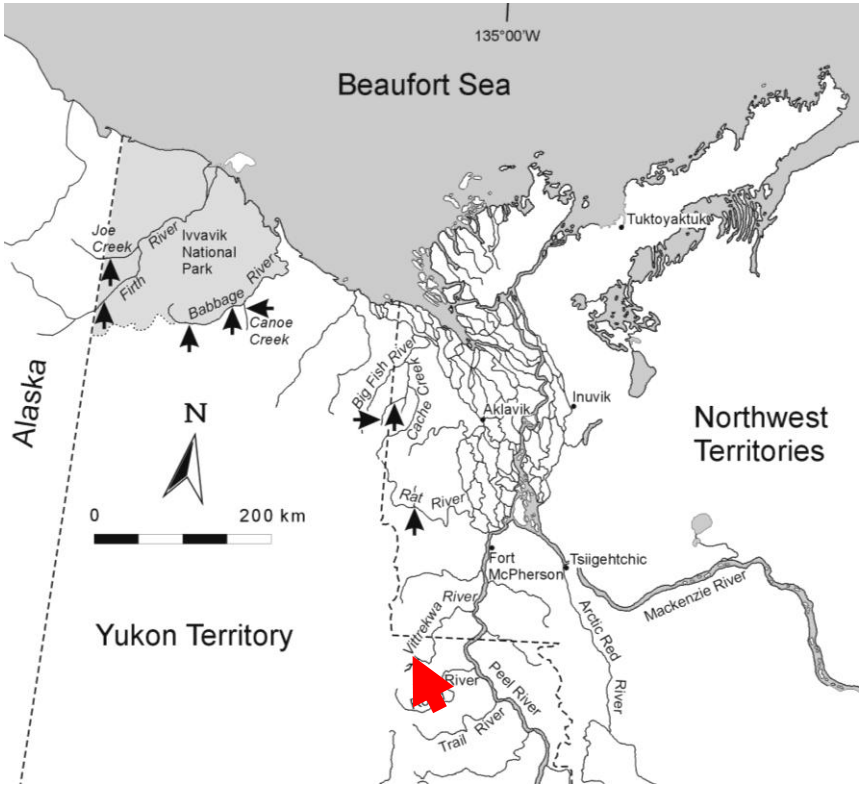
- Dolly Varden (*Salvelinus malma*)
  - Northern Form
  - Important subsistence fisheries
  - Declines in Rat River, Big Fish - COSEWIC
  - Coastal **mixed stock fishery**



- Vittrekwa population
  - Limited information
  - Small, exploited population



Management Objectives

- Document existence and size of population
  - Determine if population can sustain harvesting
- Locate and identify critical habitat areas
  - Spawning & overwintering
- Document biological characteristics
  - Length, weight, age structure, age-at-maturity, fecundity, life history
- Collect samples for population structure / coastal MSA
- Establish baseline habitat data for future monitoring

Vittrekwa Char: Previous Extent of Knowledge

- Small collections in 1990s (DFO / GRRB)
  - Confirmation of species (*Salvelinus malma*) and genetic distinctness of population
  - Confirmation of anadromy
- Tetlit Gwich'in Place Names Database
  - **Ne'edilee** - "behind **Tsîh ddhàa'**, there is a fish hole where trout (**ch'ik**) spawn and where people used to come to spear the fish long ago
- Gwich'in Place Names Map
  - **Luuk Ne'edilee** - refers to a fish hole where dog salmon go to spawn in the fall

Tsîh ddhàa

Upper Vittrekwa River

PEEL RIVER

This map:

106L

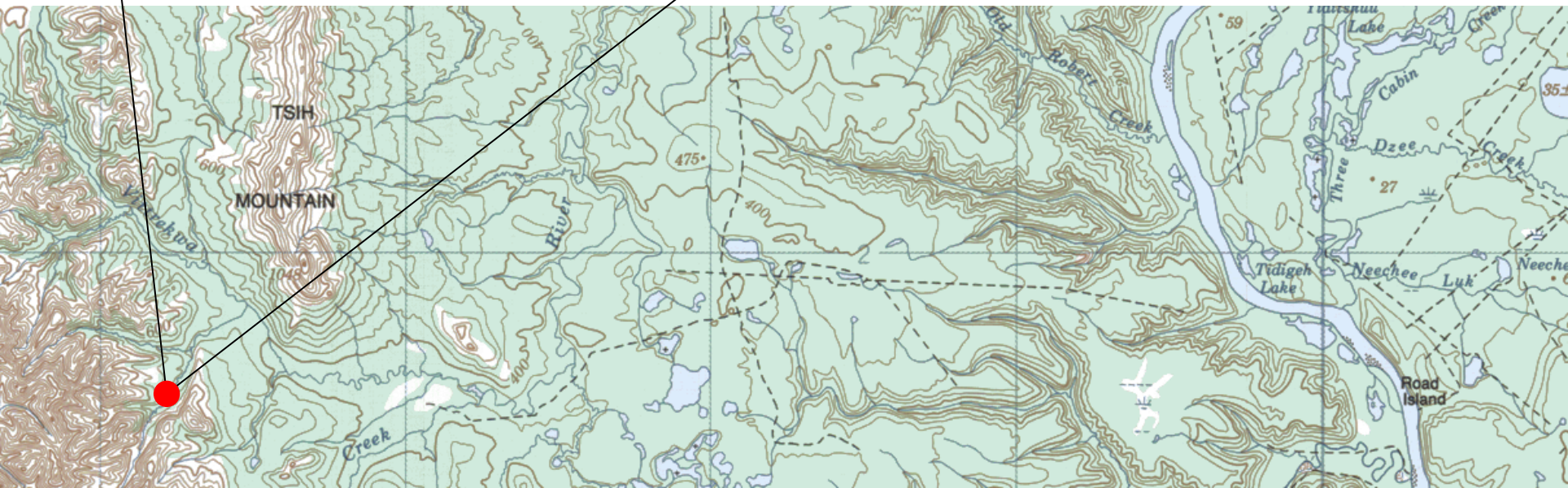
(1:250,000)

Locating Spawning Grounds

- Incorporating TK
- Fort McPherson elder William Teya
  - Had been ~50 years since he had last been there (with dog team)
  - Led us straight to the spawning grounds.

Establish base camp

- 2006: August 21st – September 1st
- 2007: August 13th – August 27th



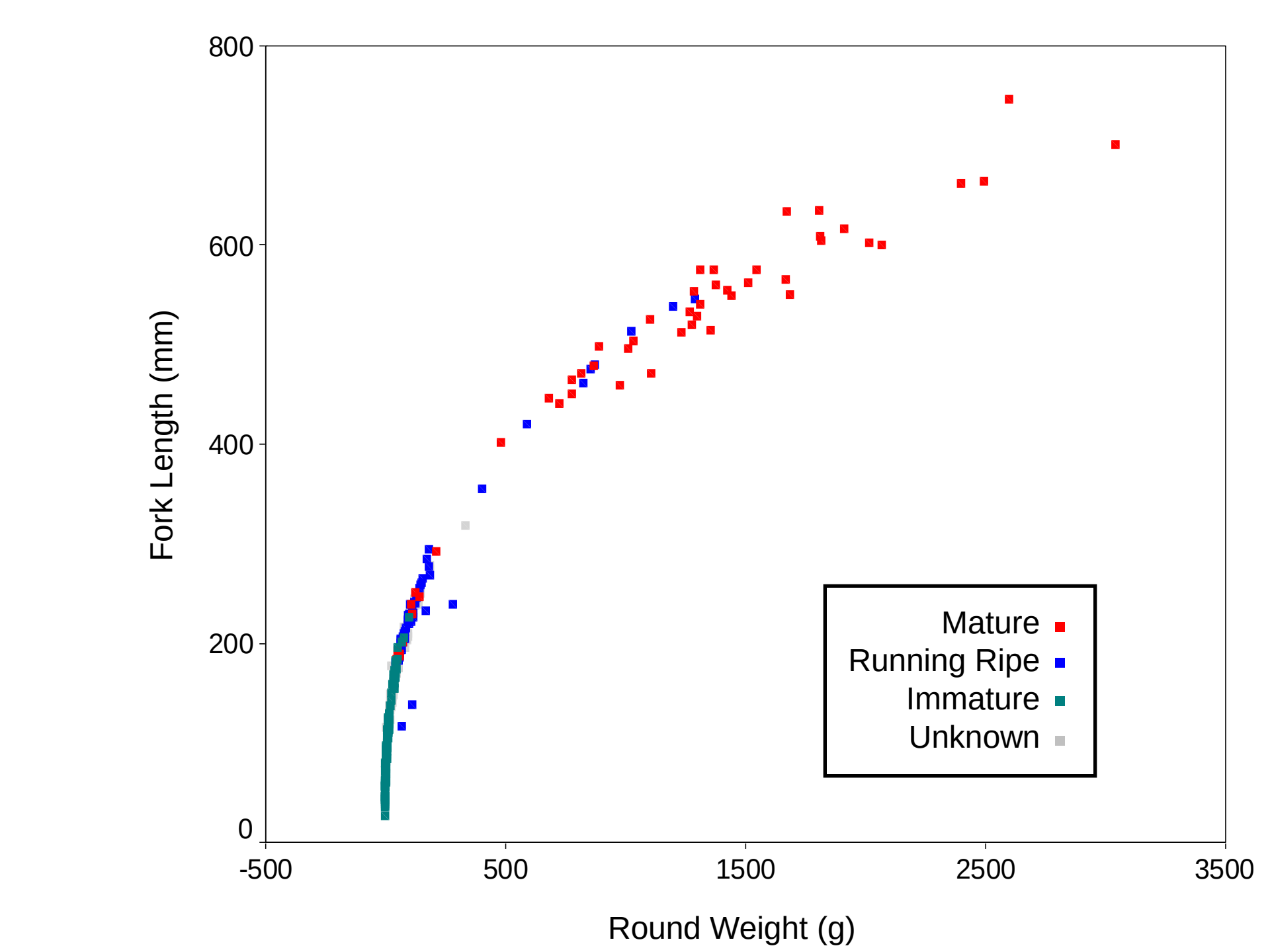
Fish Capture – biological information

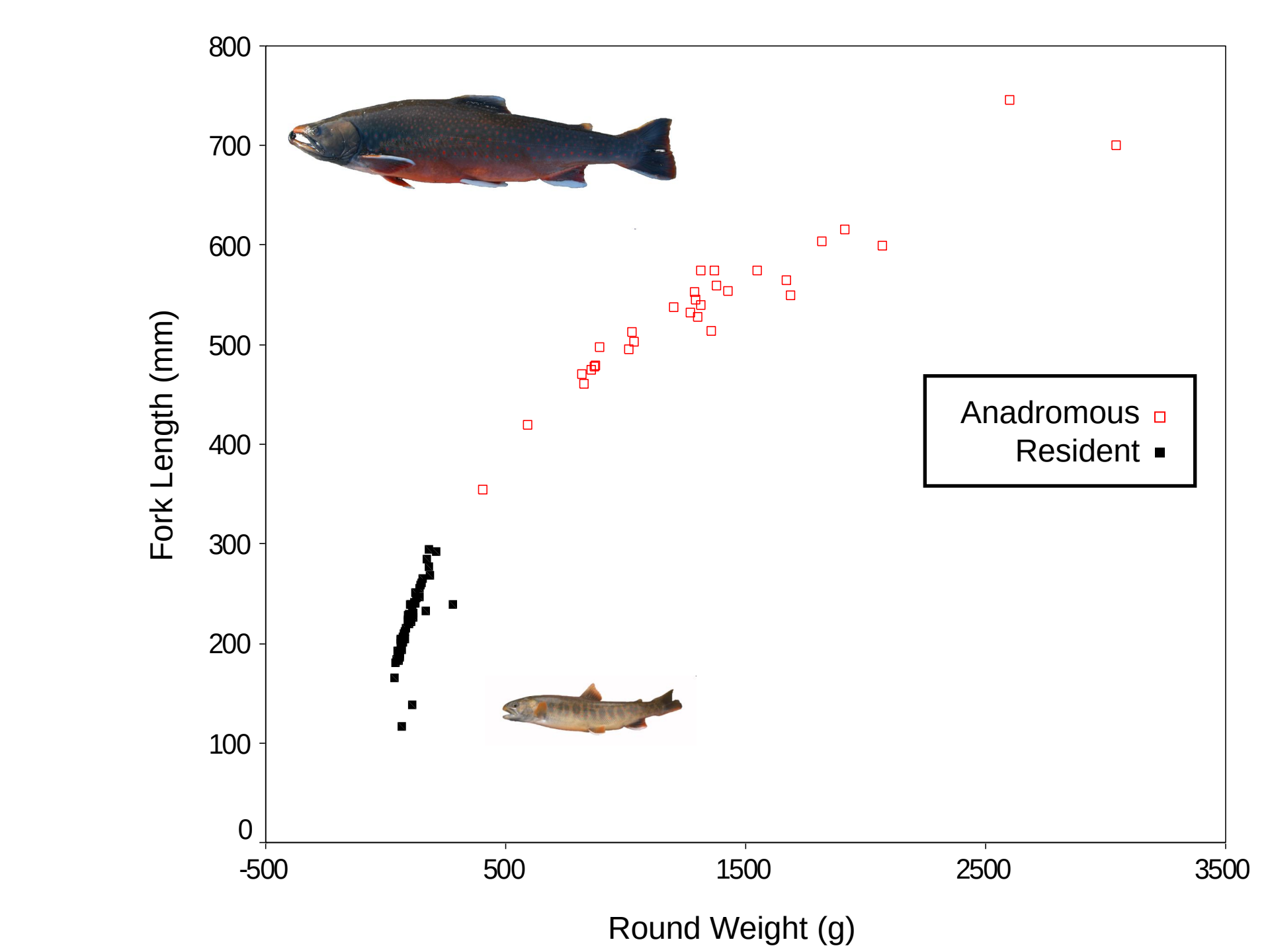
Capture

Angling
Trapnet
Dipnet (juvenile fish)

Live Release and *Dead sample

Weight
Length
Sex & Maturity
Adipose fin (genetics)
*Otoliths (ageing)
*Tissue (contaminants - with EC)
*Stomach (diet)
*Gonad weight / Fecundity

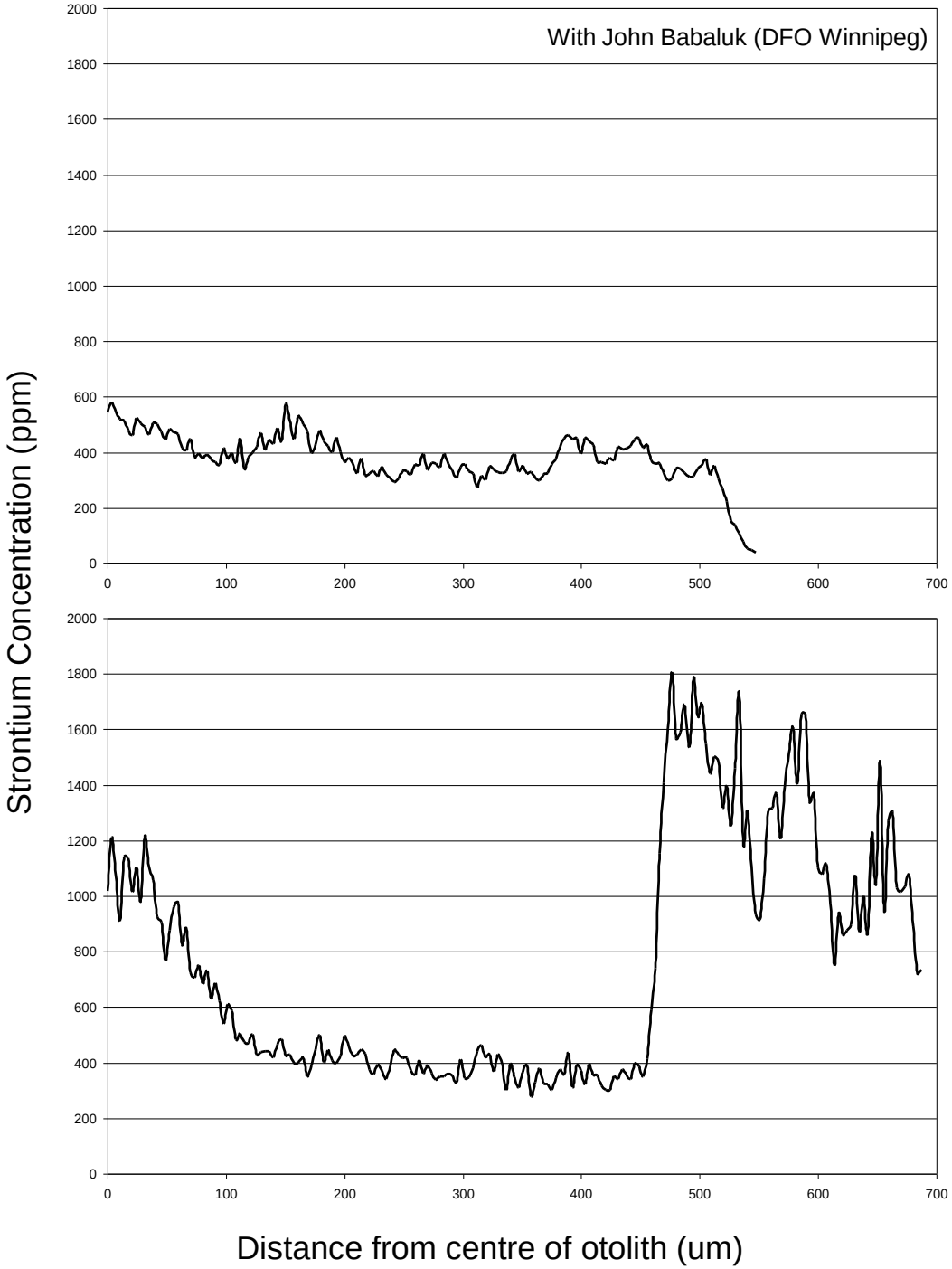

800
600
400
200
0
Fork Length (mm)
-500
500
1500
2500
3500
Round Weight (g)
Mature
Running Ripe
Immature
Unknown


800
700
600
500
400
300
200
100
0
Fork Length (mm)
-500
500
1500
2500
3500
Round Weight (g)
Anadromous
Resident

Life history

Resident male

Anadromous



Habitat use: radio-telemetry

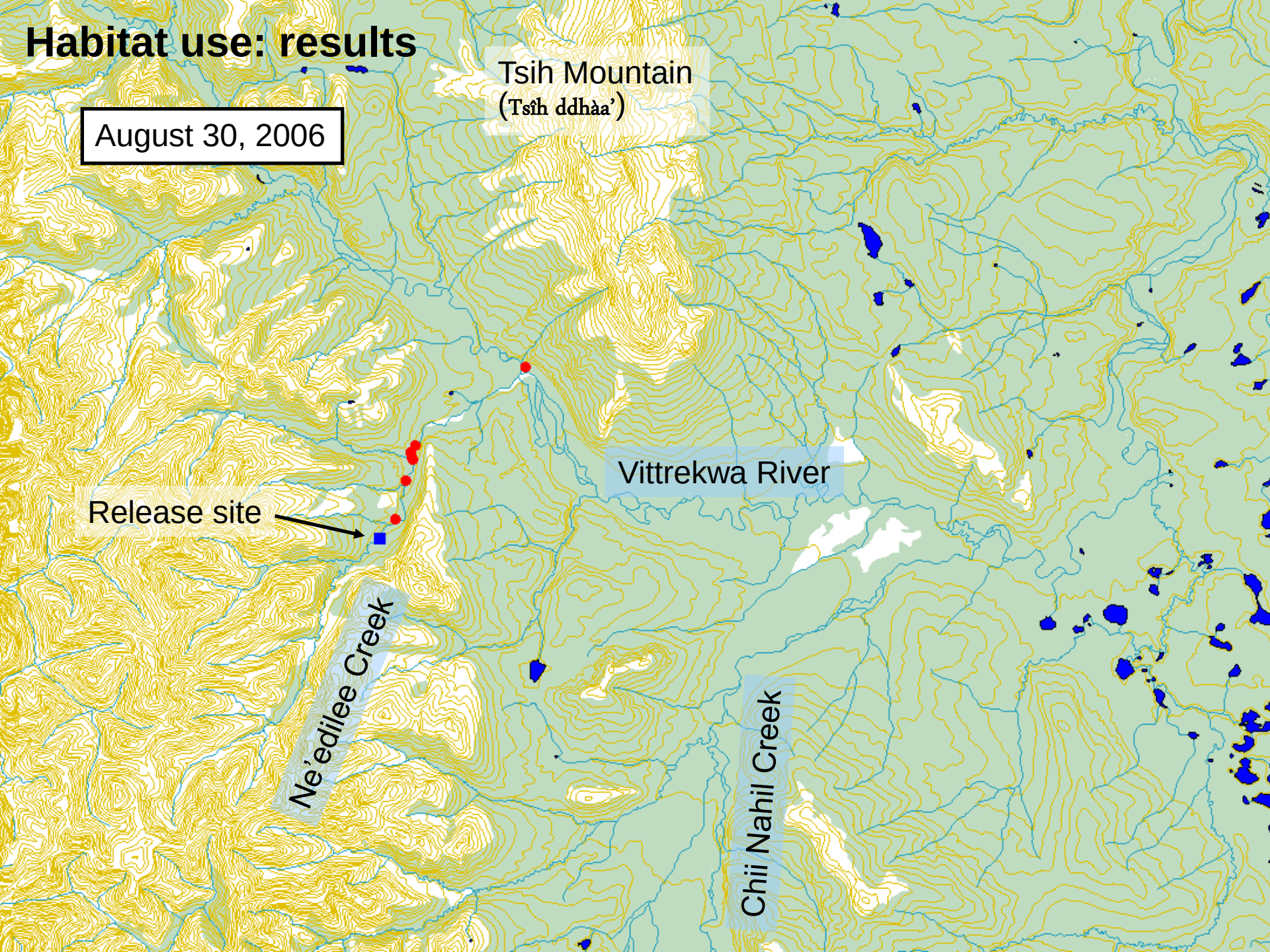
10 mature spawners
- Surgically implanted coded radio transmitters

Relocated over next weeks and months

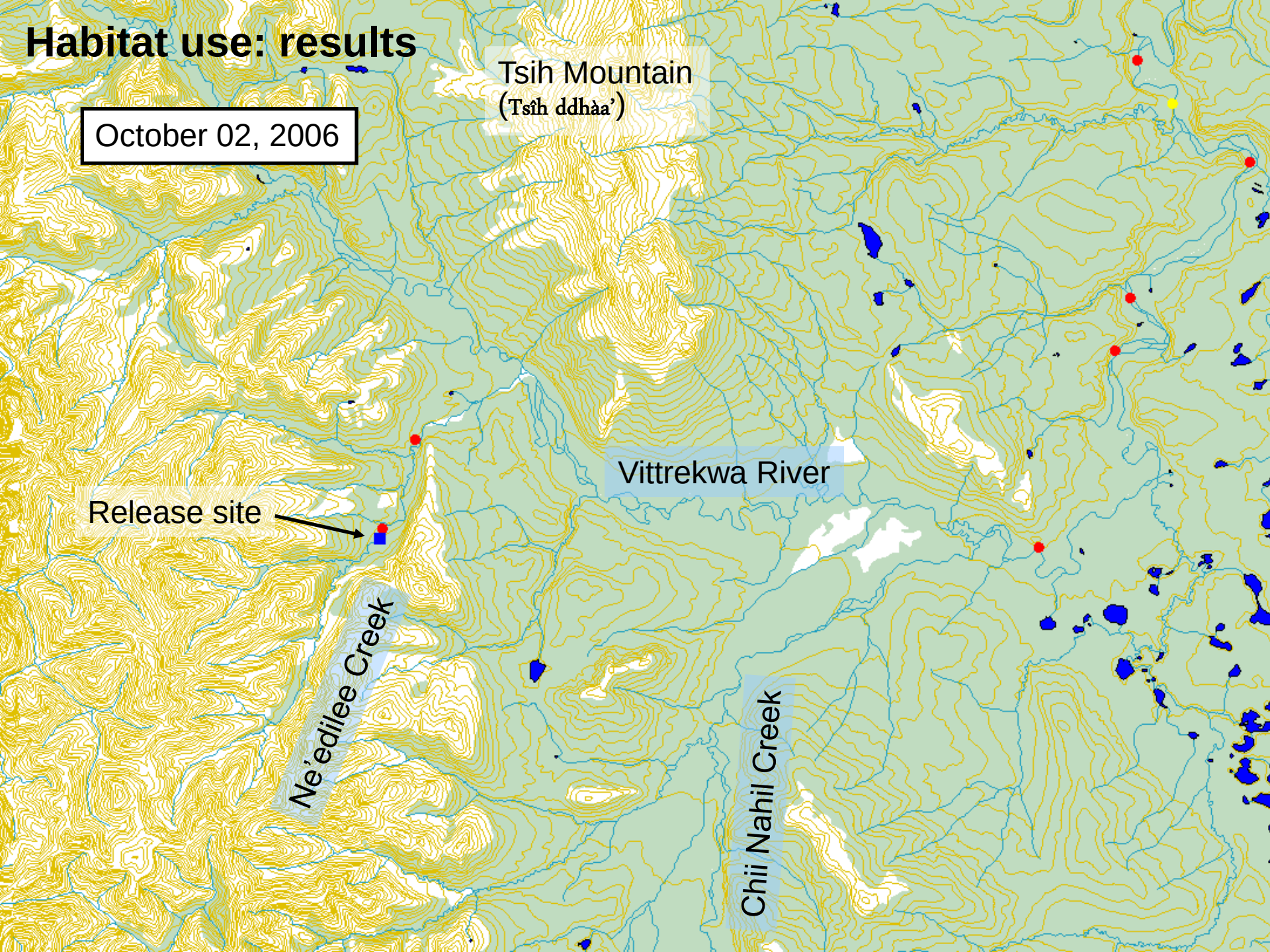
Identified critical habitat

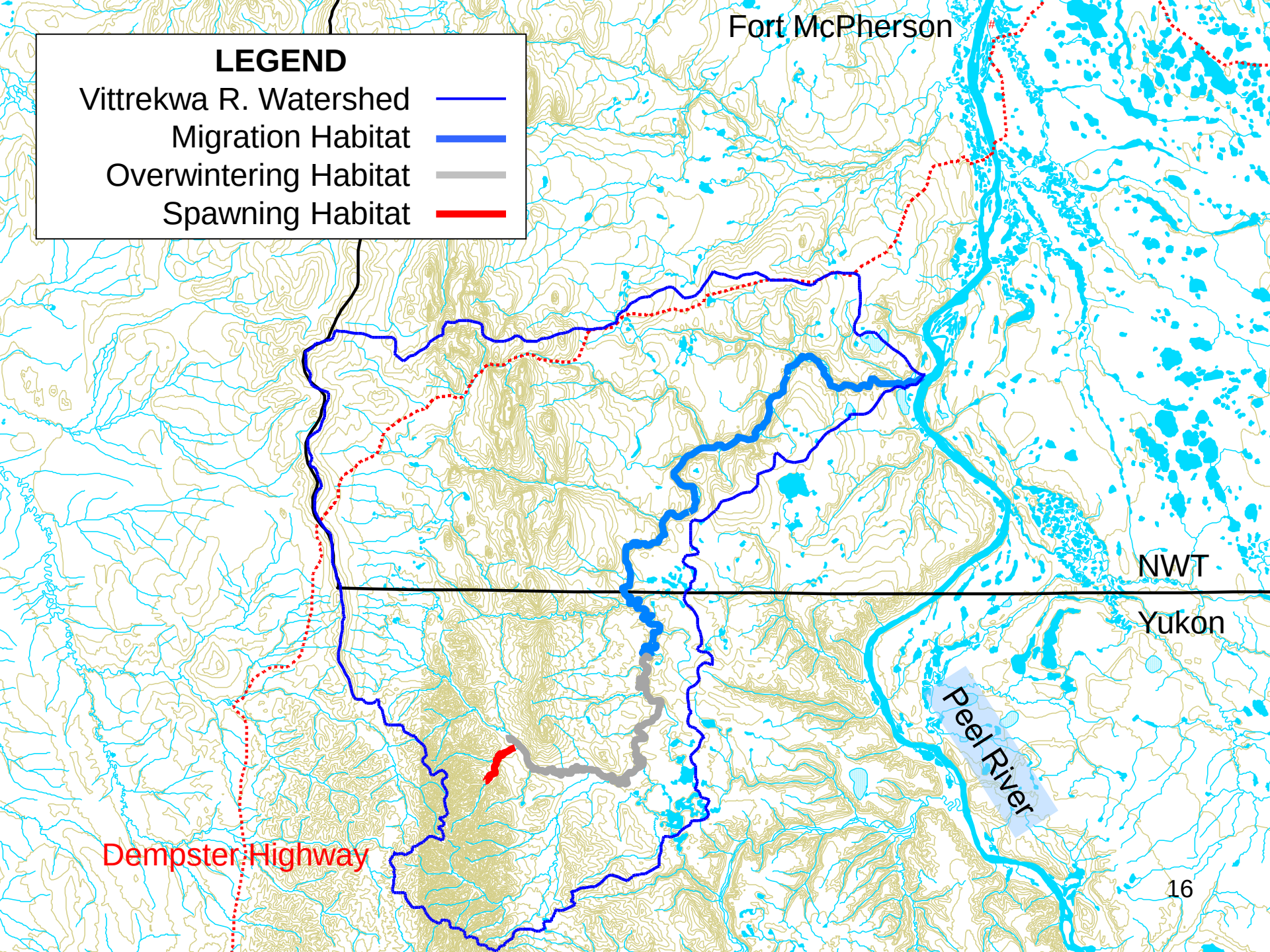
Habitat use: results

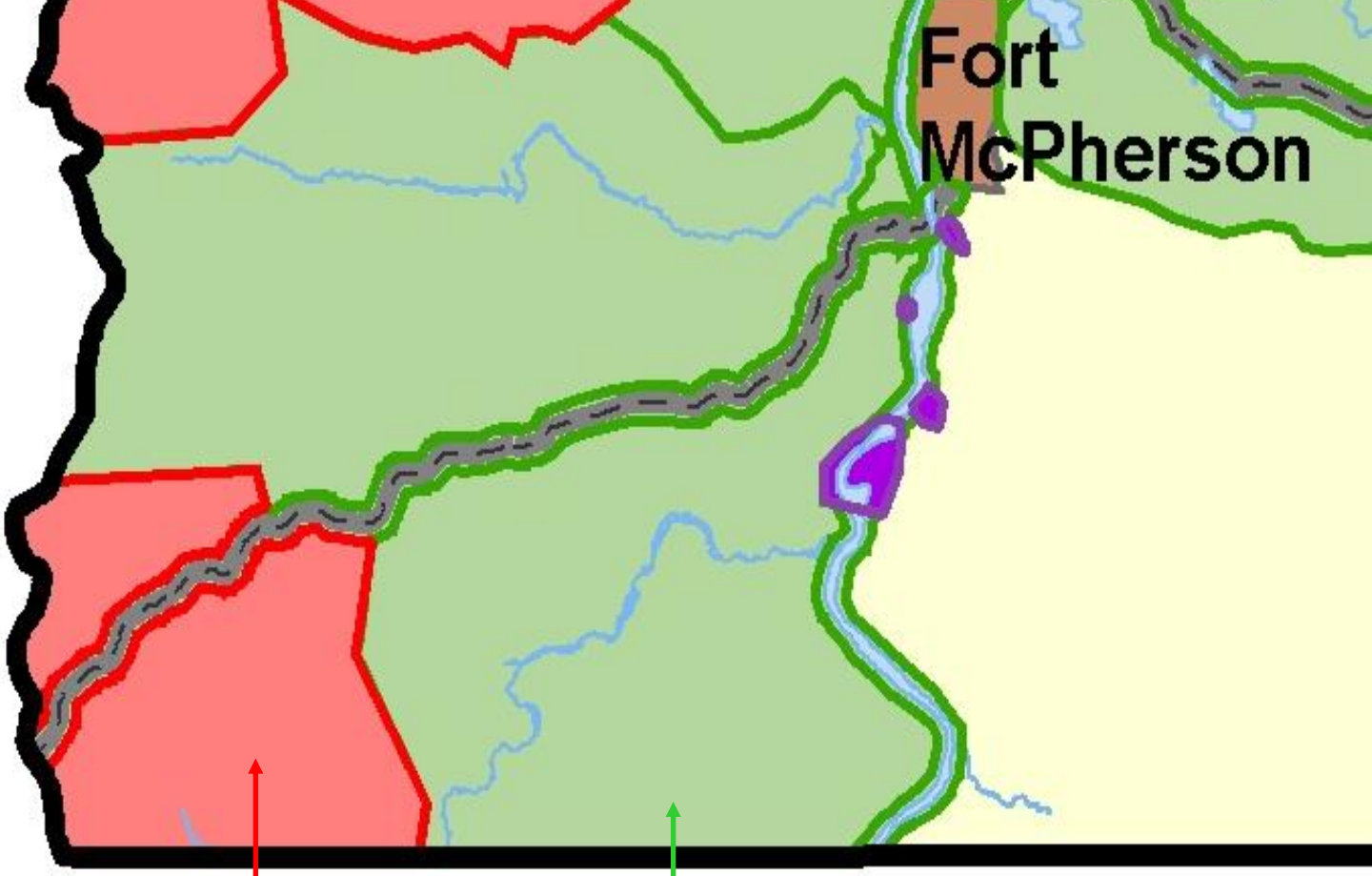
August 30, 2006



Habitat use: results




LEGEND
Vittrekwa R. Watershed
Migration Habitat
Overwintering Habitat
Spawning Habitat
Fort McPherson
NWT
Yukon
Peel River
Dempster Highway



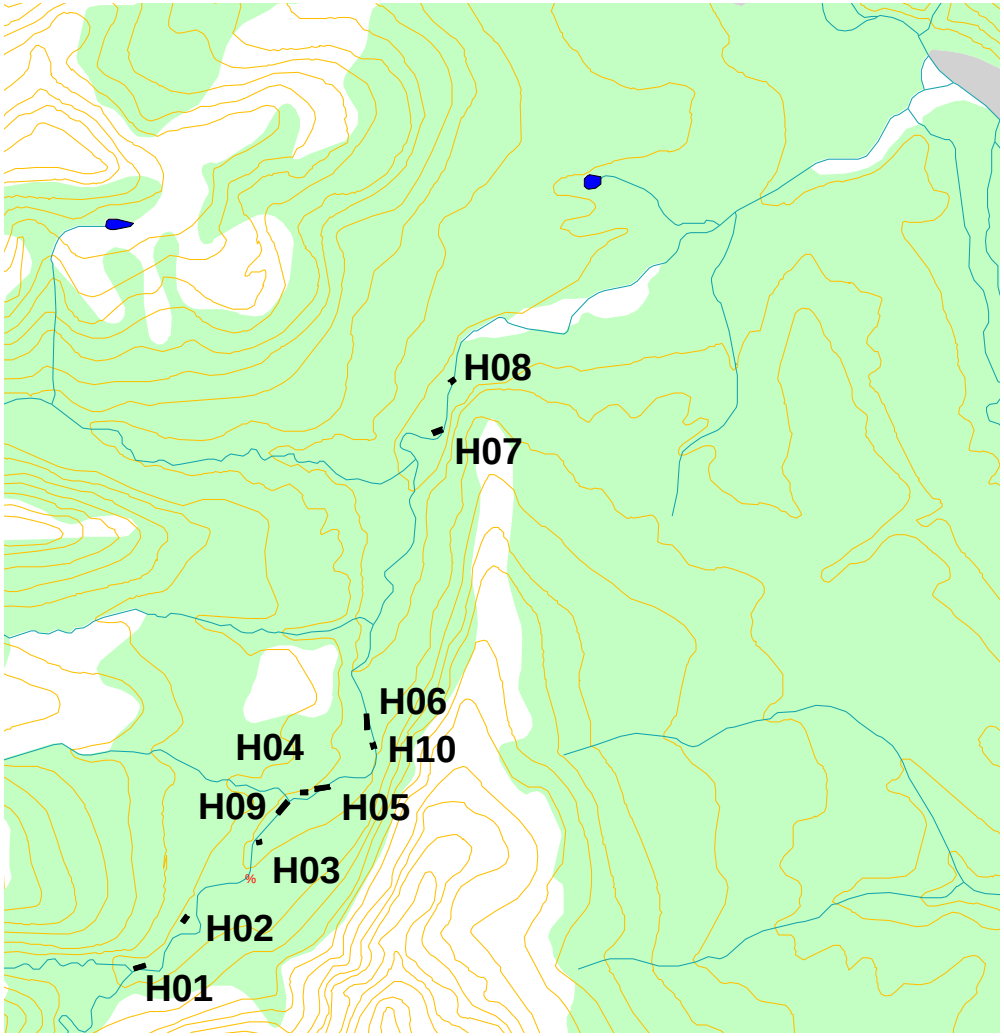
CONSERVATION ZONE:
Dachan dha'aii njik / Vittrekwa viteetshik
(James Creek / Vittrekwa River)

SPECIAL MANAGEMENT ZONE:
Dachan dha'aii njik / Vittrekwa viteetshik
(James Creek / Vittrekwa River)

Aerial Photography

- Took > 1,500 spatially referenced photographs
- Online database
- Establish baseline to assess future changes in habitat
- Partnership with DFO, FJMC

Habitat sites – monitoring



Established 10 sites
Recorded

- Width
- Depth
- Flow
- Substrate Size
- Benthic macroinvertebrates

Visual Surveys

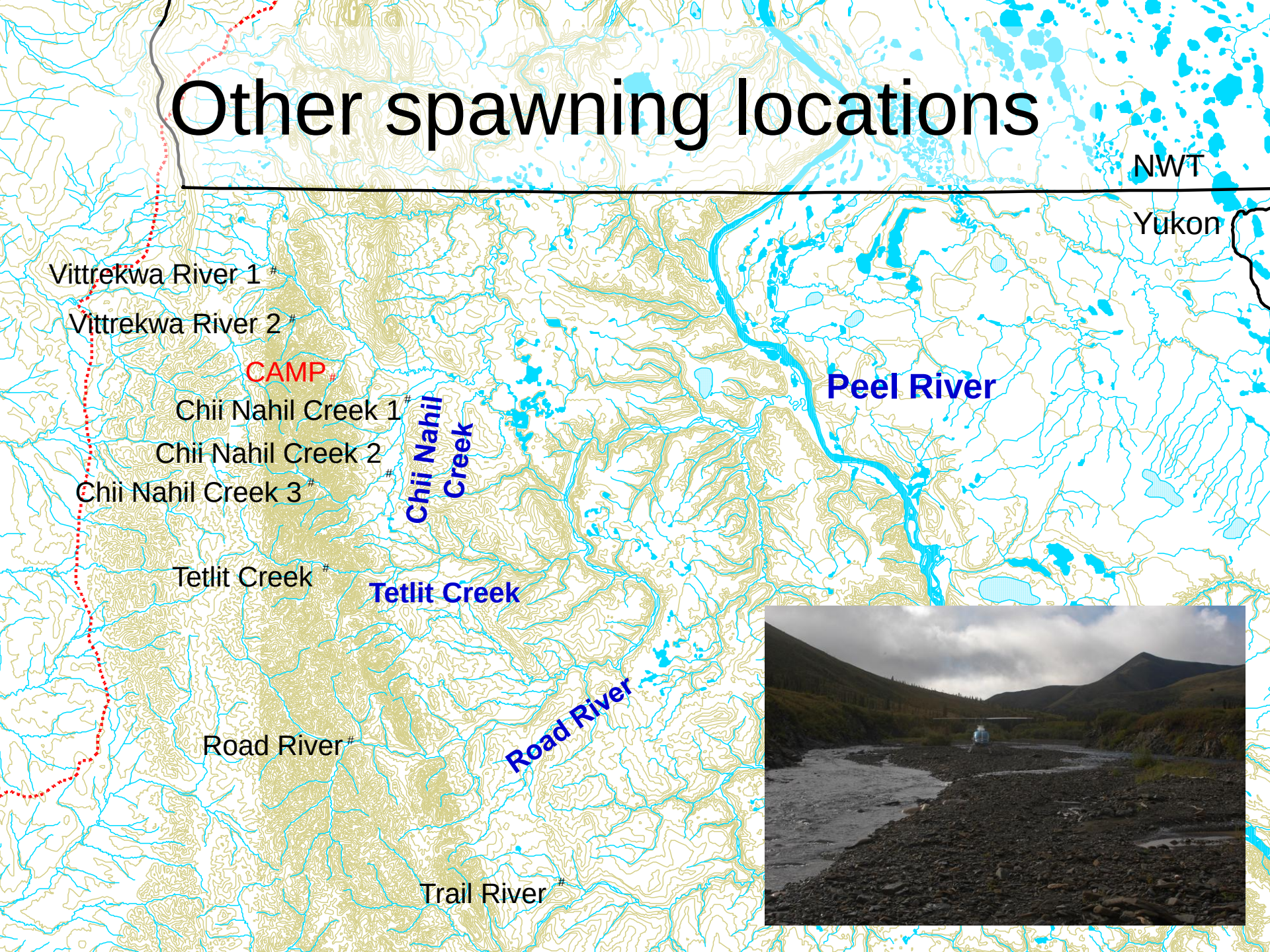
August 2007
- Located and visited 70 pools
- Counted all mature fish
- Estimate counts for juvenile fish

Established extent of habitat for mature, juvenile, spawning fish

October 2007
- Walked entire length of stream
- Looked for spawning behaviour
- Count: 165 mature spawners

Established that population is very small

Other spawning locations



Analysis to come

- Ageing (~50 fish)
- Otolith microchemistry (7 more fish)
- Benthic macroinvertebrates
- Diet analysis
- Genetic population structure

Management-Related Outcomes

- Main management outcomes:
  - Establish that population exists, but is very small
    - Even low harvest is risky
  - Identified critical habitat
    - Enables protection – mitigation of risk
  - Established baseline to measure habitat changes
  - Recorded biological characteristics of population
  - Add to body of knowledge of Dolly Varden and to Vittrekwa population: create a more informed and integrated management plan for the area's Dolly Varden

Acknowledgements

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