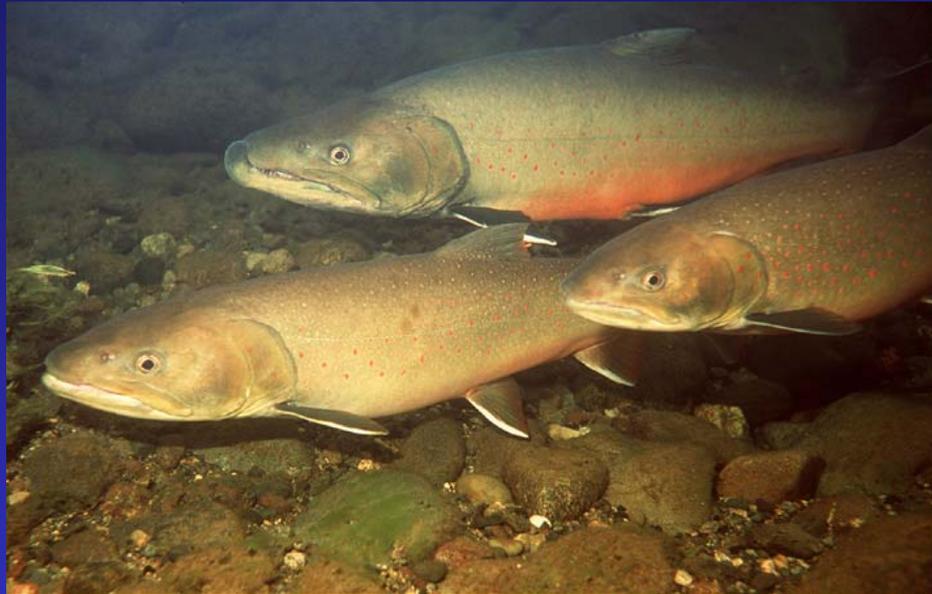


Native Fisheries Research and Monitoring in the Upper Flathead River system



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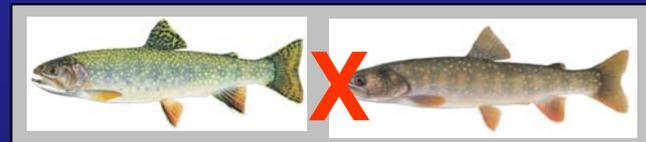
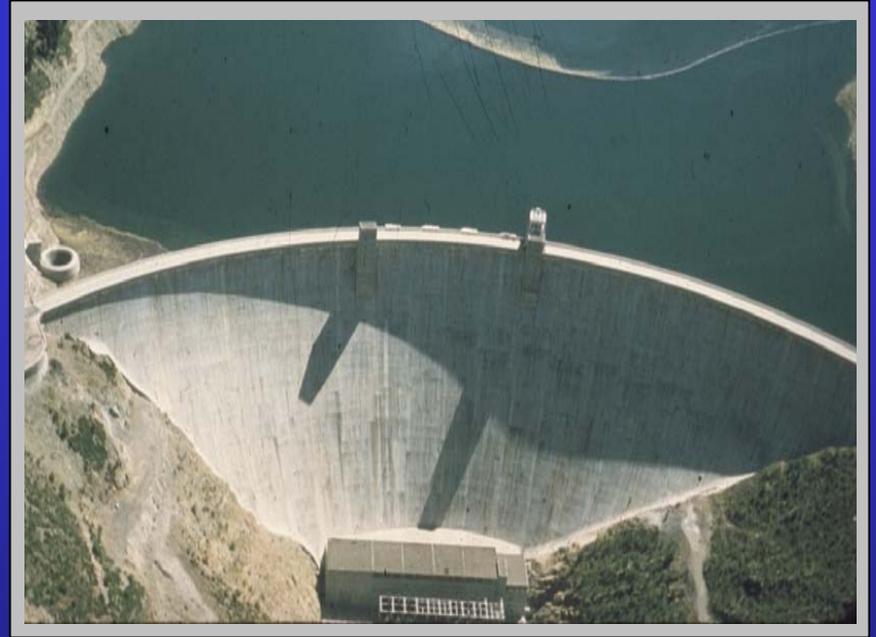
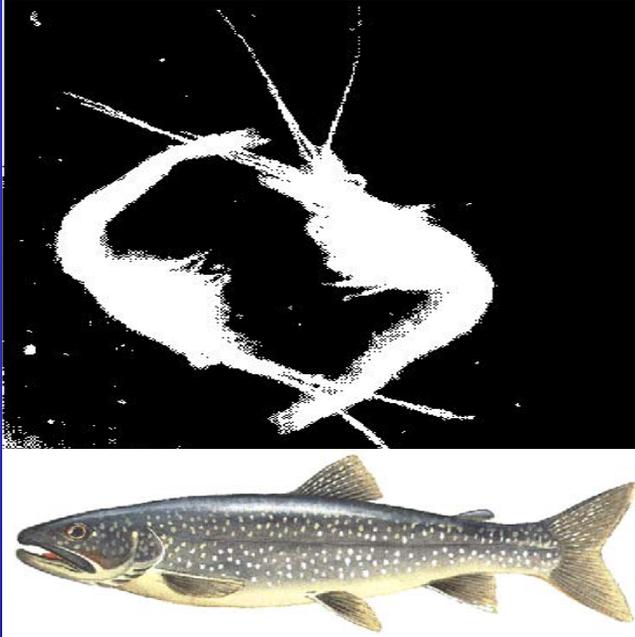


Upper Flathead River Drainage

A native species stronghold



Population Declines



Bull and WCT Population Monitoring Data

Goal: Monitor demographic, genetic, and ecological characteristics of native fish populations

Monitoring metrics:

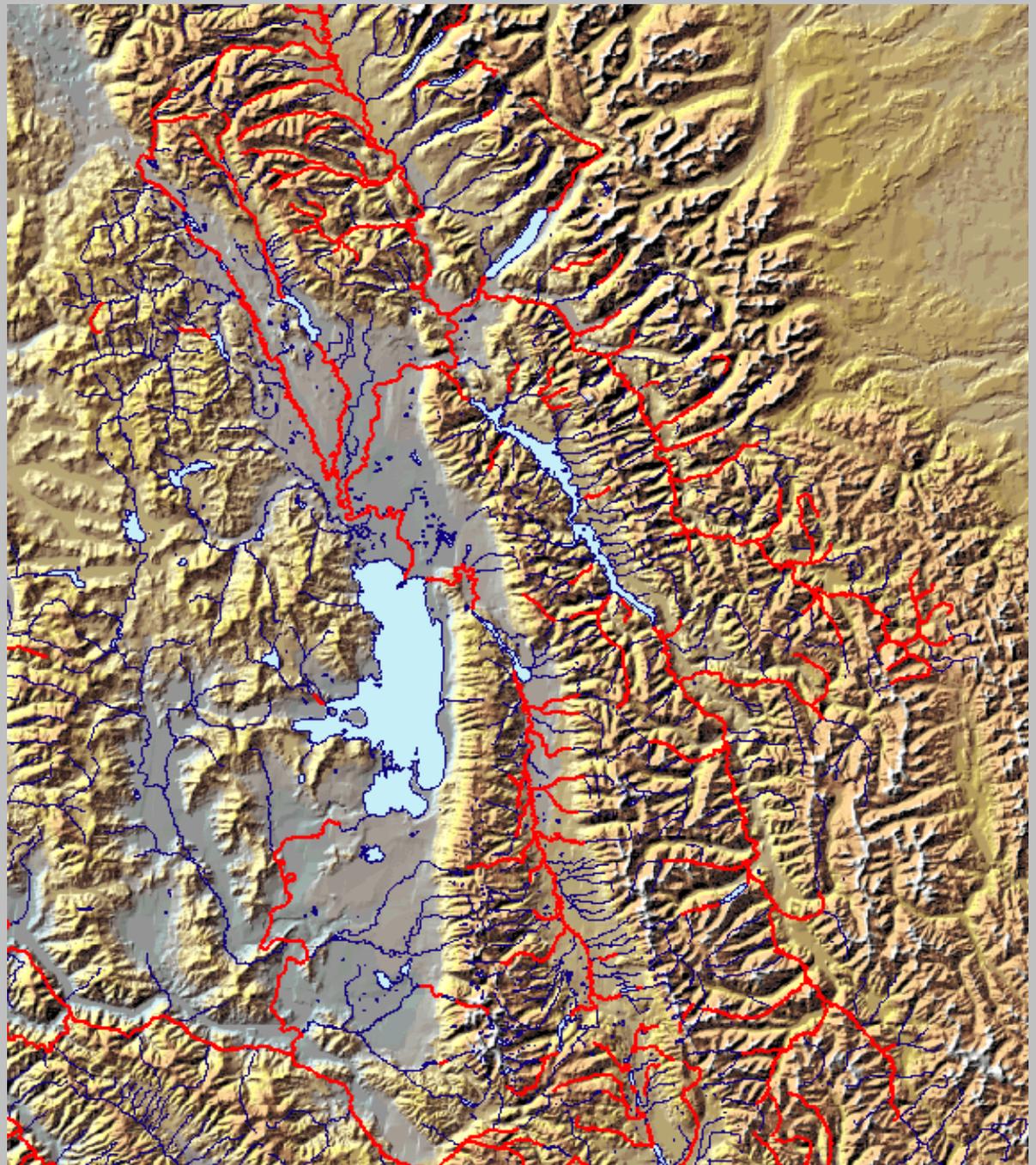
- Adult redd counts
- Juvenile abundance estimates
- Presence/Absence surveys
- Molecular DNA analyses
- Telemetry and tagging
- Otolith and scale microchemistry

Bull Trout

Bull trout
are migratory
in the upper
Flathead
lake and river
system

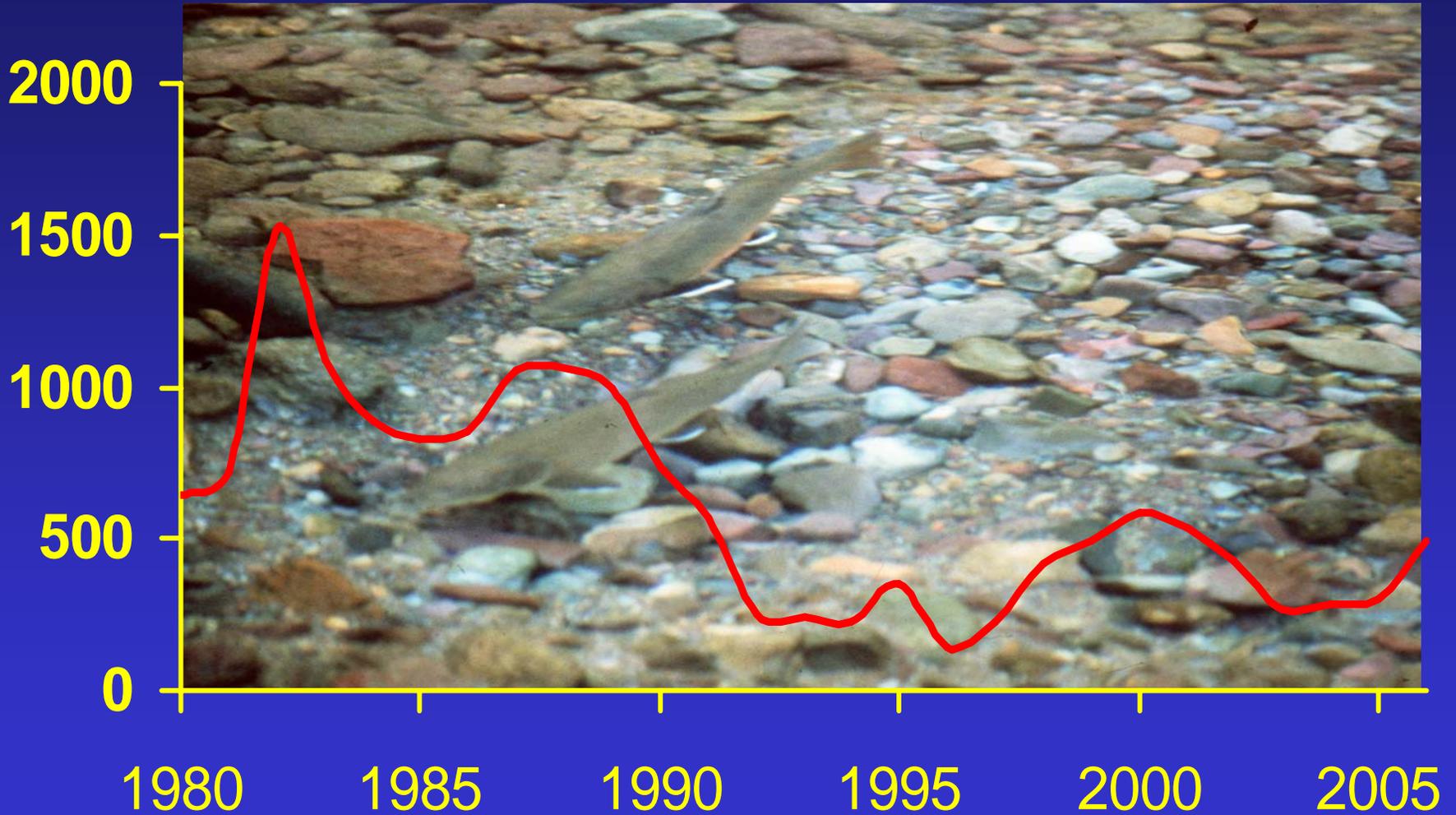


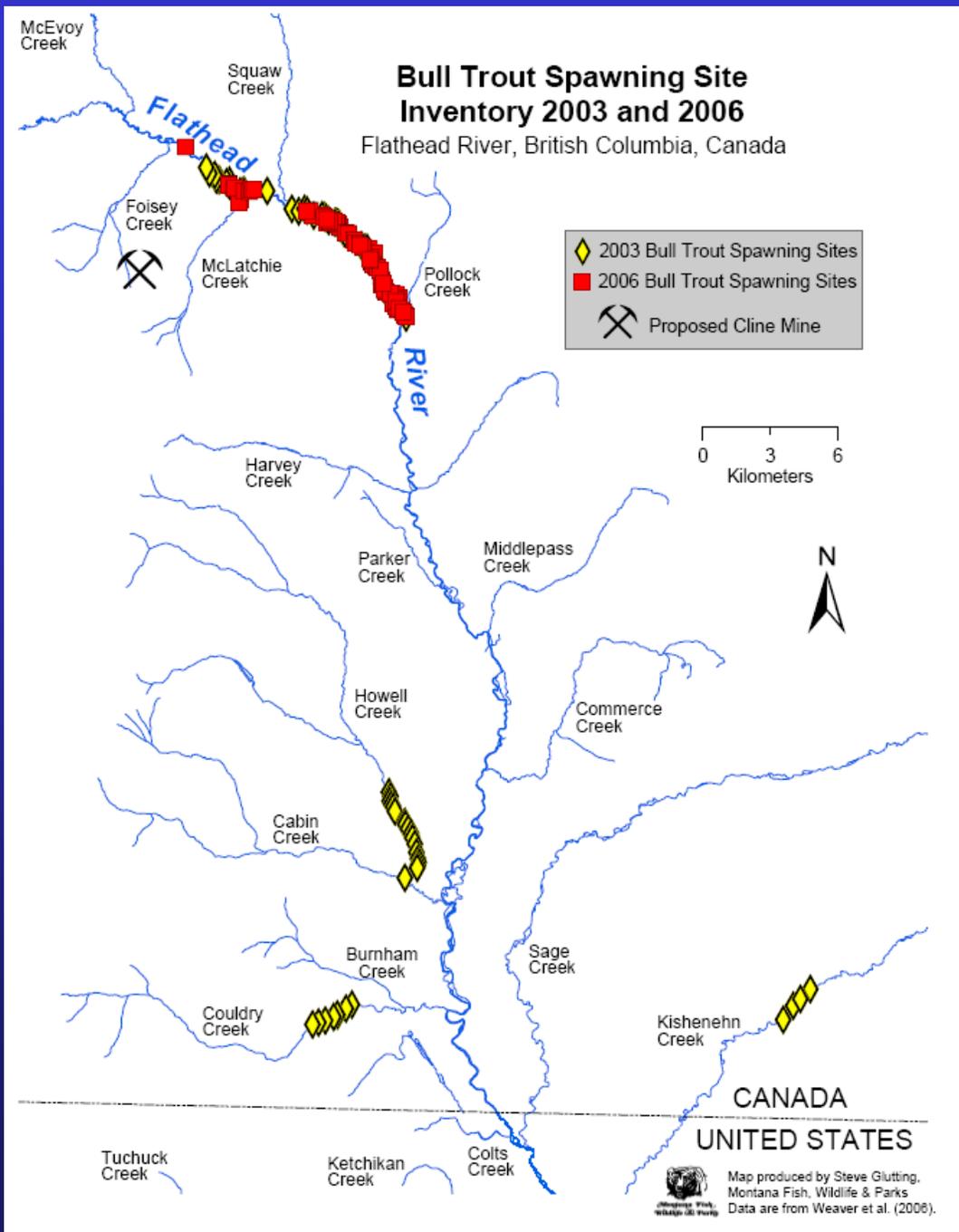
**DISTRIBUTION
OF BULL TROUT
IN THE
FLATHEAD
DRAINAGE**



Bull Trout Redd Counts

INDEX STREAMS - FLATHEAD RIVER

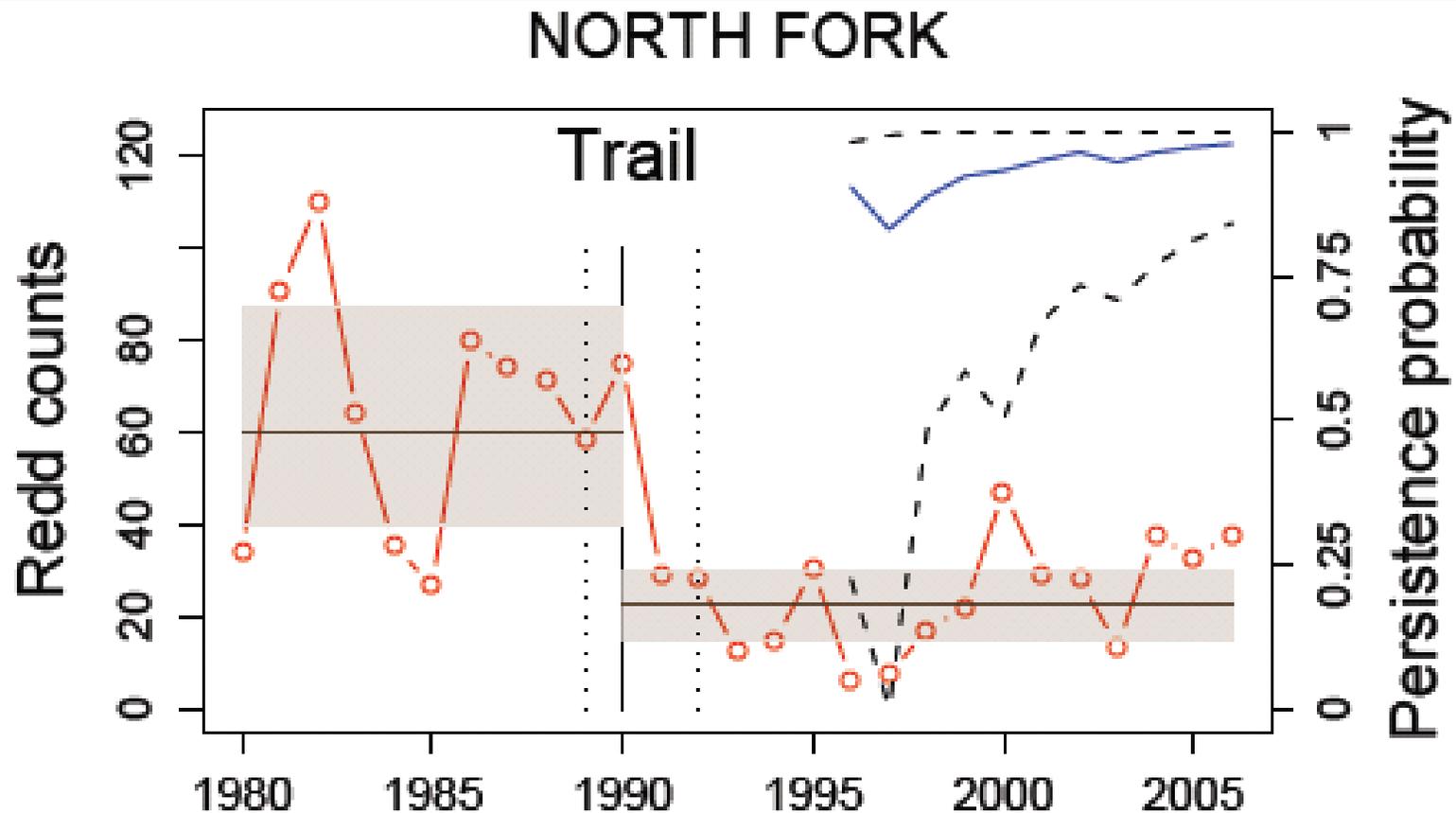




BC Redd Counts:

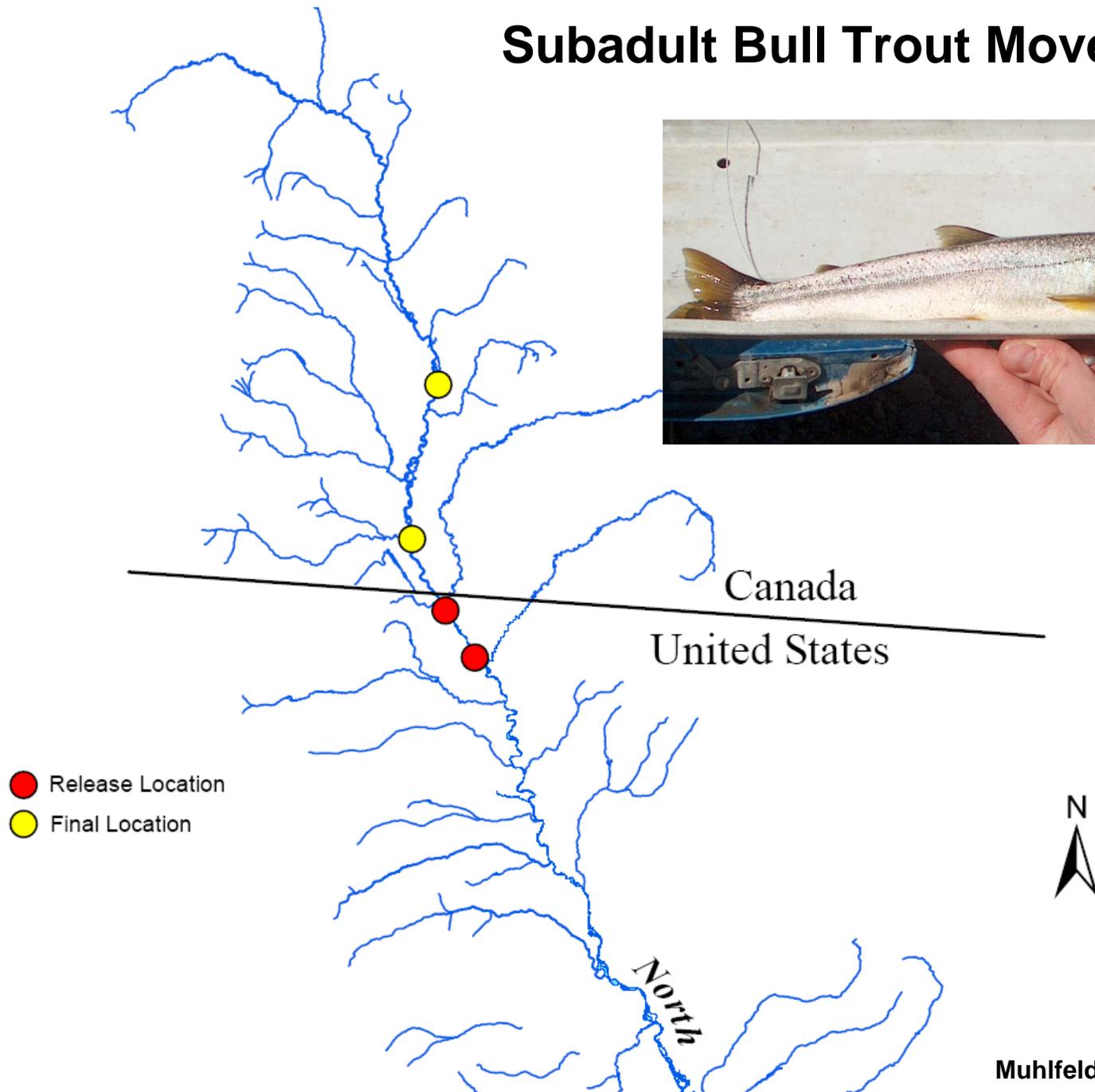
- In 2003, there were 62 bull trout redds in the upper reach
- Representing 37% of fish spawning in the North Fork
- In 2006, there were 78 redds in the upper reach
- In 2007, fish spawned above Foisey Creek

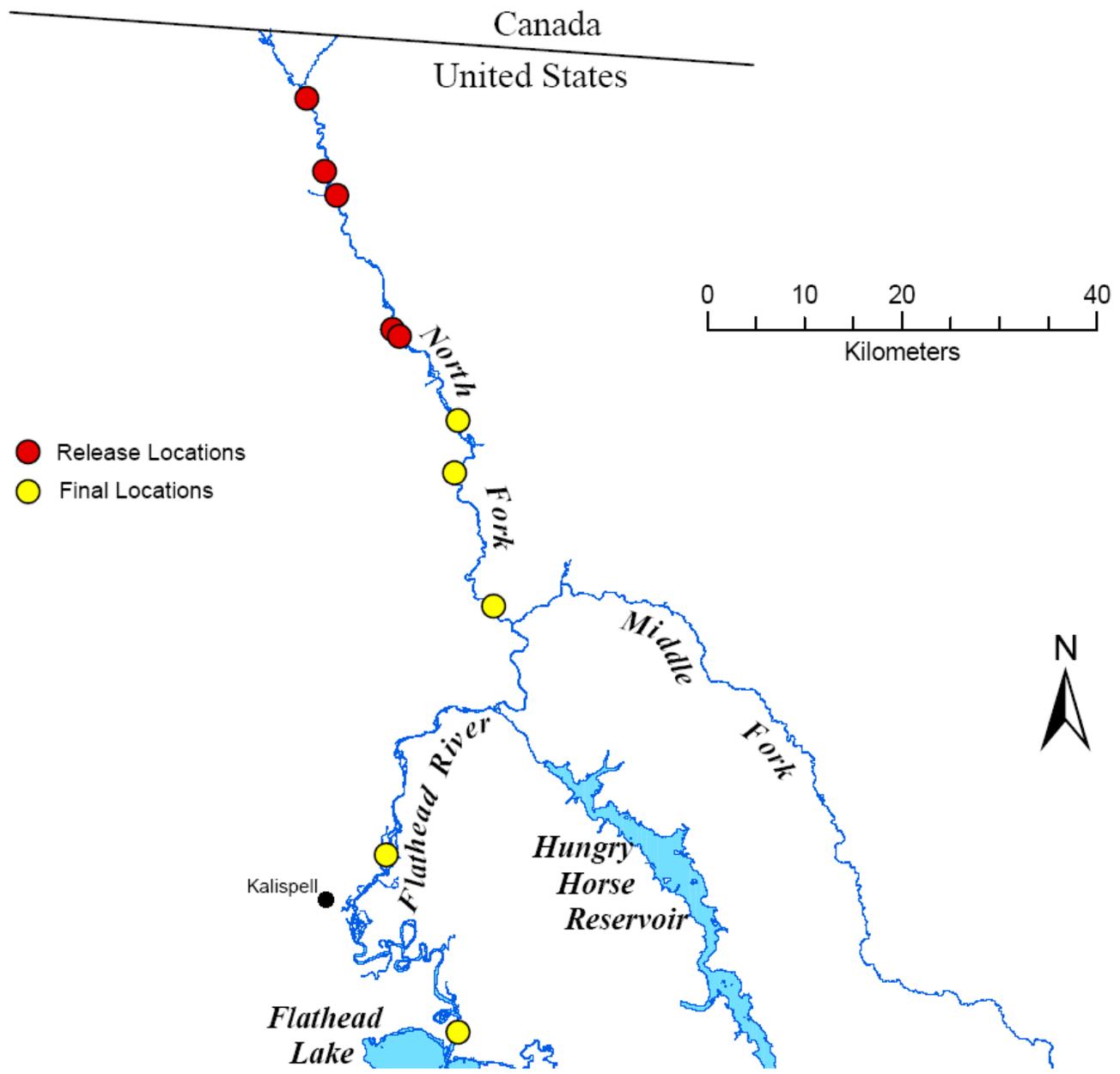
Viable Population Monitoring (VPM)



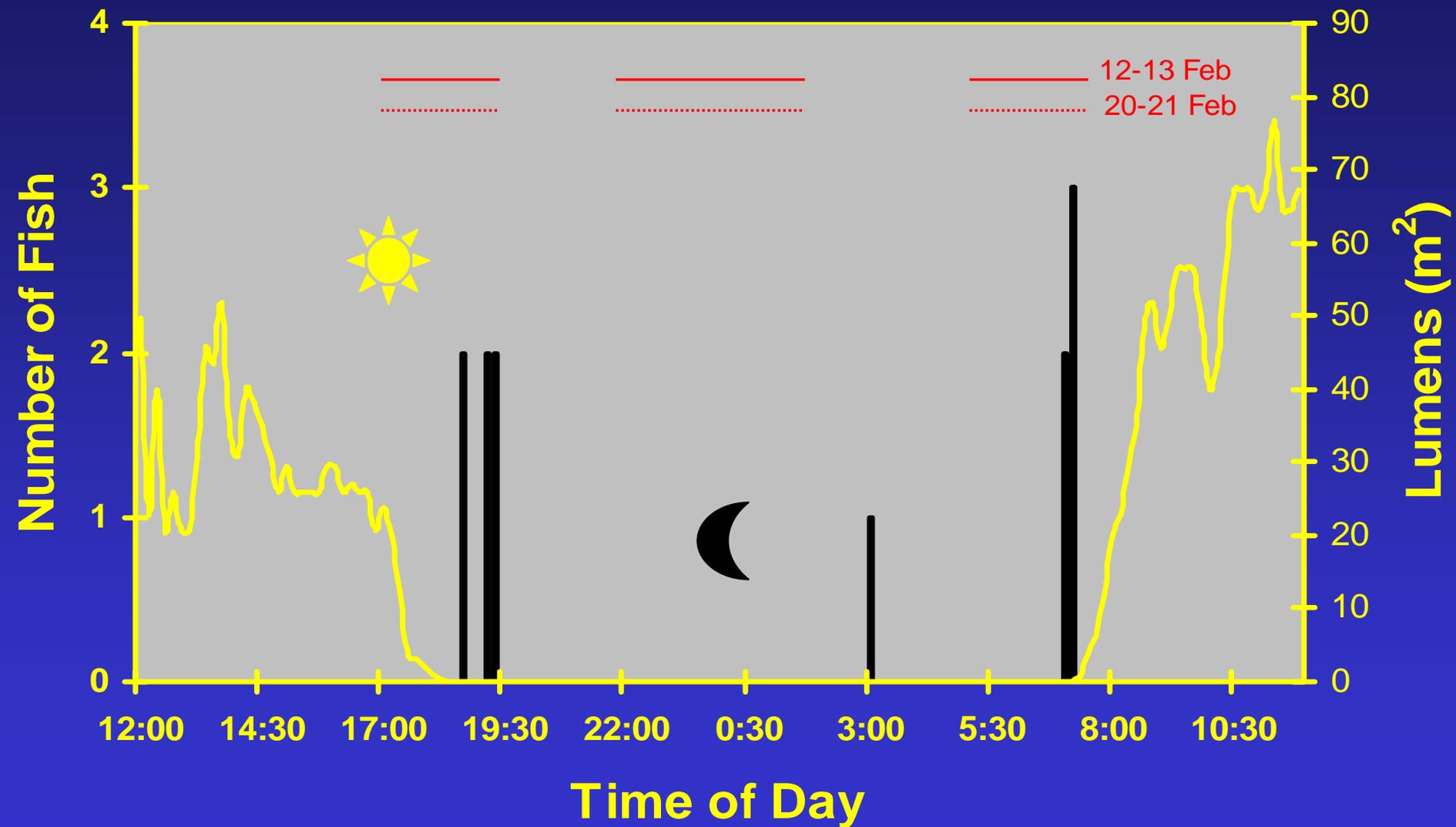
Taper et al. (*In-review*)

Subadult Bull Trout Movements

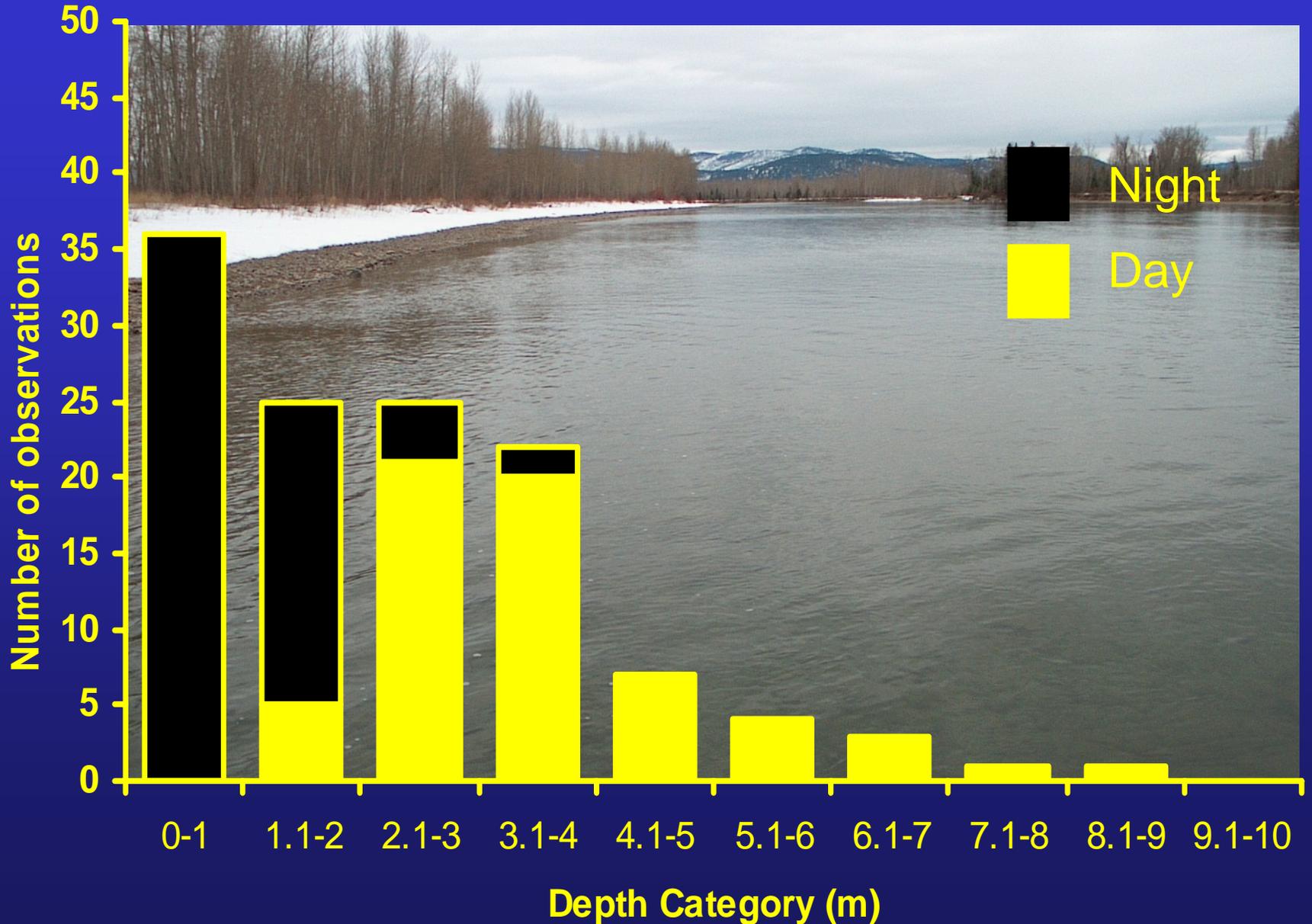




Diel Movements



Diel Habitat Use



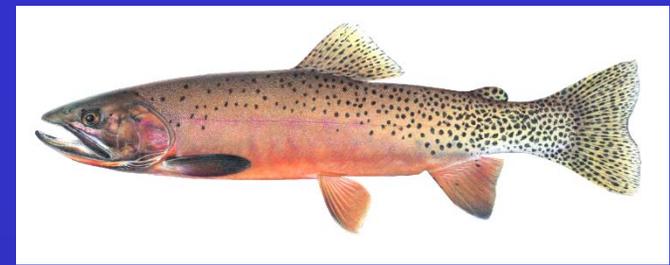
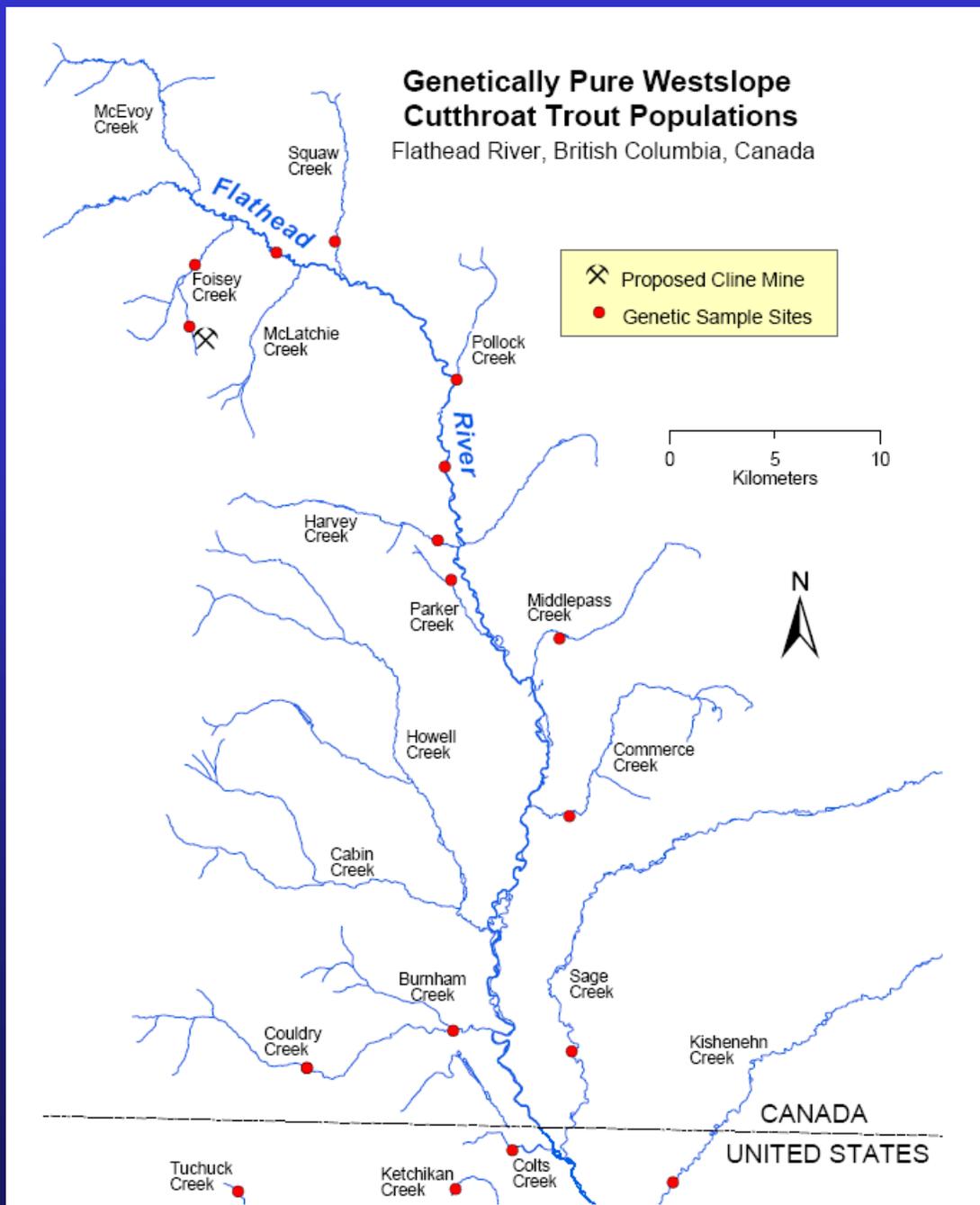
Westslope Cutthroat Trout

Westslope cutthroat trout display both *migratory* and *resident* life history strategies in the upper Flathead



Westslope Cutthroat Trout Spawning Movements

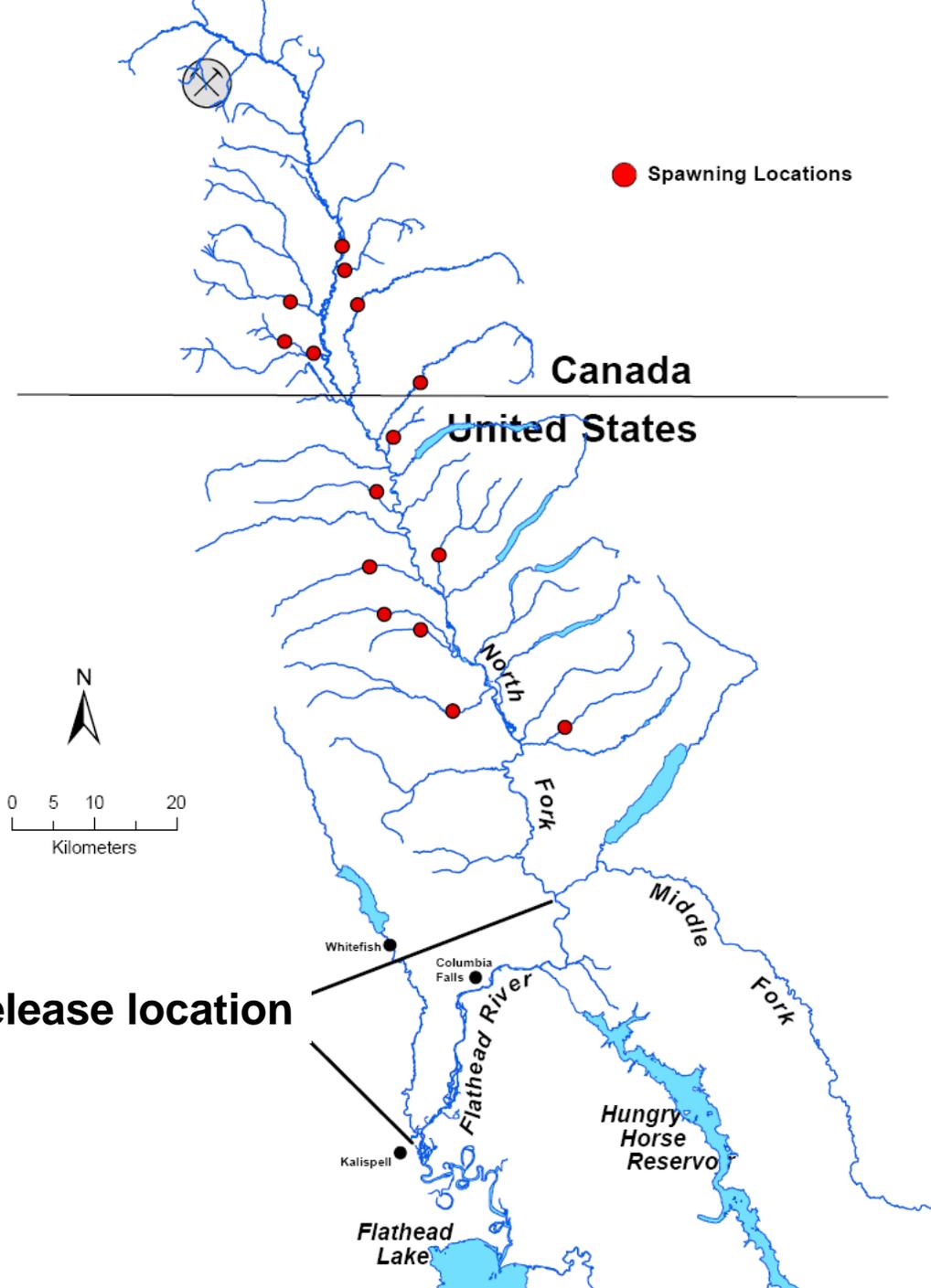




- Genetically pure westslope cutthroat trout inhabit only 5 to 10% of their historic range
- Westslope cutthroat trout migrate from Flathead Lake to spawn in British Columbia
- No hybridization was detected in British Columbia streams

WCT Spawning Study

- Tracked 25 adult WCT into the North Fork during spawning (2000, 2001, 2006, and 2007)
- 10 (40%) are known to have spawned in several BC tributaries
- 2 additional fish moved upstream of Polebridge and were lost
- Need a better understanding of the movements of transboundary fish populations

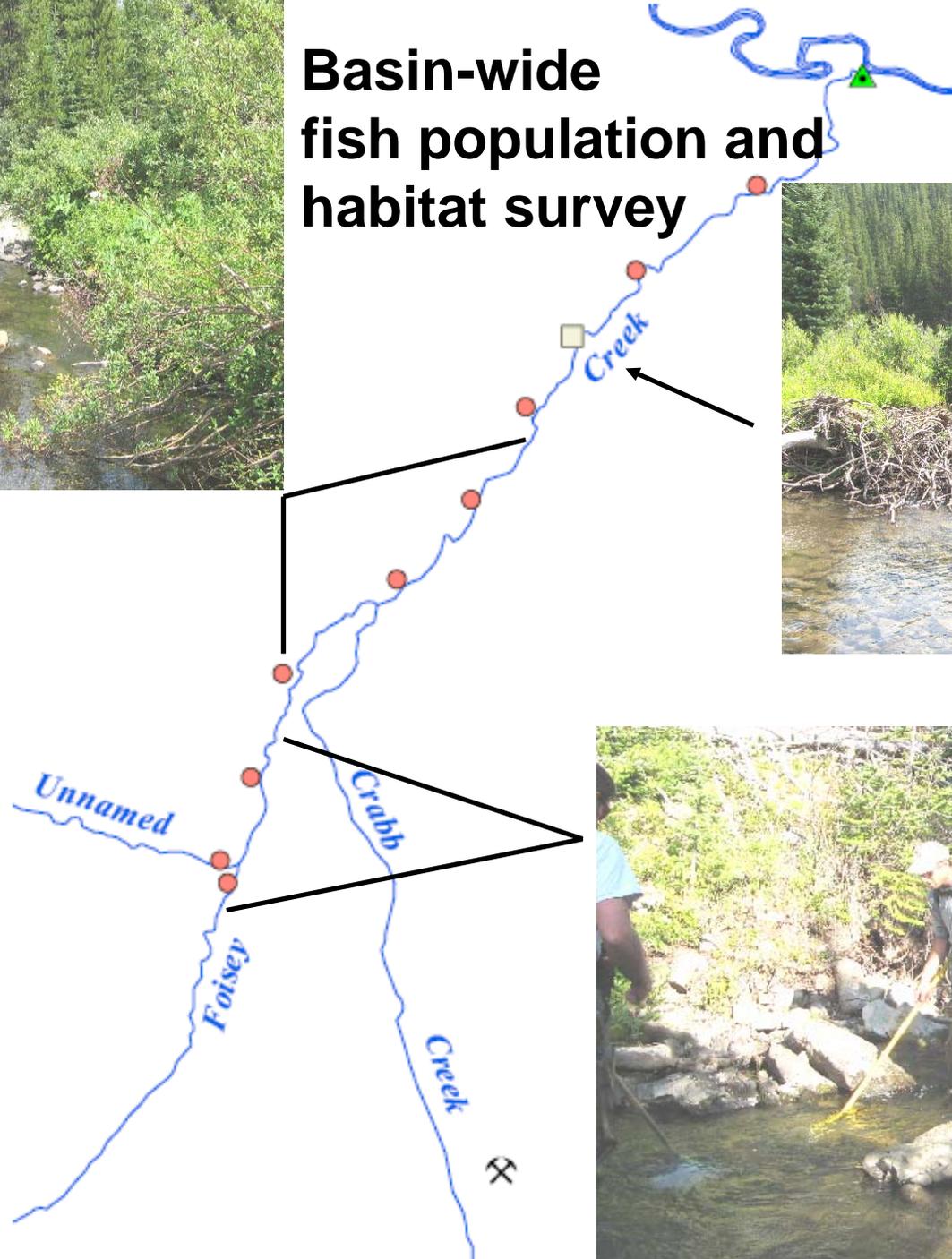


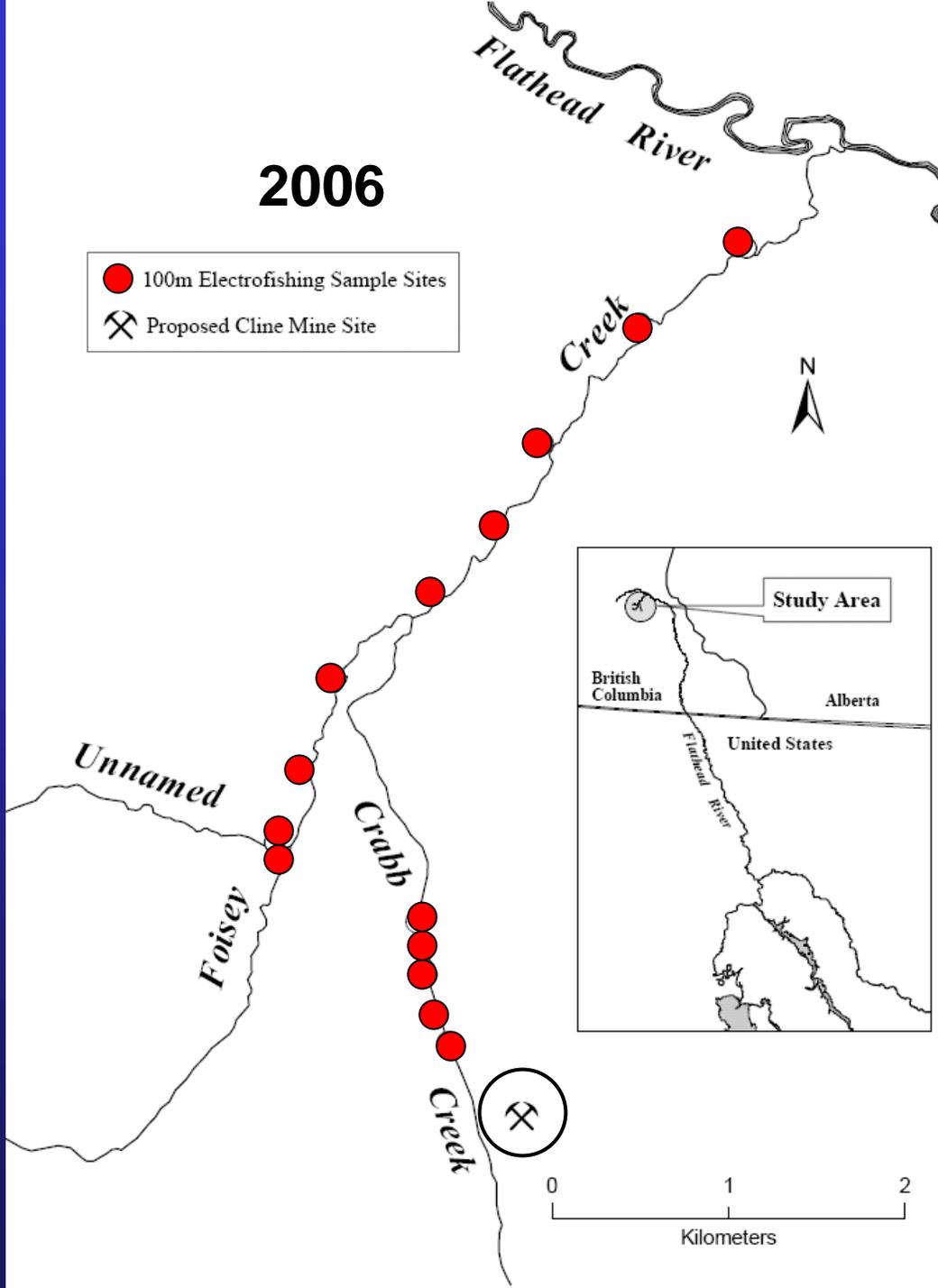
Fish distribution, genetics and habitat in the Foisey Creek drainage, British Columbia



2006

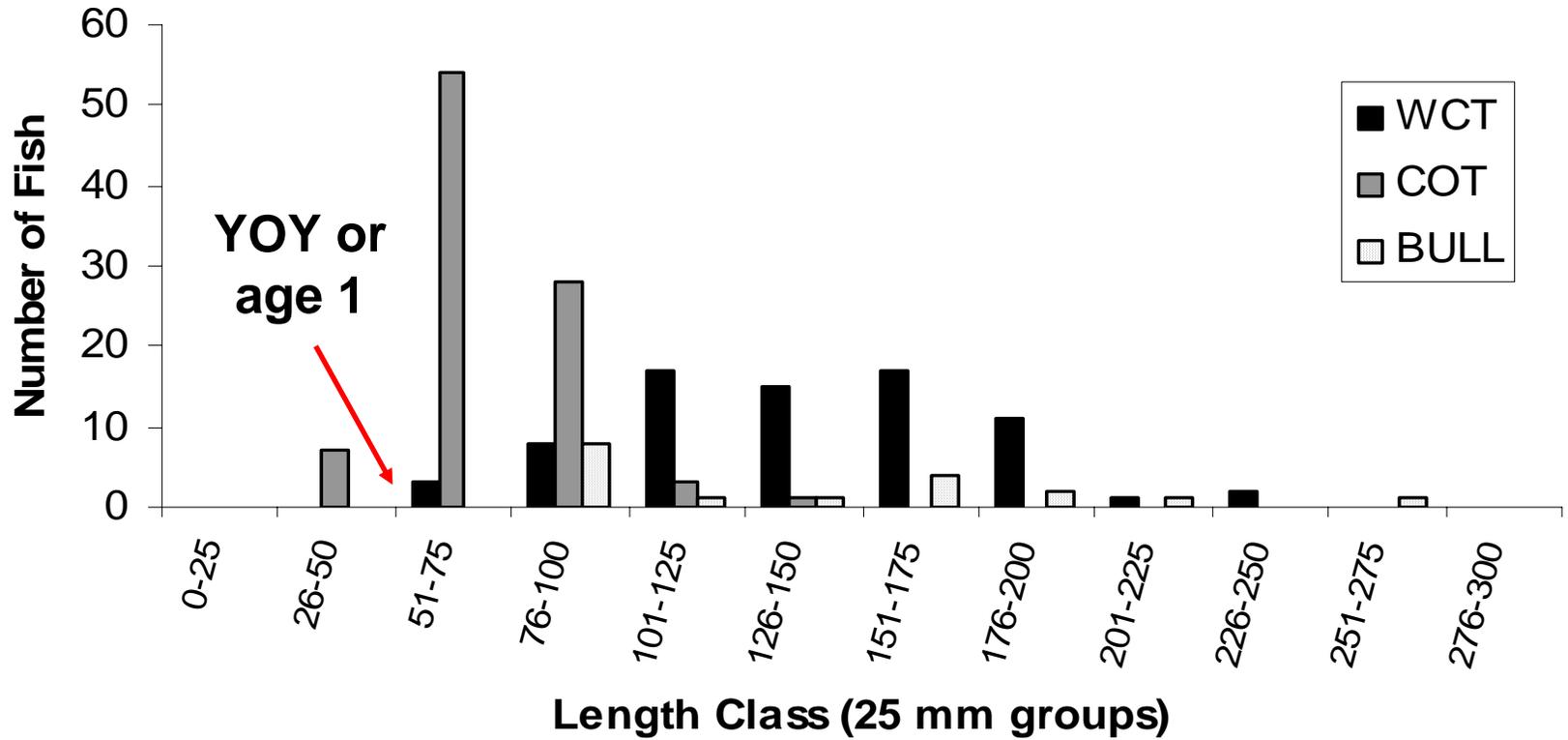
Basin-wide fish population and habitat survey





- At the mine site there is an intact native fish community
- In 2006, surveys found bull trout, westslope cutthroat trout and sculpin in Foisey Creek
- Westslope cutthroat trout were found in Crabb Creek

Foisey Creek



Conclusions

- Conservation of native fishes and habitats requires a landscape-level, comprehensive and cumulative approach
- The headwaters near the proposed mine site contains critical habitat for native fish of Montana and British Columbia
- Need baseline data and additional monitoring of fish populations and habitats in both Montana and British Columbia
- The proposed coal mines and CBM development will impact fisheries, threatening bull trout and westslope cutthroat trout populations and other aquatic biota

Funding and Support

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and
Montana State University

