

Bull Trout Surveys In The Kachess System: What We Have Learned



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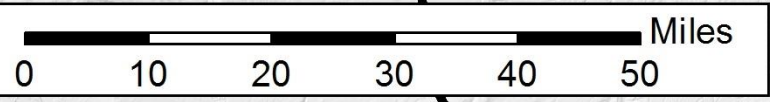
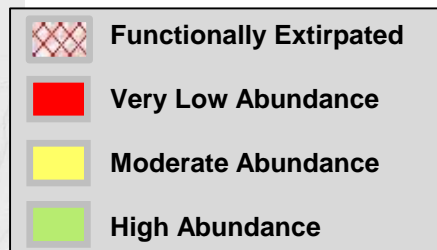
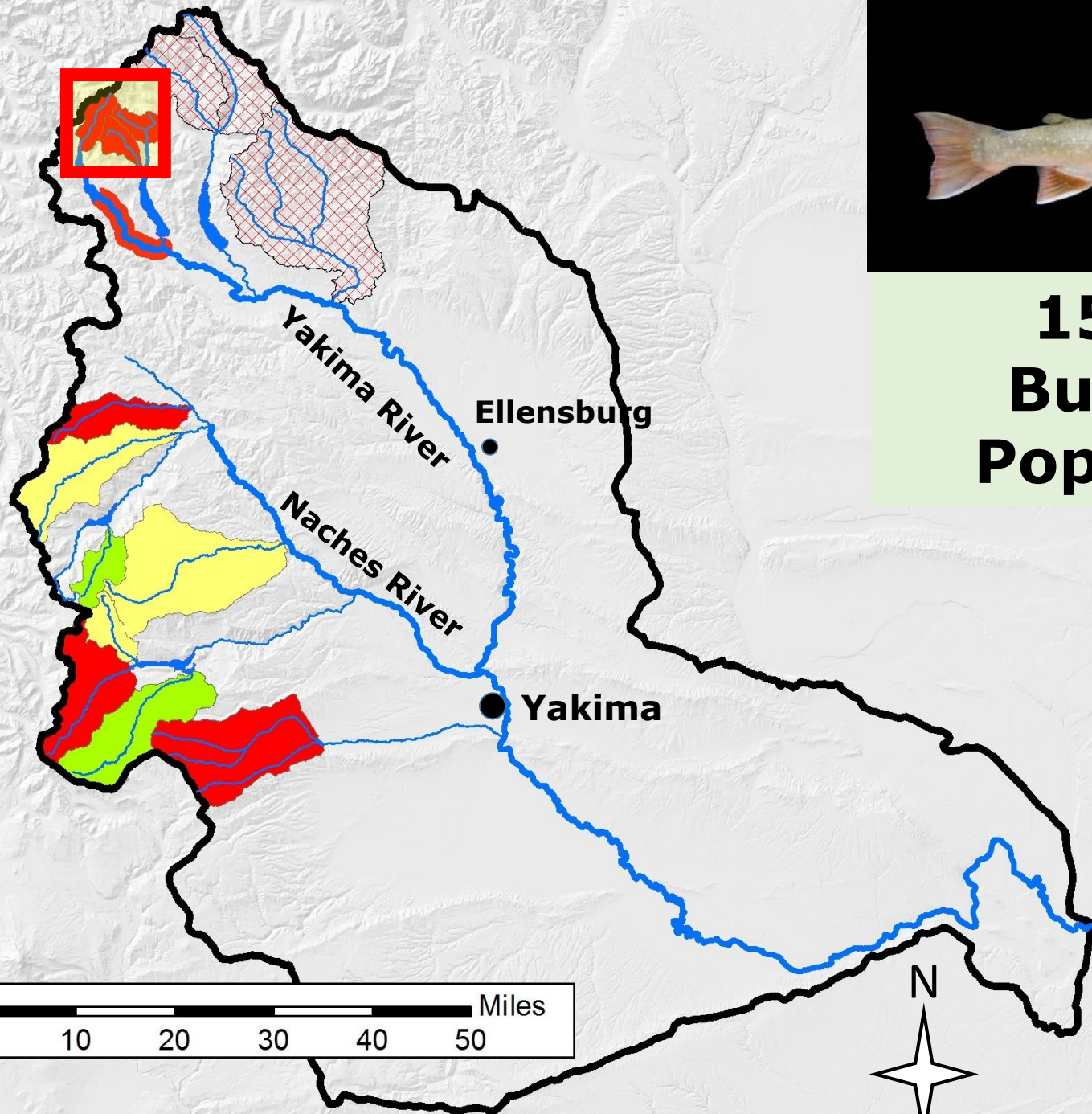
This River Runs Forever
Yakima Basin Integrated Plan

- **Connor Parrish & Russ Byington- Upper Yakima Bull Trout Rescue and Future Captive Rearing**
- **Mitch Long and Melissa Speeg- Project Updates: Upper Yakima Restoration of Bull Trout Streams**

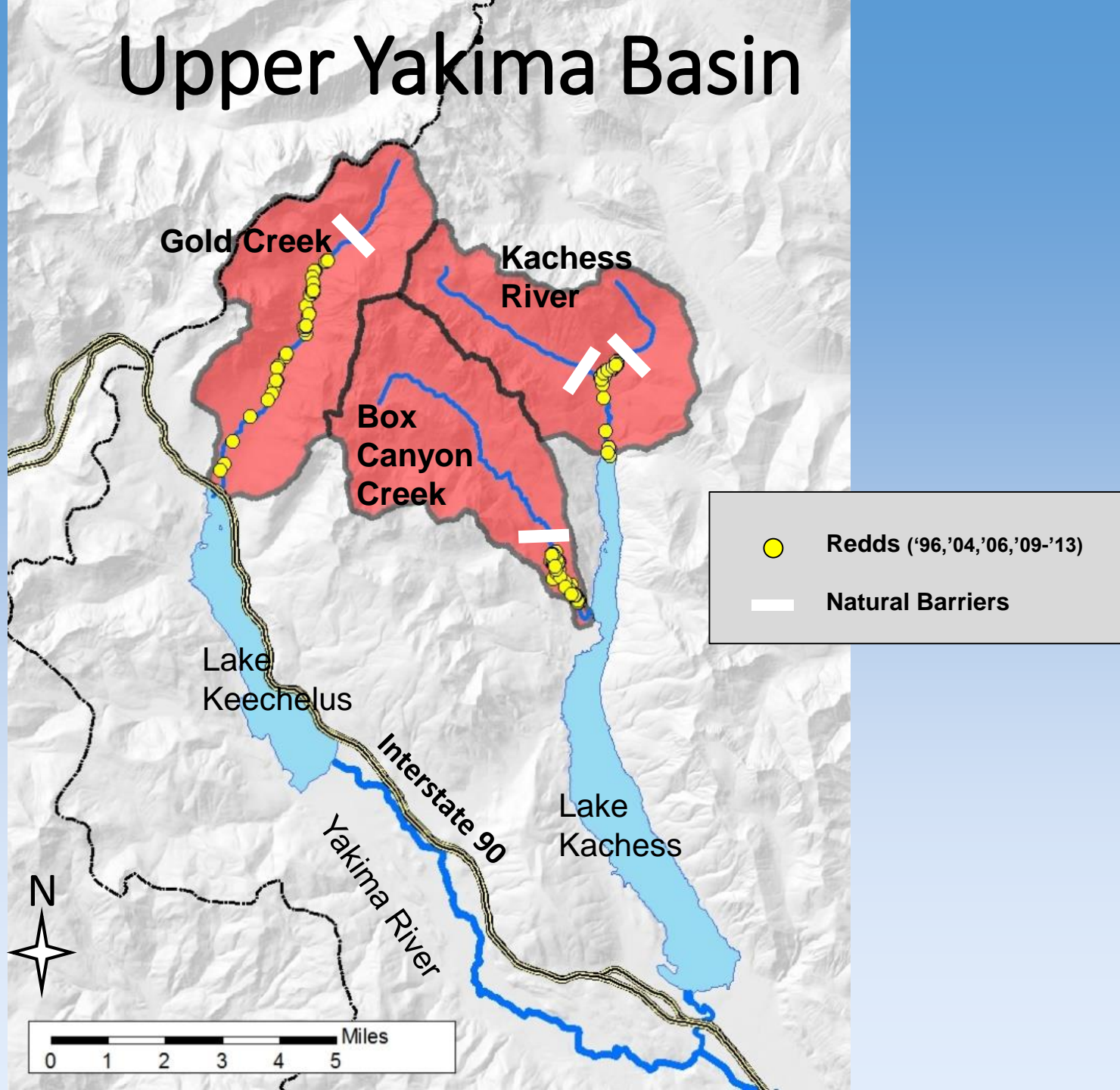




15 Local Bull Trout Populations

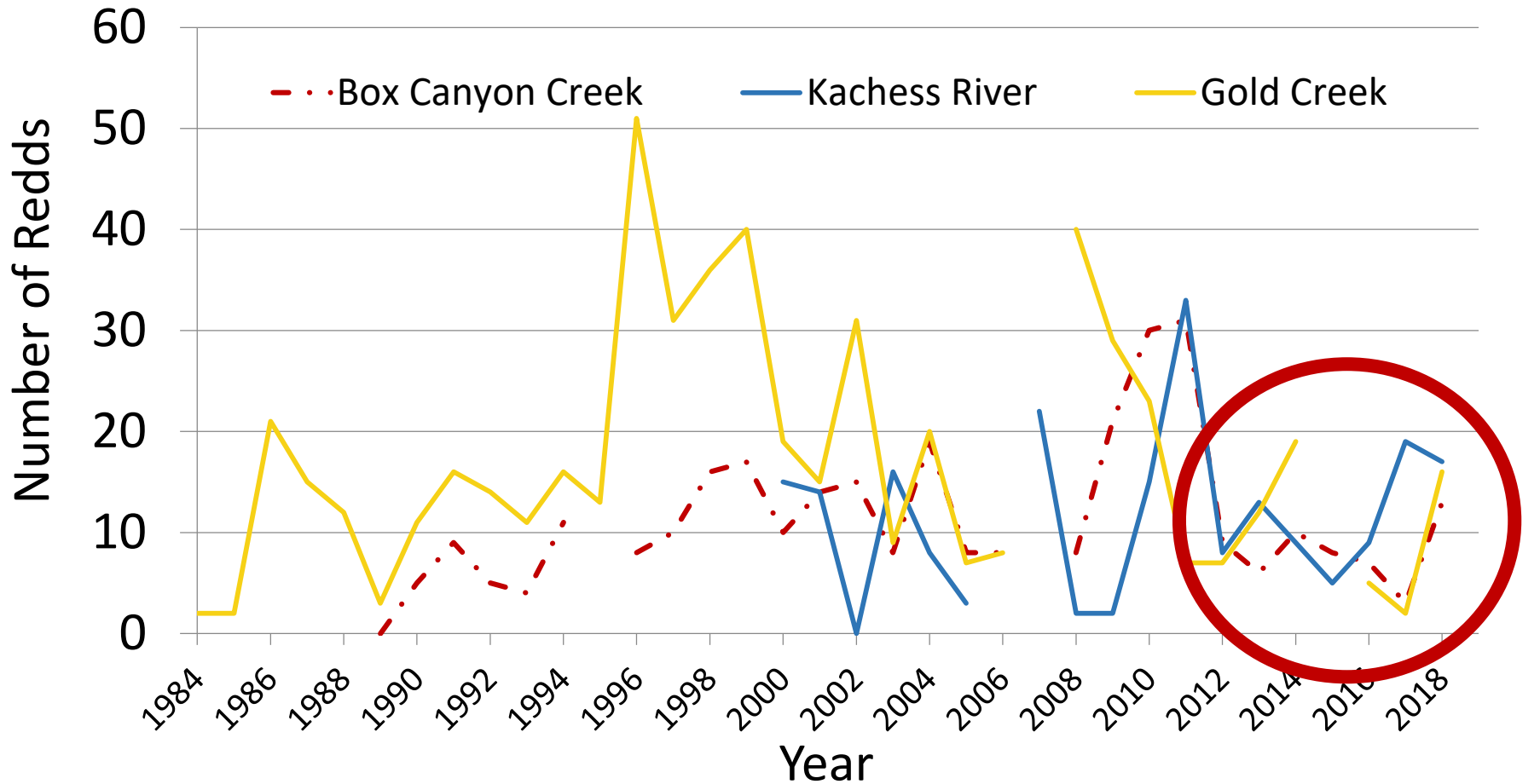


Upper Yakima Basin





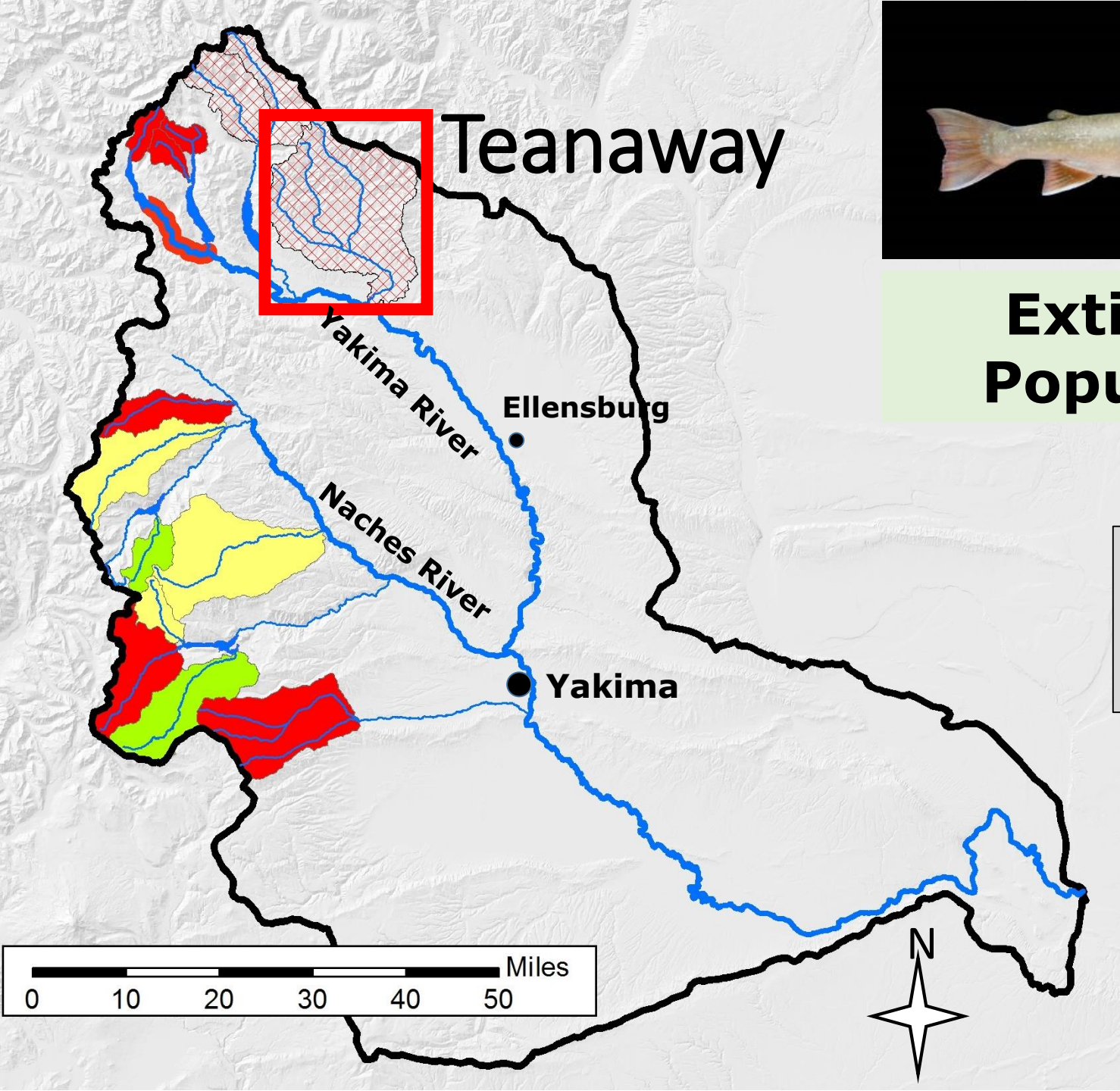
Upper Yakima Bull Trout Redd Counts



“At Risk” Populations



Extirpated Populations



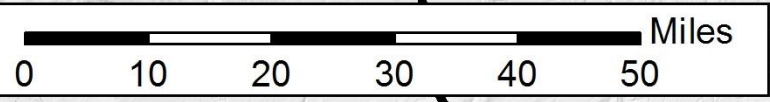
Teanaway

Yakima River

Naches River

Ellensburg

Yakima

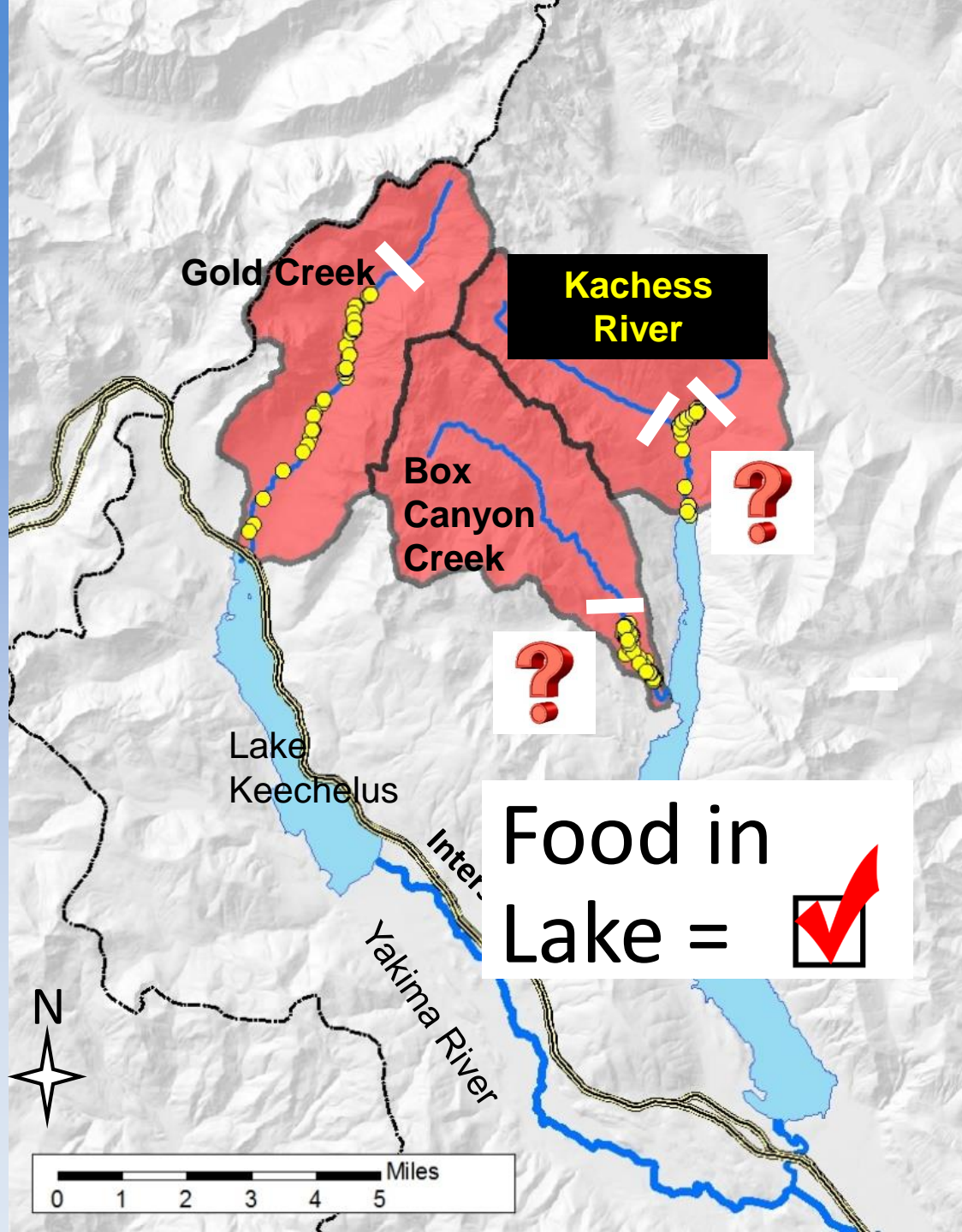


-  Functionally Extirpated
-  Very Low Abundance
-  Moderate Abundance
-  High Abundance

Previous Study



Hansen, Beauchamp et al
studied Kachess Reservoir
limnology and food web



Food in
Lake =

Stream Dewatering: Kachess River



7/11/18

Stream Dewatering: Kachess River 8/8/19

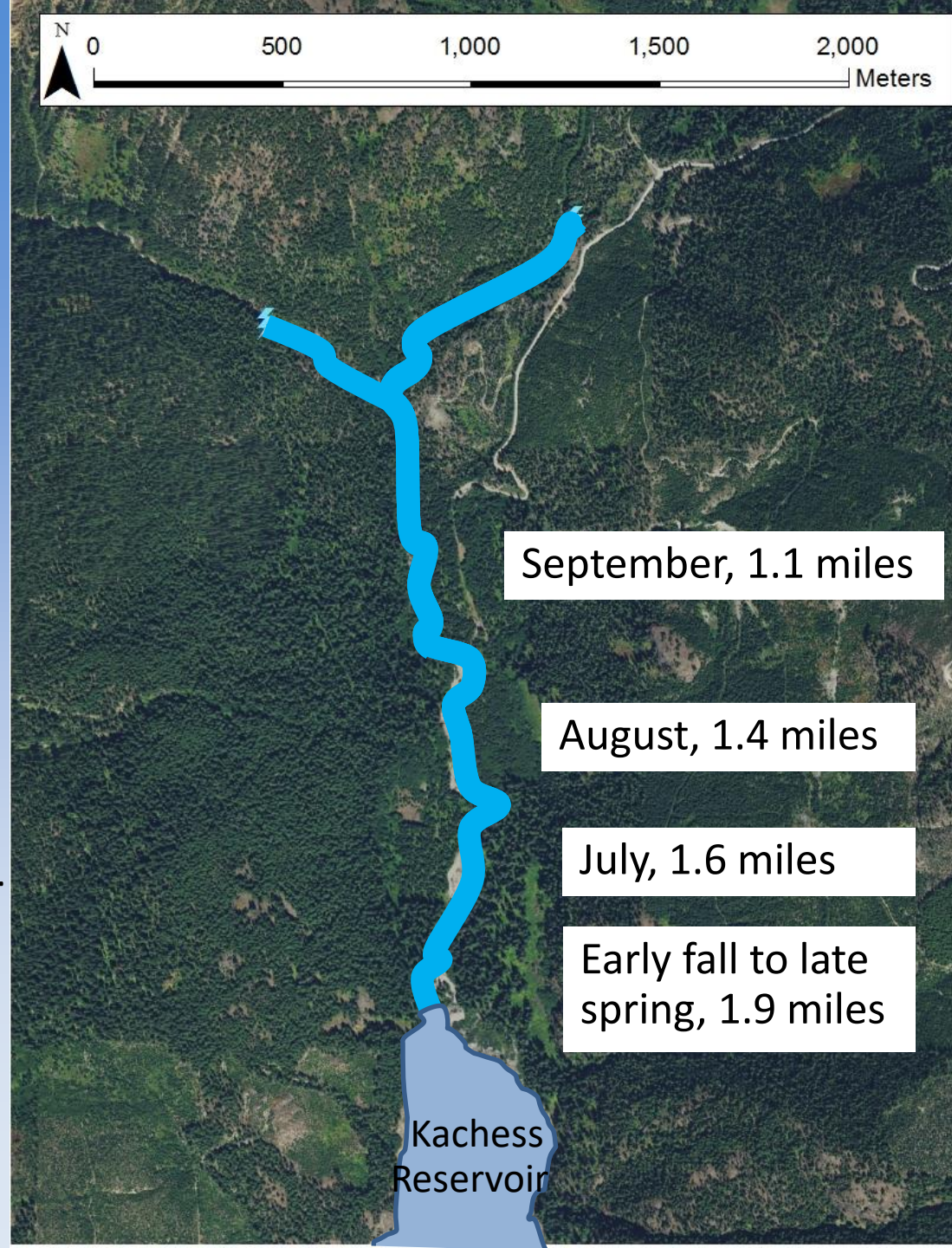


Kachess River Adult Bull Trout, October



Kachess Dewatering

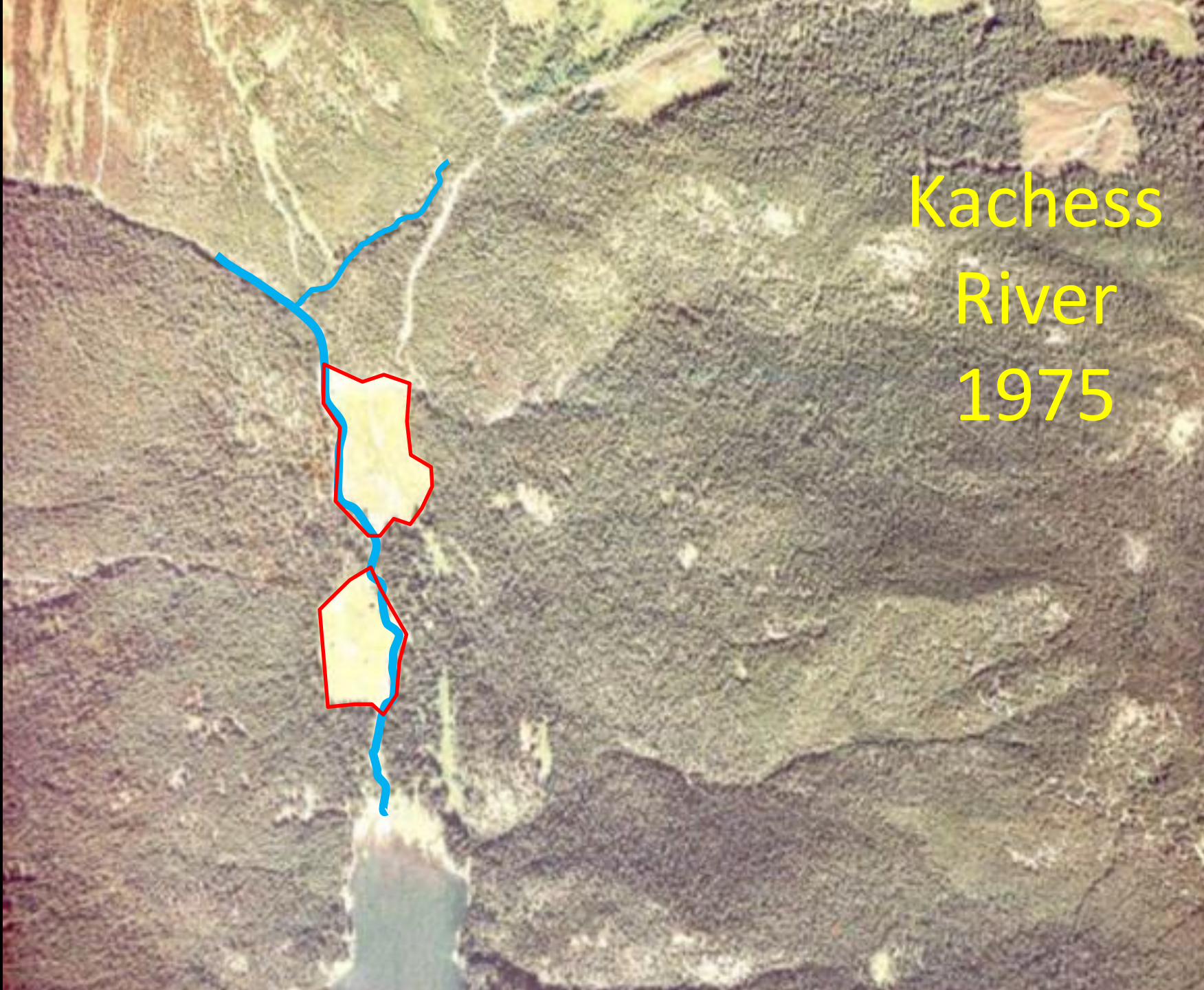
- All fish blocked from going to reservoir
- YOY unlikely to move upstream to perennially-flowing 1.1 miles
- Impact to macroinvertebrate production?



Kachess
River
1942



Kachess
River
1975



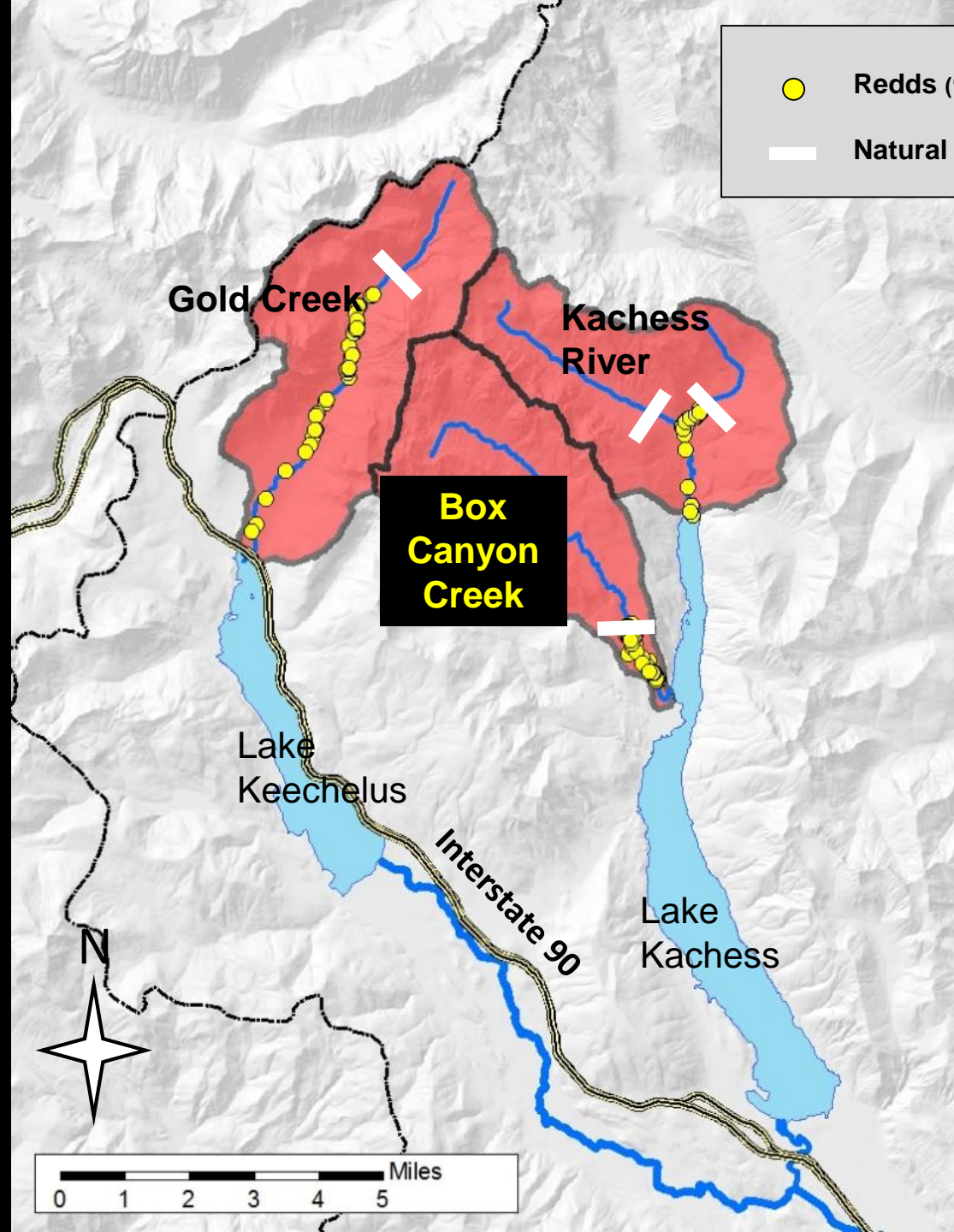




Redds ('96,'04,'06,'09-'13)



Natural Barriers



Gold Creek

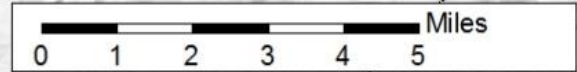
Kachess River

Box Canyon Creek

Lake Keechelus

Lake Kachess

Interstate 90



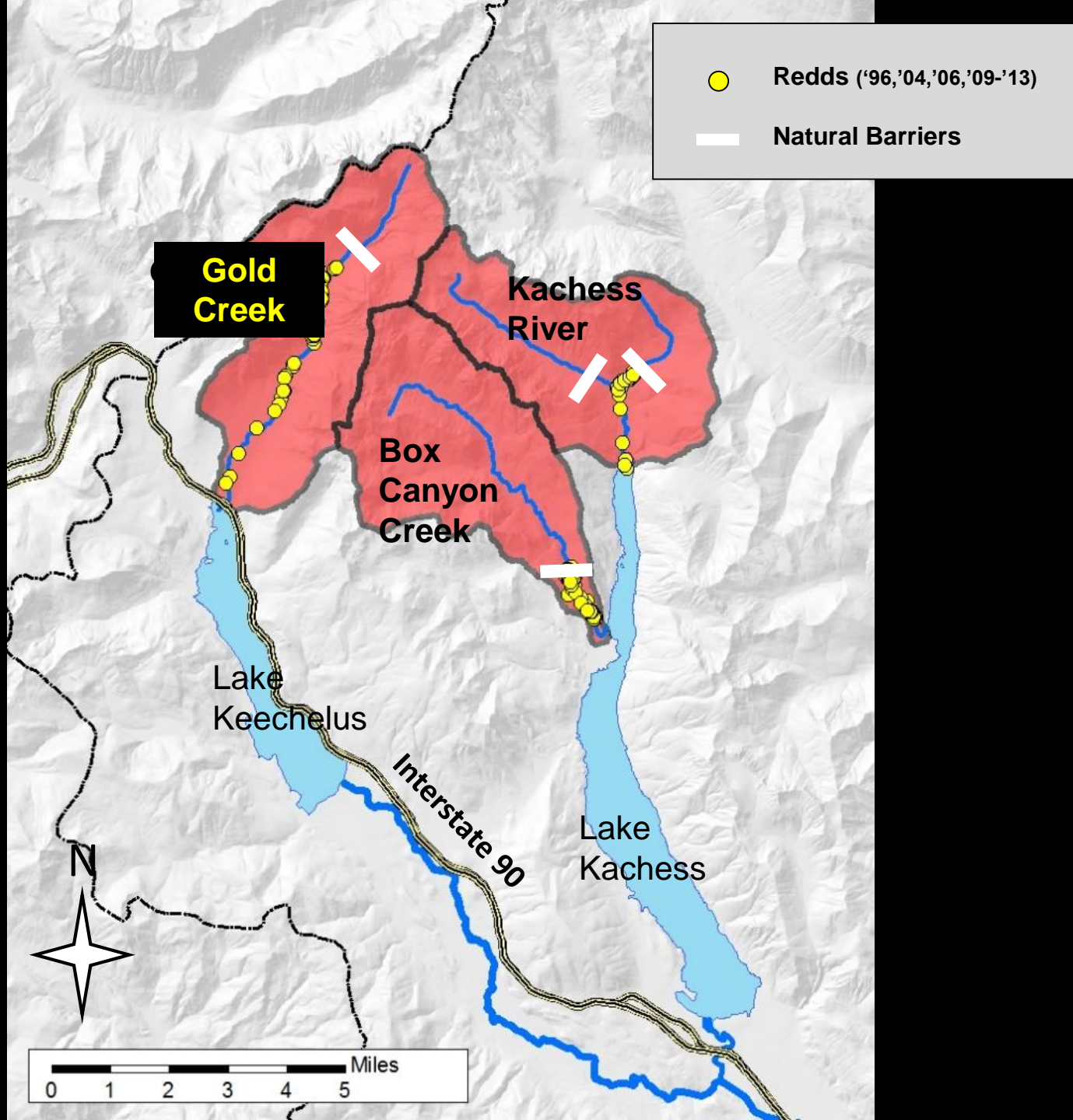
Stream Dewatering: Box Canyon Creek



Photo credit: Scott Kline

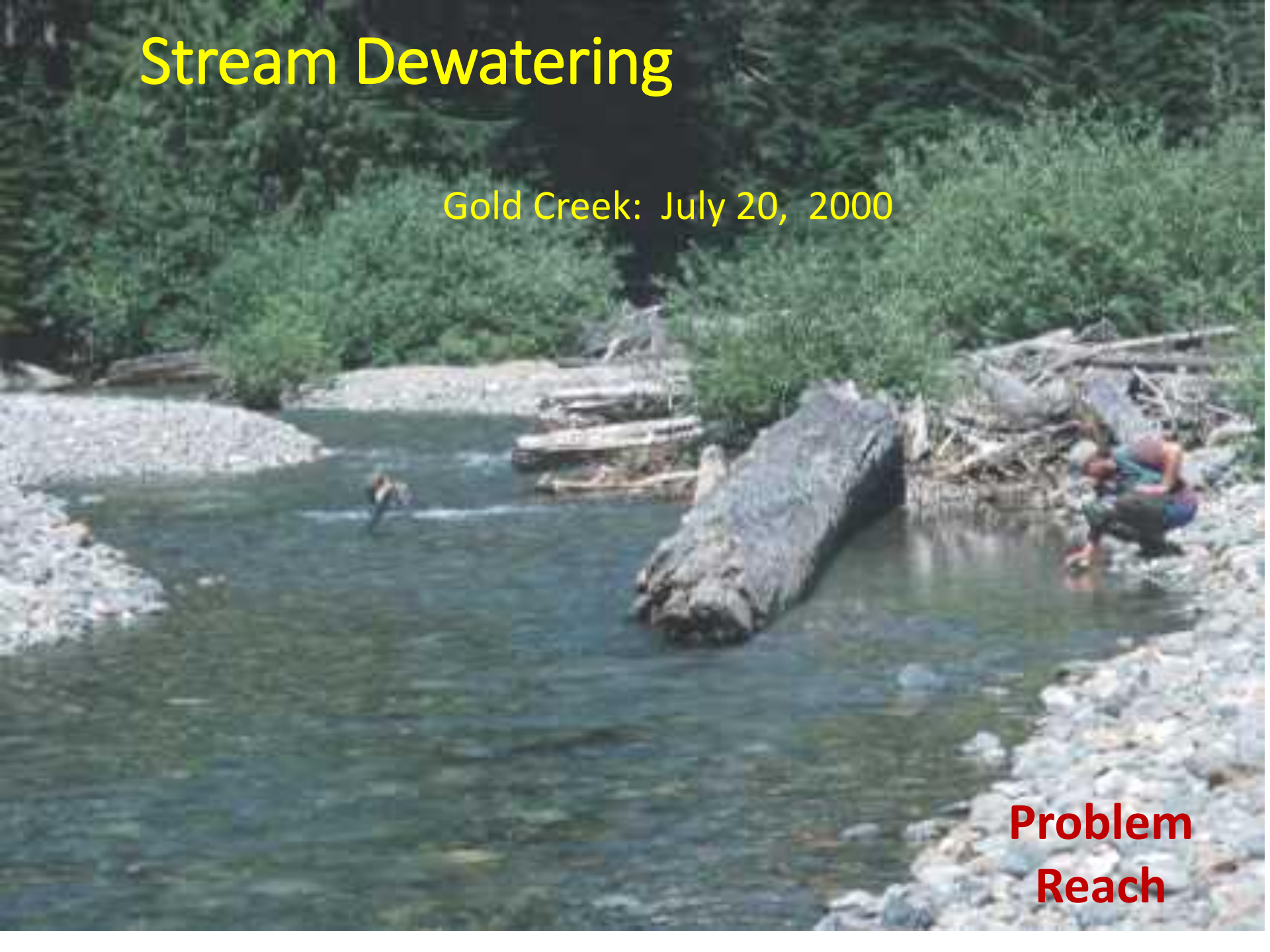
Box Canyon Creek, 2013





Stream Dewatering

Gold Creek: July 20, 2000

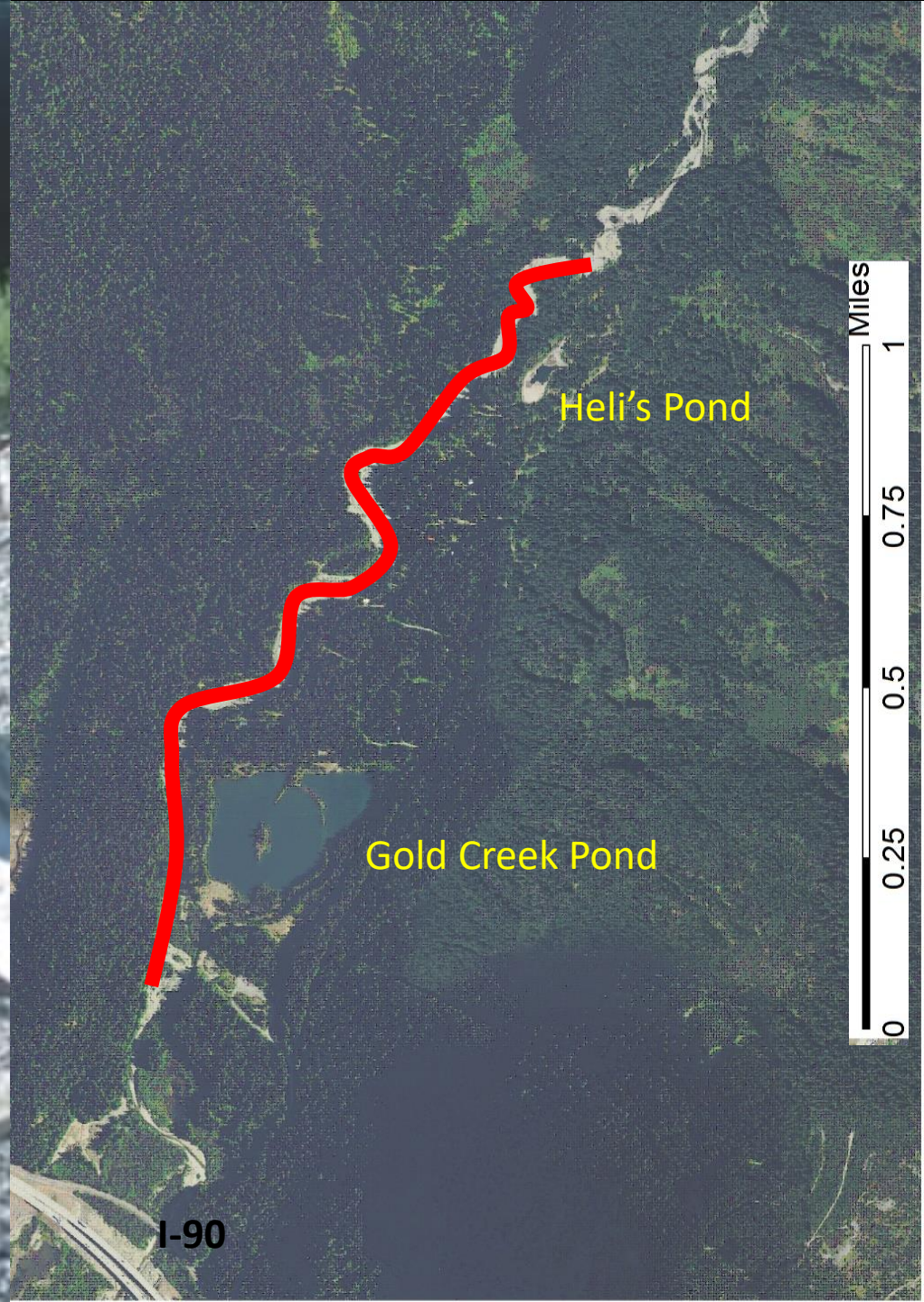


**Problem
Reach**

Stream Dewatering: Gold Creek

August 15, 2000

Problem Reach



I-90

Gold Creek Pond

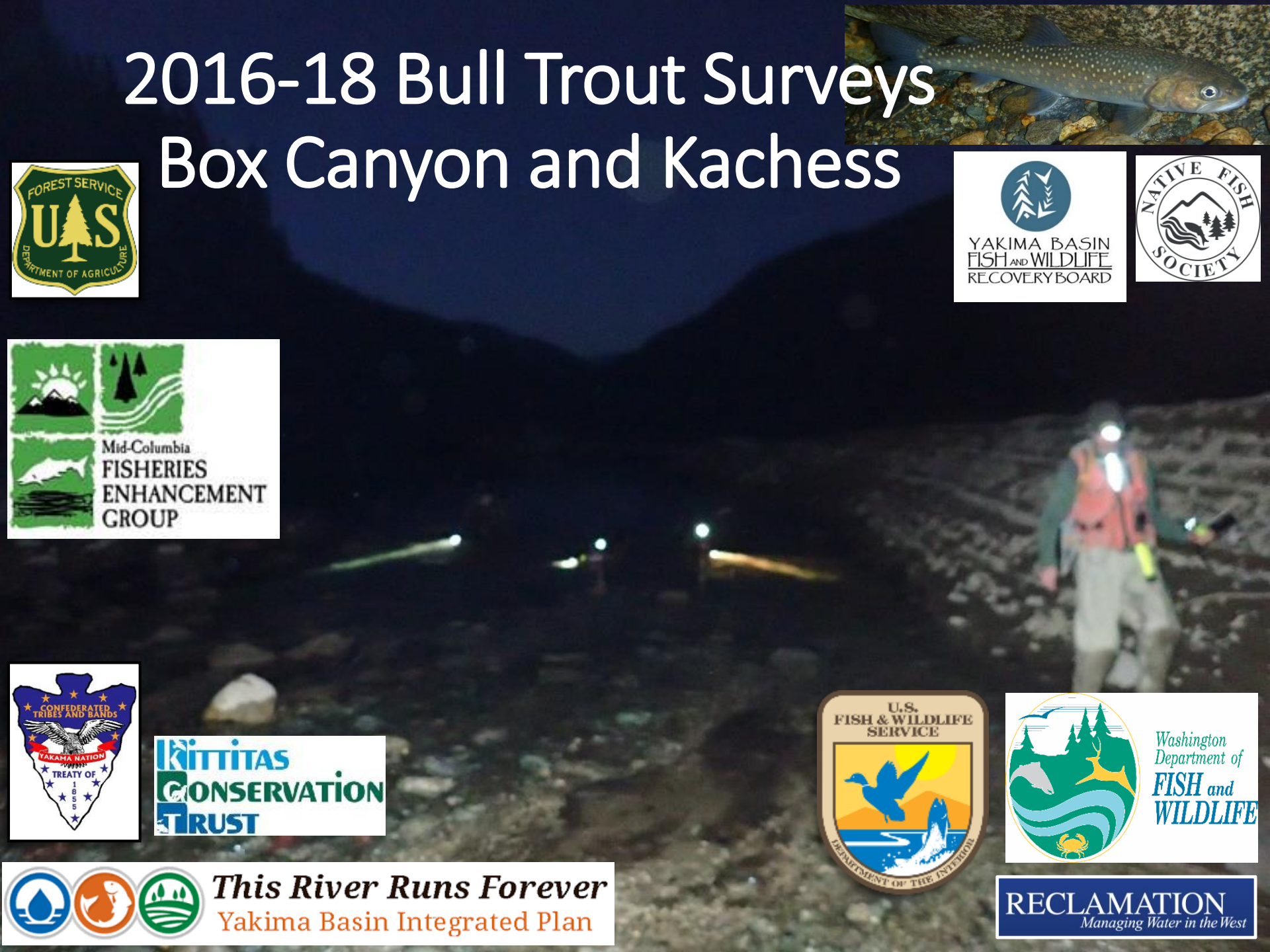
Heli's Pond



2016-18 Bull Trout Surveys Box Canyon and Kachess



This River Runs Forever
Yakima Basin Integrated Plan





2016 Habitat Reaches

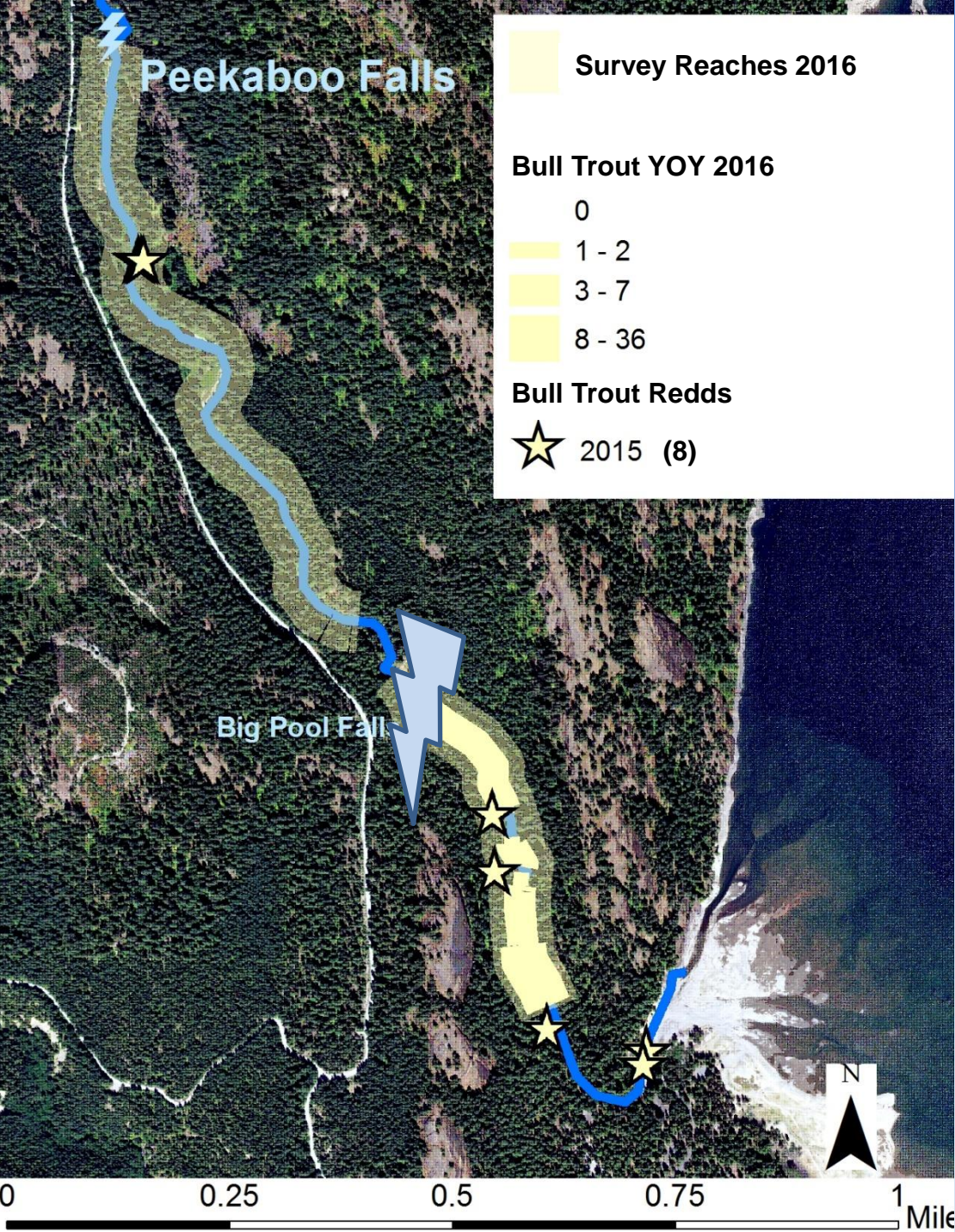


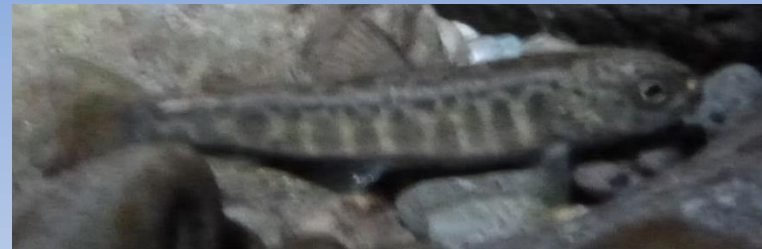
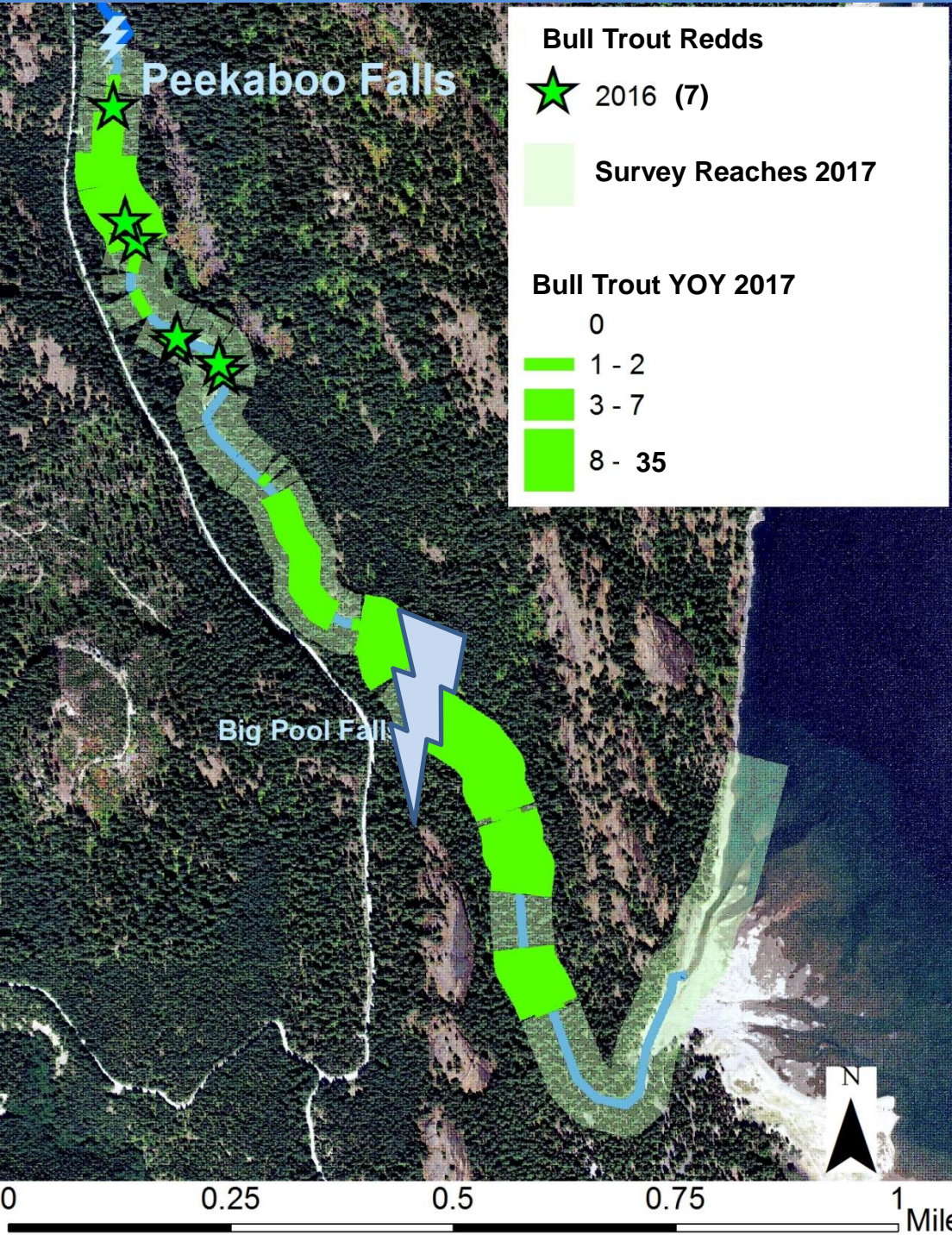
Box Canyon Habitat Survey 2016

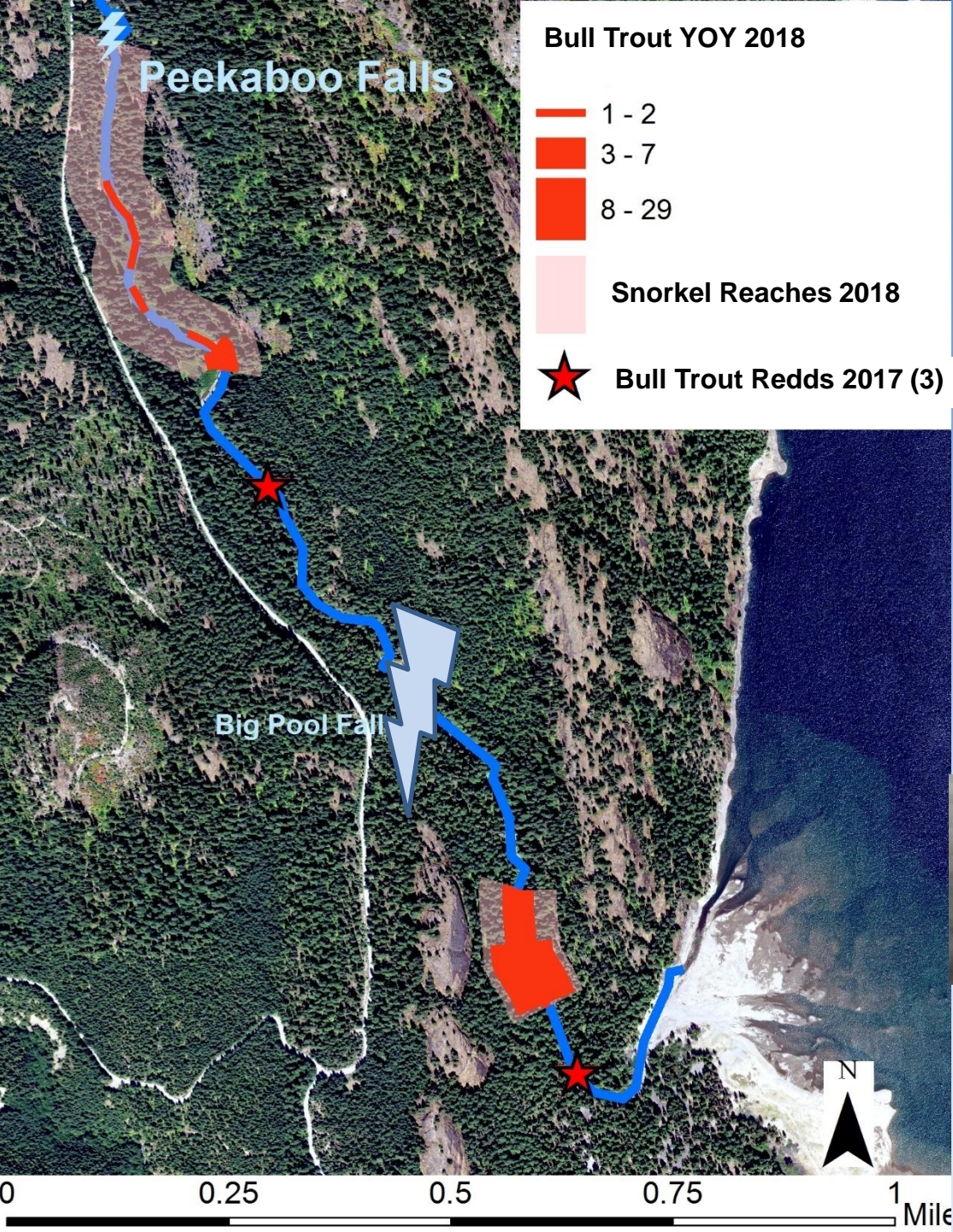
- Slow/Fast Channel Units
- BankFull Width
- Wetted Width
- Substrate
- Pools
- Instream Large Woody Habitat

Big Pool Falls









YOY may be forced downstream by flow events.

Big pool falls keeps YOY and possibly older juveniles from utilizing upstream habitat



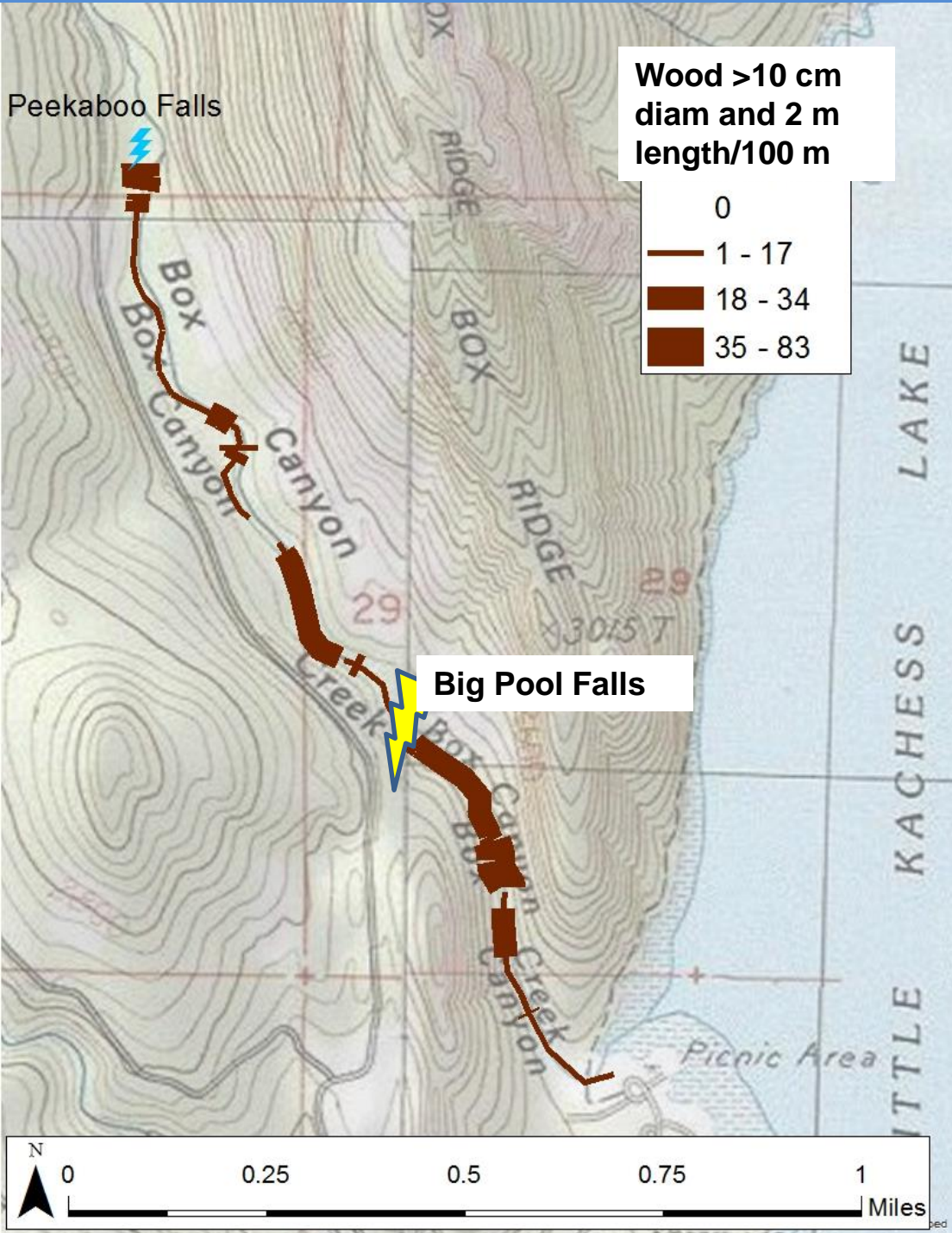
Box Canyon Creek Surveys

Informs Restoration

Less wood above Big Pool Falls where 2/3 of redds are created

When young-of-year emerge in the spring they have

- Limited velocity refuge
- Limited predator avoidance

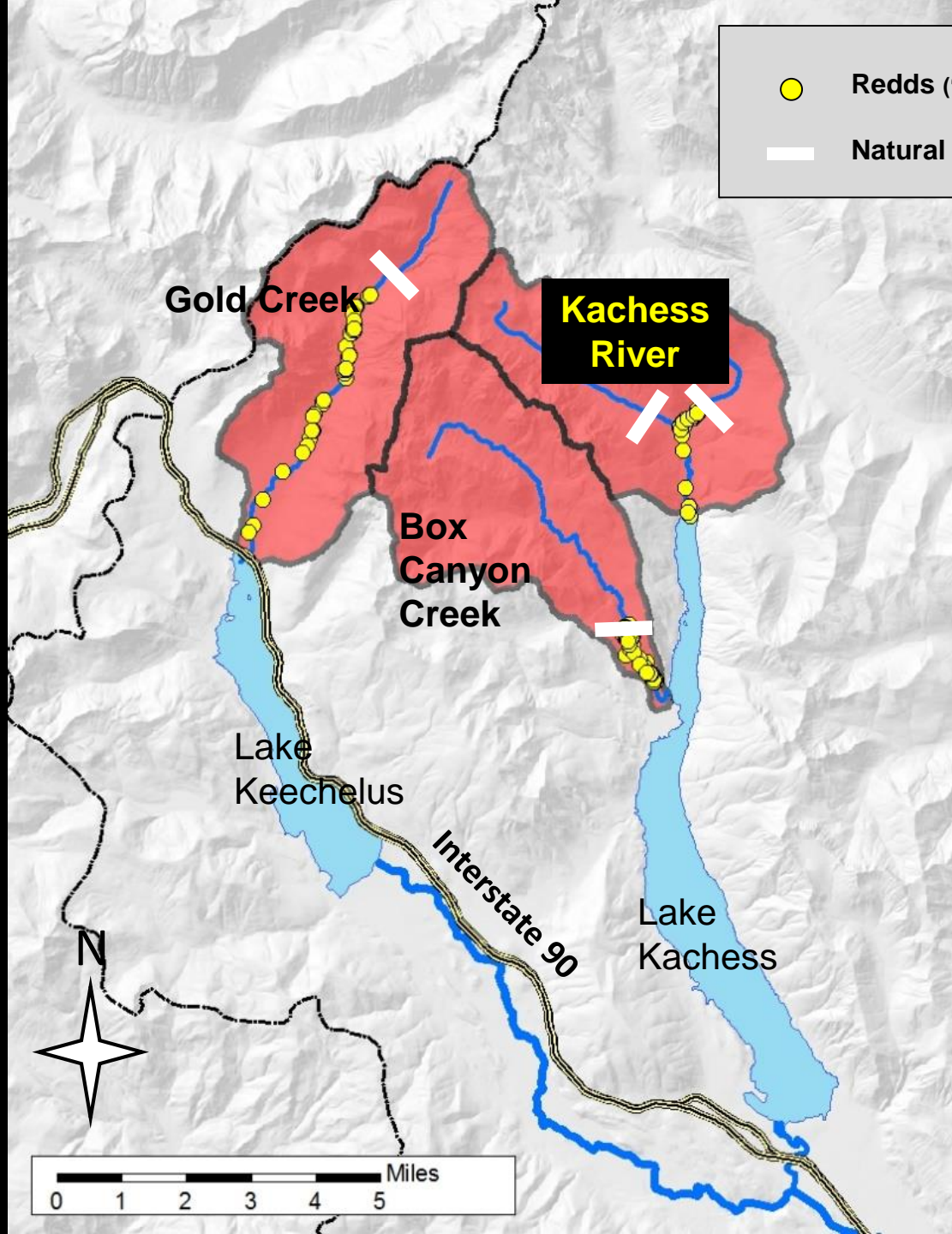




Redds ('96,'04,'06,'09-'13)



Natural Barriers



Gold Creek

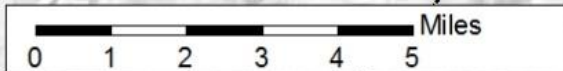
**Kachess
River**

Box
Canyon
Creek

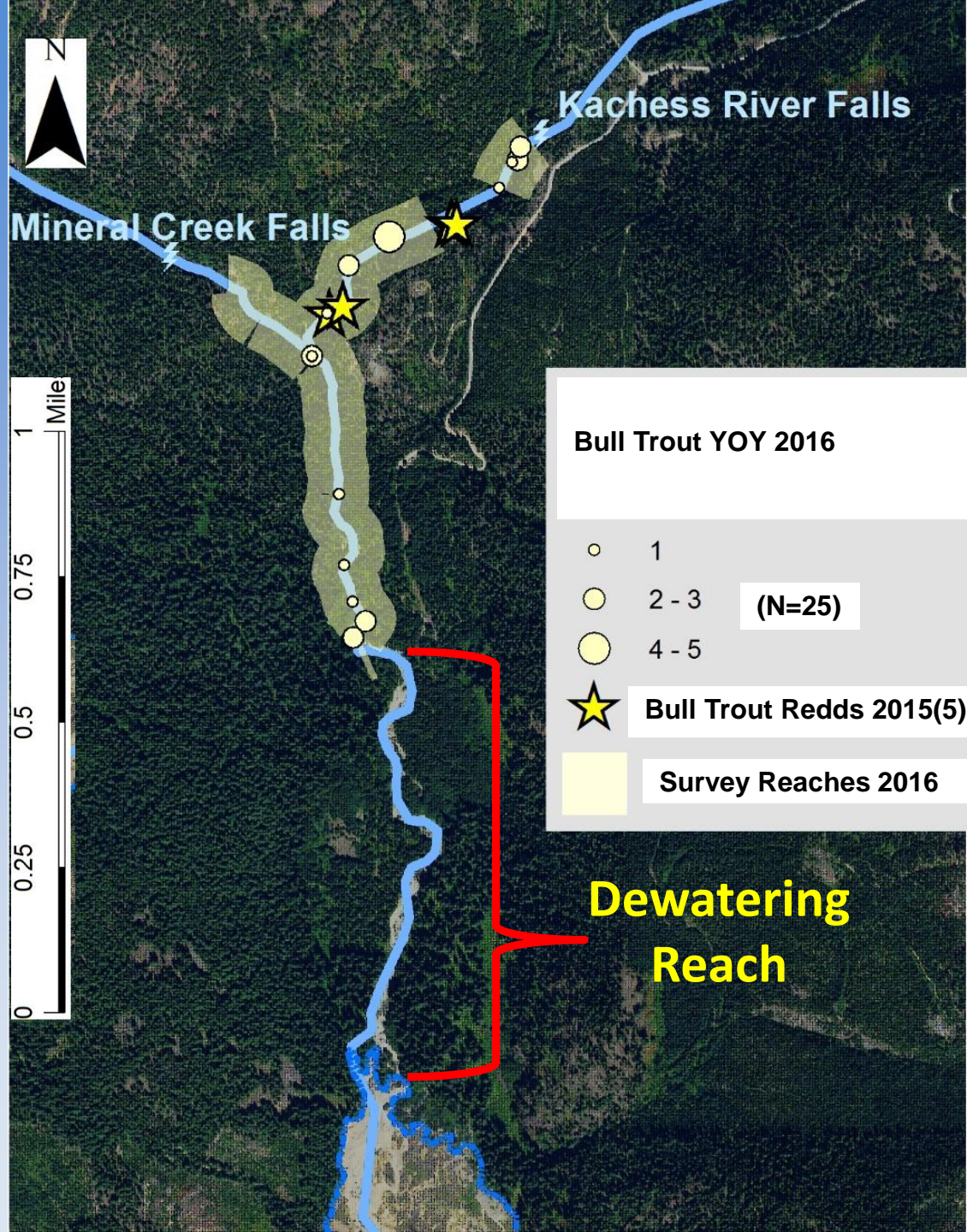
Lake
Keechelus

Interstate 90

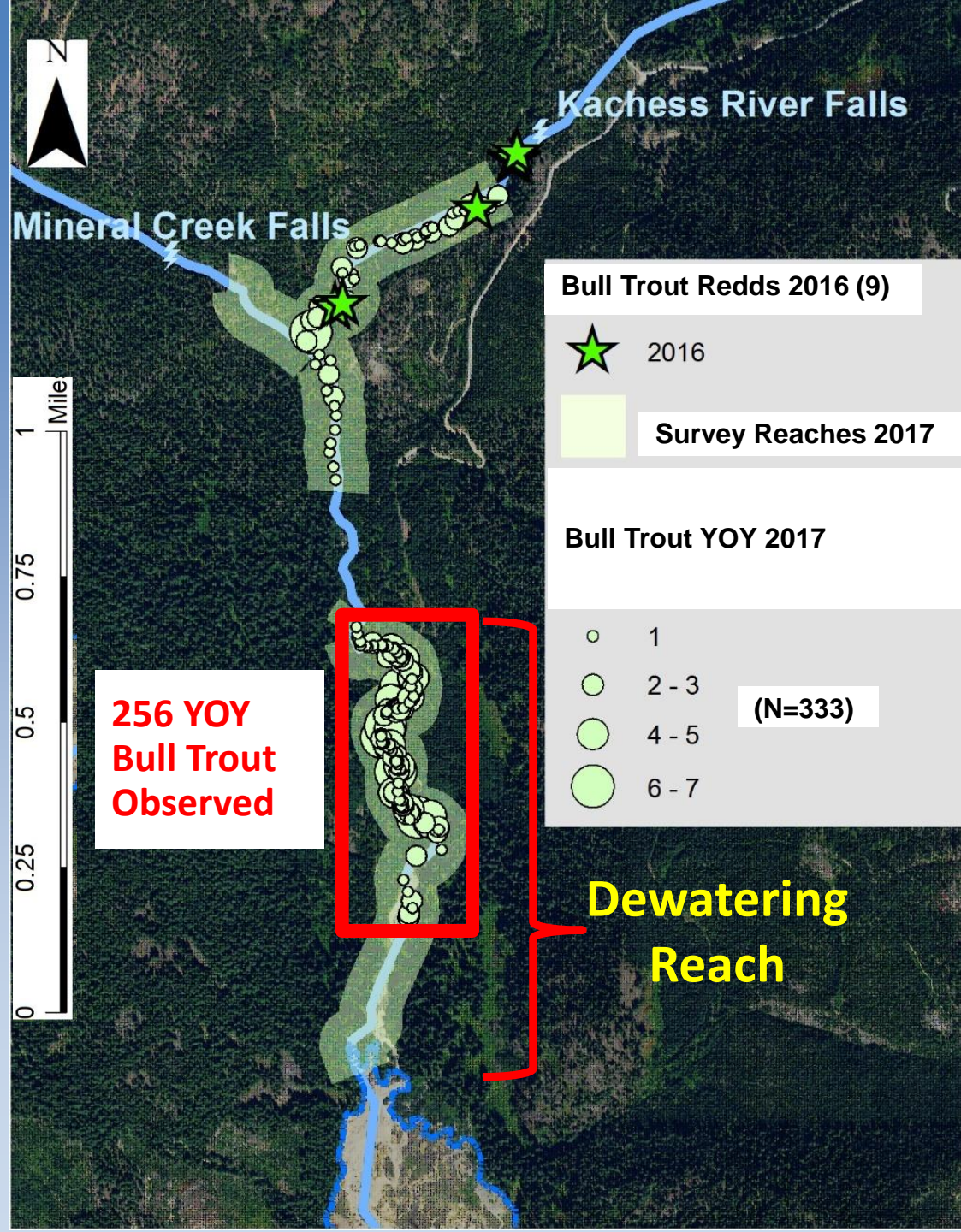
Lake
Kachess



Kachess 2016 Bull Trout Distribution



Kachess 2017 Bull Trout Distribution







**256 YOY
Bull Trout
Observed**

Bull Trout Redds 2016 (9)

 2016

 **Survey Reaches 2017**

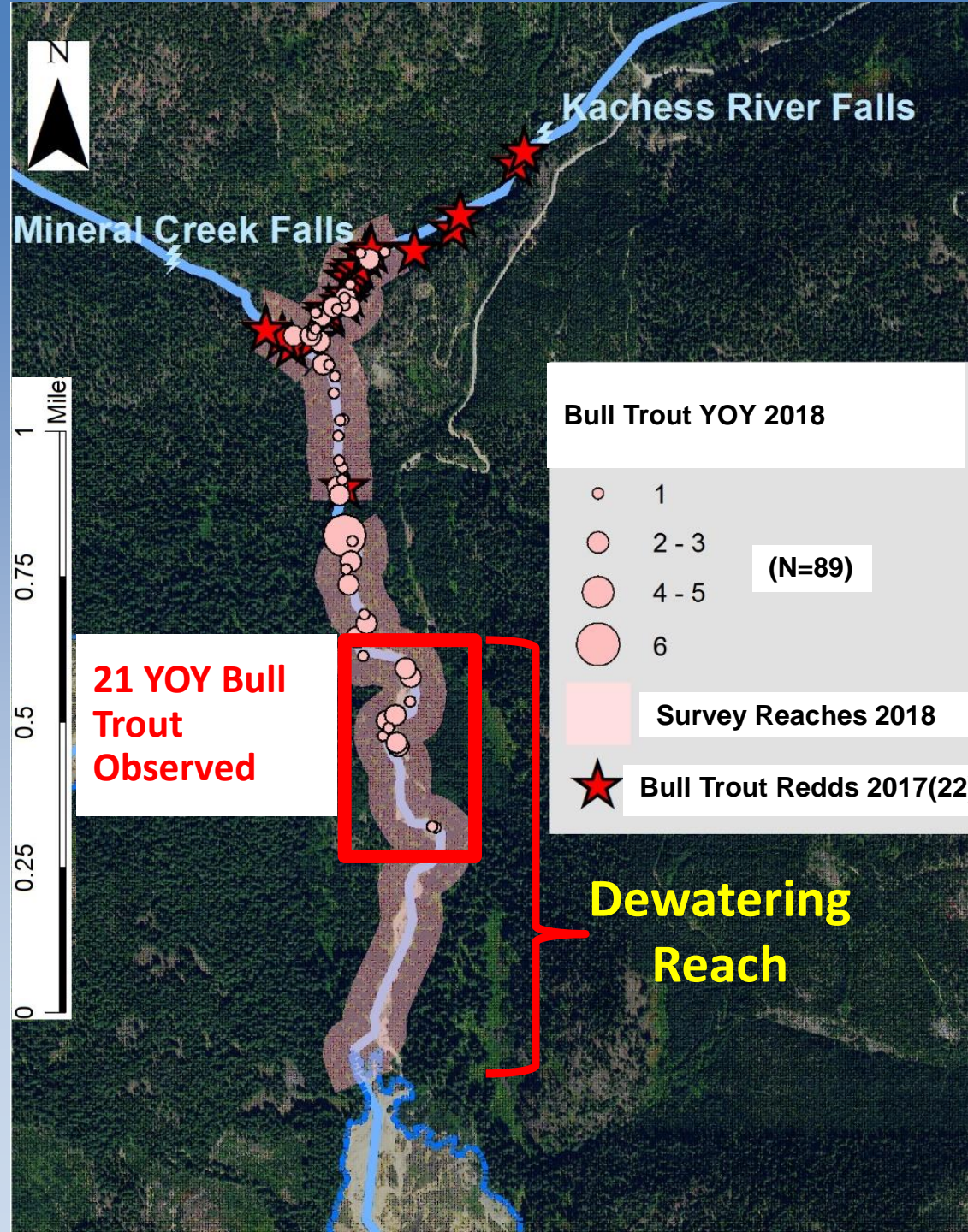
Bull Trout YOY 2017

 1
 2 - 3
 4 - 5
 6 - 7

(N=333)

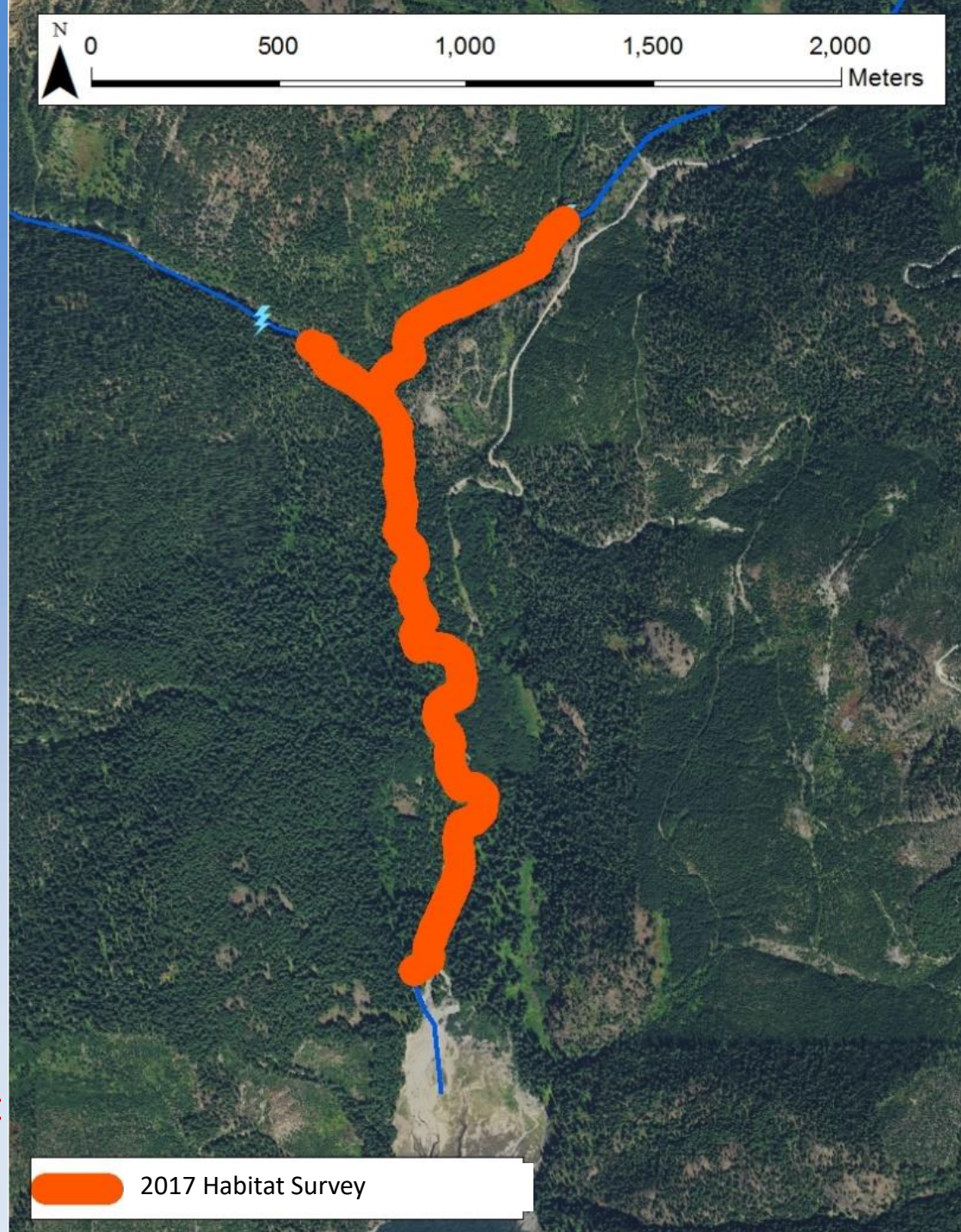
**Dewatering
Reach**

Kachess 2018 Bull Trout Distribution



Kachess Habitat Survey 2017

- Slow/Fast Channel Units
- BankFull Width
- Wetted Width
- Substrate
- Pools
- Instream Large Woody Habitat (**USFS**)
- Mouth to confluence with Mineral Cr. does not meet wood targets
- Data used to justify further effort for habitat restoration



Questions ?

