

LINKING WATER SUPPLY TO WATERSHED RESTORATION

October 26, 2016

American Water Resources Association




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Suppositions

“Properly functioning natural systems provide more ecological benefits than degraded systems”

- Think BIG
- Act Fast
- Be Strategic

Overview

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1. Yakima Beaver Project
 2. Cle Elum River Floodplain
 3. Teanaway aquatic restoration



Yakima Basin 6148 miles²

● Ellensburg

● Yakima

1. The Yakima Beaver Project

WDFW & Mid-Columbia Fisheries

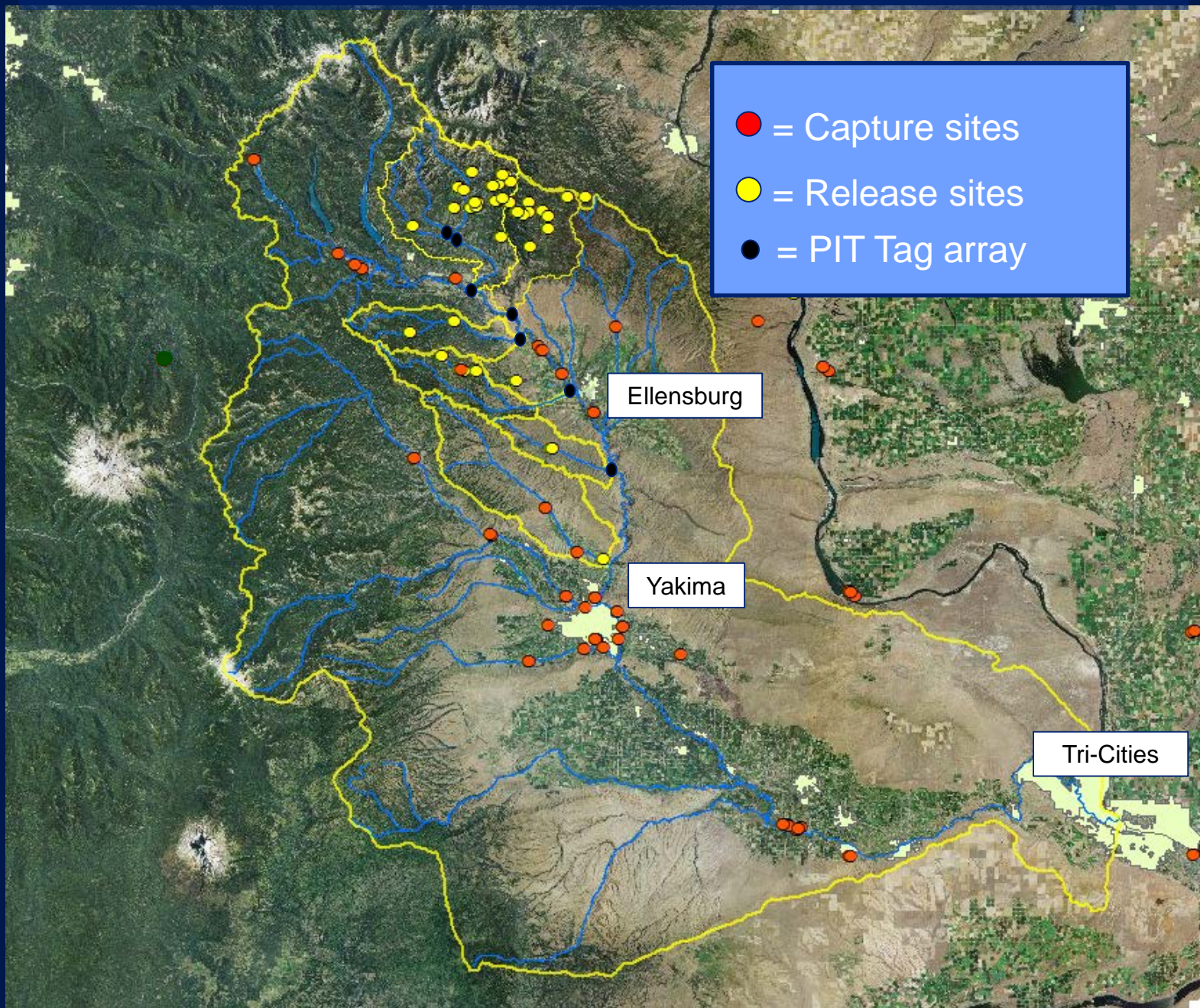


Goal: Restoring stream complexity one beaver colony at a time

- Creating rearing habitat
- Storing Water
- Introducing woody material
- Reconnecting floodplains

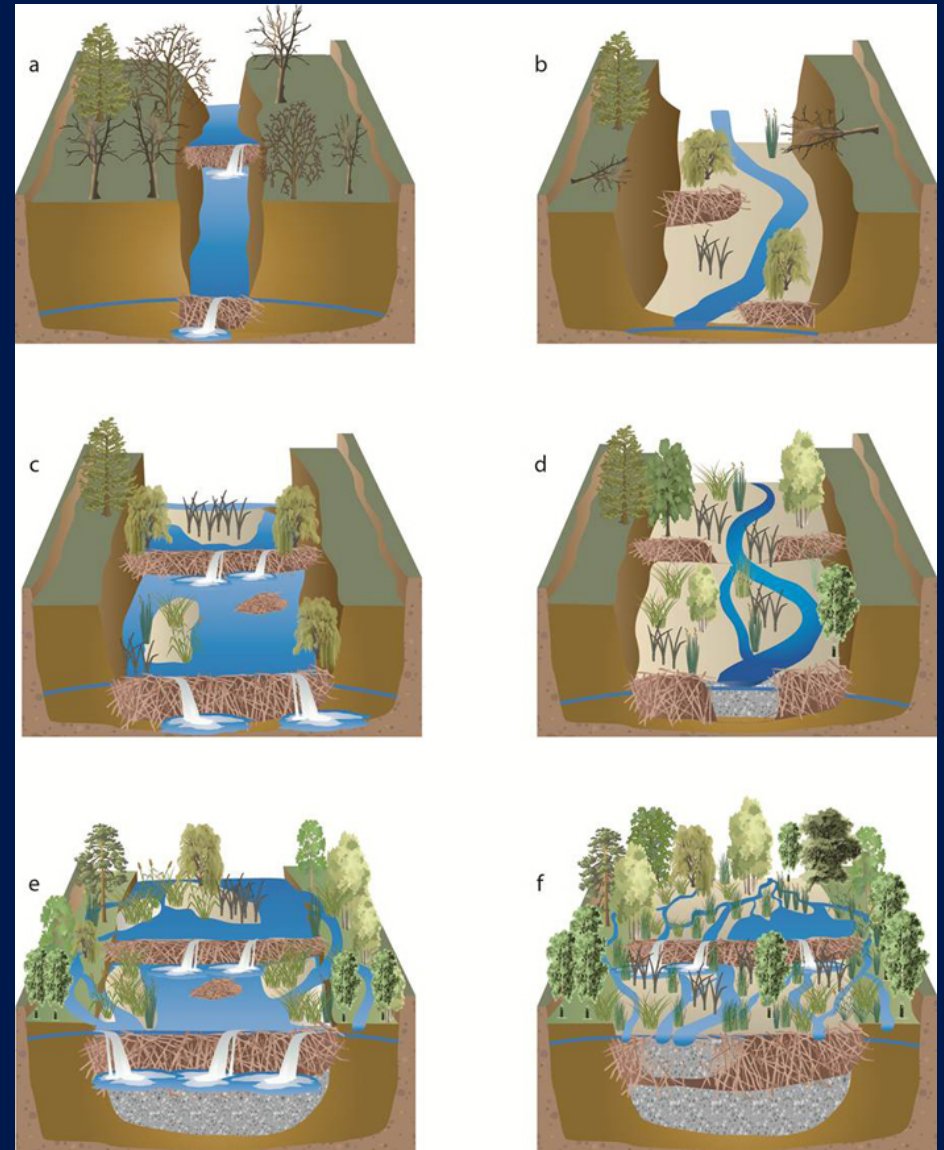
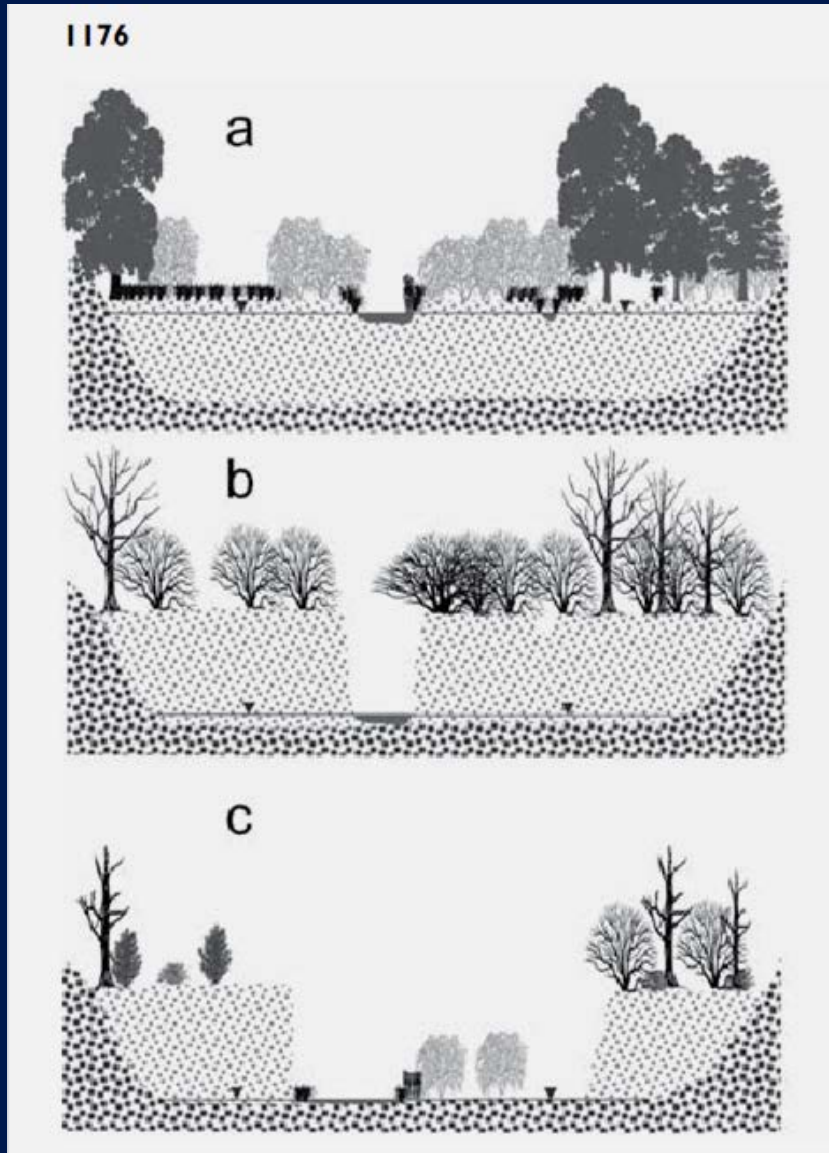


Yakima Beaver Project Results 2011-2014



Watershed degradation

Watershed Restoration



Geomorphic changes upstream of beaver dams in Bridge Creek, an incised stream channel in the interior Columbia River Basin, eastern Oregon Pollock et. al. 2007

Simplified Incised Stream

- Disconnected floodplain
- Lowered water table

6 Feet

Lack of rearing habitat

Indian Creek – Teanaway Tributary

Beavers create stream complexity

Stream complexity = Water & Fish



Jack Creek - Teanaway

Results 2 months



**Bear Creek Release Site
NF Teanaway Tributary**

A photograph of a stream in a forest. The stream is heavily obstructed by a large pile of fallen logs and branches, creating a log jam. The water is dark and turbulent as it flows through the debris. The surrounding forest is lush with green vegetation, including ferns and various trees. The scene is captured from a slightly elevated angle, looking down the stream.

Results 10 months

**Hurley Creek Release Site
Swauk Tributary**

Results 16 months



~5 Feet

Not a high flow
passage barrier for fish

Jack Creek Release Site

Cool

Clean

Complex

Connected

**Beaver
Biologist**

Results 2 years



**NF Manastash
Creek Release site**

Effectiveness Monitoring - Trailcams & PIT tags

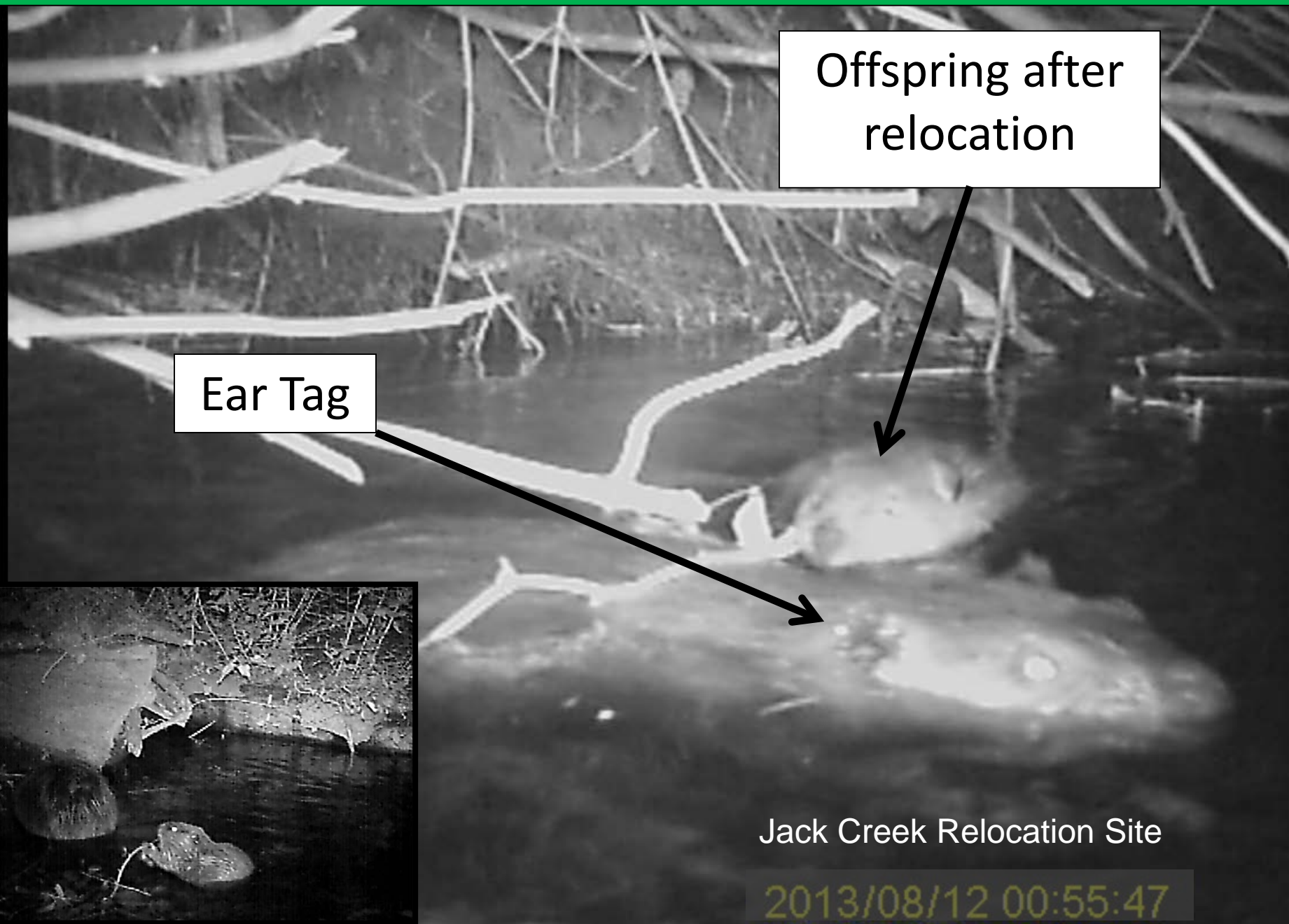
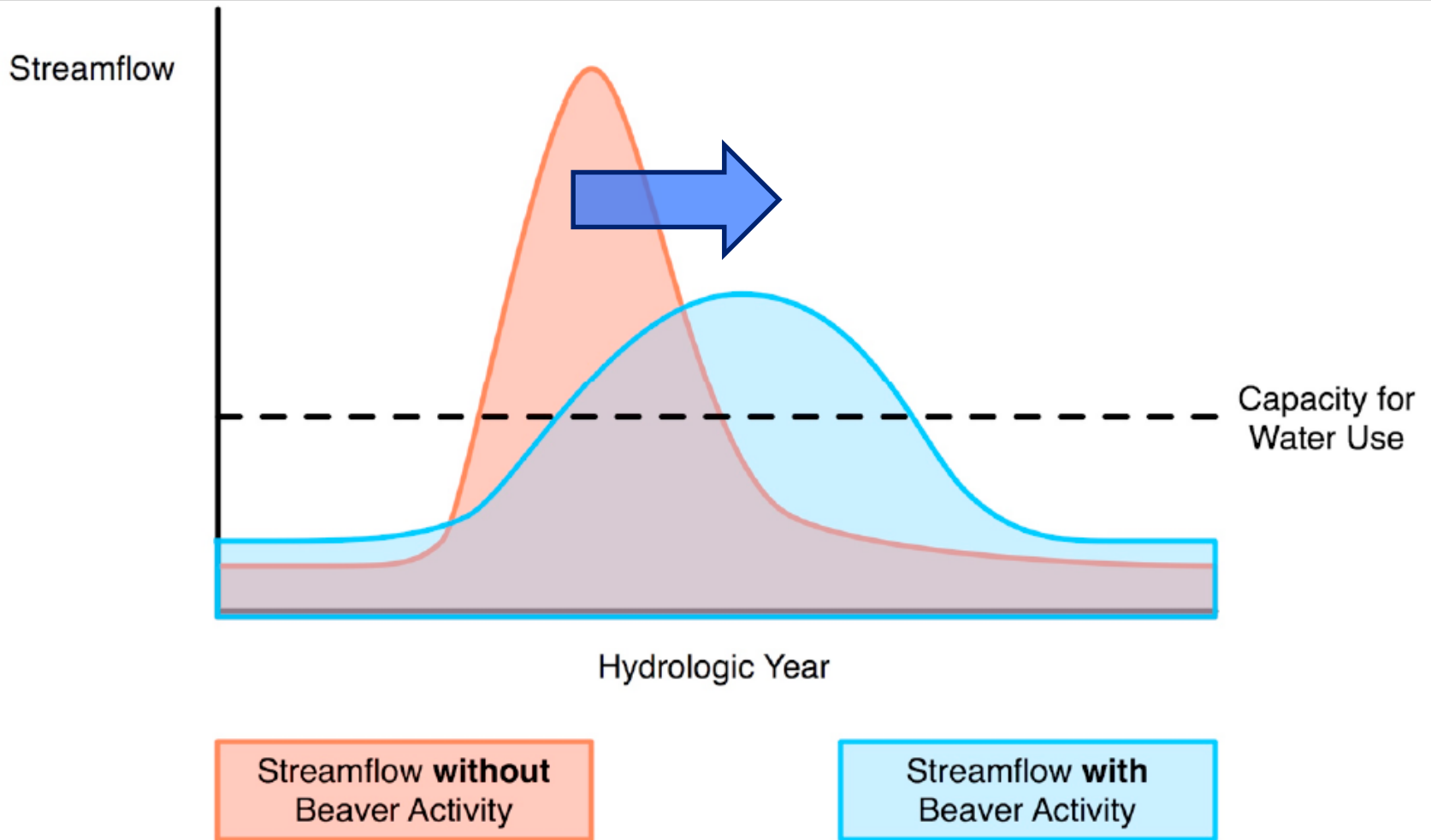


Figure 14. Illustrative Example of Annual Waterflow



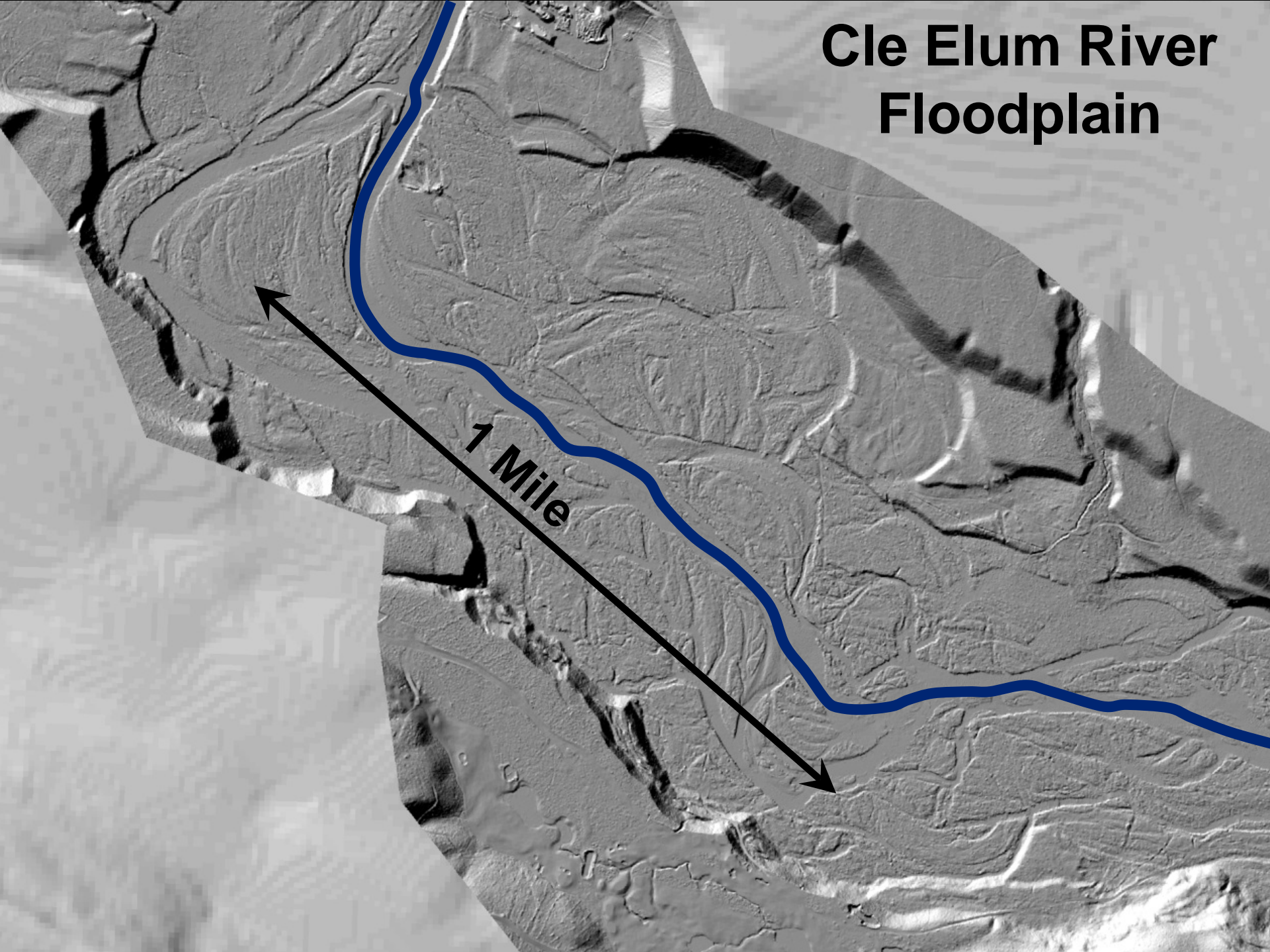
Source: ECONorthwest

2. Cle Elum River Floodplain

Kittitas Conservation Trust



Cle Elum River Floodplain



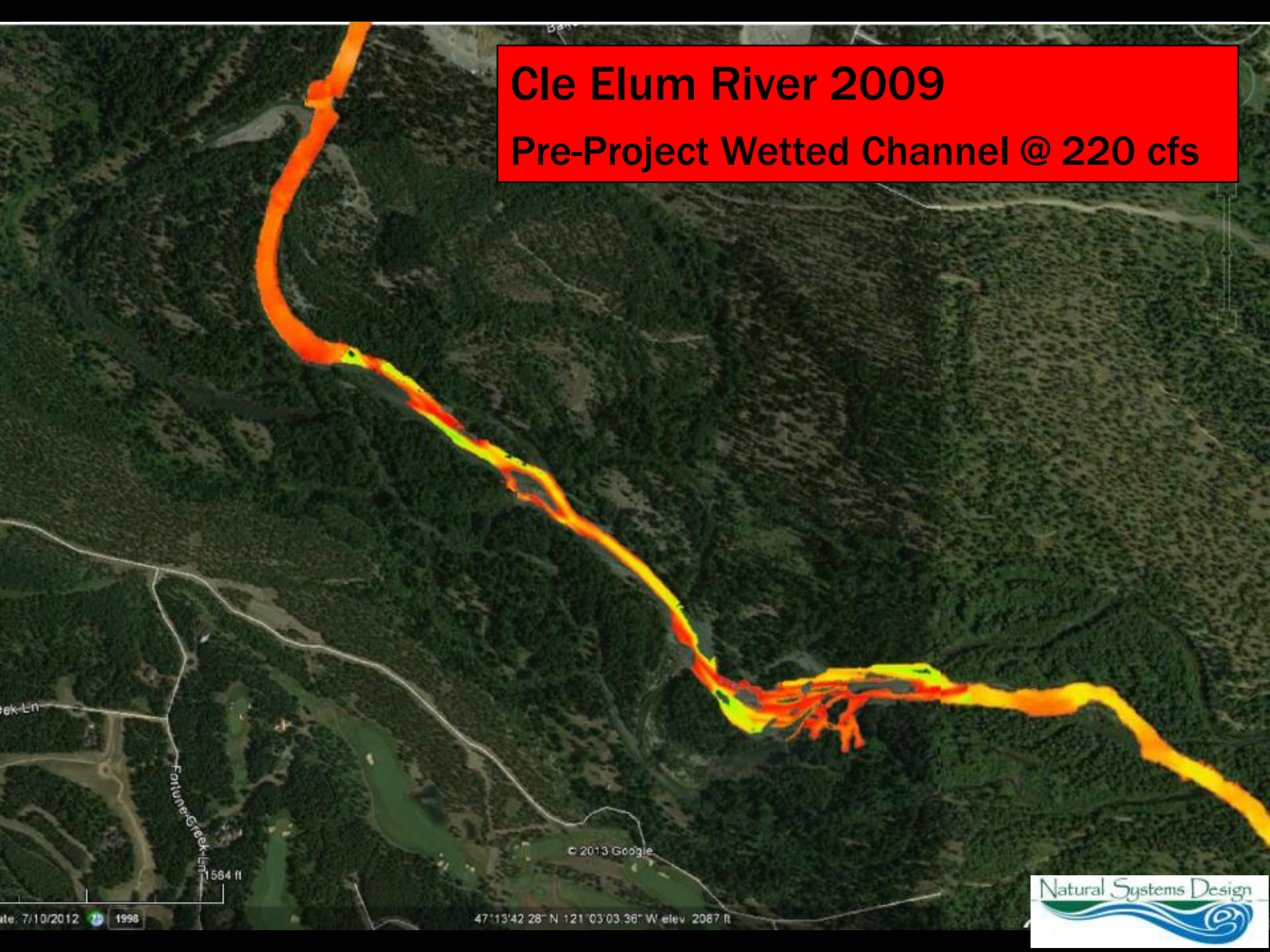
1 Mile

Phase 1

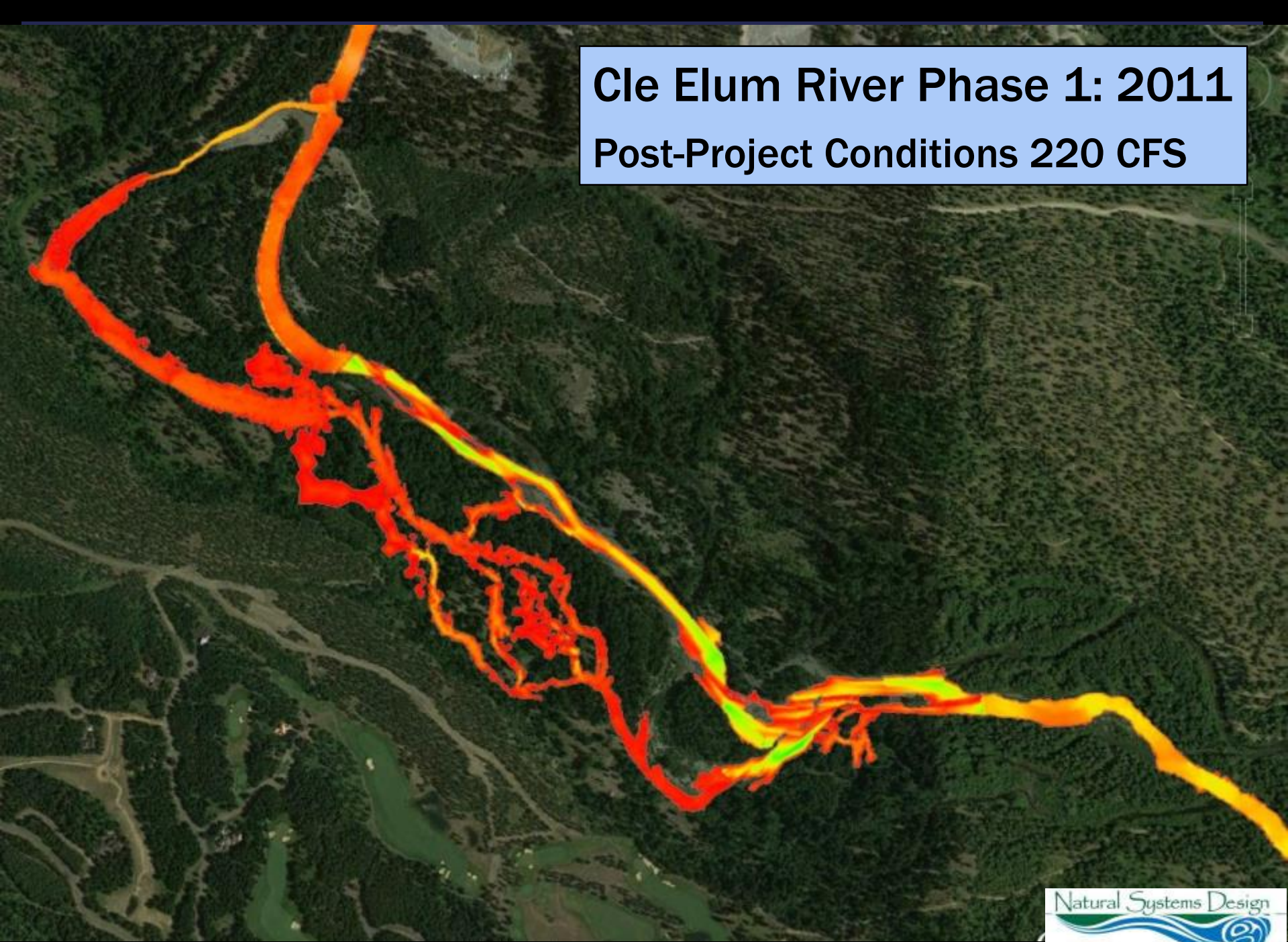


Cle Elum River 2009

Pre-Project Wetted Channel @ 220 cfs



Cle Elum River Phase 1: 2011
Post-Project Conditions 220 CFS





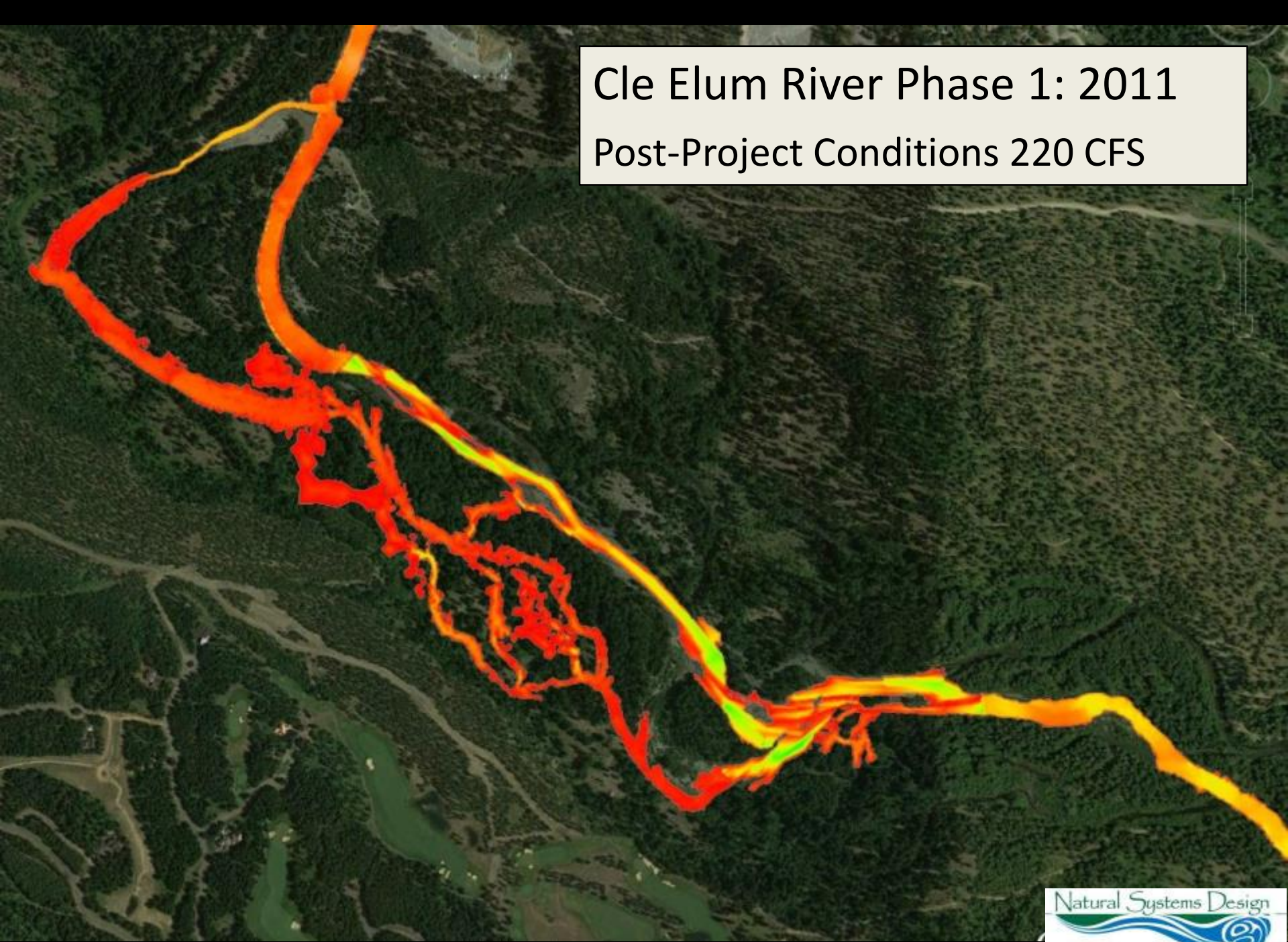
Phase 2!





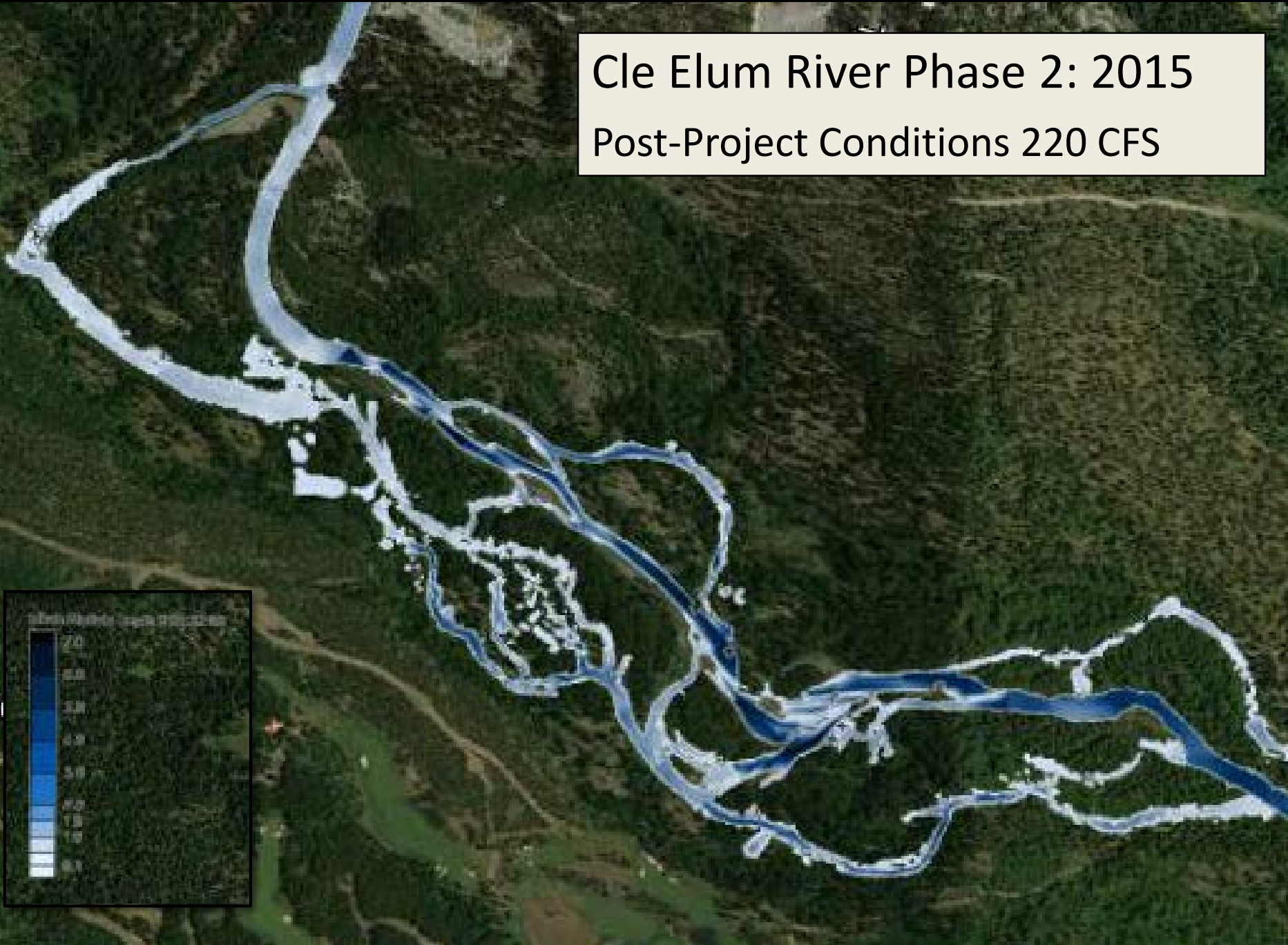


Cle Elum River Phase 1: 2011
Post-Project Conditions 220 CFS

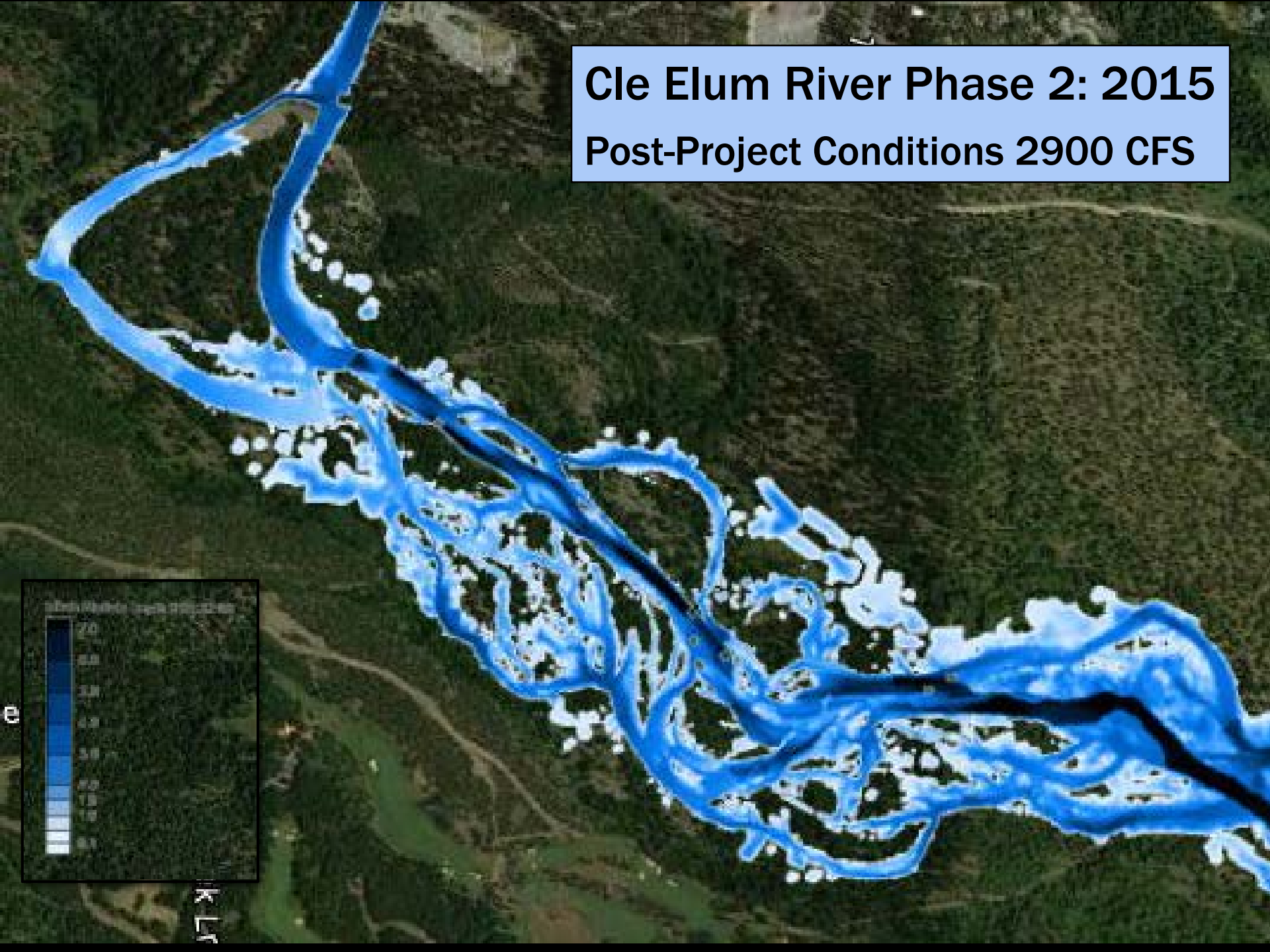


Cle Elum River Phase 2: 2015

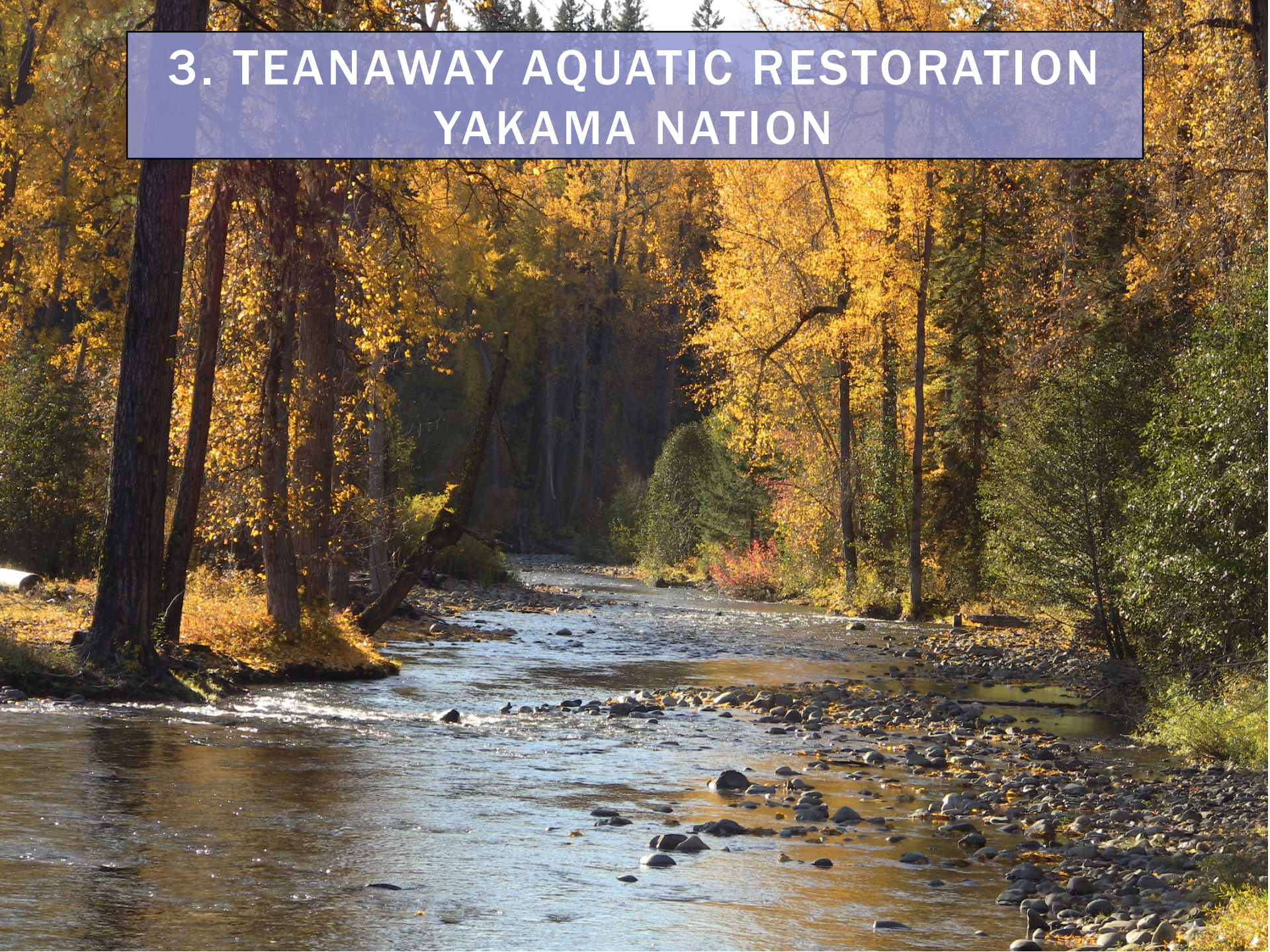
Post-Project Conditions 220 CFS



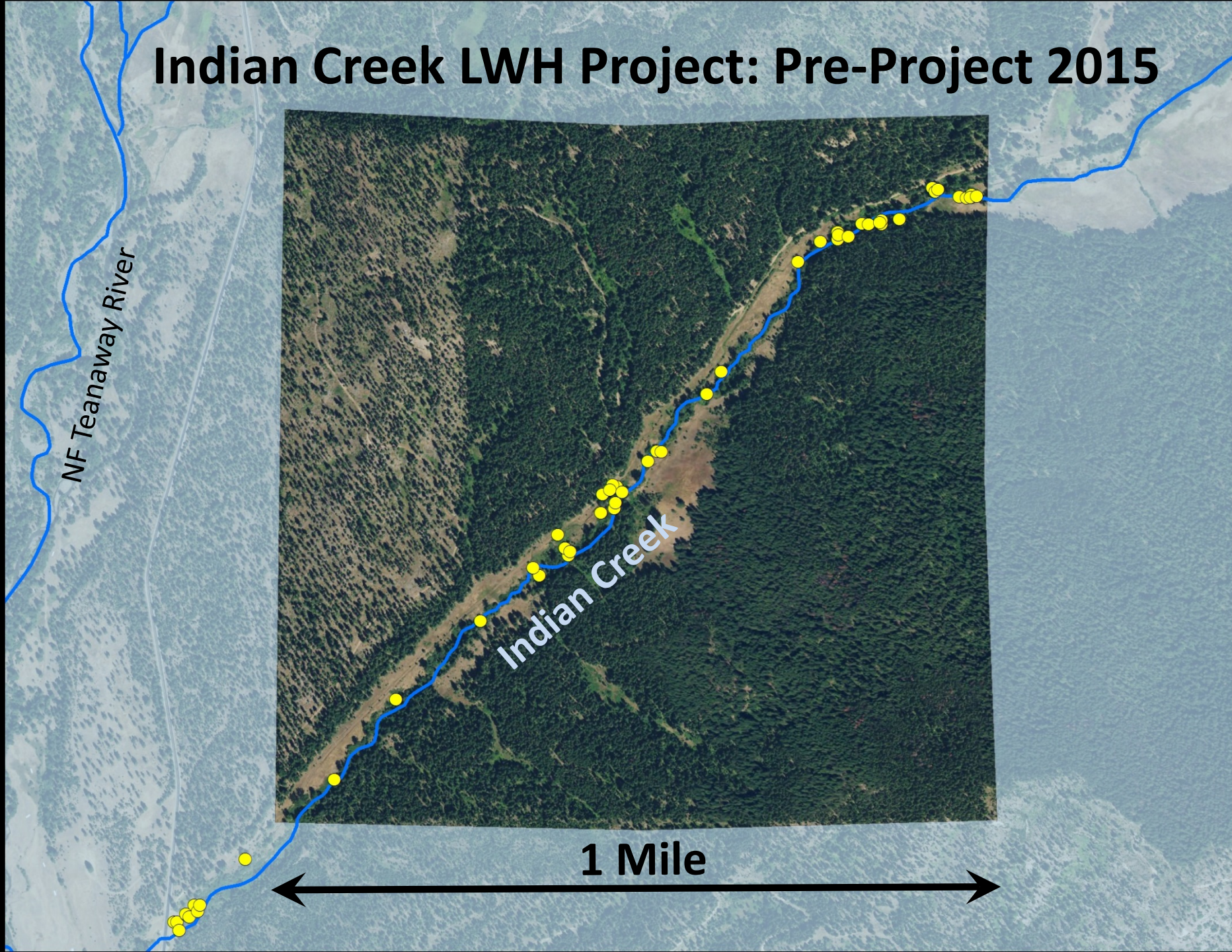
Cle Elum River Phase 2: 2015 Post-Project Conditions 2900 CFS



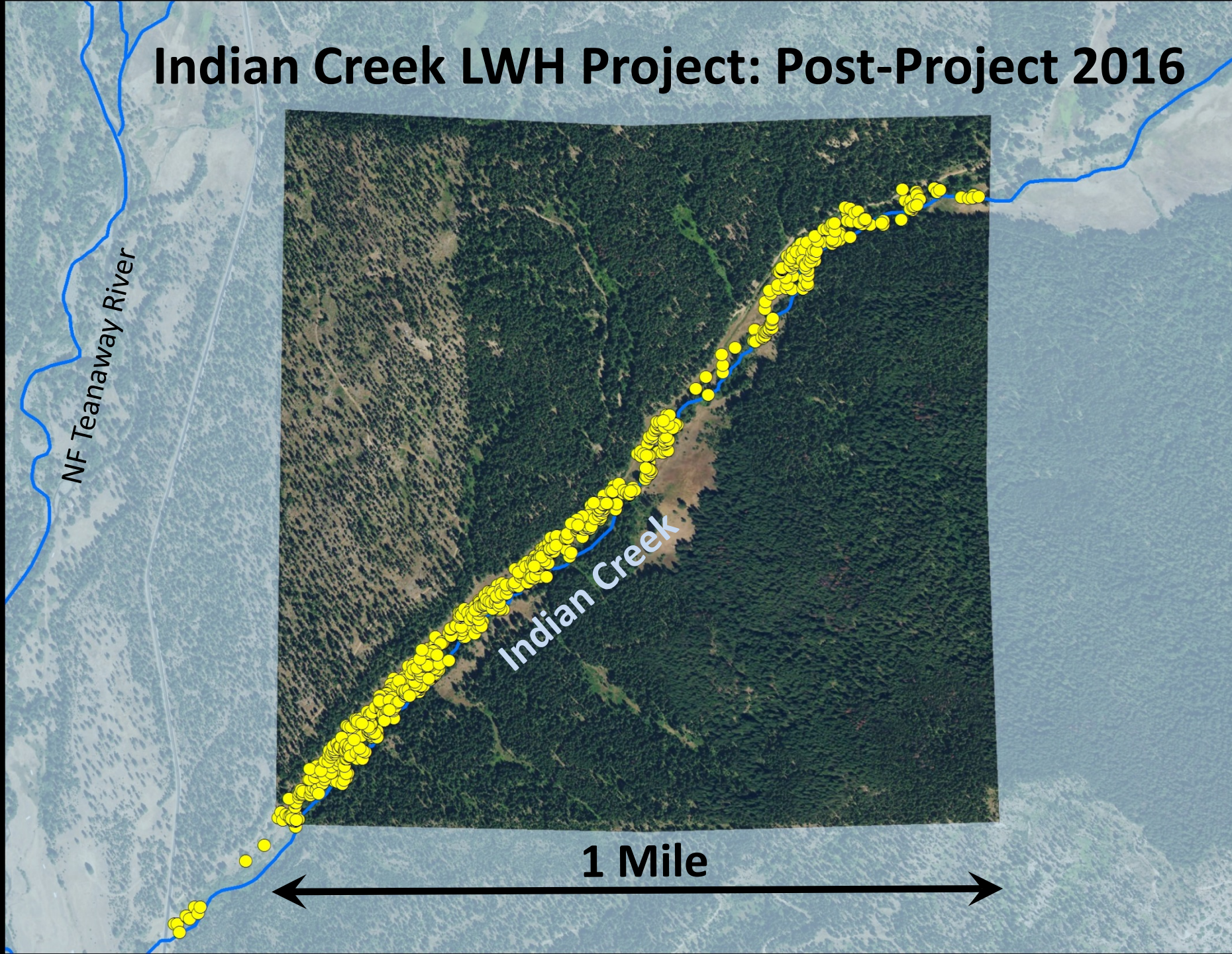
3. TEANAWAY AQUATIC RESTORATION YAKAMA NATION



Indian Creek LWH Project: Pre-Project 2015



Indian Creek LWH Project: Post-Project 2016



Indian Creek LWH Project 2015 Pre-Project Wood Monitoring



Indian Creek LWH Project 2016 Post-Project Wood Monitoring

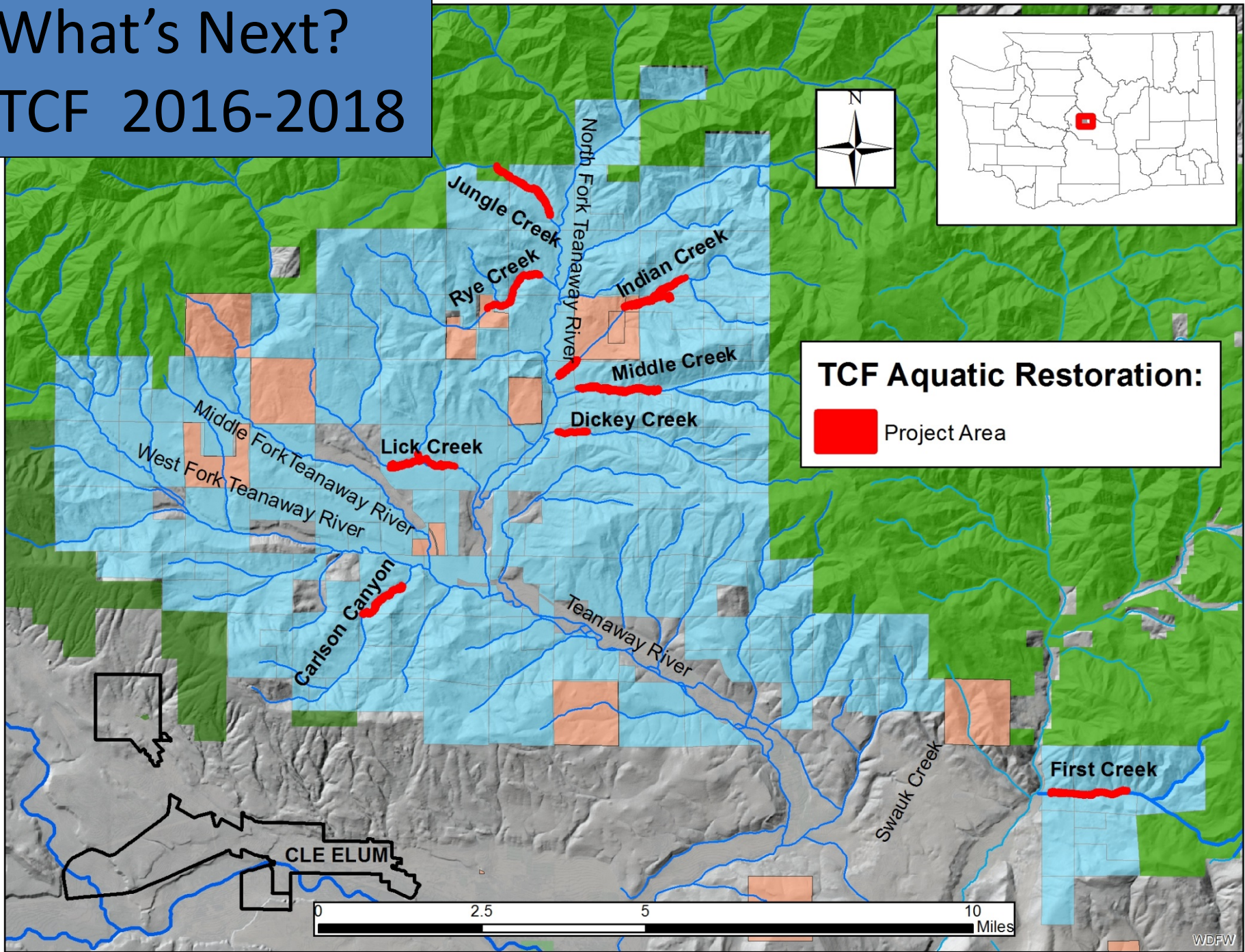






What's Next?

TCF 2016-2018

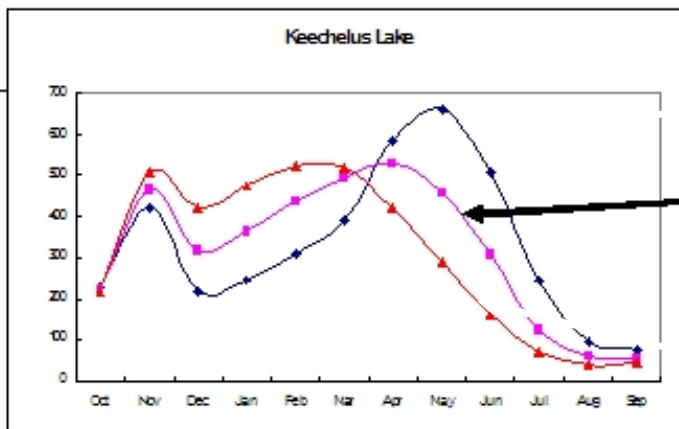
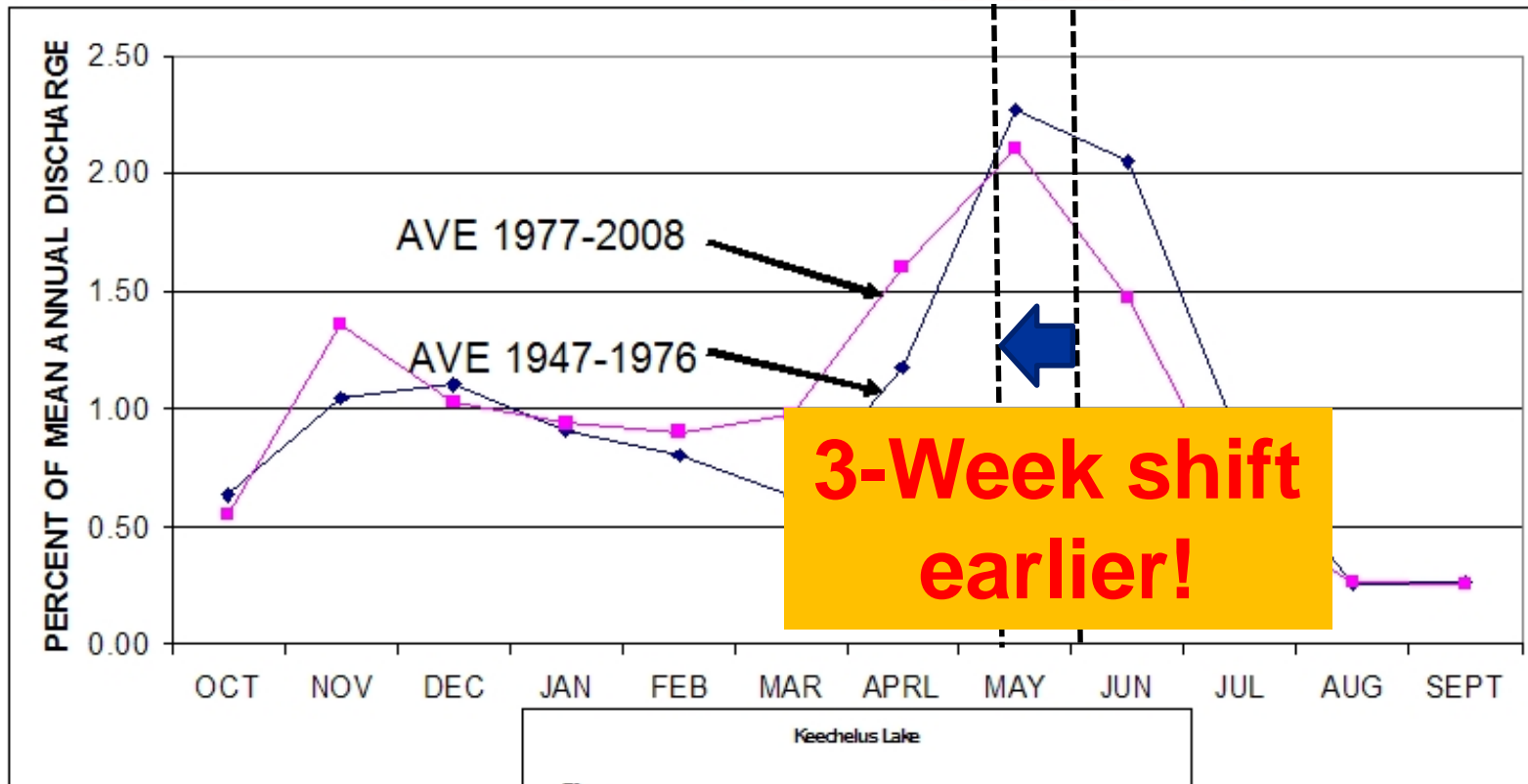


CLE ELUM

Yakima Hydrograph & Climate Change



Yakima River at Martin (Inflow to Keechelus Lake)



REMEMBER THE 1°C WARMING

Questions ?

