

Recent trends in Upper (Mid-) Columbia River Bull Trout populations



Tracy Bowerman¹ , Jose Vazquez¹, John Crandall²

¹USFWS Mid-Columbia Fish and Wildlife Conservation Office

²Methow Salmon Recovery Foundation





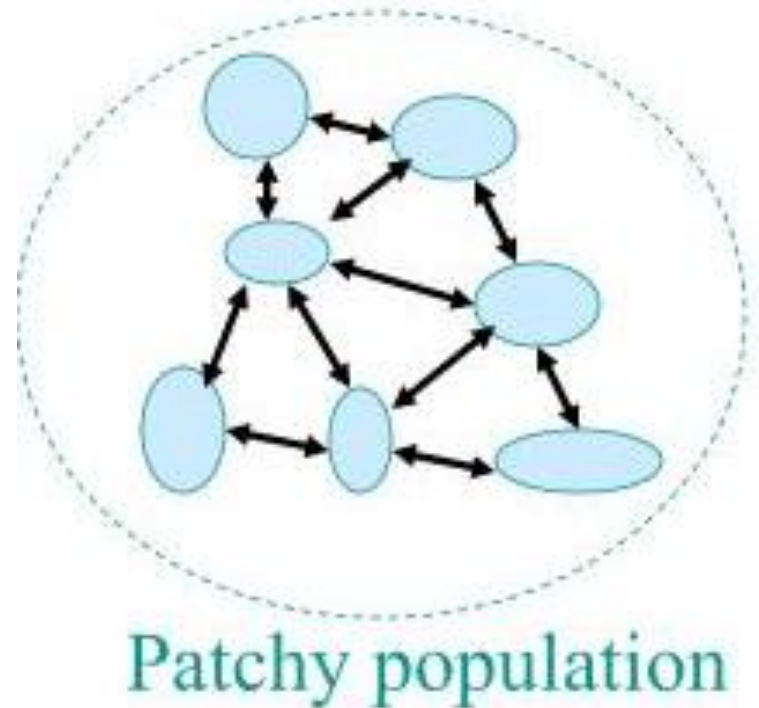
Bull Trout - a char not a salmon

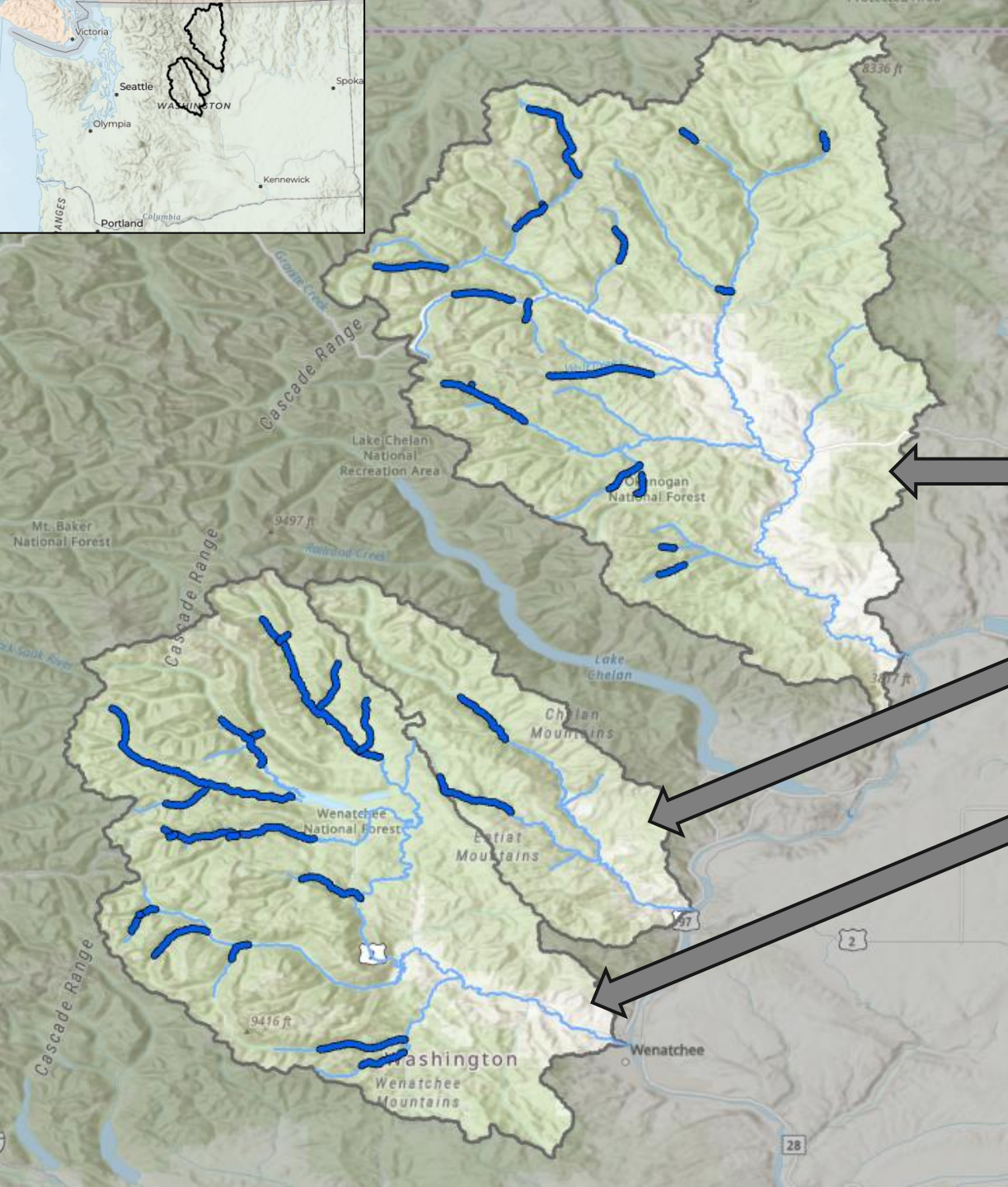
- Multiple life-history strategies
 - Resident, migratory
- Long lived, repeat spawners
- Cold water: spawn/rear in $<12-14^{\circ}\text{C}$
- Subadults may spend 1-4 years ranging widely throughout basins
- Piscivorous: Susceptible to angling
- Compete and hybridize with introduced brook trout

Effective Population Size and Genetic Conservation Criteria for Bull Trout

B. E. Rieman & F. W. Allendorf

- 100 spawning adults per year recommended (~50 redds) to minimize inbreeding
- Where populations cannot support minimum size, conserve collection of populations and maintain connectivity





Upper Columbia Region: 3 Core Areas

Status assessment based on population size, distribution, trend, threats

Methow Core Area – 10 local pops.

High Risk - Rapidly Declining Trend

Entiat Core Area – 2 local pops.

At Risk – Declining Trend

Wenatchee Core Area – 7 local pops.

Potential risk – Stable trend

Bull Trout monitoring

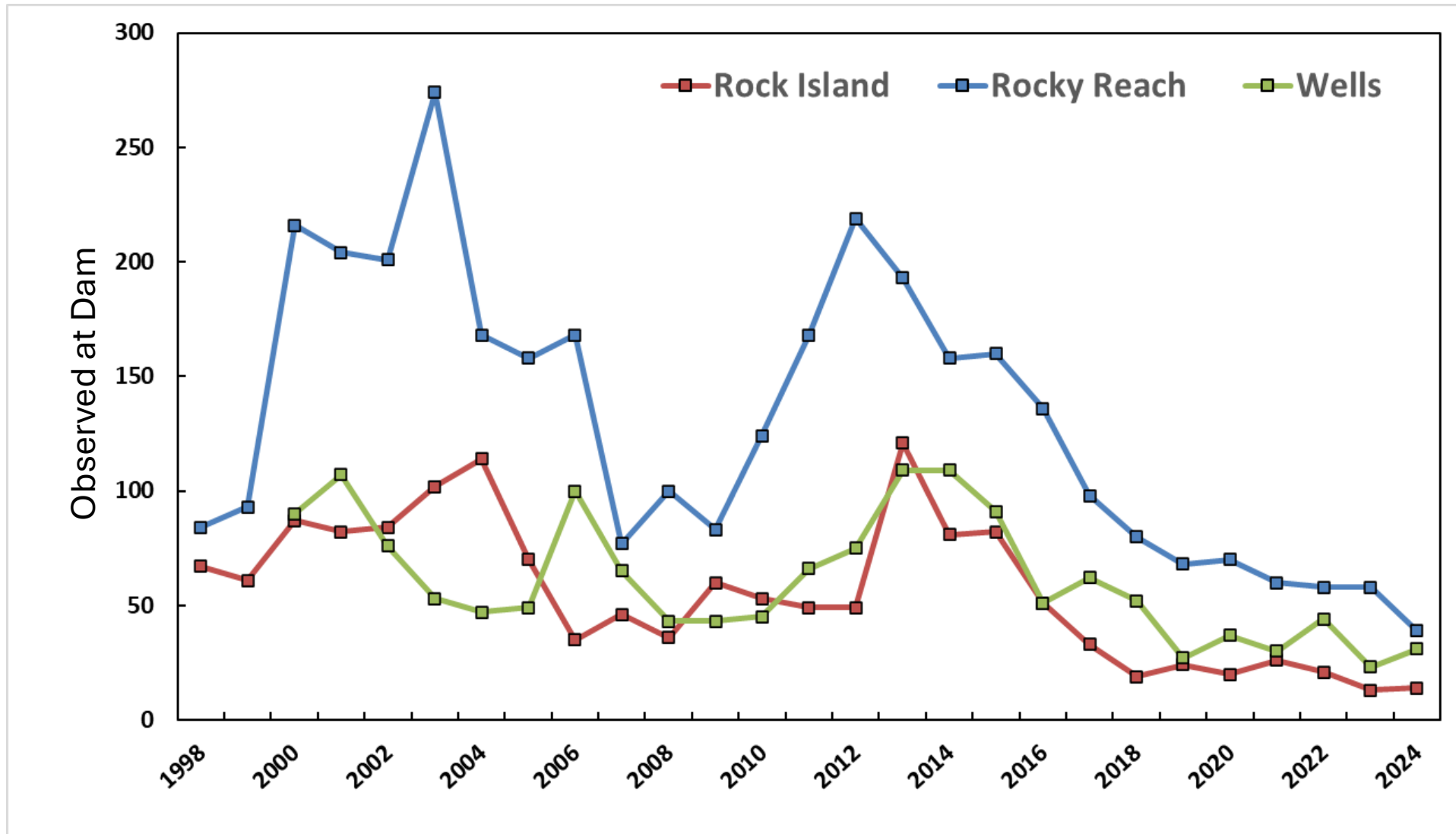
- Counted at dams
- Redd counts—challenging, some pops with little data
- eDNA used for presence/absence
- Occasional snorkel surveys
- Opportunistic PIT tagging

Summary:

**Consistent, quantifiable
population monitoring is a
challenge**

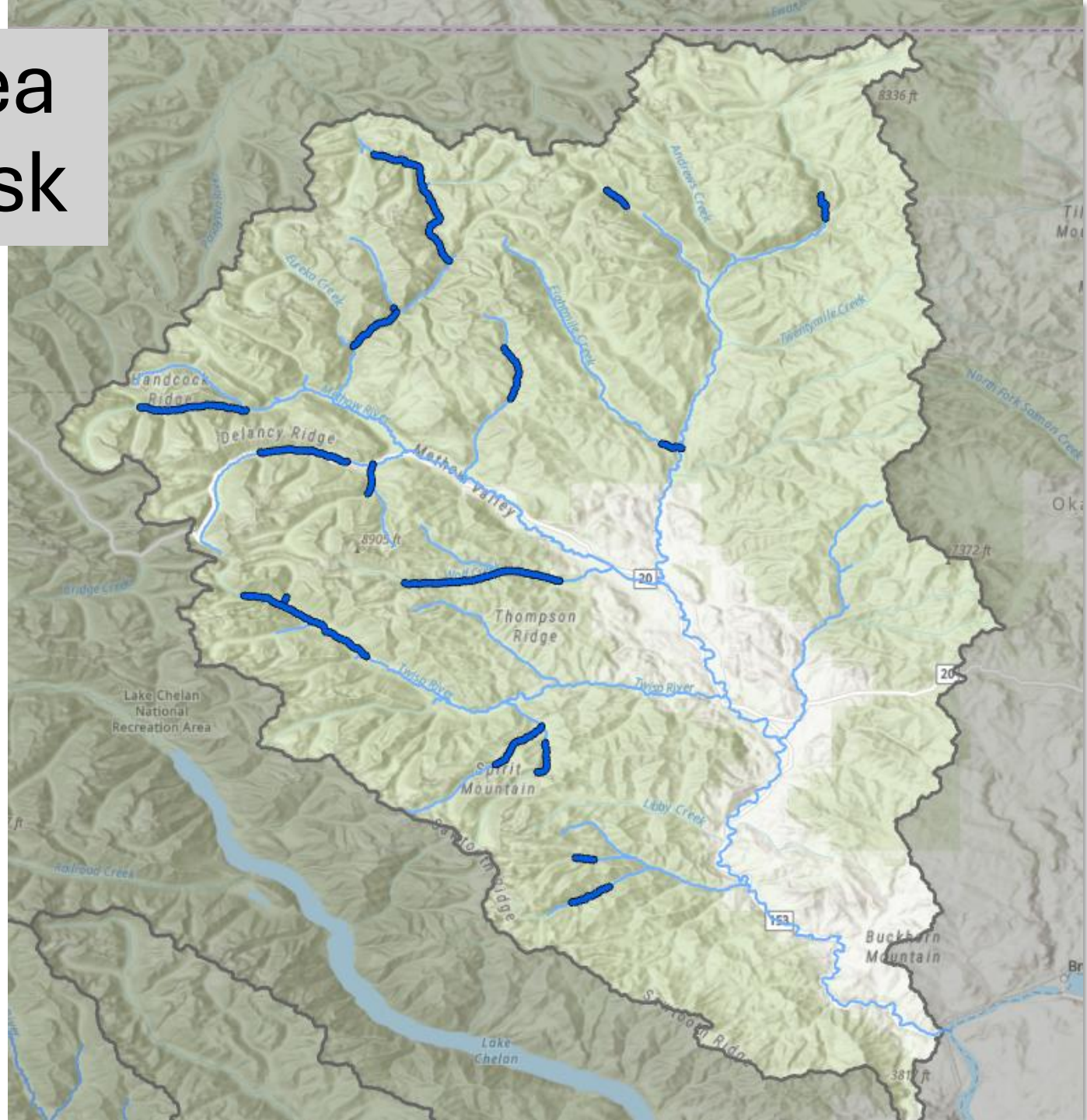


Bull trout counted at Upper Columbia River Dams



Methow Core Area 10 pops - High Risk

Redd Counts (WDFW, MSRF,
CF, USFS):
Full census, index reaches,
opportunistic surveys



Methow Core Area 10 pops - High Risk

Lower Lost
Historic: 15-24
Recent: 2-8

Lake
Historic: 2-25
Recent: <3

Chewuch
Historic: 10-42
Recent: 5-0

WF Methow
Historic: 15-40
Recent: <10

Goat
Historic: 2-18
Recent: 3-5

Early Winters
Historic: 6-12
Recent: <5

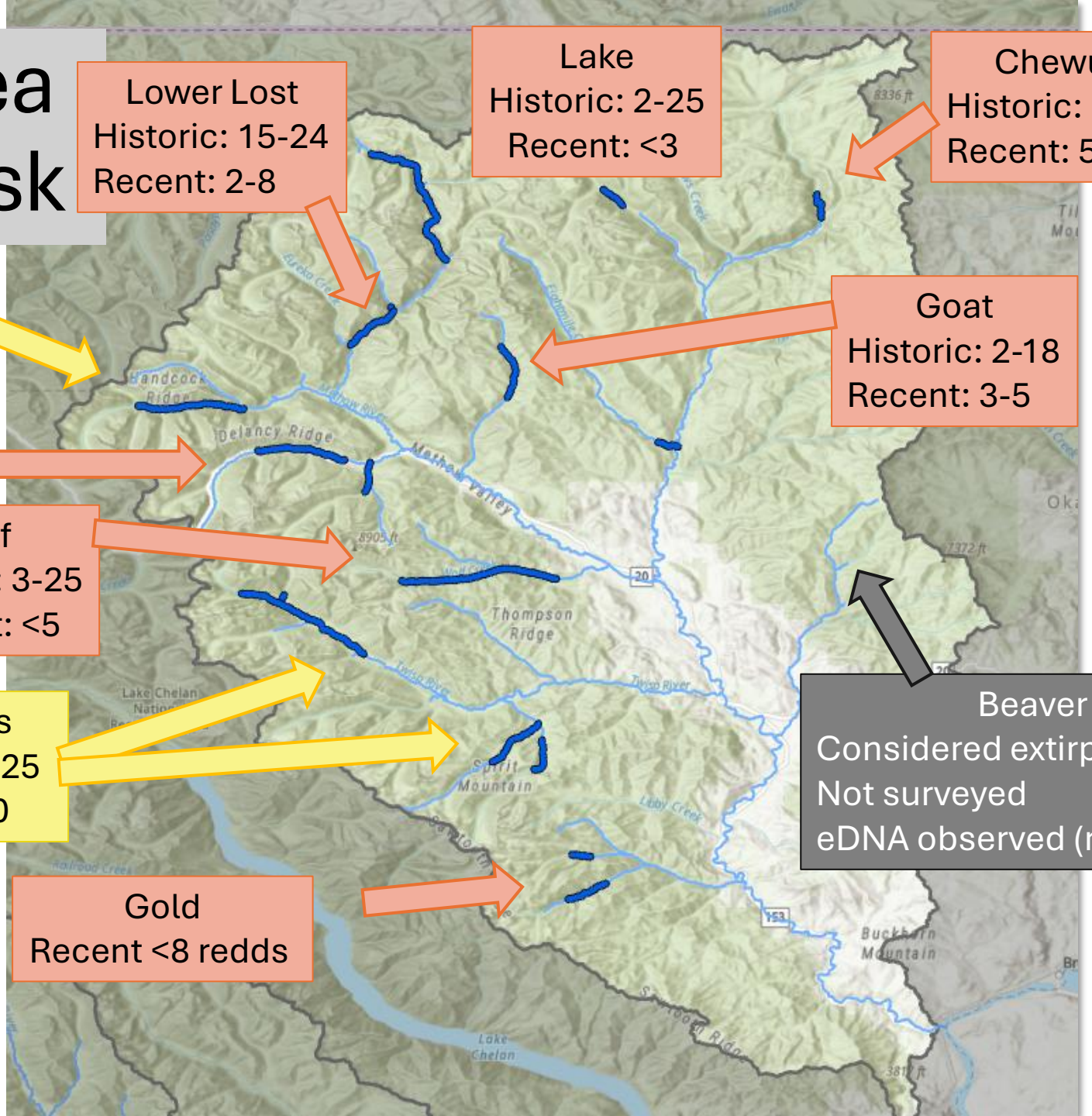
Wolf
Historic: 3-25
Recent: <5

Twisp + tribs
Historic: 40-125
Recent: <20

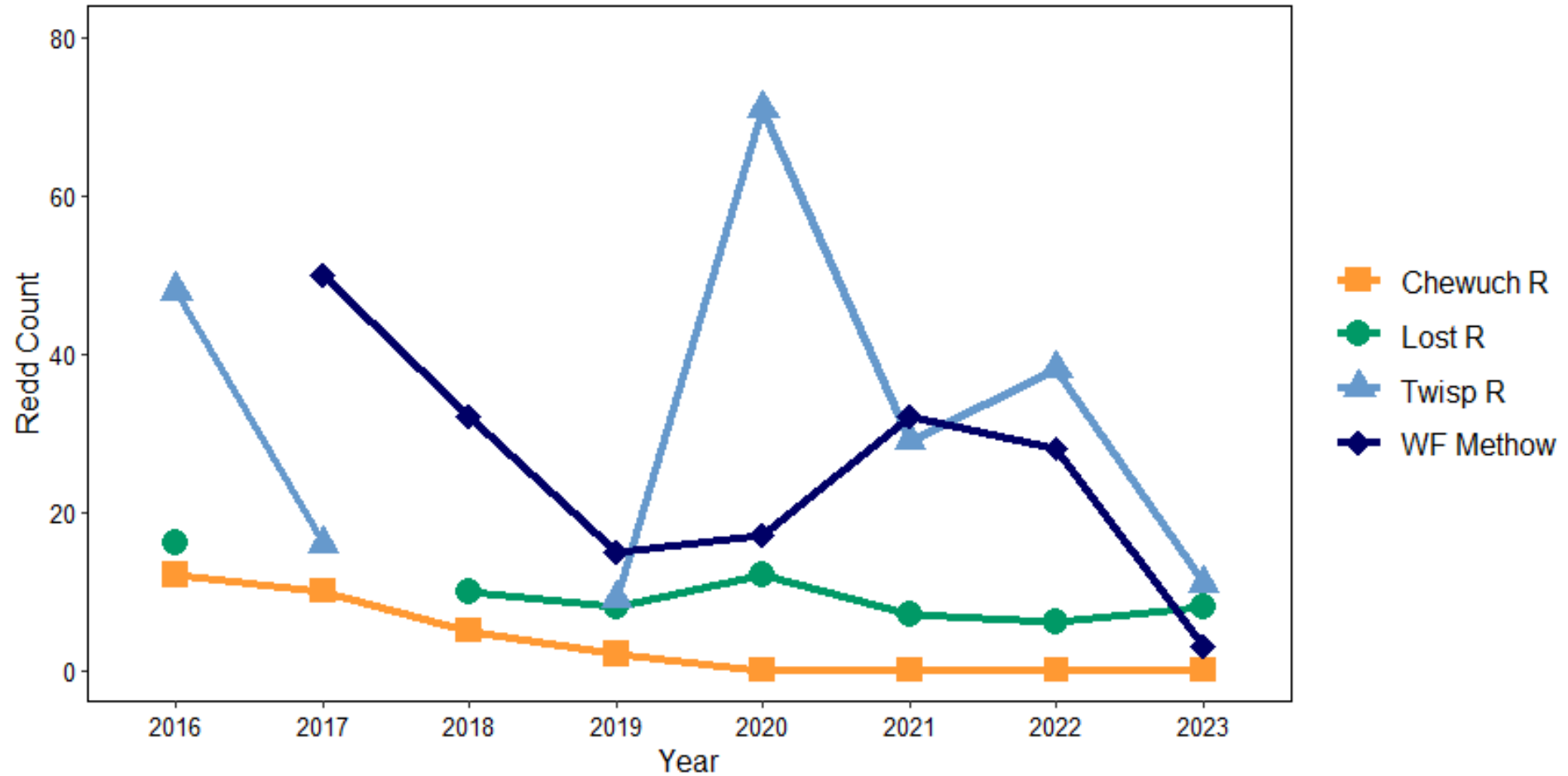
Beaver
Considered extirpated
Not surveyed
eDNA observed (resident?)

Summary:
Majority of local
populations at low
spawning abundance
(<5 redds)

Gold
Recent <8 redds



Methow Core Area Bull Trout Redd Counts



- **Significant inter-annual variation in some local populations**
- **Consistent population declines, even wilderness populations**

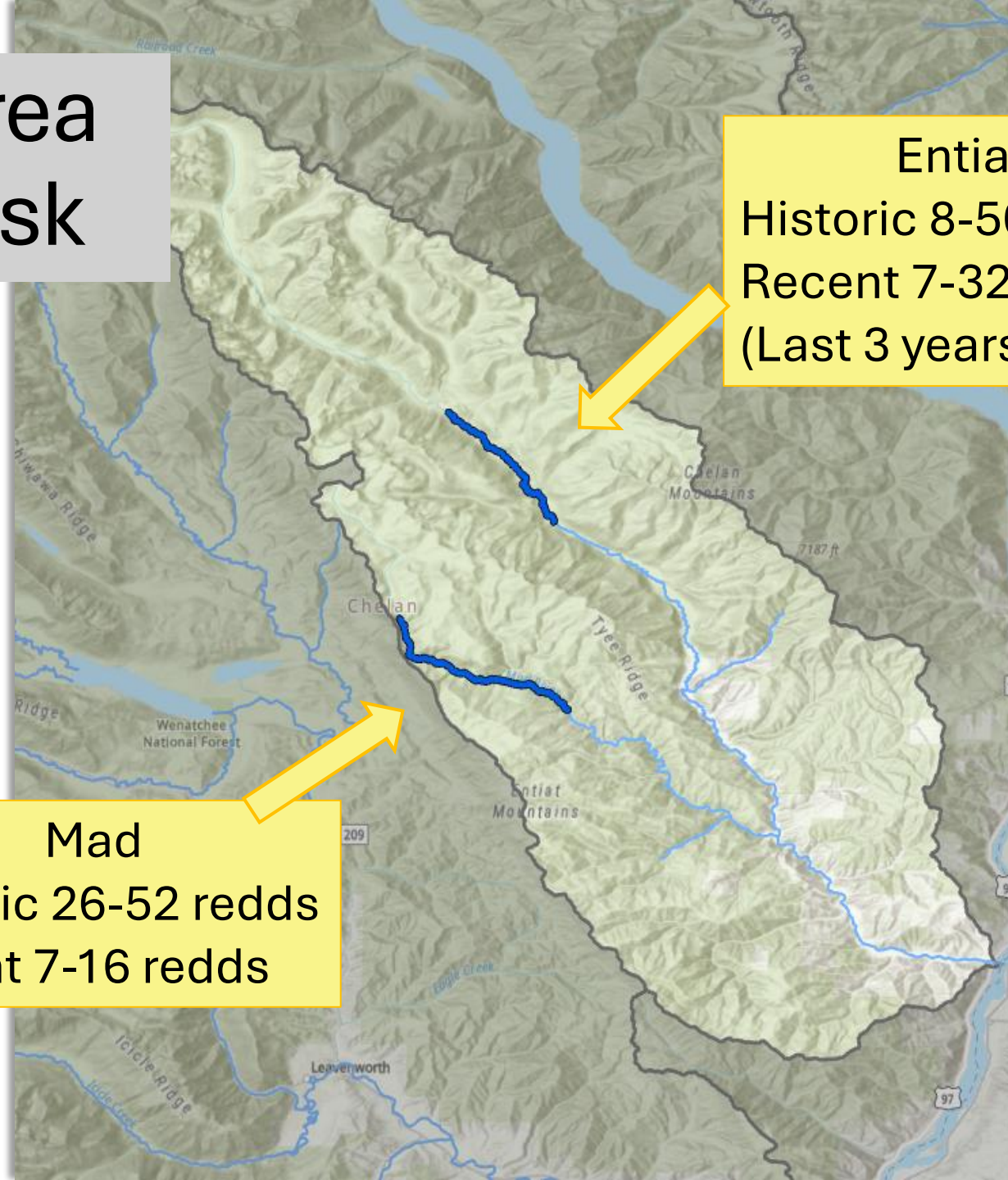
Entiat Core Area 2 pops - At Risk

Redd Counts (USFWS):
Partial census of accessible
habitat

Summary:
**Apparent declining trend
in both local populations**

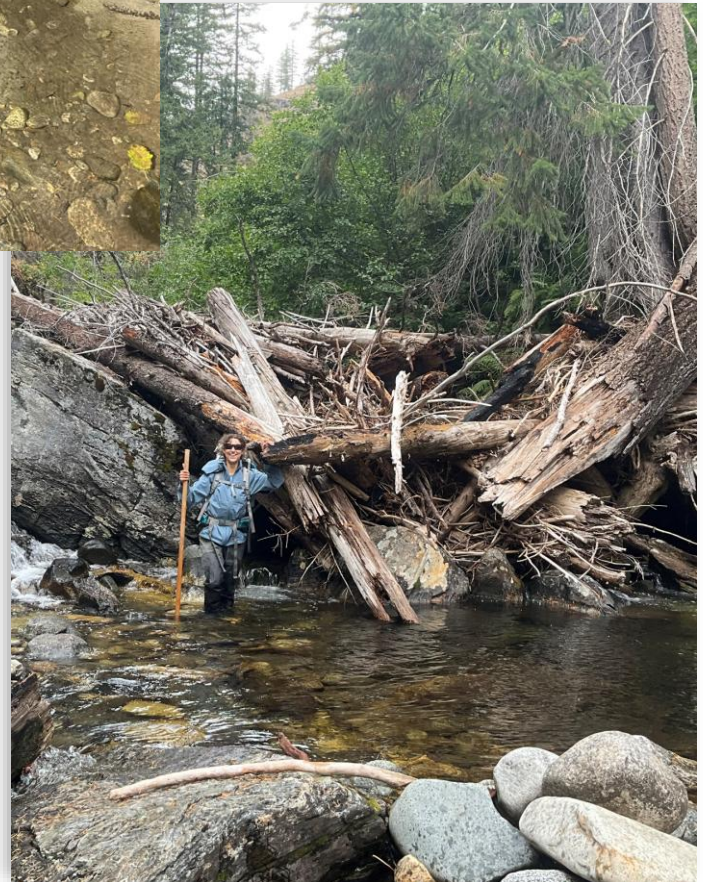
Entiat
Historic 8-50 redds
Recent 7-32 redds
(Last 3 years <12)

Mad
Historic 26-52 redds
Recent 7-16 redds



Recent observations

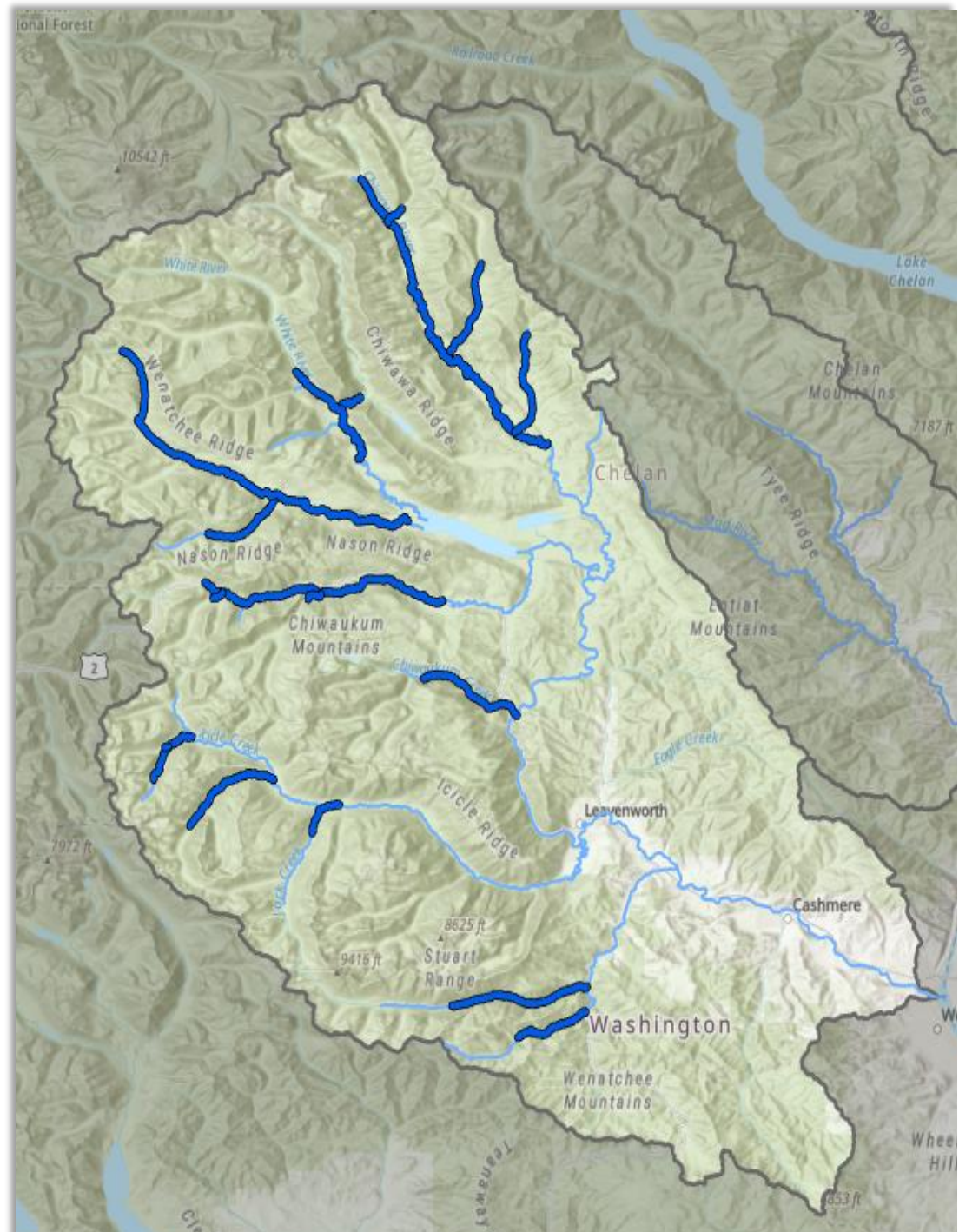
- Entiat River:
 - 2025 snorkel surveys documented very few juveniles
 - Increased brook trout use of mainstem and spawning in side channels
 - Contraction of spawning habitat (temperature and substrate)
- Mad River:
 - Fire-derived log jams have impacted passage, limiting access to habitat
 - Redd counts very strenuous, high effort leads to greater uncertainty
 - Resident component exists, hard to quantify



Wenatchee 7 pops - Potential Risk

Redd Counts (WDFW):

- Censused 3 years of 2014-2019
- Index Reaches expanded to total abundance (Chiwaukum, Nason, White, Chiwawa River)
- Other populations occasional redd or snorkel surveys



Wenatchee 7 pops - Potential Risk

White: Stable
Index = 50-107
Expanded + tribs >80

Chiwawa: Stable
Index: 48-121
Expanded + tribs >300

Little Wenatchee
Very low abundance
No redds 2020-2021

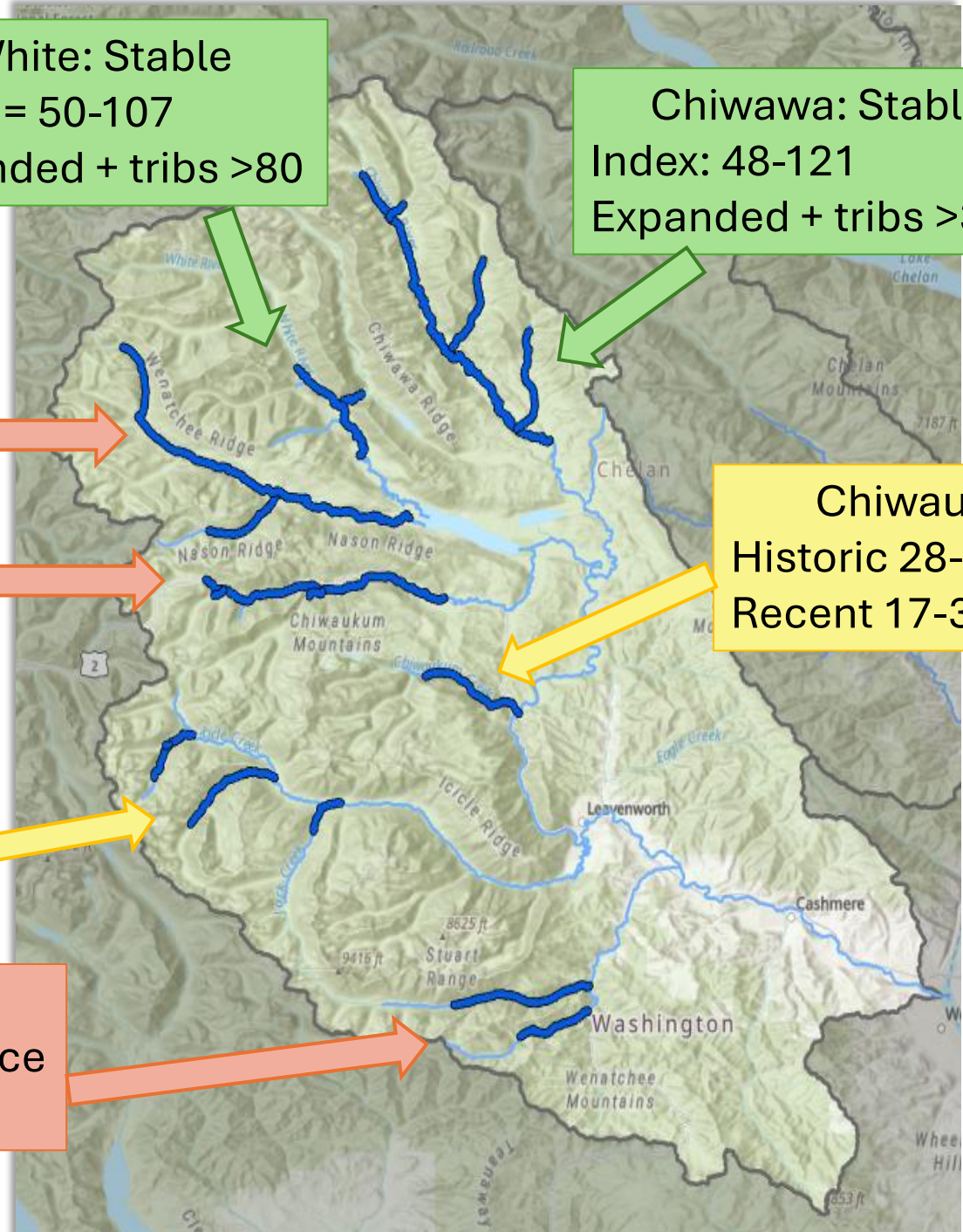
Nason
Very low abundance
No redds observed since 2019

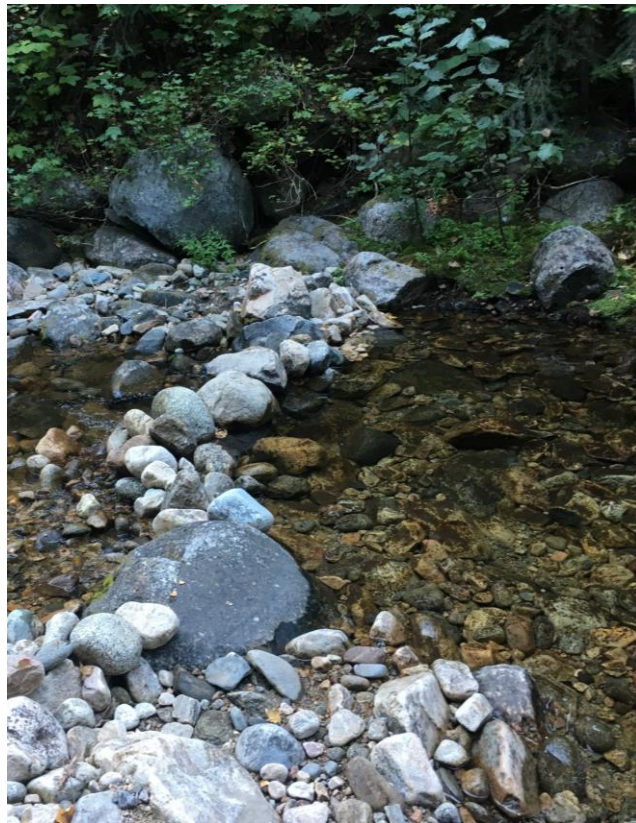
Chiwaukum
Historic 28-42 redds
Recent 17-34 redds

Icicle: Resident and migratory
Unknown status
Last assessed 2019

Summary:
Two stable populations,
others likely declining

Peshastin
Very low abundance
Minimal surveys





Threats driving declines

- Increasing stream temperatures
- Unsanctioned fishing/poaching
- Migration corridor conditions
- Altered flow regimes
 - Low Summer flows — decreased connectivity, dewatered reaches
 - High winter flows — scour or silt redds
- Habitat loss/degradation
 - Lack of complexity
 - Direct grazing/mining impacts
 - Increased fire regimes
- Introduced species - brook trout
- Random stochastic events

Recovery goals

Geographically widespread and demographically stable

- Shrinking habitat availability, greater isolation
- Only 2 of 19 populations show stable trends

Genetic diversity conserved

- Most populations small = decreased diversity
- Greater risk of stochastic events

Cold water habitats conserved and connected

- Habitat is warming

Recovery Actions

- Protect available habitat (residents)
- Protect existing strongholds

- Minimize threats to individuals
- Reduce cumulative burden

- Focus restoration actions on temperature
- Protect existing temperature refugia



Summary

- Increased risk to all core areas
- Legal and ethical obligation to work toward recovery
- Protect existing stronghold populations
- Focus restoration and protection on water temperature
- Reduce threats to minimize direct impacts and cumulative burden to populations and individuals

Thank you



Washington Department of
FISH & WILDLIFE

Methow Salmon
Recovery Foundation



CHELAN COUNTY



CASCADE
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