

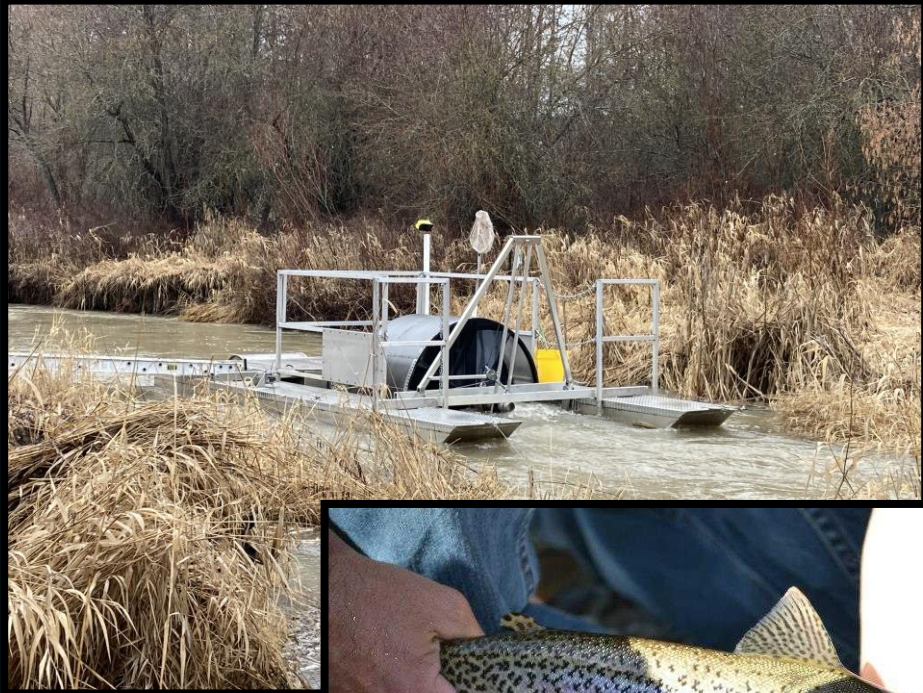
Redband Trout Recovery Feasibility Study



Casey Flanagan
Spokane Tribe



Redband Trout Stock Assessments



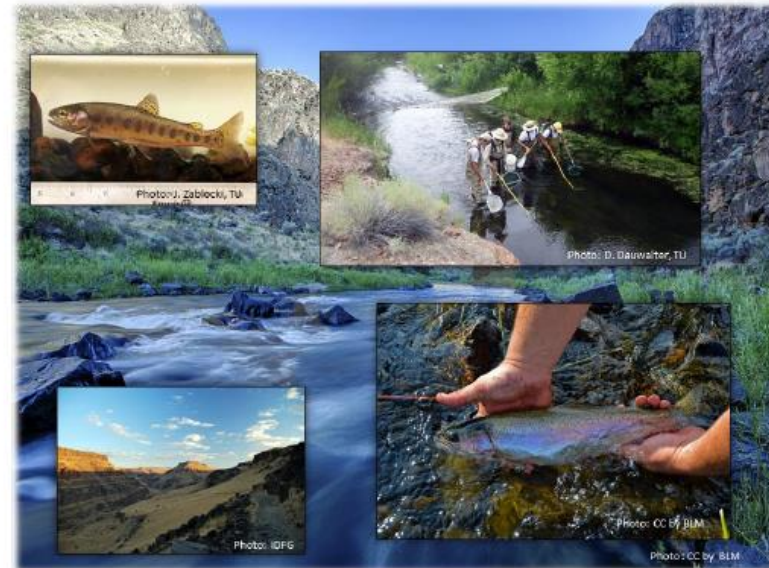
- STI, WDFW, CDAT, CCT
 - Redband Trout stock assessments/monitoring
 - Habitat restoration
- Some populations stable; others are depressed or declining
 - Habitat degradation/fragmentation
 - Competition/Predation
 - Climate Change
- Multiple protections and plans for Redband Trout

Redband Trout Conservation Strategy- 2016

- WA, ID, OR, NV, MT
- Utilized local state and tribal biologists
 - Identified Redband Trout populations in Spokane Basin
 - Looked at historical vs. current population distribution
 - Developed goals and objectives to conserve Redband Trout

CONSERVATION STRATEGY
FOR
INTERIOR REDBAND
(*Oncorhynchus mykiss subsp.*)

in the States of
California, Idaho, Montana, Nevada, Oregon
and Washington



November 2016

Redband Trout Conservation Strategy- 2016

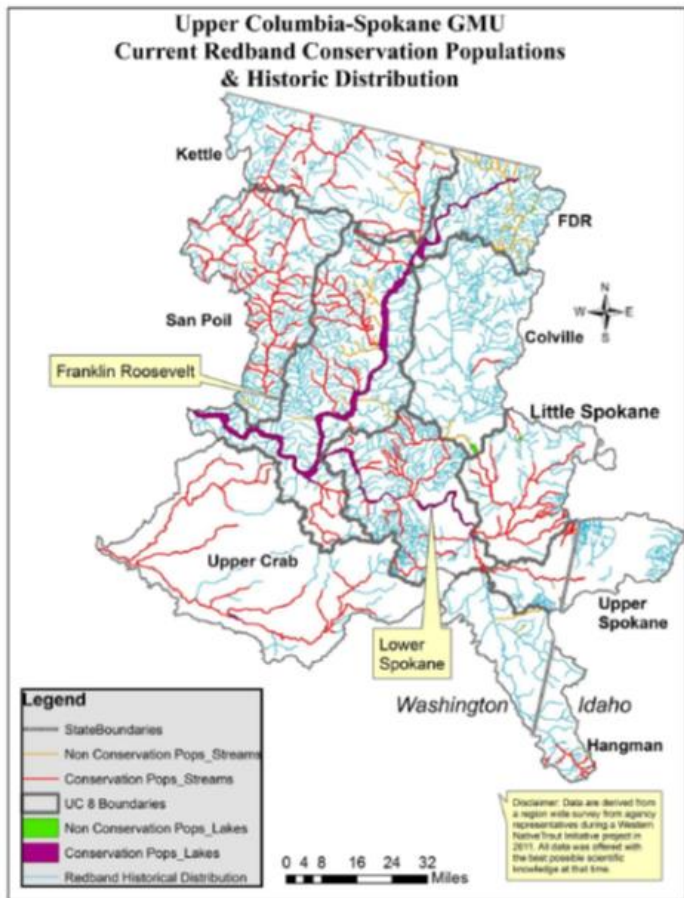


Figure 2. Upper Columbia and Spokane GMU Interior Redband distribution map.

Representation:

Today, Redband in the UC-S GMU contain genetically pure, partially introgressed (>80% pure), and introgressed populations (<80% pure) with multiple life histories represented (fluvial, adfluvial, lacustrine adfluvial, and fall lacustrine adfluvial).

Goal: Conserve, enhance, and restore Redband populations and genetic integrity in the UC-S GMU.

Objective: Identify and fill data gaps to conserve, enhance, and restore Redband populations.

Action Item: Coordinate with partners within the UC-S GMU to identify Redband population data gaps.

Action Item: Identify and address Redband distribution/life history discrepancies within the current dataset.

Action Item: Prioritize Redband population data gaps that are required to address conservation needs.

Action Item: Coordinate to pool funding and secure new funding to implement research studies.

Action Item: Compile historical stocking records for each sub-basin.

Action Item: Review historical genetic information (mitochondrial/microsatellite methods) and determine if samples need to be re-analyzed with the current SNP's method to support conservation needs.

Action Item: Develop and implement stock assessment plans for each sub-basin, similar to the Lake Roosevelt Stock Assessment Plan (Lee and McLellan 2011).

Action Item: Implement long-term status and trend monitoring on core conservation populations.

Action Item: Update records in the range-wide Redband database with more recent distribution and life history data as it becomes available.

Action Item: Convene meetings to coordinate fish sampling efforts, review existing data, and share newly collected data.

Action Item: Verify and identify core conservation populations through genetic testing.

Objective: Promote educational outreach to increase public awareness and support for Redband.

Action Item: Develop the use of social media to educate the public and to update current work aimed at conserving Redband.

Action Item: Organize, attend, and present Redband results at annual meetings and conferences.

Action Item: Create and attend educational programs to increase public awareness and support for the conservation of Redband.

Objective: Where appropriate, provide opportunities for both recreational sport fishing harvest and Tribal subsistence harvest.

Action Item: Utilize stock assessment data to evaluate harvest management alternatives intended to support conservation, enhancement, and restoration of select Redband stocks.

Objective: Minimize impacts of hatchery Rainbow Trout stocking on wild stocks of Redband.

Redband Trout Conservation Strategy- 2016

Resilience:

The primary factors affecting Redband in the UC-S GMU include connectivity to historical habitats, fish passage, screening at diversions, loss of natural geomorphic processes, degraded habitats, poor water quality, low stream flows, and the presence of non-native species.

Goal: Healthy and harvestable Redband populations facilitated through rehabilitations of stream habitat and restoration of ecological function in the riparian corridor of streams in the UC-S GMU.

Objective: Inventory existing stream and riparian habitat condition.

Action Item: Inventory and evaluate fish passage barriers (natural and anthropogenic) and diversions using standardized protocols.

Action Item: Create, share, and update fish passage regional databases and GIS layers.

Action Item: Inventory and evaluate aquatic and riparian habitat condition using standard protocols.

Action Item: Develop aquatic and riparian habitat restoration and protection plan that includes a prioritization and action strategy.

Objective: Maintain and restore healthy ecosystems and watersheds that preserve functional links among ecosystem elements (floodplains, side channels, riparian zones, alluvial fans) to ensure the continued persistence, health, and genetic diversity of Redband.

Action Item: Implement habitat restoration plans that include geomorphic and hydrologic function, habitat conditions/complexity, and the enhancement of beaver populations, including Hangman Creek Restoration Plan (CDAT) and Sanpoil Restoration Plan (CCT).

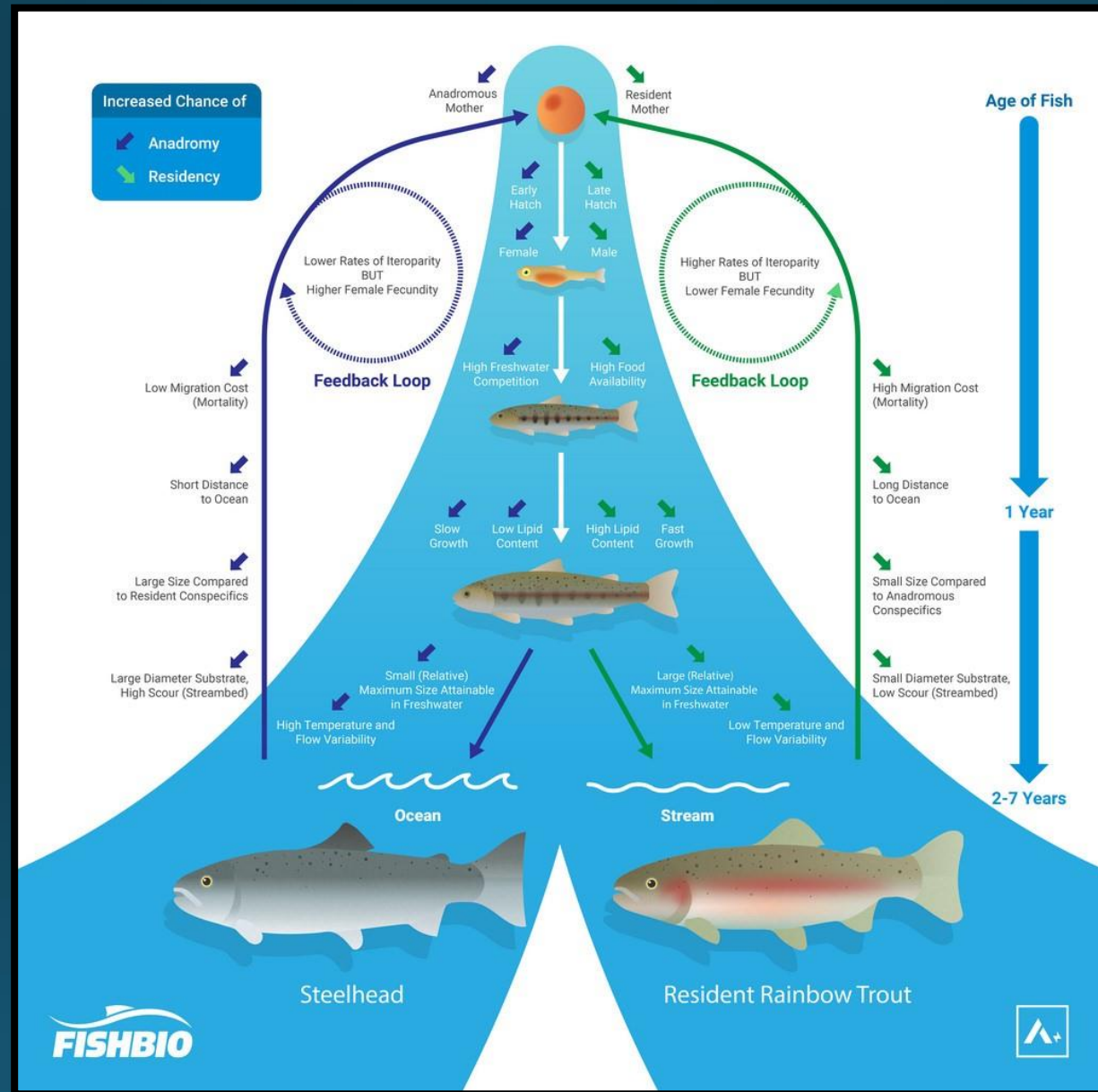
Action Item: Identify and pursue opportunities to work with the USDA Forest Service, Tribal permittees, and land owners to adjust grazing strategies for pastures and allotments to improve riparian and stream channel conditions.

Action Item: Develop and maintain inter-governmental relationships to facilitate habitat restoration.

Action Item: Monitor water quality parameters to assist with identifying limiting factors.

Action Item: Monitor the impacts on the genetic integrity of isolated populations post-removal of migration barriers.

Action Item: Coordinate with regional stakeholders to promote best management practices.



Fish Bio. Summary of Kendal et al. 2015
<https://fishbio.com/rainbow-trout-stay-go/>

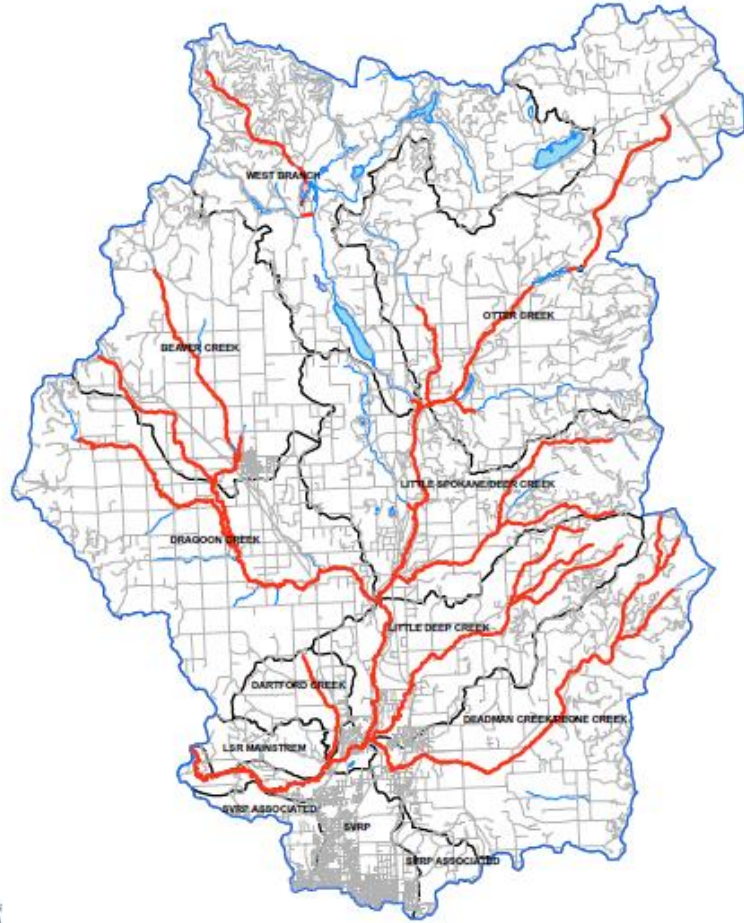
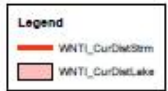


Figure 1
Current Distribution of Redband Trout by Subbasin
Little Spokane River watershed/WRIA 55



- Redband Trout were listed as the donor stock for Steelhead in the Phase 1 Reintroduction Plan
- Overlapping habitats
- Steelhead Intrinsic Potential already used in planning documents for potential Redband Trout habitat
- Habitats restored for salmon and steelhead will increase Redband habitat.

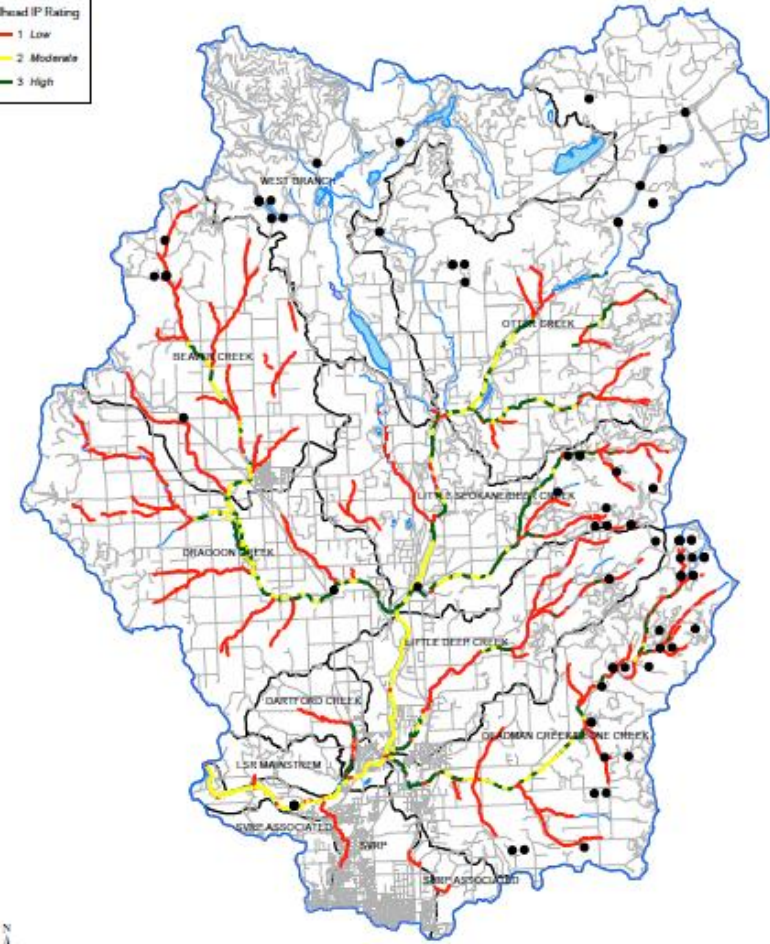
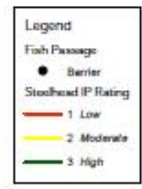


Figure 4
Intrinsic Potential Habitat for Steelhead/Redband and Fish Passage Barriers by Subbasin
Little Spokane River watershed/WRIA 55



Redband Trout Recovery Feasibility Study

- Collaborate with salmon recovery efforts
 - Habitat Restoration Strategy
 - Steelhead Intrinsic Potential and EDT model update
- Utilize/adapt the steelhead intrinsic potential and EDT model for Redband Trout within the Spokane River watershed
- Develop a Recovery Feasibility Study for Redband Trout
 - Identify methods to improve/recover declining populations
 - Habitat
 - Supplementation
 - Identify potential risks associated with each recovery method
 - Model population response to different methods
 - Prioritize methods most likely to improve/recover/maintain populations



Questions?

