CUSTER SOIL AND WATER CONSERVATION DISTRICT

Locally Elected Board of Supervisors
Wayne Baker, Chairman
Julia Moss, Vice Chairman
Jimmie L. Dowton, Treasurer
Dale Olson, Secretary
Tori ONeal, Member
Karma Bragg, Project Manager

Idaho Watershed Habitat Restoration 2007-268-00

Pahsimeroi Restoration via OSC 2008-603-00

*****
THE GOAL

Historically, spawning and rearing habitat has been supported within the basin for federally-listed anadromous fish species: Spring and summer Snake River Chinook salmon, and Summer Snake River Steelhead.

Limiting Factors:

• Inadequate fish habitat and habitat complexity
• Limited flows/dewatering
• Passage barriers and entrainment

We strive to address these limiting factors while at the same time maintaining the delicate balance between fish recovery and agricultural production.
INTER-RELATED PROJECTS

- Idaho Department of Fish and Game- 1994-015-00 Screening Improvement & 2007-399-00 Upper Salmon Screen Tributary Passage

- Idaho Department of Water Resources 2008-608-00 Idaho MOA/Fish Accord Water Transactions

- Idaho Governors Office of Species Conservation USBWP-2007-394-00
CRITICAL PARTNERS

- Private Landowners
- Custer County Commissioners
- Idaho Department of Fish and Game
- U. S. Bureau of Reclamation
- Natural Resources Conservation Service
- USFS- Sawtooth National Recreation Area
- Idaho Governors Office of Species Conservation
- Bureau of Land Management
- Bonneville Power Administration
- U. S. Fish and Wildlife Service
- NOAA Fisheries.

Stark Easement Property
PROJECT IMPLEMENTATION
2013-2021

Upper Salmon-15 Projects
- In-stream water savings of approximately 26 cfs.
- Addressing 12 passage barriers by closing or modifying irrigation diversions or removing culverts

Pahsimeroi - 25 Projects
- In stream water savings of approximately 68.5 cfs
- Addressing 23 passage barriers by closing or modifying irrigation diversions or removing culverts

Through these contracts the Custer SWCD has completed stream restoration projects throughout the basin to improve approximately 105 miles of stream.
POLE CREEK – A SUCCESS STORY
32 Pivot Crossings

8 Pole Creek Diversions

Old Hydro Plant Used 6cfs

Water Gaps for Cattle
MILES OF IMPLEMENTATION

- Reconstruct/relocate POD
- Reconfigure pivots
- Replace culverts
- Replace fences
- Develop off-site livestock water
IMPROVED IRRIGATION

- Improve Irrigation Efficiencies
- Drill wells
- Develop system to accommodate source switch to address flows.

- Reconstruct/relocate POD
- Reconfigure pivots
- Replace culverts
- Replace fences
- Develop off-site livestock water
physcial barrier removed - passage is restored

Old Diversion Before Project

Fish Passage Restored

New Diversion

IDFG Criteria Fish Screen
Pole Creek - Average Daily Flow

- Pre-Transaction 2005-2016
- Post-Transaction 2017-2020

- Priority Flow (12 cfs)
- Priority Flow (18 cfs)
PARTNERS

Salmon Falls Land and Livestock
Office of Species Conservation - USBWP
Sawtooth National Recreation Area
Shoshone-Bannock Tribes
U. S. Bureau of Reclamation
Natural Resources Conservation Service
Custer Soil and Water Conservation District
Idaho Department of Fish and Game
Idaho Department of Water Resources
Idaho Transportation Department
NOAA Fisheries
US Fish and Wildlife Service
Bonneville Power Administration
Pacific Coast Salmon Recovery Funding
## POST PROJECT RECOVERY ON POLE CREEK

<table>
<thead>
<tr>
<th>Year</th>
<th>Chinook/100m²</th>
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<tr>
<td>2013</td>
<td>129</td>
</tr>
<tr>
<td>2014</td>
<td>10</td>
</tr>
<tr>
<td>2015</td>
<td>151</td>
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</table>
With an increase in flows additional efforts will encourage adult spawners to move up the creek. Our goal is to:

- Increase the hydraulic connectivity
- Improve the structural diversity
- Increase the channel complexity of Pole Creek.

Results:
This project has the ability to improve the stream to support recolonization and fish numbers in Pole Creek.
P-16/FUREY LANE DIVERSION MODIFICATION AND STREAM RECONNECT

Furey Lane - July 26, 2021
FUREY LANE – P-16 DIVERSION

Before at Furey/P16 Project:
- 29.52 cfs is decreed at this Point of Diversion
- P-16 was unscreened.
- Sulphur Creek Ranch - A“re-divert and was also unscreened
- Big Creek Irrigation Diversion – 23.8 cfs

After Furey Lane/P-16:
- 1 new “fish passable” POD at Furey for 8 cfs
- Permanent Closure P15/converted to well for Sulphur Creek
- One criteria fish screen at new POD
- Permanent Closure of P-14 Dversion
- Permanent Closure of Big Creek/Hamilton Ditch Diversion
Remove Big Creek Diversion
Reduce Water Use
Develop Seasonal Lease.
Install fish passable diversion.
Screen diversion

P-16 Before
PAHSIMEREOI HABITAT COMPLEXITY
• Our role: PLANNING, PERMITTING, COORDINATION AND IMPLEMENTATION
• Landowner Relations - Willing landowners is KEY!
• IDFG and the Office of Species Conservation - USBWP have worked to identify priorities for each of the sub-basins we are work in. We use the established priorities to identify and develop project goals.
• We rely heavily on IDFG, IDWR and the USBWP to assist with monitoring and provide monitoring results to direct fish priorities for new projects.
• We have implemented 98% of all projects noted in our last proposal plus some additional projects

Figure 1-1. Snake River Spring/Summer-Run Chinook Salmon Evolutionarily Significant Unit, historical habitat, and migration corridor.

Figure 1-2. Snake River Basin Steelhead Distinct Population Segment, historical habitat, and migration corridor.
• 2,700 Square miles
• 92% Public Land
• 8% Private Land
• Occupied salmon habitat
  • 90% private
The LSWCD Board of Supervisors

Rusty Hamilton, Thayne Kauer, Jane Sandstrom, Mike Kossler, Curtis Beyeler
Secretary  Treasurer  Chair  Vice-Chair  Contract Officer
February 18, 1992

Dick Buster, Range Specialist
Bureau of Land Management--Salmon District
Highway 93 South
P.O. Box 430
Salmon, ID 83467

Dear Mr. Buster:

In response to our conversation over the telephone regarding what creeks Salmon use to spawn in the Lemhi river drainage.

I have contacted a few of our Tribal Elders, those of who are of Lemhi descendent, and they indicated that they remember salmon were in just about every creek within the Lemhi river drainage.

Listed below are a list of creeks they remember where the salmon were taken prior to the white man farming and ranching the valley and drought conditions.

1. Eighteen Mile Creek
2. Big and Little Timber Creek
3. Canyon Creek
4. Big Eight Mile Creek
5. Hayden Creek
6. Agency Creek
7. Paulee Creek
8. Kenney Creek
9. Sandy Creek
10. Washington Creek
11. Wimpey Creek
12. Kielley Creek

There are no photographs available of the creeks, listed above, that were taken by our members for your review.

If you need additional information, please feel free to contact me at 238-3807 or leave a message.

Sincerely,

SHOSHONE-BANNOCK TRIBES

Keith Tekno, Member
Fort Hall Business Council

cc: file/chrony
• Collaborating with partners
• Water efficiency projects
• Fish passage barrier removal
• Points of irrigation diversion consolidation and screening
• Stream rehabilitation projects

Results (2013-2020):
• 21 passage barriers removed
• 29 miles of protected/enhanced flow
• 42 miles of tributary habitat now accessible
**Project Objectives:**

- Remove a fish passage barrier
- Reconstruct Indian Springs to a natural channel
- Improve the riparian habitat
- Create a self-sustaining, stable stream channel that maximizes habitat values for Chinook and steelhead
- Remove and relocate corrals off stream
- Remove cattle from stream with fence and stockwater

**Project Partners:**

**For more information contact:**
Matt Green, 208-251-0197

**Engineer:** Intermountain Aquatics Inc.
**Contractors:** Aqua Terra Restoration LLC
Bird Excavation

Project funded by: Bonneville Power Administration, Pacific Coast Salmon Recovery Fund, DEQ 319 & Natural Resources Conservation Service
Aerial view of the project area as construction on new stream channel begins.
Project area after stream rehabilitation.
Beginning construction on bypass road for culvert replacement.
Eighteenmile Creek
Habitat Improvement Project

Project Objectives:
- Remove a seasonal fish passage barrier
- Reconnect 0.34 mile of historic channel with perennial flows
- Improve the surrounding wetland and riparian habitat
- Create a self-sustaining, stable stream channel that maximizes habitat values for Chinook and steelhead
- Improve irrigation efficiency and decrease headgate maintenance

For more information contact:
Bob Minton, 208-756-3211 ext. 105
Adair Muth, 208-332-1559

Engineer: Intermountain Aquatics Inc.
Contractor: Boyd Foster Backhoe Service

Project Partners:
Bayster Ranches, LLC
Eiswirth Angus Ranch
Leedore Land Partners Limited

Project funded by Bonneville Power Administration, Pacific Coast Salmon Recovery Fund, & Natural Resources Conservation Service
A Google Earth image of the project site before project implementation.
The push up dam on the old creek alignment. This picture shows the overly slow, deep pool created. This water would get extremely warm and flow right downstream to spawning grounds.
Picture showing the creek after realignment, rehabilitation and new fencing to exclude livestock.
Hawley Creek Reconnect

Hawley Creek BDA sites fish abundance

- STHD
- BT
- EBT
- WCT

n (number of fish sampled)

Year

2015 2016 2017 2018 2019

0 100 200 300 400 500 600 700 800
The Future

• Improve water quality in Lemhi River headwaters above production ground.

• Establish functional connection of Texas Creek.

• Improve rearing habitat in the upper Lemhi River; enhance spring systems.

• Improve rearing habitat for transition area of upper/lower Lemhi River and Hayden Creek.

• Improve rearing habitat in lower Lemhi, particularly for over-wintering juveniles (slow water habitat).

• Improve rearing habitat in Hayden Creek; some years accounts for half of Lemhi Chinook production.
- Potlatch River Watershed Restoration -
Latah SWCD Project Development

Presented by
Latah Soil and Water Conservation District

Ken Stinson, District Manager
Brenda Erhardt, Resource Conservation Planner
Aven Julye, Field Crew Manager
George Zamora, Field Crew Manager

August 10, 2021
2002 and 2008 (Idaho Accord) Projects

2002-061-00 Project

Latah SWCD
Identify/Evaluate/Plan/Seek Funding

2008-604-00 Potlatch River Accord

Latah SWCD
Implementation

IDFG Planning and Implementation

** Structure for Latah SWCD planning and implementation as suggested by BPA
2002-061-00 Project Purpose – to identify, evaluate, plan and seek funding to achieve stated goals and objectives through process-based habitat restoration strategies

Goal 1.) Improve fish passage to suitable habitat.

Goal 2.) Provide suitable habitat for steelhead spawning and/or rearing.

Goal 3.) Improve instream water flows to support spawning and rearing habitat.

- Summer Base Flow
- Summer Stream Temperature
Funding Sources to Secure $8,000,000: 125 + Latah SWCD Projects Since 2004

Local
- Private Landowners/Entities
- Latah County
- North Latah County Highway District

State
- Idaho Department of Environmental Quality/EPA Clean Water Act
- Idaho Department of Lands
- Idaho Department of Transportation
- Idaho Office of Species Conservation/Pacific Coastal Salmon Recovery Fund
- Idaho Office of Species Conservation/Snake River Basin Adjudication
- Idaho Soil and Water Conservation Commission

Federal
- Bonneville Power Administration
- USDA Forest Service
- USDA Natural Resources Conservation Service
Latah SWCD Progress to Date (2004 – 2020)

125 + projects – summary data
• Removal of 30 migration barriers – opening ~37 stream miles
• Floodplain reconnection – 450 acres
• Stream restoration – 28 miles
• Native trees, shrubs, forbs, grasses and grasslikes planted – 269,410
• Native seed applied – TONS (literally...)

Schwartz Creek culvert
Schwartz Creek bridge
Progress to Date – 125 + Projects

Goal 1.) Improve fish passage to suitable habitat.
   • 30 passage barriers removed, opening 37 stream miles

Goal 2.) Provide suitable habitat for steelhead spawning and/or rearing.
   • Treated 170 acres and 19 stream miles
   • 40 miles road rocking to reduce sedimentation
   • 71 acres protected through livestock fencing
   • 12 off-site water ponds
   • Planted 128,760 native trees, shrubs, forbs, grasses and grasslikes

Goal 3.) Improve instream water flows to support spawning and rearing habitat.
   • Meadow restoration - 280 acres, 9 stream miles, 140,650 native trees, shrubs, forbs, grasses and grasslikes
Project Examples – Goal 1, Passage Barrier

Dutch Flat Dam – West Fork Little Bear Creek, opened 14 stream miles

Dutch Flat Dam pre-removal

Old Dam Site

May 2018
Project Examples – Goal 2, Habitat

Corduroy Creek, East Fork Potlatch River

May 2012

October 2012

June 2020
Project Examples – Goal 3, Meadow Restoration

Two Mile Meadow, East Fork Potlatch River

Treated Acres: 65

May 2017

April 2019
Project Examples – Goal 3, Meadow Restoration

Racetrack, Corral Creek

Note: Changes to Flow Velocity and Floodplain Access

March 2006

April 2018
Effects of Meadow Restoration
Corral Creek – Racetrack Meadow/Constructed 2013

Highlights from Latah SWCD Monitoring – Stream and Groundwater

• Full Access to Floodplain
  • Water levels in all monitoring wells at surface in winter/early spring by 2015
• No Flow Interval Reduced
  • 2009 – 2013 – Flow ceased by July 13 and the dry period of 116 to 171 days
  • 2014 – 2019 – Flow 9 to 51 days longer into summer and returns two weeks earlier
  • 2016 – Dry period ~ 71 days
  • 2017 – Dry period ~ 57 days
  • 2018 – Dry period ~ 79 days
  • 2019 – Dry period ~ 28 days
• Erosion nearly eliminated
  • 2012 ~ 161 tons per mile/year
  • 2017 – Negligible

Racetrack Project Metrics:
Stream length – 0.25 miles
Floodplain area – 7.5 acres
Looking forward –
Potlatch River Focus – Wild Steelhead Habitat

• “The Potlatch River likely has the **strongest component of wild steelhead** present within the Clearwater River Lower Mainstem population”

• “…the Potlatch River drainage **comprises 25% of the historic intrinsic potential** of the Clearwater River Lower Mainstem steelhead population…”

• “**Potlatch River steelhead are genetically distinct** from other Clearwater River steelhead groups…”

IDFG/Bowersox (2011)
Guidance/Direction – Who?

- Northwest Power and Conservation Council Columbia River Basin Fish and Wildlife Program (NWPCC 2014)
- Clearwater Subbasin Management Plan (Ecovista 2003)
- ESA Recovery Plan for Snake River Steelhead (NMFS 2017)
- IDFG Fisheries Management Plan (IDFG 2019)
- IDFG – Potlatch River Steelhead Monitoring Programs
- Potlatch River Watershed Assessment and TMDL (IDEQ 2008 and 2017)
  - Potlatch Implementation Group – Managed by IOSC
2007 – Potlatch River Watershed Management Plan

- Goal – “to specify restoration and protection strategies that help restore steelhead to a robust, self-sustaining population”
- General priorities
- Limiting factors

2019 – Amendment

- Designates Top Tier priority watersheds
- Restoration plans/multiple agencies
Guidance/Direction – What?

Primary Limiting Factors – Recommended Restoration Methods

- **Elevated Water Temperature** – Restore wetlands and increase floodplain storage
- **Reduced Flow** during Critical Periods – Restore wetlands
- **Flow timing – extreme flow variation** – Restore wetlands to reduce extreme peak flows, increase soil storage, and increase base flows.
- **Excess Sediment** – Systematically reduce sediment
- **Floodplain Connectivity/Riparian Vegetation** – Restore incised channels
- **Habitat Complexity** – Restore wetlands and riparian vegetation
- **Migration Barriers** – Replace passage impediments

NMFS – 2017 ESA Recovery Plan for Snake River Idaho Spring/Summer Chinook Salmon and Steelhead Populations – Chapter 6
Guidance/Direction – How?

Habitat Actions

1. **Restore hydrologic processes**
2. **Reestablish floodplains**
   - Address channel incision
3. **Reestablish riparian vegetation**
   - Shade
   - Future LWD recruitment
4. **Reduce fine sediment delivery**
5. **Eliminate fish migration barriers**

---

NMFS – 2017 ESA Recovery Plan for Snake River Idaho Spring/Summer Chinook Salmon and Steelhead Populations – Chapter 6
Climate Change – Building Natural System Resiliency

Climate vulnerability assessment for Pacific salmon and steelhead (Crozier et al. 2019)

- Correlation between habitat loss and climate stress
- Habitat restoration strategies shown for climate change
  1. Reconnecting habitats – longitudinally AND laterally (floodplains). “Reconnected habitats restore natural processes and provide refuges from extremes in both temperature and flow.”
  2. Ameliorating temperature and flow constraints through riparian restoration and other techniques designed to reduce climate stress
  3. Improve access to food-rich environments
  4. Follow habitat restoration guidelines developed to have climate benefit (Beechie 2013)
Latah SWCD Planning Process

Process Based Habitat Restoration

- Site Review/Evaluation
  - *Internal review first—project rejections common*
- Engineering designs/plans
- Seek funding – multiple sources
- Implementation
  - Permitting
  - Revegetation plans
  - Construction
- Adaptive Management
  - Adjust project
  - Long-term commitment to landowners
### Project Development:

<table>
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<tr>
<th>Subwatershed</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
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<td>Two-Mile Phase 3, meadow restoration²</td>
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<td>EFPR, DS county line, habitat restoration²</td>
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<td>East Fork Potlatch River (EFPR) subwatershed - Tier 1</td>
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<td>Upper Big Bear Creek, passage barrier evaluation and implementation¹</td>
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<td>USFS - meadow restoration, Leanna, Smith and Wet meadows²</td>
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* Implementation/Monitoring funding to be secured beyond the 2002-061-00 project

¹ - Goal 1, improve fish passage

² - Goal 2, provide suitable habitat for spawning and rearing²

³ - Goal 3, improve instream water flows

See page 28 of project proposal
Tourmaline Habitats – Middle Fork Big Bear – Construction began July 2021

Project Metrics:
Treated Area – 49 acres
Treated Stream length – 1.28 miles
Upcoming Projects

Corral Creek, IDL

Project Length: 0.33 miles
Corral Creek – Livestock Exclusion Project

2009 – 2021
“Cheap and Cheerful” Restoration – Using Beaver Dam Analogs
Thank You!
Overview
**Focal Species - Steelhead**

### Table: Steelhead Spawn Year and Location Sums

<table>
<thead>
<tr>
<th>Year</th>
<th>Lapwai Total</th>
<th>Lapwai main-stem</th>
<th>Mission Creek</th>
<th>Sweetwater Creek</th>
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<tr>
<td>2010</td>
<td>636</td>
<td>408</td>
<td>224</td>
<td>- (-)</td>
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<td>2011</td>
<td>248</td>
<td>92</td>
<td>46</td>
<td>107</td>
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<tr>
<td>2012</td>
<td>- (-)</td>
<td>- (-)</td>
<td>60</td>
<td>123</td>
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<td>2018</td>
<td>226</td>
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<td>47</td>
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<tr>
<td>2019</td>
<td>176</td>
<td>92</td>
<td>54</td>
<td>30</td>
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</table>

### Graph: September *O. mykiss* Densities

- **Legend:**
  - LSX
  - MLX
  - UWM
  - USU
  - UMU
  - PIT Tag Interrogation Station

- **Axes:**
  - X-axis: Year (2010-2019)
  - Y-axis: Total Density (# O. mykiss per square meter)

- **Notes:**
  - The graph shows the total density of *O. mykiss* from 2010 to 2019 across various stations and years.
Limiting Factors

- Elevated Water Temperatures
- Passage Barriers
- Excess Sediment
- Riparian Condition
- Floodplain Connectivity
- Altered Hydrology
- Instream Habitat Complexity
- Reduced Summer Flow
Table 3: Riparian Condition Data Summary

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<tr>
<th>Rating</th>
<th>Number Value</th>
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<td>91.26</td>
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<td>9-14</td>
<td>126.81</td>
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<tr>
<td>Poor</td>
<td>&lt;9</td>
<td>196.04</td>
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</table>

Legend

- Excellent
- Good
- Fair
- Poor
Stream Temperature

- Long – term data set
- Coordination
- Trend
- Project Effectiveness
- Exceedances
Project Selection

- Watershed Plan
- Geographic Priority Areas
- Reach Level / Planning Unit
- Landowner Participation
- Biological Review and prioritization
Landowner Strategy

- 1,988 landowners
- 983 with riparian areas identified in the poor, fair range
- Sweetwater Creek, Mission Creek

Marketing Plan
- Newsletter
- Twitter
- Local Events
- Direct Mailings
- One-on-one meetings
- Tours
- Annual Meetings
Lessons Learned

Data:
- BOR/UI
- NOAA
- LiDar
- Temperature Data
- Floodplain Analysis
- Flow Gauges

Techniques:
- Two zones
- Adopted Techniques
- Stakeholder Review

Treatment:
- 1-3 years pre-plant control
- 3-5 years maintenance
- Irrigation
Questions?

Spawning Steelhead at Lapwai-Rock Creek Confluence