

## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

### IDFG Conference Room

**Attendees:** Mike Edmondson, Daniel Bertram, Don Olson, Harley Wallis, Bruce Mulkey, Curtis Beyeler, Paddy Murphy, Steve Stringham, Linda Price, Kim Caywood, Heidi Messner, Amber Young, Stacey Meyer, Justin Saydell, Abbie Gongloff, Gavin Aguilar, John Loffredo, Tulley Mackey, Bridger Bertram, Hunter Distad, Megan Heller, Ryan Hilton, Graham Freeman, Chad Fealko, Mike Hall

#### Agenda Mods

- None

#### Approval of March Meeting Mins

- Approved

#### Tech Team Update – Zach Salada

- Zach went over presentations since March 2024 tech team
- BLM IRA, Administering Minimum Stream Flow, AOP passage in BLM priority watersheds, Virtual Fence, Yankee Fork, Reference Reach Assessment, RM 32, IDFG Screen Program.
- 1 project ranking (River Valley Ranch)
  - Immediately downstream of Last Chance
  - Chinook and Steelhead spawning present
  - Project would activate side channels, increase complexity, and activate floodplain
  - Concern over current bridge
  - Temporary bridge or new bridge?
  - Screens are 30 years old, do at same time?

#### BLM's IRA project implementation (Salada)

- Upper Salmon River Restoration Landscape
  - Inflation Reduction Act - Administration gave BLM \$161 million- solicit field offices for restoration; funding has been spread throughout the west - mostly in eastern Idaho, Wyoming, and Montana.
  - The Upper Salmon River Restoration landscape received \$9.1 million from the Inflation Reduction Act funding.
  - \$2.7 million will go towards improving AOP and riparian/Aquatic habitat.
  - Challis and Salmon field offices:
    - The majority of streams and are not meeting the statewide stream benchmarks.
    - Lack floodplain connectivity.
  - Aquatic organism passage: data collected summer 2022-23 by Trout Unlimited.
    - Road/stream crossings were evaluated using the Southeast Aquatic Resource Partnership
    - BLM received \$1 million for stream crossing replacement.
    - Prioritization for project locations will be completed this spring, 2024.
  - Aquatic restoration: goal is to treat up to 15.4 stream miles of degraded fish habitat.
    - \$1 million was allocated to facilitate projects that will consist primarily of

## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

#### IDFG Conference Room

- Low-Tech Process Based Restoration techniques.
- Prioritization of identified stream reaches is ongoing as strategies for implementing the projects continues to be developed.
- Implementation is anticipated to begin in 2025 and continue through 2028.
- Riparian Restoration: goal is to treat up to 18 miles or more of riparian habitat.
  - \$500k was allocated to facilitate projects that consist of low-tech structures.
  - Restoration is focused primarily on perennial and intermittent non-fish bearing systems.
  - Prioritization of identified reaches is on going as project planning is developed.
  - Implementation is anticipated to begin in 2024 and continue through 2028.
- Salmon River and Tributaries Riparian Restoration – Invasive Species Treatment: goal of the project is treatment of invasive species located within the Salmon River corridor and its tributaries.
  - \$200k has been allocated for this project with contracts anticipated in 2024.
  - Primary invasive species of concern are: Leafy spurge, hounds-tongue, spotted knapweed.
- BLM needs assistance:
  - Trying to obligate this funding through a partner (NOFO) statewide aquatic opportunity- grants.gov, an agency would need to apply for these NOFO opportunities.
- If anyone has the capacity and interest in partnering with BLM, reach out to Hannah Branz and or Zach Salada.
- BLM has funding, but it must be obligated (50%) by the end of FY (November). There is a worry that with change in administration, some funding may go back.
- Weeds have been put out to contract and will be awarded in near future.

#### **Administering Minimum Stream flows in Idaho with Voluntary, Market-Based Transactions**

##### **(Loffredo):**

- Presentation looking at how ID has done it for 20 years...
- Water Transaction Tools:
  - Water Right Transfer – Source Switch
  - Water Supply Bank – Lease/Rental
  - Acquisition or Donation
  - Subordination to Minimum Stream Flow
- Prior Appropriations Doctrine:
  - First in time, first in right
  - Priority date
  - Beneficial use
    - Find a water right spatially:  
<https://maps.idwr.idaho.gov/agol/WaterRightLocator/>
- Water resource board:
  - Governor appointed; 8 members; serve 4-year term; bi-partisan (four members from each pollical party)

# Upper Salmon Basin Watershed Program

## Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

### IDFG Conference Room

- Represent four districts that encompass all geographic locations of the state.
- Fund projects and programs for sustainable management of Idaho's water.
- Idaho Constitution - Article 15. Sections 1-7. -establishes water as a public use.
  - Idaho Legislature:
    - Idaho Department of Water Resources: mission to serve ID citizens by ensuring water is conserved and available for the sustainability of ID's economy, ecosystems, and resulting quality of life.
      - Water Rights Adjudication and Administration
    - Idaho Water Resource Board: responsible for the formulation of implementation of a state water plan, financing of water projects, and operations of programs that support sustainable management of ID's water resources.
      - Water supply bank and water transactions program
- Common Misconceptions:
  - Minimum stream flows vs target flow
    - Actual WR vs. landowner agreement
  - Minimum stream flow WR not equal to Instream Flow
    - Priority date matters
    - Water transactions = Instream flow at minimum stream flow WR's
- Idaho Water Transaction Program
  - Low stream flow is a limiting factor for salmonids at multiple life stages.
  - Water transactions protect water instream and on paper.
  - Program mission: support innovative, voluntary, grassroots water transactions that improve flows to tributary streams and rivers.
  - Benefits of Increased Flow:
    - Improve passage at all salmonid life stages.
    - Improve egg-to-smolt survival.
    - Reduce density-dependent limiting factors.
    - Increase species diversity.
- Three sources of funding: Idaho Fish Accord; BPA (Columbia basin water transactions program); PCSRF
- Transactions are not ranked at TT.
- The majority of transactions are source switch reconnects.
- Water right transfer:
  - Source switch project and administrative agreements.
  - Reconnect tributaries.
  - New POD via WR transfer
  - New irrigation infrastructure
  - 20-yr administrative agreement
- Water supply bank lease/rental agreements:
  - Idle irrigated acres, rent water for instream flow.
  - Re-connect tributaries to mainstem habitat.
- Annual and permanent subordination agreements
  - Board-held MSF WR: Lemhi River at the L-6 diversion.
  - Since 2004; 25-35 cfs protected for 100 days, March – November
  - Senior water rights voluntarily subordinate and are compensated for restricted delivery at a fair-market rate.
  - Have not had a dewatering event since 2004 at L-6
  - Annual subordination=\$100 per CFS per day for 100 days max/year

## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

#### IDFG Conference Room

- Permanent subordination=one-time \$100,000 per CFS for up to 100 days max/year
- Administration of subordination agreements requires a competent, locally elected watermaster and a working relationship with a local water district.
- The Watermaster is also compensated annually for administration of subordination agreements.
- Water right acquisition or donations
  - Acquisition of irrigated acres
  - WR is now owned by IWRB.
  - Water permanently rented and delivered to meet a minimum stream flow water right.
- Benefits: Water supply bank lease/rental for instream flow:
  - hydrologic connectivity for resident fluvial bull trout
- Water Right Transfer: Source Switch: P-9 cross ditch, Pahsimeroi River
  - complete fish barrier, dumped sediment and warm water into Pahsimeroi River
  - P-9 dewatered the Pahsimeroi River.
    - 20 cfs diverted from Patterson Big Springs Creek
    - Dumped sediment and warm water into Pahsimeroi River
    - De-watered three spring-fed creeks
    - Complete anadromous barrier
  - Once P-9 Cross Ditch was removed:
    - Opened 40.5 river miles to salmonids.
    - Rearing habitat increased by 246%.
    - 42% of Chinook redds found above reconnected reach.
    - Juvenile productivity increased significantly.
    - Juvenile rearing density-dependent limited factors may be alleviated.
- Annual and Permanent Subordination Agreements: Address chronic dewatering issues in major tributary to allow passage of anadromous fish at multiple life stages.
  - L-6 diversion is a major pinch point affecting the ability for out-migrating juveniles in the springtime.
  - Concern about adults migrating upstream to spawning habitat (25-35CFS).
  - Passage corridor for all life stages.

#### **Inventory of aquatic organism passage in BLM priority watersheds (Dan Dauwalter – TU)**

- Inventory road-stream crossings in priority watersheds.
  - 2022 – 3 HUC 10's given to each field office
  - 2023
    - Built out from 2022 surveys
    - Resurveyed 2004 Millenium Inventory
    - Resurveyed Twin Falls District
  - Identify target crossings within HUC 10's
    - Overlayed roads with native trout layers
    - Identify low water crossings using imagery.
    - Inventory w/ field crews
      - ERSI Field Maps (Arc Online)

## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

#### IDFG Conference Room

- <https://www.arcgis.com/apps/mapviewer/index.html?webmap=b6f98c0058f5431891341c10108df356&extent=-117.9455,42.6141,-109.8321,45.0777>
- Following Southeastern Aquatic Resource Partnership (SARP) Protocols
  - <https://aquaticbarriers.org/>
  - Entered into Survey 123 app
- Has the ability to track progress within the field app.
- Passability Score
  - SARP Score: 0 to 1 (Blocked – Passable)
    - Each Variable scored separately
      - Openness
      - Height
      - Outlet drop
    - Variable weighted
    - Scores
      - No barrier: 1.0
      - Insignificant barrier: 0.80 – 0.99
      - Minor barrier: 0.60 – 0.79
      - Moderate Barrier: 0.40 – 0.59
      - Significant barrier: 0.20 – 0.39
      - Severe barrier: 0.00 – 0.19
- Across 2022 and 2023 were able to survey 931 crossings.
- During 2023 revisited sites done by Millenium consulting in 2004 to address how far into the future are road-stream crossing surveys relevant.
  - Revisited 84 culverts
  - Followed previous protocol, more of a stoplight chart (Green, Grey, Red).
  - Preliminary results
    - Red surveys in 2004 primarily stayed red
      - With a few that moved to green or a bridge
    - Grey surveys in 2004
      - 1/5 surveys got worse
    - Green surveys in 2004
      - Primarily stayed green
      - 2/8 had a worse rating in 2023
    - Of the 84 revisits 20-25 changed over time
    - Bridges are clear fixes
    - Follow up site that changed from Red-Green address what changed.
- Training available following SARP Protocols at the Joint AFS meeting 4/29/24.
  - Half day in classroom/ half in the field
  - Limited seats available
- Science based framework for assessing AOP at the watershed scale.
  - SARP AOP tool updated quarterly.
  - Small watershed: expert based -----Large region: Data driven.

#### Yankee Fork Bonanza (Wood)

- <https://www.youtube.com/watch?v=svvylLioUQ0&t=2s>

## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

#### IDFG Conference Room

- Historic dredge mining removed a majority of finer sediments that were provided.
- Project completed in 2019, to address mine tailings left behind. To address river sinuosity, habitat complexity and floodplain connectivity.
- Drought year in 2020, resulting in the channel going dry post completion.
- Combined with loss of surface flow due to lack of sealing, adaptive management was needed.
- Adaptive management included adding gravel to leaking (unsealed) channel segments.
- Adding these gravels allows for finer sediments to gather and fill in over time to maintain flow.
- Extensive flow monitoring 2020-2023 to determine the effectiveness of channel sealing efforts.
- Surface flows in 2023 remained uninterrupted and it has been determined that further adaptive management is not needed at this time.
- Photo point monitoring being done by the Forest service, and flow monitoring will continue this year.

#### Virtual Fence (Joel Yelich)

- Technology used to monitor and control livestock movement.
- Audio/stimulus cues to control grazing.
- Protection of critical habitats (riparian, fish, wildlife, aspen groves, sage grouse, etc.)
- Avoidance of toxic plants, replacement of electrical/physical fence
- Vence Virtual Fencing Platform
  - Animal will have a collar that communicates with a base station and allows real time tracking.
  - Salmon area is lucky that two towers can cover the valley.
- Base station communicates with collar using LoRaWAN
  - Very mobile (On a small trailer)
- Training involves a multi-step shock treatment
  - First zone of the fence is a sound zone. Second zone is a shock zone. If cows go past sound zone, they will get shock and sound.
  - Fence is one way, so if they go past sound and shock zone, they can re-enter the fence without getting a treatment.
- Some projects got up to 90% containment.
- Exclusion Zones
  - Some projects had as low as 4% exclusion.
  - What are driving exclusion zones with high entry??
  - Dry cows had higher exclusion rates due to them not chasing/herding calves.
- Savings
  - Decreased horseback days by over 60%.
  - Collars are rented at \$50/cow a year.
  - Towers are \$10,000 with a lifespan of 10 years.
  - Full NEPA to install tower.
  - Fence installation ~\$20,000/mile.
- Challenges
  - Not 100% effective for cattle containment/exclusion
  - Collar retention issues.
  - Battery lifespan

## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

#### IDFG Conference Room

- Technology glitches
- Future Improvements
  - Shorter check in periods (5-10min)
  - Possible heart rate monitor to detect predator presence.
- Communication is key between land agencies and private landowners. Still a challenge.

#### Upper Salmon Reference Reach Assessment (Richardson/Oldemeyer)

- Location
  - Marsh creek, Elk creek, Bear Valley creek, and Middle Fork
- Geomorphic goals
  - Describe the physical setting where multi-thread channels develop
  - Describe the geomorphic processes that create and maintain multi-thread channels.
  - Quantify geomorphic characteristics to facilitate restoration design and monitoring of multi-thread channels.
- Geomorphic Conditions
  - Field Measurements (Valley Width, Channel Length, Inlet Angle, etc.)
  - Secondary Channel Evolution
    - Primary Channel and Avulsion Path
    - Primary Channel and Secondary Channel
    - Secondary Channel and Primary Channel
    - Abandoned Channel and Primary Channel
- Secondary Channel Type Selection
  - Beaver Dam Distributed
  - Valley-Fill Sub-Parallel
  - Valley-Fill Distributed
  - Meander-Relict
  - Bar-Island Split
  - Reference IRA and MRA protocols
- Valley and Channel Conditions
  - All of the reference reaches exhibited a generally wide, unconfined valley with a low gradient, high sinuosity with medium gravel
  - Riparian conditions reflected wet meadows of primarily grasses, forbs, and shrubs.
  - Minimal large woody debris contributions
- Geomorphic conclusions
  - Secondary Channel Formation
    - Flow Split
    - Backwater condition
  - Secondary Channel Flow Path
    - Occupy the shorter flow path
    - Slow-motion avulsion controlled by bank stability and structure
  - Preferred Inlet Location
    - 2/3 around the outside of a bend
  - Inlet Angle
    - Commonly acute 45 – 90 degrees

## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

#### IDFG Conference Room

- Bar-island split had slightly lower inlet angles
- Backwater influenced secondary channel inlet angles
- High geomorphic unit frequency
- Biological Overview
  - Goal = Improve the science and engineering practice of multi-thread channel stream restoration design. Identify how reference reach information can be incorporated into the design and implementation of secondary channel fish habitat.
  - Methods
    - Drone Assisted Stream Habitat Surveys (DASH)
    - 660 reaches
    - Quantile Random Forest Models
      - Columbia Habitat Monitoring Program data (CHaMP)
      - Summer Parr/Redds
        - 300 sites for Chinook
        - 600 sites for Steelhead
      - Winter Presmolts
        - 80 sites
        - 600 channel units
    - Reference reach sites don't have high capacities for every species and life stage
    - We can begin to identify habitat metrics most likely driving high-capacity estimates and begin to quantify optimal ranges/conditions
    - What does this mean for secondary channel design and implementation?
      - Summer and Winter rearing
        - Provide options for juveniles
        - Often result in slower velocity habitats
        - Increased cover
        - Deeper the better
        - Microhabitats that minimize energetic expenses while maximizing forage opportunities
      - Spawning
        - Increased complexity
        - Side channels not necessarily built to benefit spawning
      - Fry
        - Slow, off channel habitat
        - Increased connectivity with floodplain
        - Increased cover and forage
  - Questions
    - How do you replicate these evulsions and natural characteristics without adding wood, etc.? Are we relying on 100 year events to replicate reference reaches?
    - Could we turn on a more natural pulse?

#### LR32 Habitat Rehabilitation (Stewart)

- Near confluence of Hayden Creek
- 4 phases
- Middle phase will be on hold due to talks with Knights.



## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

#### IDFG Conference Room

- Confluence phase goal to reactivate old channels and get more water in the cotton gallery
- Challenge with middle phase is L39 diversion. Thought was to move diversion, however some concern from diversion users
- Gary having issues with willows
- Bridges on Spiros property on the Island phase kind of a hiccup
  - Spiro does not want bridges to be moved
- Transparent talk and communication needs to be had between project sponsors, FG, and other partners
- Questions
  - Do you have concerns about moving upstream to downstream and being left with side channels dry?
  - Concerns with frazil ice formation?
    - Frazil ice storage and reduction in sharp turns.
  - Thoughts on Hayden creek high cfs event teamed up with Lemhi high cfs event.

#### **Advisory Presentation – Mike Hall – Juvenile Salmonid Channel Utilization**

- Goal was to understand juvenile anadromous fish interaction with habitat restoration
- Prior work
  - Tracking juvenile Chinook using radio telemetry
  - Tag burden
  - Emigration and Movement
  - Tested acoustic feasibility
- PIT Tags found to be best option
  - No battery, many sizes, variety of antenna sizes
  - Longevity, existing infrastructure, etc.
- Methodology
  - Mainstem array
  - Submersible antennas
  - Litz cords
  - Side channels will have two antennas at inflow and one at outflow
- Data Management
  - PTAGIS
  - Microsoft Access
- Challenges
  - Flooding
  - Spawning Activities
  - Solar Power Issues
  - Wildlife Damage
  - Overall Complexity
- Results
  - Not a lot of detections in restored small side channels
  - Steelhead using larger channels/mainstem that have been restored
  - Chinook illustrated varying utilization of side channels
- Conclusions

## Upper Salmon Basin Watershed Program

### Advisory Committee Meeting

Wednesday, June 5th, 2024 @ 1:00 p.m.

#### IDFG Conference Room

- Fish are using the side channels at varying degrees
- Fish are preferring higher flows and proper sediment type
- Next steps
  - Time
  - Temperature
  - Bottom of side array
  - Side channel inlet evaluations
  - Macro scale

#### **Stacey Meyer – IMW 15-year Report**

- Intensively Monitored Watershed
- 2005 – Snake River Basin Adjudication
- Goal was to implement habitat actions that benefit ESA fish
- Monitoring
  - Spawning ground surveys
  - Electrofishing
  - Rotary screw traps
  - Bull trout weirs
  - PIT tag arrays
- Escapement calculated over many years for both Chinook and Steelhead
- Kenny and Bohannon have the highest Steelhead redds
- Mark-Recapture allows biologist to see what fish are doing while “in” the system
- Monitor fish going out of the system using rotary screw traps
- There is higher survival in tributaries, which is why habitat improvement in mainstem is important
- Goal is for fish to stay in the Lemhi longer, get bigger, and have better chance of making it to the ocean

#### **Megan Heller – Lower Lemhi Rehabilitation Project**

- Adaptive Management = Promotes flexible decision making that can adjust based on events that come up
- Sub- Reach 1
  - Phase 1 = Complete
  - Phase 2 = Complete
  - Phase 3 = Began Jan 2023
  - Phase 4 = Funded in design phase
- Adaptive Management Phase 2
  - Staged equipment
  - Utilized cameras for real time updates

#### **Round Table Updates:**

- Mike Edmondson – OSC
  - Wolverines re-listed

**Upper Salmon Basin Watershed Program**

**Advisory Committee Meeting**

**Wednesday, June 5th, 2024 @ 1:00 p.m.**

**IDFG Conference Room**

- 2026 will be final decision on grizzly bear listing
- Linda Price
  - Field season getting busy
- Paddy Murphy
  - Flows are going down and no major damages at screens