



Northwest **Power** and
Conservation Council

Fish and Wildlife Committee Meeting

Tributary Habitat Update

February 9, 2021

Sean Welch, PE
Tributary Habitat Lead



Allen Childs
Grande Ronde Fisheries
Habitat Program Leader



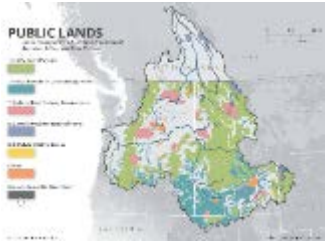
Rock Creek Floodplain Restoration, CTUIR 2018

Presentation Outline

- BPA Tributary Habitat Program
 - Authorities & approach
- Floodplain Restoration Case Study: Birdtrack Springs Restoration
 - Evolution of floodplain restoration
 - Project approach and design
 - Construction and post implementation impacts
- Longley Meadows Project & 2020 Work
- Questions



Middle Upper Grande Ronde, CTUIR 2019



Tribal Trust Responsibilities



Northwest Power Act

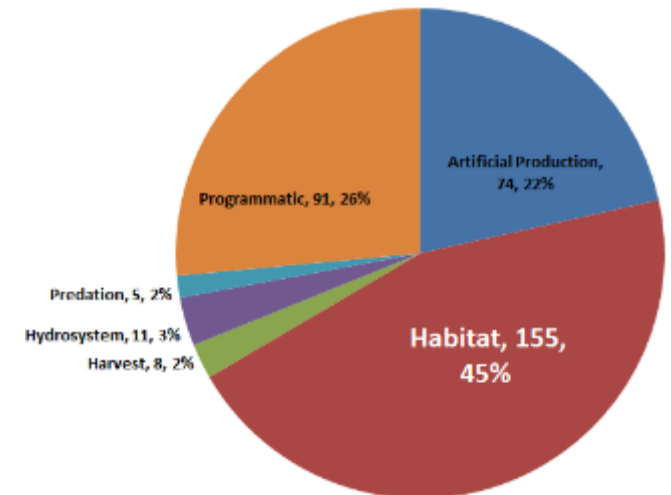
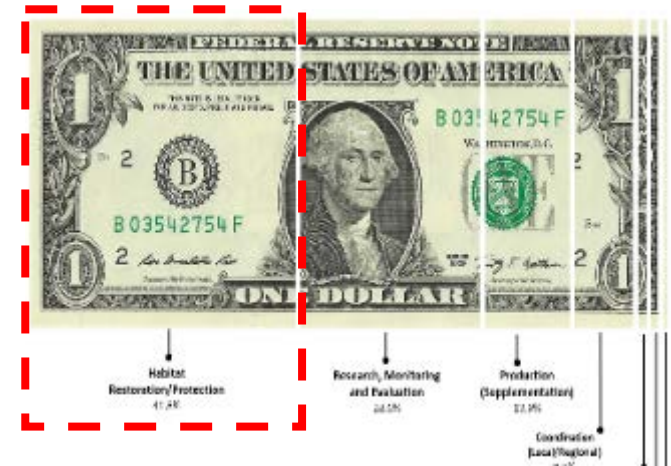


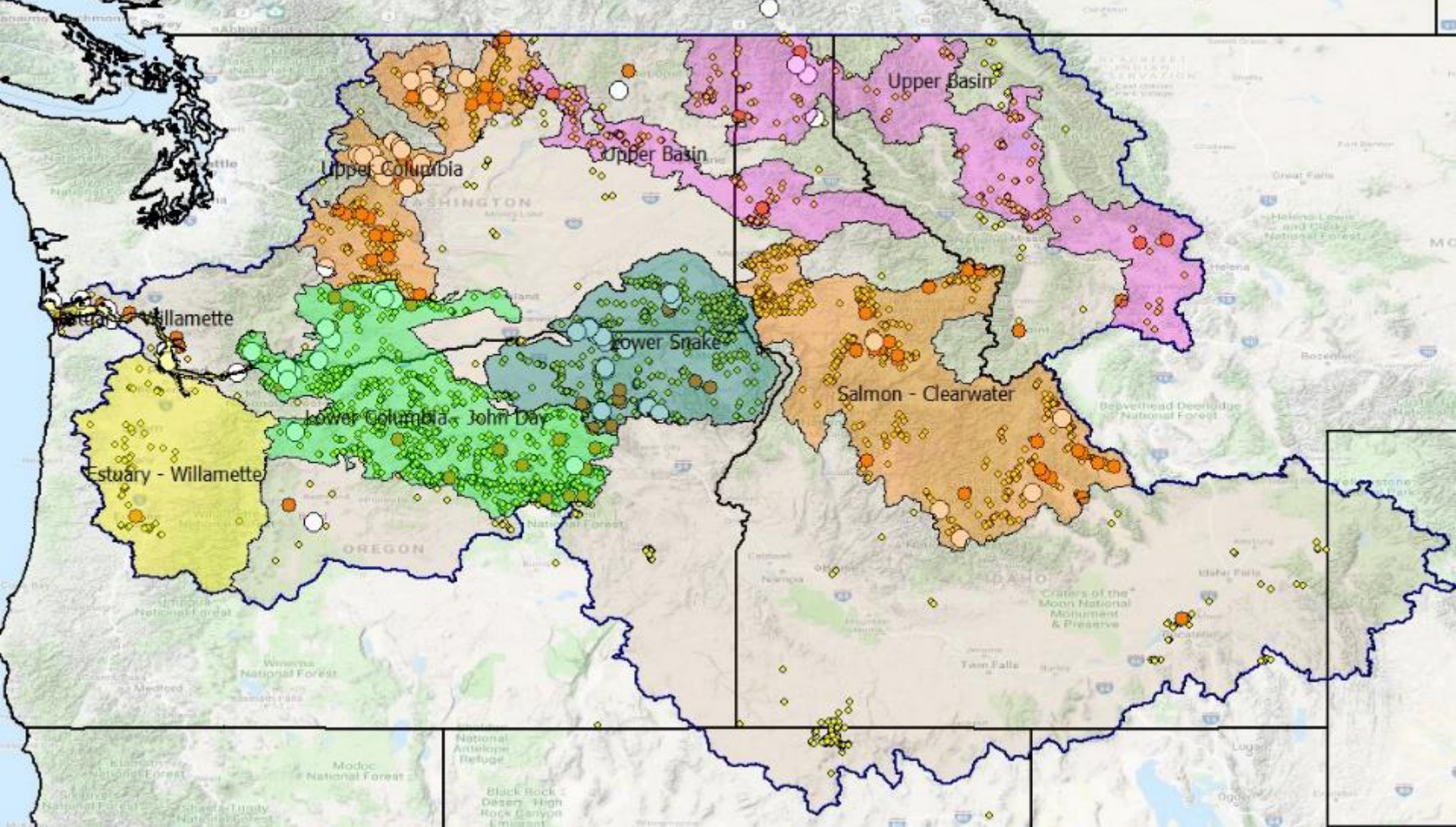
CRS Biological Opinions



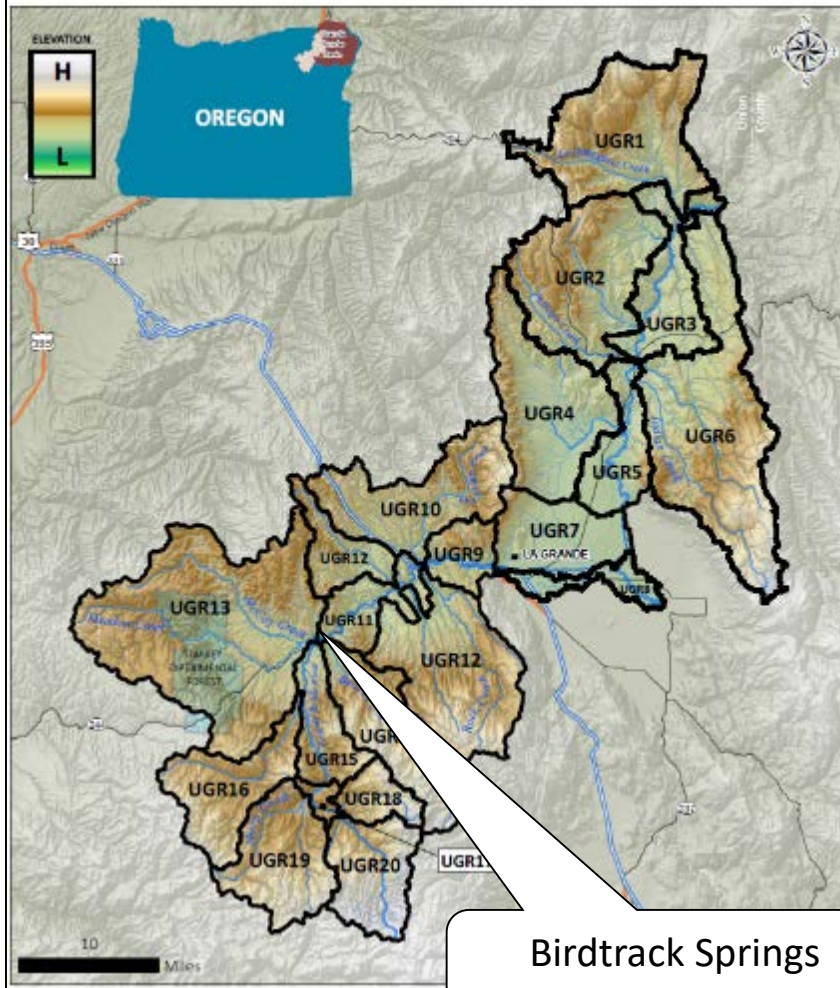
BPA 2016-2023 Strategic Plan

BPA Strategic Plan





Continue to support transition of F&W funded conservation programs from *opportunism* to a *strategic* approach where watershed conservation priorities are outlined and local partners are aligned around a common action plan that leverages respective abilities and supports integrated efforts to implementation.



Birdtrack Springs
Floodplain Restoration

2014 Council Program - Emerging Program Priorities:

2. Implement adaptive management by assessing the effectiveness of ongoing projects, and taking into account the effects of climate change
7. Continue efforts to improve floodplain habitats

The NOAA Science Center:

Actions are among the highest priorities for restoring salmon habitat and addressing climate change include:

- Removing barriers
- Reconnecting floodplains
- Restoring incised channels
- Improving streamflow

1996-083-00 Grand Ronde Watershed Restoration (CTUIR)
1992-026-01 Grande Ronde Model Watershed (GRMW)
1984-025-00 Grande Ronde-Umatilla Fish Habitat (ODFW)

CTUIR Grande Ronde Watershed Project

NPCC Project #1996-083-00



CTUIR Grande Ronde Habitat Staff

Allen Childs – Project Leader

Jake Kimbro – Fish Biologist

Travis Dixon – Fish Biologist

David Mack – Fish Technician

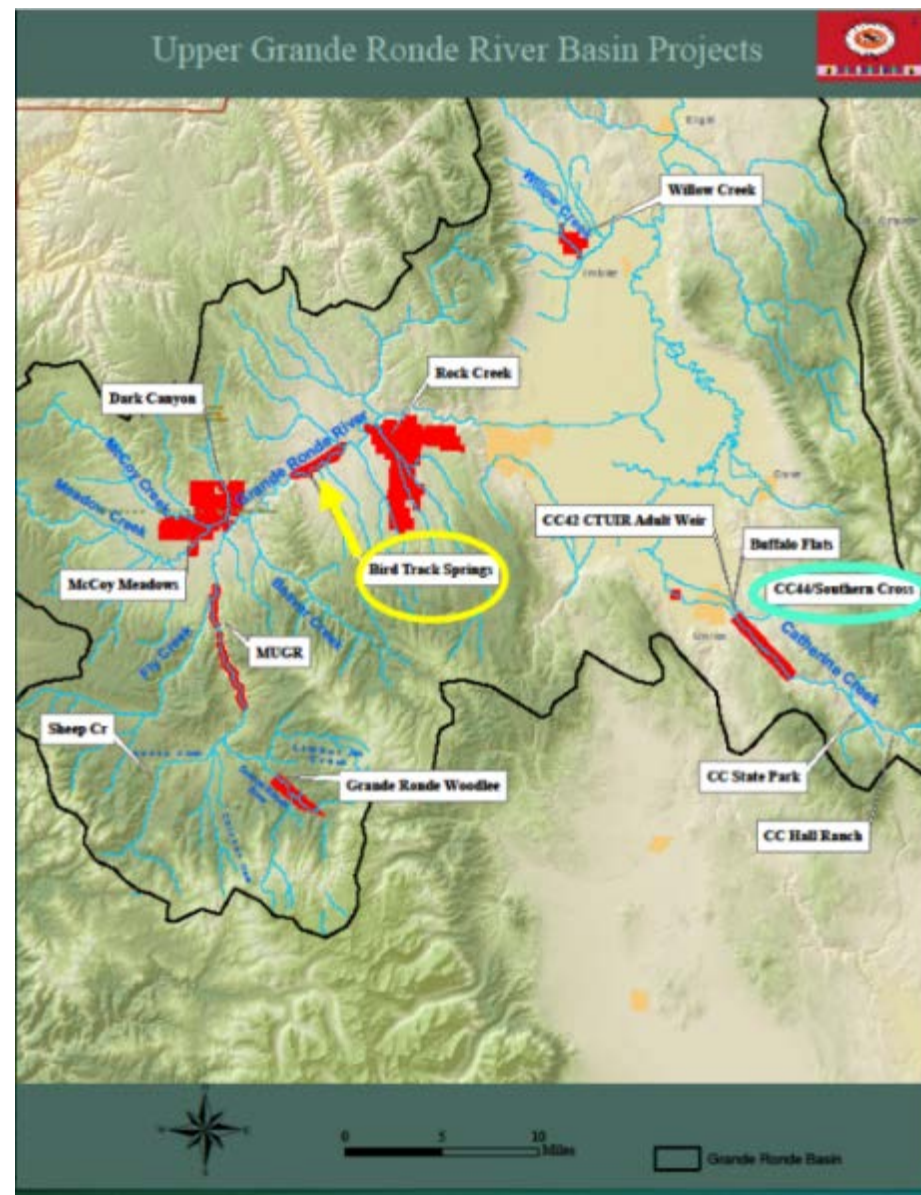
Dwayne Pecosky – Fish Biologist

CTUIR Grande Ronde RME Staff

Les Naylor – Project Leader

Carrie Crump – Fish Biologist

Andy Van Sickle – Fish Biologist

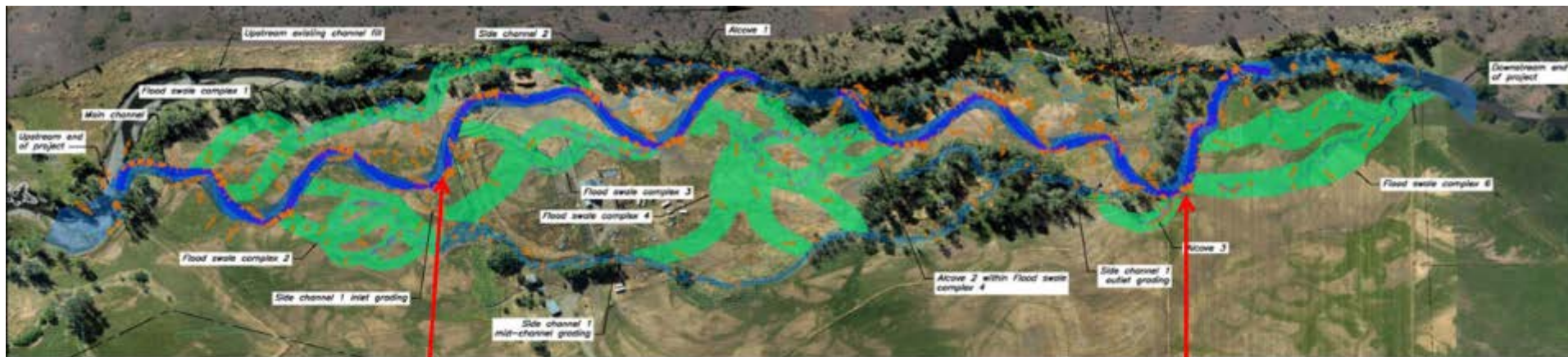


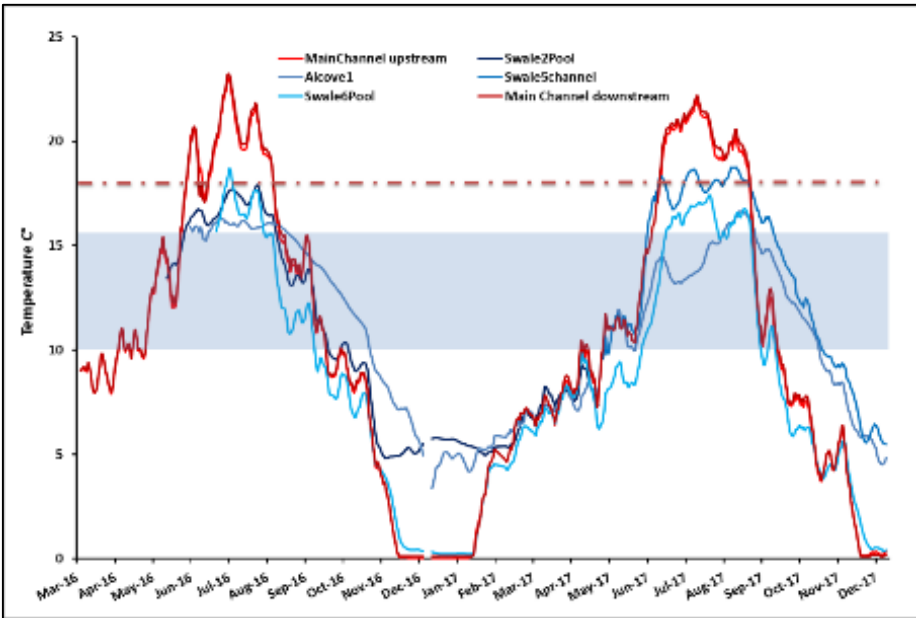
WESTERN RIVERS
CONSERVANCY



Catherine Creek – Southern Cross Fish Habitat & Floodplain Restoration

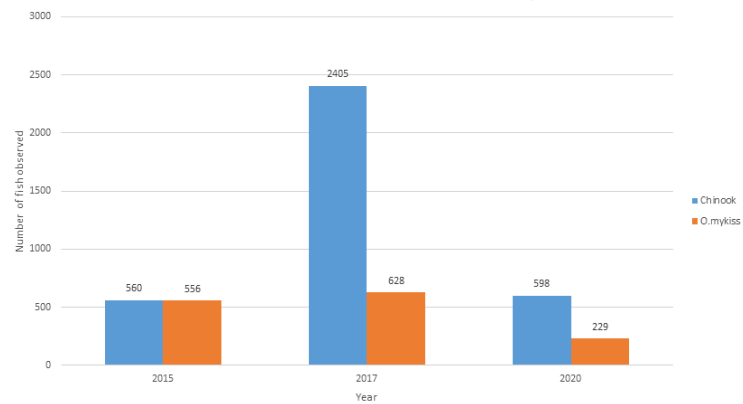
(Construction 2015 to 2016)





Southern Cross Chinook Spawning			
Year	SC Chk Redds	CC Total Redds	% of Total
2014	3	383	0.78%
2015	2	222	0.90%
2016	5	146	3.42%
2017	0	51	0.00%
2018	4	69	5.80%
2019	1	83	1.20%
2020	5	126	3.97%

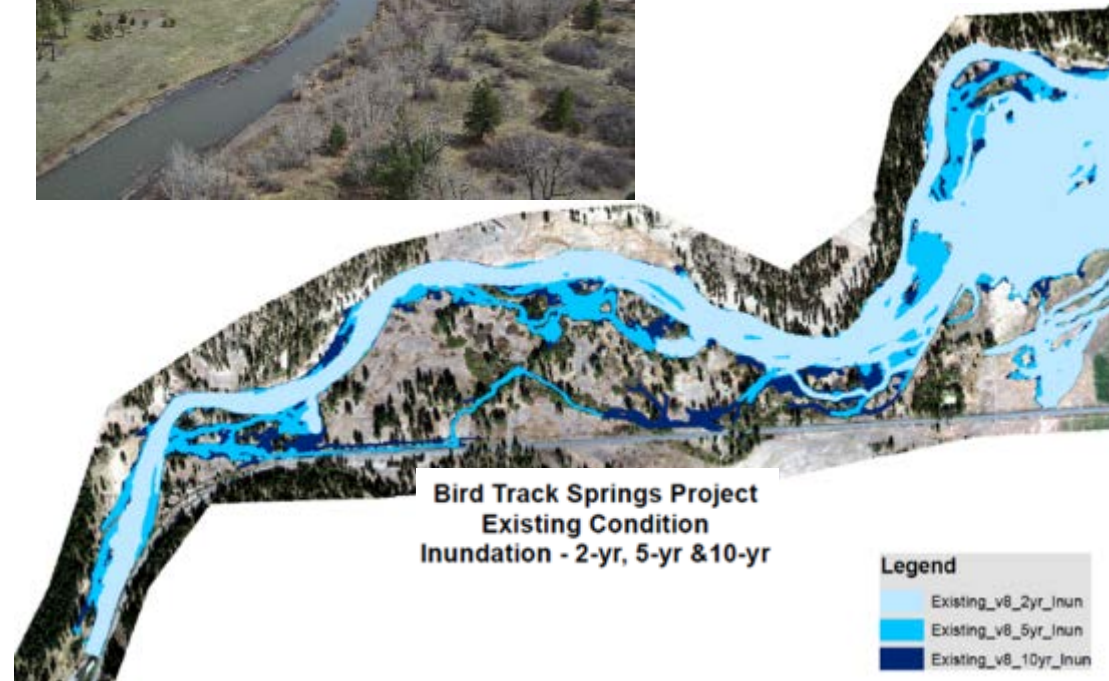
Catherine Creek - Southern Cross Snorkel Surveys





Existing Conditions & Limiting Factors

- Disconnected **Floodplain**
- Over-widened & homogenous
- 70% loss of historic pools
- Lack of habitat complexity (wood)
- Embedded streambed
- Altered thermal regime



Project Planning & Design

Project Design Objectives

1. Geomorphic Planform

(“Floodplain is the River”.. Stan Gregory)

Plane Bed to “Forced Island-Braided” connected to floodplain

2. Wet the Sponge

Greater frequency & duration of floodplain inundation, groundwater & hyporheic connection

3. Water Temperature

Restore thermal diversity and refuge

4. Complexity and Diversity

Pools, riffles, runs and glides, side channels, alcoves, sediment, wood and riparian habitat

5. Side Channels & Alcoves

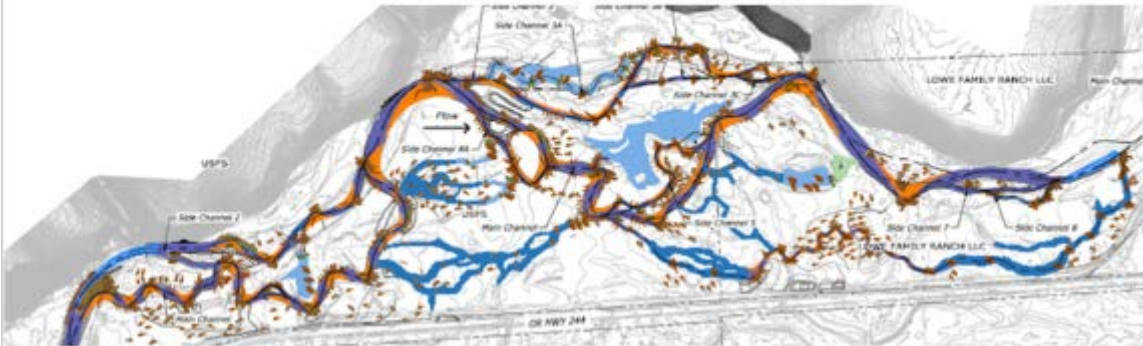
Off-channel, low velocity habitats

6. Riparian & Beaver Habitat Suitability

**BIRD TRACK SPRING FISH HABITAT & FLOODPLAIN RESTORATION PROJECT
(Existing Condition)**

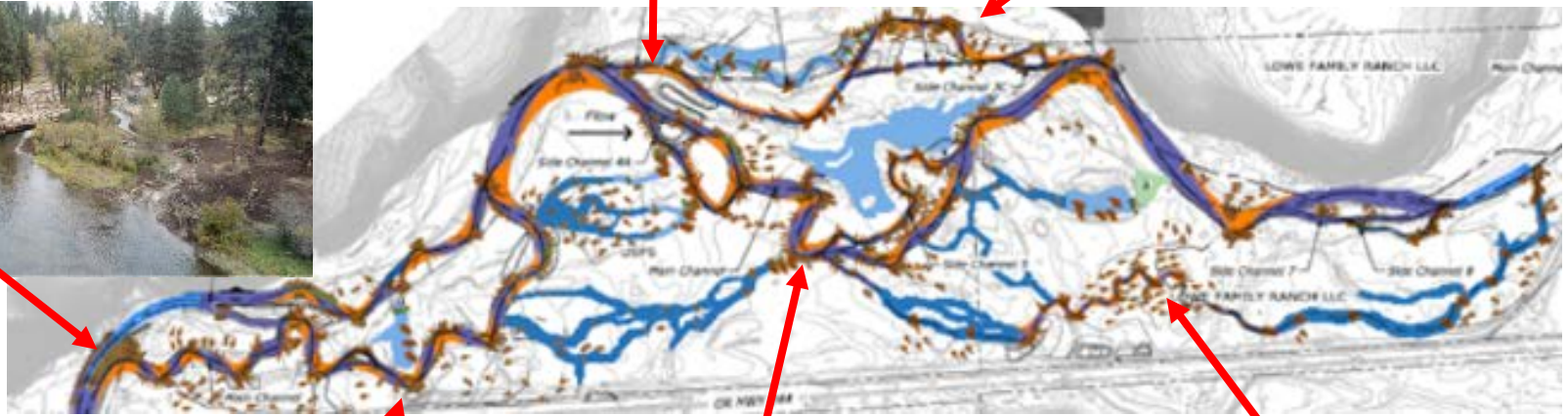


PROJECT DESIGN



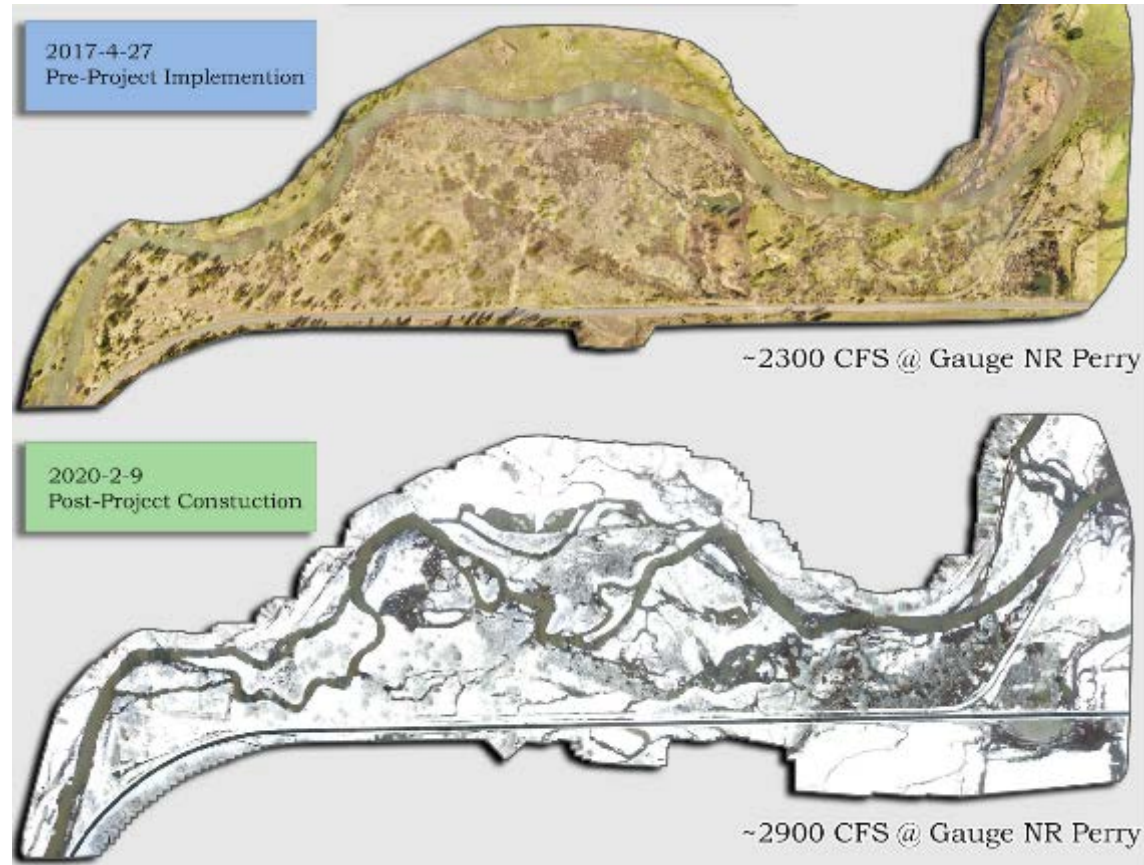
NOVEMBER 2019 ORTHO IMAGE (95% CONSTRUCTION COMPLETED)





Project Features

- ~**135** acres of reconnected historic floodplain
- 9,500 ft. new channel
- 1,200 ft. new alcove
- 2,000 ft. floodplain swales
- **17** Large main channel pools (10 pools/mile, 900% increase)
- **47** Medium side channel pools (26 pools/mile)
- 300+ large wood structures
- 250+ floodplain wood structures
- 3,700 ft. streambank bioengineering



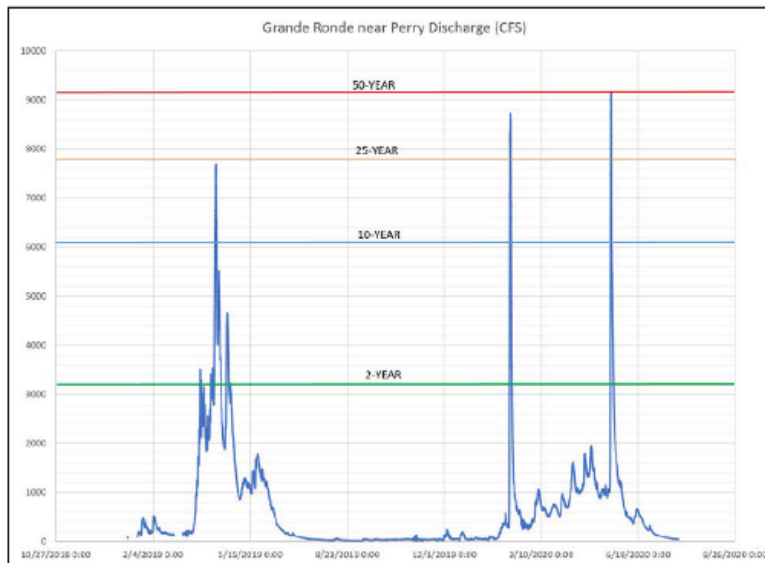
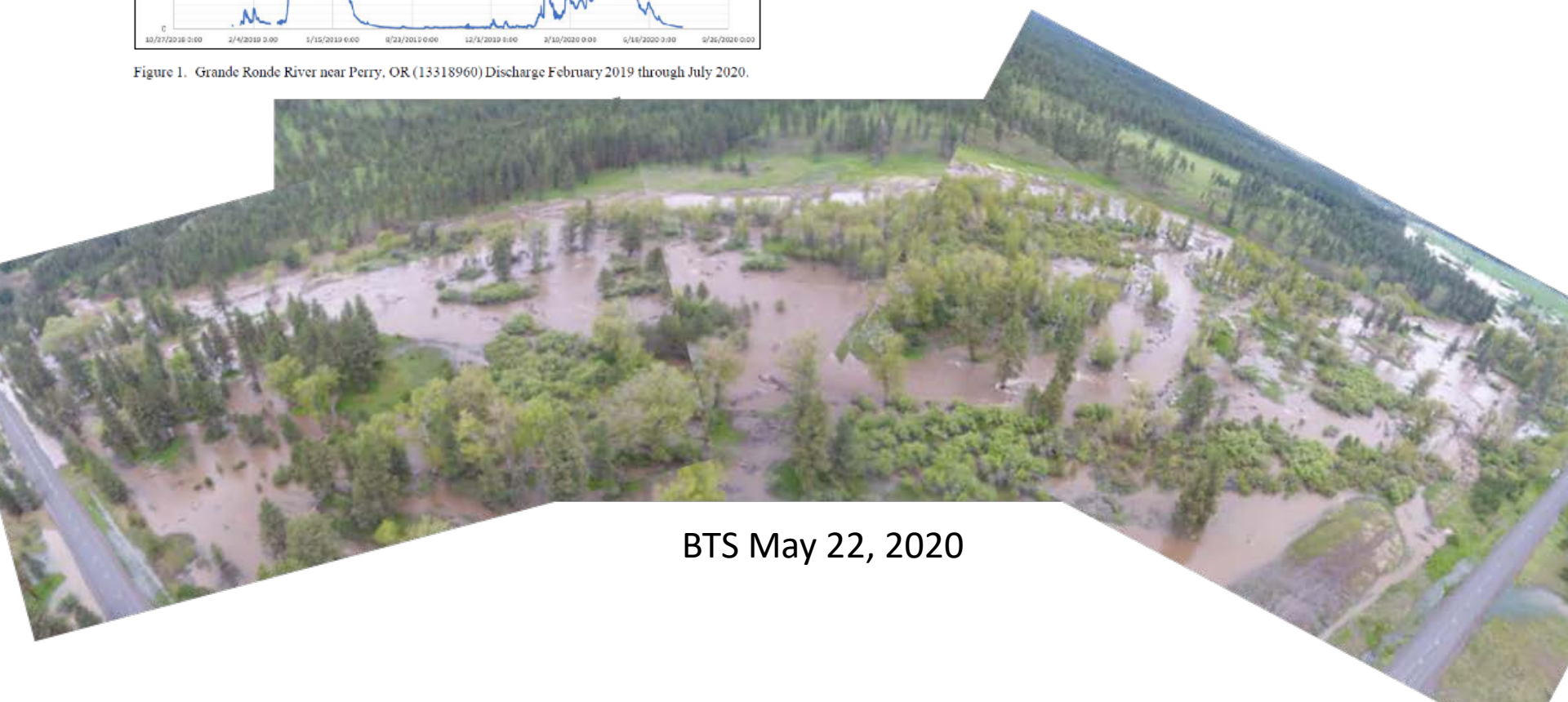


Figure 1. Grande Ronde River near Perry, OR (13318960) Discharge February 2019 through July 2020.

RANK	Date	Peak Flow
1	1/30/1965	9,424
2	1/1/1997	6,563
3	5/20/2020	6,320
4	2/7/2020	6,017
5	3/18/1932	5,935
6	3/31/1931	5,681
7	4/9/2019	5,306
8	5/16/2011	5,245
9	2/23/1986	5,234
10	5/8/1956	5,060

Table 1. The top 10 historical peak flows at Grande Ronde River below Jordan Creek measured and reconstructed for the project reach (at historic gauge 13318500, Grande Ronde near Hilgard, RM 142.9) from water years 1904-2020. Reconstructed flows are adjusted from measurements at gauges 13319000 and 13318960.



BTS May 22, 2020

MONITORING & EVALUATION

- Hyporheic and Cold Water Refuge

Research *"How do stream and floodplain rehabilitation practices create or enhance thermal refuge at different spatial scales?"*

- Water and air temperature

- Groundwater (temp & elevations)

- Flow (Stage Recorders)

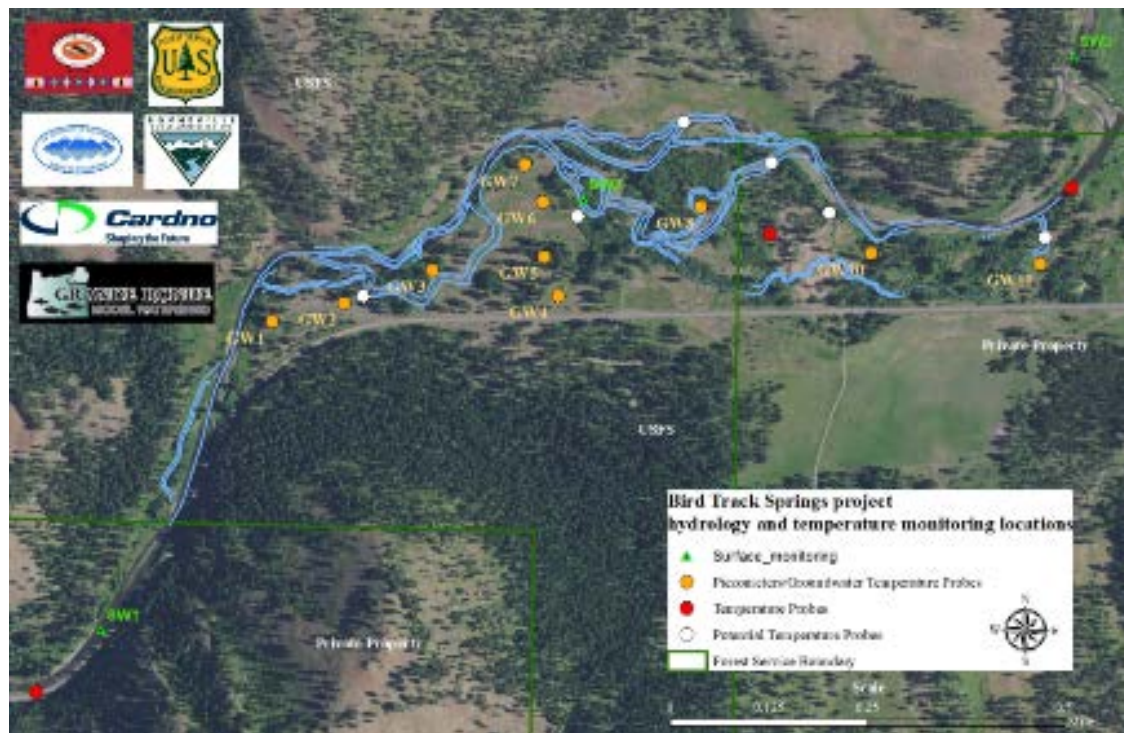
Spawning surveys

Snorkel surveys

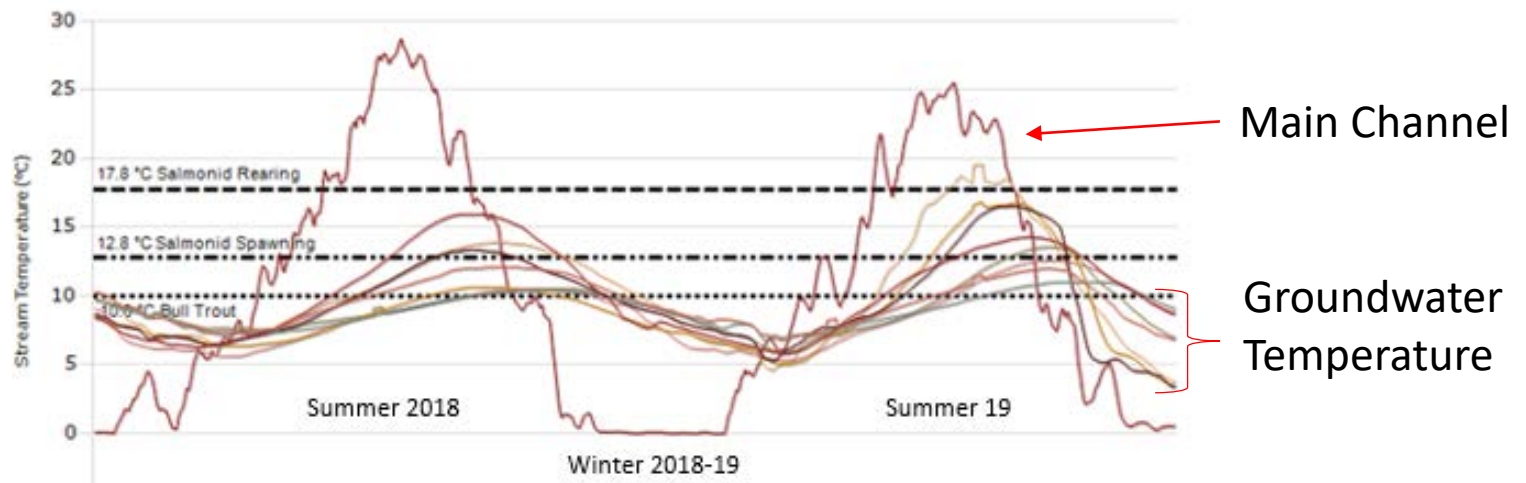
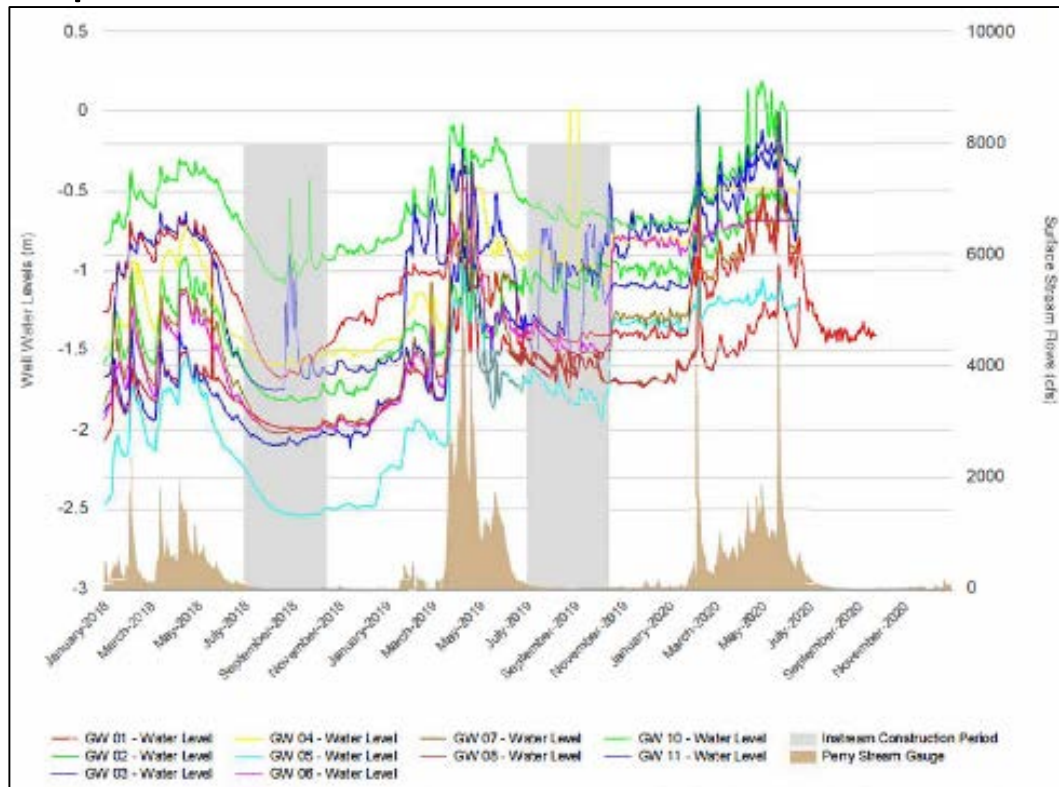
Habitat & Morphology

Remote Sensing (drone, LIDAR, FLIR)

Photo points and ortho imagery



Temperature & Groundwater Evaluations



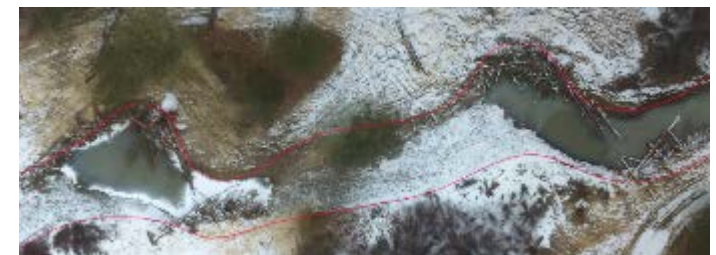
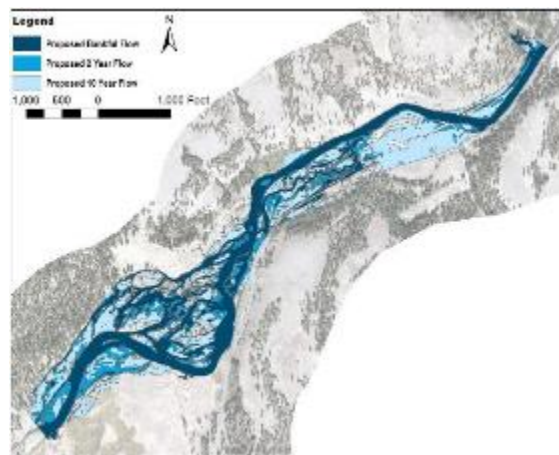
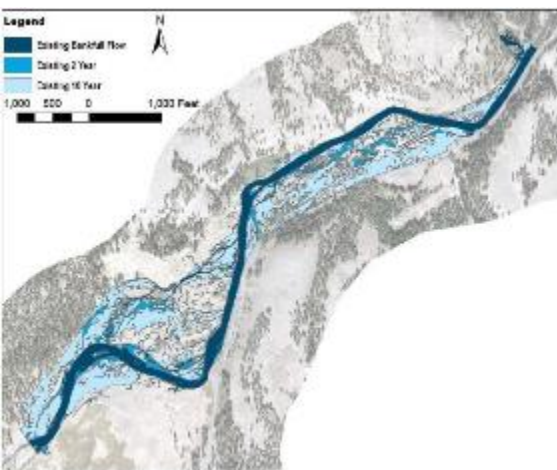
Grande Ronde River Longley Meadows Project

Year 1 Construction (Oct-Dec 2020)

Project Completion Nov 2021

2 Mile Project Reach

- 70 acres floodplain restoration
- 0.54 miles new main channel
- 1.4 miles side channel
- 450 ft. alcove



Thank You



Questions

