18-1412 Mason Creek Planning & Acquisition

Patrick Lee, Clark County, and Paul Kolp, Lower Columbia Estuary Partnership

LCFRB Draft Application Review: May 15, 2018

Acquire 60 acres & Develop Designs: 1 mile- Mason Cr. & E. Fork

Restoration actions : EF Lewis 4C, 5A..... & Mason Cr1 .....

Benefiting reaches: Swanson Creek & Mason Cr2

Primary limiting life stages: pre-spawn holding, spawning, rearing, egg & fry

Primary limiting factors: temperature, habitat quantity/quality & sediment

Species: chum, Chinook, steelhead, coho and cutthroat

Goals

1. **Acquire Parcels** to achieve 2 high priority projects as part of the Lower East Fork Habitat Restoration Plan (LCFRB 2009) & may be our last chance current landowners
2. **Watershed Approach** to connect with other projects and address identified limiting factors in the basin
3. **Restore** juvenile rearing and spawning habitats & riparian buffers along 1 mile of the E. Fork & Mason Cr.
4. **Continue county stewardship** and high community support for this project.
5. Support East Fork designation of **wild steelhead gene bank**
6. Expand **cold water refuge** potential

Objectives

Acquire 62 Acres along Mason Creek through acquisition and easements

Provide access to off-channel refugia- **habitat diversity and quantity & key habitat**

Age 0, Age 1- rearing (all species)

Restore alluvial functions to Mason Cr. including increasing pools and large woody debris and sediment retention- **habitat diversity and quantity & key habitat**

Fry Colonization, egg incubation, Age 1 active rearing (all species)

Increase gravel retention and reduce fines- **sediment**

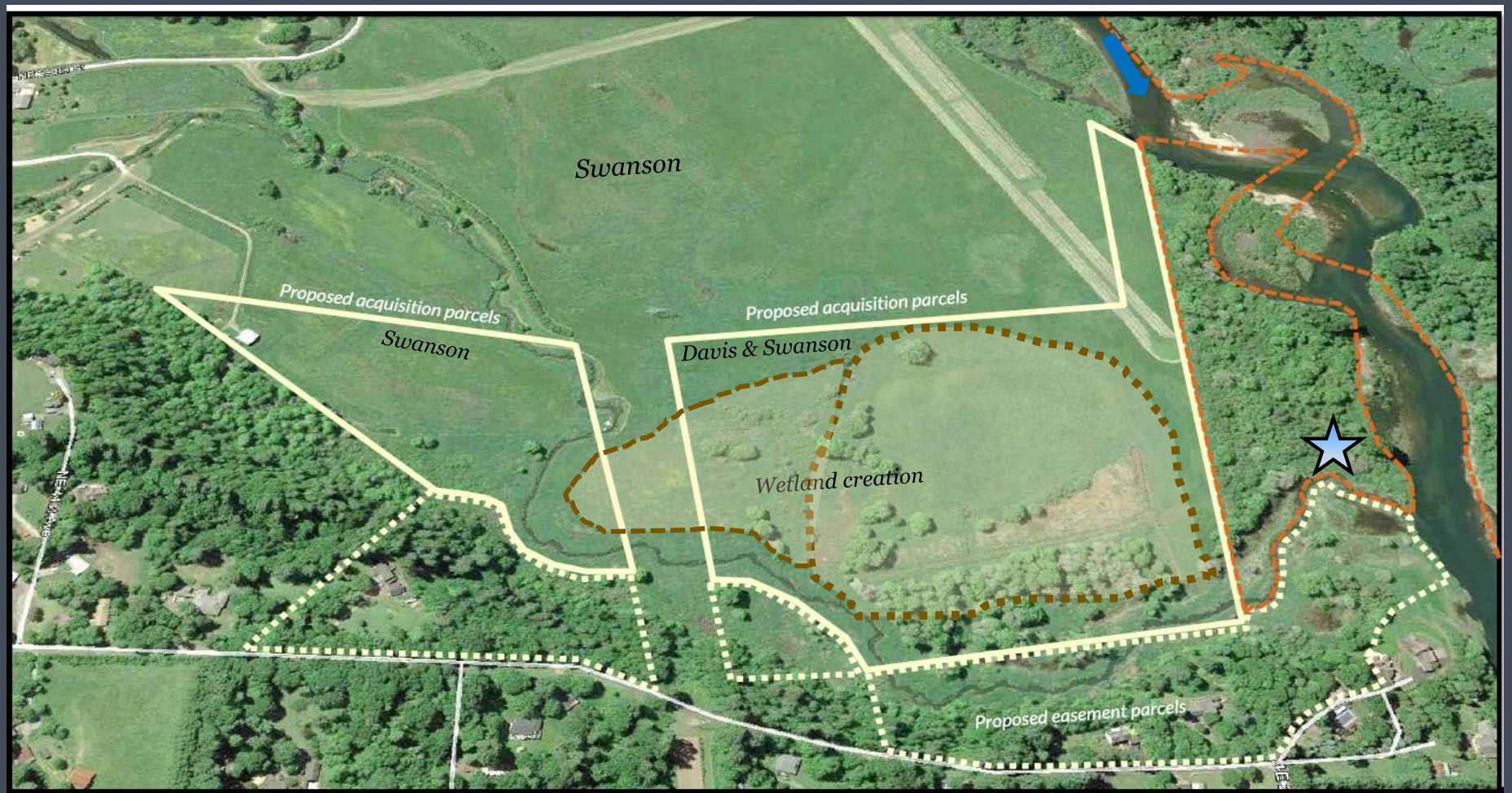
Spawning- Chinook

Reduce instream temperatures and capture cold water- **temperature**

Age 0 rearing, spawning, fry colonization (all species)

Improve riparian habitat conditions- **key habitat** (all species)

Acquisition & Landowners



49 acres- Fee

12 acres- Easement

Watershed Approach & Stewardship

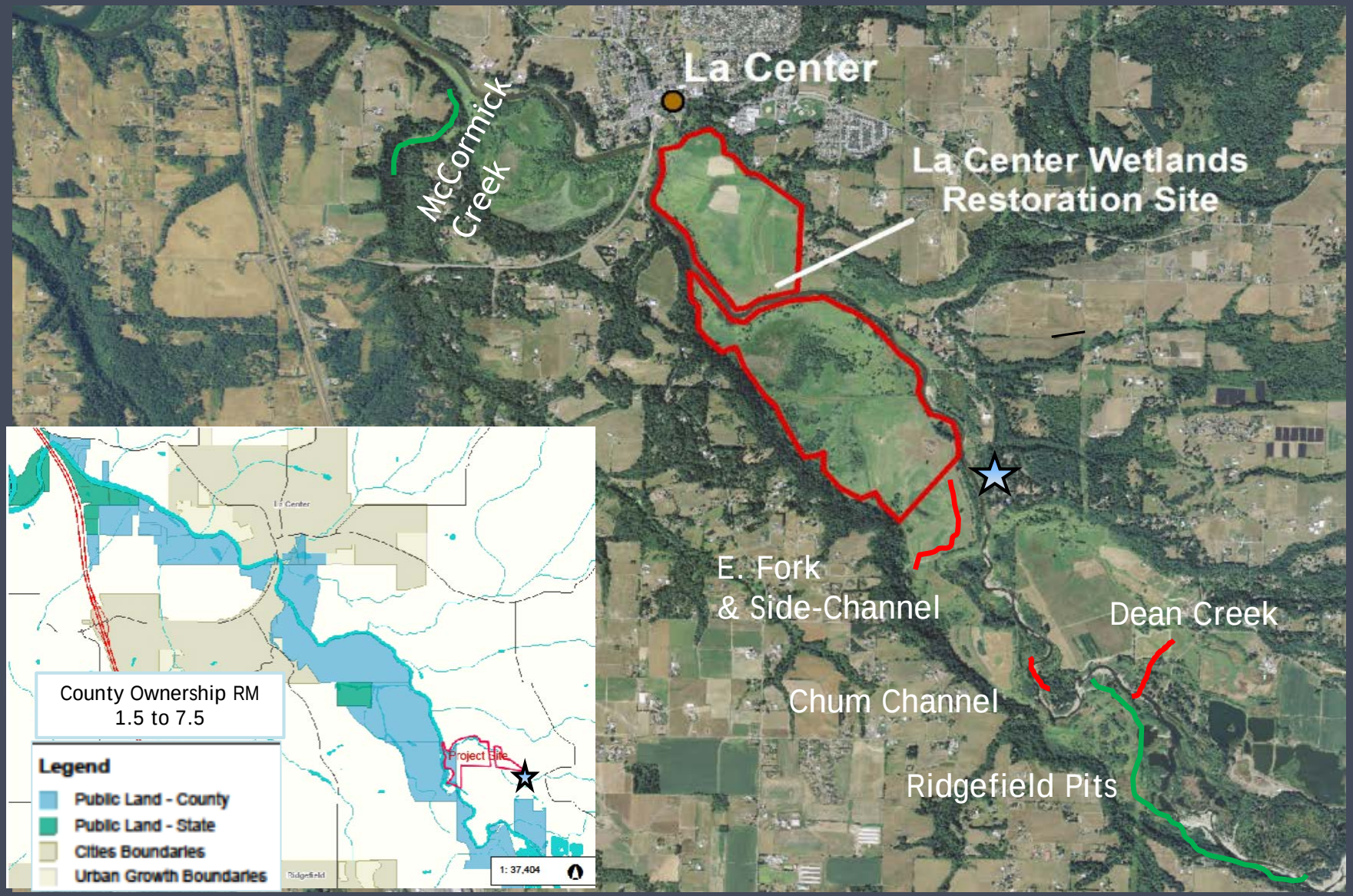
East Fork Greenway assembled over the last 35 years.

Over ten restoration projects have been competed on County-owned land

County and partners have assembled 2,200 acres along the East Fork Lewis River Greenway

This Project builds off other projects!!

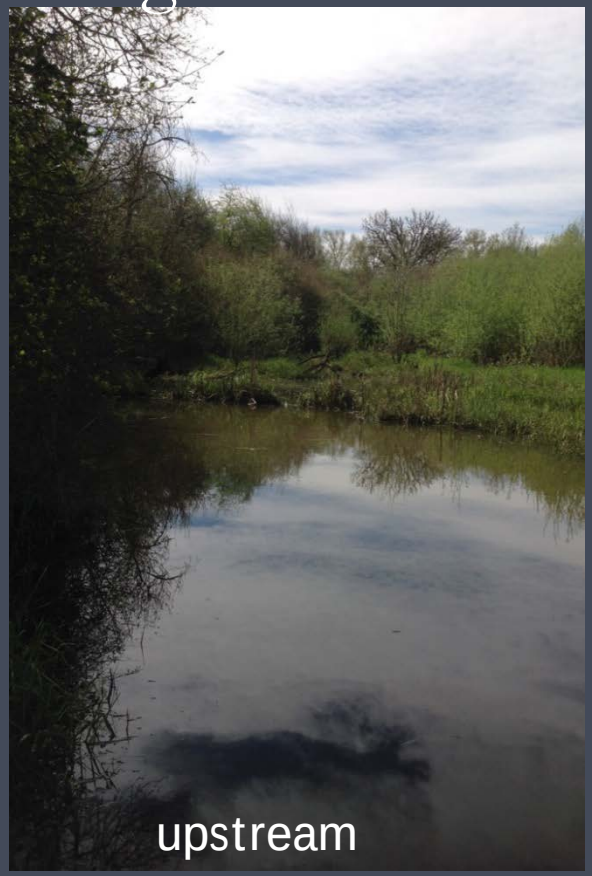
Watershed Approach

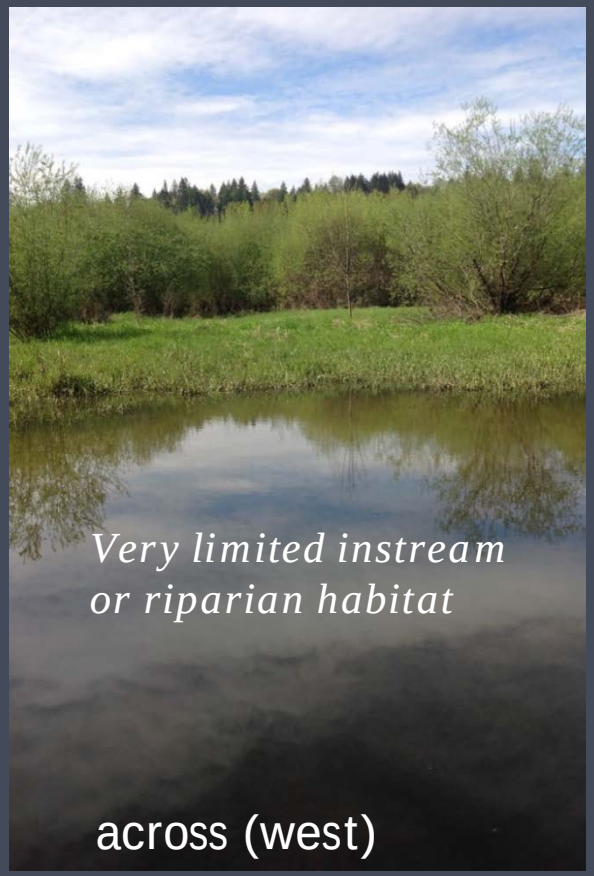


E. Fork- Mainstem & Side Channel

Problem- habitat diversity/quality, temp

Solution- Enhance with habitat features & riparian revegetation





Mason Creek

Problems

-Incision
-limited floodplain access
-no riparian buffer
-limited pools
-limited spawning
-no habitat diversity
-sediment & temperature

Solution(s)

-connect floodplain & create wetland
-riparian revegetation
-create pools
- trap gravels
- incorporate cold water

Designs- Mason Cr.

Wetland/Off-channel- regrade, remove ditches and bring up channel elevations

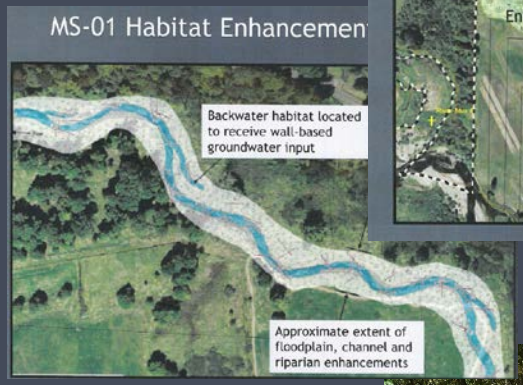
Improve habitat- sediment seed?, install wood (low profile) & beaver?

Riparian- high density planting

Cold water- excavate/capture

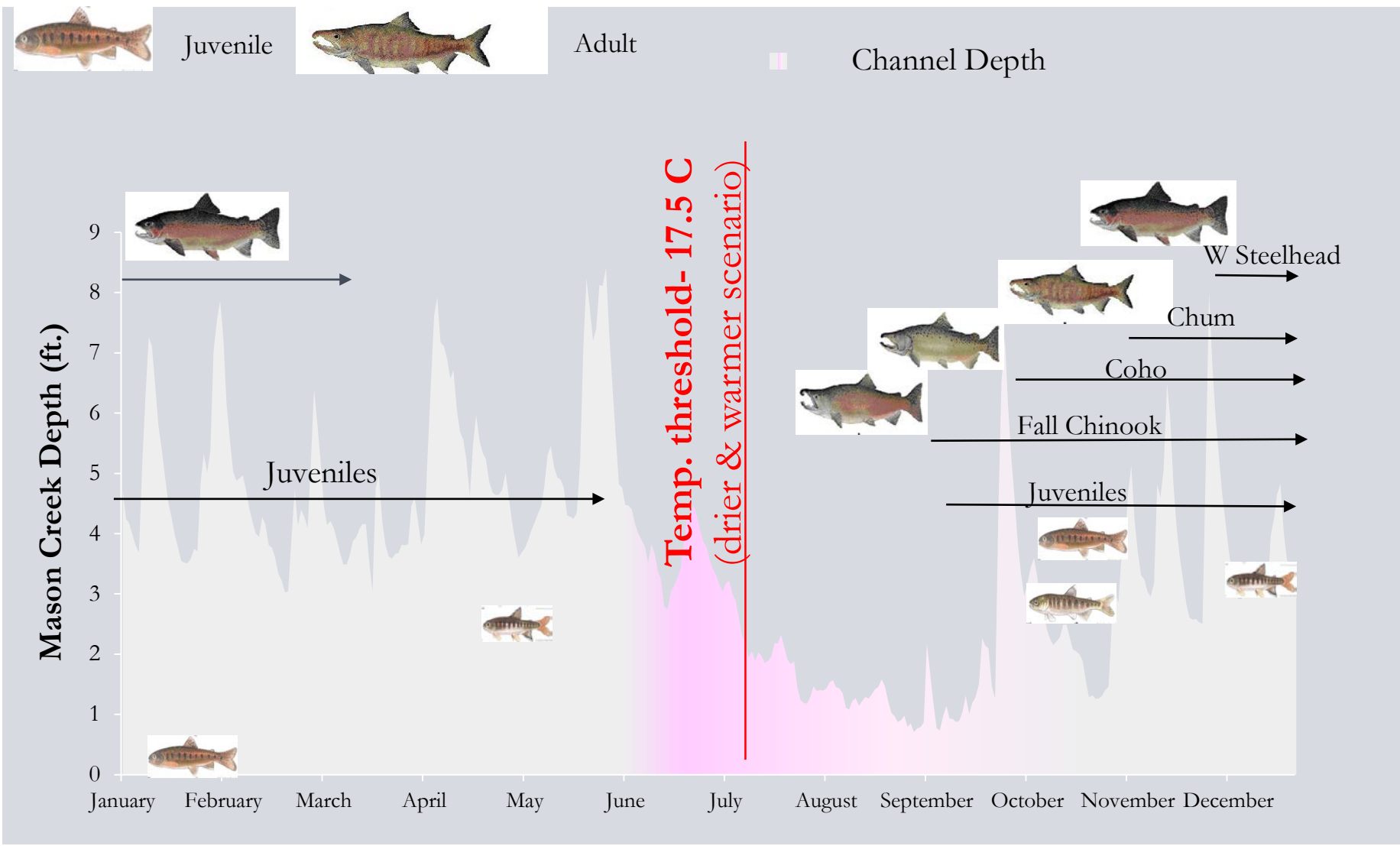
Design Considerations

- Power line
- Alluvial- gravel recruitment
- Fish use timing (October May)
- Alternatives Analysis to inform designs
- Adjacent restoration projects



Designs Riparian- Mason Cr. & . Fork

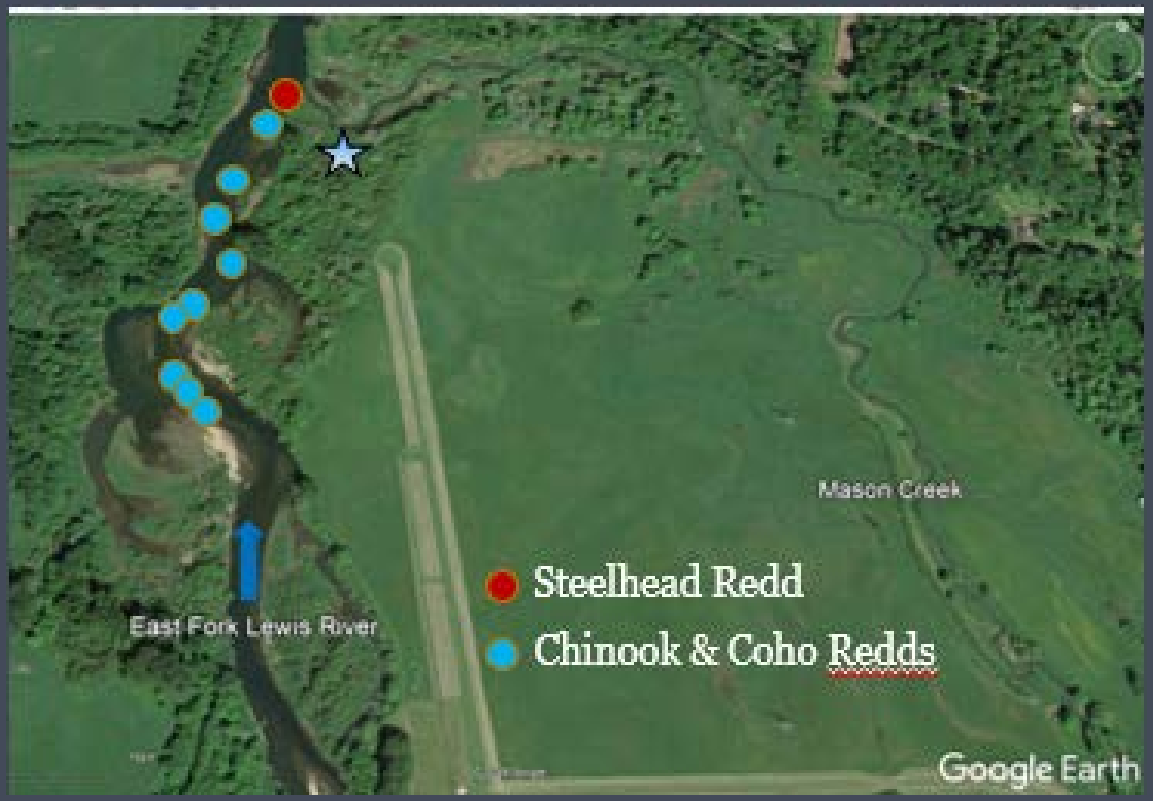
Salmon Use & Climate Change *



* Based on data from WDFW (1999) & Cindy Baker (2008)

Certainty of Success

- Incorporate lessons from adjacent restoration projects
- Off-channel rearing and spawning documented (C. Baker & WDFW)
- Don't "reinvent the wheel"…… use existing information & data
- Wetland potential exists (NWI)



Predicted Uplift- Mason Cr.

	Current (per/mile)	With project (per/mile)	Predicted increase (%)
Pools	5	20	300%
LWD	1	175	A LOT
Spawning Gravels (Redds)	2	8	300%
Willows/ Shrubs	0	A LOT	A LOT

Cost Considerations

Total: $748,110

SRFB Request: $561,092 (75%)

Design Costs for MS 01 & EF 41 were $130k (2009) & ask today is $150k

Local Match: $187,018 (25%)

Project Support

Project identified as a high priority in the East Fork Habitat Restoration Plan

Project included in Clark County Comprehensive Parks Recreation and Open Space Plan & Conservation Areas Acquisition Plan 6-year capital project list

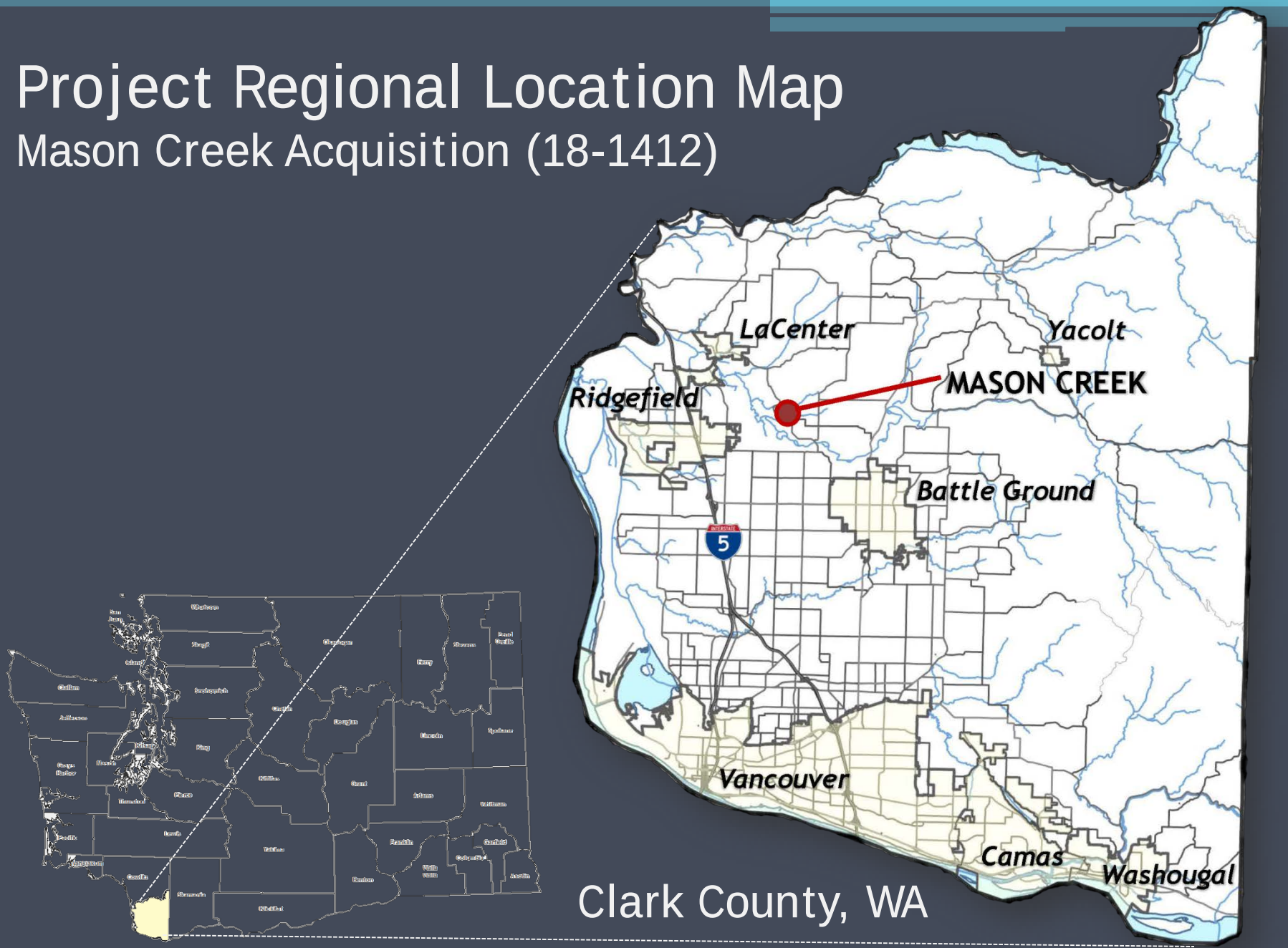
County Council has approved funding for the project

Questions ?

Thank you!

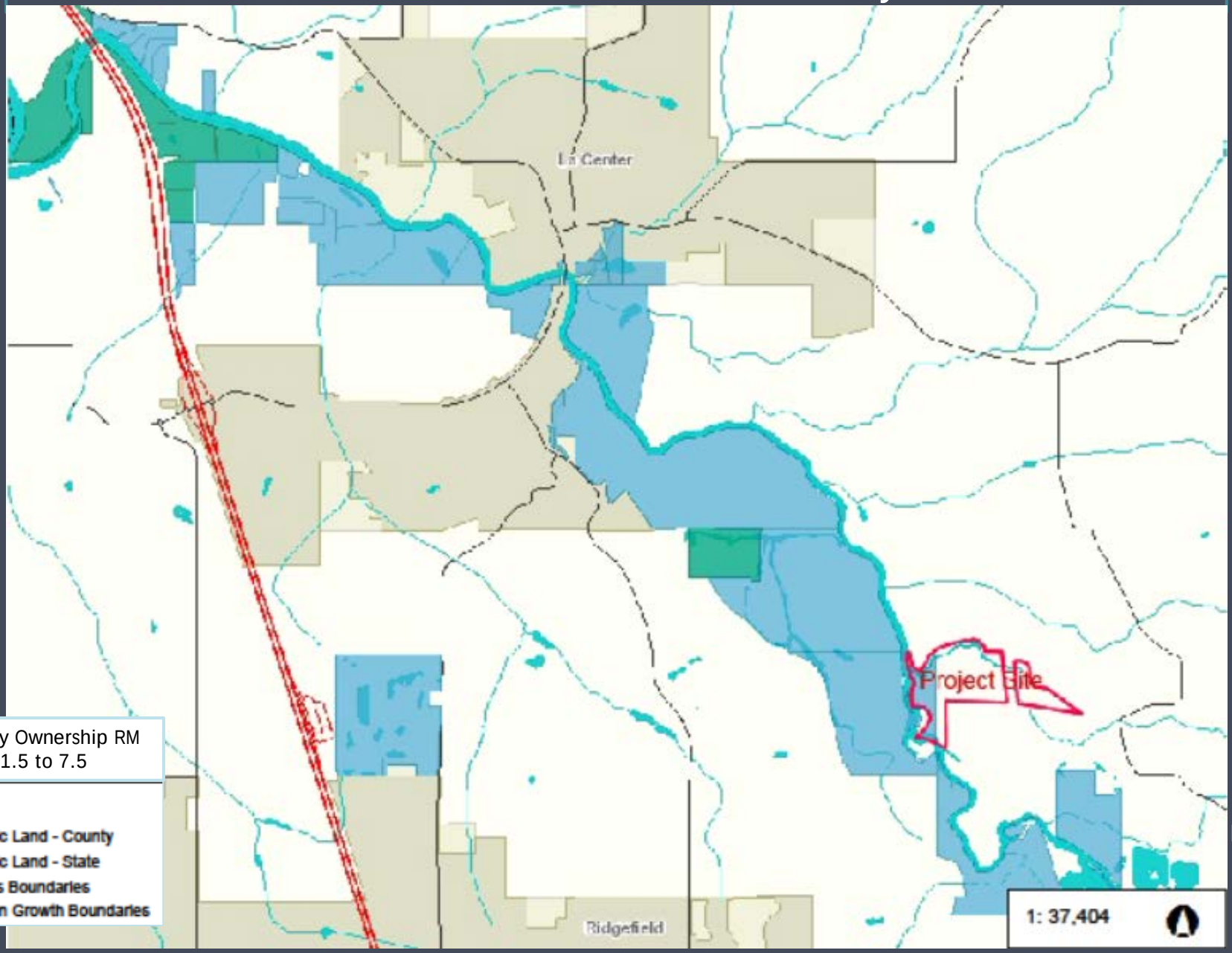
Project Regional Location Map

Mason Creek Acquisition (18-1412)



Project Location Map

East Fork Lewis River Greenway



Project Scope

- Acquire 49.8 acres in fee and 12 acres in easement
- Develop preliminary restoration design for the acquired parcels and an adjacent 19.25 acre county-owned parcel

Site Overlook from Stoughton Road (looking south)

Key Restoration Location

Upstream end of existing County Parcel looking downstream

Red – Tier 1
Yellow – Tier 2

Acquisition Objectives

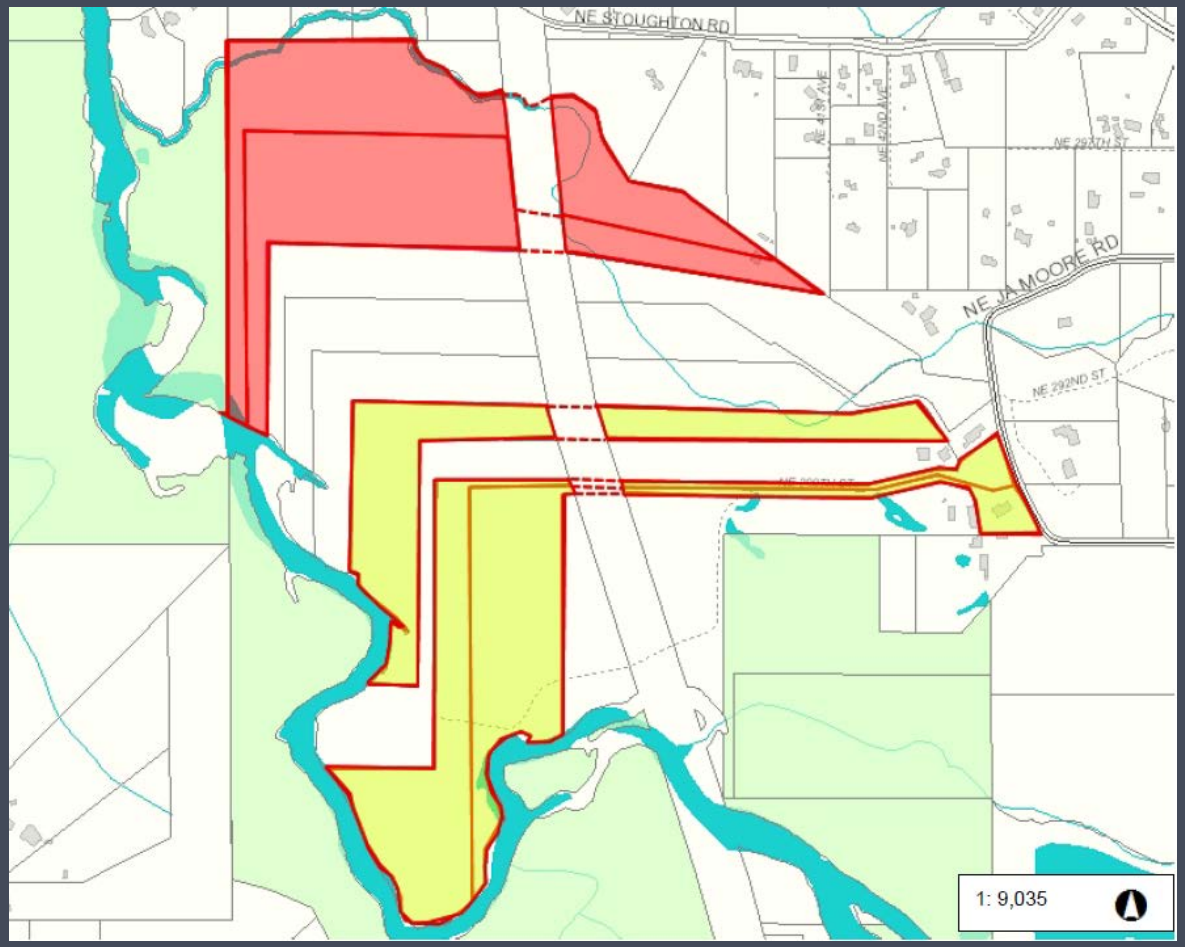
- County-Owned Land
- Fee Acquisition Parcels
- Other Parcels For Sale

Key restoration location

County owns mouth and 1,049 lineal feet of Mason Creek

County owns 2,600 lineal feet of EFL right bank

County also owns left bank of East Fork Lewis River



Parcels for Sale

Limiting Factors

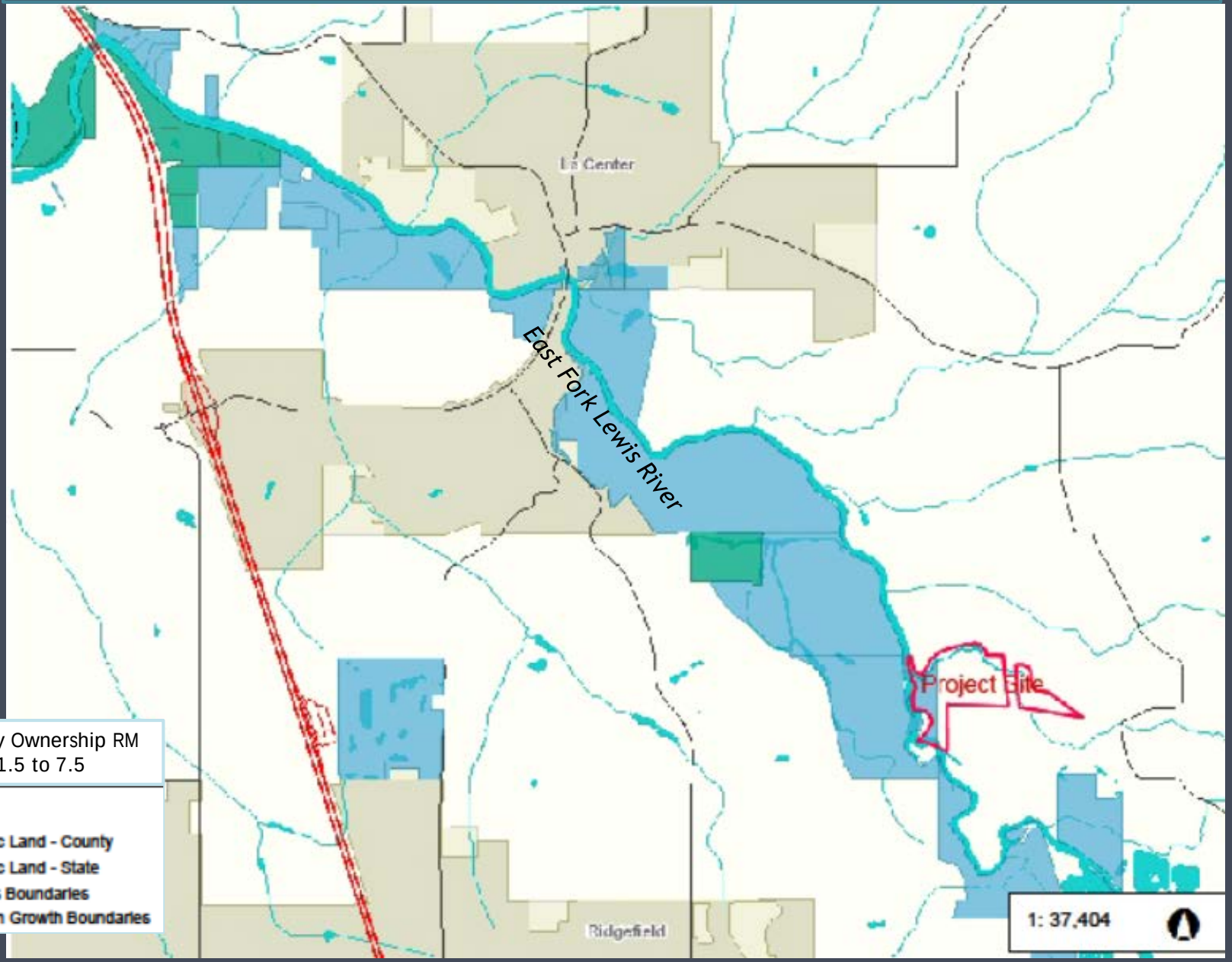
East Fork Lewis River EDT Reaches 4C and 5A

Species	Primary limiting life stages	Primary limiting factors	Relevant Months
Chum	Prespawn holding; Egg incubation	Habitat diversity/quantity; Sediment	Oct-Jan; Oct-Apr
Fall Chinook	Egg incubation; Spawning	Sediment; Temperature	Nov-May; Oct-Nov
Coho	Age-0 inactive; Age-0 active rearing	Key habitat quantity; Temperature & key habitat	Oct-Mar; Mar-Oct

Mason Creek EDT 01

Species	Primary limiting life stages	Primary limiting factors	Relevant Months
Coho	Age-0 active rearing; Egg incubation; Fry colonization	Temperature, key habitat quantity Sediment, channel stability Key habitat quantity/quality	Mar-Oct Oct – May Mar-May
Winter Steelhead	Age-0,1 inactive rearing; Age-1 active rearing; Fry colonization	Habitat diversity Habitat diversity Habitat diversity, temperature , flow	Oct-Mar Mar-Oct May-Jul

Surrounding County Land Ownership



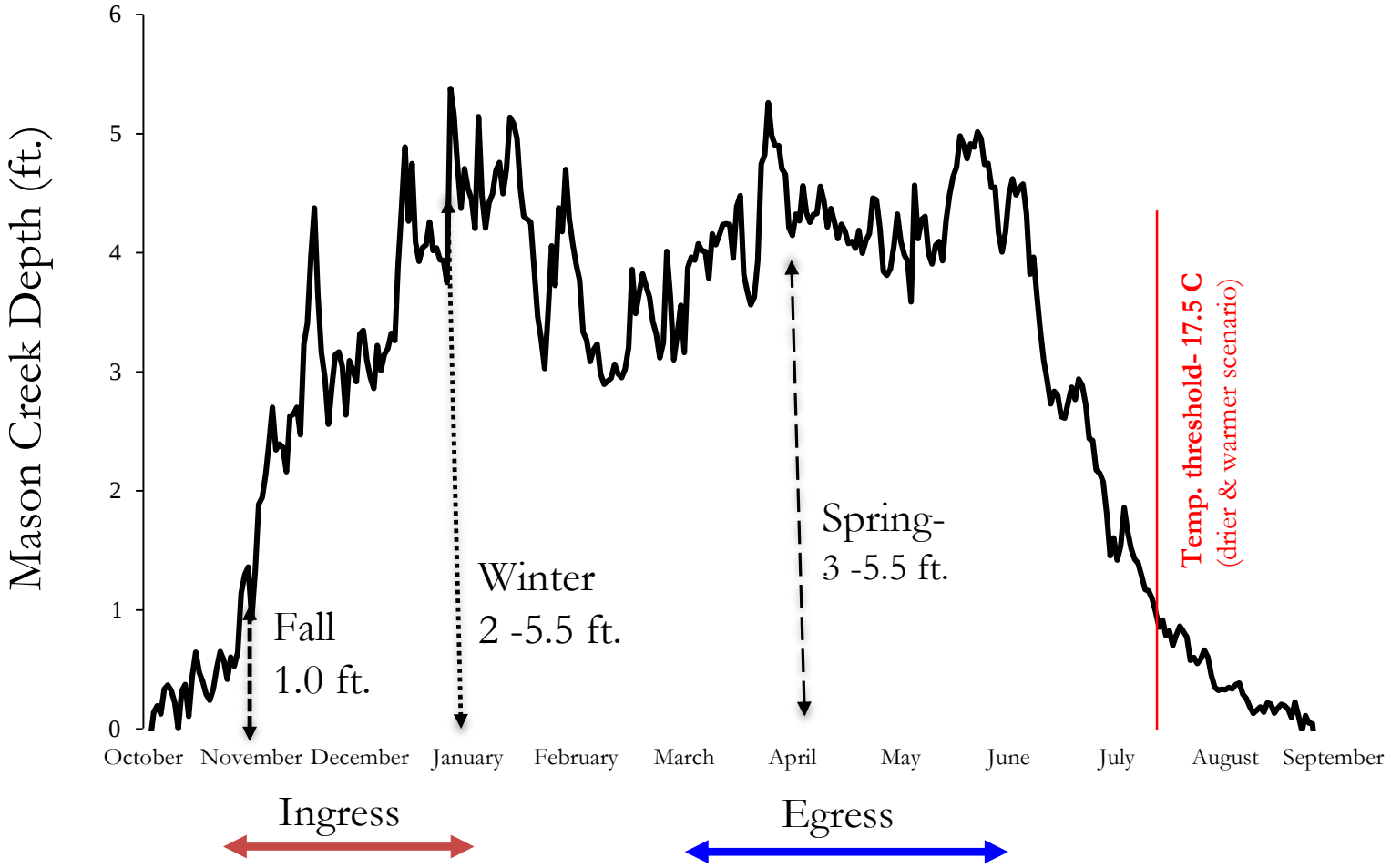
Improve Off Channel Habitat

East Fork Lewis Channel Shift1996 and 2007

East Fork Lewis 1996

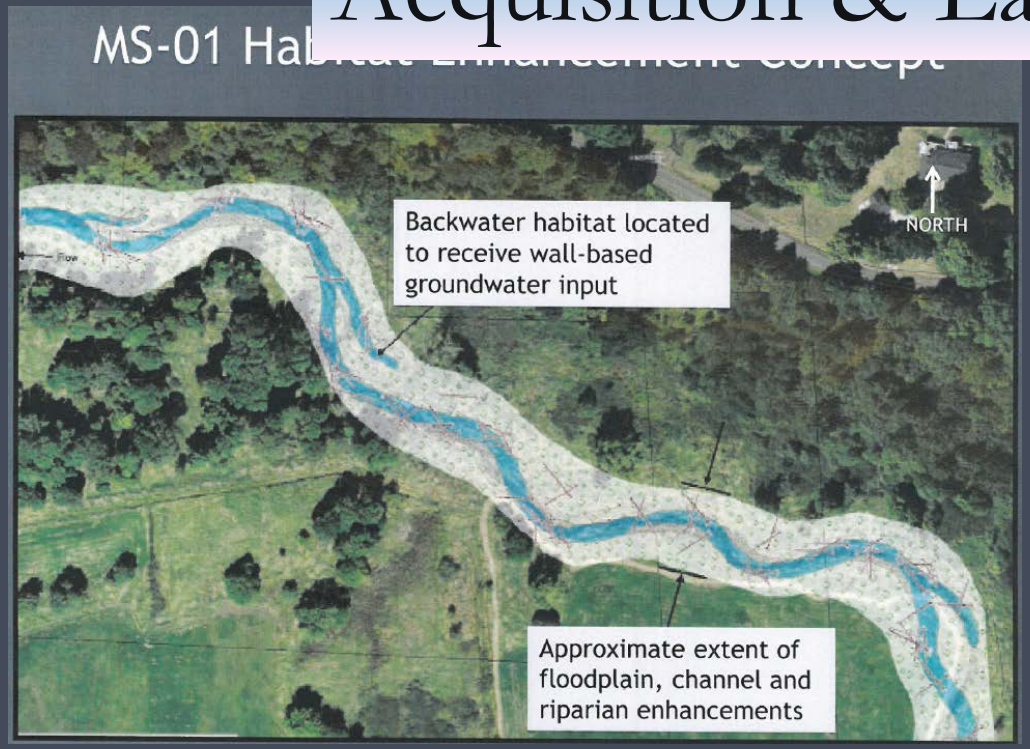
East Fork Lewis 2007

Climate Change
Drier & Warmer Scenario



Tie to Existing Project

Acquisition & Landowners



Diversify 4,000 lineal feet with wood

Create 20 pools

Reconnect 19 acres of floodplain

Co

Acquisition & Landowners

Excavate backwater channels to the north of the main channel to provide off-channel habitat and capture cool groundwater originating from the valley wall

Restore riparian vegetation to provide shading

Wetland enhancement

Hiteon Creek

Stewardship

County and partners have assembled 2,200 acres along the East Fork Lewis River Greenway

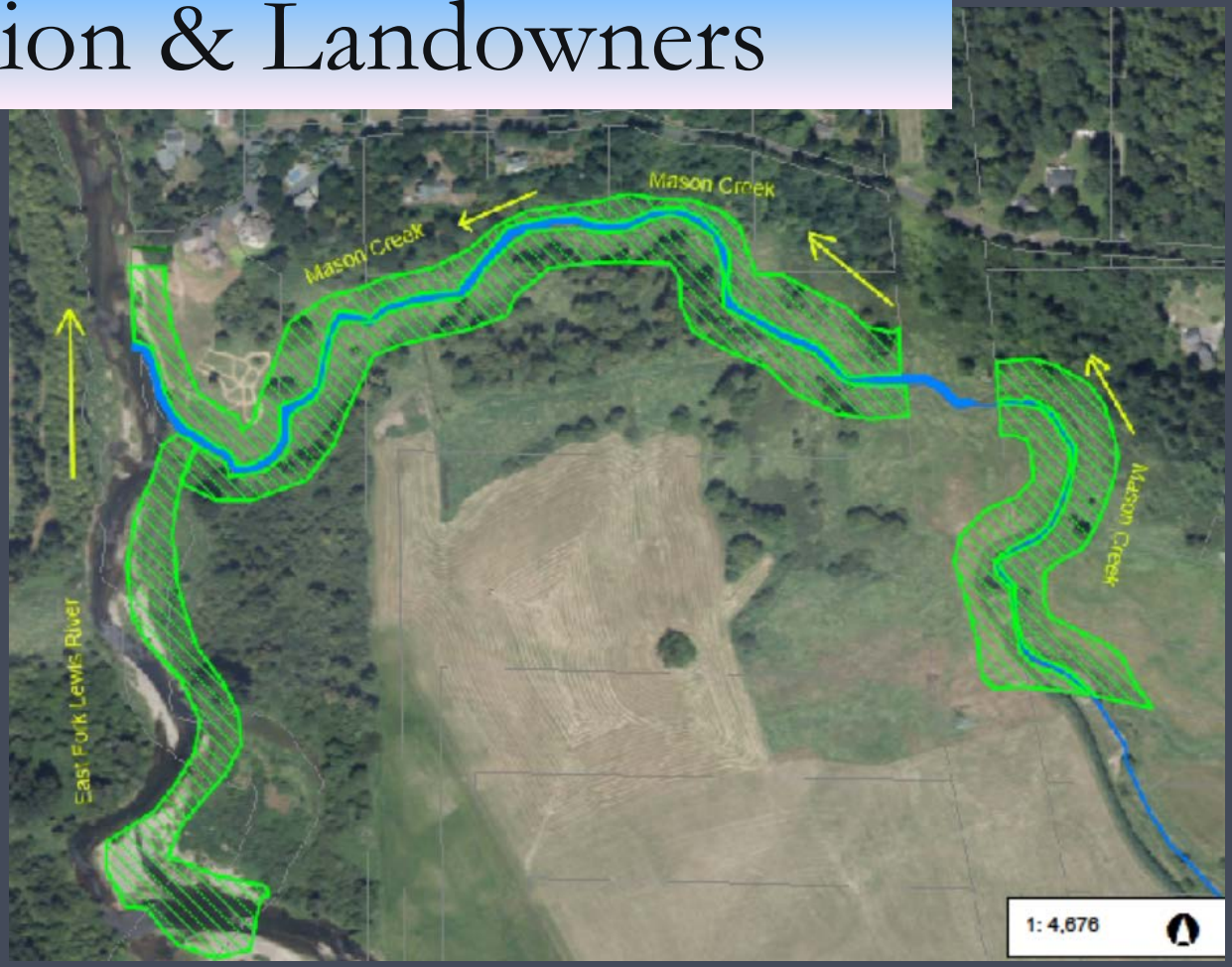
Over ten restoration projects have been competed on County-owned land

County has a variety of function-based divisions including Parks Maintenance, Vegetation Management, Engineering and Construction to address stewardship and maintenance issues

18-1412 Riparian Restoration

Acquisition & Landowners

Reach	Width	Length
EFL 4C	100	300
EFL 5A	100	500
MS 01	200	4,000
Total	20 acres	



Designs

Build on Concept Designs (2009)

Reconnect mainstem- 3 options (Prelim. Designs)

Install mainstem wood (Prelim. Designs)

Regrade entrances to side-channels (Final Designs)

Install habitat features/wood in side-channels (Final Designs)

Design Development Review Process

Technical Work Group to meet quarterly (or more) over project duration

Review & guide designs

Represent stakeholder diversity/interests

-Columbia Land Trust

- Clark County
- NOAA
- Cowlitz Tribe
- WDFW
- Pac. Rock Environmental/CEMEX
- private landowners
- Friends of the East Fork
- Storedahl

Project Milestones

Conduct physical/biological surveys & modeling, Technical Report, Dec. 2018

Present Preliminary Restoration Alternatives to Technical Work Group, Dec. 2018

Draft Preliminary Designs, March 2019

Complete Preliminary Designs, June 2019

Design Considerations

Power line-

Alluvial- gravel recruitment

Fish use timing – October to April is

Compatable with Ag../ other land uses

Alternatives Analysis to inform Prelimn. Designs