East Fork Lewis River Water Cleanup Plan
Alternative Restoration Plan

Thank you for joining!
We will start at 10:00 a.m.

Devan Rostorfer

Water Quality Implementation Specialist

Washington State Department of Ecology


East Fork Lewis River
Partnership
for clean water

Introductions

Devan Rostorfer

Water Quality Specialist
devan.rostorfer@ecy.wa.gov
360-409-6693

Shawn Ultican

Nonpoint Specialist
shawn.ultican@ecy.wa.gov
360-701-8373

Jennifer Riedmayer

Nonpoint Specialist
Jennifer.riedmayer@ecy.wa.gov
360-407-6296

Molly Gleason

Monitoring Specialist
Molly.gleason@ecy.wa.gov
360-409-6693

Lawrence Sullivan

Supervisor
lawrence.sullivan@ecy.wa.gov
360-407-6389

DEPARTMENT OF ECOLOGY
State of Washington

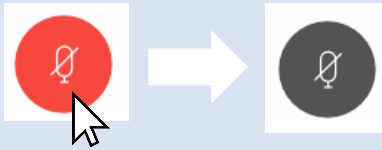
Meeting Goals

- Present the DRAFT east Fork Lewis River Water Cleanup Plan.

- Kickoff the public review and comment period which will run through September 17, 2020.

How to Participate

How to Mute and Unmute



Audio
OFF

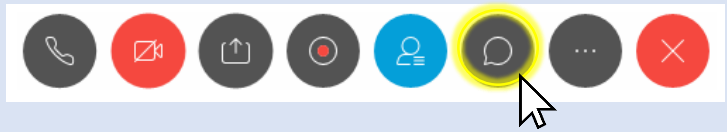
Audio
ON

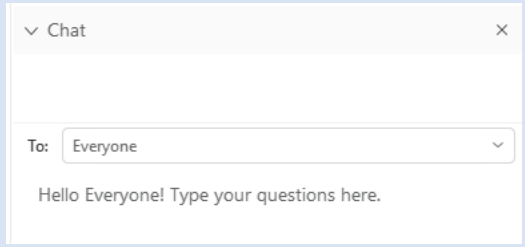
Camera

Video
OFF

How to ask Questions

Chat Box





1. **Select who you wish to speak to**
2. An Ecology staff person can read your typed questions.
3. Your questions will be answered at the end of the meeting

--OR–

4. We will collect unanswered questions in an email a response.

Having Trouble with Webex?

- **Step 1:**
  - Logout of meeting, and log back in using registration link.

- **Step 2:**
  - Connect to audio using phone number.
    - Toll Free: 1-855-929-3239
    - US Toll: 1-415-655-0001
    - Access code: 133 590 4286

Agenda

- **Draft *East Fork Lewis River Water Cleanup Plan*** **10:00 – 11:25 a.m.**
  - Chapter 1: Introduction.
  - Chapter 2: Impairments and Pollution Sources.
  - Chapter 3: Clean Water Implementation Priorities.
    - Septic Systems.
    - Agriculture.
    - Stormwater.
    - Riparian Restoration.

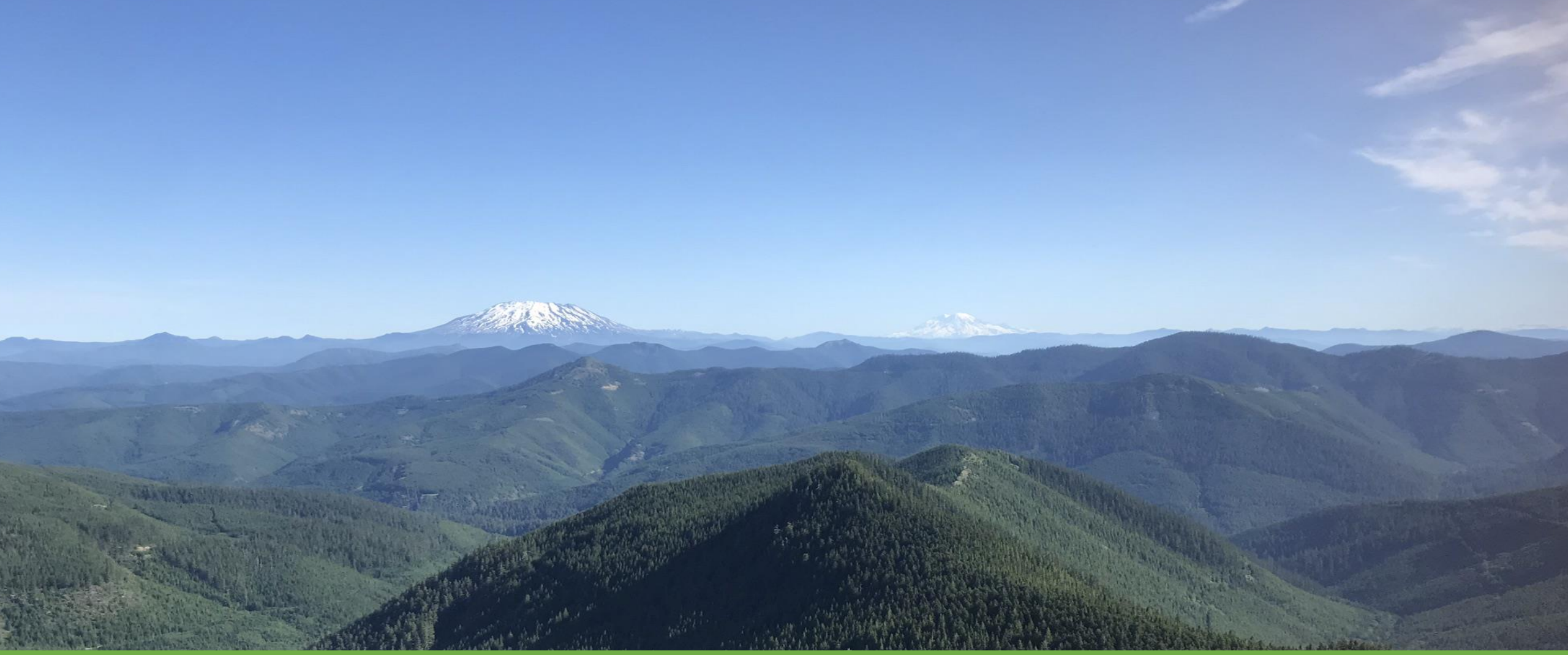
- **Break** **11:25– 11:30 a.m.**

Agenda

- **Draft *East Fork Lewis River Water Cleanup Plan* (cont.)** **11:30 – 11:45 a.m.**
  - Chapter 4: Public Education and Outreach.
  - Chapter 5: Effectiveness Monitoring and Adaptive Management.

- **How to provide Public Comment** **11:45 – 11:50 a.m.**

- **Next Steps** **11:50 a.m. – 12:00 p.m.**
  - *If there is time we will answer questions in this portion of the agenda.*



Chapter 1: Introduction

East Fork Lewis River Watershed

- Southwest Washington
- ~30 miles north of Portland, Oregon.
- Clark County
- ~235 square miles
- Variety of Land Uses
- Multiple Jurisdictions and Permits
- Significant Public Access

East Fork Lewis River

- **Fastest growing cities in Washington.**
- **47% increase in population since 2000.**
- **5 priority ESA listed salmonid populations.**

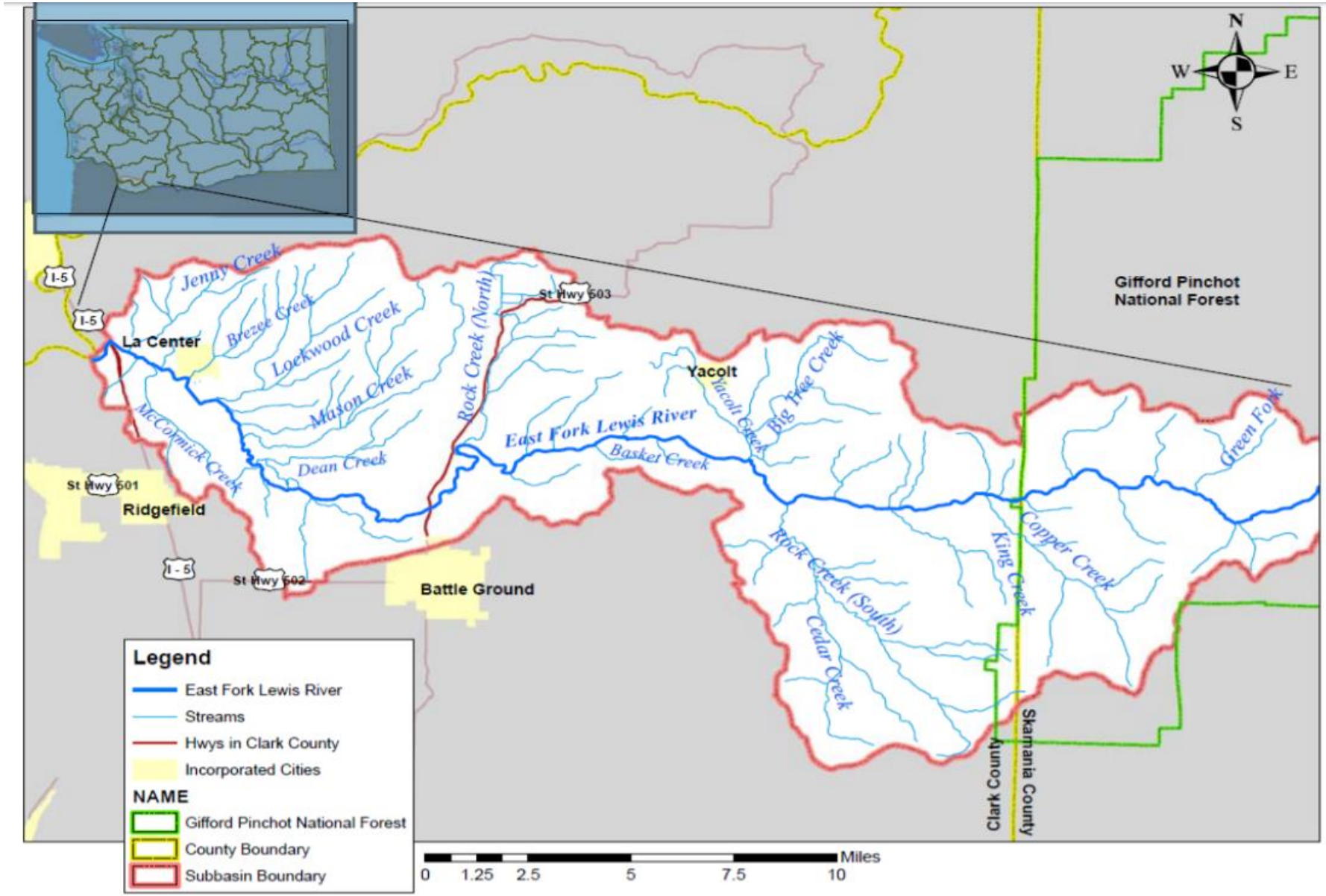
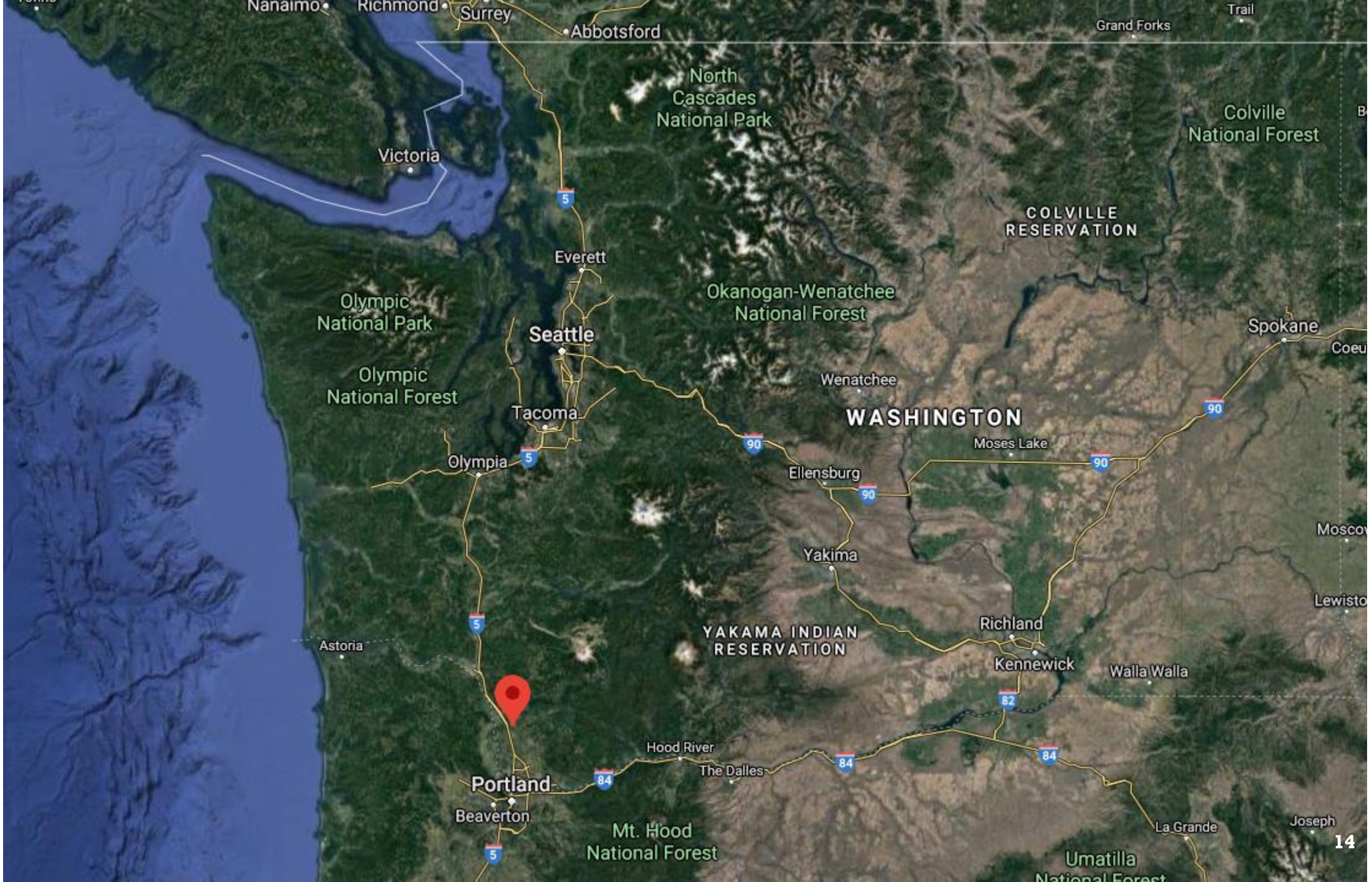


Figure 1. Overview of EF Lewis River watershed (Bilhimer et al., 2005).


Nanaimo
Richmond
Surrey
Abbotsford
Grand Forks
Trail
North Cascades National Park
Colville National Forest
Victoria
COLVILLE RESERVATION
Everett
Olympic National Park
Okanogan-Wenatchee National Forest
Seattle
Spokane
Olympic National Forest
Wenatchee
Tacoma
WASHINGTON
Moses Lake
Olympia
Ellensburg
Yakima
YAKAMA INDIAN RESERVATION
Richland
Astoria
Kennewick
Walla Walla
Hood River
The Dalles
Portland
Beaverton
Mt. Hood National Forest
La Grande
Joseph
Umatilla National Forest
5
90
82
84

Gifford Pinchot National Forest
US Forest Service


Washington State Forest

Private Forest Industry

Industrial Land Uses

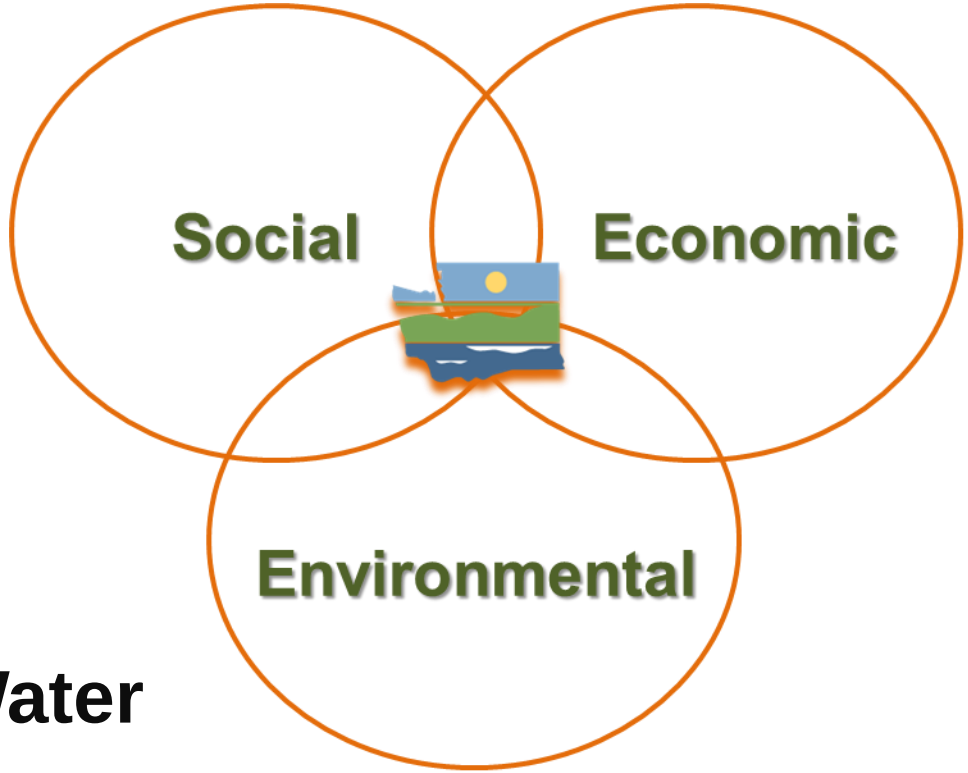
Residential Development

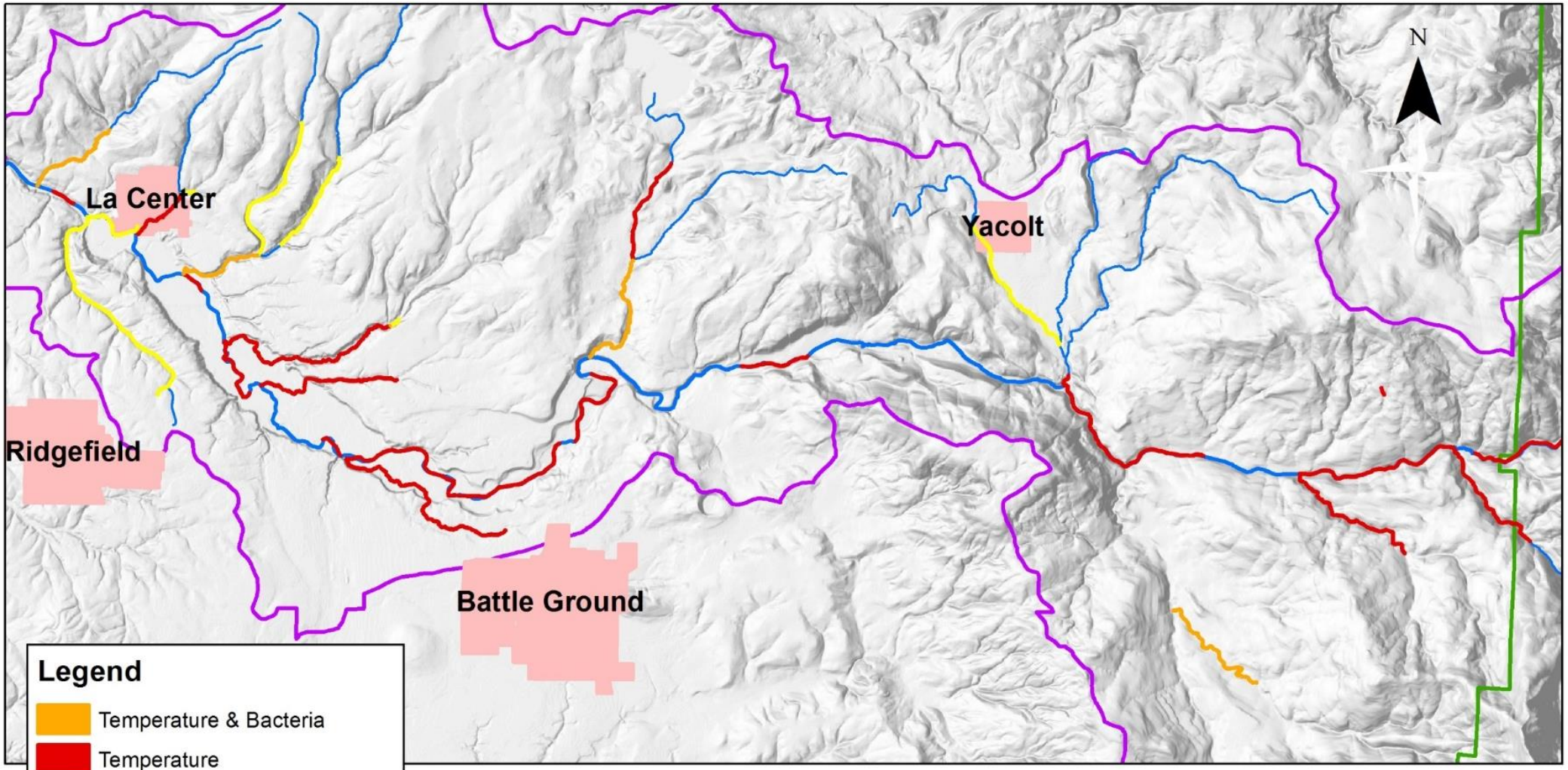
Development & Urbanization

Public Recreation

The East Fork Lewis River is a *Valuable Natural Resource*

- **Recreational Use and Enjoyment**
  - Anglers
  - Kayakers
  - Swimmers
  - Hikers
  - Campers
  - Birdwatchers
  - Picnickers
- **Stormwater, Wastewater, Drinking Water**
- **Agriculture**





Washington State's Polluted Waters List (303d)

East Fork Lewis River Partnership

Collaboration of local, state, tribal, and federal governments; watershed groups and private landowners.

Achieve Clean Water

Meet Water Quality Standards

Support Beneficial Uses

For People, Fish, and Wildlife

East Fork Lewis River Water Cleanup Plan

Bacteria and Temperature Alternative Restoration Plan

By

Devan Rostorfer

For the

Water Quality Program

Washington State Department of Ecology

Southwest Regional Office

Olympia, Washington

August 2020, Publication ##-##-##

DEPARTMENT OF ECOLOGY
State of Washington

Clean Water Implementation Priorities

Septic Systems

Outreach, Inspection, Maintenance, Repair
Pollution Identification & Correction

Small Acreage Agriculture

Conservation Planning, Technical Assistance
BMP Implementation

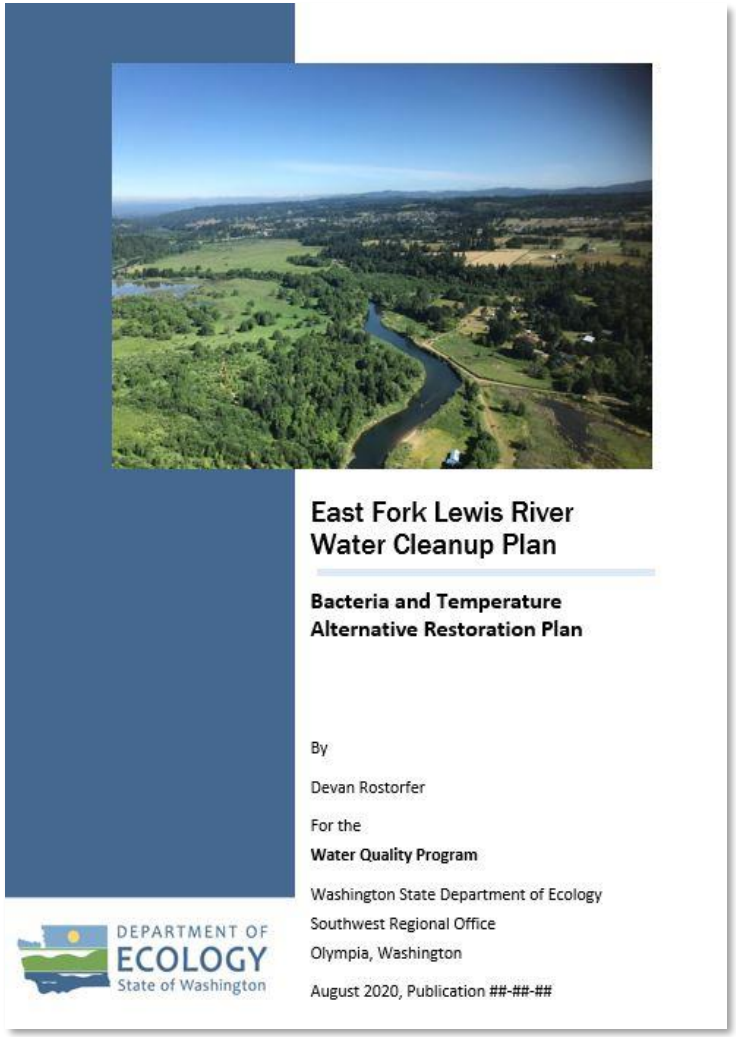
Stormwater Management

Source Tracing, Illicit Discharge Detection & Elimination
Stormwater Management Planning

Riparian Restoration

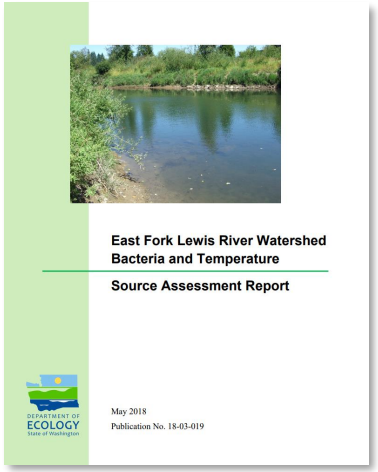
Public & Private Lands

Report Outline



1. Background information.
2. Implementation goals.
3. Implementation actions.
4. Milestones, targets, and timelines.
5. Criteria to measure progress.
6. Funding and partnerships.

Meeting the Environmental Protection Agency's Nine key elements for watershed plans

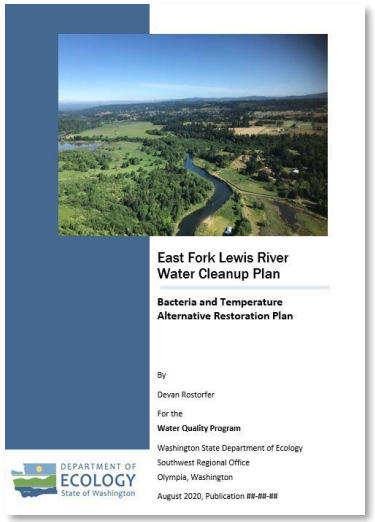


1. **Identify causes of pollutant sources.**
2. **Estimate pollutant reductions needed.**

***East Fork Lewis River Source Assessment, 2018*

Meeting the Environmental Protection Agency's Nine key elements for watershed plans

1. Identify causes of pollutant sources.
2. Estimate pollutant reductions needed.



3. Describe nonpoint source implementation to reduce pollution.
4. Estimate technical and financial assistance needed.
5. Develop information and education component.
6. Develop implementation schedule.
7. Establish milestones and targets.
8. Develop criteria to measure progress.
9. Monitoring to evaluate effectiveness of implementation.

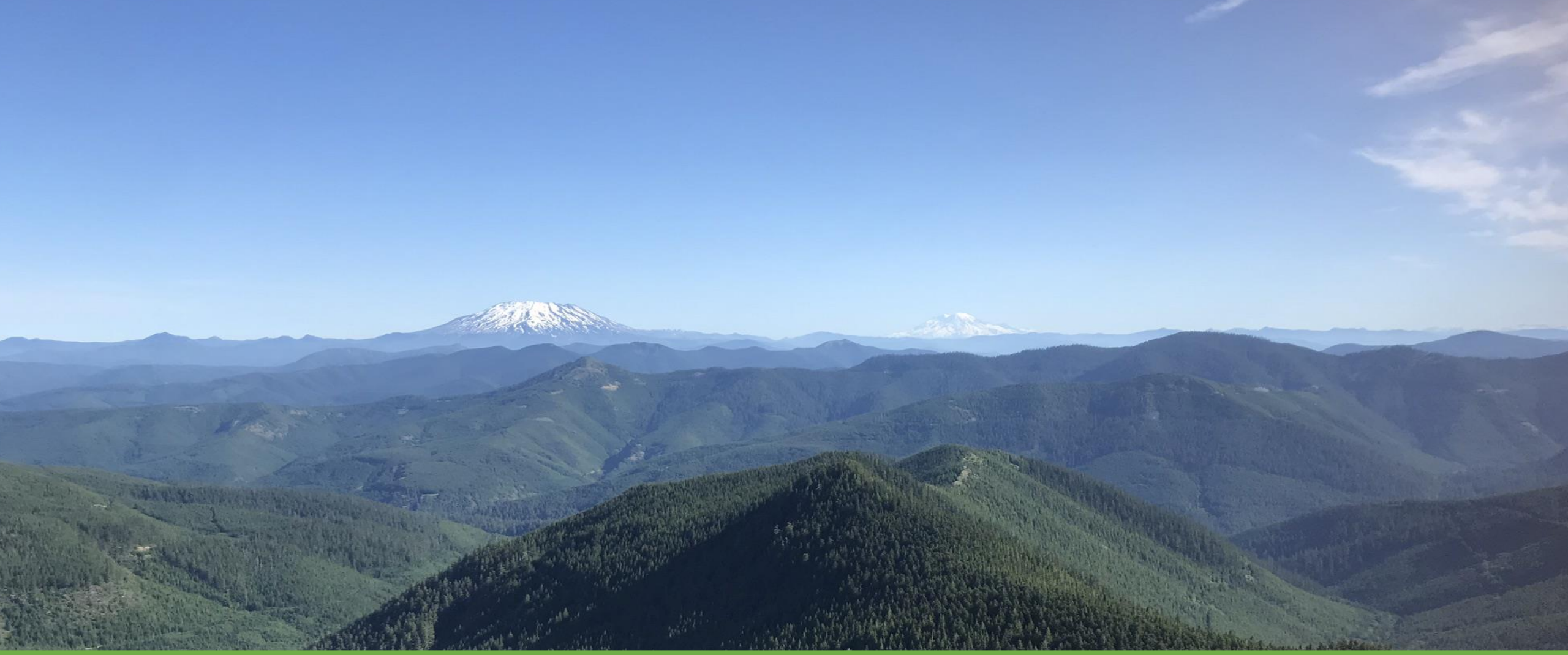
***East Fork Lewis River Water Cleanup Plan, 2020*

If water quality standards are not achieved through implementation of this Water Cleanup Plan, a traditional ***Total Maximum Daily Load (TMDL) study will be required*** *in the East Fork Lewis River.*

Ecology's regulatory authority: Water Pollution Control Act (RCW 90.48)

Table 4. Washington State Department of Ecology's regulatory authority.

Program	Action
Water Pollution Control Act	Enforce the Water Pollution Control Act (Ch. 90.48 RCW).
Nonpoint Source	Environmental Complaint Response for nonpoint sources, including non-dairy agriculture complaints. Pursue enforcement action when necessary.
Municipal Permits	Conduct inspections of stormwater sites and other permitted facilities. This includes the Municipal Stormwater Phase I and Phase II, Construction Stormwater, Sand and Gravel, and Industrial Stormwater General Permit.
Wastewater Treatment Plant Permits	Conduct inspections and oversee compliance with Wastewater Treatment Plant Permits.
Forestry	Oversee implementation of the Forest and Fish Program.
303(d)	Develop and Implement Alternative Restoration Plan (Water Cleanup Plan) and TMDLs.
Combined Water Quality Funding	Provide funding opportunities through its competitive water quality grants and loan funding cycle, to projects addressing the objectives and BMPs identified in this Water Cleanup Plan.



Chapter 2: Impairments and Pollutant Sources

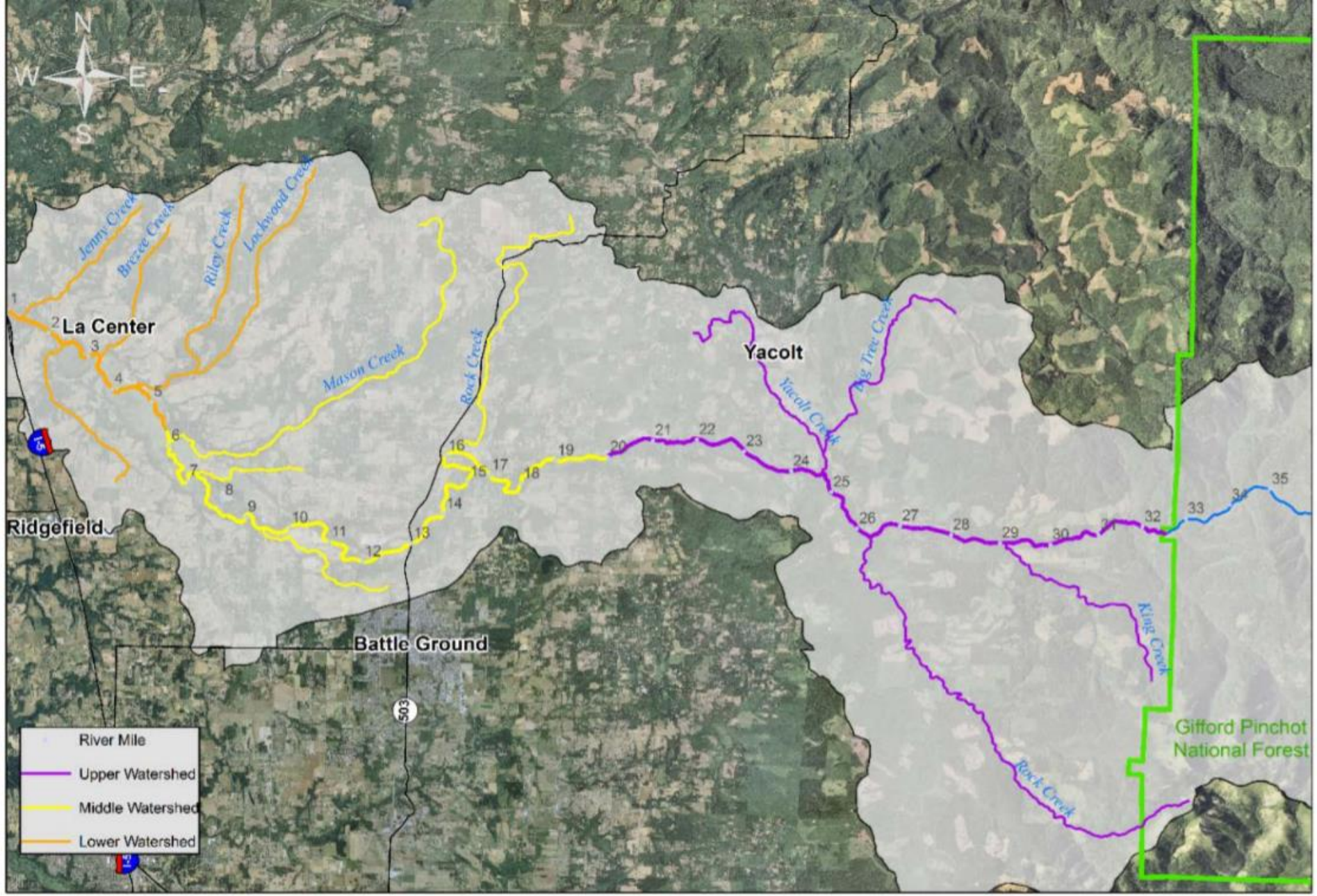
Water Quality Standards & Beneficial Uses

- **Aquatic Life Uses – Temperature**

Waterbody Reach	Aquatic Life Uses	Temperature Standard Highest 7-DADMax
East Fork Lewis River	**Core Summer Habitat**	**16.0°C (60.8°F)** 7-DADMax Supplemental spawning and incubation criteria of 13º C from February 15 to June 15

- **Recreation Uses – *E. coli* Bacteria**

Waterbody Reach	Recreation Uses	Bacteria Criteria
East Fork Lewis River	Primary Contact	**Geometric Mean:** 100 cfu/100 ml **90th Percentile:** 10% samples not to exceed 320 cfu/100 ml



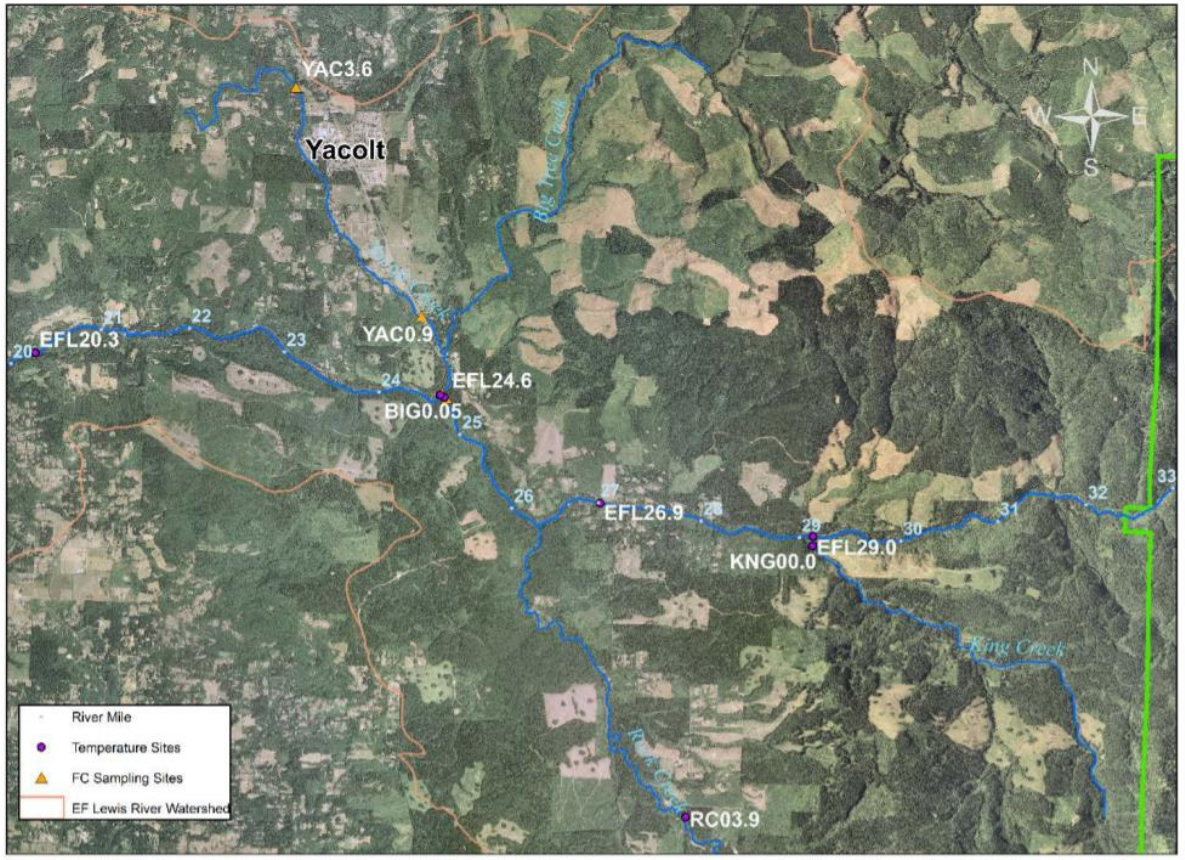
Lower Watershed
Mouth to RM 5.7

Middle Watershed
RM 5.7 – 20.3

Upper Watershed
RM 20.3 – 32.3

Upper Watershed

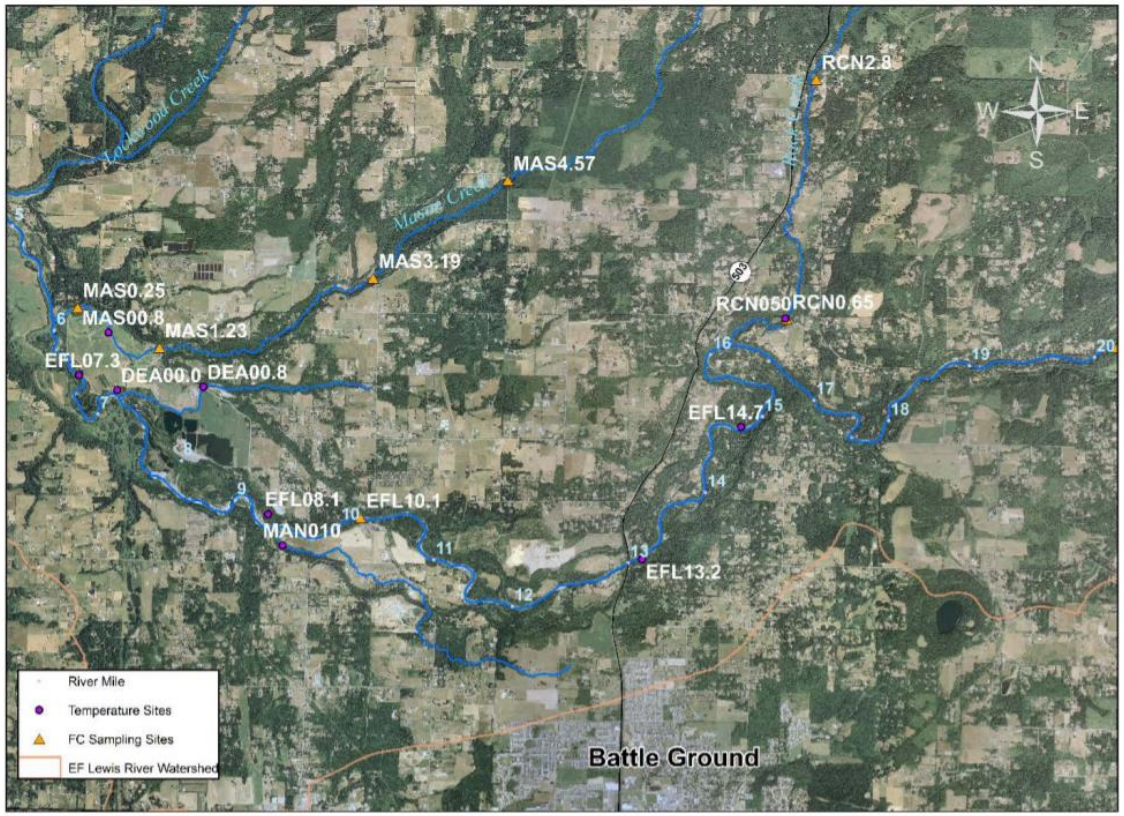
- **River Miles: 20 - 32.3**
  - **Land use**
    - Forested – public and private.
    - Residential and commercial.
  - **Jurisdictions**
    - Yacolt and Clark County.



Tributaries - Yacolt, Big Tree, King, Rock Creek South

Middle Watershed

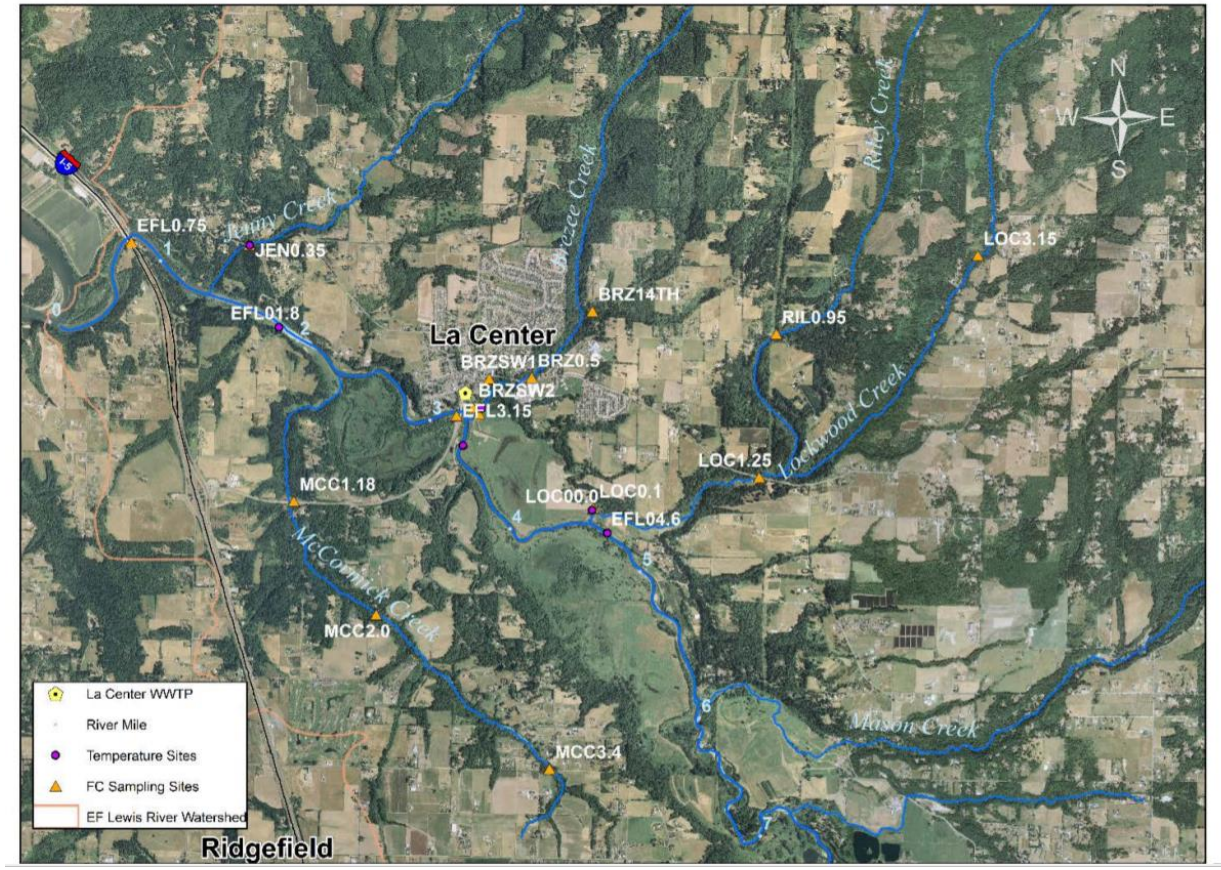
- **River Miles 5.7 – 20.3**
  - **Land use**
    - Forestland.
    - Agriculture.
    - Residential.
    - Commercial.
    - Industrial.
  - **Parks and Public Property**
    - Lewisville, Daybreak, County Greenway.
  - **Jurisdictions**
    - City of Battle Ground, Clark County, WSDOT.



Tributaries - Mason, Dean, Manley, Rock Creek North

Lower Watershed

- **River Miles – Mouth to 5.7**
  - **Land Use**
    - Residential, agricultural commercial.
  - **Jurisdictions**
    - City of La Center, Ridgefield, Clark County, and WSDOT.
  - **Significant riparian connectivity and public ownership.**



Tributaries - Brezee, McCormick, Jenny, Riley, Lockwood

Watershed Summary

- **Population increase between 2000 and 2018.**
  - 47% watershed wide.
  - 259% in Ridgefield.
  - 124% in Battle Ground.
  - 101% in La Center.
  - 69% Yacolt.

- **Urban Growth Boundary increase between 2004 and 2018.**
  - 160% in La Center.
  - 84% in Battle Ground.
  - 83% in Ridgefield.
  - 37% in Yacolt.

- **Land Use Zoning Change**
  - 181% increase in Multi-Family Residential.
  - 73% increase in Commercial.

East Fork Lewis River Watershed Bacteria and Temperature

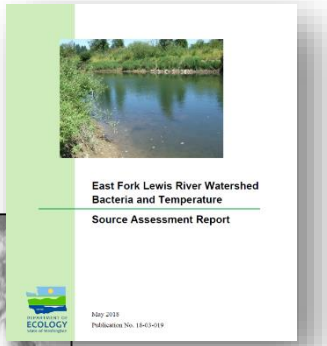
Source Assessment Report

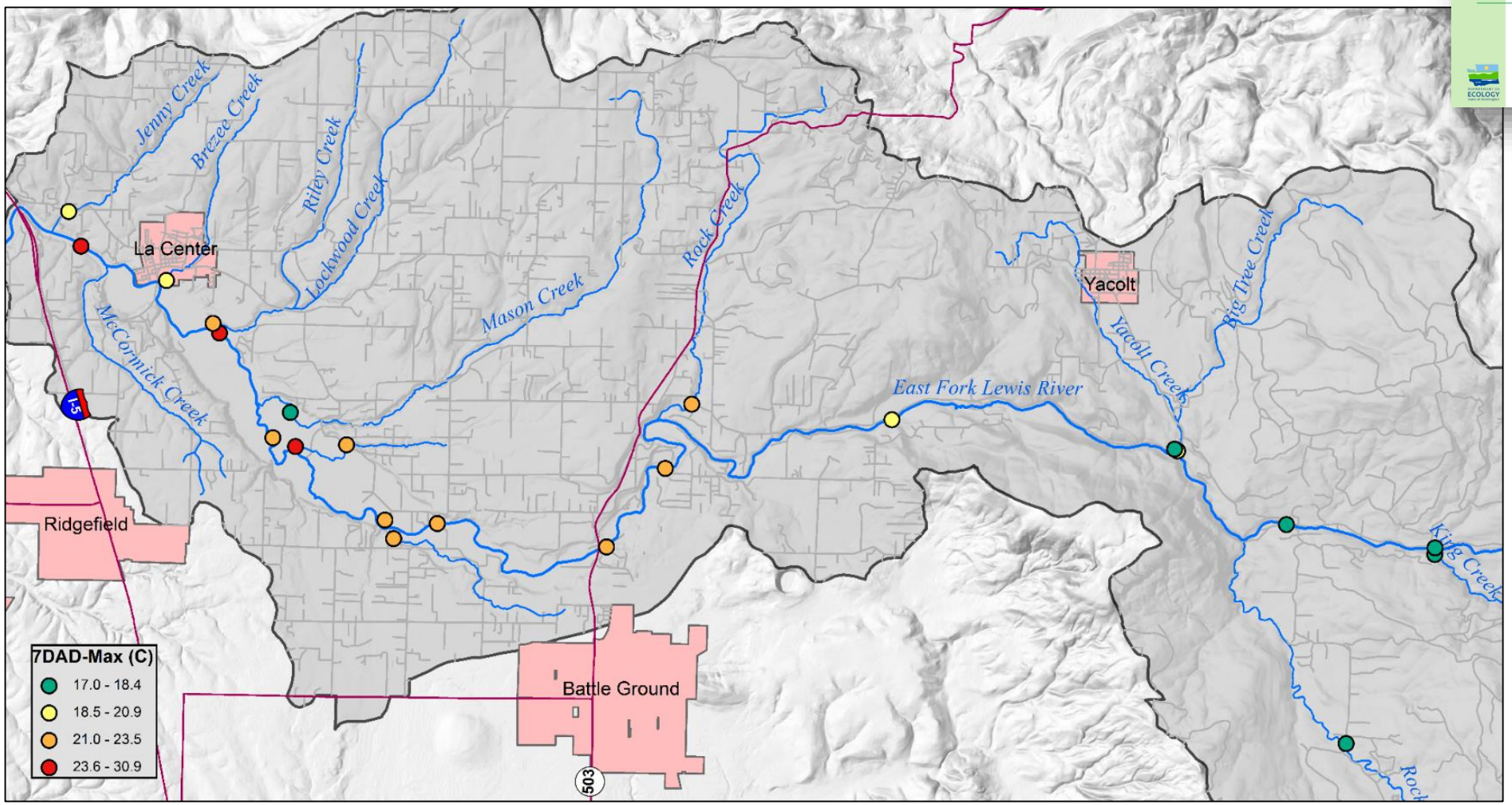
May 2018

Publication No. 18-03-019

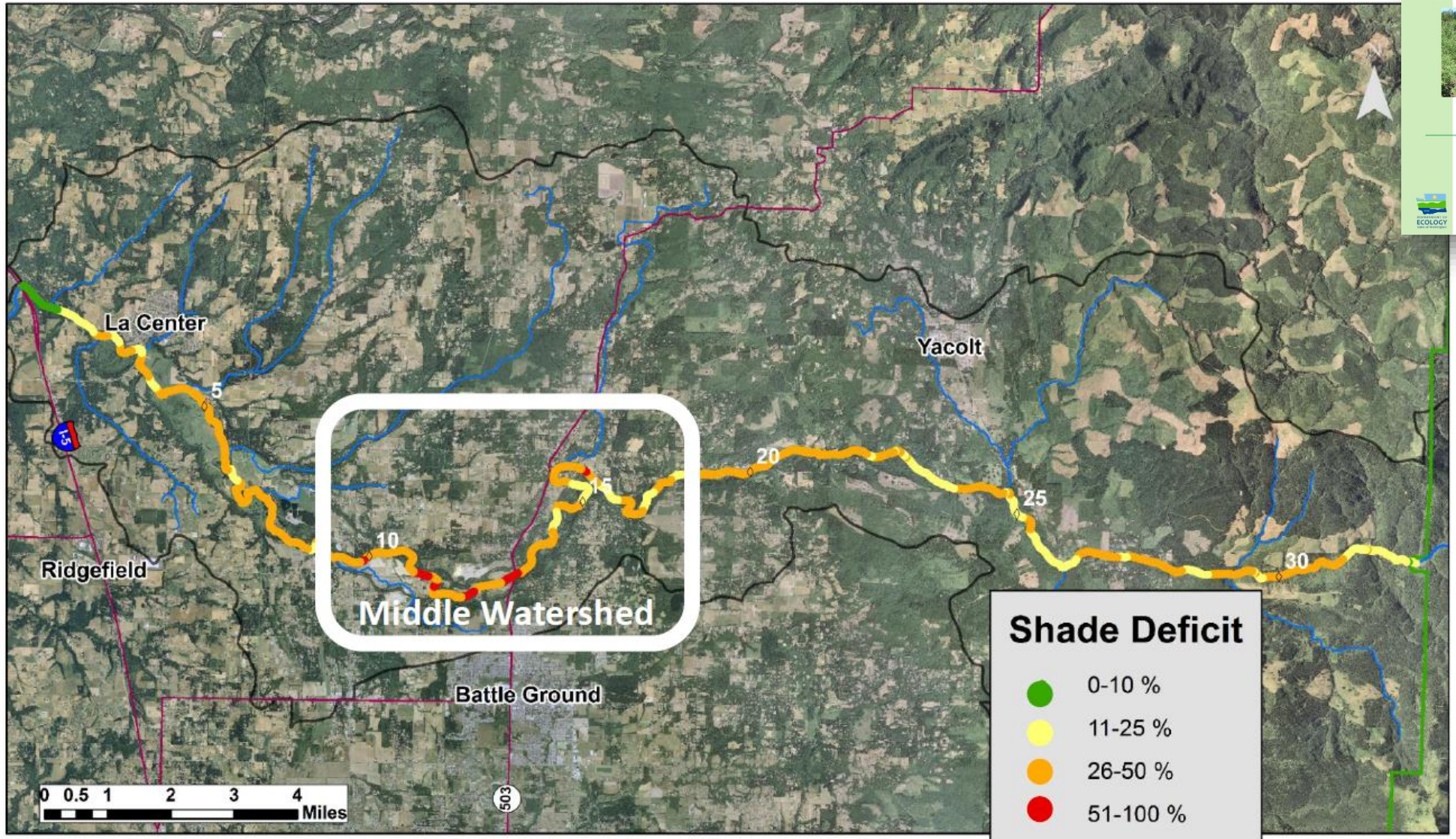
DEPARTMENT OF ECOLOGY
State of Washington

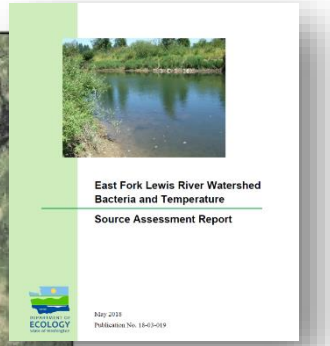
Temperature Results



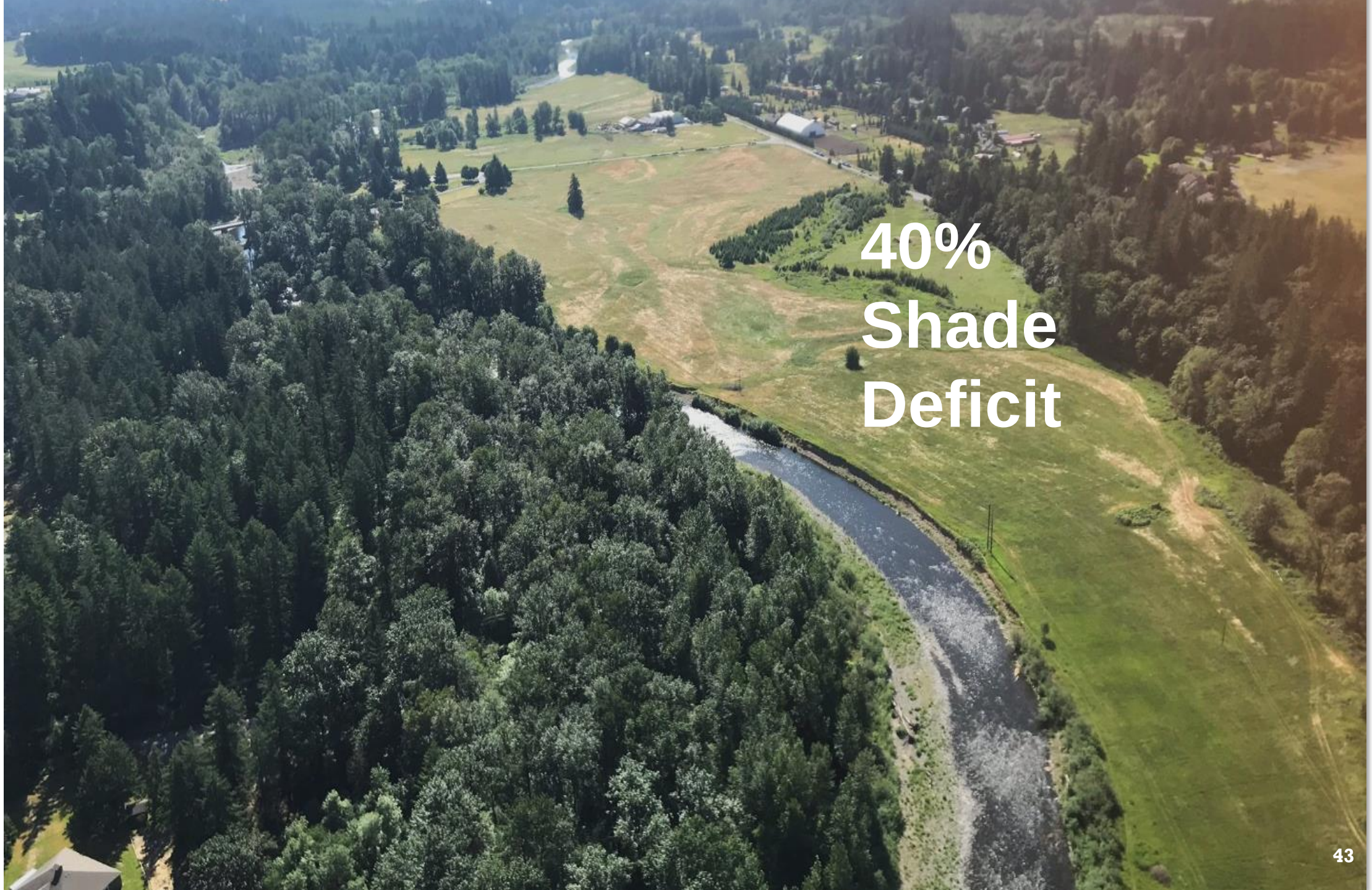


Temperatures Increase Downstream

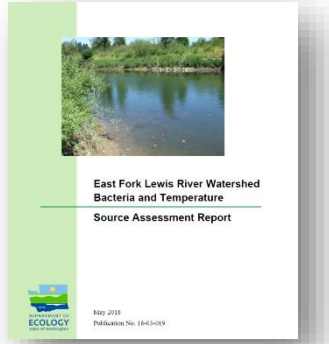


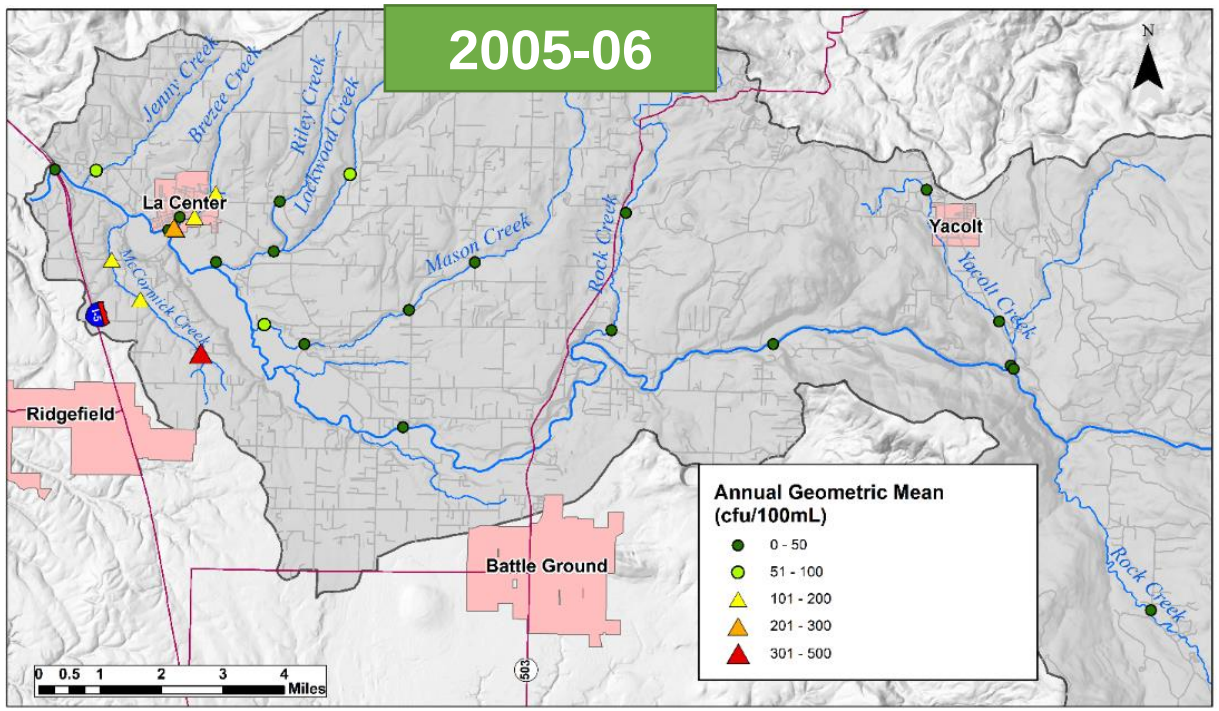


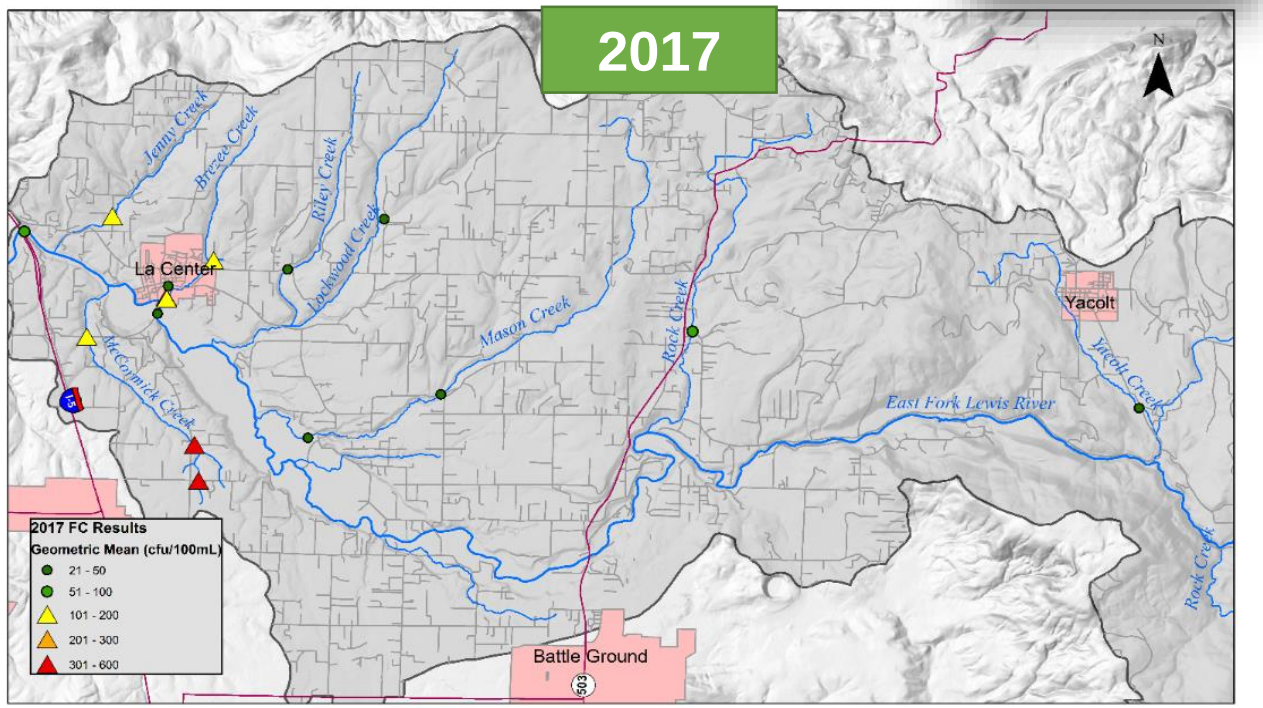
Shade Deficit (%) = **Potential Shade** (%) – **Current Effective Shade** (%)


40%
Shade
Deficit

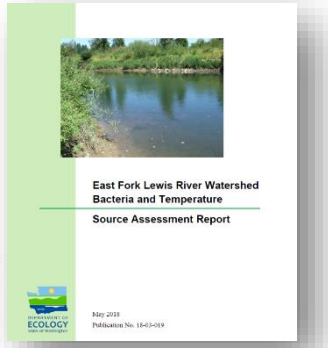
Bacteria Results

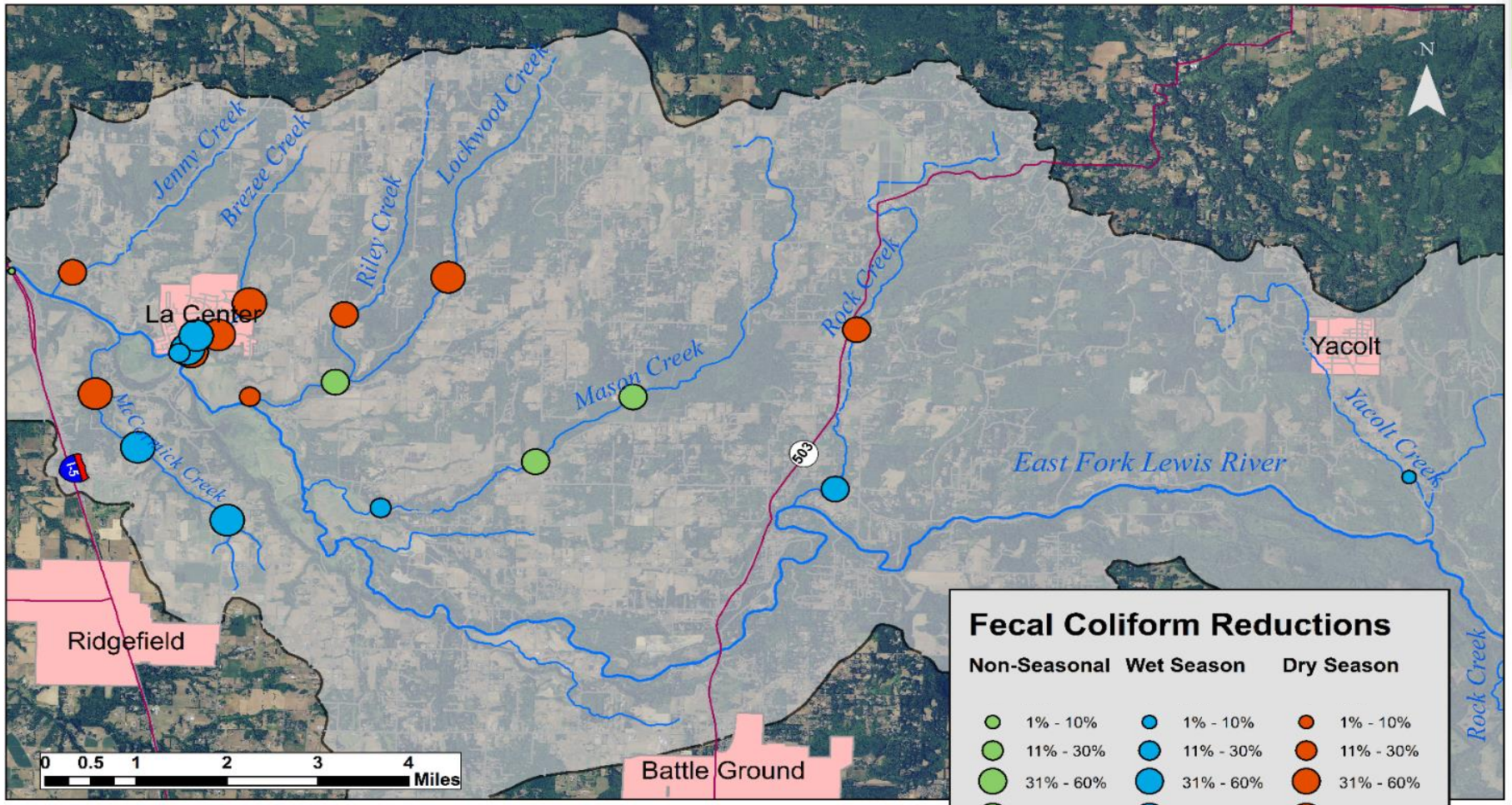




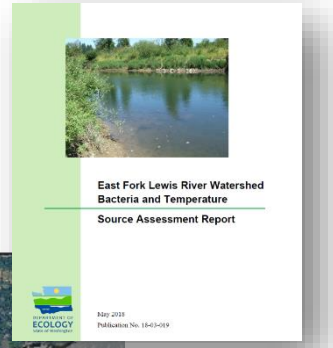


Bacteria Reductions Needed



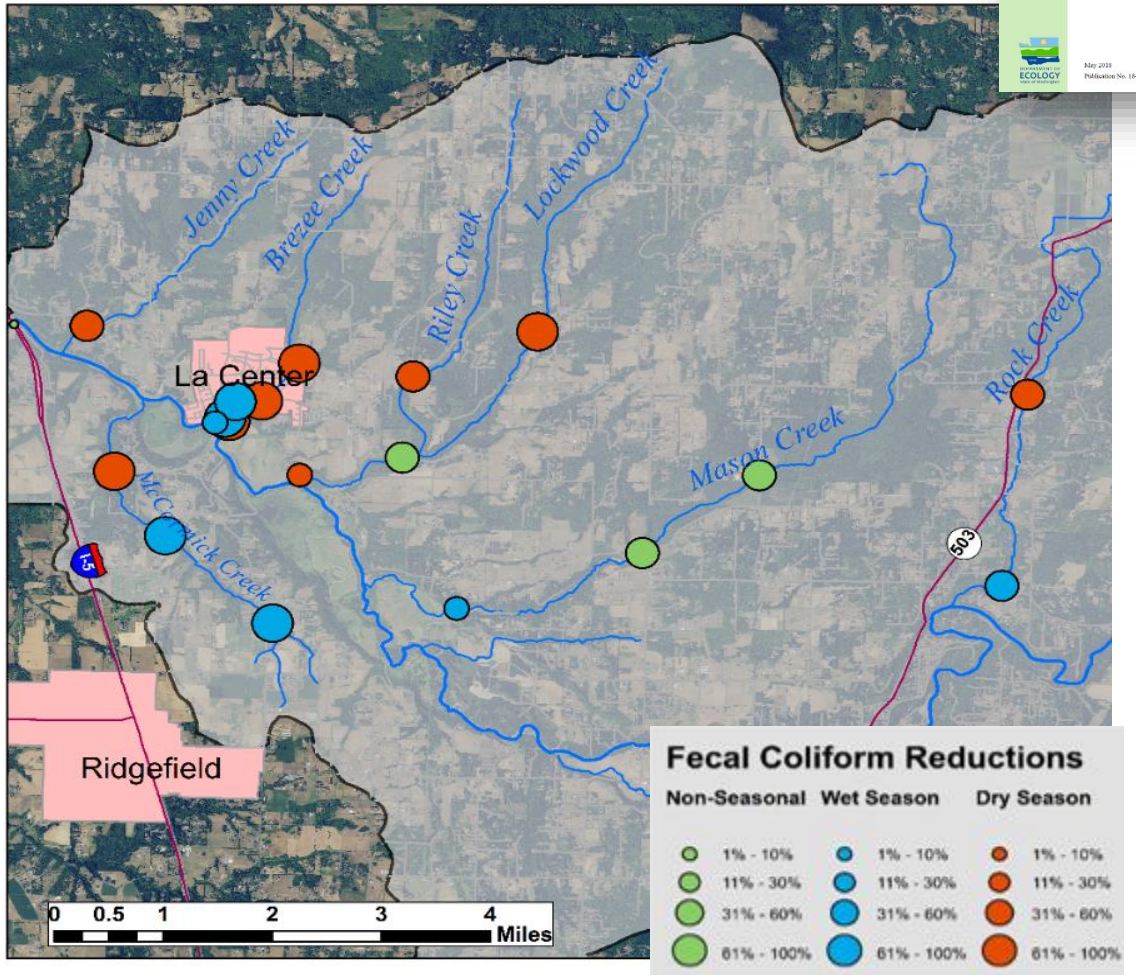


Bacteria Reduction Needed

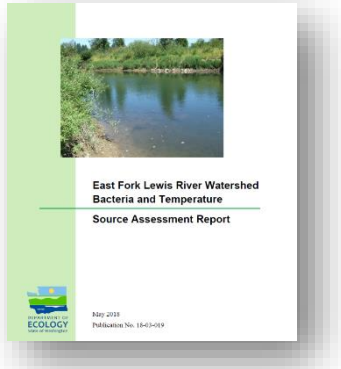


- **Wet Season**
  - 91-96% McCormick Creek Sites
  - 90-91% Brezee Creek Sites
  - 57% Rock Creek North

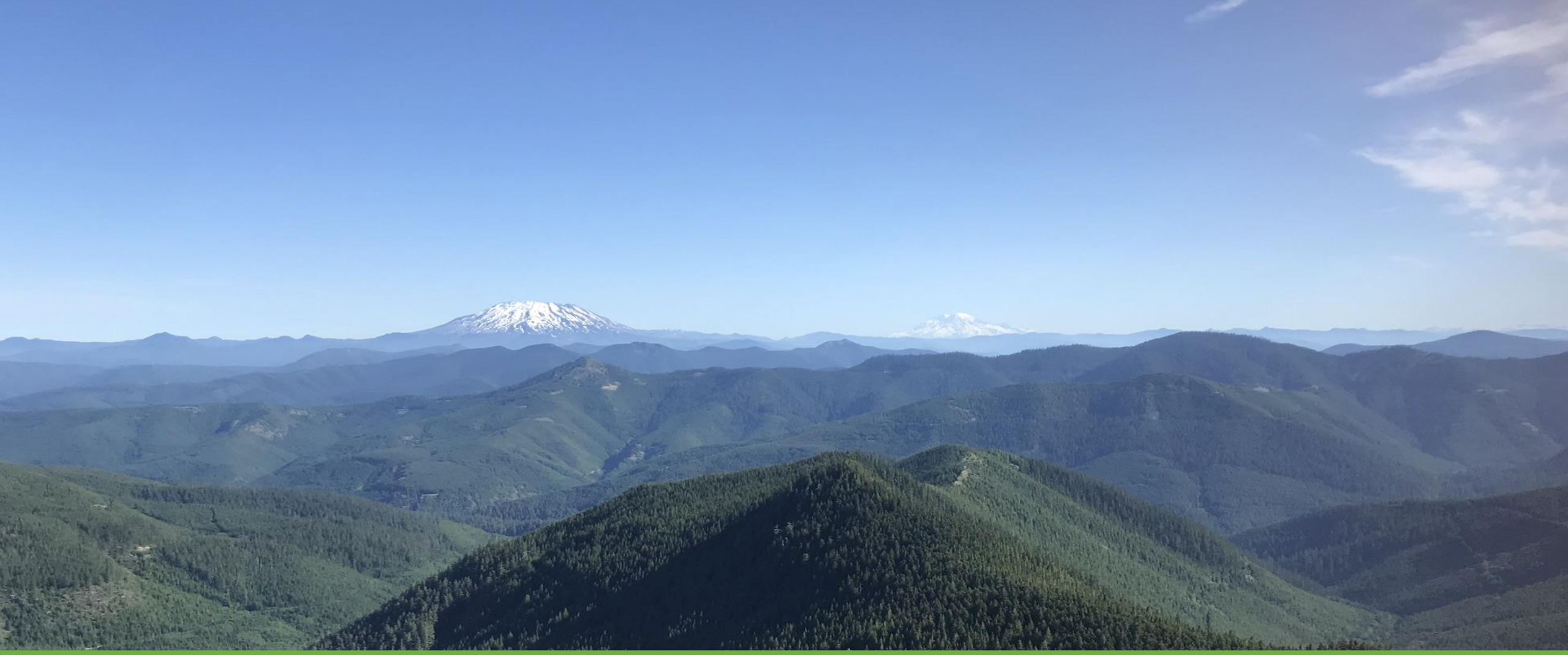
- **Dry Season**
  - 86-87% Brezee Creek Sites
  - 86% McCormick Creek
  - 83% Lockwood Creek
  - 60% Mason Creek
  - 52% Jenny Creek
  - 51% Riley Creek



Priority Areas to Reduce Bacteria



- **Priority 1 - Breeze and McCormick Creeks.**
  - 40.5 river miles, 545 parcels
- **Priority 2 - Rock Creek North, Jenny, Riley, and Lockwood Creek**.
  - 140.5 river miles, 1,674 parcels
- **Priority 3 - Mason and Yacolt Creeks.**
  - 76 river miles, 919 parcels
- **TOTAL** - 257 priority tributary miles for bacteria reduction, with 3,138 parcels within 100 feet of the river.

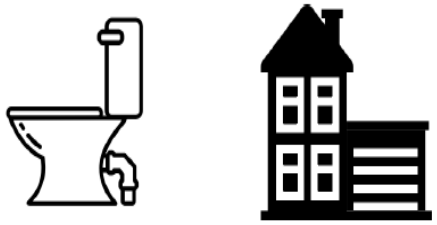


Chapter 3: Clean Water Implementation Priorities

Clean Water Implementation Priorities

Septic Systems

Outreach, Inspection, Maintenance, Repair
Pollution Identification & Correction



Small Acreage Agriculture

Conservation Planning, Technical Assistance
BMP Implementation

Stormwater Management

Source Tracing, Illicit Discharge Detection & Elimination
Stormwater Management Planning

Riparian Restoration

Public & Private Lands

East Fork Lewis River

Partnership

for clean water

Septic Systems

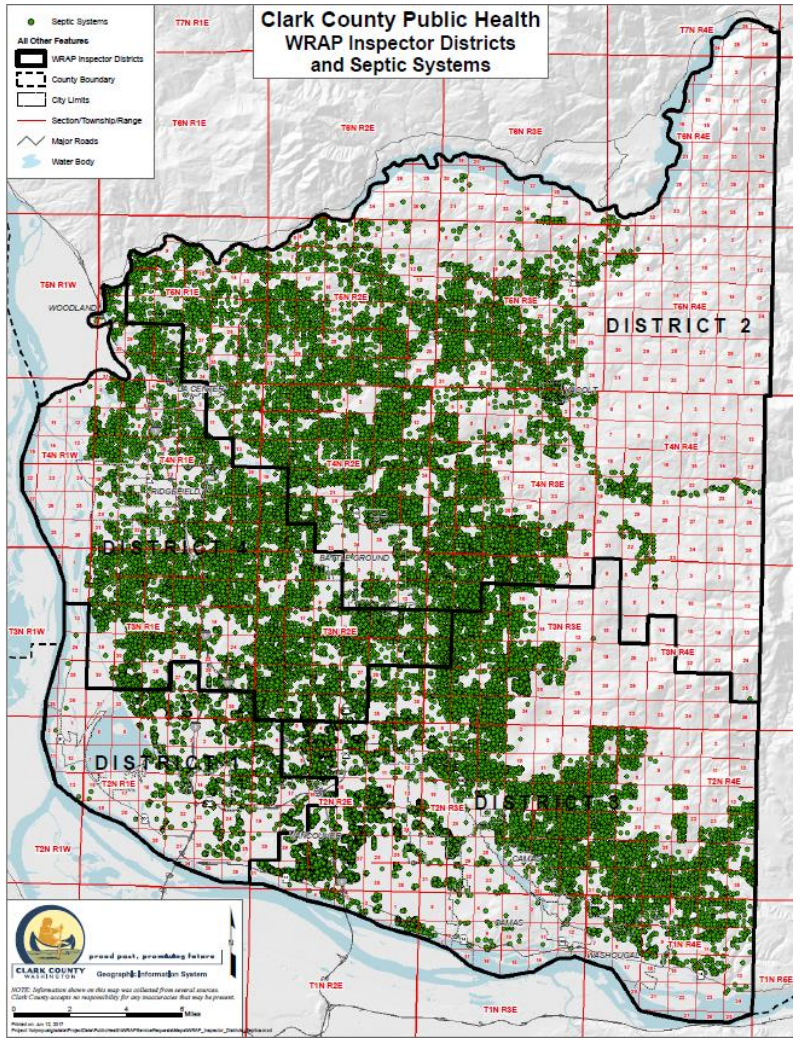
Outreach, Inspection, Maintenance, Repair
Pollution Identification & Correction

Septic systems background

- **Primary jurisdiction:** Clark County Public Health.
  - Washington State Administrative Code 246-272A
  - Clark County Code 24.17

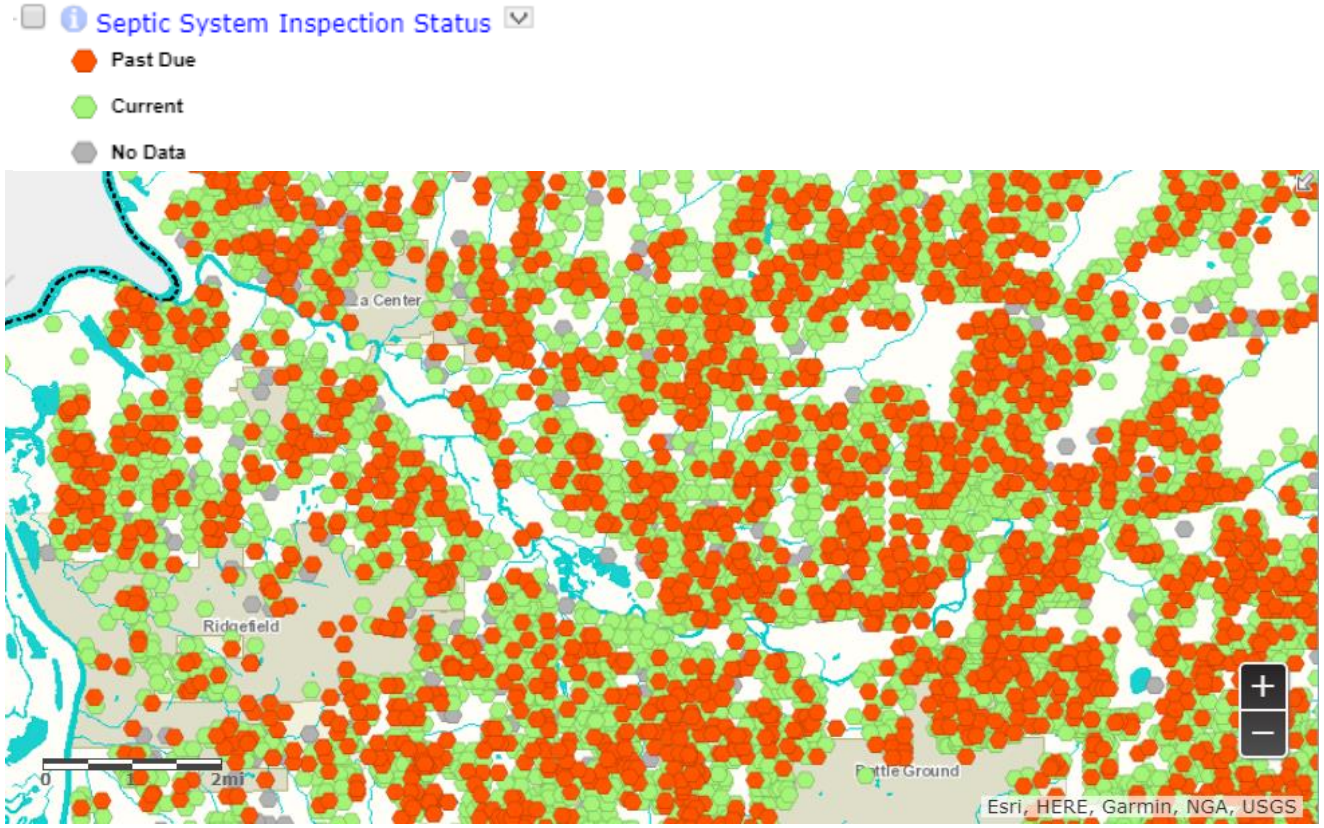
- **34,500 Septic Systems in Clark County**
  - **10,350 (30%) not inspected.**

- **Goal:** Source water protection
  - 98% drinking water from groundwater.



Septic systems background

- **69%** of unincorporated tax lots in watershed have septic systems.
- **6,045 septic systems** in watershed.
- **32% or around 1,929** have not been inspected.



Septic systems background

- **Every 3 years is when septic should be inspected.**
- **$120 dollars is the average inspection cost.**
- **Past Due Operation and Maintenance**
  - Letters to septic owners increased inspection rate from 49% to 70% between 2015 and 2018.
- **The average cost to failing septic systems $15,000 dollars.**
- **Craft3 Regional Loan Program**

Septic systems Background

- Voluntary inspections. → Mandatory
- Additional financial resources needed.
- Enforcement tools being developed.

Septic system inspection and maintenance

- **WSU workshops 2012 to 2018**
  - 21 Well and Septic workshops hosted.
  - 671 attendees.
  - 33 percent responded to workshop survey.
  - 384 survey respondents installed BMPs.
  - 63 survey respondents inspected systems.

Table 12. Recommended septic system inspection frequency.

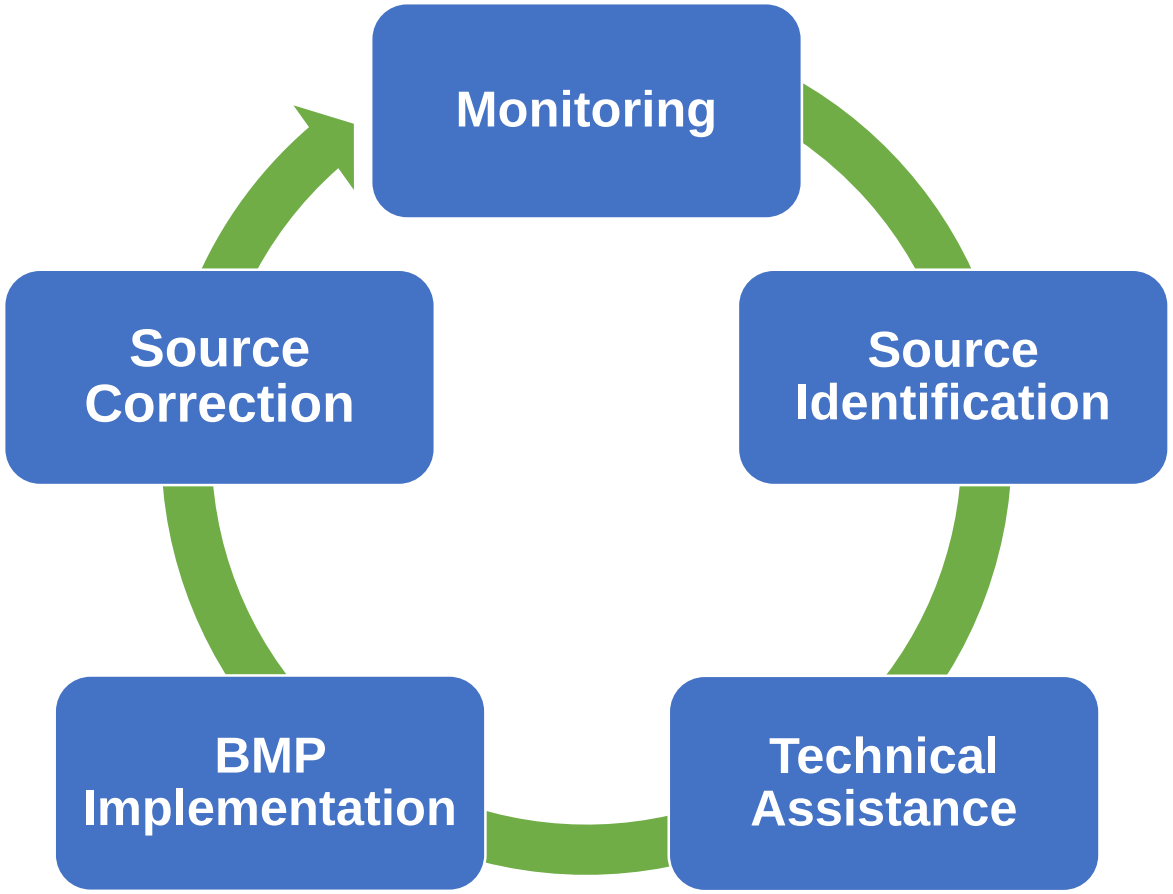
Year	Inspector
Year 1	Attend Well and Septic Workshop to Self-Inspect
Year 3	Hire Certified Inspector
Year 6	Attend Well and Septic Workshop to Self-Inspect
Year 9	Hire Certified Inspector

Connecting to sewer

- **La Center's Wastewater Collection System.**
  - Average cost to connect to public sewer is $8,000 to $15,000 dollars.

- **Opportunities to replicate:**
  - Connect to Sewer Program and Septic Elimination Program – Clark Regional Wastewater District
  - Sewer Connection Incentive Program – City of Vancouver

Pollution Identification and Correction Programs



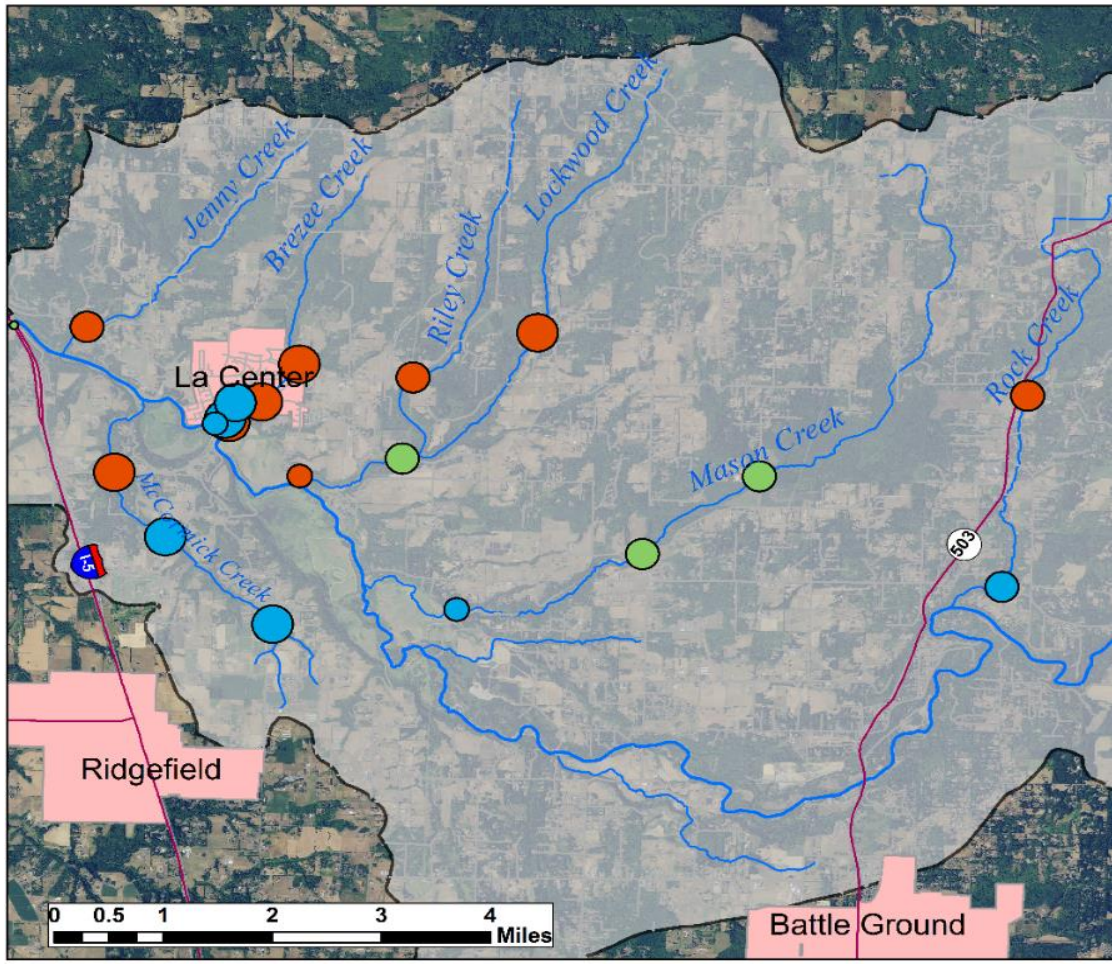
Septic System Implementation goals

1. Eliminate septic system impacts on water quality in the East Fork Lewis River.

2. Achieve 100 percent septic system inspection compliance, maintenance, and correction.

Priority Areas for Septic Implementation

- **Priority 1** - Breeze and McCormick Creeks.
- **Priority 2** - Rock Creek North, Jenny, Riley, and Lockwood Creek.
- **Priority 3** - Mason and Yacolt Creeks.



Septic System
Criteria to Measure Progress

- Number of inspections.
- Percent increase in septic inspections.
- Number of OSS failures identified
- Number of OSS failures corrected.
- Number of homeowners connected to sewer.
- Number of participants in Well and Septic workshops.
- Bacteria monitoring.

Septic System Milestones and Timeline

Table 16. Septic system milestones, targets, and timeline.

Septic System Milestones	Target Date
Inspection and Maintenance	
Achieve 100% septic system inspection compliance by 2030.	2030
Repair and Replacement	
Correct 100 % of failing septic systems by 2030. Correct any failing septic systems identified within 6 months of identification.	2030
Sewer Extension and Connection	
Connect 100% of homeowners within the sewer service area to municipal sewer services by 2030.	2030
Public Education and Outreach	
Educate 100% of septic system owners by 2030.	2030

Small Acreage Agriculture

Conservation Planning, Technical Assistance
BMP Implementation

Agriculture Background

- **14,827 acres** of agriculture zoning.
- **9% loss** in agricultural land between 2004 and 2018.
  - ~1,512 acres
- Strong agricultural character
  - Small acreage livestock.
  - Orchards.
  - U-Pick Vegetable farms.
  - Wineries.
  - Pastures.
  - Equestrian facilities.
  - Silviculture.

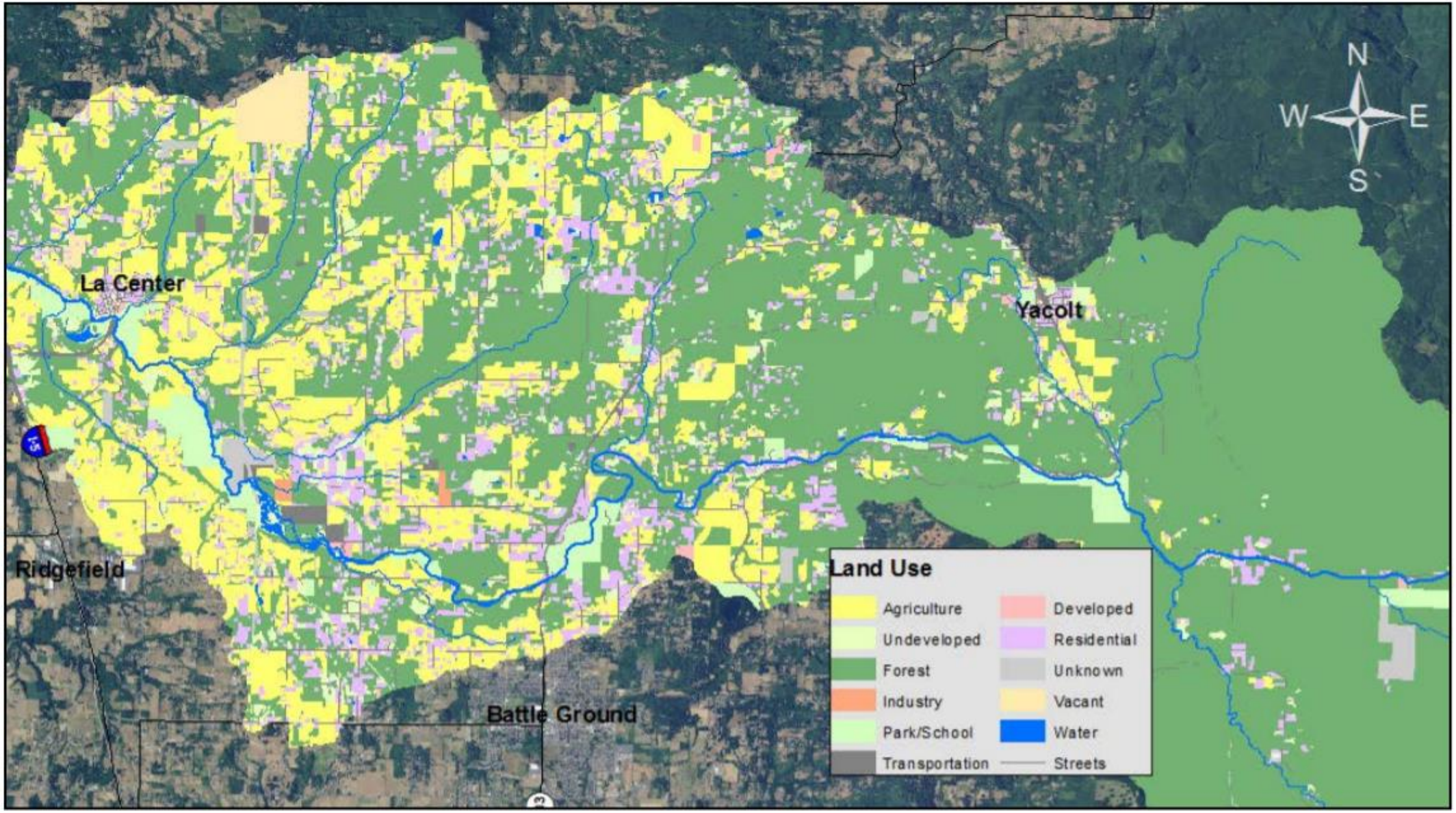


Figure 15. Land use types in the EF Lewis River watershed (Ecology[1], 2010).

Agriculture Background

- **1 small dairy** with potential manure application.
- **1 egg laying** facility.
- **0 CAFOs** (Concentration Animal Feeding Operations).
- **322 farms** estimated in watershed.
  - *Based on 14,827 agricultural zoning with average ~46 acres per farm.*

Proactive Nonpoint Source Investigation

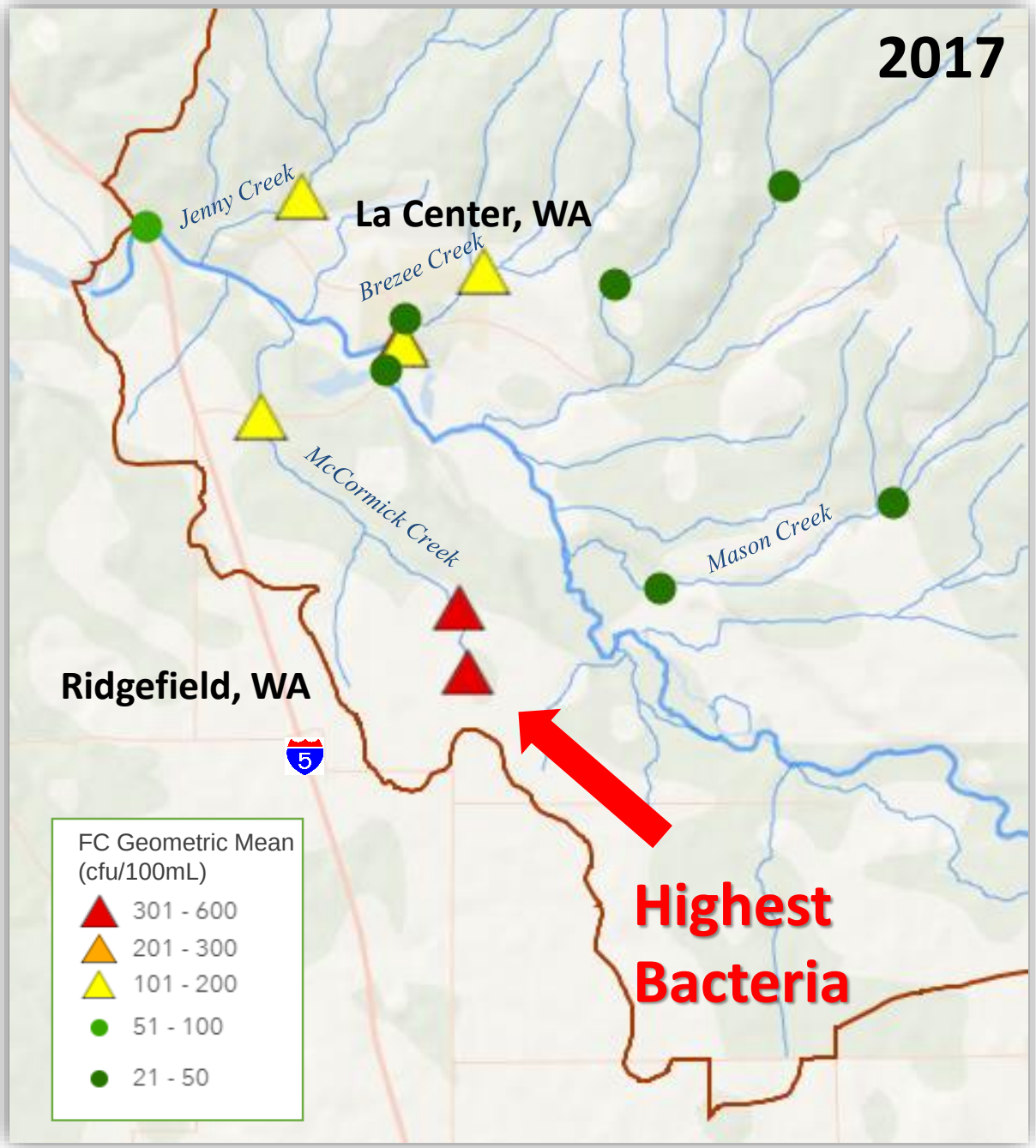
- **Monitoring data.**
- **Watershed evaluation.**
- **Property inspections.**
- **Goal:** Find and fix sources of bacteria.

East Fork Lewis River Watershed
Bacteria and Temperature

Source Assessment Report

DEPARTMENT OF ECOLOGY
State of Washington

May 2018
Publication No. 18-03-019

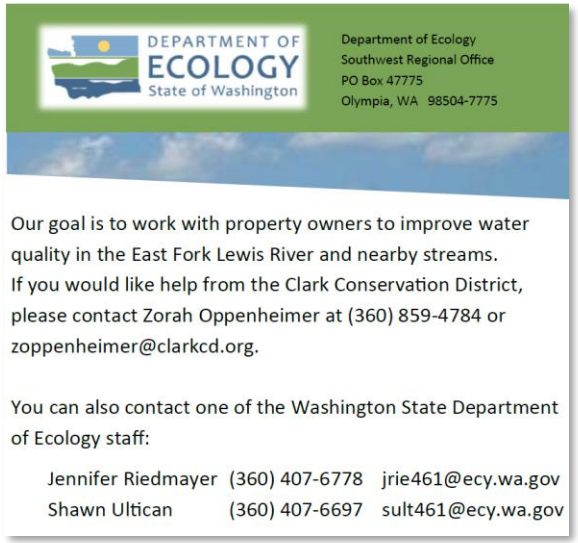


McCormick Creek
19% Impervious
20% Tree Canopy


ERS
EXCAVATOR
RENTAL
SERVICES
CAT
ECOLOGY
DEERE

Manure Lagoon

Pathways to Nonpoint Source Implementation


DEPARTMENT OF ECOLOGY
State of Washington

Department of Ecology
Southwest Regional Office
PO Box 47775
Olympia, WA 98504-7775

Our goal is to work with property owners to improve water quality in the East Fork Lewis River and nearby streams. If you would like help from the Clark Conservation District, please contact Zorah Oppenheimer at (360) 859-4784 or zoppenheimer@clarkcd.org.

You can also contact one of the Washington State Department of Ecology staff:

Jennifer Riedmayer (360) 407-6778 jrie461@ecy.wa.gov
Shawn Ultican (360) 407-6697 sult461@ecy.wa.gov

- **Proactive investigation**
  - Ecology visited 18 properties in watershed in 2019.
  - Monitoring.
  - Site visits

- **Complaint response.**

Environmental complaint response

ecology.wa.gov/ReportAnIssue

Southwest Regional Office

Counties: Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum

Online: Statewide reporting form
Email: swroerts@ecy.wa.gov
Phone: 360-407-6300

Nonpoint Source Implementation

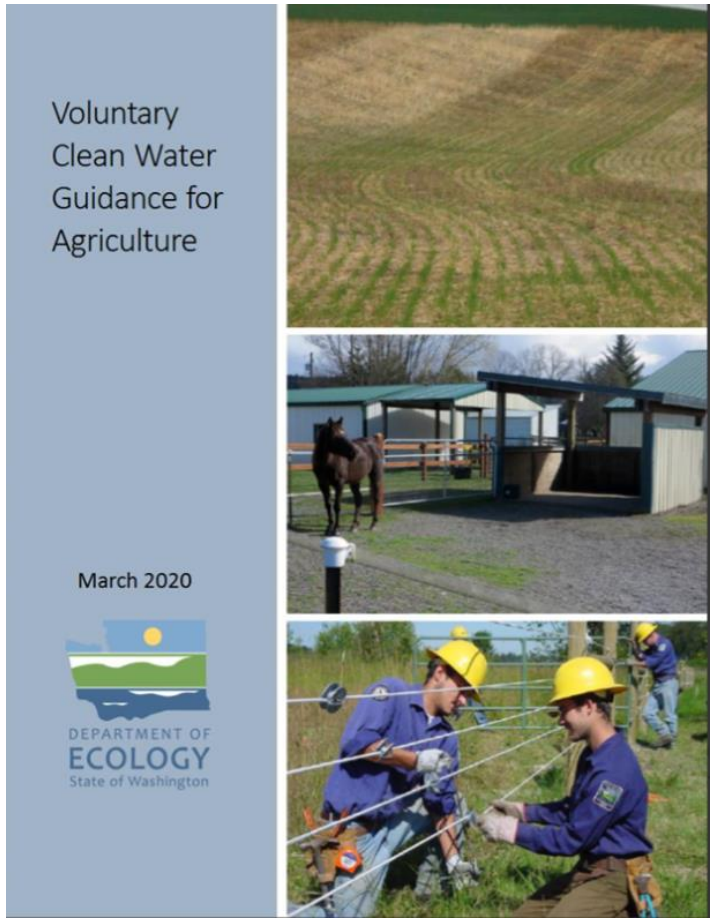
- Large manure lagoon from old dairy.
- Landowner historically dumping manure into the creek now implementing manure management BMPs.
- Irrigation district in McCormick Creek.
- Dog grooming facility with direct discharge.
- Stormwater and erosion complaints.
- Industrial stormwater site operating without permit.

Voluntary Clean Water Guidance for Agriculture

- **Guidance in Development**
  - Focuses on BMPs that help meet Water Quality Standards.

  - Ecology recommends to farmers to use the guidance:
    - During the farm and conservation planning process.
    - Provide technical assistance to landowners.
    - Developing water quality protection plans or projects.
    - Developing education and outreach materials.

  - If an agricultural landowner implements BMPs from guidance, Ecology will presume the operation is adequately protecting water quality.



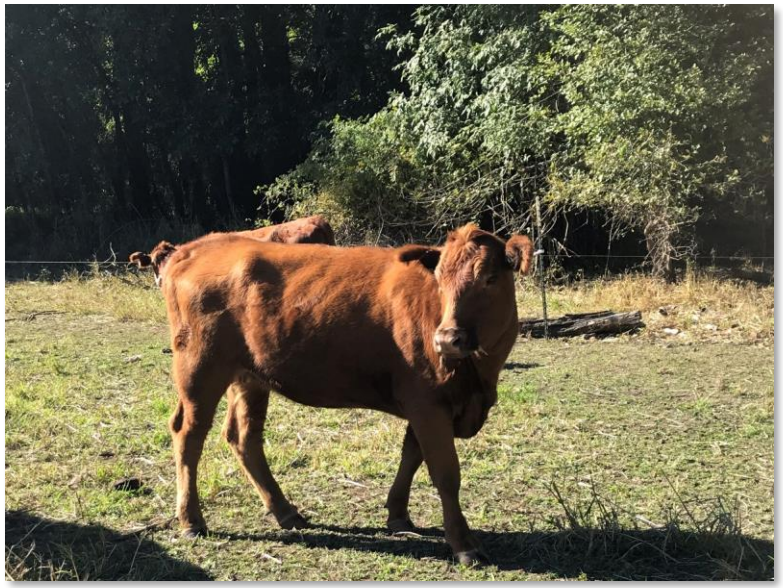
Agricultural assistance

- Clark Conservation District
- Washington State University Extension
- USDA NRCS
- USDA Farm Service Agency

Conservation Process

1. Identification of Properties.
2. Landowner Outreach.
3. Site Visit.
4. Technical Assistance.
5. Conservation Planning.
6. BMP Design.
7. BMP Implementation.
8. Maintenance and Monitoring.
9. Follow-up Site Visit.

Poop Smart Clark
$1.4 Million Dollars for Livestock BMPs



- **United States Department of Agriculture.**
- **Pollution Identification and Correction (PIC) Program.**
  - Water Quality Monitoring.
  - Technical Assistance
  - Livestock BMP Implementation.
- **Financial Assistance for program is still needed.**

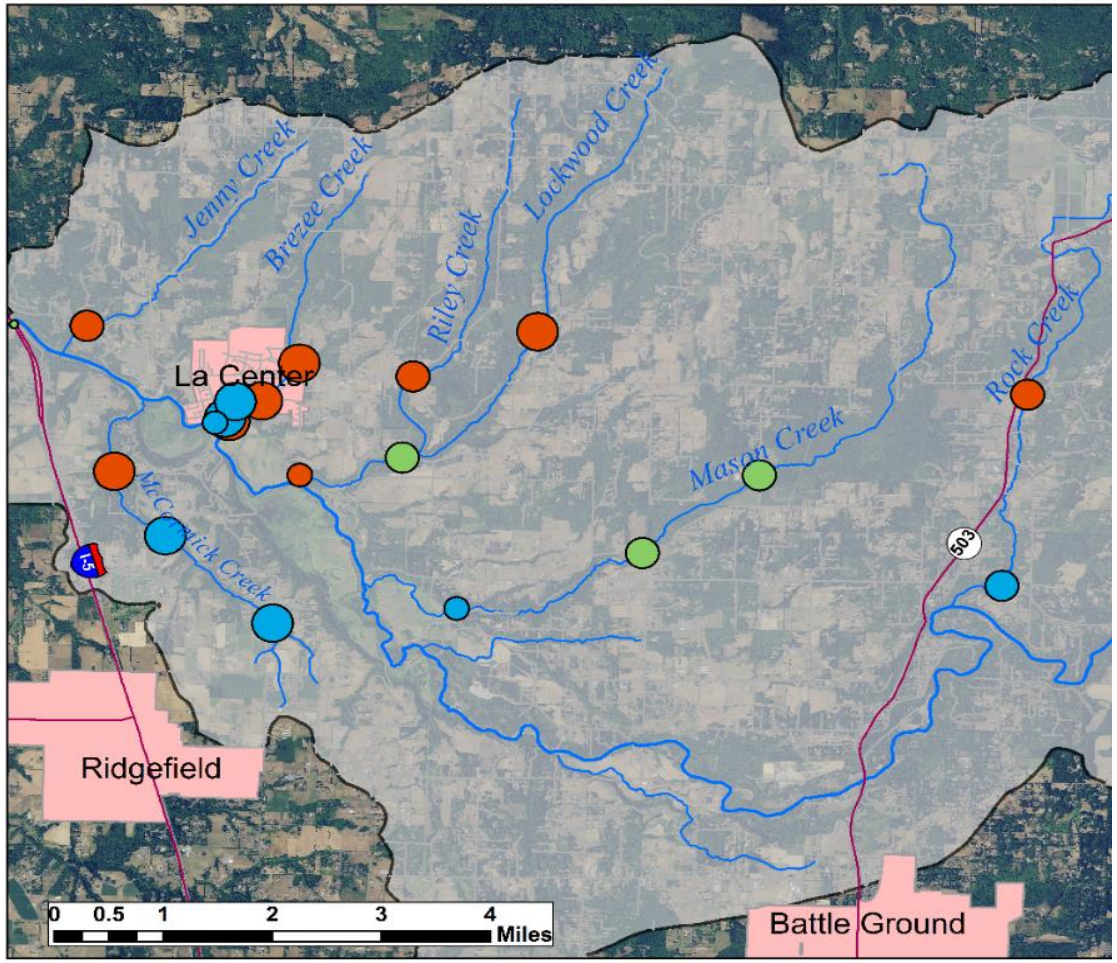
Agriculture Implementation goals

1. Eliminate impacts of agriculture on water quality in the East Fork Lewis River.

2. Prioritize agricultural implementation in the lower and middle watershed where known bacteria problems exist.

Priority Areas for Agriculture Implementation

- **Priority 1** - Breeze and McCormick Creeks.
- **Priority 2** - Rock Creek North, Jenny, Riley, and Lockwood Creek.
- **Priority 3** - Mason and Yacolt Creeks.



Agriculture Milestones and Timeline

Table 29. Agriculture milestones, targets, and timelines.

Agriculture Milestones	Target Date
Proactive Nonpoint Source Investigation	
Complete proactive nonpoint source investigation of priority tributaries in the East Fork Lewis River by 2025.	2025
Site Visits	
Complete site visits to 100% priority properties the East Fork Lewis River by 2025, targeting properties in the Brezee, McCormick, Jenny, and Rock Creek North watersheds.	2025
Technical Assistance	
Provide technical assistance to 100% of livestock owners and agricultural landowners by 2030.	2030
Conservation Planning	
Complete conservation plans targeted towards water quality BMP implementation on 100% of agricultural properties with livestock by 2030.	2030.
Implementation – Livestock Best Management Practices	
Implement Agricultural BMPs on 100% of agricultural properties by 2035.	2035
Public Education and Outreach	
Utilize Community Based social marketing practices to reach 100 % of property owners in the East Fork Lewis River by 2025.	2025
Educate 100% of small acreage landowners in the East Fork Lewis River through WSU Extension's small acreage program by 2030.	2030

Agriculture
Criteria to Measure Progress

- **Number of site visits completed.**
- **Number of technical assistance letters issued.**
- **Number of conservation plans completed.**
- **Bacteria monitoring.**
- **Number of livestock BMPs implemented.**
  - Number of livestock removed from direct access.
  - River miles of livestock exclusion fencing.
  - River miles of riparian restoration.
  - Pounds of manure removed from watershed.

Stormwater Management

Source Tracing, Illicit Discharge Detection & Elimination

Stormwater Management Planning

Stormwater Jurisdiction

- **Phase 1 Stormwater Permit**
  - **Clark County, WA**
- **Phase 2 Stormwater Permit**
  - **Battle Ground, WA**
- **Unpermitted – Stormwater Management is voluntary and proactive**
  - **La Center, WA**
  - **Ridgefield, WA**
  - **Yacolt, WA**
- **Washington Department of Transportation Highway Runoff Manual**

Western Washington Municipal Stormwater Permit

Stormwater Source Control

- Prevent and reduce the discharge of nonpoint source pollutants to stormwater systems.
- Operational, structural, and treatment BMPs at
- Pollutant generating land use types, businesses, and activities.
- Pet waste and goose waste.

Illicit Discharge Detection and Elimination (IDDE)

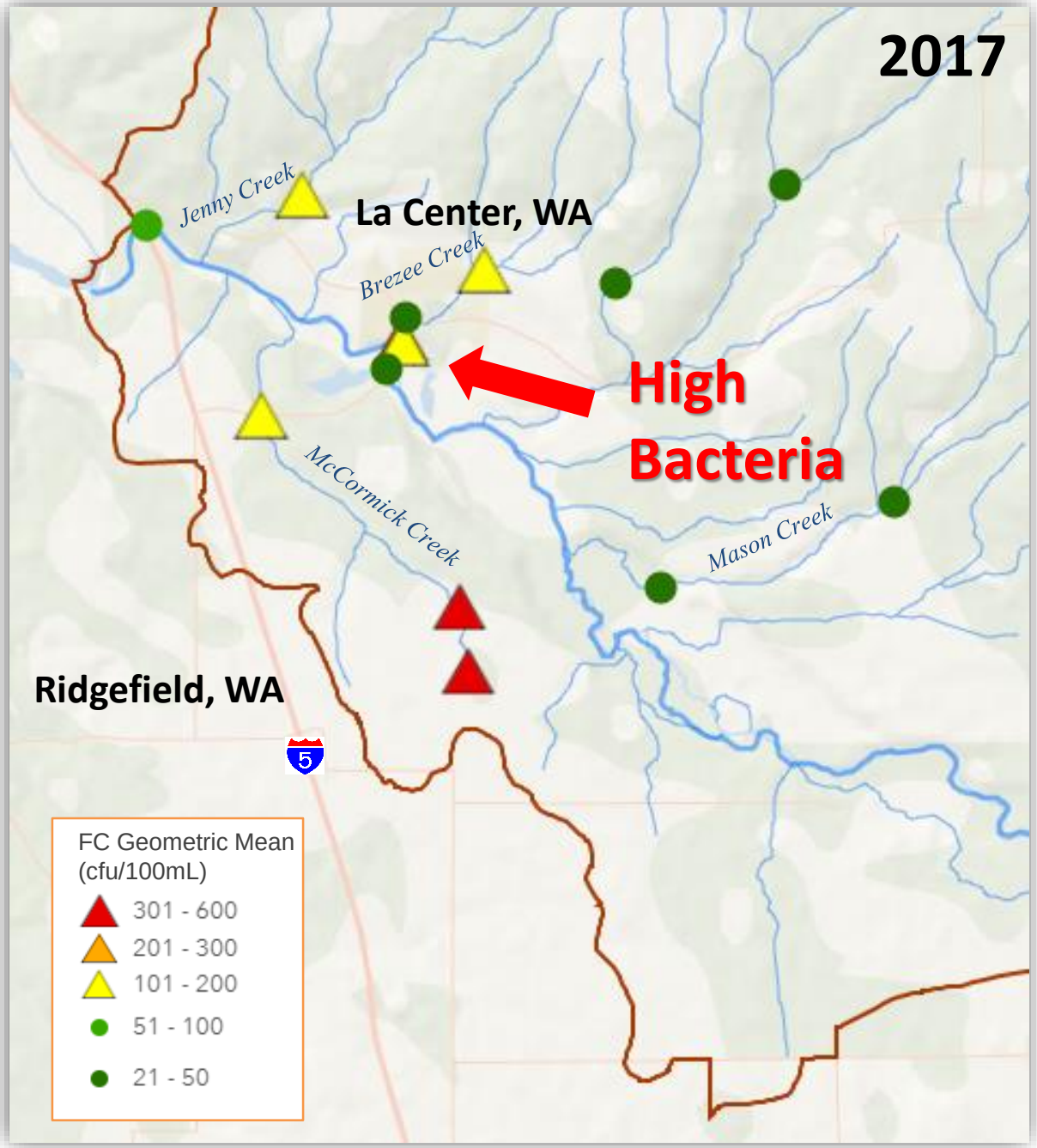
- Prevent, detect, characterize, trace, and eliminate illicit connections and discharges into stormwater system.

East Fork Lewis River Watershed
Bacteria and Temperature

Source Assessment Report

DEPARTMENT OF ECOLOGY
State of Washington

May 2018
Publication No. 18-03-019



Brezee Creek
16% Impervious
38% Forested

Brezee Creek

- La Center Washington
  - ~4,000 residents
  - No Municipal Stormwater Permit or program
  - Between 2000 and 2018, 101 percent population growth
  - Between 2004 and 2018, urban growth boundary has increased by 160 percent.

Brezee Creek

- La Center Washington
  - Illicit Discharge Detection and Elimination.
  - Cross Connections Identified & Corrected.
  - New Codes, Ordinances Standards, and Procedures.

Bacteria Monitoring

- La Center Washington
  - QAPP Monitoring Fecal Coliform Bacteria in Western Washington.
  - Bacteria Source Tracing
  - Microbial Source Tracking and Monitoring

Quality Assurance Project Plan

Monitoring Fecal Coliform Bacteria in Western Washington Water Bodies

Appendix B3: Southwest Regional Office Sampling Sites for 2019 and 2020

DEPARTMENT OF ECOLOGY
State of Washington

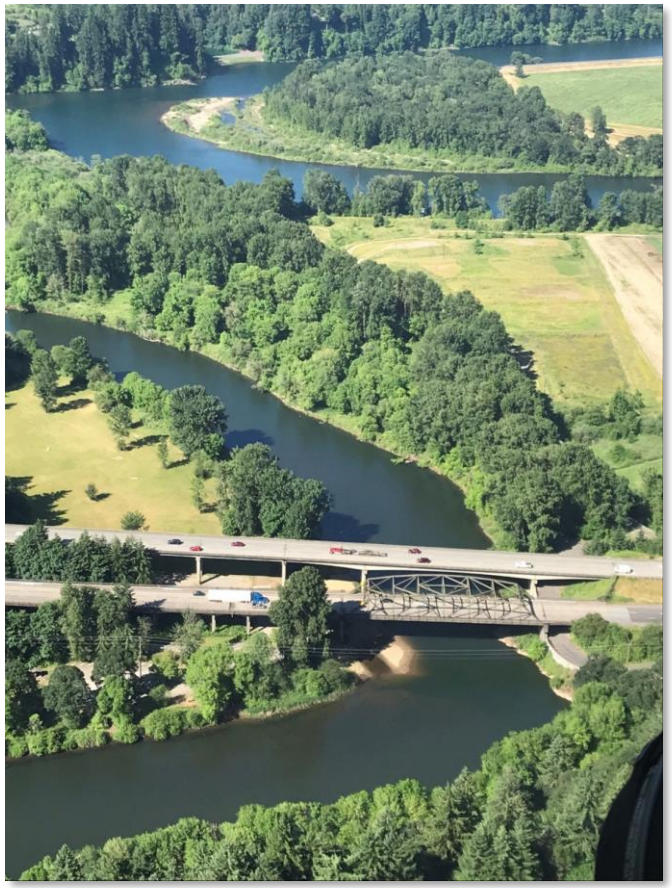
June 2020
Publication 20-10-016


BCK-0.46
BCK-1.02
BCK-0.37
BRZ-MID
BRZ-14th
BRZ-EAST
BRZ-5TH
BRZ-SW2
NE North Fork Ave
NE 339th St
Highland Rd
Aspen Ave
W 4th St
E 4th St
NE Lockwood Creek Rd

Stormwater Priorities

- Bacteria Source Tracing.
- Illicit Discharge Detection and Elimination.
- Bacteria Source Control.
- Mapping and Inventory.
- Stormwater Management Planning.
- Western Washington Stormwater Manual.
- Stormwater Utility.

Stormwater Priorities



- **Continued acquisition and restoration of conservation areas.**
- **Roads and Ditches Inventory.**
- **WSDOT I-5 Bridge Improvement**
  - Modernize stormwater infrastructure and eliminate direct stormwater discharge.
  - Educational signage.

Stormwater Implementation goals

1. Achieve a high level of stormwater management in the East Fork Lewis River, prioritizing implementation in Brezee Creek and McCormick Creek and in the Cities of La Center and Ridgefield.
2. Prioritize implementation of IDDE and bacteria source control programs in the watershed.

Stormwater Milestones and Timeline

Table 41. Stormwater milestones, targets, and timelines.

Stormwater Milestones	Target Date
Illicit Discharge Detection and Elimination	
Identify and correct 100% of illicit discharges and cross connections in the City of La Center's urban drainage by 2025.	2025
Complete IDDE screening of all stormwater outfalls in the East Fork Lewis River by 2025.	2025
Source Control	
Complete a source control inventory of the East Fork Lewis River watershed by 2025.	2025
Implement source control best practices in the East Fork Lewis River by 2025.	2030
Stormwater Management Planning	
Develop stormwater management plan for City of La Center by 2025.	2025
Voluntarily adopt Western Washington Stormwater Management Standards in the City of La Center and Ridgefield by 2025.	2025
Other Stormwater Best Management Practices	
Complete updated mapping of Clark County road, ditch, and stormwater infrastructure by 2025.	2025
Implement priority stormwater facilities and activities, including illicit discharge detection and elimination, and source control activities by 2030.	2030.

Stormwater
Criteria to Measure Progress

- **Number of illicit discharges or cross connections identified and corrected.**
- **New stormwater facilities or activities implemented.**
- **Acres of impervious surfaces with stormwater BMPs implemented for treatment and detention.**
- **Development of stormwater management plan, new standards, ordinances, source control inventory.**
- **Bacteria monitoring.**

Riparian Restoration

Public & Private Lands

Riparian Restoration Facts

- **2,000+ acres** of Clark County Legacy Lands.
- **9,000+ acres** planned for acquisition.
- **74,505 acres** of forestland in 2016.
- **11,135 acres** of wetlands.
- **27,472 acres** of forestland harvested from 2004-2018.

System Potential Riparian vegetation

- **85% System potential riparian vegetation.**

- **From RM 0 to 7**
  - Primary tree species are deciduous trees.
  - Average 100-year tree height potential is ~7.5 feet.
  - Estimated overhang potential ~7.5 feet.

- **RM 7 to seven to the headwaters**
  - Primary tree species are conifers.
  - Average 100-year tree height potential is ~150
  - Estimated overhang potential ~15 feet.

Riparian Restoration Priorities

- **27%** shade deficit in lower watershed.
- **35%** average shade deficit in middle watershed.
  - River miles 9 to 13 have shade deficits over 40%
- **26%** average shade deficit in upper watershed.

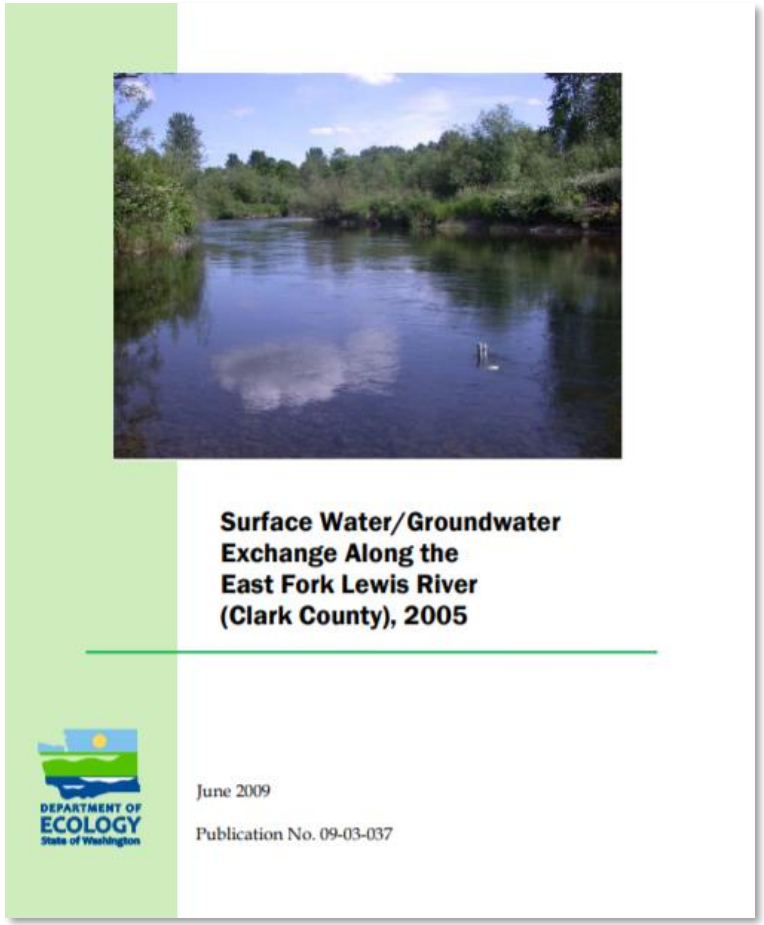
Forested landcover in tributaries

- **Shade deficit in tributaries is unknown.**
  - Estimated 20 to 30 miles of riparian restoration needed in tributaries.

  - *2010 Clark County Stream Health Report* forested land cover estimates.
    - McCormick Creek – 20%
    - Mill Creek - 29%
    - Dean Creek – 37%
    - Brezee Creek – 38%
    - Jenny Creek – 40%

- 350+ acres of manmade ponds needing decommissioning and restoration on East Fork Lewis River tributaries.

Surface Water / Groundwater Exchange



Priority river miles

- **4.6 to 7.3** (Lower and middle watershed) = 13.3 cfs/mile
- **7.3 to 8** (Middle watershed) = 6.3 cfs/mile
- **26.9 to 29** (Upper watershed) = 6.1 cfs / mile
- **10.1 to 13.2** (Middle watershed) = 2.0 cfs / mile

Surface water and groundwater exchange

- **Recommendations**
  1. Track and analyze water levels over time in the Sand and Gravel Aquifer, which is the main water source for the East Fork Lewis River.
  2. Determine where the river is directly connected with the Sand and Gravel Aquifer to help clarify where the river is gaining groundwater.
  3. Utilize information about the effects of current and future water withdrawals when making water rights decisions in the basin.

Lower Columbia Estuary Partnership

- **Thermal Refuge Assessment.**
  - Identify cold-water refugia and restoration opportunities

- **Ridgefield Pits Technical Advisory Committee.**
  - Developing restoration alternatives for river miles 8 to 10 to restore abandoned surface gravel mining pits

Lower Columbia Fish Recovery Board

- **Lead Entity & Regional Recovery Organization for salmon recovery.**
  - *Washington Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan, 2010.*
  - *Lower East Fork Lewis River Habitat Restoration Plan, 2009.*
  - *Salmon-Washougal and Lewis Watershed Management Plan WRIAs 27-28, 2006.*
  - *East Fork Lewis River Recovery Plan Review* (expected 2020-2021)

Lower Columbia Fish Recovery Board

Limiting Factors Analysis

- Over 50 percent of off-channel habitat and wetlands in floodplain areas have been disconnected.

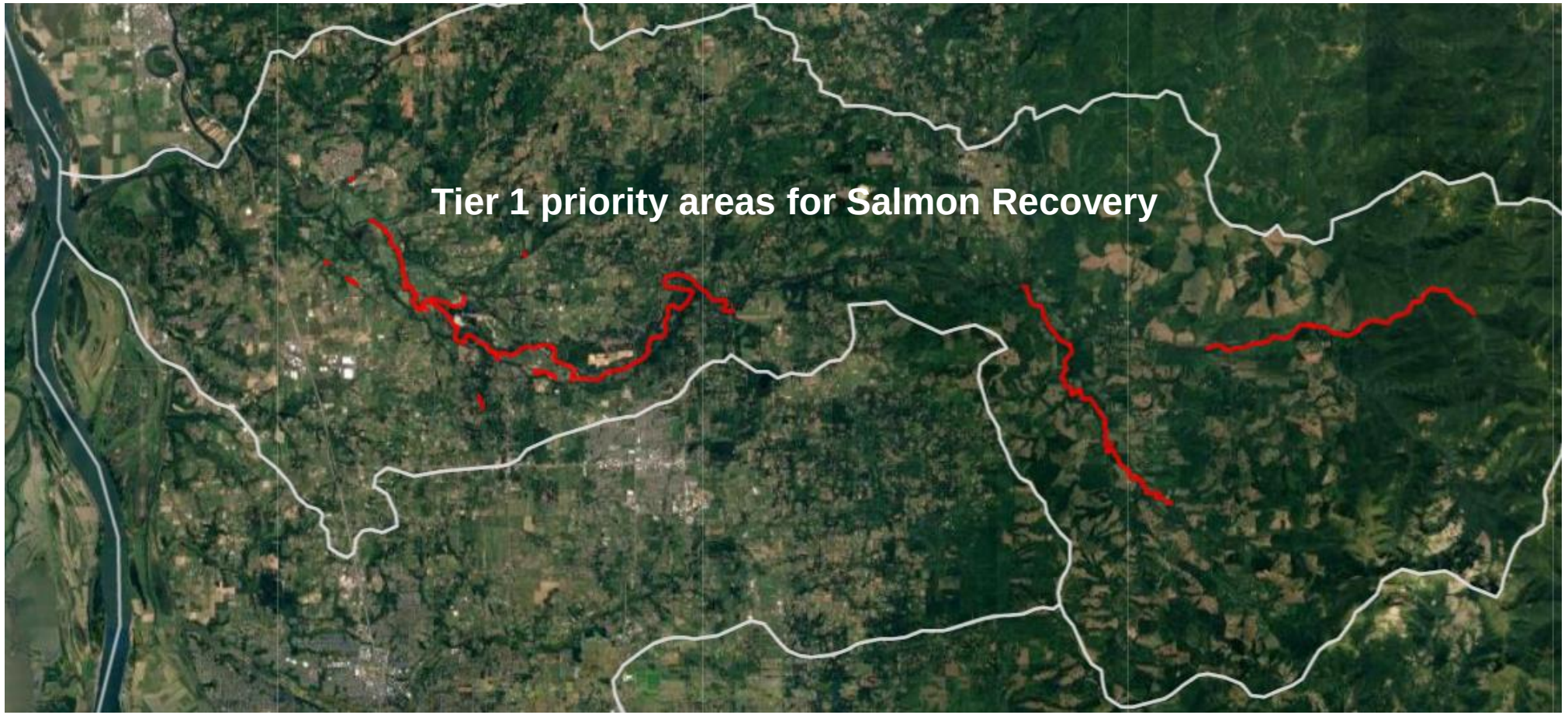
- **Other limiting factors:**
  - Habitat connectivity.
  - Habitat diversity.
  - Channel stability.
  - Riparian function.
  - Floodplain function.
  - Streamflow.
  - Water quality.
  - Substrate and sediment.
  - Agriculture and grazing,
  - Rural and suburban development.
  - Forest practices.
  - Channel manipulations.

Local water use

- ***WAC* 173-52 Instream flow rule for WRIA 27**
  - No waters are reliably available for new consumptive uses in the East Fork Lewis River from Interstate 5 to the headwaters.

- ***Salmon-Washougal and Lewis Watershed Management Plan***
  - Restricting issuance of new water rights.
  - Water conservation.
  - Curtailment or changed operations in drought conditions.
  - Enforcement actions against unauthorized water uses.

Lower Columbia Fish Recovery Board and salmon recovery



Riparian Restoration Goals

1. Achieve system potential riparian vegetation of 85% canopy cover in the East Fork Lewis River watershed.

2. Restore and enhance riparian forest in the East Fork Lewis River, prioritizing the river miles with the highest shade deficits in the lower and middle watershed.

Riparian Restoration Milestones and Timeline

Table 58. Riparian restoration milestones, targets, and timelines.

Riparian Forest Restoration	Target Date
Restore riparian forest to 100% of mainstem river miles needing shade enhancement by2030.	2030
Achieve 85% system potential riparian vegetation on the East Fork Lewis River mainstem by 2060.	2060
Complete a shade deficit analysis on East Fork Lewis River tributaries by 2025.	2025
Acquire and conserve priority conservation properties and complete private landowner outreach to foster riparian restoration projects on tributaries by 2030.	2030
Complete implementation of tributary riparian restoration projects by 2030.	2030
Achieve system potential riparian vegetation on the East Fork Lewis River tributaries by 2060.	2060
Other Temperature Strategies	
Identify cold-water refugia restoration opportunities by 2025.	2025
Implement restoration projects at 100% of cold-water refugia areas by 2035.	2035
Acquire and conserve priority conservation lands outlined by the Clark County Legacy Lands Program and Columbia Land Trust by 2030.	2030
Restore riparian forest vegetation on Clark County Legacy Lands Program and Columbia Land Trust's acquisition properties by 2040.	2040
Achieve system potential riparian vegetation on these properties by 2060.	2060
Remove 100% of fish barriers in the East Fork Lewis River to improve flow by 2030.	2030
Complete restoration of historical sand and gravel mining sites to benefit cold-water by 2030.	2030
Implement other wetland enhancement, off-channel habitat, bank stabilization, and floodplain reconnection projects by 2035.	2035

Riparian Restoration
Criteria to Measure Progress

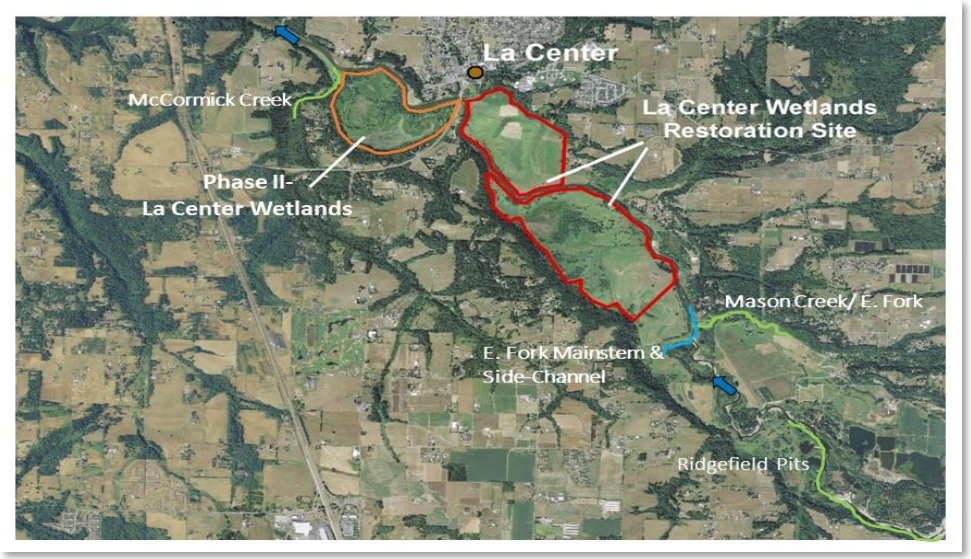
- River miles planted.
- Acres of floodplain, wetlands, and riparian habitat restored.
- Number of cold-water refugia enhanced.
- CFS of streamflow restored to river.
- Water temperature.
- Shade deficit analysis.

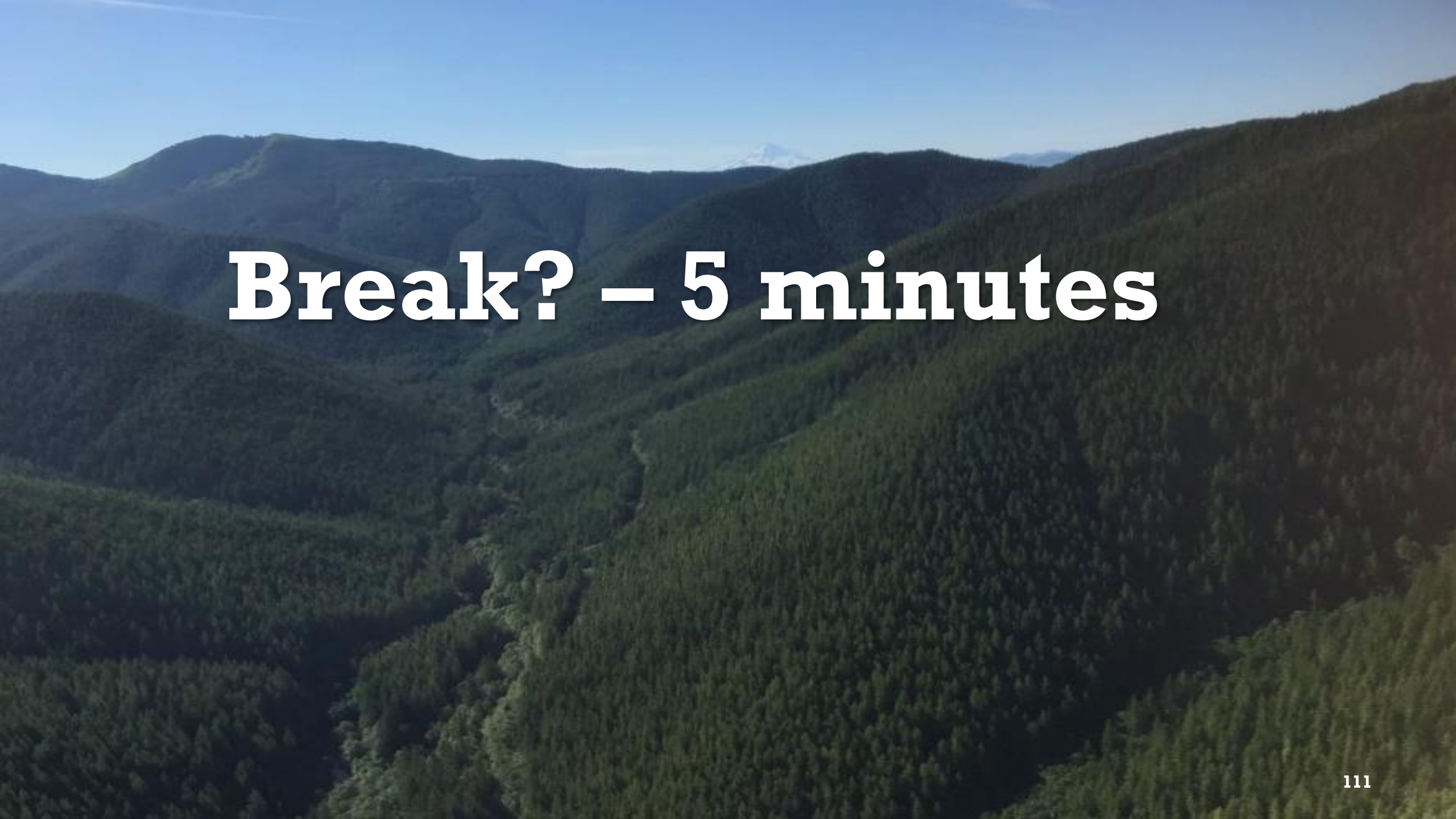
Recommended Buffer Widths for Riparian Restoration

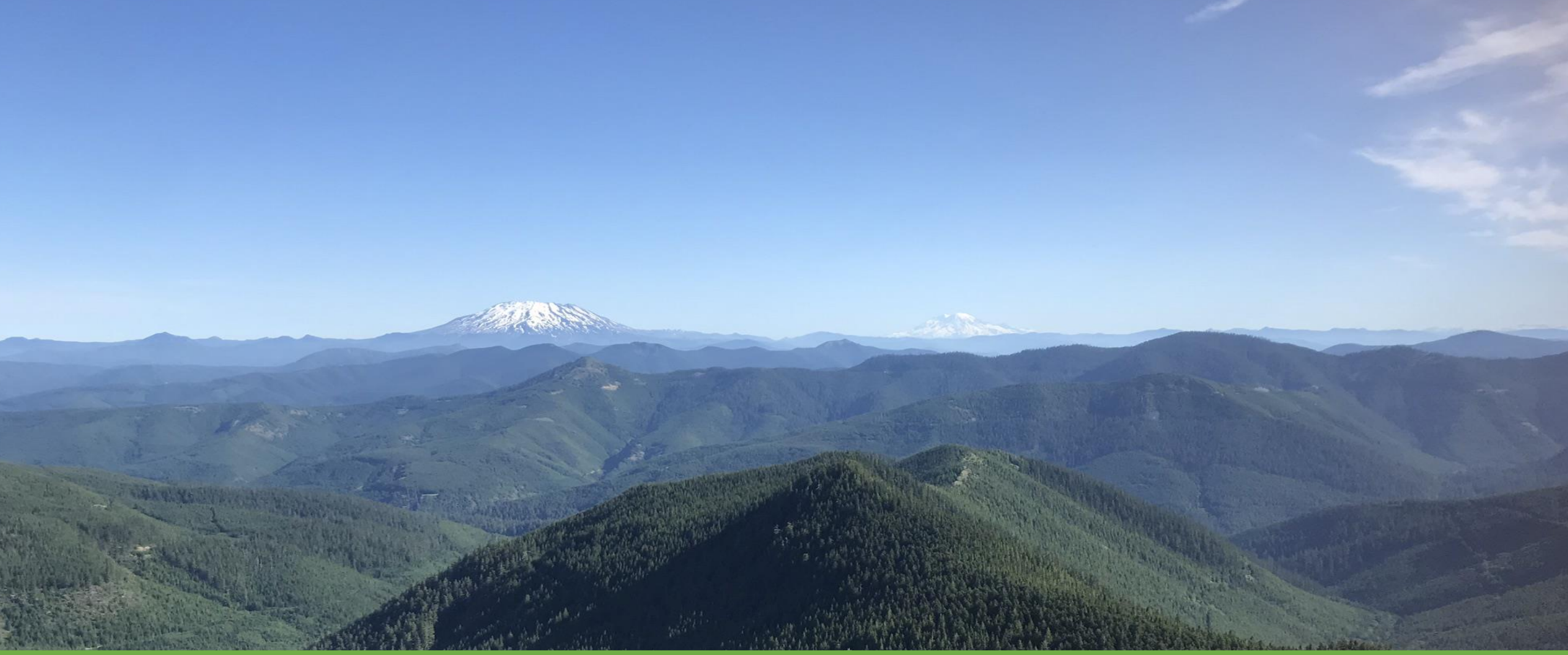
- Ecology's Riparian Buffer Width Map
- Department of Natural Resources Forest Practices Application Mapping Tool
- Washington Department of Fish and Wildlife's SalmonScape mapping application
- *Voluntary Clean Water Guidance for Agriculture*.

Local Implementation

- **Clark County Legacy Lands.**
  - 2000+ Acres in Watershed.
- **Columbia Land Trust.**
  - Acquisition for conservation.
- **Lower Columbia Estuary Partnership.**
  - Restored 600+ acres on 10 miles of river.
- **Clark Public Utilities District.**
  - Riparian restoration and invasive species management.




Break? – 5 minutes



Chapter 4: Public Education and Outreach

Public education and outreach Implementation goals

*Achieve a **mutual understanding and shared responsibility** of how individual and collective actions can lead to better water quality in the East Fork Lewis River.*

1. *Raise general awareness.*
2. *Create stewardship opportunities*
3. *Effect behavior change to improve water quality.*

Priority Audiences for Education and Outreach

1. **Agricultural landowners** with properties adjacent to the East Fork Lewis River

2. **Homeowners with septic systems** adjacent to the East Fork Lewis River

3. **Landowners with riparian properties** adjacent to the highest shade deficits

Clark County Clean Water

- Canines for Clean Water.
- Stormwater Partners of Southwest Washington.
- Explore your Watershed Map.
- Road Stream Crossing Signs.
- Student Watershed Monitoring Network.

Please Scoop!
CleanWaterDogs.com

PROTECT WATER ONLY RAIN IN DRAIN

stormwater PARTNERS SW WASHINGTON

Small Acreage Program
Washington State University Extension

- **Private Landowner Outreach**
  - Direct mailing sent to 1,000 property owners in the East Fork Lewis River Watershed in 2019.

- **Well and Septic System Maintenance Workshop**
  - East Fork Lewis River watershed in 2019.

- **Best Management Practices Workshop**
  - Workshop focused on BMPs for manure management in the East Fork Lewis River in 2019.

Other Organizations

- **Clark Conservation District**
  - Watershed Stewards
- **Watershed Alliance of Southwest Washington**
  - Backyard Habitat, Project Restore
- **Clark Public Utilities District**
  - StreamTeam and Stream Stewards
- **Lower Columbia Estuary Partnership**
  - K-12 education and stewardship

Community Partners

- Friends of Clark County
- Friends of the East Fork
- Fish First
- East Fork Community Coalition
- Trout Unlimited
- Clark-Skamania Fly Fishers
- Salmon Creek Fly Fishers
- La Center Schools

Culturally Specific Outreach

- **Environmental Justice Screening and Mapping Tool EPA - EJ Screen**
  - 9% Clark County is Hispanic.
  - 5% Asian – Chinese, Vietnamese Korean, Filipino
  - 63,944 live in a non-English speaking home

Culturally Specific Outreach

- **EPA EJ Screen**
  - 4,868 linguistically isolated households in Clark County, where no one over the age of 14 speaks English
    - 35%speak Spanish.
    - 34% speak Indo-European languages.
    - 25% speak Asian-Pacific Languages

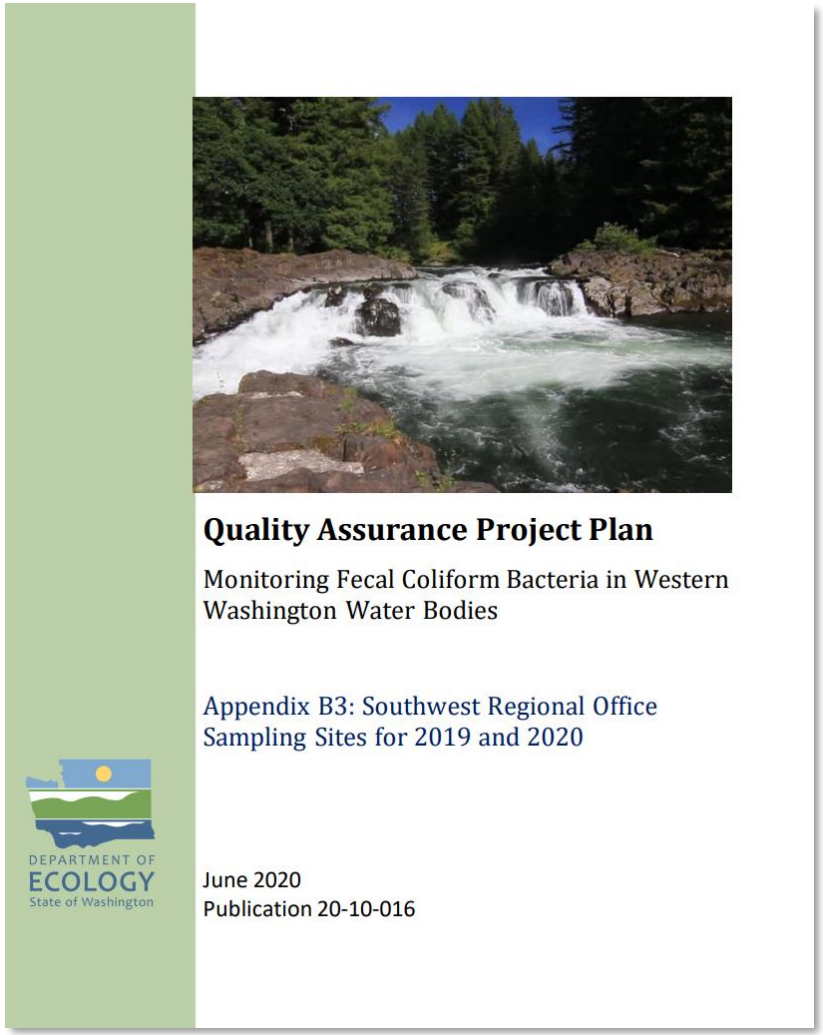
Chapter 5: Effectiveness Monitoring and Adaptive Management

Monitoring History

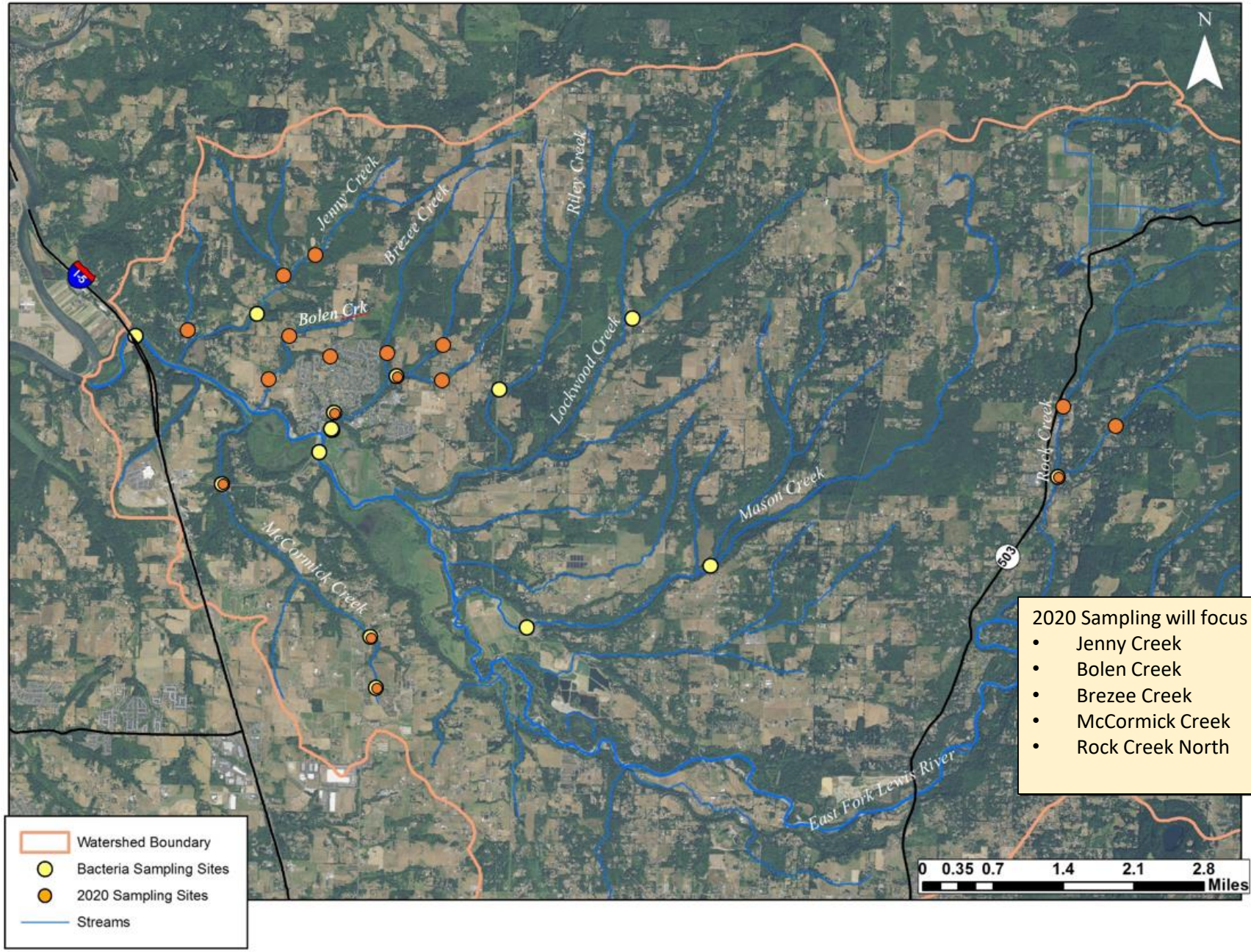
Table 70. Monitoring schedule in the East Fork Lewis River.

Monitoring Project	Organization	Year
Initial Sampling for Source Assessment	Department of Ecology	2005-2006 & 2017
Surface / Groundwater Exchange and Ambient Monitoring	Department of Ecology	2009 and Ongoing
Streamflow Gauge	United States Geological Survey	Ongoing
Temperature Monitoring	Department of Fish and Wildlife	2015, 2016 , 2018
NPS Investigative Monitoring	Department of Ecology	Ongoing
Temperature Monitoring and Modeling	Lower Columbia Estuary Partnership	2019-2020 -Ongoing
Clark County Stream Health Report	Clark County Clean Water	2010, 2020, 2030, 2040, 2050, 2060
Pollution Identification and Correction Monitoring	Clark County Clean Water	2020-2027
Effectiveness Monitoring	Undetermined	2027, 2037, 2047, 2057
Shade Deficit Analysis	Undetermined	2017, 2040, 2060
Recovery Plan Review & Habitat Status and Trends Monitoring	Lower Columbia Fish Recovery Board	2020, 2025

Ecology Monitoring – 2020



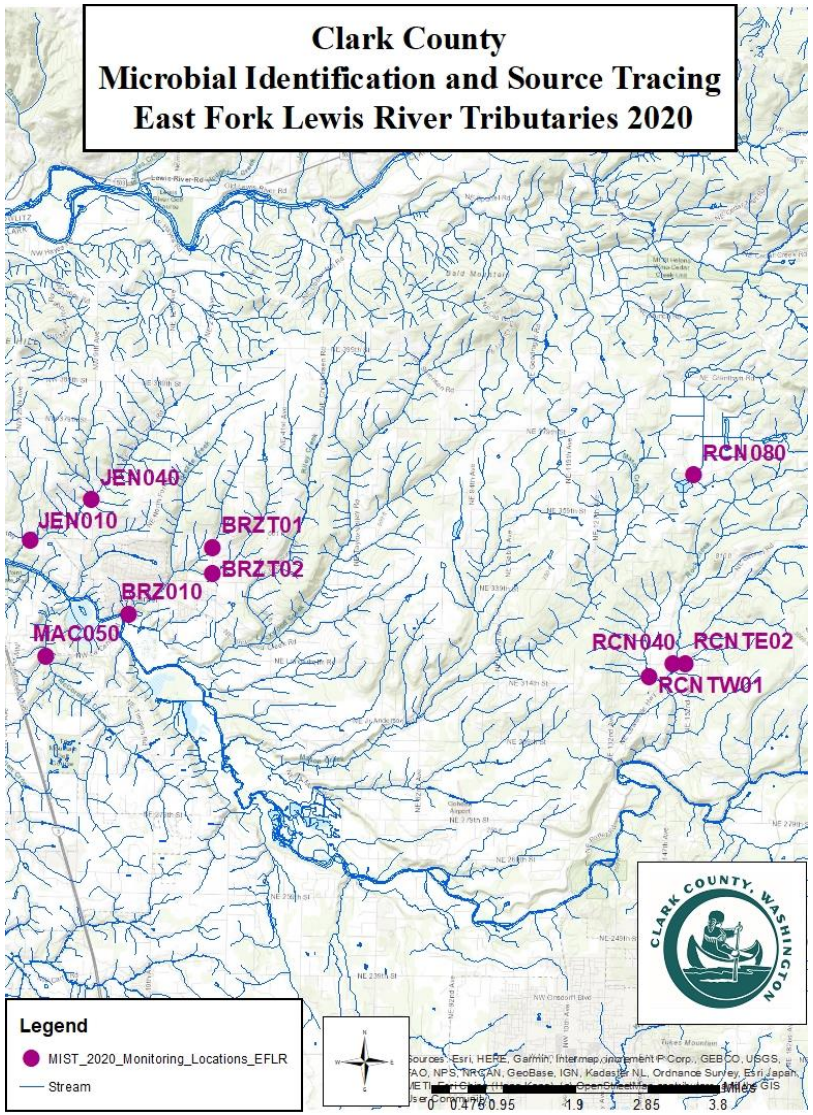
- **Quality Assurance Project Plan, June 2020**
  - Data results are stored in Ecology's Environmental Information Management System
    - Study ID EFLewis_WQP
  - Final results expected by end of 2020



2020 Sampling will focus on:

- Jenny Creek
- Bolen Creek
- Brezee Creek
- McCormick Creek
- Rock Creek North

Clark County Monitoring – 2020



- **Stream Health Report.**
- **Long-term Index Site.**
- **Microbial Source Tracking.**
  - Human
  - Dog
  - Horse
  - Cow

Effectiveness Monitoring

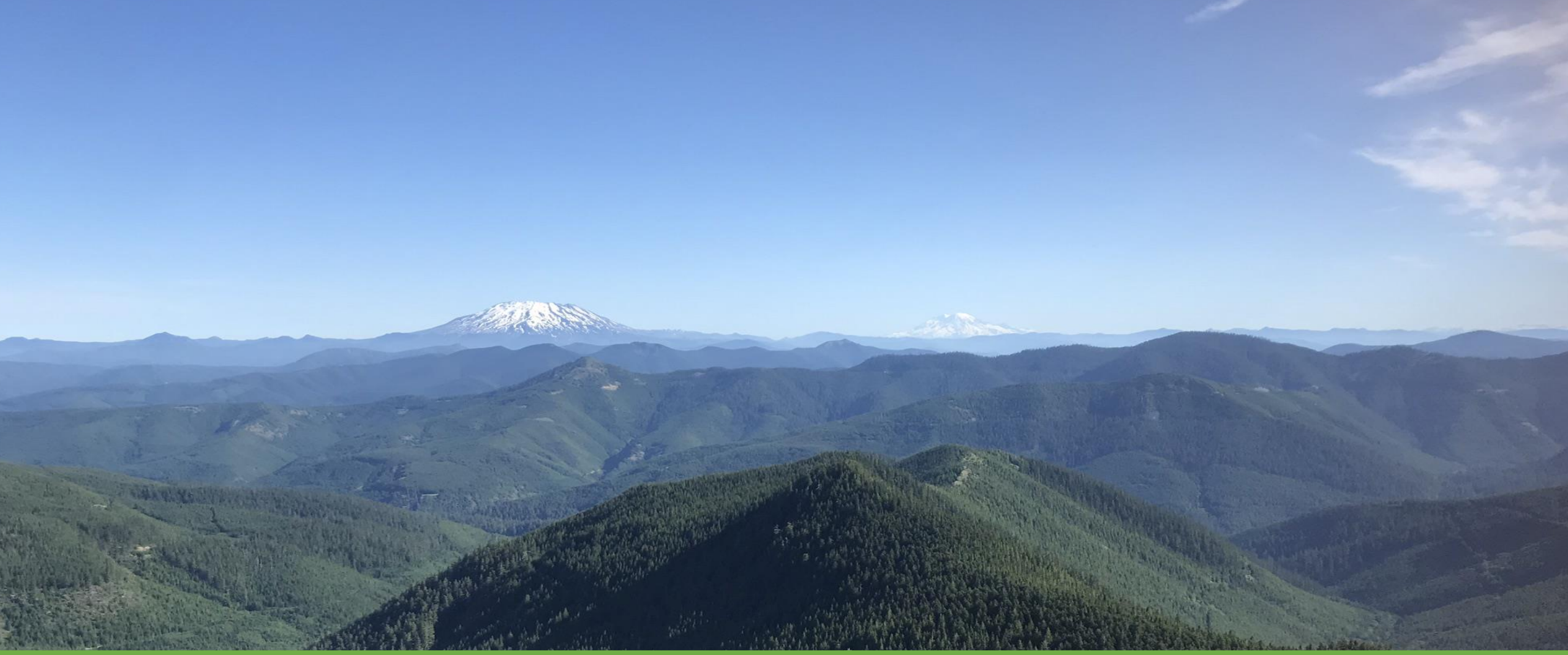
- Formal effectiveness monitoring by 2027.
- Every 10 years until standards are achieved.
- Policy 1-11 will be used to delist category 5 waters.

Implementation Tracking and Annual Reporting

- **Annual Survey** to track and measure implementation progress.
- **Annual Report** to summarize survey.
- **Progress Report** published every 5 years (2025 and 2030).
- **2027 Effectiveness monitoring**, report, and adaptive management.
- Partnerships to track implementation.

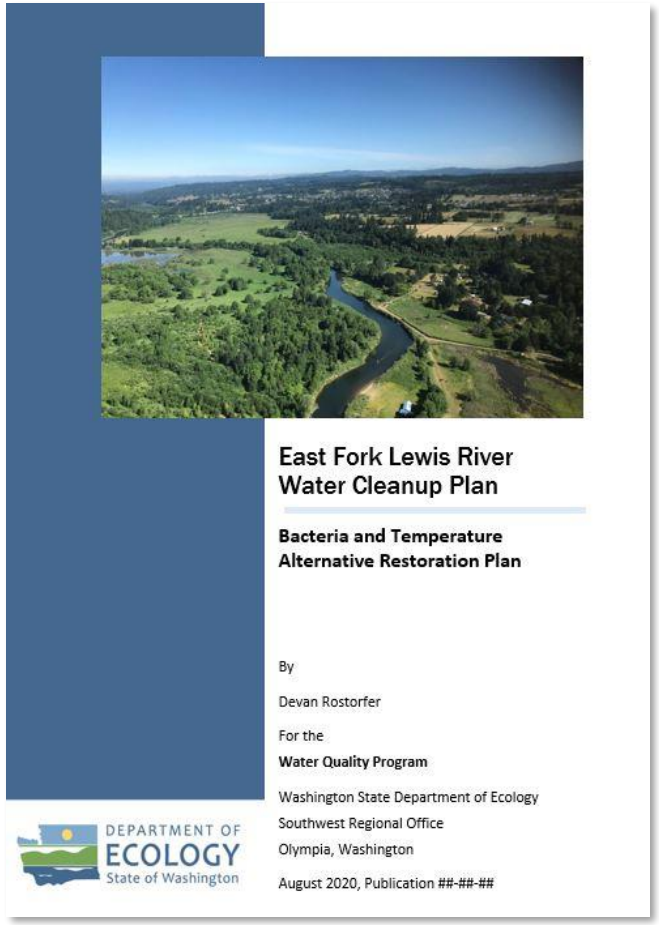
Table 70. Adaptive management, implementation tracking, and reporting schedule

Project	Agency	Year
East Fork Lewis River Subbasin Plan	LCFRB	2004
Surface Water/Groundwater Exchange Along the East Fork Lewis River	Ecology	2005
Lower East Fork Lewis River Habitat Restoration Plan	LCFRB	2009
East Fork Lewis River Recovery Plan	LCFRB	2010
East Fork Lewis River Stormwater Needs Assessment Reports	Clark County	2010
2010 Stream Health Report	Clark County	2010
East Fork Lewis River Watershed Bacteria and Temperature Source Assessment	Ecology	2018
Quality Assurance Project Plan Monitoring Fecal Coliform Bacteria in Western Washington Water Bodies	Ecology	2020
East Fork Lewis River Water Cleanup Plan	Ecology	2020
East Fork Lewis River Recovery Plan Review	LCFRB	2020
2020 Stream Health Report	Clark County	2020
East Fork Lewis River Annual Reports	Ecology	2021, 2022, 2023, 2024, 2026
Lower East Fork Lewis River Habitat Restoration Plan Update	LCFRB	~2024
East Fork Lewis River Water Cleanup Plan - 5 year Progress Report	Ecology	~2025
East Fork Lewis River Effectiveness Monitoring Report	Ecology	~2027



Review and Public Comment

How to review



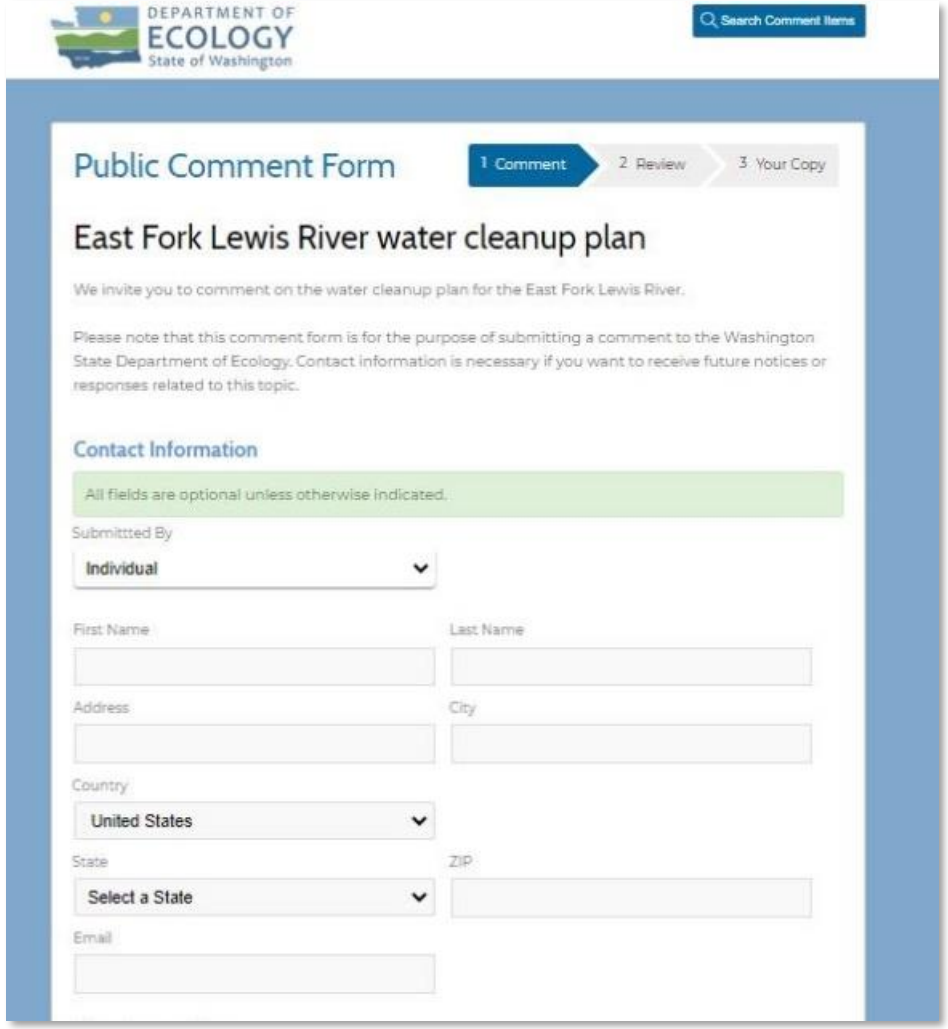
Follow-up email will be sent with a link. Also available online.

How to Comment

- **Questions or Discussion?**
  - **Contact:** Devan Rostorfer, Water Quality Specialist
    - devan.rostorfer@ecy.wa.gov
    - 360-409-6693

- **Formal Comments**
  - eComments
    - Type comments into comment box.
    - Upload up to five, 30 MB files
    - .pdf, .jpg, .jpeg, .png, .txt, .gif,.doc, or docx format.

- **Requesting Comment by September 17, 2020.**



How to Comment

- The intent of the *East Fork Lewis River Water Cleanup Plan* is to outline priority locations and implementation actions to improve water quality in the watershed.
- While reviewing the document, please focus on components of the *Water Cleanup Plan* that are most relevant to your organization, area of work, or where you live in the watershed.
- Where possible, please reference page numbers or specific sections of the Plan when making comments. If you would like to request the *Water Cleanup Plan* in a word document for review and editing purposes, contact Devan Rostorfer.

Report Accessibility

The Department of Ecology is committed to providing people with disabilities access to information and services by meeting or exceeding the requirements of the Americans with Disabilities Act (ADA), Section 504 and 508 of the Rehabilitation Act, and Washington State Policy #188.

To request an ADA accommodation, contact Ecology by phone at 360-407-6831 or email at ecyadacoordinator@ecy.wa.gov. For Washington Relay Service or TTY call 711 or 877-833-6341. Visit Ecology's website for more information.

Contacts

Devan Rostorfer

Water Quality Specialist
devan.rostorfer@ecy.wa.gov
360-409-6693

Shawn Ultican

Nonpoint Specialist
shawn.ultican@ecy.wa.gov
360-701-8373

Jennifer Riedmayer

Nonpoint Specialist
Jennifer.riedmayer@ecy.wa.gov
360-407-6296

Molly Gleason

Monitoring Specialist
Molly.gleason@ecy.wa.gov
360-409-6693

Lawrence Sullivan

Supervisor
lawrence.sullivan@ecy.wa.gov
360-407-6389

DEPARTMENT OF ECOLOGY
State of Washington

Acknowledgements

- **East Fork Lewis River Partnership.**
- **Lower Columbia Fish Recovery Board.**
- **PC Trask and Associates.**
- **Clark County Clean Water Division.**
- **Clark County Public Health.**
- **Clark Conservation District.**
- **City of La Center.**
- **Department of Ecology**
  - Sheelagh McCarthy, Hydrogeologist.
  - Shawn Ultican, Nonpoint Source Specialist.
  - Jennifer Riedmayer, Nonpoint Source Specialist.
  - Leanne Whitesell, Funding Coordinator.
  - Molly Gleason, Environmental Specialist.
  - Lawrence Sullivan, Unit Supervisor.
  - Andrew Kolossues, Section Manager.
  - David Mora, Stormwater Financial Assistance Manager.
  - Rian Sallee, Vancouver Field Office Manager.
  - Jessica McConnell, Hydrogeologist.
  - Eliza Keely-Arnold, Statewide Nonpoint Funding Coordinator.
  - Seth Elsen, Environmental Planner.
  - Torren Valdez, Financial Manager.
  - Patrick Lizon, NPS and TMDL Policy Lead.
  - Ben Rau, Watershed Planning Unit Supervisor.
  - Ron Cummings, NPs Policy Lead.
  - Dustin Bilhimer, Former TMDL Lead.
  - Chanele Holbrook, Outreach Specialist.
  - Angela Fritz, Communications Specialist.
  - Brett Raunig, Former TMDL Lead.


East Fork Lewis River
Partnership
for clean water