

Shoreline Master Program Inventory and Characterization

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Shoreline Planner – Central Region

April 2014



Overview

Purpose

Inventory

Characterization

Analysis

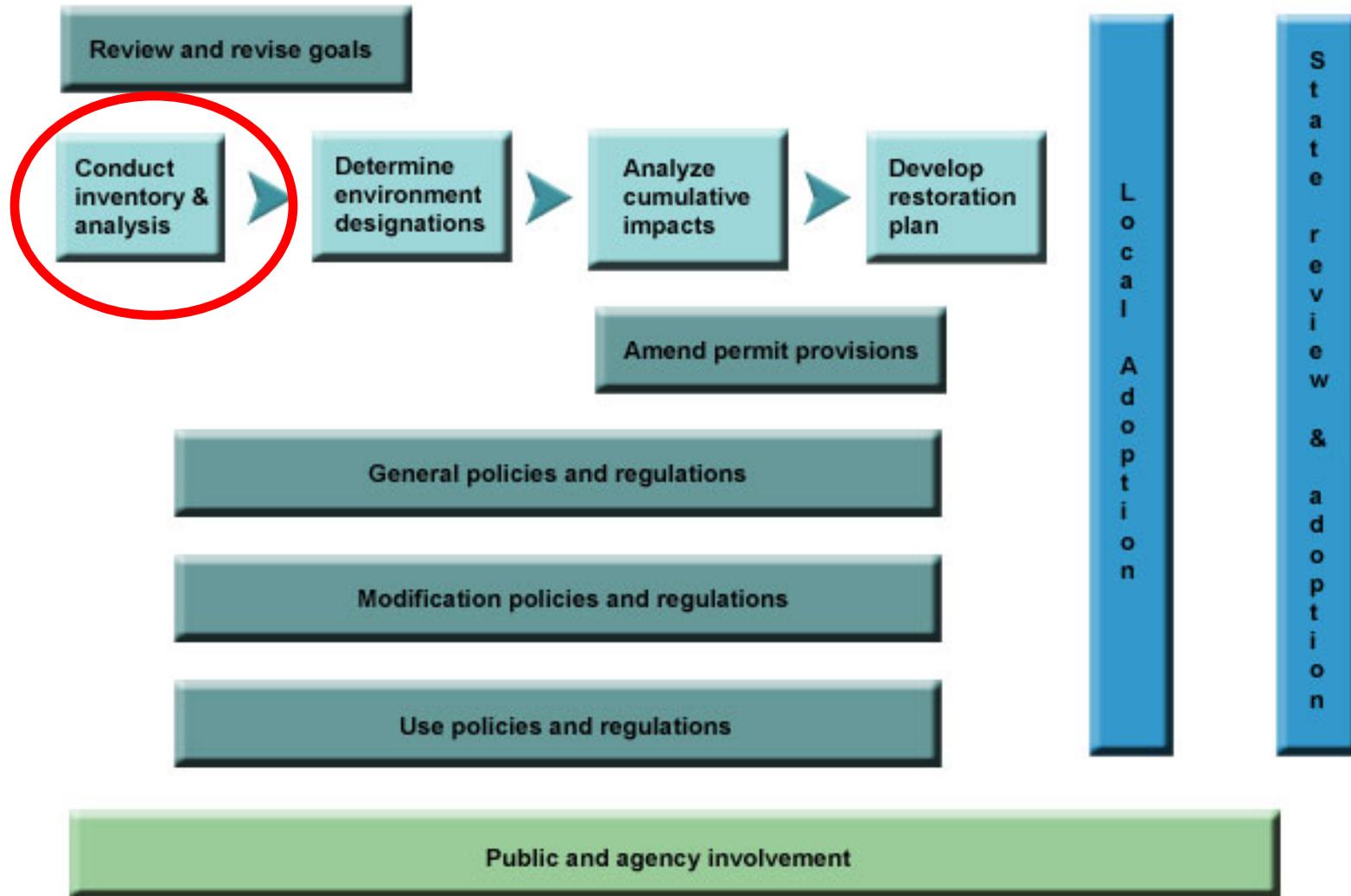
Integration

Discussion

Kayak Point, Snohomish County



SMP update process



Foundation for SMP

- Describes the shoreline
- Identifies ecosystem processes and functions
- Identifies potential sites for restoration, protection and public access
- Guides strategy leading to policies, regulations, and environmental protection
- Establishes baseline for cumulative impacts analysis and No Net Loss

Components

- Inventory
 - Gather existing information
- Characterization
 - Document current conditions
- Analysis
 - Focus on what matters for shoreline management, evaluate and organize

Shoreline Inventory

Scope the issues

Identify appropriate data sources

Gather data and information

Prepare maps

Scoping

- Identify shoreline issues and opportunities
 - What do you already know?
 - Are there potential protection and restoration opportunities?
 - What are your shoreline management issues?

Scoping

Water flow/quantity	Water quality	Habitat
Flooding	Storm water runoff	Loss of riparian vegetation
Channel movement/migration	Sediment in water column	Loss of upland habitat
Floodplain disconnected from streams	Erosion and sediments in streams	Habitat fragmentation
Potential flooding due to climate change and sea level rise	High temperature	Loss of eel grass, forage fish, shellfish, etc.
Upstream or local dams and levees	Nutrients and pathogens	Beach erosion

Data Sources

- Identify appropriate data and information
- Example information sources
 - National (NWI)
 - State (PHS)
 - Local (parcels, zoning)
- Coordination and collaboration
- Track data sources

Applications & Forms Databases Laws & Rules Public Involvement Calendar Public Records

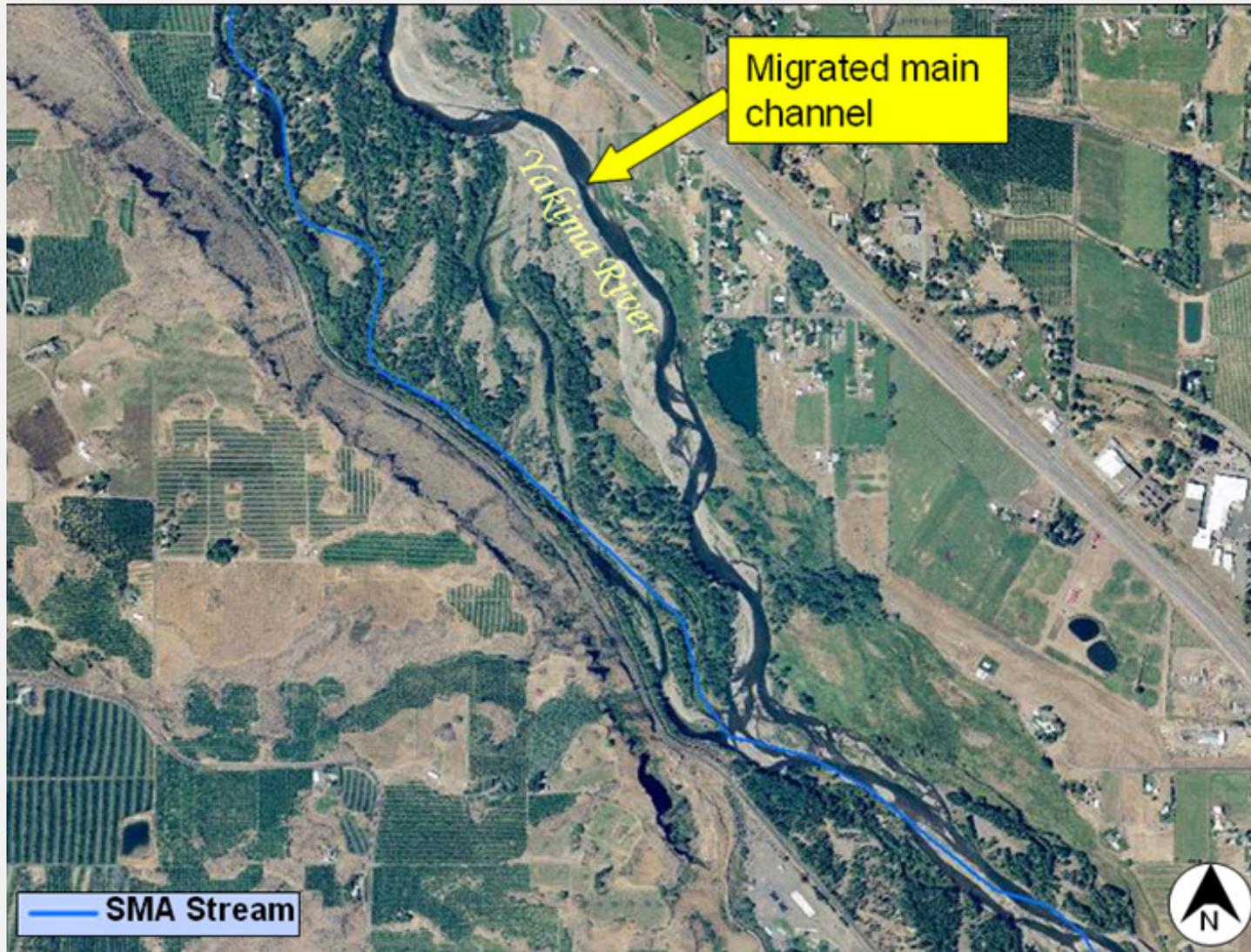
Shoreline Master Programs (SMPs)

[SEA Program Home](#) > [Shoreline Management Home](#) > [SMP Home](#) > [Shoreline Planners Toolbox](#) > [Data and Information](#) > Maps, imagery and information sources

Maps, imagery and information sources

Data type	Link to source
Jurisdiction and ownership	<ul style="list-style-type: none">• SMA streams and SMA 20cfs boundary points• SMA marine shoreline• DNR aquatic lands ownership• WRIA boundaries• County boundaries• Local government data• Current and historic Indian tribal lands
Rivers, streams, lakes and hydrology	<ul style="list-style-type: none">• Watercourses and waterbodies at 100k scale.• Streamflow characteristics of Washington streams• Major lakes in WA• US EPA Clearinghouse for Lake Shoreland Protection Resources and National Lakes Assessment
Floodplains	<ul style="list-style-type: none">• FEMA Flood Maps• FEMA Region X contact for flood damage reports, repetitive damage claims: Ryan Ike at (425) 487-4767
Wetlands	<ul style="list-style-type: none">• Ecology Site Selection Guide for Eastern Washington• Ecology Site Selection Guide for Western Washington and Appendix A• USFWS National Wetlands Inventory

Data Sources



Linking it together

issue	Question	Data source
Flooding	What is the primary cause of flooding?	Watershed Plan
Water quality	What types of water quality problems exist, temperature, turbidity?	303(d) list
Public access	Are there extensive stretches of the shoreline without public access?	Parks Plan, Comprehensive plan, zoning maps
Current shoreline use	Do use conflicts exist?	Comprehensive plan, zoning maps

Mapping

Built Environment

Areas of special interest

Land and shoreline
ownership

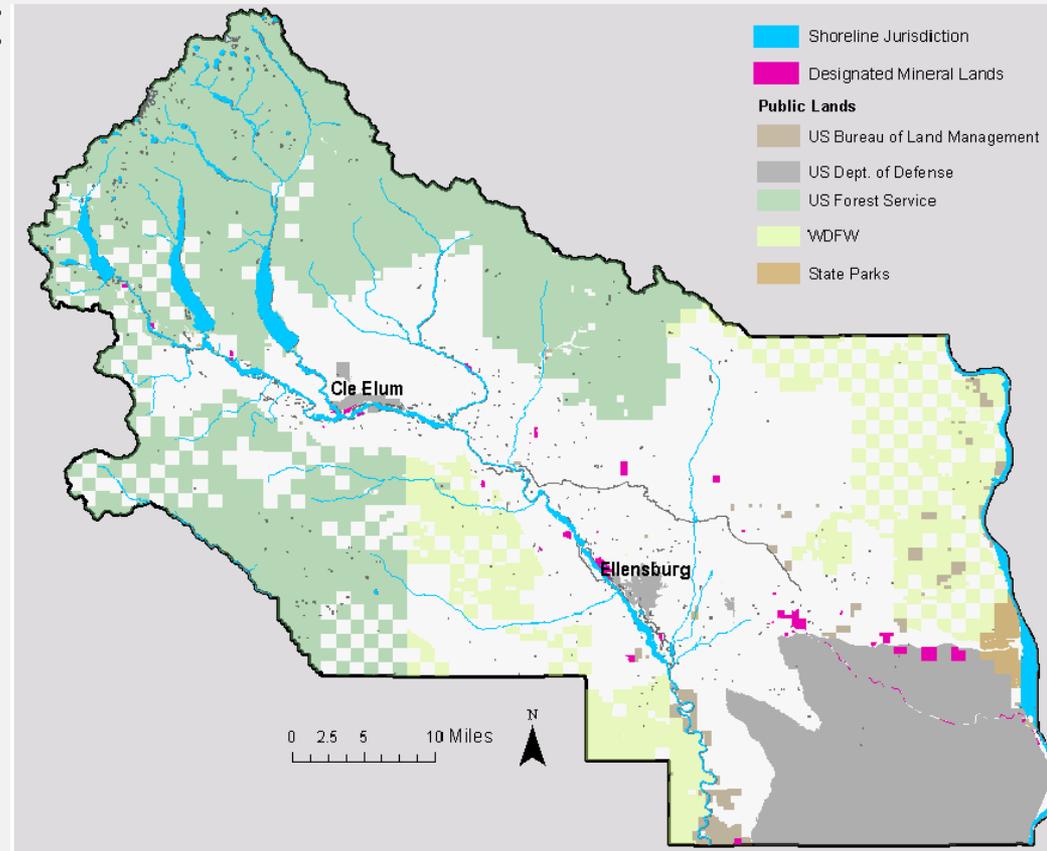
Hydropower sites

Public areas

Shoreline modifications

Shoreline uses

Transportation and
utility systems



Mapping

Natural Environment

Shorelines of statewide significance

Natural resources

Degraded areas

Channel migration zones

Critical areas

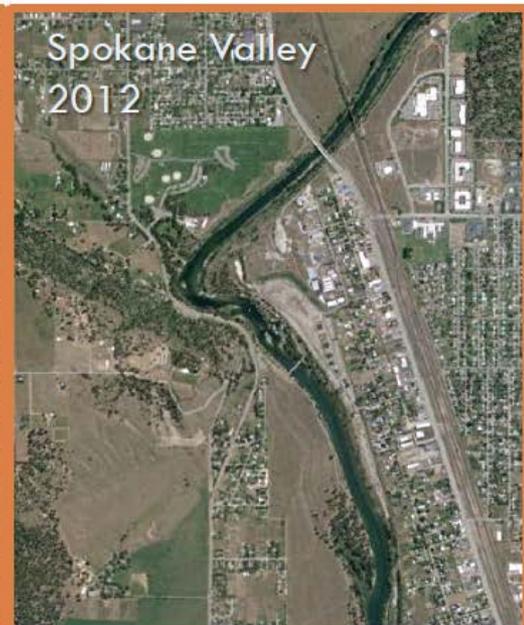


Mapping

Other areas of interest

Archaeological and historical sites

Past and current photos of areas of rapid change



Shoreline Characterization

Characterize ecosystem processes

Establish reaches

Prepare maps

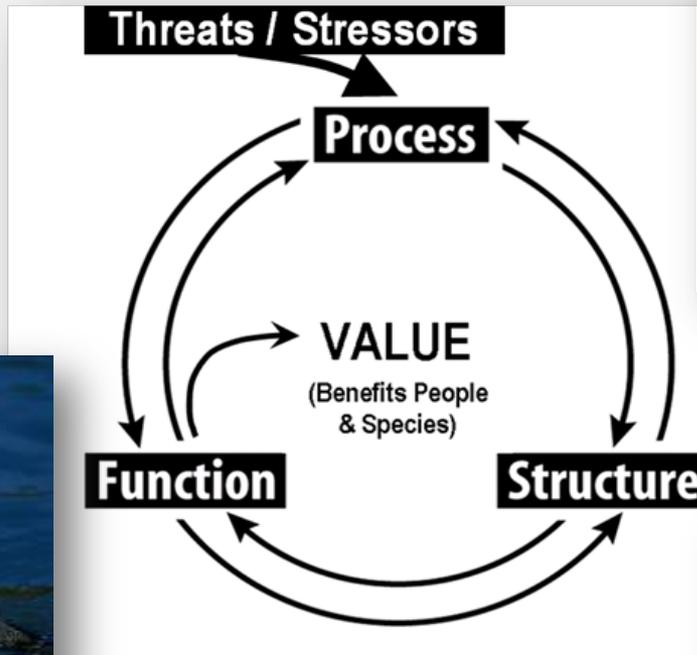


Ecosystem Processes

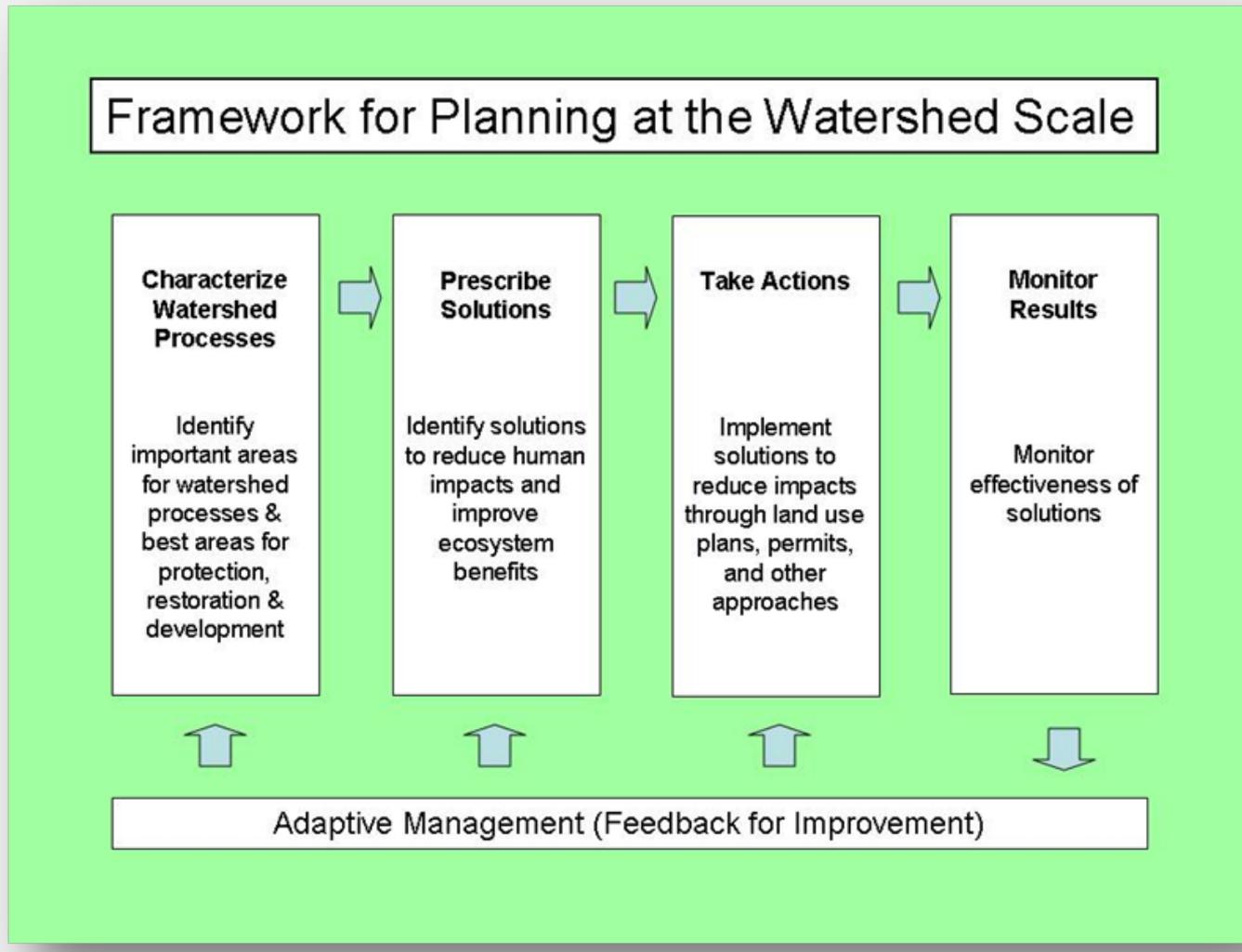
Ecosystem-wide processes	Ecological Function Group	Ecological Service
Hydrologic – movement of surface and subsurface water	Water quantity	Storage of water in floodplains and associated wetlands
Movement of sediment, toxics, and nutrients	Water quality	Removal of sediment, toxics, nutrients, and pathogens
Movement of water and debris	Habitat	Aquatic habitat for fish, amphibians, and invertebrates

Ecosystem Processes

Drive reach site and scale

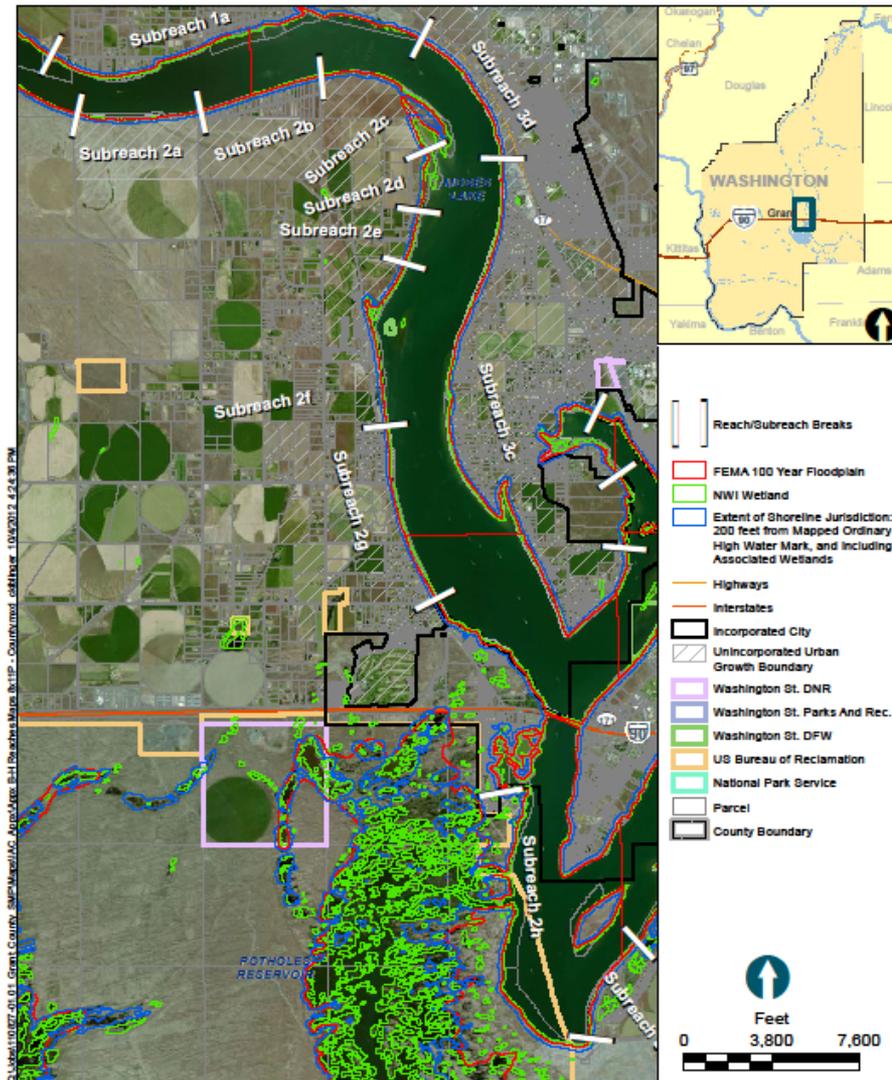


Inventory + Characterization



Shoreline Reaches

- Use maps and aerial photos
- Consider physical and biological changes
- Reaches are the basis for environment designations

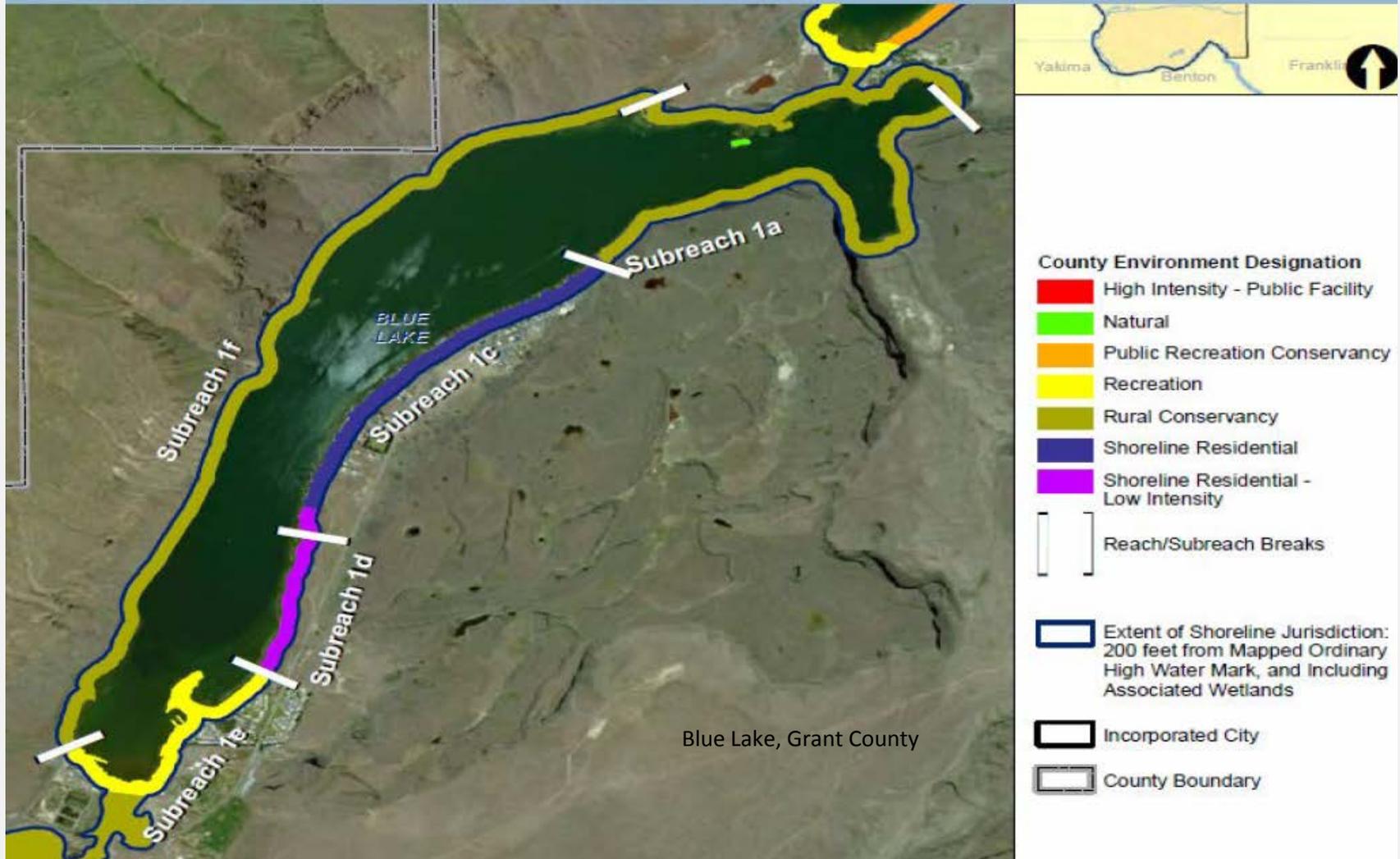


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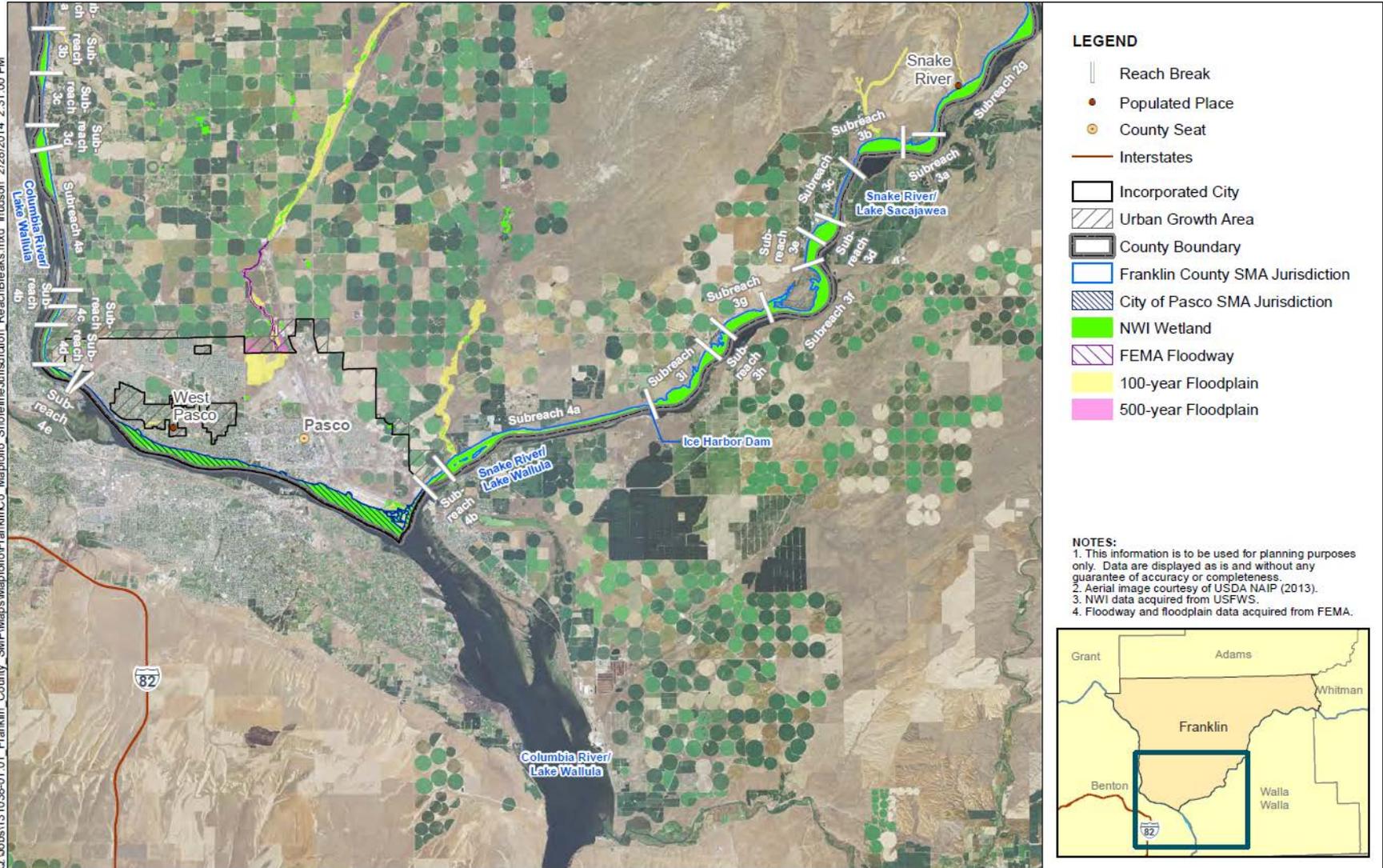


Appendix B, Figure 17
Moses Lake, Reach 2
Shoreline Inventory, Analysis and Characterization Report
Grant County Shoreline Master Program Update

Shoreline Reaches



Shoreline Reaches



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Shoreline Analysis

What does it mean?

Start answering your questions
and propose solutions

Answer questions

Flooding

- Rain on snow events
- Levee failure

Water quality problems

- Temperature
- Turbidity

Adequate public access

- Mile long stretch of shoreline with no public access

Use conflicts

- Industrial/public safety

Propose Solutions

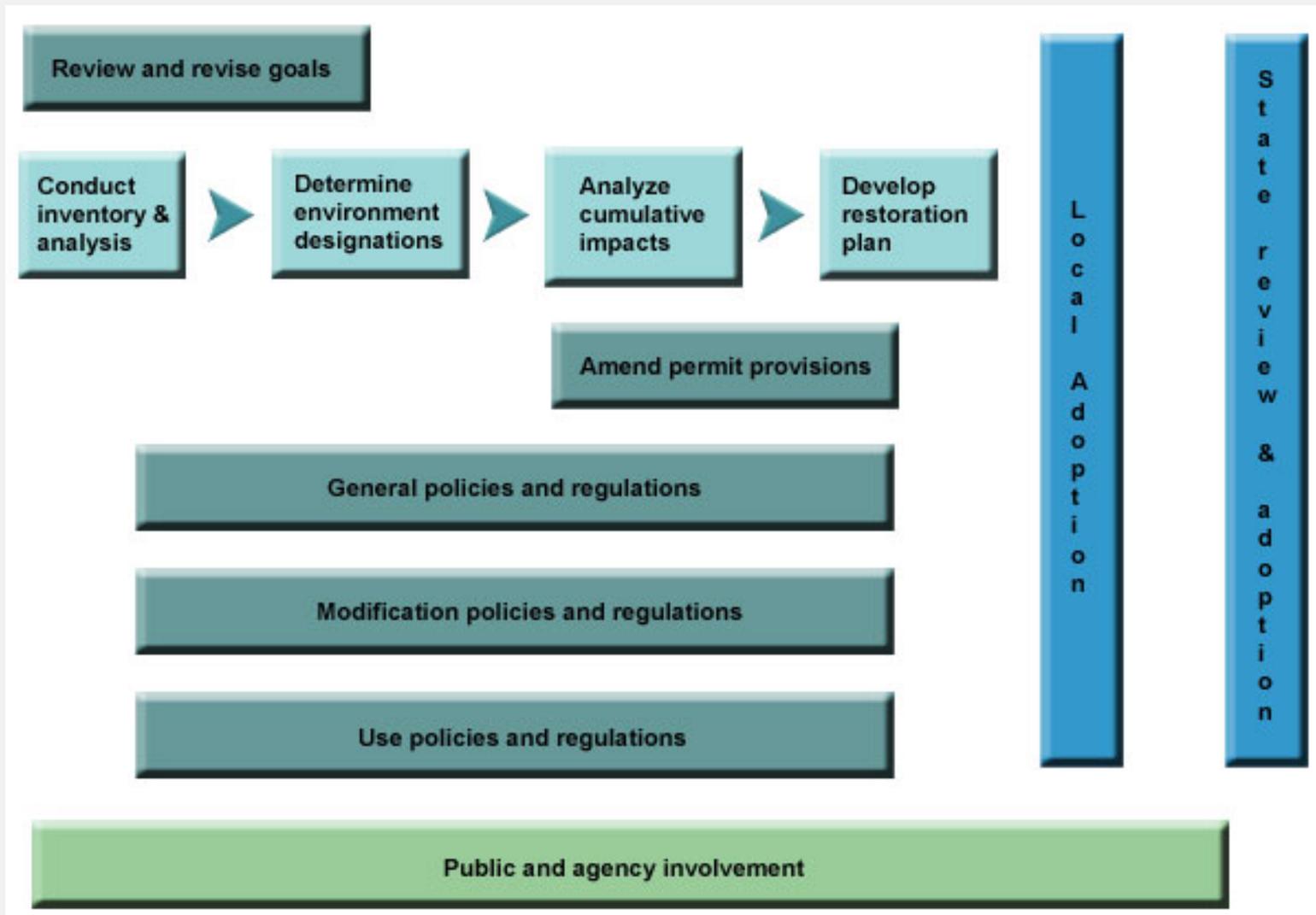
Levee failure

- Modification to maintenance and evaluation schedule

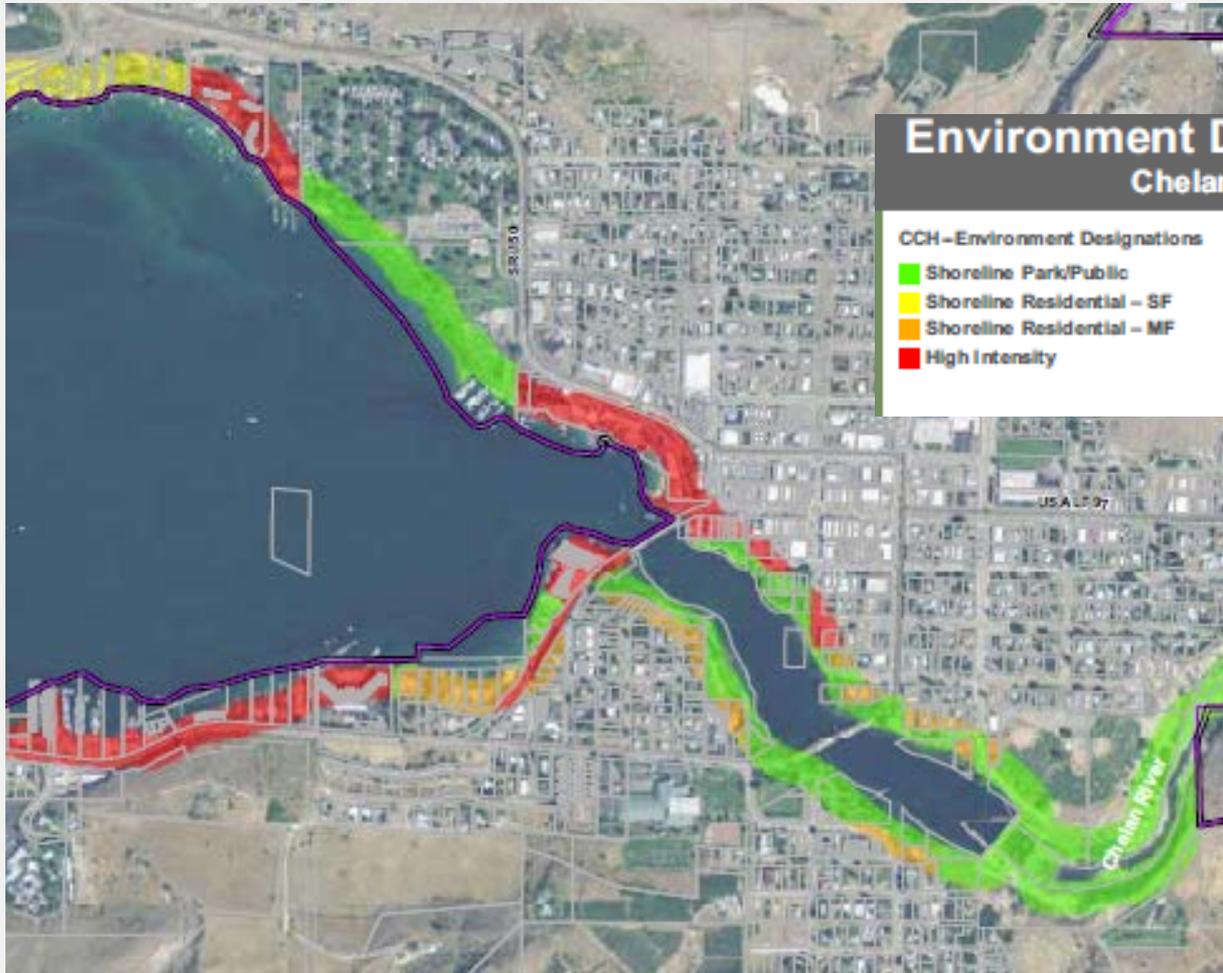
Water temperature

- Riparian plantings or other restoration opportunities

Integration



Environment Designations



Environment Designations Chelan 04

All feature designations on this map are approximate. The lines between features are not always clearly defined and are intended for planning purposes only. Additional site-specific evaluation may be needed to determine the final location shown on this map.

CCH-Environment Designations

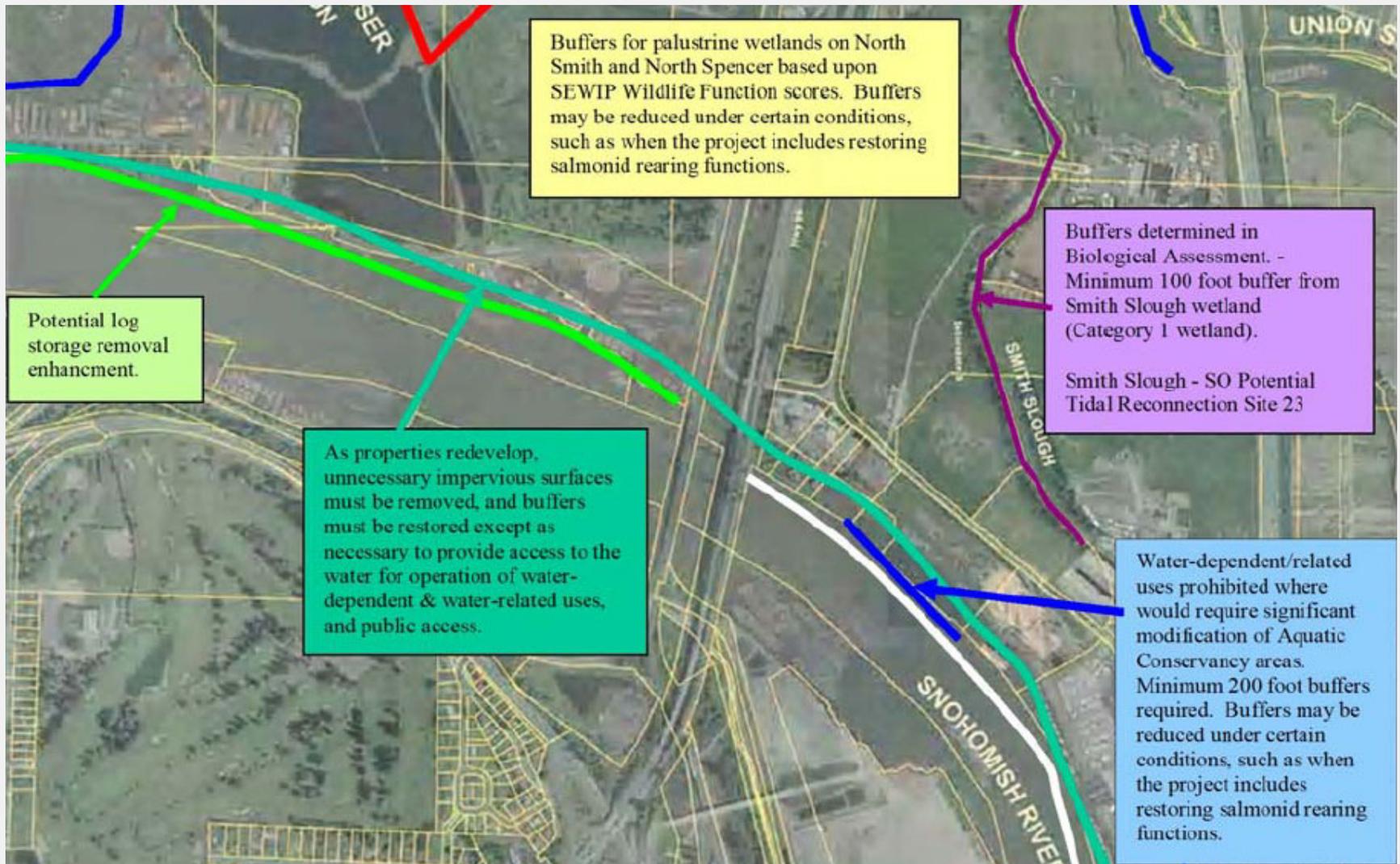
- Shoreline Park/Public
- Shoreline Residential - SF
- Shoreline Residential - MF
- High Intensity

Chelan UGA

- Shoreline Park/Public
- Shoreline Residential - SF
- Shoreline Residential - MF
- High Intensity

- Highways
- Railroads
- Parcels
- City Boundaries
- UGA Boundaries
- WRIA Boundaries

Restoration Plan



Public Access



Cumulative Impacts Analysis

POTENTIAL NO NET LOSS INDICATORS for SHORELINE MASTER PROGRAMS

Indicator (all in shoreline jurisdiction)	Functions affected - key categories - water quality, water quantity and habitat	Type of Impairment**	Limitations of indicator	Where	Is data available or reasonable to obtain
Forest cover: <u>Acres</u> converted from forest land to other land uses.	Water quality-sediment, nutrients & toxic filtration, conversion, and/or retention; temperature regulation. Water quantity-flow regulation. Habitat-structure for habitat life needs; input of organics & LWM*.	Reduces forest buffers and decreases filtering, conversion, and/or retention of pollutants from surface & subsurface flow; increases quantity of pollutants to aquatic habitats. Alters the delivery and timing of water to aquatic areas, increasing quantity of water delivered to aquatic habitats during high and low flows, which affects habitat structures. Increases water temperature. Loss of nesting sites, rearing, refuge & foraging areas.	Doesn't identify future land use. May be difficult to determine acres in shoreline jurisdiction without finer scale analysis	Rural.***	Details of application available from DNR and local government. Class IV forest practice applications. CCAP data.
Shoreline stabilization: <u>Linear length</u> or area of bulkheads, revetments, bioengineering, seawalls, groins, retaining walls, gabions. (Includes decrease in length, change to soft structure.)	Habitat-Riparian and aquatic habitat, sediment supply. Input of organics, prey base, & LWM. Structure for habitat life needs.	Interrupts habitat-forming processes, such as beaches & channel migration, by impacting sediment supply and transport. Loss of nesting sites, rearing, refuge & foraging areas. Loss of prey base with associated loss of riparian vegetation.	Combines different types of stabilization measures into one general category; impacts may vary.	Rural, urban.	Is data available from local government, including permits & SDP exempt projects? Can locals track over time? HPA information can supplement other data, but is not sufficient on its own. Detailed aerial photos may also show stabilization changes.
Marine & freshwater riparian vegetation: <u>Linear measurement</u> of mature native riparian vegetation of a given width (buffer width) or <u>percent cover</u> of different vegetation classes.	Water quality-sediment, phosphorus & toxic filtration, conversion, and/or retention; temperature regulation. Water quantity-flow regulation. Habitat-input of organics, prey base, & LWM. Structure for habitat life needs.	Removes capacity of riparian vegetation to filter surface flows, sediment, phosphorous and toxics; subsurface removal/conversion of nitrogen, pathogens. Increases overland and subsurface flows. Increases water temperature. Reduces prey base. Loss of LWM that provides instream	No permit, so no record of change. Focused project needed to track. Useful only if a baseline exists. Methodology needs to be able to measure change. May be difficult to measure over short time frame.	Rural, urban.	Can locals measure and track? Use sample areas, aerial photos. Puget Sound LIDAR consortium has some data.

Questions???

