

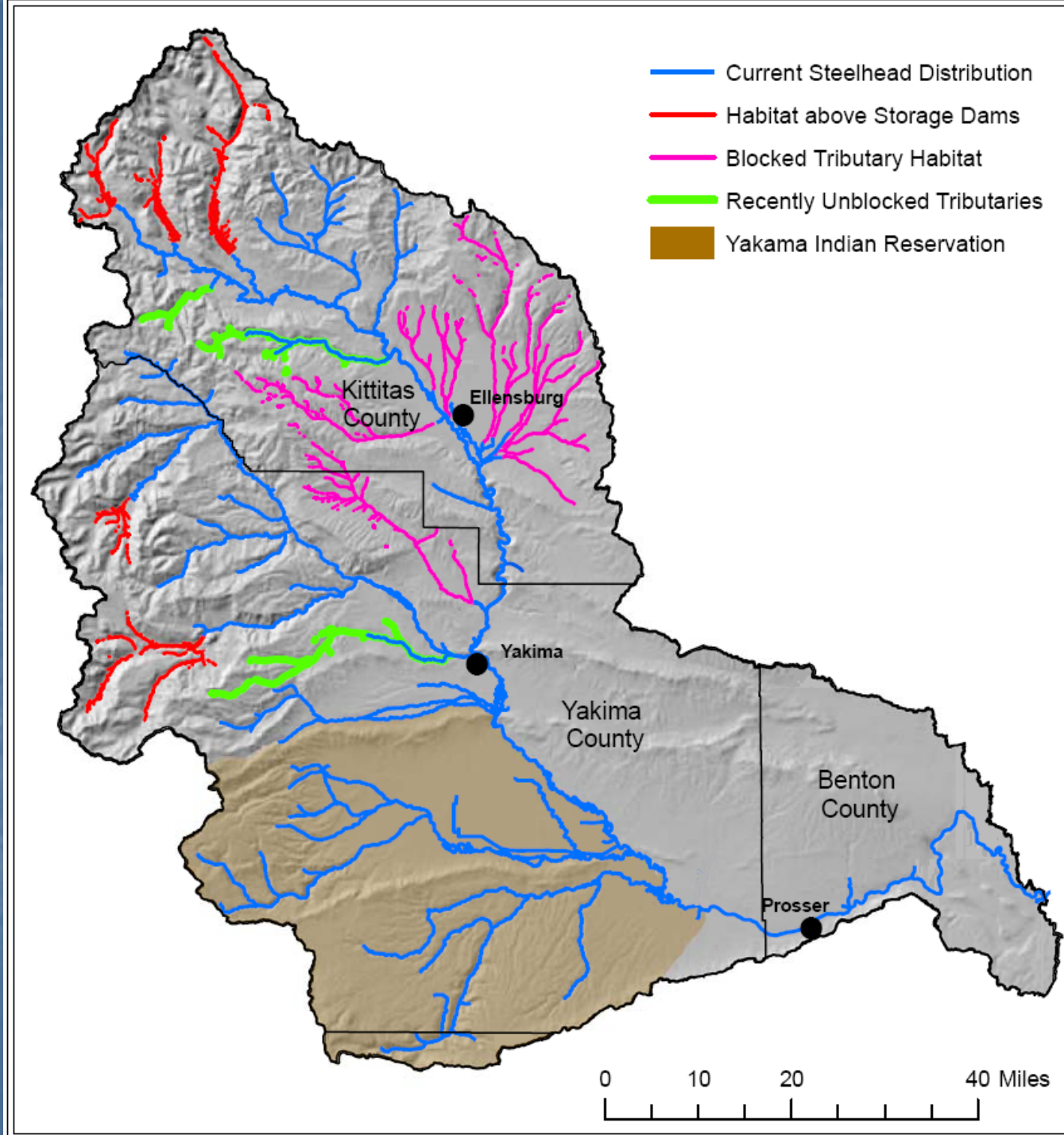
YRBWEP III

What's in it for fish?

Three Main Fisheries Elements

- Fish Passage at the 6 Storage Dams
- Opportunities to improve mainstem flows
- New Funding for Habitat Improvements

Passage at the Storage Dams

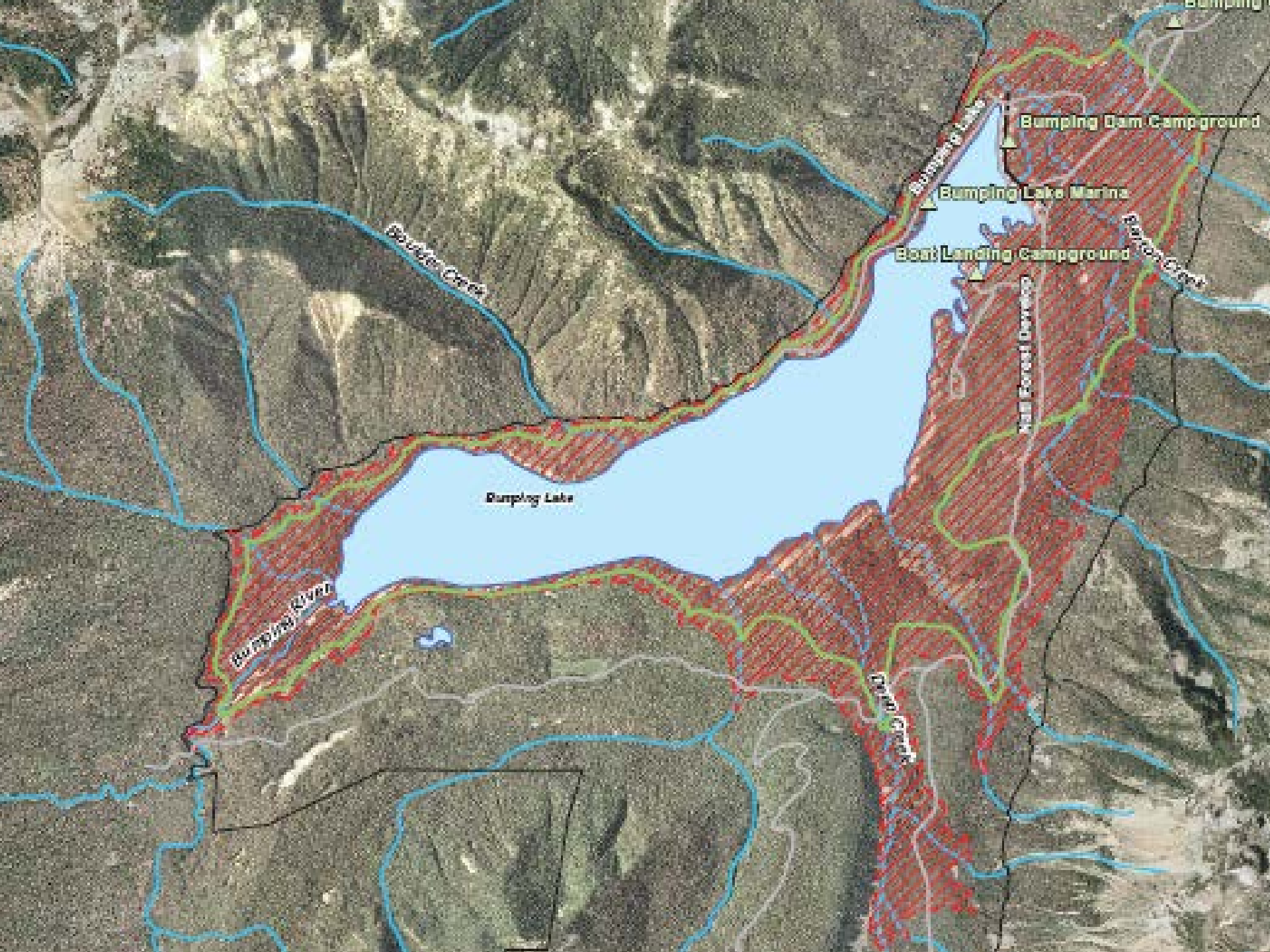


The Six Passage Facilities

- Phase I *\$125 to 150 Million*
 - Bumping Lake
 - Lake Cle Elum
 - Clear Lake

- Phase II *Costs & timing TBD*
 - Kachess and Keechelus
 - Rimrock





Bumping

Bumping Dam Campground

Bumping Lake Marina

Boat Landing Campground

Hall Forest Drive

Bumping Lake

Bumping River

Bumpin Creek

Bumping Creek

Bumping Creek

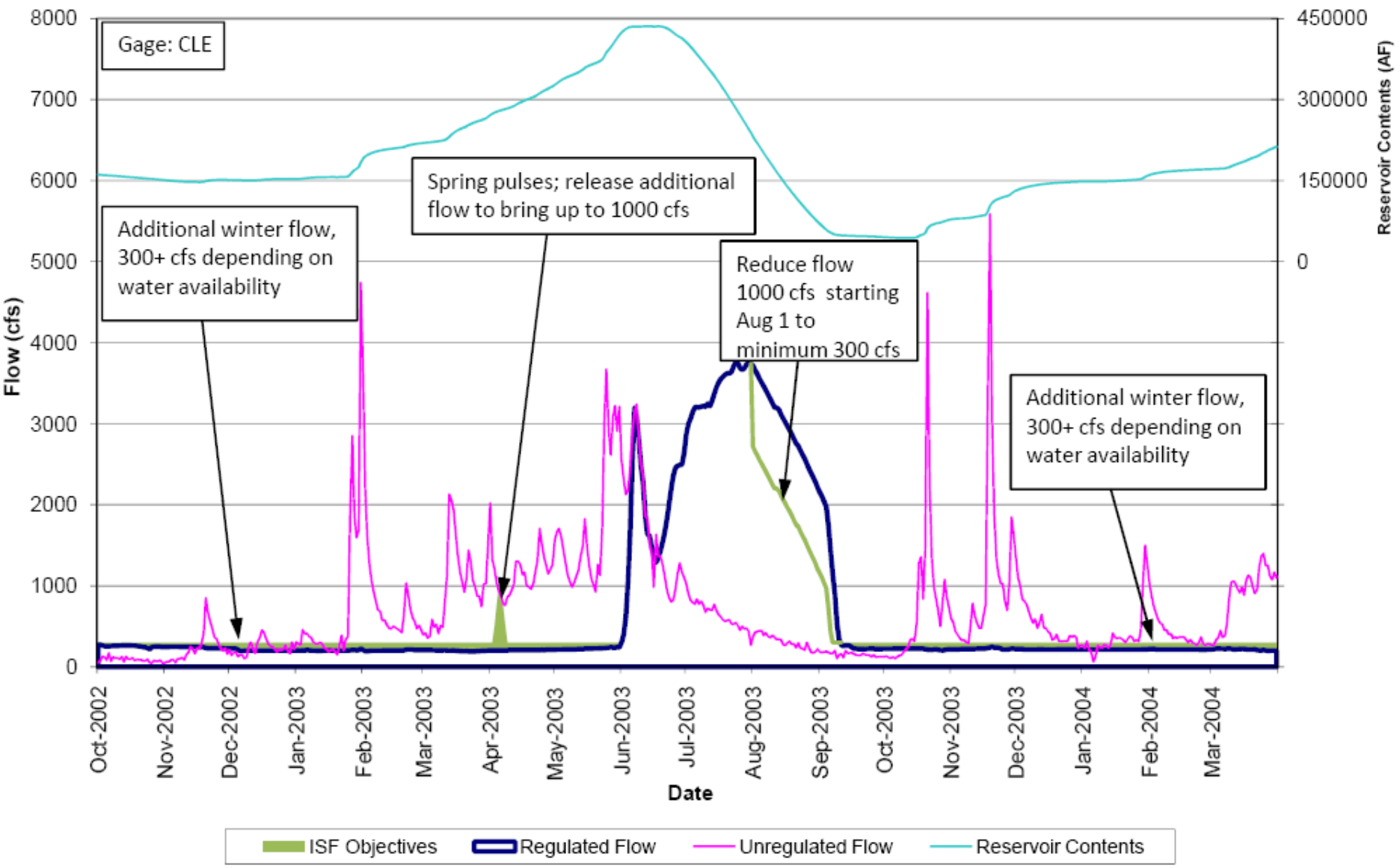
Improving Mainstem Flows

- Instream Flows working group tasked with identifying how flows can be improved
- Identified flow objectives will be used by modelers to see how new infrastructure options can help meet them

Yakima River Reaches: Instream Flow Improvement Matrix (Rev. 1)

River Reach	Problem	Flow Objective	Priority	Potential Projects	Other Notes
Keechelus Dam to Lake Easton	Flow too high in July, Aug & 1 st week of-Sept; over 800 cfs	Improve summer rearing by reducing flows down to 450-550 cfs. Increase winter flow to 120 cfs (connection to side channels at that flow). Provide pulses in winter.	High	K to K Pipeline Wymer storage downstream of Keechelus Aquifer storage	Spring is probably okay
Kachess River	No change proposed – lesser priority for improving river flow because of other objectives				
Easton Reach	Spring – need outmigration flow for spring Chinook	1000 cfs for 48 hours during dry years, augment spring Q for channel maintenance occasionally (5-yr for riparian recruitment – bank full)	Medium	Wymer Aquifer storage	Uncertainties: Don't know fish usage May be fish in future? Look at pit-tag relationship to determine pulse size/duration
	Fall/Winter – need additional flow for spawning and rearing	Currently 180 cfs, start spawning flow at 220 cfs, increase to 250-300 cfs in winter, 250 cfs provides connection to side channels. Spawning flows at 220 cfs.	High		
Cle Elum River	Summer flows (July and August) are too high	Reduce flow, modify flip flop to give more gentle change in hydrograph. In wet years, hold water back in August and reduce flow (reduce by 1000 cfs)	High	Bumping Wymer Flip / flop modification/relax Aquifer storage K to K Cle Elum pool raise	This reach is ripe for restoration as floodplain ownership is held in conservation easements. One-third of spring Chinook population spawns here.
	Fall/Winter Flows (September 10 through March): no flow variation (sp. Chinook, steelhead)	Increase to 500 cfs September through March. Side channels are thought to be activated around 500 cfs, and one was recently modified to activate at 200 cfs, provide pulse flows.			
Cle Elum to Teanaway River	Summer flows are too high	Reduce flows from 4000 cfs to 1000 cfs by late August. Ok to have high flow in July, as mimics unregulated hydrograph.	High	See Cle Elum list	Spring flows support cottonwood regeneration

2003 Flow Data (Average Year) - Cle Elum River



Challenges

- Building linkages between fish biology and specific proposed flow improvements
- Balancing instream benefits and the need to skim additional water for in-basin storage proposals

Habitat Committee Proposal



For the 2009-10 YRBWEP Workgroup

Mandate to Committee

- Identify fish habitat work to be funded by the proposed integrated package
- Identify estimated funding needs
- Propose structure for habitat programs

Committee Membership

- Jeff Thomas, USFWS
- Scott Nicolai, Yakama Nation
- Joel Hubble, USBOR
- Perry Harvester, WDFW
- Joel Freudenthal, Yakima County
- David Child, Yakima Basin Joint Board
- Jason McCormick, Washington Water Trust
- Alex Conley, YBFWRB

With support from Ben Floyd, HDR and Wendy Christiansen, USBOR

Working Assumptions

- Focus on currently unmet needs, assuming continuation of existing support
- Identify opportunities to accelerate rate of implementation
- Support work by diverse project sponsors
- Maintain flexibility in programs

Draft Proposal

THREE ELEMENTS:

- a) Mainstem Floodplain Program
- b) Tributaries Program
- c) Emergent Opportunities Fund

Mainstem Floodplains



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Mainstem Floodplain Program

- Funding through YRBWEP program
- Implementation via YRBWEP and partners
(Counties, Conservation Districts, NGOs, Yakama Nation)
- Link to flood hazard reduction and County, City & State infrastructure projects
- Build in-basin technical capacity

Mainstem Floodplains Funding

Tier I: Specific projects already in design phase

Work to begin immediately; \$25 million total

Tier II: New projects in priority reaches

\$2 million/yr for 5 yrs; \$4 million/yr in yrs 5-15

Scope/design immediately; construction after Tier I

Tier III: Additional opportunities

\$1 million/ yr for 30 years (or only yrs 15-30)

Program management at \$250,000 per year

PHASE I: Gap To Gap



Union Gap

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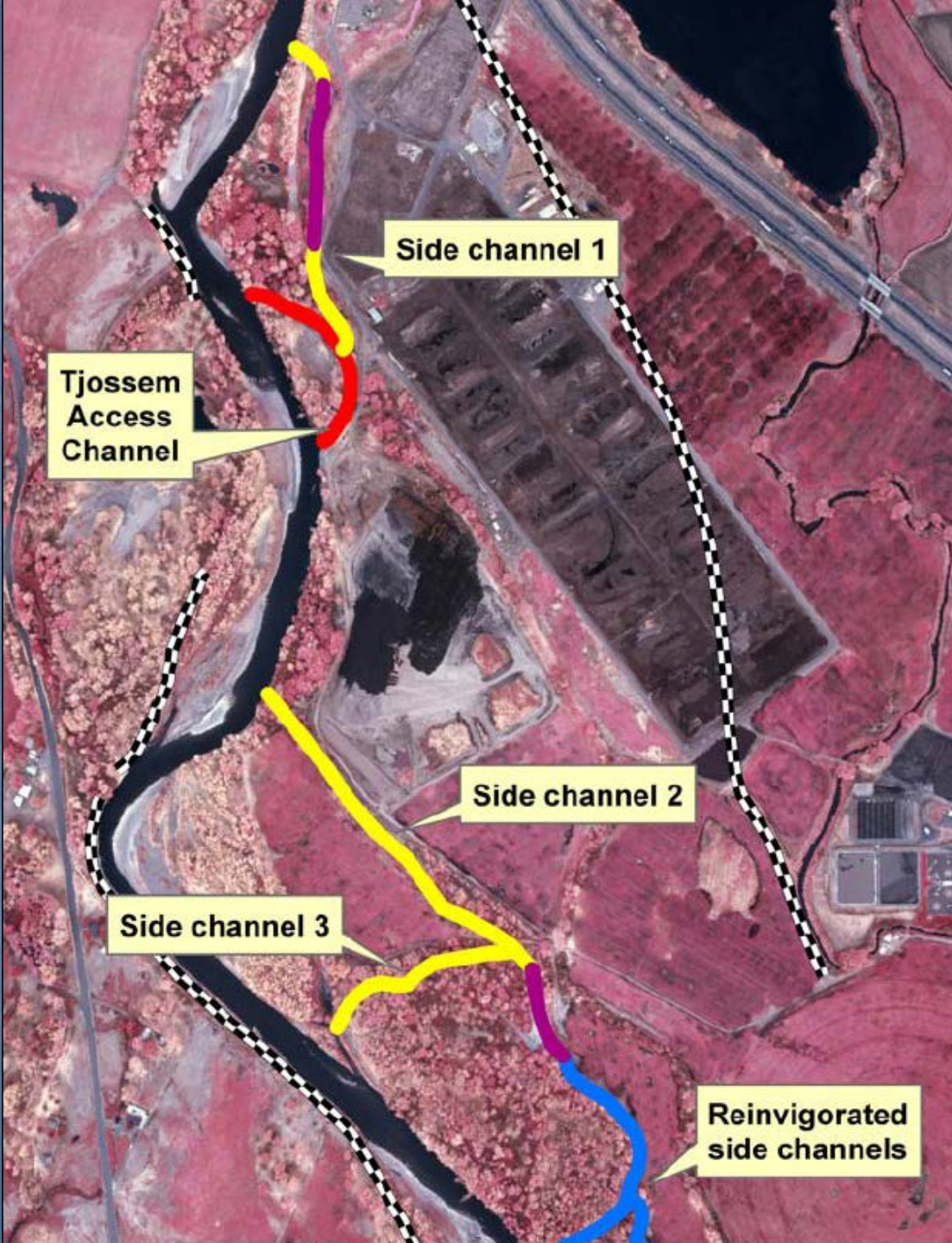
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Streaming 100%

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PHASE I: Schaake Project



Side channel 1

Tjossem
Access
Channel

Side channel 2

Side channel 3

Reinvigorated
side channels

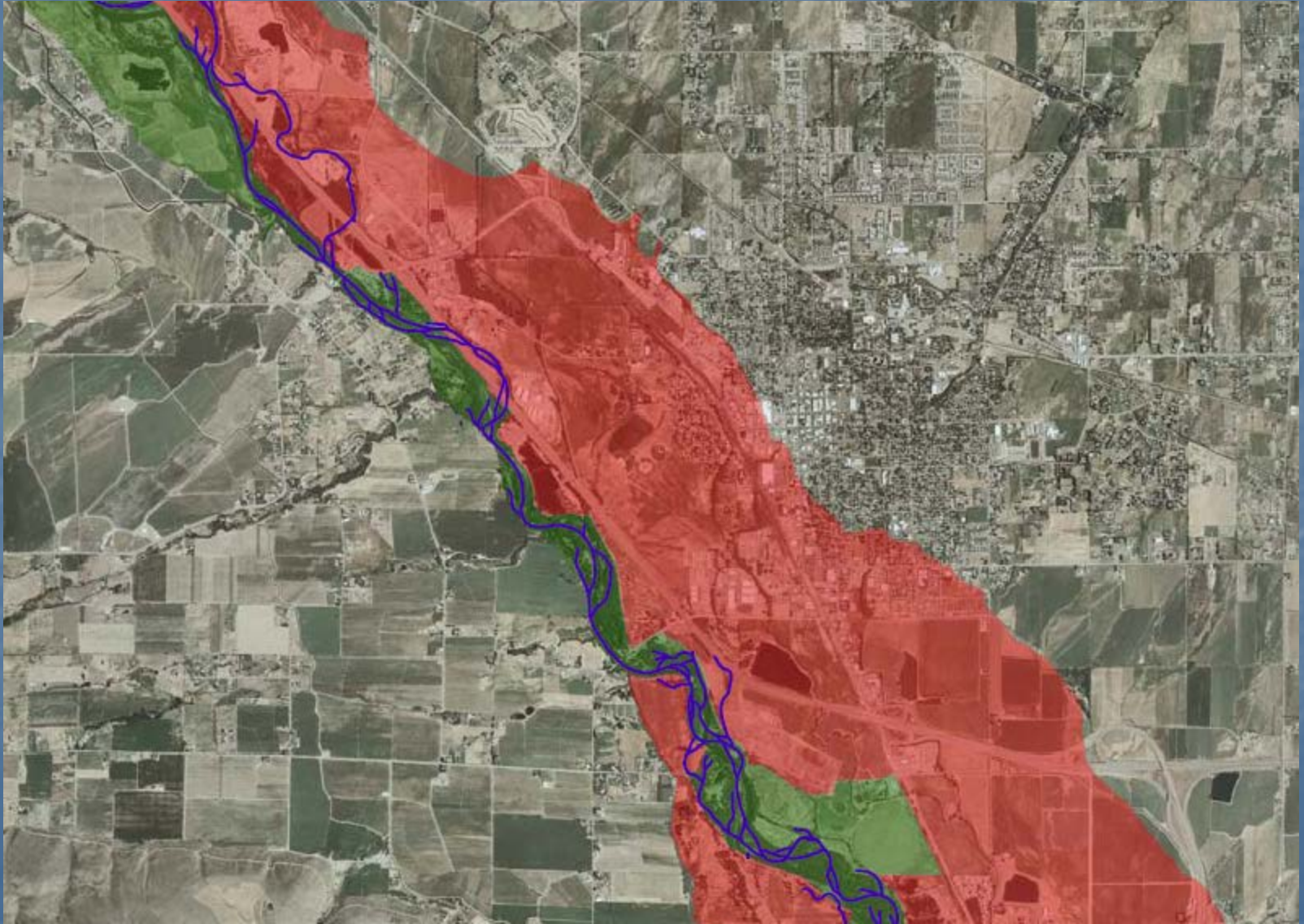
PHASE I: Lower Naches



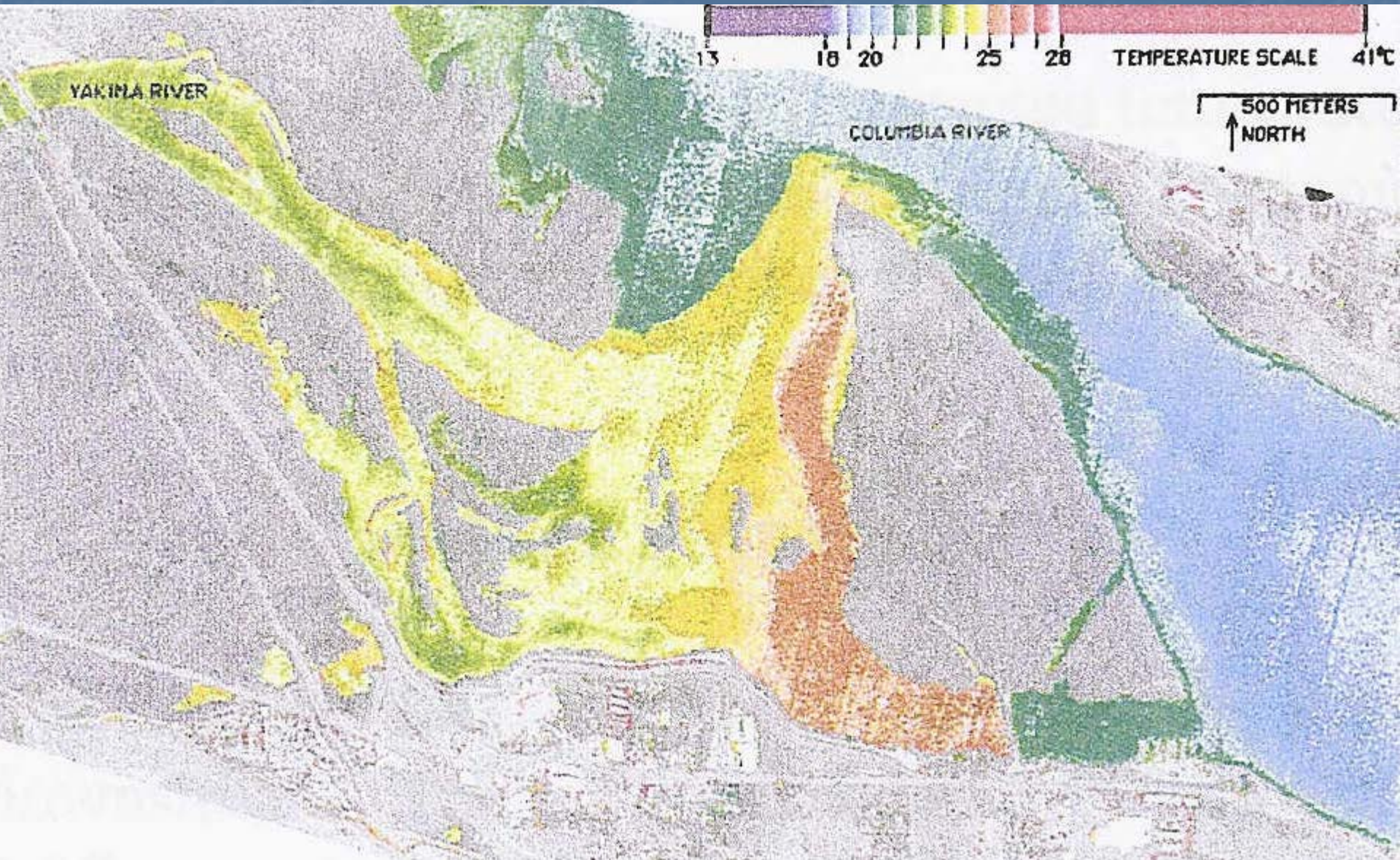
PHASE II: Priority Reaches

- a) Ellensburg/Kittitas, Wapato, Naches as highest priorities;
- b) Easton & Cle Elum high priorities as opportunities arise
- c) Selah, Benton City, West Richland and Yakima Delta also potentially significant

Phase II/III Reach Assessments

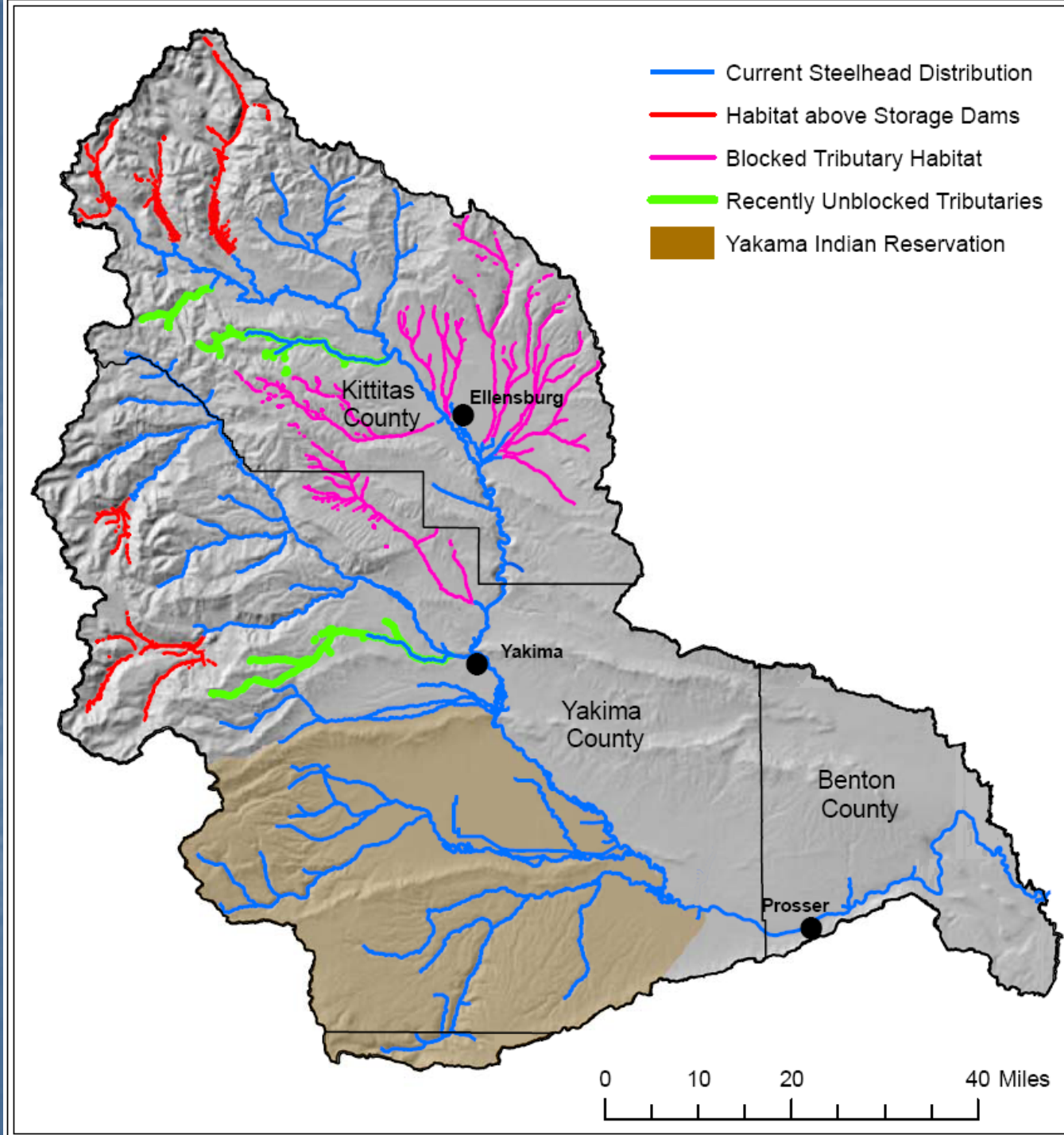


And the mouth of the Yakima...



Tributaries Program

Tributary Passage & Screening



Passage & Screening

- Complete work in Cowiche, Taneum
- Ongoing work in Manastash, Reecer, etc
- Secondary tribs and partial barriers in some locations
- Wilson/Naneum as a separate program
- Wenas low priority based on challenges

Costs & Goals

- Cost estimates from Conservation Districts and others
- Clear, finite priorities; can set specific goals

Program Element	Recommended Funding Level (\$/millions)	Geographic Areas and Improvements	Timing
Passage & Screening Projects	\$9	Upper Yakima	Years 1 – 15
	\$4.1	Middle Yakima	Years 1 – 15
Subtotal	\$13.1		

Tributary Habitat Program

Enhancing Riparian Vegetation



Providing instream structure



Reconnecting streams & floodplains



Improving Instream Flows

- Irrigation efficiencies and water acquisitions with tributary diverters
- Only for creeks not tied to KRD infrastructure elements



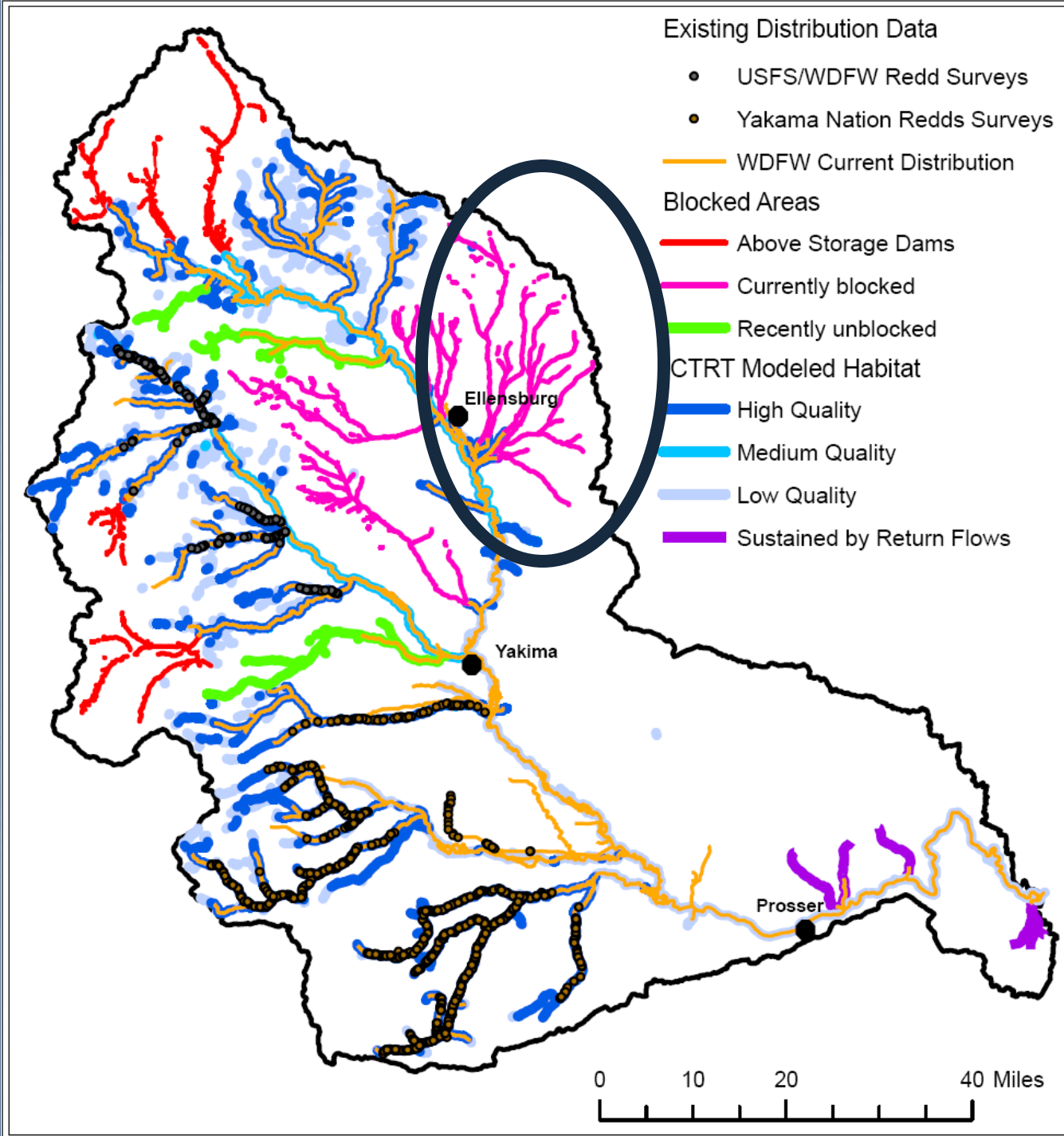


Tributary Habitat Improvements

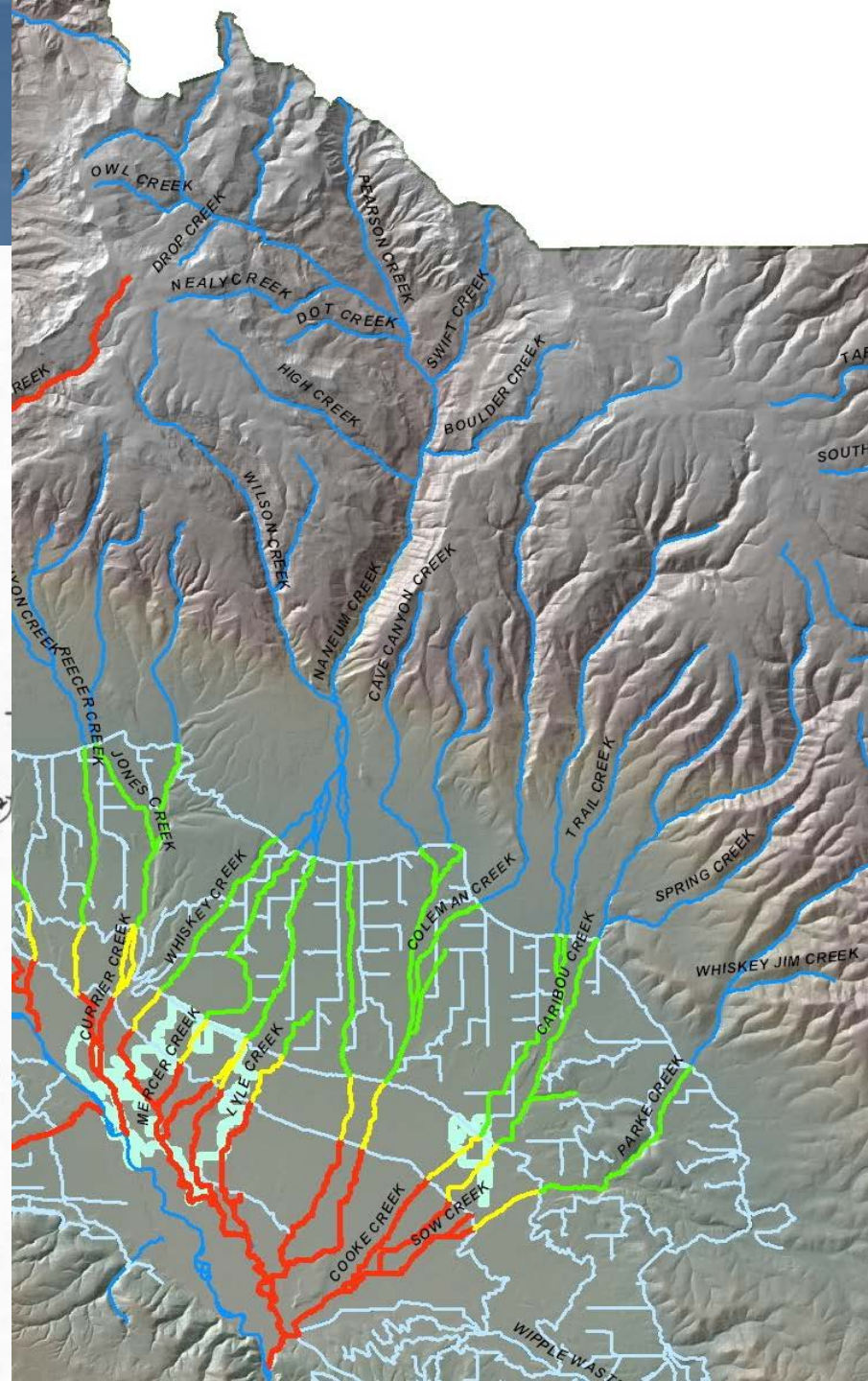
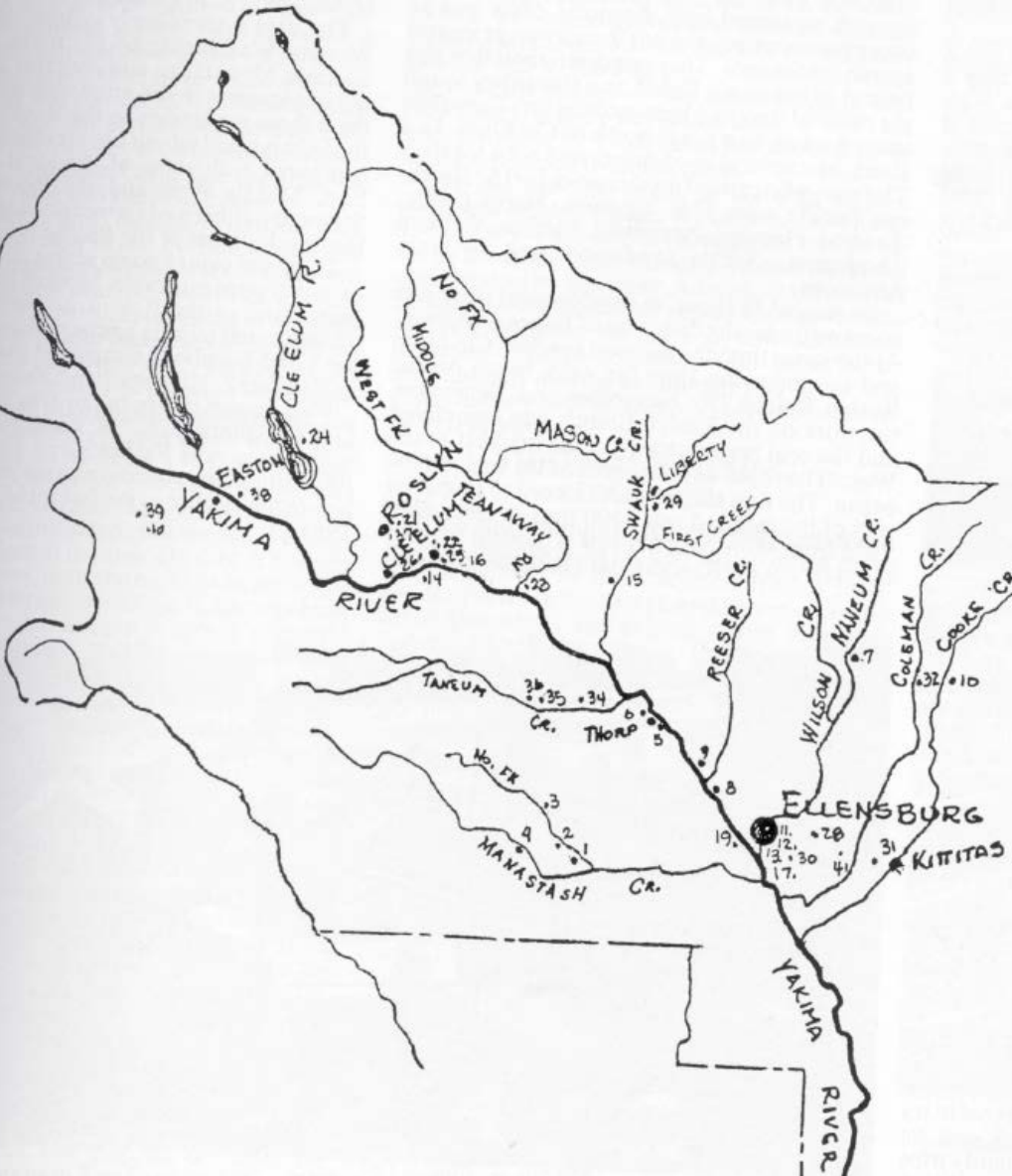
- Some priorities known, but will require ongoing process to identify and prioritize opportunities

Habitat Restoration & Enhancement (below reservoirs)	\$9.5	Upper Yakima – Habitat restoration: (e.g., fencing plantings, large woody debris, side-channel/ floodplain, nutrient enhancement, instream flow enhancement.	Years 1 – 15
	\$5.8	Middle Yakima – Habitat restoration (e.g., Fencing plantings, large woody debris, side-channel/ floodplain, nutrient enhancement, instream flow enhancement.	Years 1 – 15

Wilson-Naneum Program



The Puzzle



Why a separate program?

- Physical & institutional complexities
- Requires strategic plan to integrate habitat goals with flood control, irrigation infrastructure and development issues
- Collaborative process with City of Ellensburg, Kittitas County, Conservation District, landowners, etc

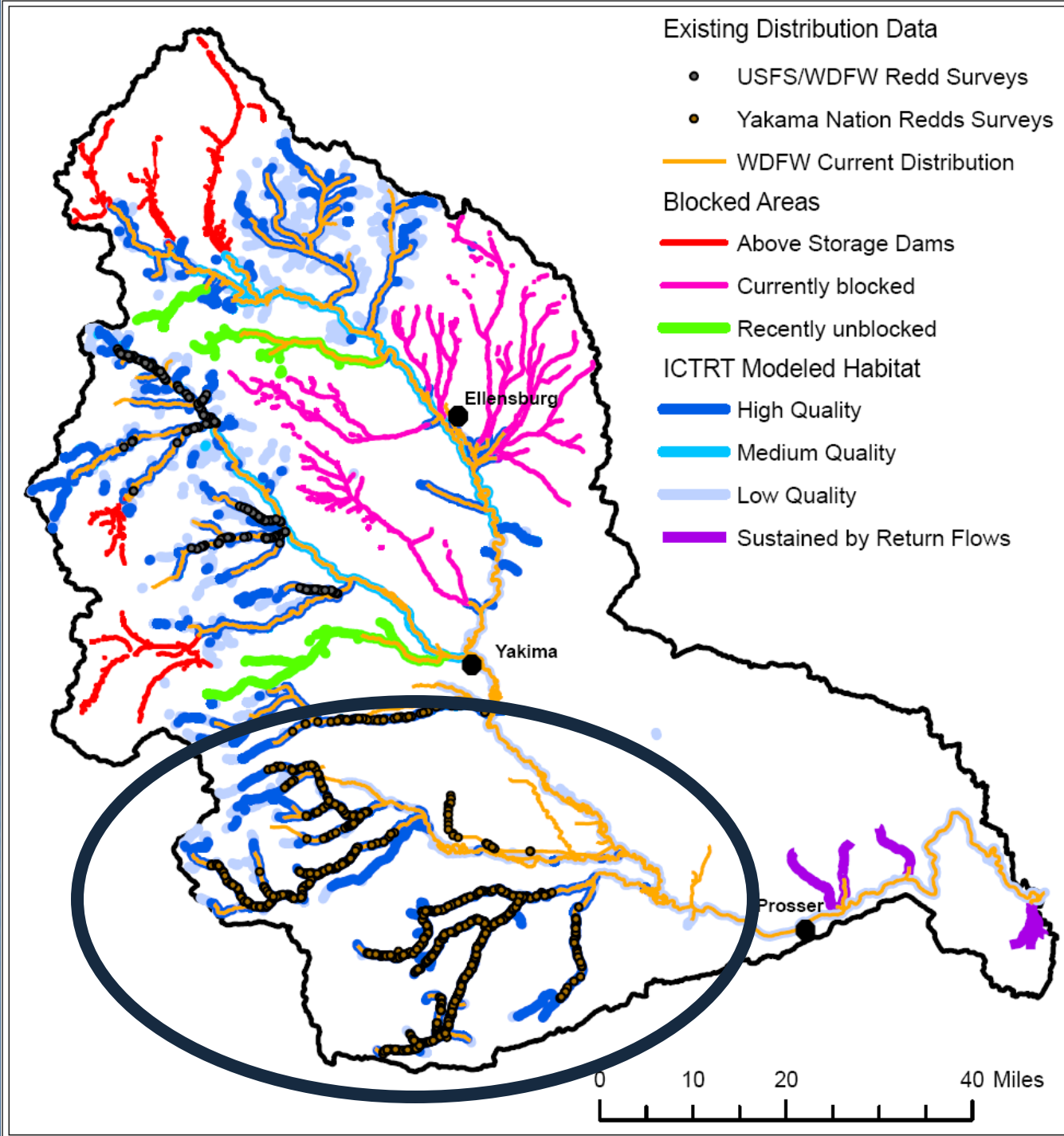
Wilson/Naneum – Passage/Screening	\$11.25	Confirm water management plan/Capital Improvement Plan (CIP), upgrade and consolidate diversions, provide fish passage and instream flow improvements.	Years 1 – 10
Wilson/Naneum – Habitat	\$1	Instream and riparian habitat improvements, floodplain restoration, and conservation easements.	Years 1 – 10
Subtotal	\$12.25		

Headwaters Program

- Primary focus on USFS lands and Bureau Reservoirs but open to diverse sponsors
- Addresses priorities for Bull Trout in areas currently inaccessible to anadromous fish
- Prepares habitat in anticipation of storage dam passage projects
- Also upper reaches of anadromous tribs

Headwaters Elements

Headwaters Restoration (Above Reclamation Reservoirs)	\$3.75	Headwaters restoration and passage above reservoirs and on USFS lands: roads, culverts, channel improvements, LWD and other habitat improvements	Years 1 – 15
	\$2.5	South Fork Tieton River (primarily new bridge; reroute the South Fork to, or near, its historic channel at the mouth)	Years 1 – 15
	\$1.5 (\$0.05/yr)	Seasonal task force passage projects ⁷ to ensure unimpeded passage into spawning tributaries above the storage reservoirs.	Years 1 – 30
	\$0.5	Gold Creek hydrogeology report and restoration design	Years 1 – 15
Subtotal	\$8.25 (\$0.5/yr)		



Yakama On-Reservation Program

- Build on current YRBWEP investment in Toppenish Corridor Plan
- Accelerate implementation of Yakama Reservation Watersheds and Riparian/Wetland Projects

YN Reservation Screening/Passage/Restoration	\$25	Implement Toppenish Creek Corridor program, and improve Satus Creek: screening, passage, riparian restoration	Years 1 – 10
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Emerging Opportunities Fund

<p>\$15 (\$5 upfront [Year 1], then \$0.5/yr)</p>	<p>Basin-wide – tributaries</p>	<p>Years 1 – 20</p>	<p>Guidelines</p> <ul style="list-style-type: none">• For projects that either fall outside other programs, or are particularly time sensitive• Expect use for acquisitions (fee simple and easement), that need to be completed rapidly• Connected to identified fish benefit/riparian, or water right acquisition• Leverage mitigation benefit/project opportunity• Seed money for studies would be administrated by an organization (not yet identified)
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Program Element	Recommended Funding Level (\$/millions)	Geographic Areas	Timing
Mainstem Floodplain Restoration			
Tier I – Existing projects with estimated budgets	\$25	Union Gap, Ellensburg Floodplain (Schaake), Lower Naches	Phase I (Years 1 – 7)
Tier II – Existing planning efforts underway	\$50 (\$2/yr for 5 years; \$4/yr for 5 – 15 years)	Upper Ellensburg/Kittitas, Wapato, Naches/Nile, Selah/Taylor Ditch, Easton	Years 1 – 15
Tier III	\$30 (\$1/yr for 30 years)	Benton City/West Richland, Yakima Delta, & all other areas	Years 1 - 30
Program Management (management and oversight, preliminary design)	\$7.5 (or \$0.25/yr)	Basin-wide	Years 1 – 30
Subtotal	\$112.5		
Tributaries Program			
Passage/Screening Projects	\$13.85	Upper and Middle Yakima	Years 1 – 15
Habitat Restoration (Below Reservoirs)	\$16.3	Upper and Middle Yakima	Years 1 – 15
Wilson/Naneum	\$12.25	Wilson/Naneum	Years 1 – 10
Headwaters Restoration	\$8.25 (\$0.5/yr)	Headwaters above reservoirs and on USFS lands	Years 1 – 30
YN Reservation Screening/Passage/Restoration	\$25	Satus and Toppenish Creeks	Years 1 –10
Emergent Needs Fund: Acquisition/ Conservation Easement Opportunities	\$15 (\$5 upfront plus \$0.5/yr)	Basin-wide – tributaries	Years 1 – 20
Subtotal	\$90.65		
TOTAL	\$203.15 Million		

Next Steps

- Building an EDT restoration scenario that incorporates proposed fish benefits
- Using benefits info from all sectors to flesh out the proposal
- Coming to agreement in the basin
- Building political support for the final package