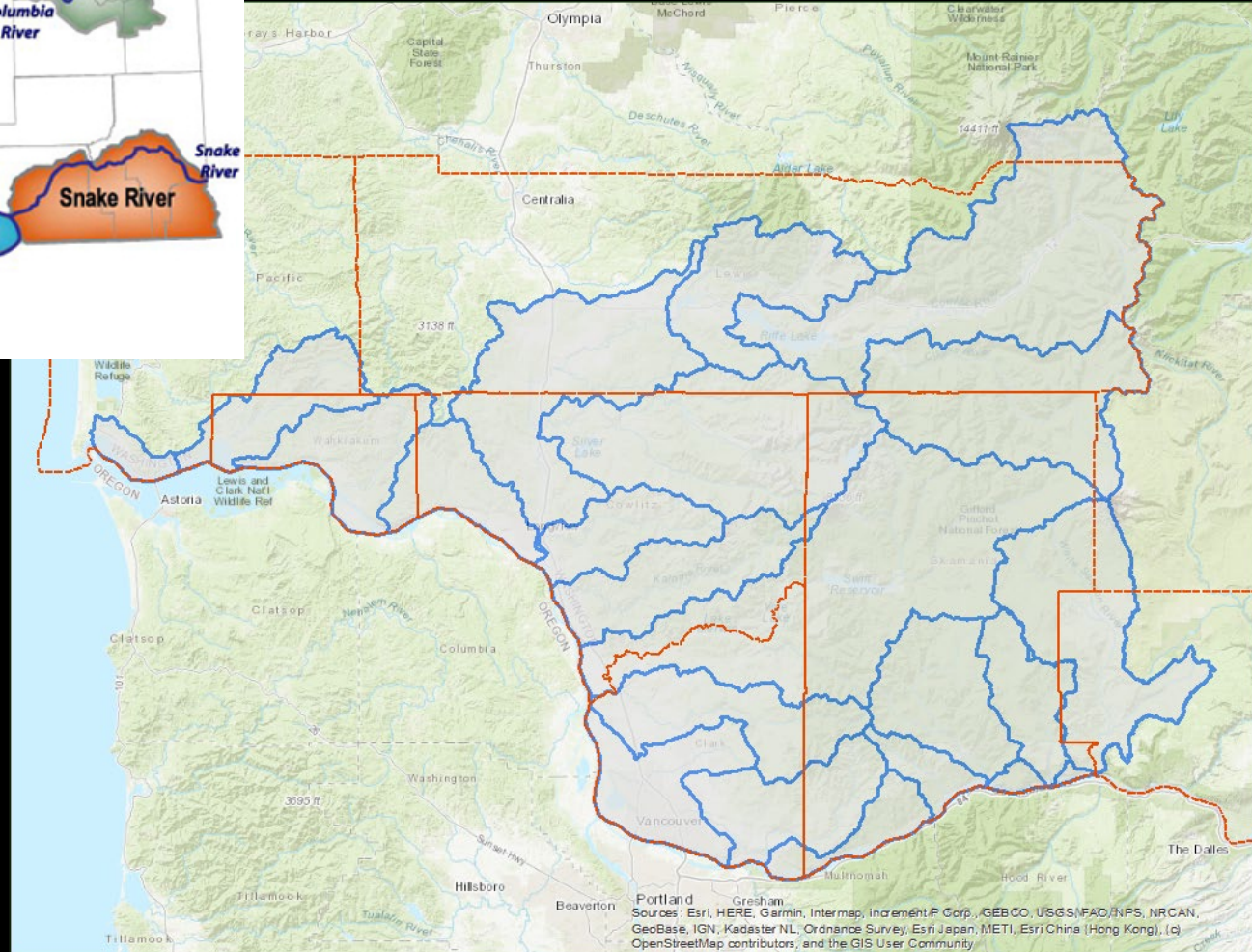


Recovery and Watershed Implementation Update

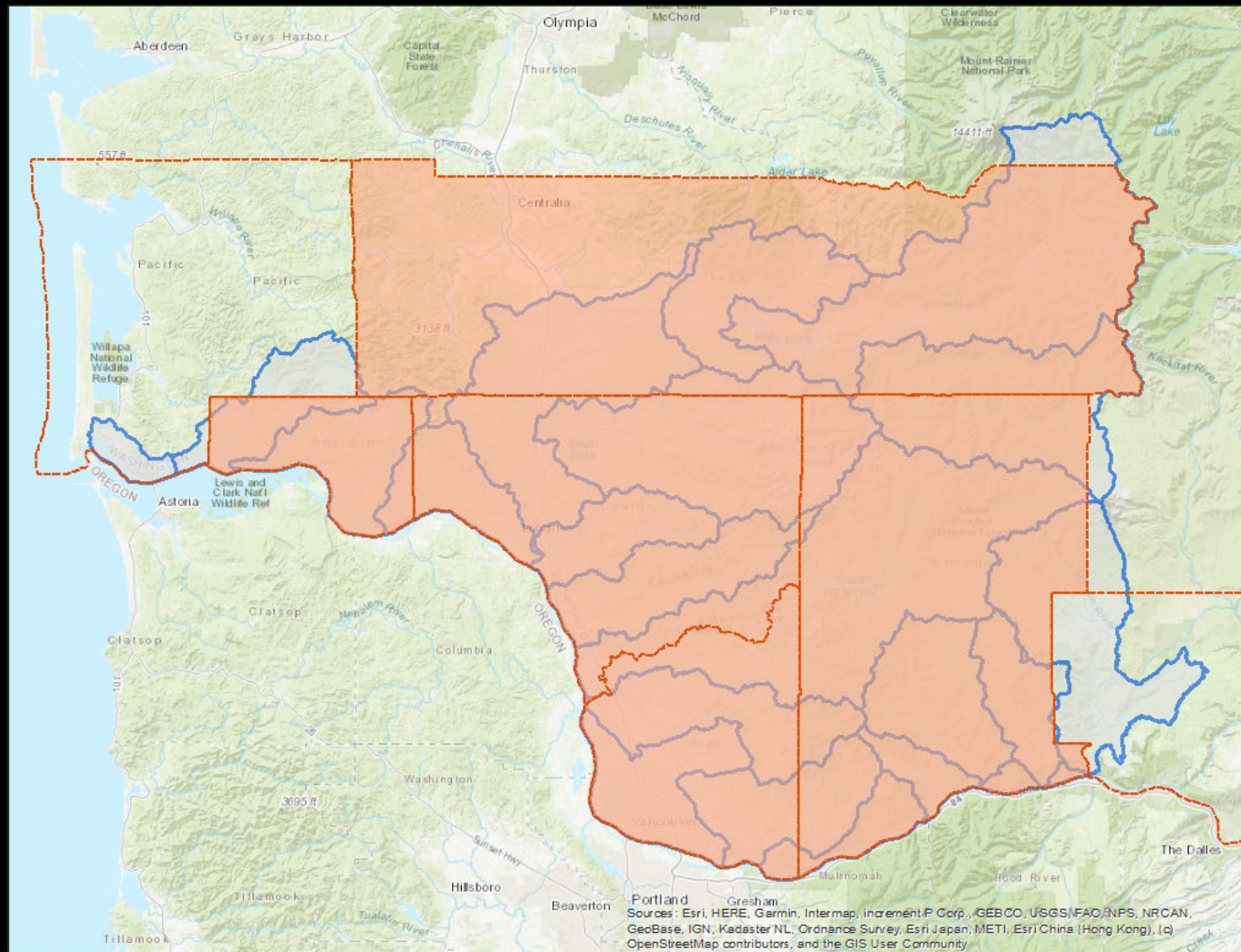


Clark County Councilor Work Session
December 8, 2021

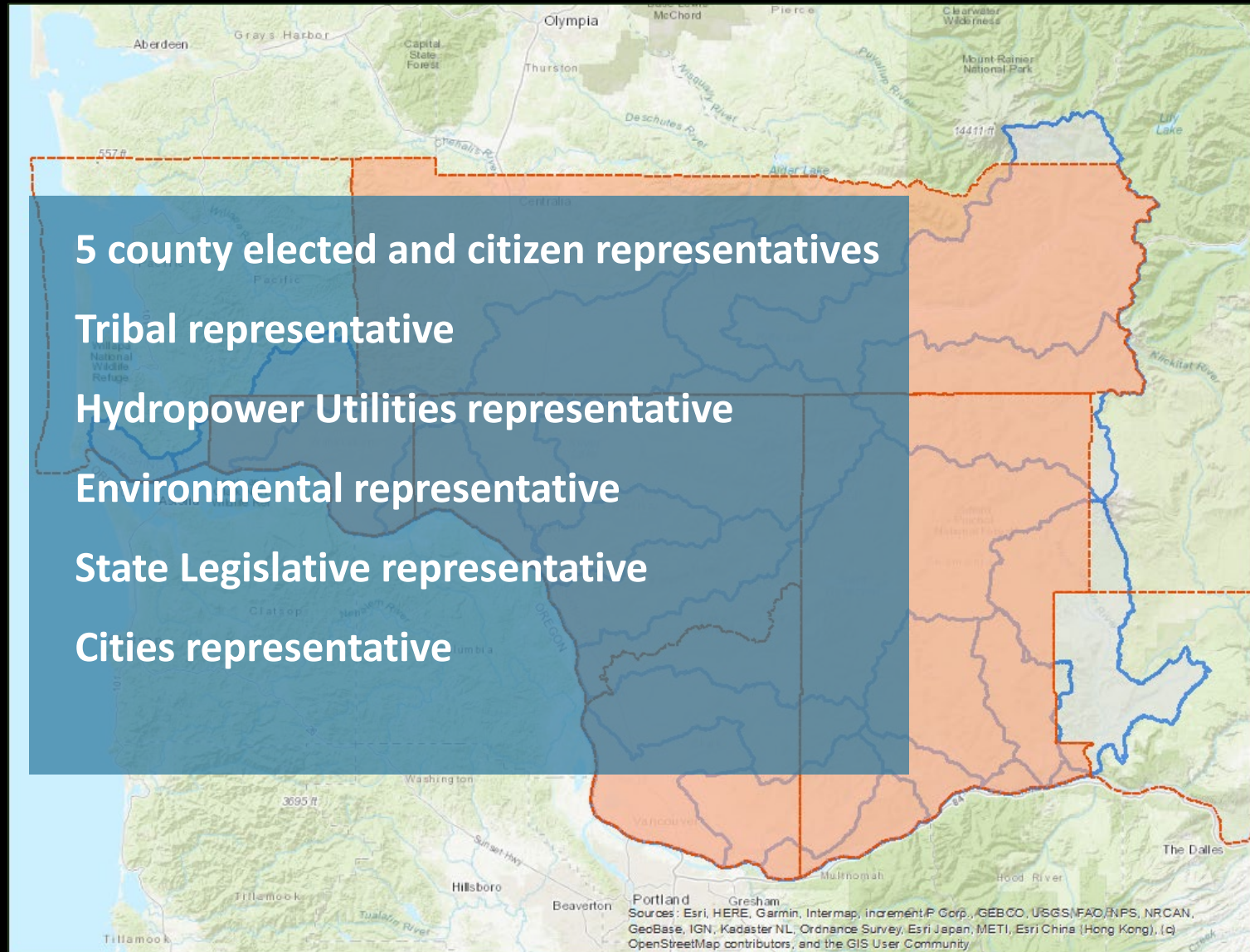
Lower Columbia Fish Recovery Board



Lower Columbia Fish Recovery Board



Lower Columbia Fish Recovery Board



5 county elected and citizen representatives

Tribal representative

Hydropower Utilities representative

Environmental representative

State Legislative representative

Cities representative

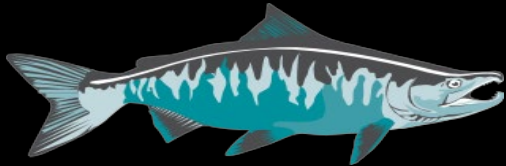
Portland Gresham
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS (FAO/NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Salmon and Watershed Programs



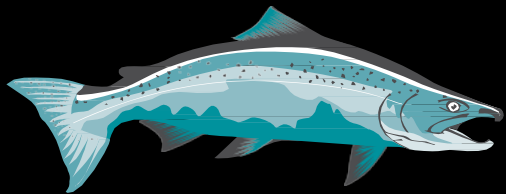
Salmon Programs



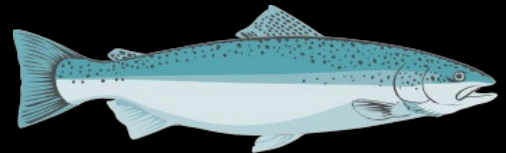
Columbia River Chum Salmon



Lower Columbia River Coho Salmon



Lower Columbia River Chinook Salmon



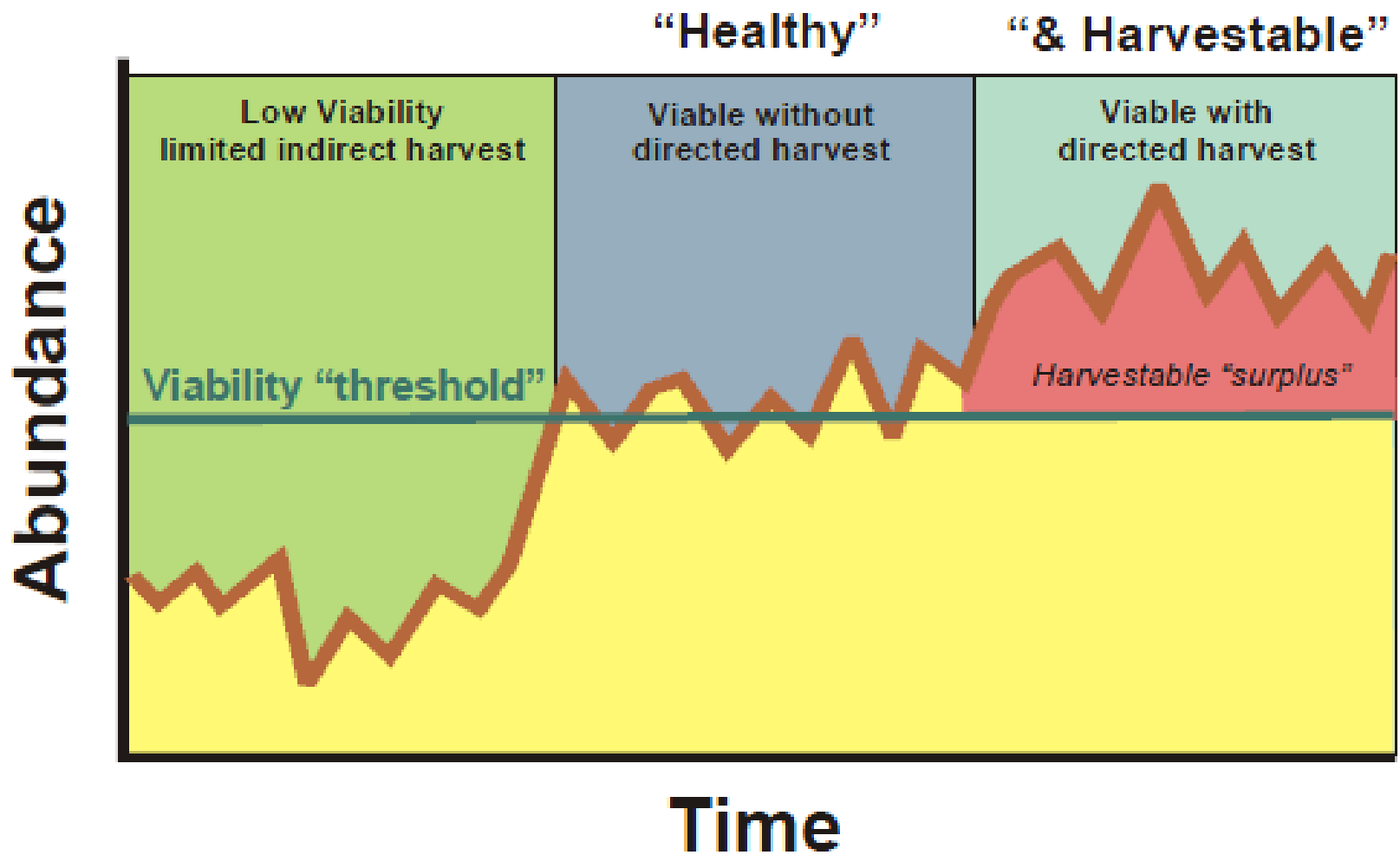
SW WA and Lower Columbia River Steelhead



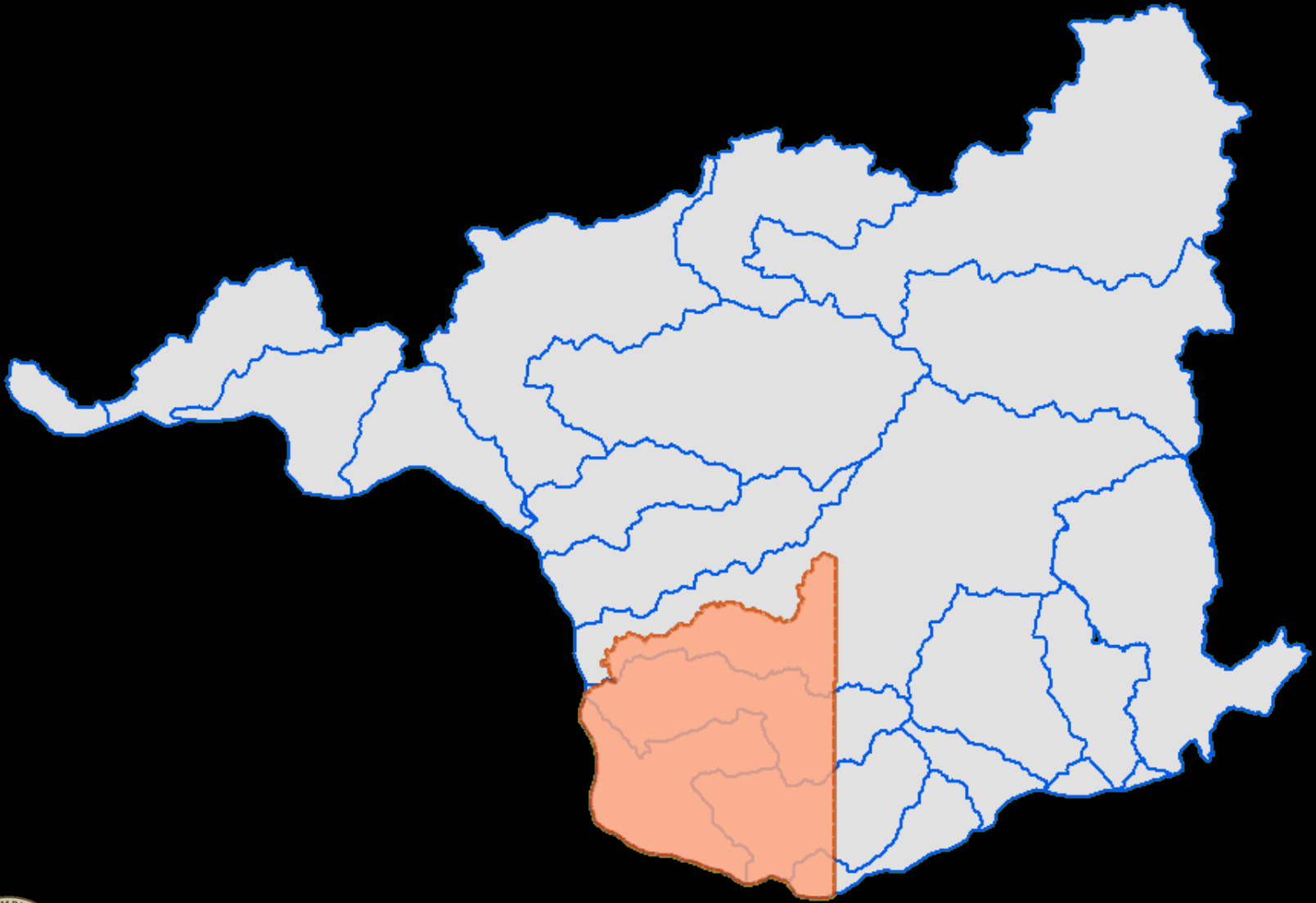
Salmon Programs – Regional Organization



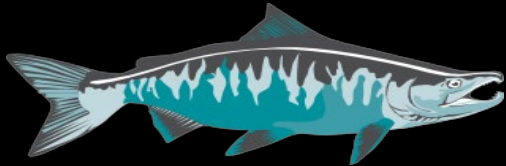
Salmon Programs - *Goal*



Recovery Progress - *Viability*



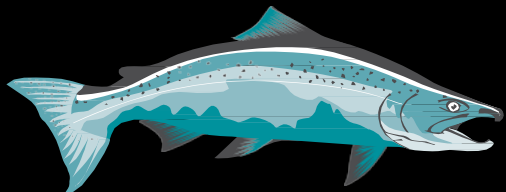
Recovery Progress – *Viability*



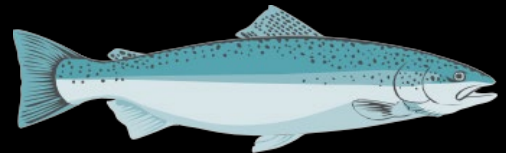
Not Keeping Pace



Not Keeping Pace



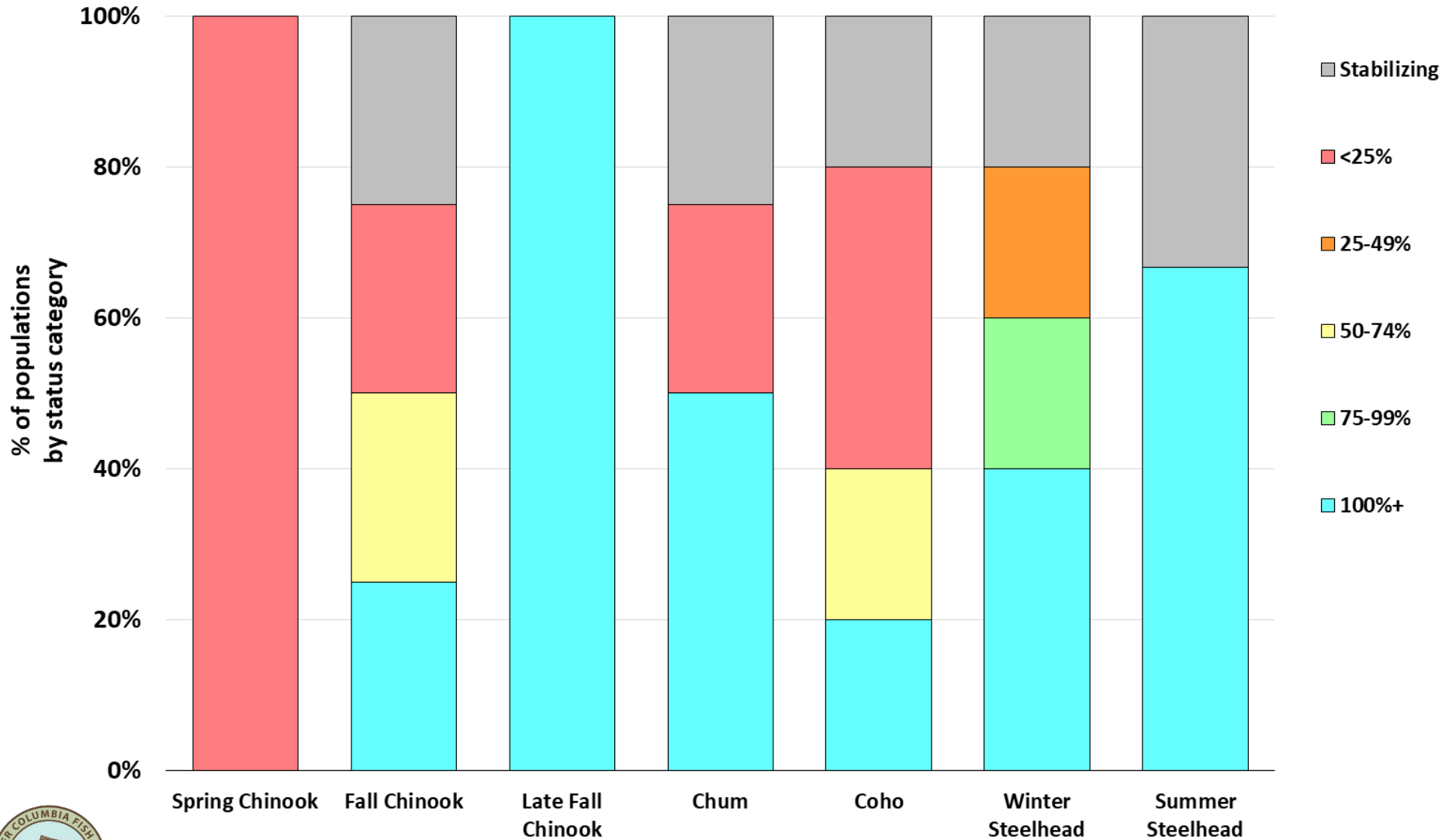
Not Keeping Pace



Making Progress



Recovery Progress - Viability



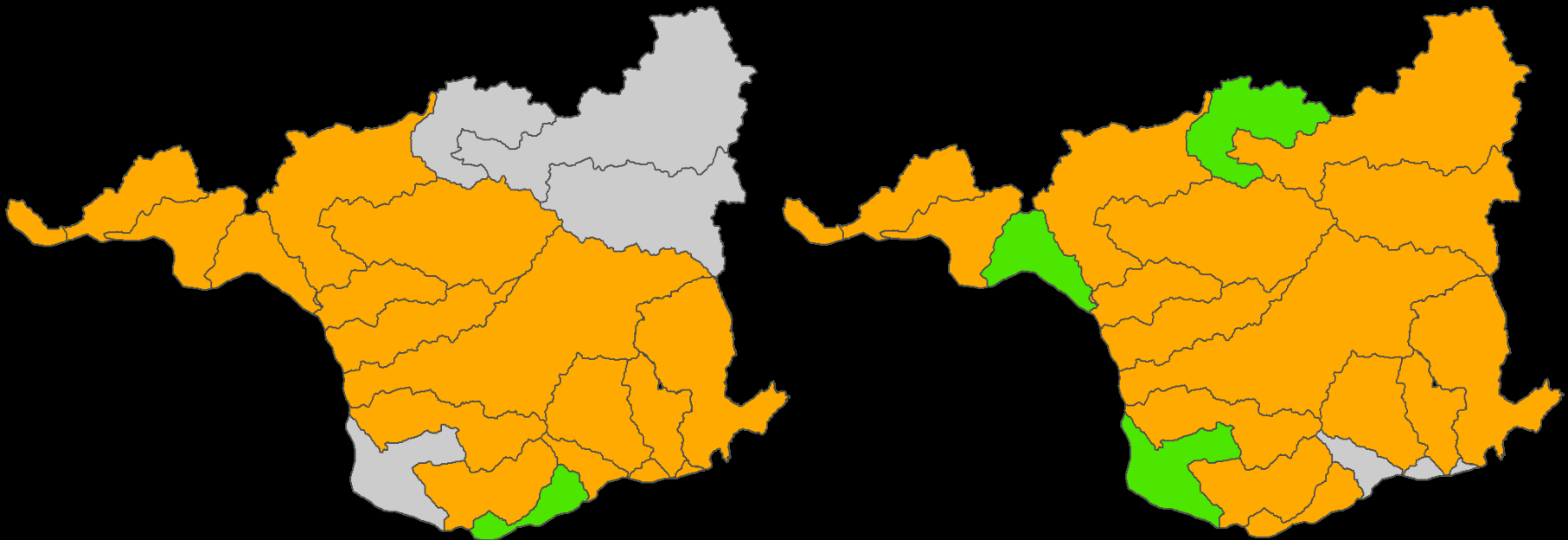
Recovery Progress – *Hatchery and Harvest Reform*




Fall Chinook



Coho



 Meeting or Surpassing
Hatchery Impact Target

 Not Meeting Hatchery
Impact Target

 No Data



Recovery Progress – Predation

Steller Sea lions
Increasing impact

California Sea lions



Months
10
Present



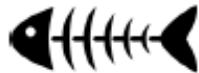
Months
7
Present



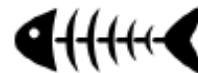
Share of
76%
Total predation



Share of
24%
Total predation



% Steelhead
4.4%
Run Eaten



% Steelhead
0.9%
Run Eaten

% Spring Chinook
2.0%
Run Eaten

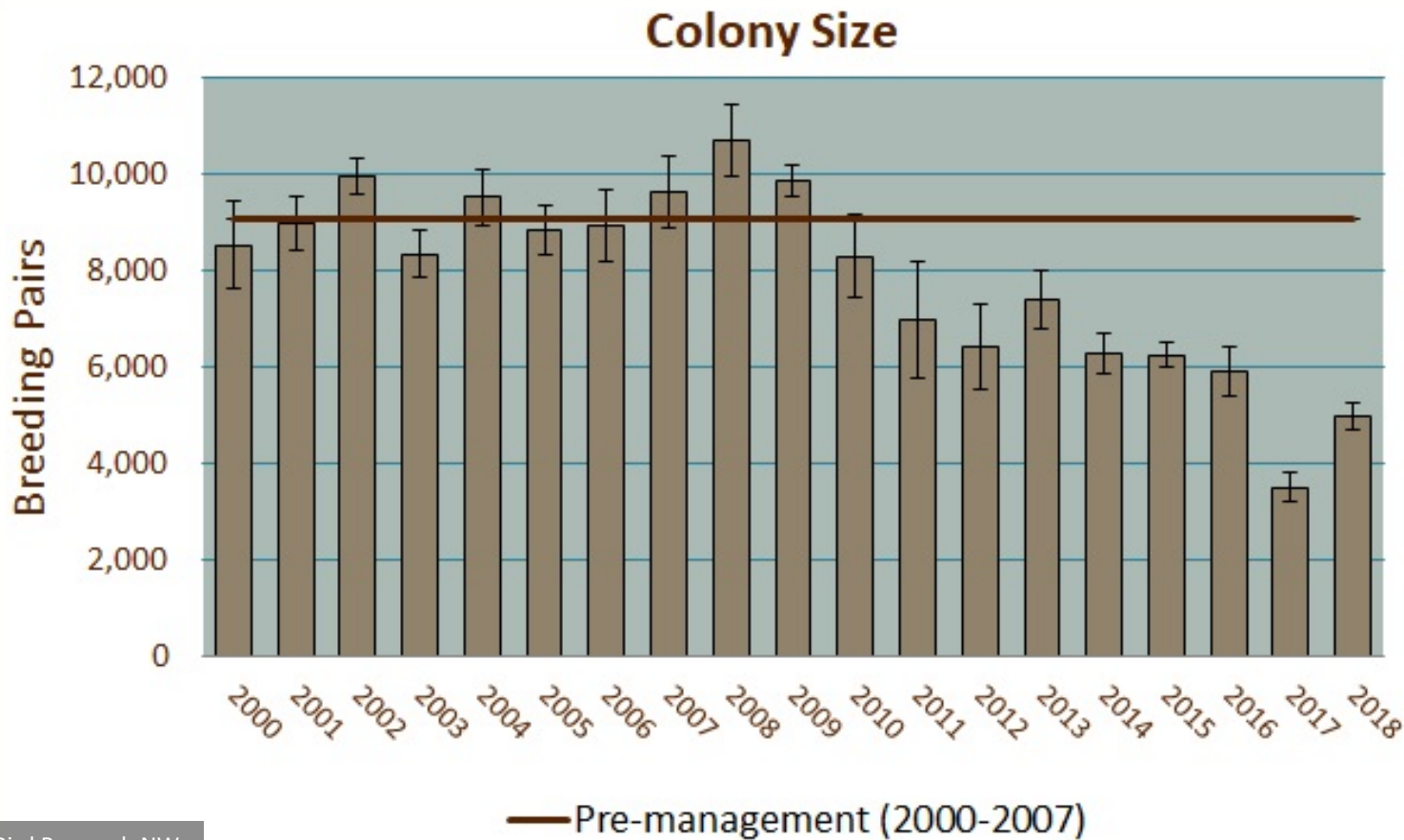
% Spring Chinook
0.7%
Run Eaten

Kessina Lee / WDFW



Recovery Progress – Predation

Caspian Terns: East Sand Island, Columbia River Estuary

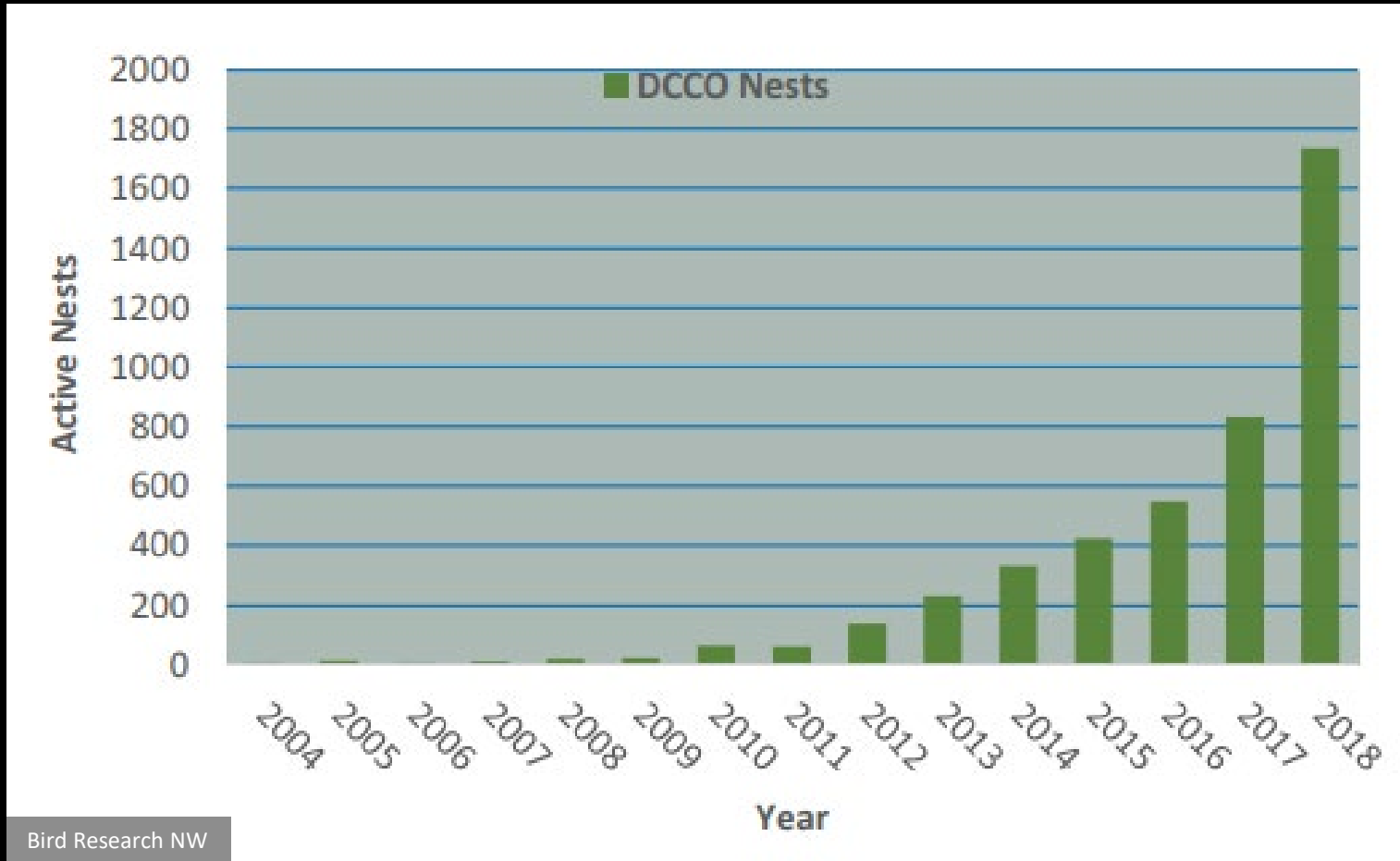


2,387 in
2020

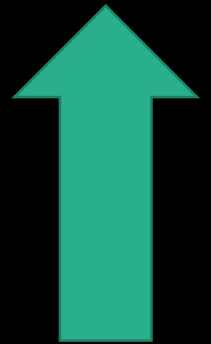


Recovery Progress – Predation

Double-Crested Cormorants: Astoria-Megler Bridge, Columbia River Estuary



5,080 in
2020



Bird Research NW



Recovery Progress – *Hydropower Management*

Cowlitz and Lewis Rivers

\$15+ million available for Cowlitz basin habitat improvements

\$ 5+ million available for Lewis basin habitat improvements

Cowlitz reintroduction limited by collection efficiency, but substantive progress has been made; fisheries plans complete

Lewis reintroduction limited by fish passage facilities and collection efficiency



Salmon Programs – *Habitat*

Salmon Recovery Funding Board

Projects in Clark County 1999 - 2020

63 Projects

\$16 million invested

- Acquisition
- Acquisition & Restoration
- Planning
- Restoration

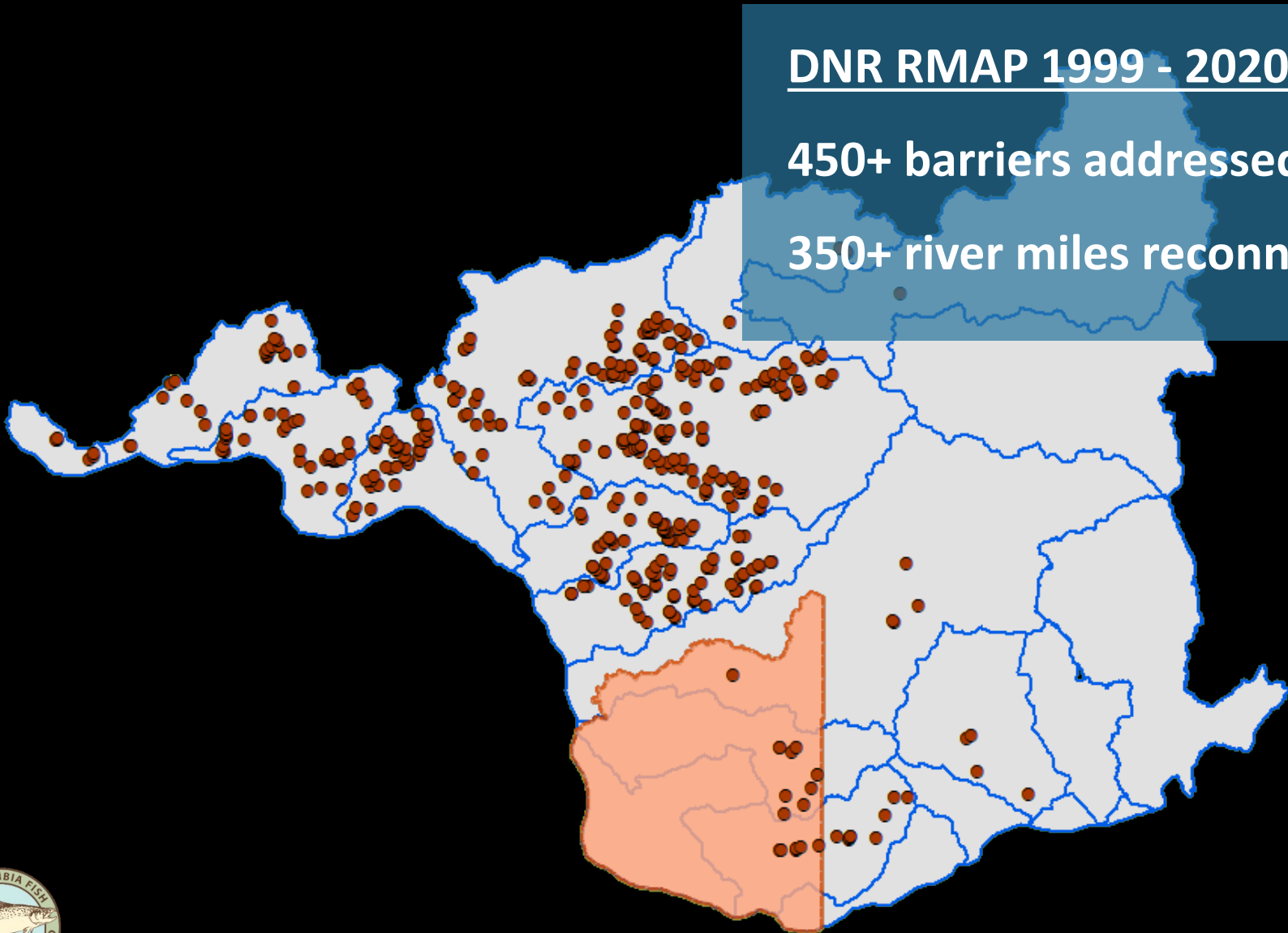


Recovery Progress – *Habitat*

DNR RMAP 1999 - 2020

450+ barriers addressed

350+ river miles reconnected



Recovery Progress – *Habitat*

East Fork Lewis River Habitat Program Review

Programs are not monitoring their impacts on overall habitat

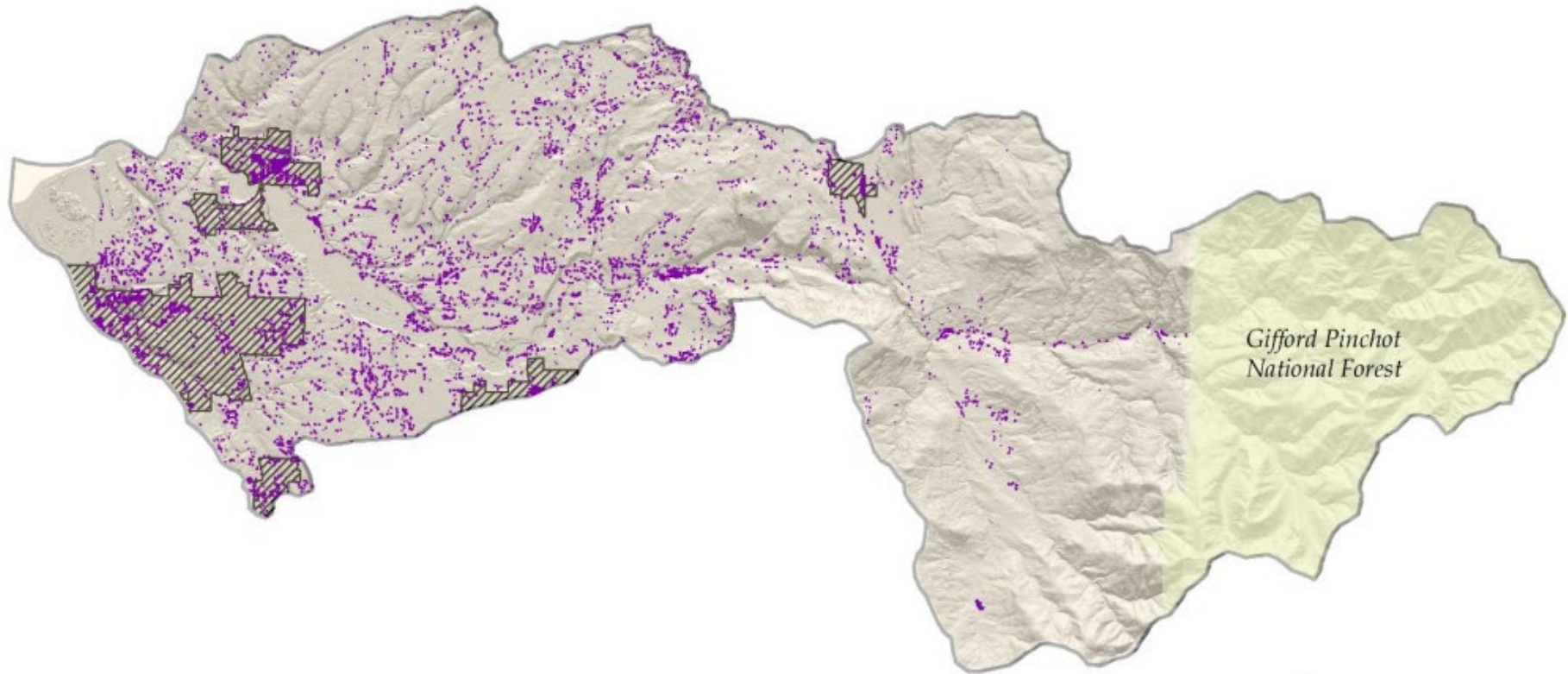
Better integration of salmon recovery needs into local, state and federal land use programs is needed

Concern we are losing designated critical areas faster than we are recovering them – uncertain whether are we achieving “no net loss”





Recovery Progress – *Habitat*

East Fork Lewis River Building Footprints that Intersect with Critical Areas



Gifford Pinchot
National Forest

-  Building Footprints that Intersect with Critical Areas
-  Urban Growth Boundaries



0 1.5 3 Miles



Watershed Programs



Watershed Programs – WRIA 27/28

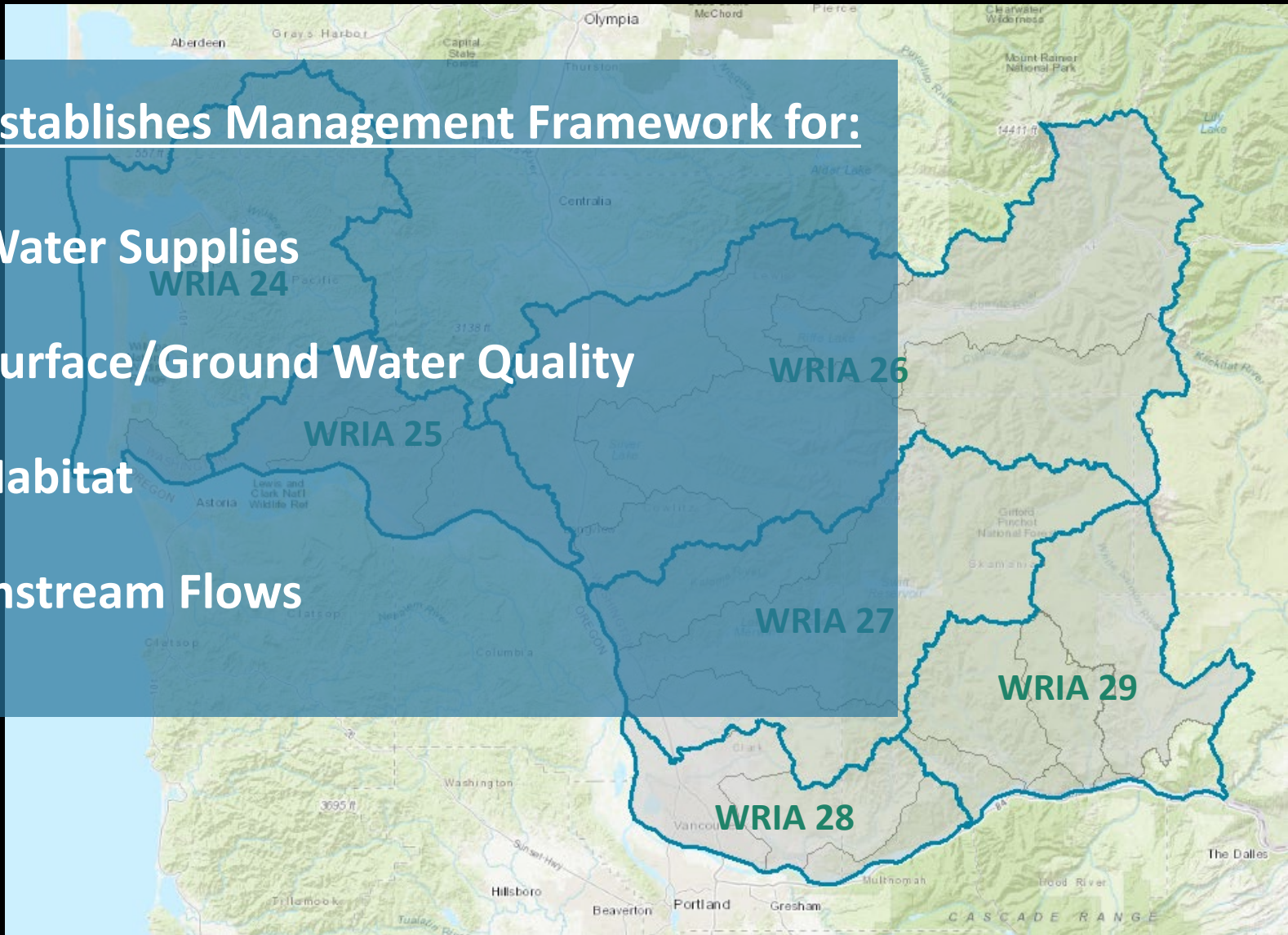
Establishes Management Framework for:

Water Supplies

Surface/Ground Water Quality

Habitat

Instream Flows



Watershed Programs – Action Examples

**Table ES-5
Implementation Considerations for Watershed Management Plan**

Priority ⁽¹⁾	Activity	Implementers ⁽²⁾	Financial/ Economic Costs ⁽²⁾	Potential Funding Sources
<i>Category: Water Supply</i>				
High	Public Water Systems develop new or expanded supplies. Requires engineering studies; approval of water system plan; water rights processing; other permitting; SEPA compliance; construction; operations & maintenance. Standard procedures exist for all of these (See Section 3.3.1).	<i>Lead:</i> Public Water System <i>Others:</i> DOH, Ecology	Medium	<i>Main:</i> Water rates and hookup charges in affected service area <i>Additional:</i> Grants or low-interest loans from existing state & federal programs
High	Planning studies to explore alternative sources of supply to replace an existing source (selected communities) (See Section 3.3.2).	<i>Lead:</i> Public Water System	Low	<i>Main:</i> Water rates in affected service area
High	Replace an existing source of supply with a different source to reduce impacts on stream flow. Requires engineering studies; water rights processing; other permitting; inter-local agreements or contracts; construction; operations & maintenance (See Section 3.3.2).	<i>Lead:</i> Public Water System <i>Others:</i> DOH, Ecology, adjacent water system(s) to serve as wholesaler	Medium to High	<i>Main:</i> Leg. appropriation <i>Additional:</i> Water rates in affected service area
	Develop map of region's aquifers with emphasis	<i>Lead:</i> Ecology		



Watershed Programs – WRIA 27/28

12/6/2004 C:\GIS\Project\WRIA_25-28\wria_25-28.apr



WRIA 27

Washington State

Notes:

1. Shaded zones represent approximate drainage areas affected by recommended restrictions. See Table H-1 for specifics.
2. Tidal reach areas have no recommended restrictions.

EXHIBIT ES-4

WRIA 27

Recommended Instream Flows and Closures

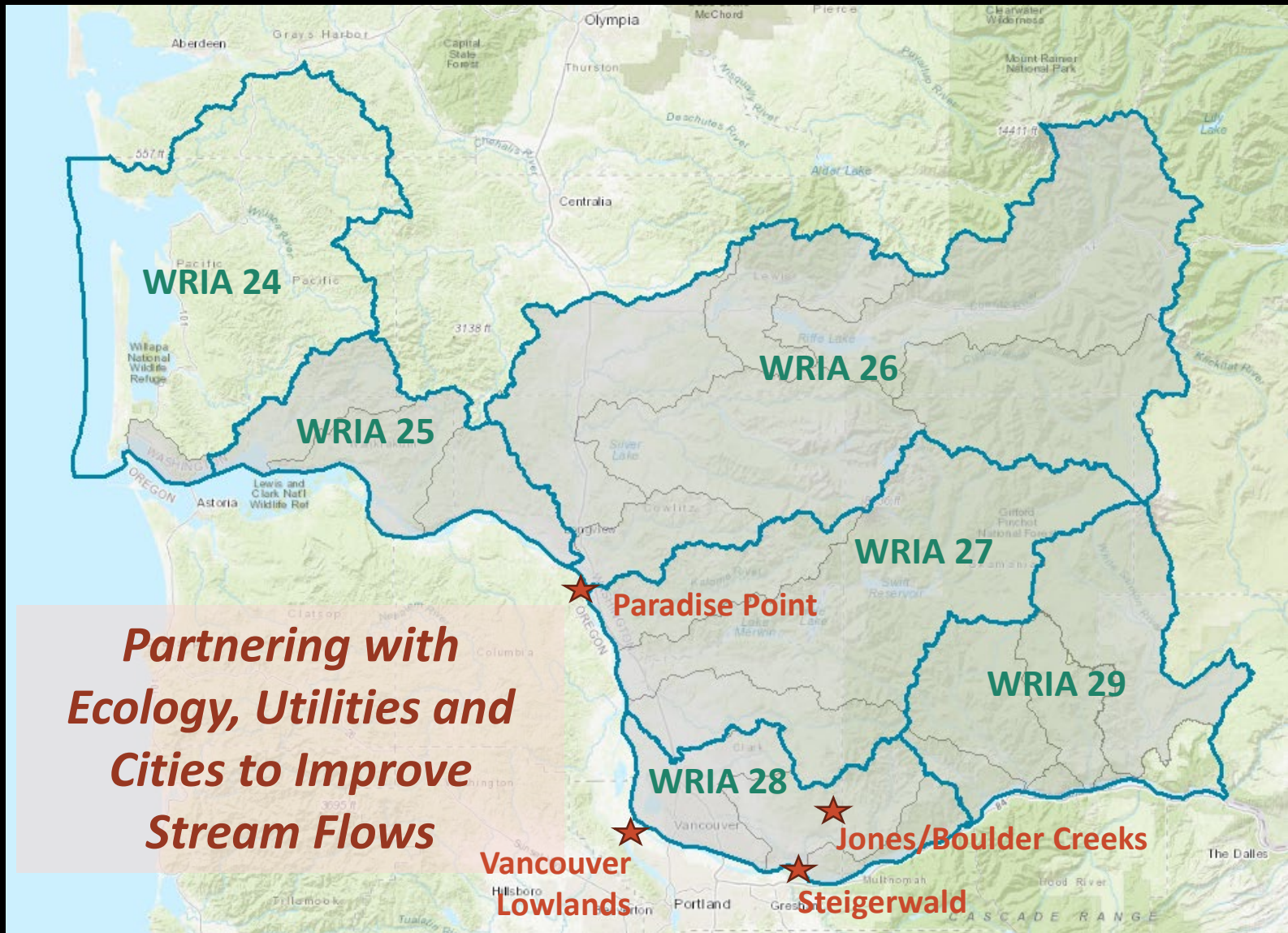
December 2004



Economic and Engineering Services, Inc.
Bellevue Mount Vernon Olympia Portland Tri-Cities



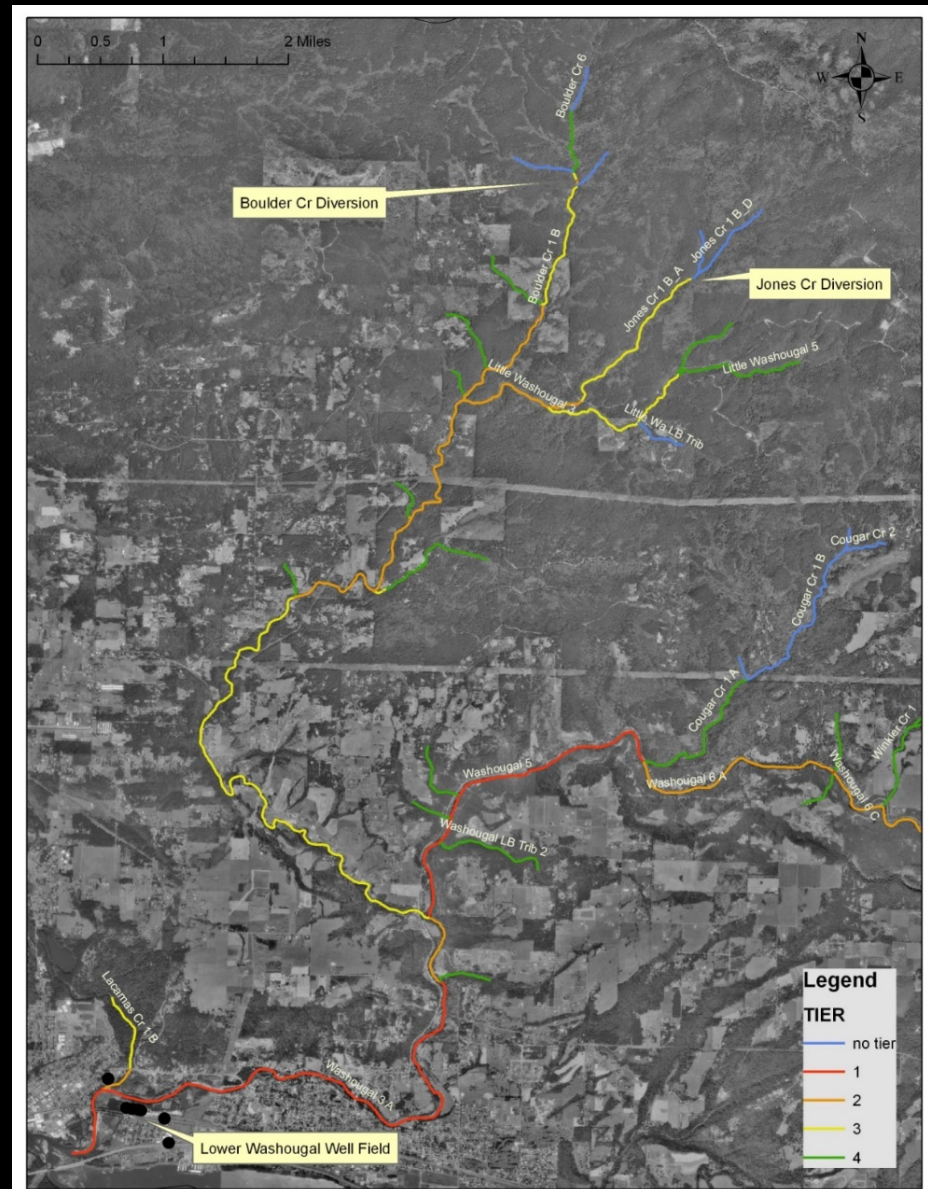
Watershed Plan Progress – *Source Substitution*



Watershed Plan Progress – *Source Substitution*

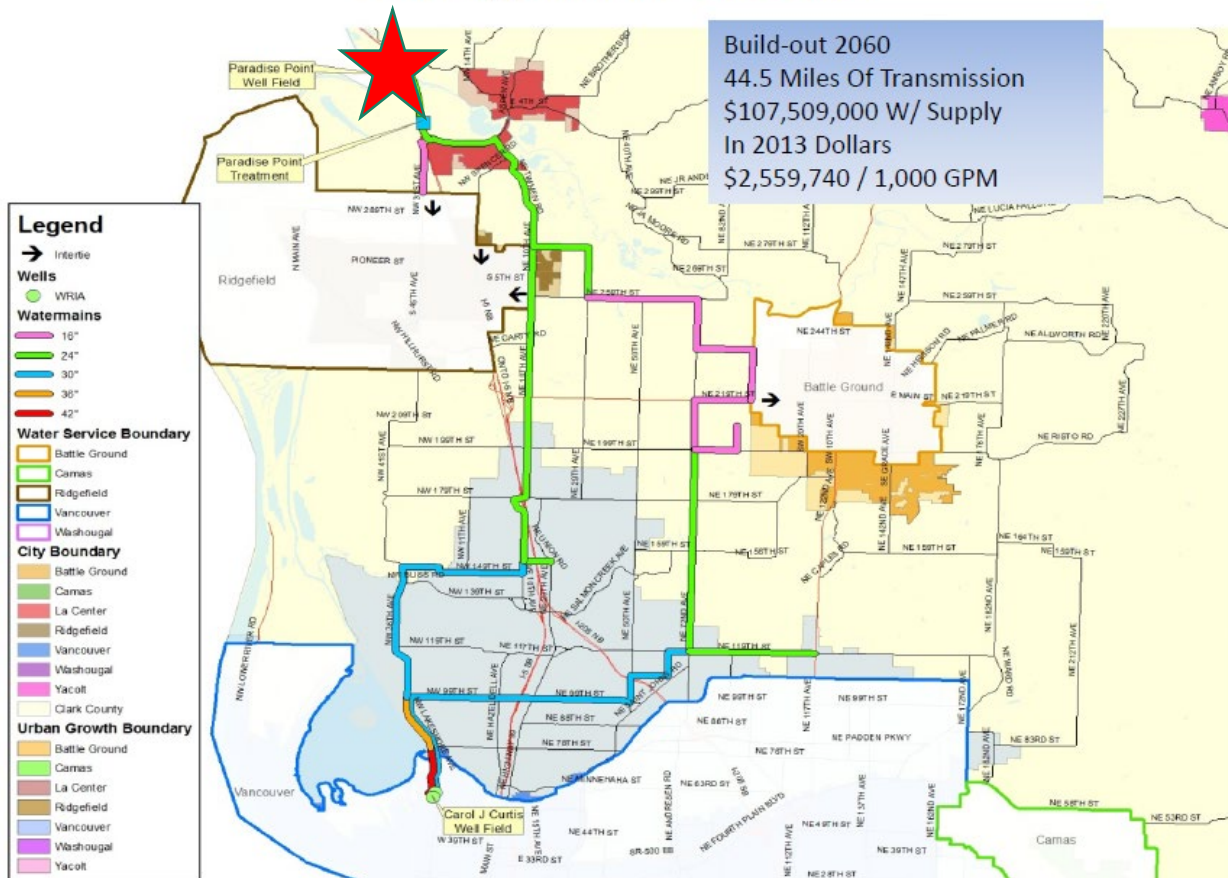
Wells in the lower Washougal River - 3 new wells and increase withdrawal on existing well

Water Diversion - No diversion from Jones and Boulder Creeks, May 15 – October 31



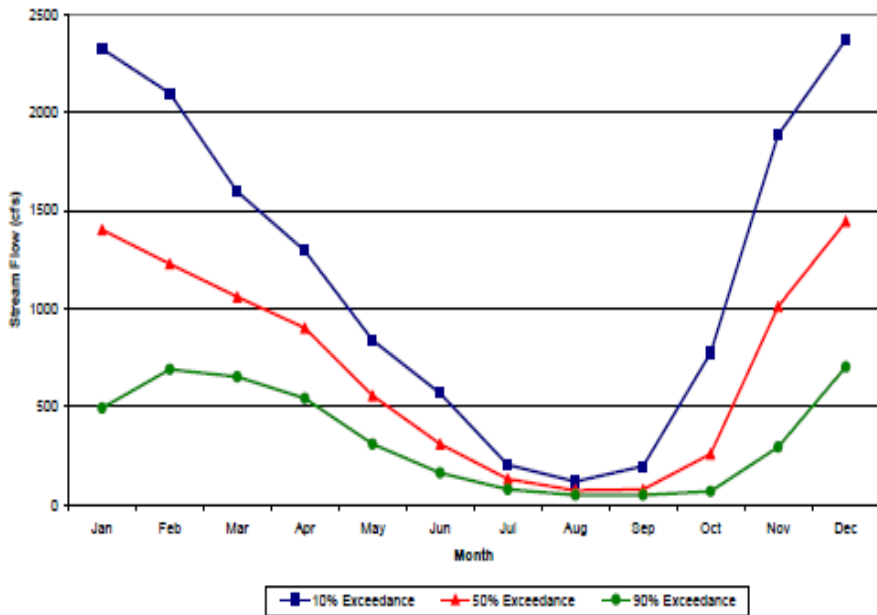
Watershed Plan Progress – Source Substitution Paradise Point

Water Transmission To Serve Clark, Battle Ground & Ridgefield Demands

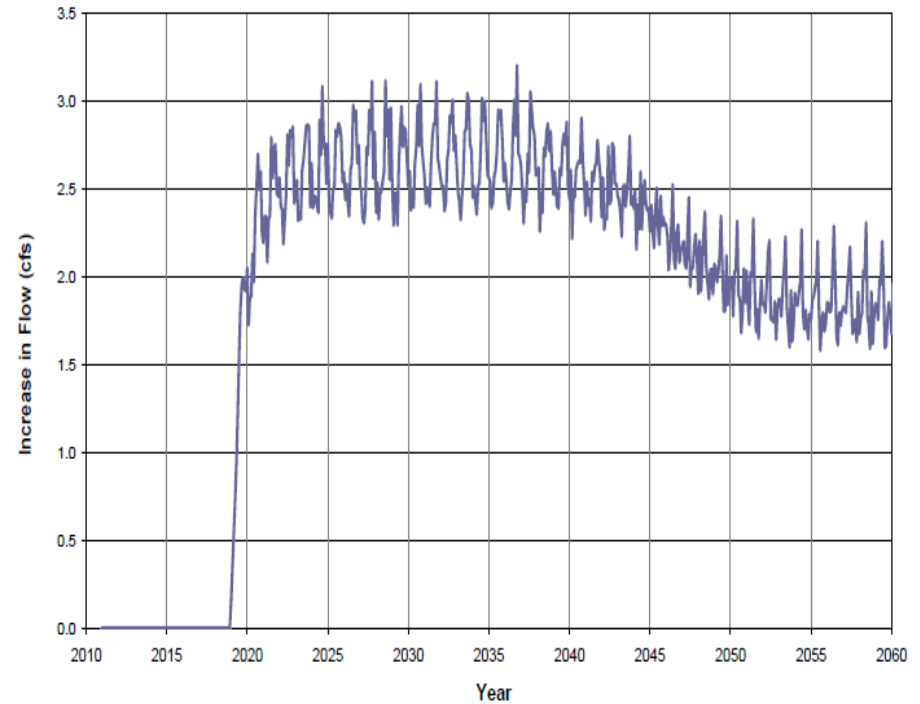


Watershed Plan Progress – *Source Substitution* *Paradise Point*

Exhibit F-2
Monthly Average Flow Statistics
East Fork Lewis River USGS Gauge 14222500 (1929-2002)



2b—Predicted Increase in East Fork Baseflow with Use of Paradise Point Wellfield



Watershed Plan Progress – *Clark County Clean Water Restoration Fund*

2016 - 2021

25 Projects

\$4.4 million invested in Clark County

80,000+ trees planted

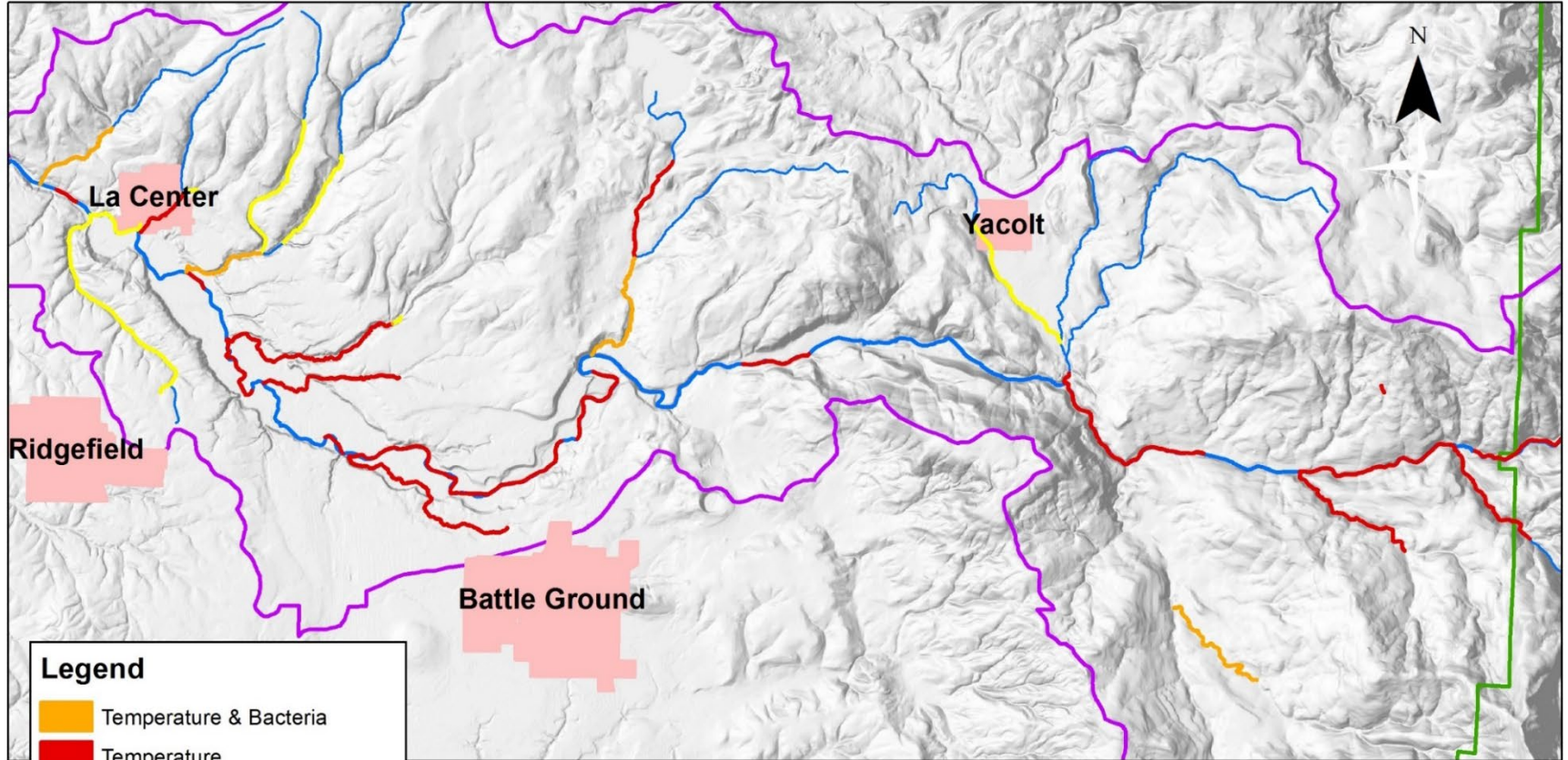
7,000+ students reached

2,000+ adult volunteers



Watershed Plan Progress – TMDL

East Fork Lewis River Watershed



Legend

- Temperature & Bacteria
- Temperature
- Bacteria

Boundaries

- Watershed Boundary
- Gifford Pinchot National Forest



Watershed Plan Progress – TMDL

East Fork Lewis River Clean Water Priorities

1. Septic Systems

*Outreach, Inspection, Maintenance, Repair
Pollution Identification & Correction*



2. Small Acreage Agriculture

*Conservation Planning, Technical Assistance
BMP Implementation*



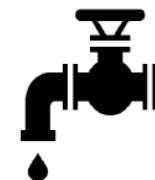
3. Riparian Restoration

Public & Private Lands



4. Stormwater Management

*Source Tracing, Illicit Discharge Detection & Elimination
Stormwater Management Planning*



Future Collaboration –

Land use program protection of floodplain, wetland and riparian habitats

Monitoring land use program impacts on watershed health

Coordinate on WRIA and Recovery Plan updates



Questions?

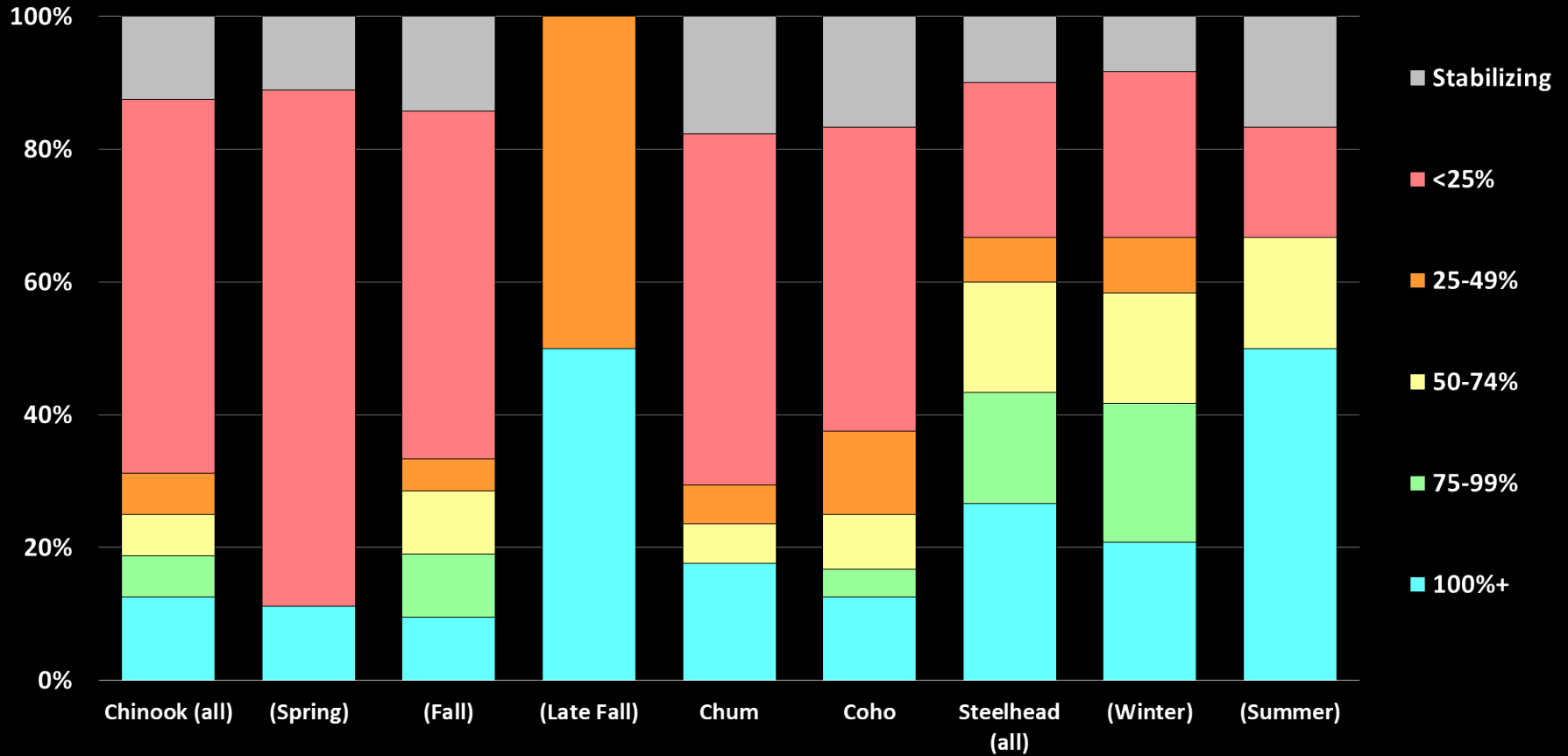


Recovery Progress - Viability

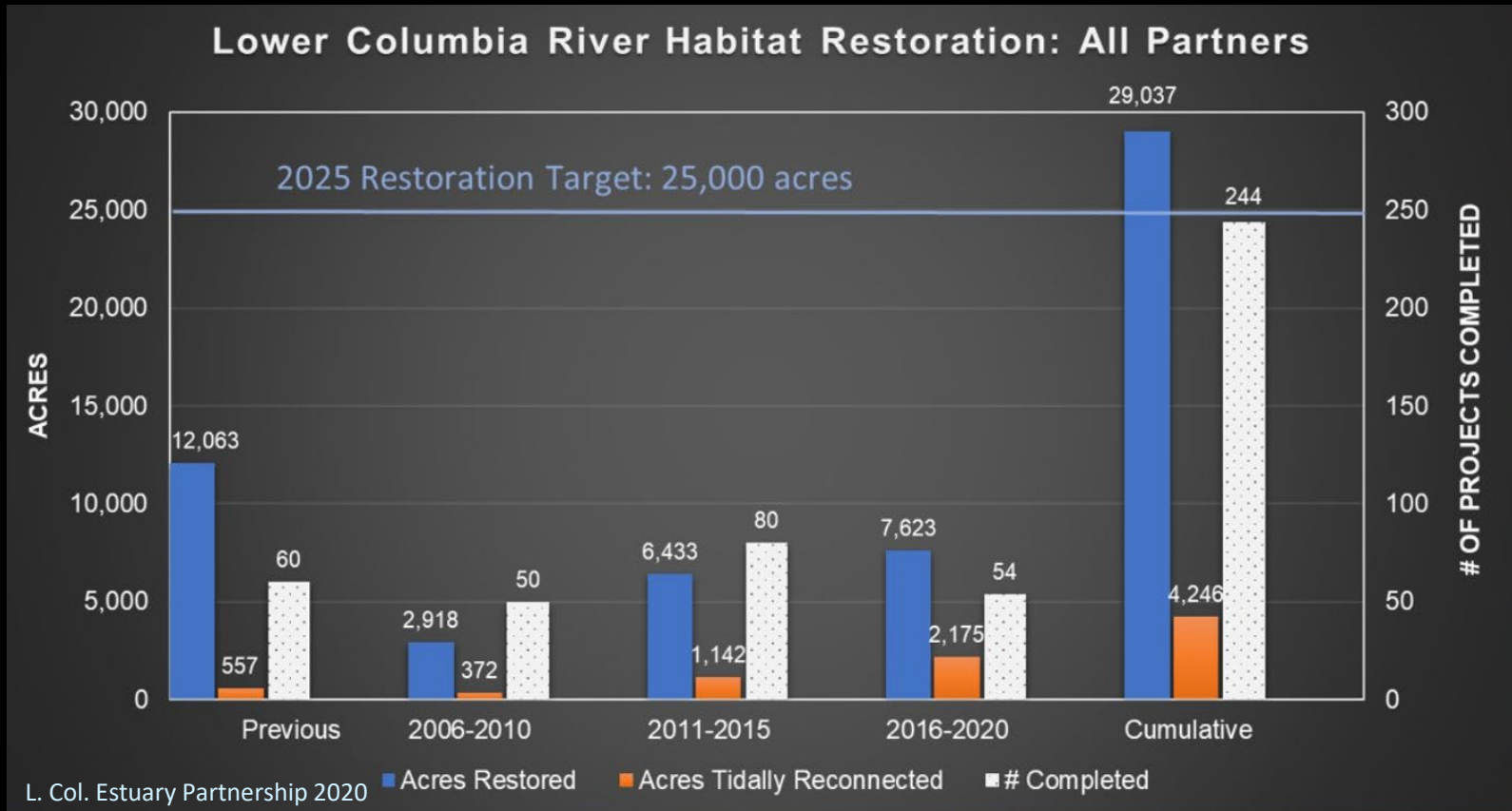
Subbasin	Chum	Coho	Fall Chinook	Late Fall Chinook	Spring Chinook	Winter Steelhead	Summer Steelhead
NF Lewis	VL	L	M	VH	VL	VL	VL
EF Lewis		L		--	--	M	M
Salmon	VL	M	VL	--	--	L	
Washougal	H	VL	L	--	--	L	H
Lower Gorge Tribs.	H	VL	VL	--	--	L	--



Viability Today – Oregon and Washington populations

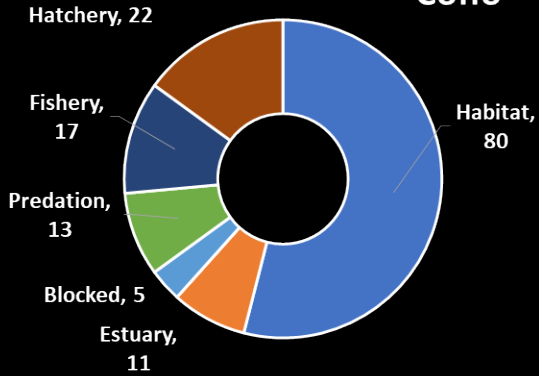


All-H Recovery: Estuary

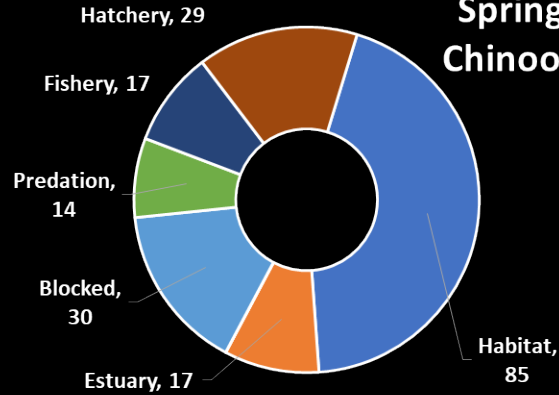


All-H Impacts Today

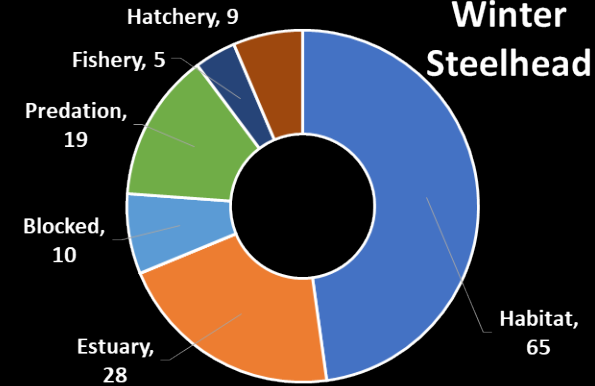
Coho



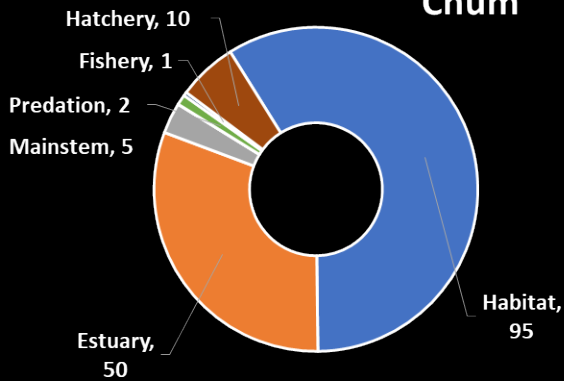
Spring Chinook



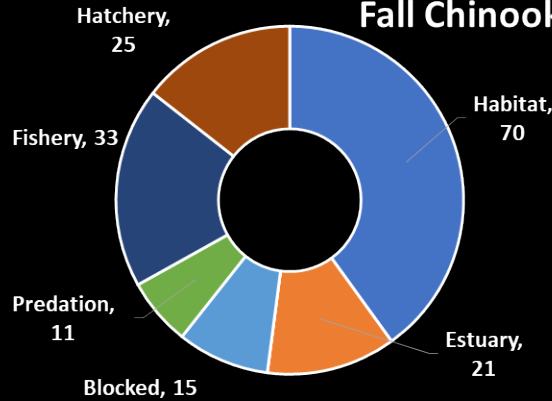
Winter Steelhead



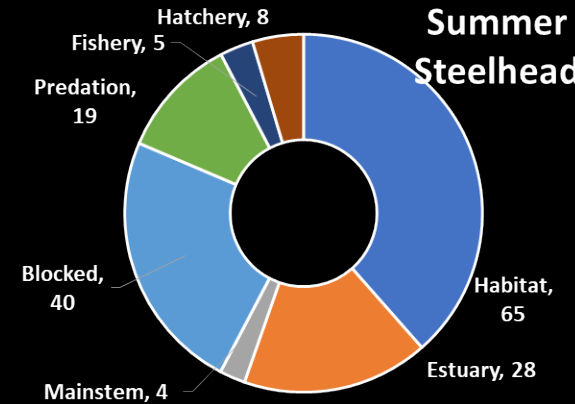
Chum



Fall Chinook

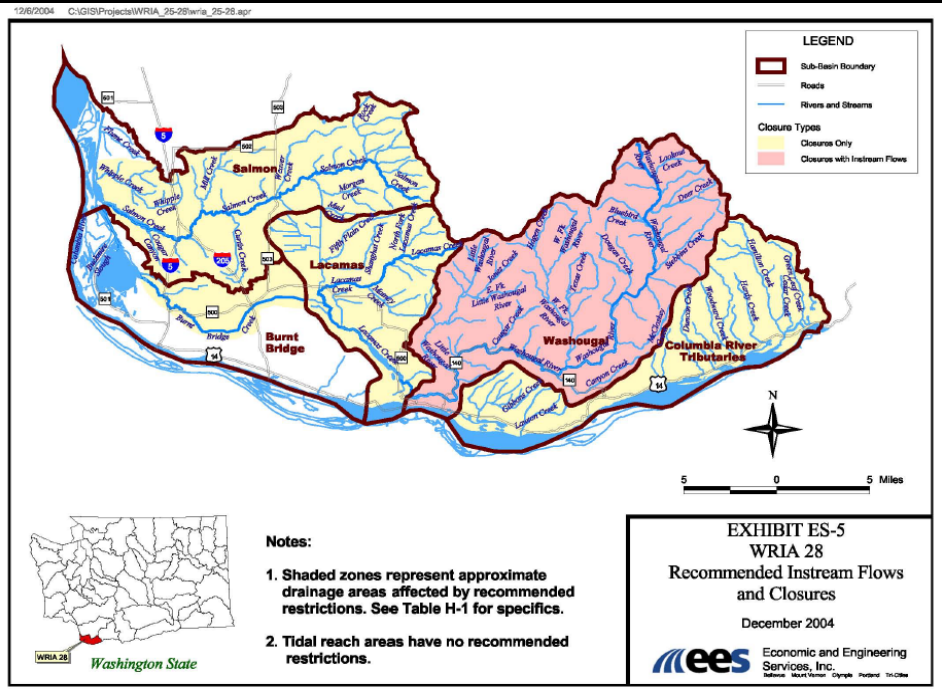
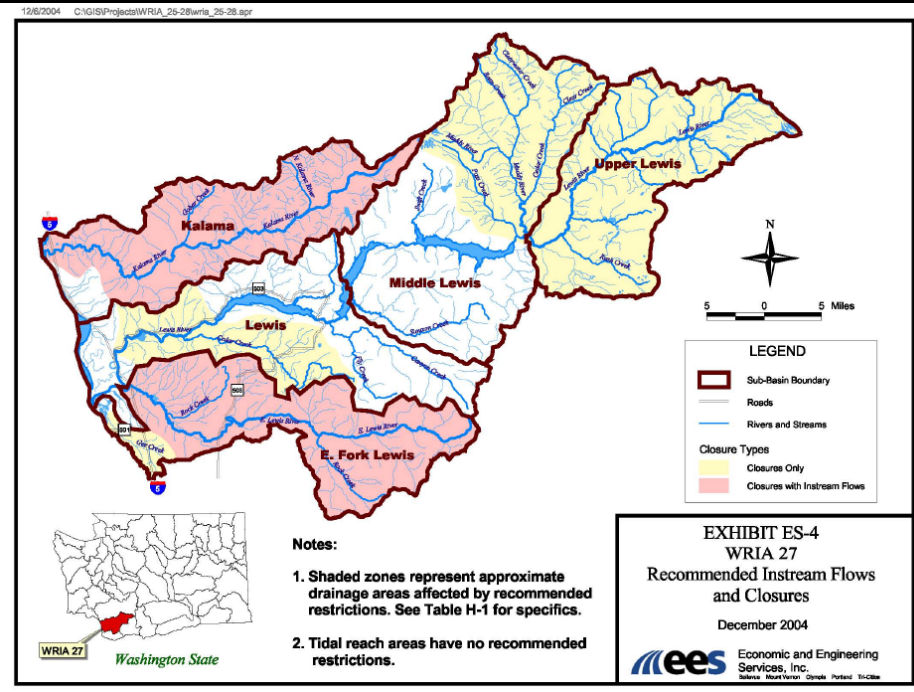


Summer Steelhead



Stream Flow Protection

- Open areas
- Closures
- Instream Flows
- Reservations



Watershed Supply Reservations

- Closing most of the region's streams and rivers to future withdrawals to protect stream flows
- “Water Reservations” are a specific quantity of stream flow set aside in a closed stream to meet future needs
 - Based on 20-year estimate of needs
 - Allocated across specific water users
 - Approximately 1-2% habitat impact at low flow



Clark and Skamania County data through December 2016; Cowlitz through June 2018.

Table V. Allocation of Reservation 173-527

WRIA	County	Sub-Basin Name*	Reservation ID #	Water User**	Expected Depletion (cfs)	Offset Requirement (cfs)	Net Depletion (cfs)***	Reserve Converted to GPD	Reserve Allocated	Reserve Remaining	% Used
27	Cowlitz	Kalama River	CWL1	City of Kalama	1.92	0.00	1.92	1,240,685	0	1,240,685	0%
			CWL2	other public water systems	0.37	0.19	0.19	122,776	0	122,776	0%
			CWL3	permit-exempt GW wells	0.16	0.00	0.16	103,390	12,720	90,670	12%
27	Cowlitz	Lewis River (Upper, Lower, Middle)	CWL4	public water systems	0.37	0.19	0.19	122,776	0	122,776	0%
	Clark		CLR1	public water systems	0.75	0.37	0.37	239,090	0	239,090	0%
	Skamania		SKA1	public water systems	0.40	0.00	0.40	258,476	0	258,476	0%
	Cowlitz		CWL5	permit-exempt GW wells	0.07	0.00	0.07	45,233	~32,640	12,593	~72%
	Clark		CLR2	permit-exempt GW wells	0.12	0.00	0.12	77,542	17,760	59,782	23%
	Skamania		SKA2	permit-exempt GW wells	0.40	0.00	0.40	258,476	1,680	256,796	1%
	Skamania		SKA3	commercial use****	0.21	0.00	0.21	135,700	0	135,700	0%
27	Clark	East Fork Lewis River	CLR3	Clark PUD; City of Battle Ground, Ridgefield	4.40	2.20	2.20	1,421,618	3607	1,418,011	0%
	Clark		CLR4	other public water systems	0.37	0.19	0.19	122,776	0	122,776	0%
	Clark		CLR5	permit-exempt GW wells	0.47	0.00	0.47	303,709	38,640	265,069	13%
	Skamania		SKA4	permit-exempt GW wells	0.02	0.00	0.02	12,923	0	12,923	0%

