

Yakima Basin Science & Management Conference 2016

Wednesday June 15, 2016 8:00 am – 5:00pm & Thursday June 16, 2016 8:30 am -5:00pm
~ pre-registration is not necessary ~



photo courtesy of Zack Mays

- Information
- Communication
- Coordination

For more information visit Yakima/Klickitat Fisheries Project website (www.ykfp.org)
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Purpose: To provide a comprehensive overview and exchange of ideas about the most current biological science and resource management activities in the Yakima Basin.



photo courtesy of Scott Nicolai

Central Washington University
400 E University Way
Ellensburg, WA 98926

Science Building Room 147





United States Senate

WASHINGTON, DC 20510-4705

June 15, 2016

Yakima Basin Science and Management Conference
Central Washington University
Science Building, Room 147
Ellensburg, WA 98926

Dear Friends,

Welcome to the Yakima Basin Science and Management Conference. The Yakima River is one of our state's vital waterways, providing water for farmers, families and fish in the Yakima River Valley. This basin also produces world-class recreational opportunities, orchards, grapes, apples, cherries, and a majority of our nation's hops. Impacts of drought and climate change are widely felt in the Yakima Valley by natural systems, agriculture, the recreational economy, municipal water users, and Tribal communities. Drought conditions are expected to persist in the region in coming years, impacting streamflow for fish, reducing the availability of water for crops and communities, and causing continued water supply challenges for decades to come. Through science, collaboration, and hard work we can respond to these challenges in the basin, which is what this conference strives to address.

As Ranking Member of the Energy and Natural Resources Committee, I have worked to pass legislation that authorizes an integrated and collaborative approach to address water challenges in the Yakima Basin. Recently, my bill passed the Senate and is one step closer to becoming law. This bill is the product of years of collaboration, is based on the best science available, and is a model for water management in the 21st century, particularly drought-stricken communities throughout the West. Working with farmers, conservationists, irrigation districts, local governments, the Yakama Nation, and others, we developed an innovative solution that will provide a decade of water security for people and protect natural resources. I will continue my efforts to get this legislation passed by Congress and to the President's desk.

Thank you all for attending today's conference. Collaboration and the best available science are keys to crafting a strong plan to meet water challenges in the basin, mitigate future impacts, and bring water security in the basin for years to come. I look forward to working with you all in the future.

Warmest Regards,

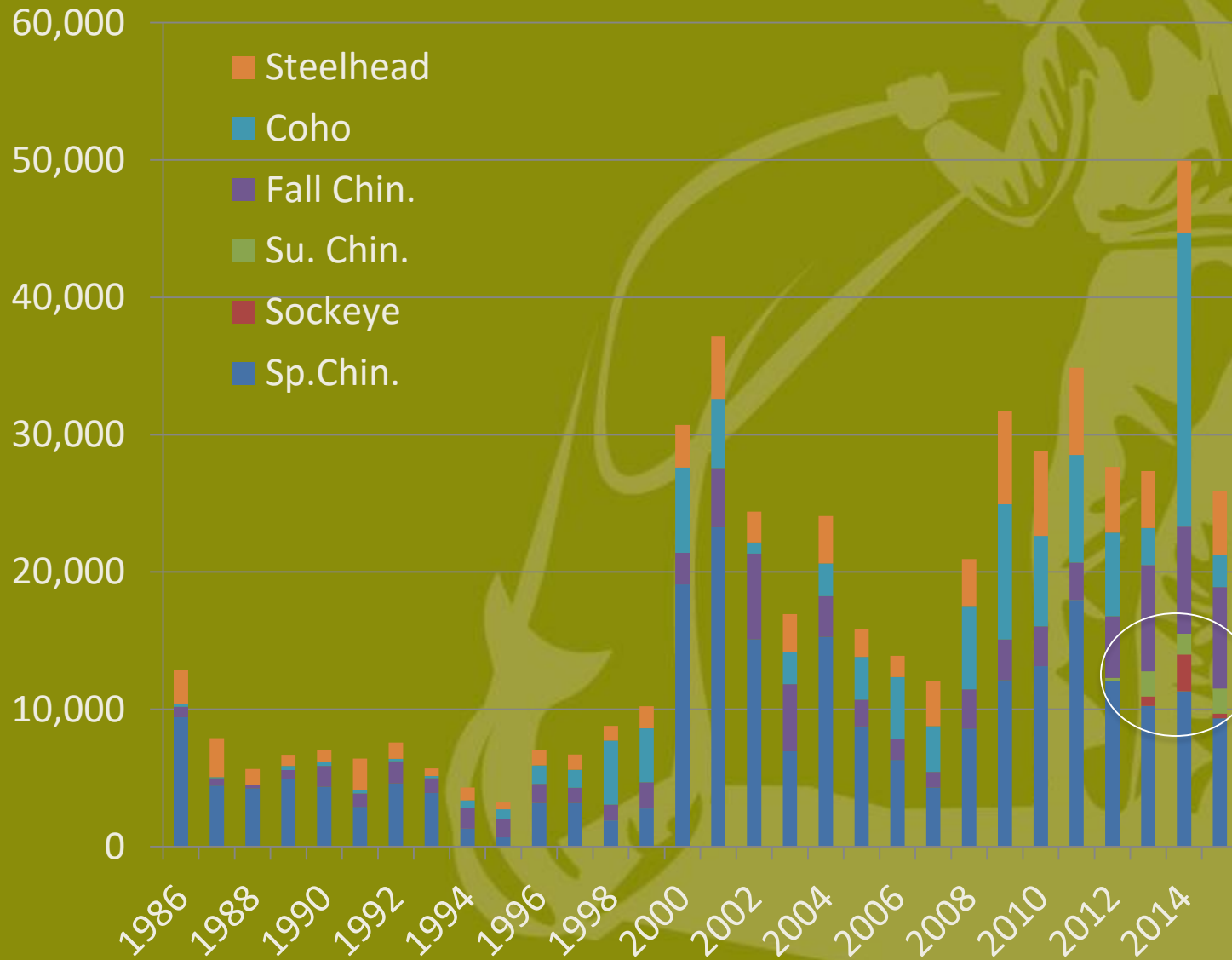
A handwritten signature in blue ink that reads "Maria Cantwell".

Maria Cantwell
United States Senator

IMPACTS OF THE YAKIMA DROUGHT OF 2015

- Extremely Low Snowpack
- Early Spring Runoff and Very Low Flows in Yakima Impacts Juvenile Outmigration and Adult Returns
- Low Summer Flows and High Temperatures Impact Adult Migration and Juvenile Rearing
- Low Flows and High Temperatures Impact Adult Holding Survival and Reduce Available Spawning Area
- Irrigation Water Restrictions

Salmon and Steelhead Returns to Yakima Basin

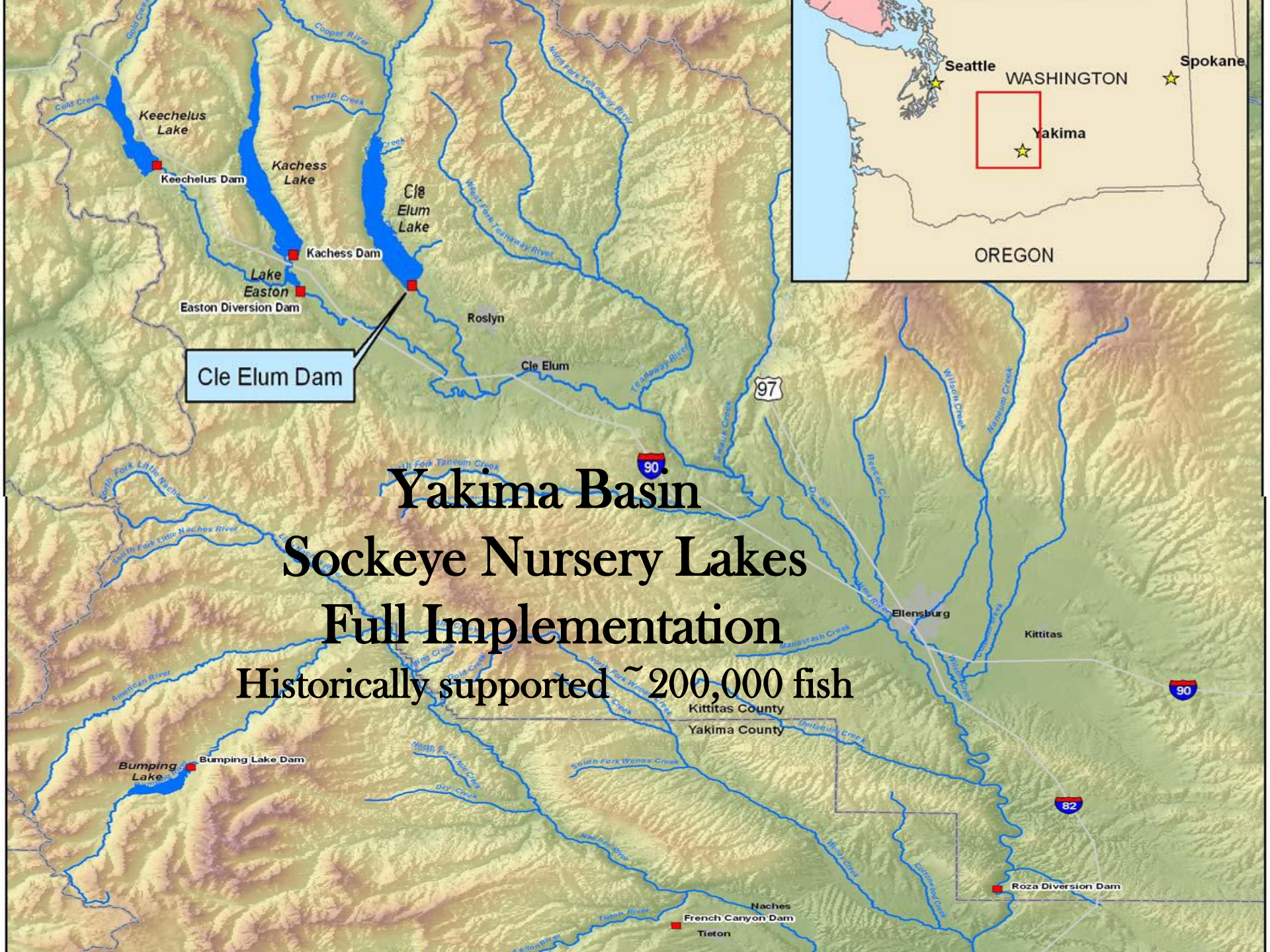


Expected Increases in Salmon and Steelhead Populations Resulting from the Integrated Plan at Full Implementation

	Recruitment (2042)	Harvest (2042)
• Spring/Summer Chinook	6,000–46,700	1,497–12,524
• Fall Chinook	1,600–16,150	664 – 6,342
• Coho	1,650–10,700	420 - 2,786
• Steelhead	2,400–18,900	316–2,451
• Sockeye	170,000–380,000	35,100–78,500
Total	181,650–472,450	37,997–102,603

Source: Adapted from Hubble, 2012.

- Yakima River Basin Integrated Water Resource Management Plan
- Four Accounts Analysis of the Integrated Plan
- U.S. Bureau of Reclamation
- Contract No. 08CA10677A ID/IQ



Cle Elum Dam

Yakima Basin

Sockeye Nursery Lakes

Full Implementation

Historically supported ~200,000 fish



Seattle WASHINGTON Spokane

Yakima

OREGON

Kittitas County
Yakima County

Naches
French Canyon Dam
Tieton

Summary of Benefits and Costs

Benefit/Cost Category Overall Present Value over 100 Years (2012\$)

Fish Benefits	\$5.0 billion - \$7.4 billion
Irrigation Benefits	\$0.8 billion
Municipal & Domestic	\$0.4 billion
Costs	\$2.7 billion - \$4.4 billion

Lake Cle Elum Sockeye Reintroduction

Year	Adults Transported	Percent Survival to adult
2009	1,000	
2010	2,500	
2011	4,500	
2012	10,000	
2013	3,996 +703	70%
2014	10,000 +2676	107%
2015	10,000 +341	8%



Some of the first sockeye to spawn in upper Cle Elum R. watershed in over 100 years

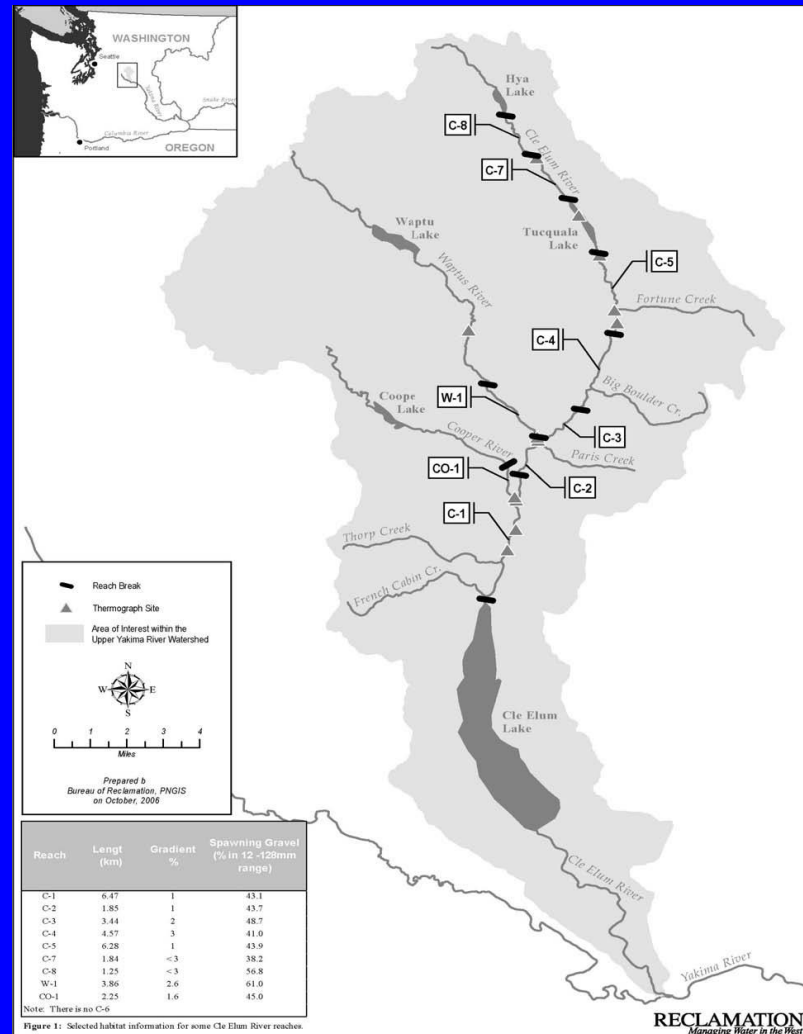
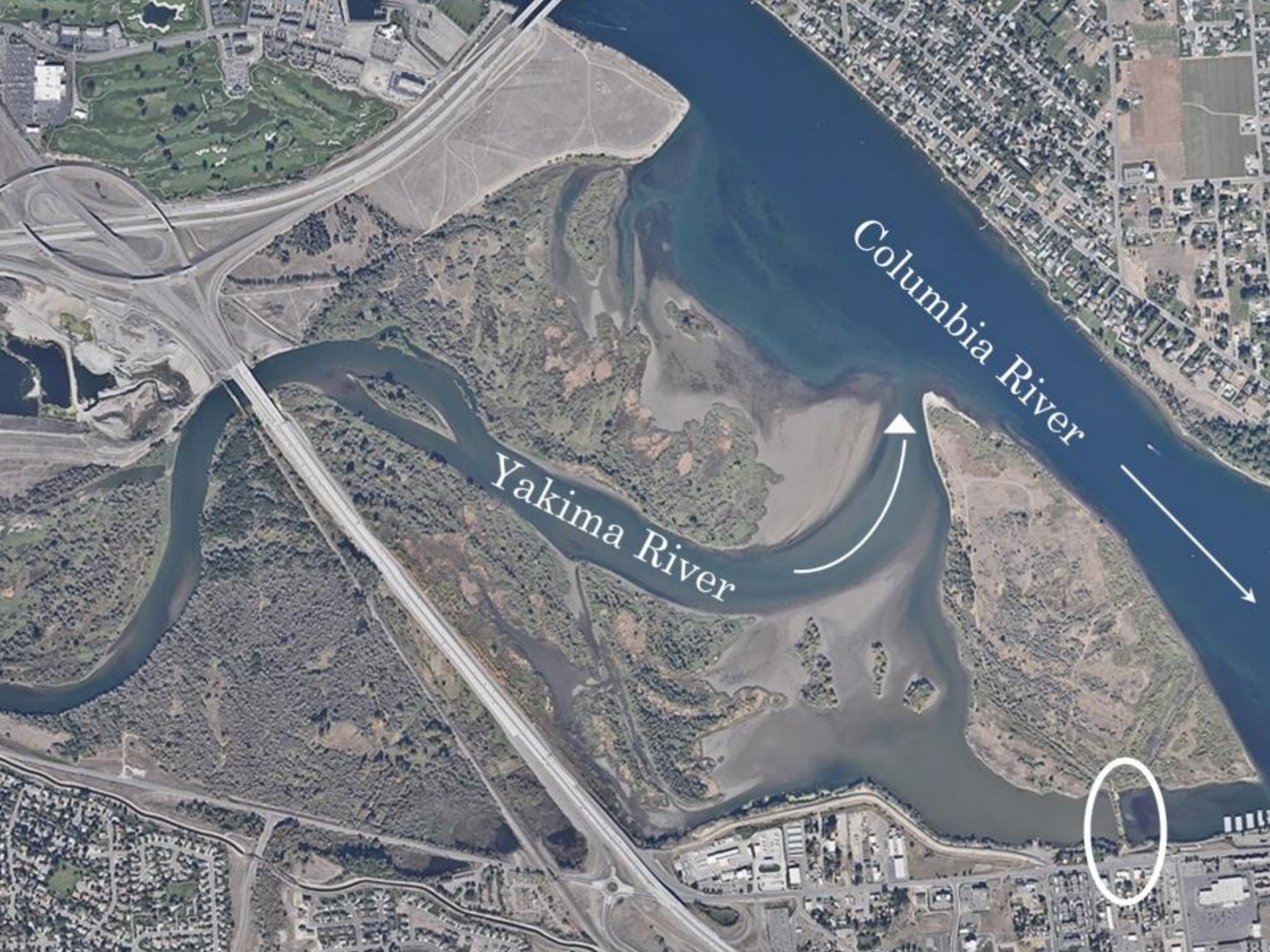


Figure 1: Selected habitat information for some Cle Elum River reaches.

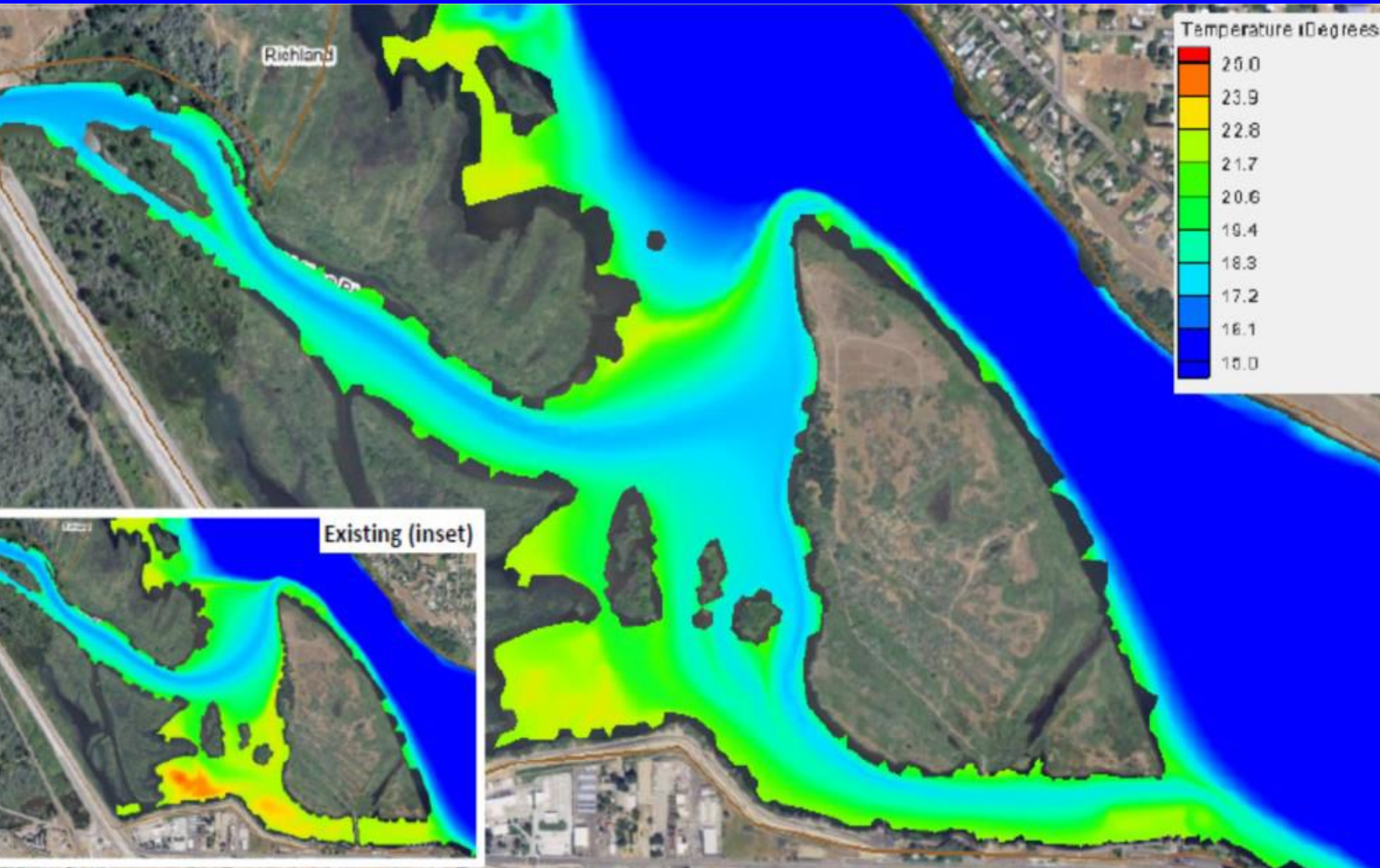


Columbia River

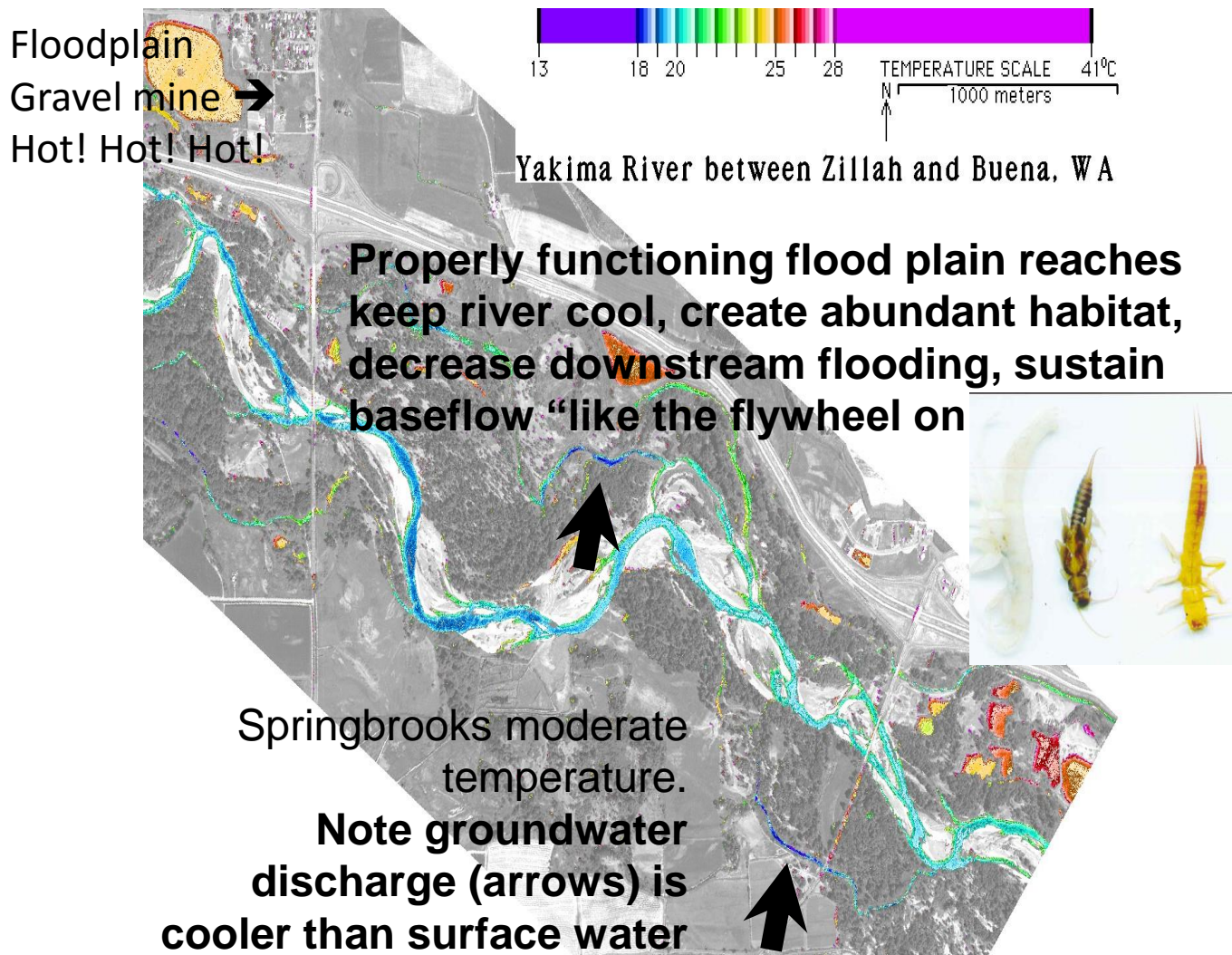
Yakima River



Bateman Island Causeway Flow Blockage



FLIR image after period of high runoff



On a hot day Fish “stack up like

UPSTREAM MIGRATION SUCCESS OF ADULT SOCKEYE AND SUMMER CHINOOK

- 2015 SNAKE SOCKEYE PIT TAG SURVIVAL FROM BONNEVILLE TO McNARY WAS 15%
AVERAGE SURVIVAL FOR 2009 – 2014 RANGED FROM 64% TO 85%
- 2015 UPPER COLUMBIA PIT TAG SURVIVAL WAS 61% (2009-2014 RANGE 69-85%)
- 2015 NOAA ESTIMATE FOR ALL SOCKEYE FROM TOTAL DAM COUNTS < 10%
- 2015 SUMMER CHINOOK SURVIVAL FROM BON-LGR WAS 40%
AVERAGE SURVIVAL FROM 2003-2012 WAS 74%
- Majority of the adult mortality occurred below McNary Dam
 - Low Flows and High Temperatures At McNary Dam
 - Hydrosystem Ladders had Highest Temperatures due to Surface Draw
- NOAA and Other Federal Agencies Did Post-Mortem This Spring - Cited need for more rapid response

Collecting Adult Sockeye At Priest Rapids





Cle Elum Reservoir * At Full Pool

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Reservoir -an artificial lake where water is collected and kept in quantity for use (Webster)



Releasing Sockeye Adults at Cle Elum



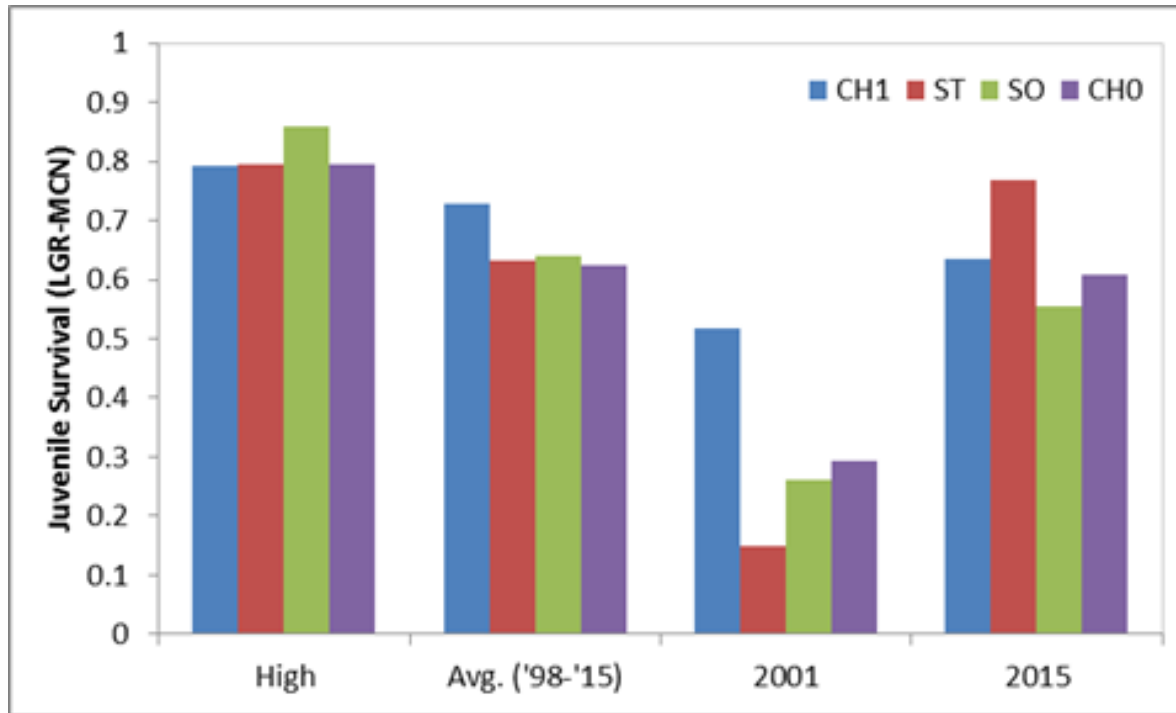


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Supplementing Tributary Flow in Kittitas Valley Streams



Smolt Survival At Columbia River Dams



Lowest Migration Flow since 2001

Highest Water Temps For May and June Migration Period

Spill Passage Provided at all projects in 2015

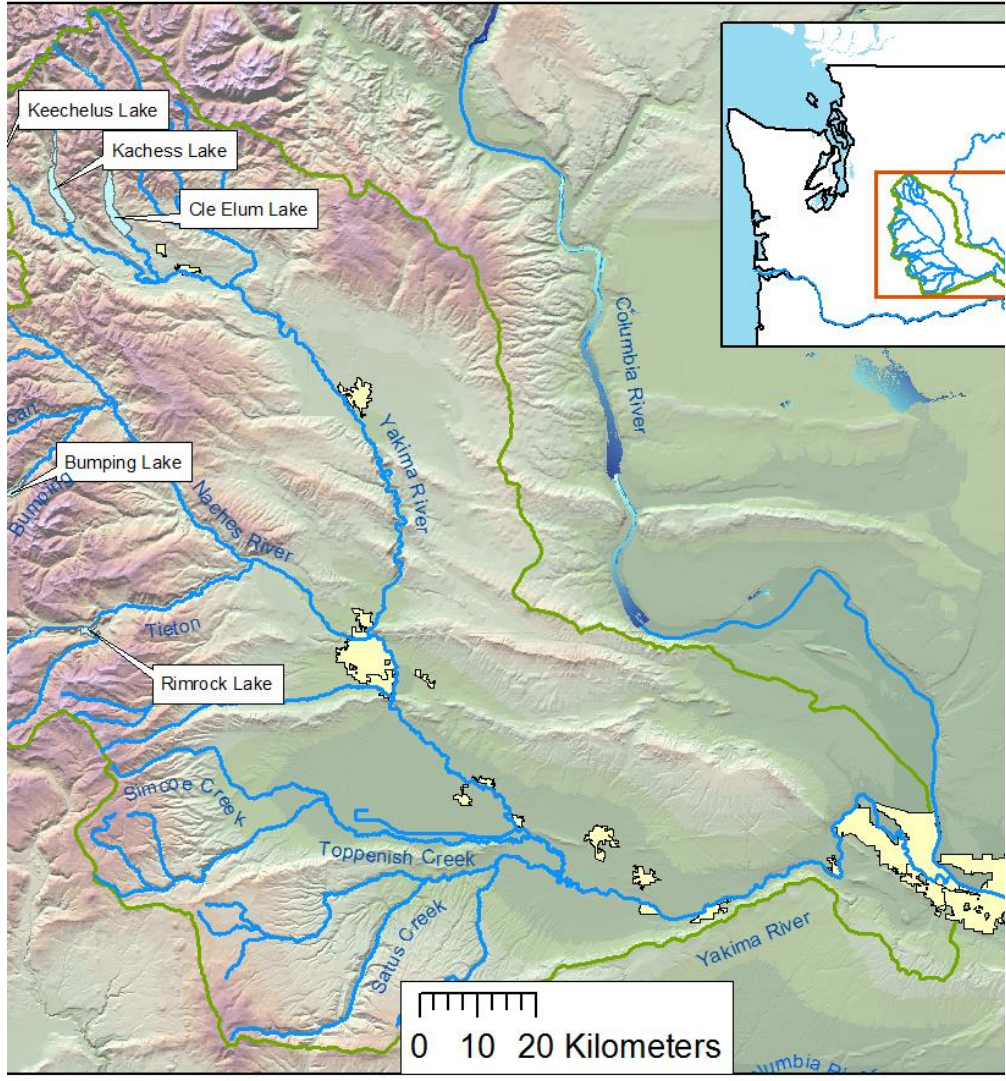
Survival Increase over 2001 –

- Hatchery Yearling Chinook - 19%
- Hatchery subyearling Chinook - 107%
- Hatchery and Wild Steelhead - 420%





- Drought of 15
- Integrated plan passage wendy
- Dam removal vs dam passage
- Impacts benefits to all salmon and other fish
- Talks about impacts
- Biggest impact to sockeye and summers
- Integrated plan
- Bateman Island
- Hop scotch
- Free ride to lake cle elum (best in the basin)
- Kid
- krd



Reach survival estimates of returning PIT-tagged Upper Columbia sockeye salmon Bonneville to McNary Dam

YEAR	%SURVIVAL
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- 2009 0.80
- 2010 0.82
- 2011 0.69
- 2012 0.72
- 2013 0.79
- 2014 0.87
- 2015 0.61