Columbia River Coldwater Refuge/Thermal Angling Sanctuary Update

25 March 2020

Oregon Department of Fish and Wildlife

Outline for Today

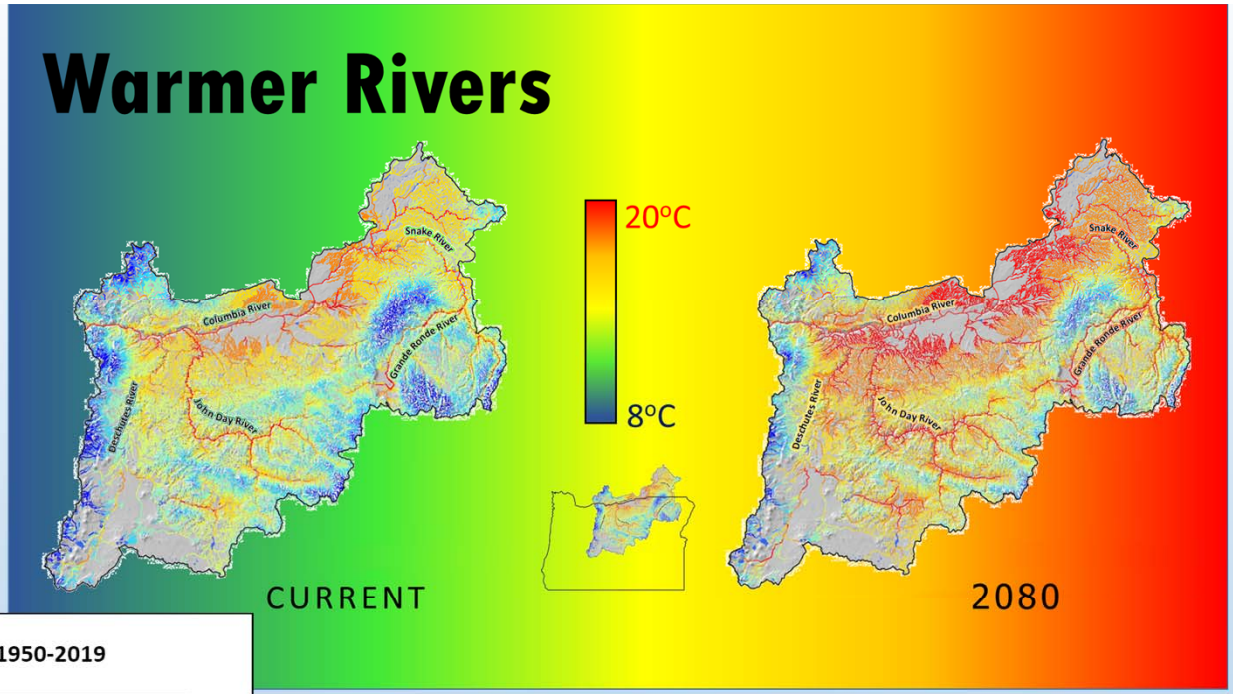
- Process Status Update
- Background
- Review of EPA work
- Columbia River process
- Potential Management Actions

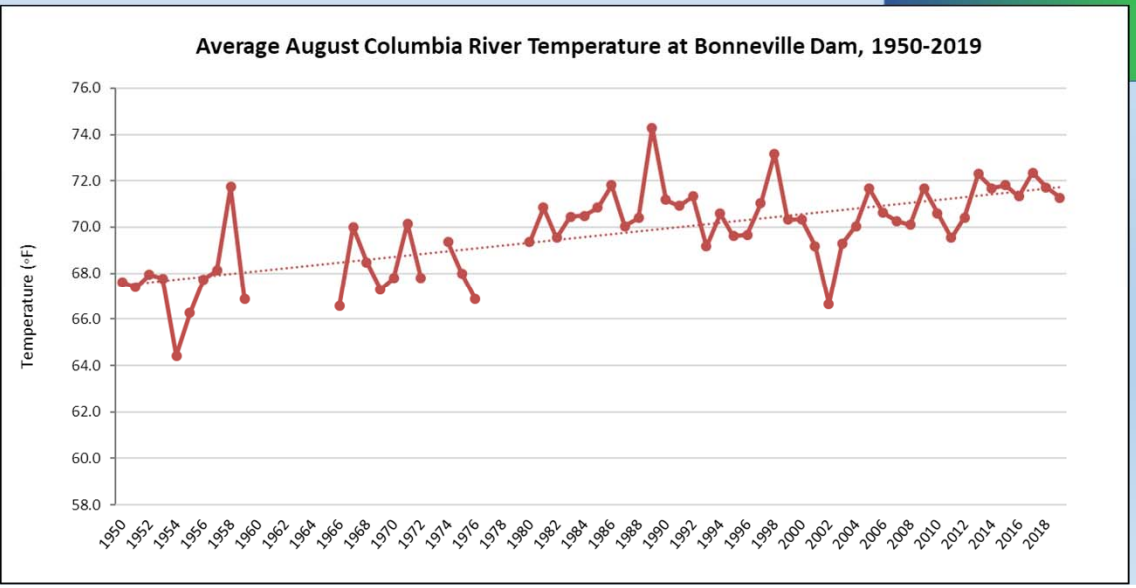
Process Status Update

Background

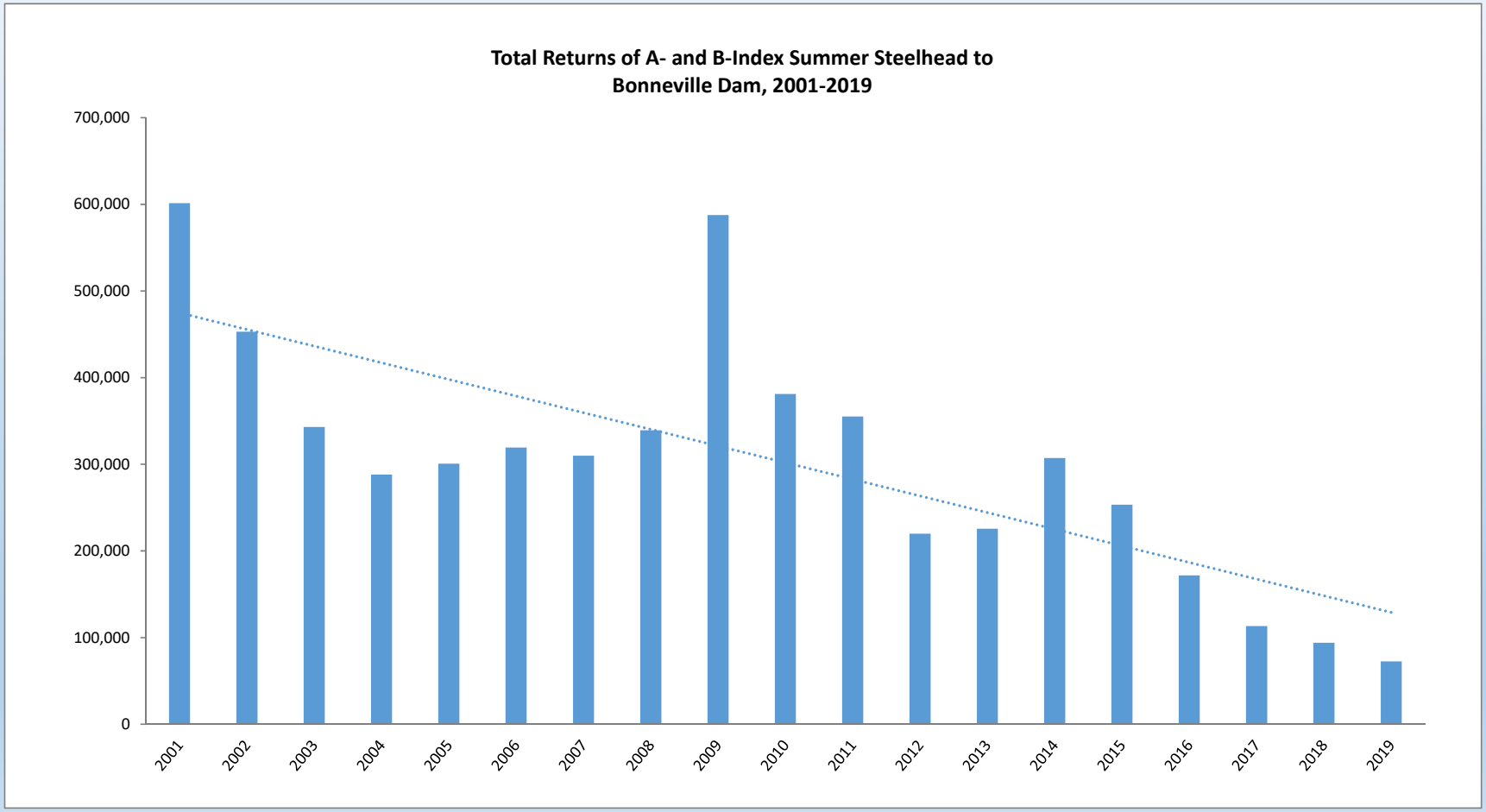
- Salmon and steelhead generally require cold rivers and streams to support their diverse life histories
- But, have evolved and historically thrived in systems (including the Columbia) where temperatures were above optimal at some times/locations
- Changes to the Columbia River have altered the spatial and temporal thermalscape, increasing exposure to suboptimal temps for some runs
- The impact of this increased exposure on spawning success is uncertain, but is likely variable and a function of multiple factors.

Background


Warmer Rivers
20°C
8°C
Snake River
Columbia River
Grande Ronde River
John Day River
Deschutes River
CURRENT
2080

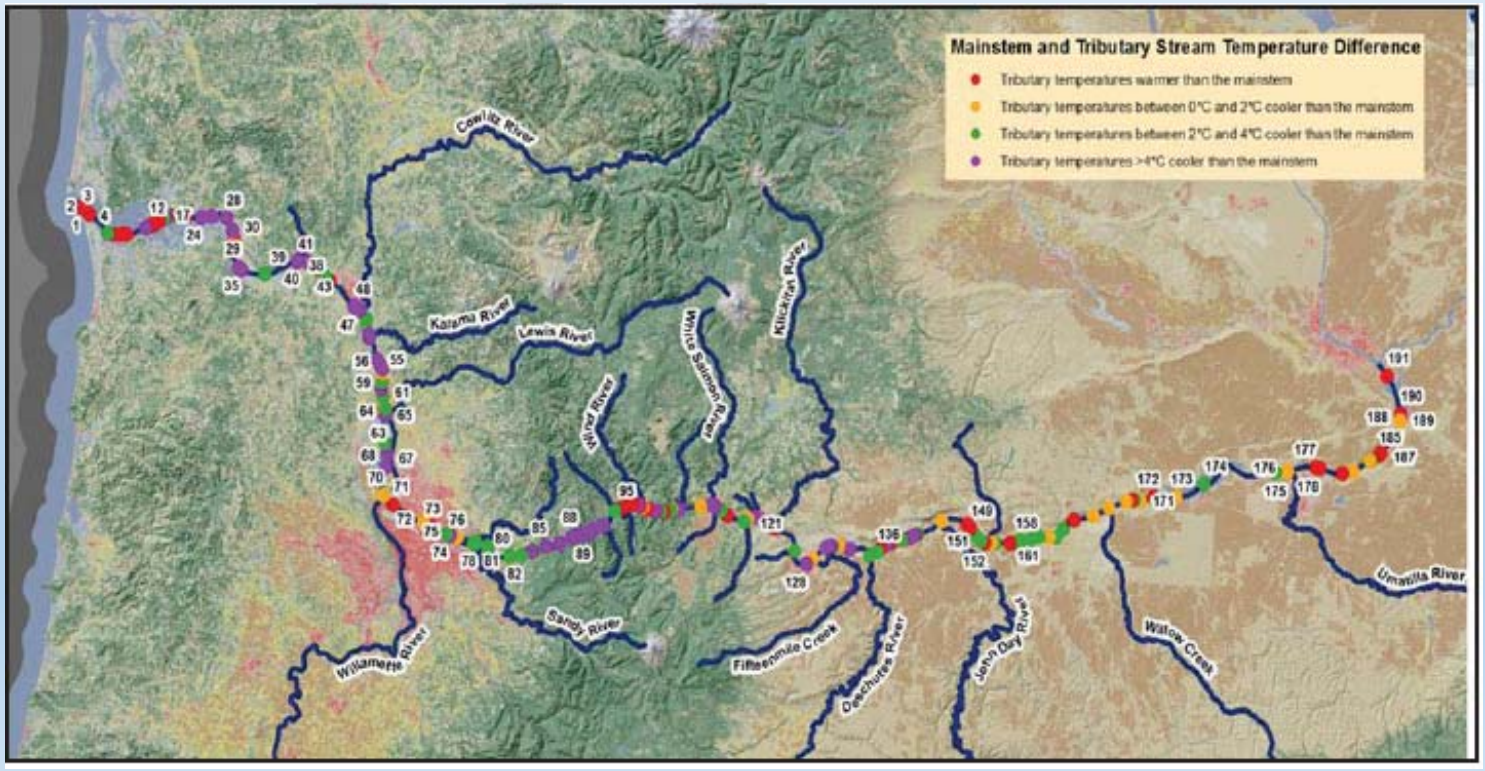

Average August Columbia River Temperature at Bonneville Dam, 1950-2019
Temperature (°F)
76.0
74.0
72.0
70.0
68.0
66.0
64.0
62.0
60.0
58.0
1950 1952 1954 1956 1958 1960 1962 1964 1966 1968 1970 1972 1974 1976 1978 1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018

Background

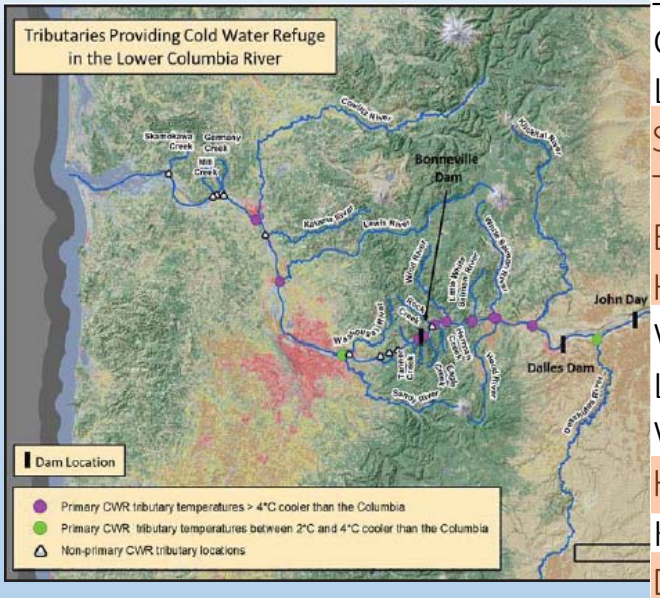

Total Returns of A- and B-Index Summer Steelhead to Bonneville Dam, 2001-2019
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

EPA Work

Final Draft EPA Columbia River Coldwater Refuges Plan released for comment 3 October 2019



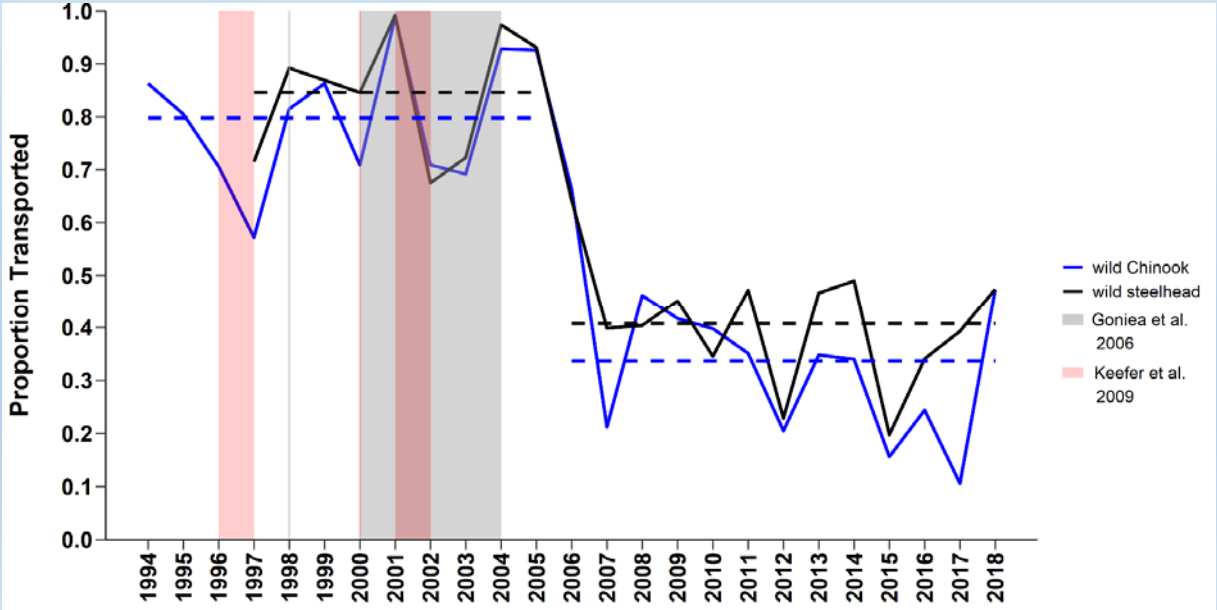
EPA Work



Tributary	State	River Mile
Cowlitz River	Washington	65.2
Lewis River	Washington	84.4
Sandy River	Oregon	117.1
Tanner Creek	Oregon	140.9
Eagle Creek	Oregon	142.7
Herman Creek	Oregon	147.5
Wind River	Washington	151.1
L. White Salmon River	Washington	158.7
White Salmon River	Washington	164.9
Hood River	Oregon	165.7
Klickitat River	Washington	176.8
Deschutes River	Oregon	200.8

EPA Work

- Much of the EPA fish information is from 1999-2004
- Major systemic changes occurred since that have significantly decreased stray rates system-wide and fish behavior may be different now
- Ladder temperature differentials also impact migrations
- Fisheries related impacts are somewhat speculative
- However, concept isn't counter-intuitive

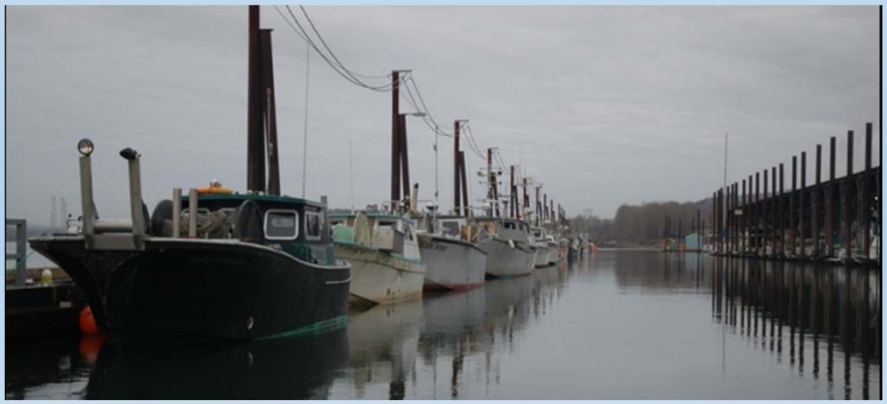


ODFW Process – Timeline to date

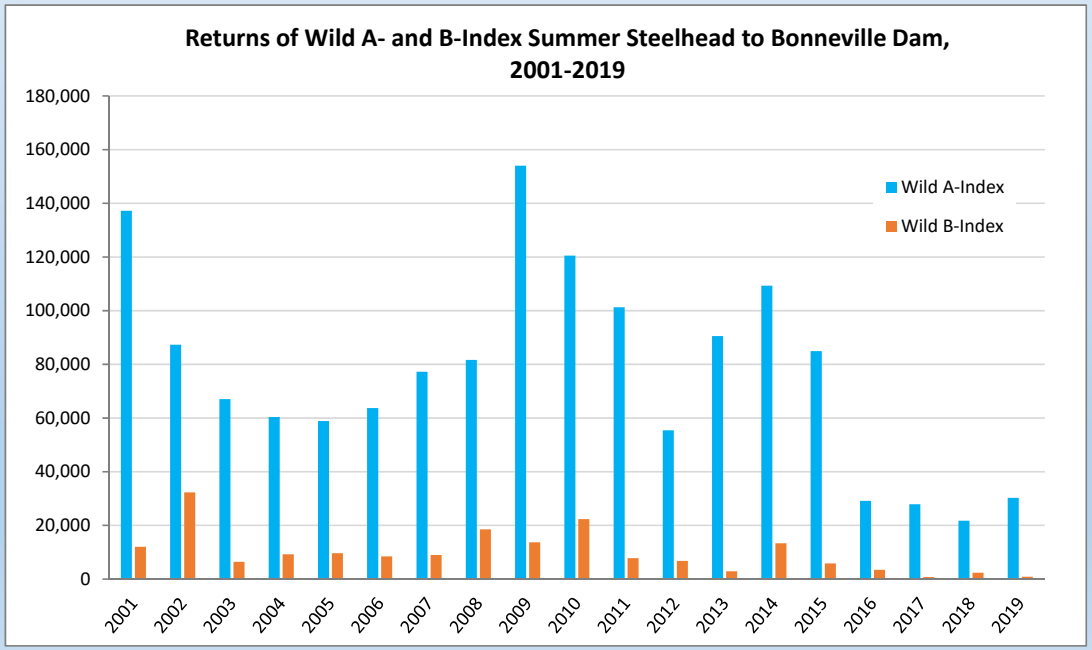
- November 2017 – EPA Region 10 sponsored public workshop on Columbia River CWR
- March 2018 – Director's report to the OFWC on November 2017 workshop
- June 2018 – OFWC Agenda Item I details planned ODFW process for Thermal Angling Sanctuaries
- August 2018 – OFWC directs staff to implement TAS at the mouth of the Deschutes
- January 2019 – Public meeting in The Dalles (invited by the Gorge chapter of CCA).
- August 2019 – OFWC directs staff to implement TAS at the mouth of the Deschutes – Staff uses input from January public meeting to refine boundary
- October 2019 – EPA releases final draft CWR plan
- December 2019 – ODFW submits comments to EPA on CWR plan

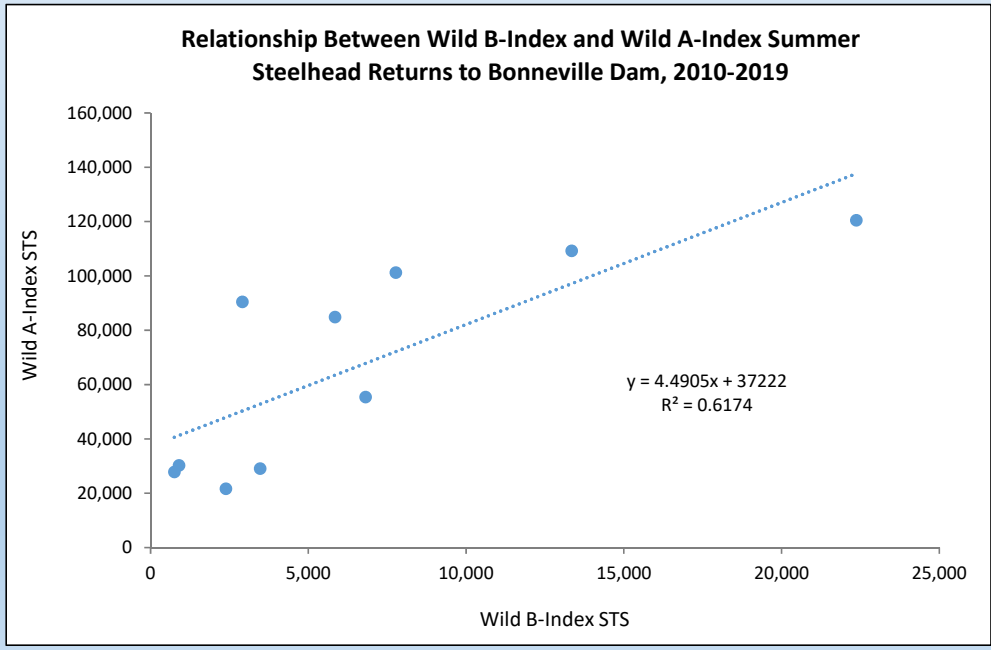
ODFW Process

- CR fisheries management is complex
- Majority of recreational wild steelhead impacts accrue upstream of Bonneville
- Oregon tributaries downstream of Bonneville are less critical (i.e., volume, habitat configuration, use)
- How decide when and where

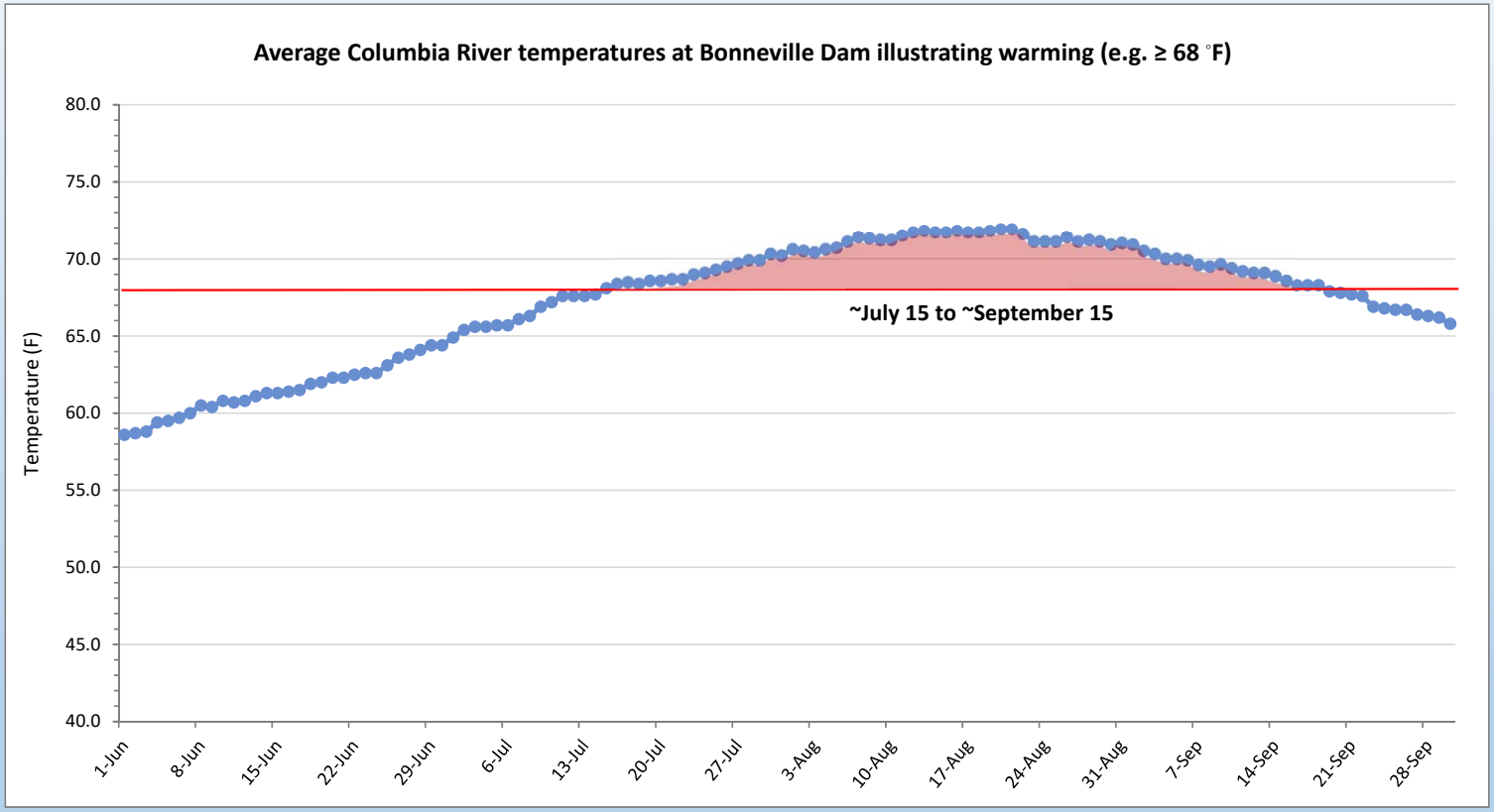


What to base Thermal Sanctuary actions on?

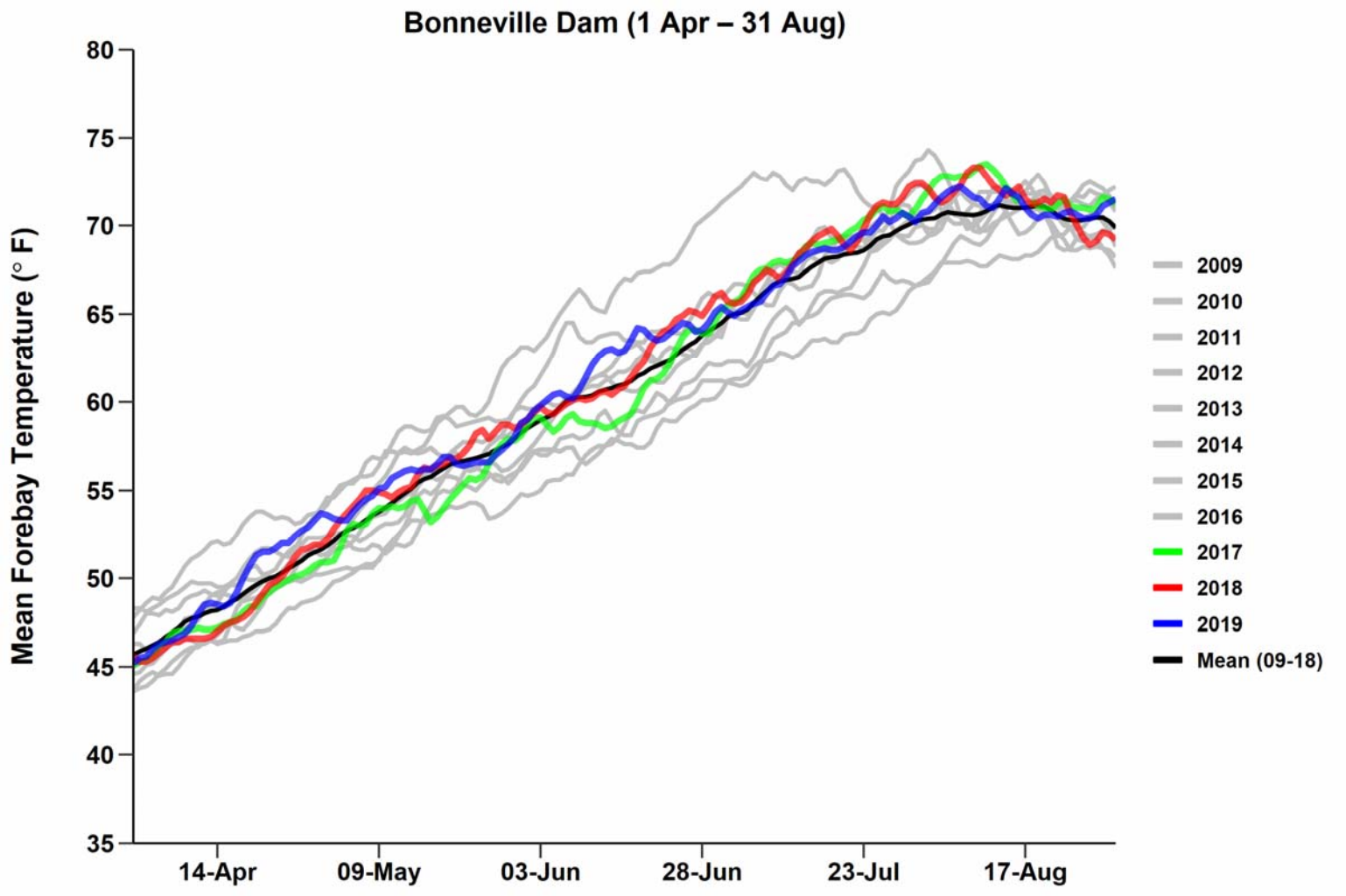




When to take Thermal Sanctuary action?



When to take action?

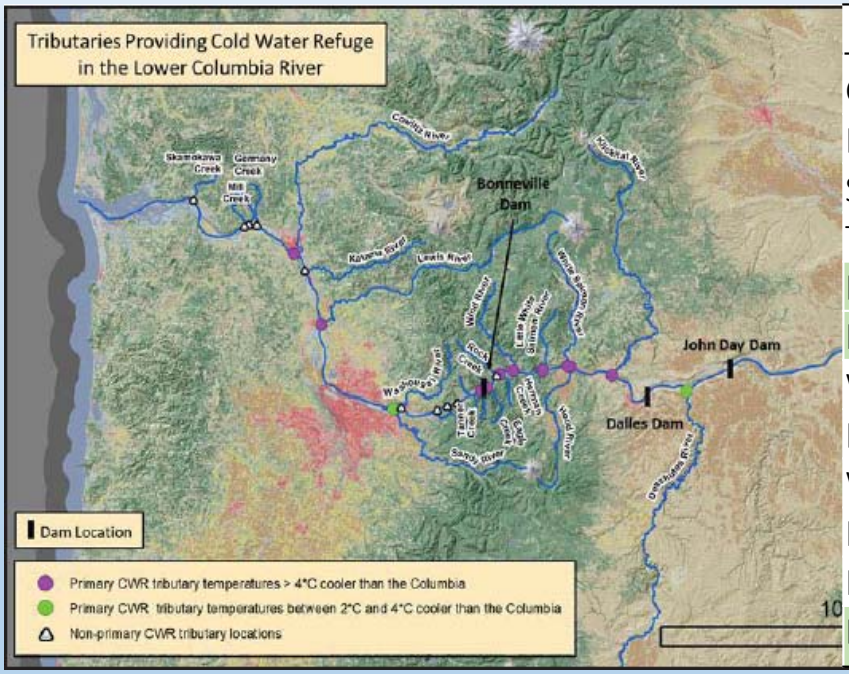


What actions to take?

Forecast/ Abundance	Above Average (≥75th percentile)	Average (25th-75th percentile)	Below Average (10th-25th percentile)	Well Below Average (≤10th percentile)
Preseason/ Inseason Proposed Action*	Fisheries managed to ensure ≤2% ESA			
	None (permanent regulations)	TAS for Eagle Cr, Herman Cr, Deschutes R	TAS+ additional measures	TAS+ extensive steelhead retention closures

*Additional measures may be implemented based on inseason physical conditions and/or updates.

Where to take actions?



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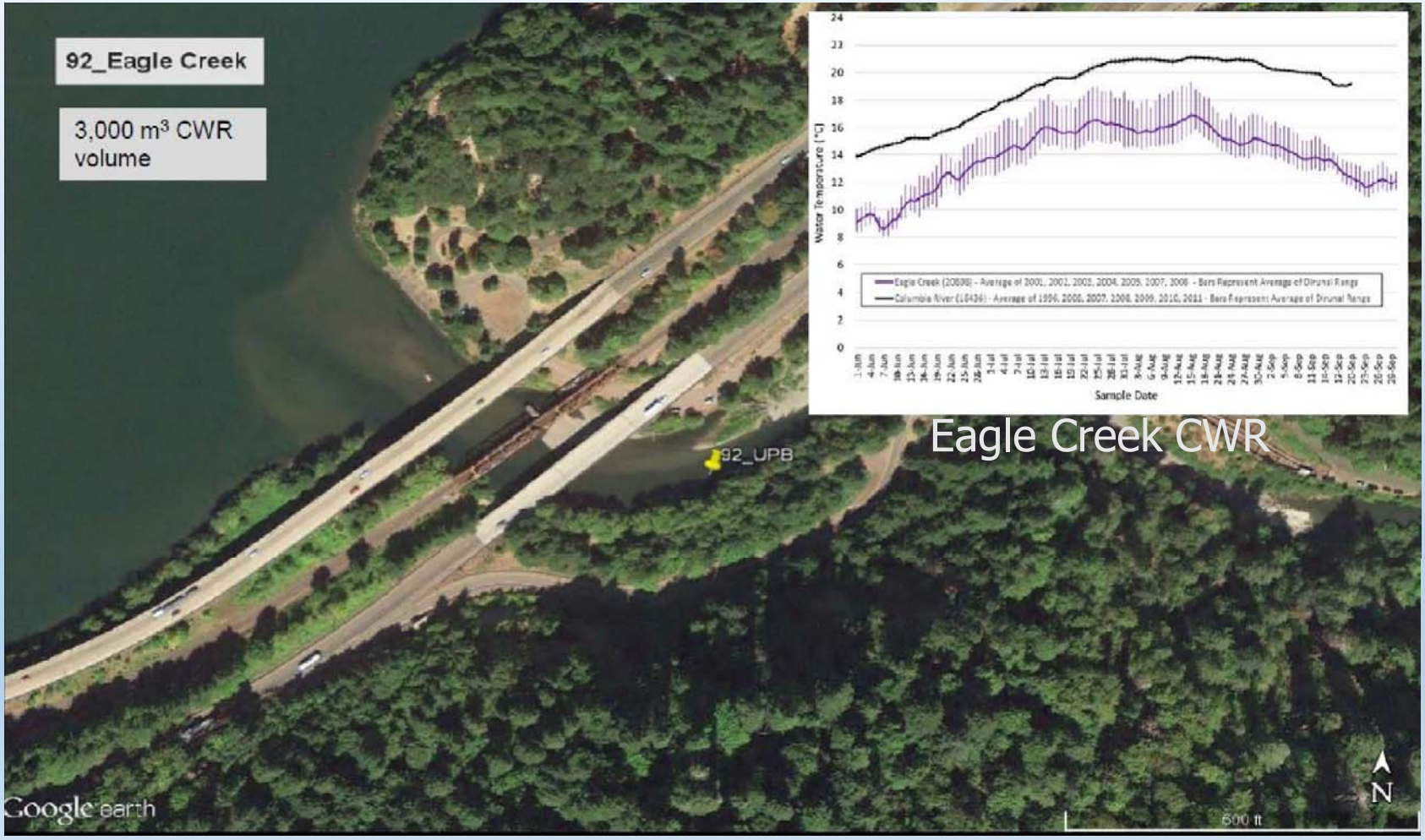
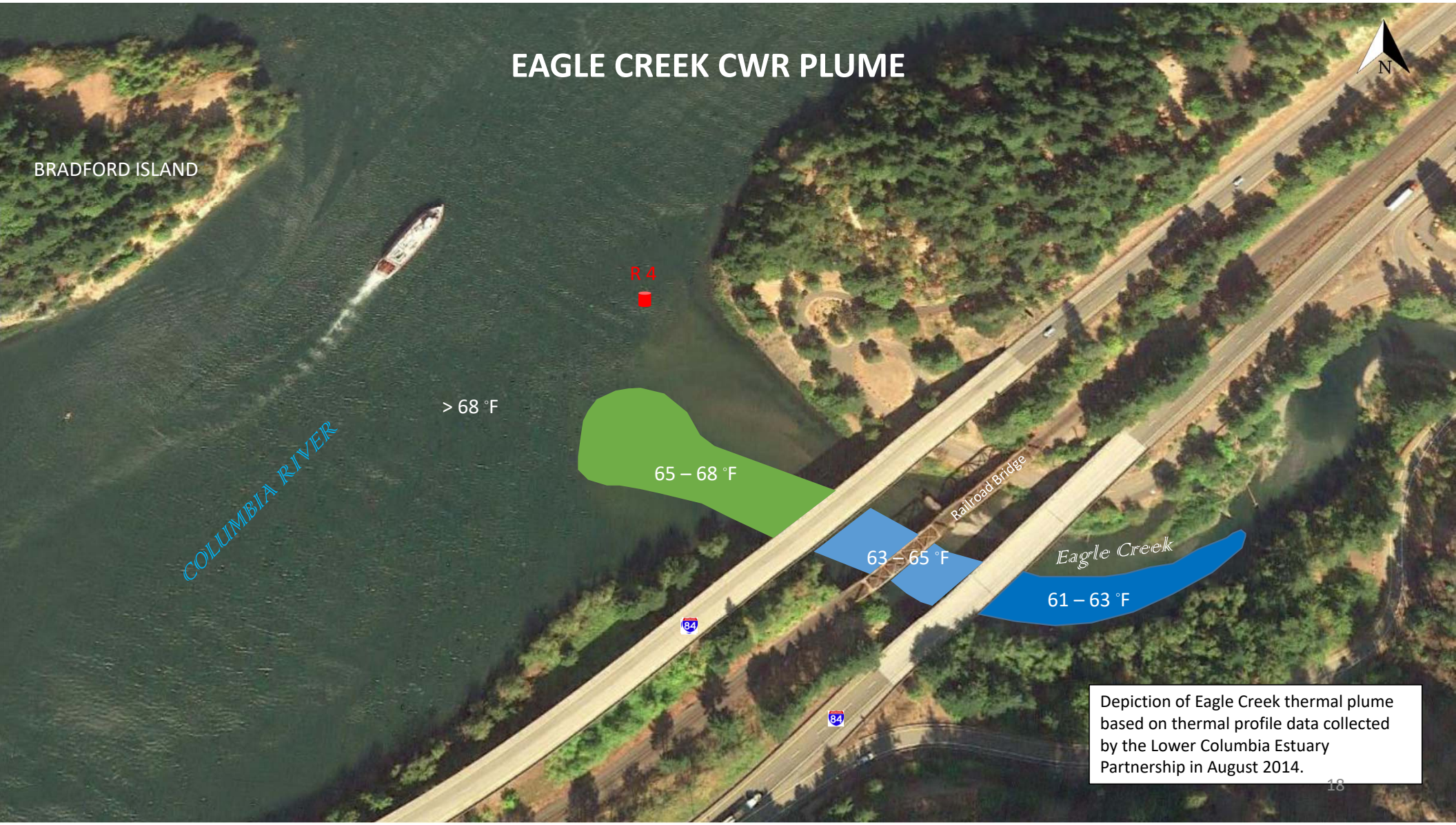
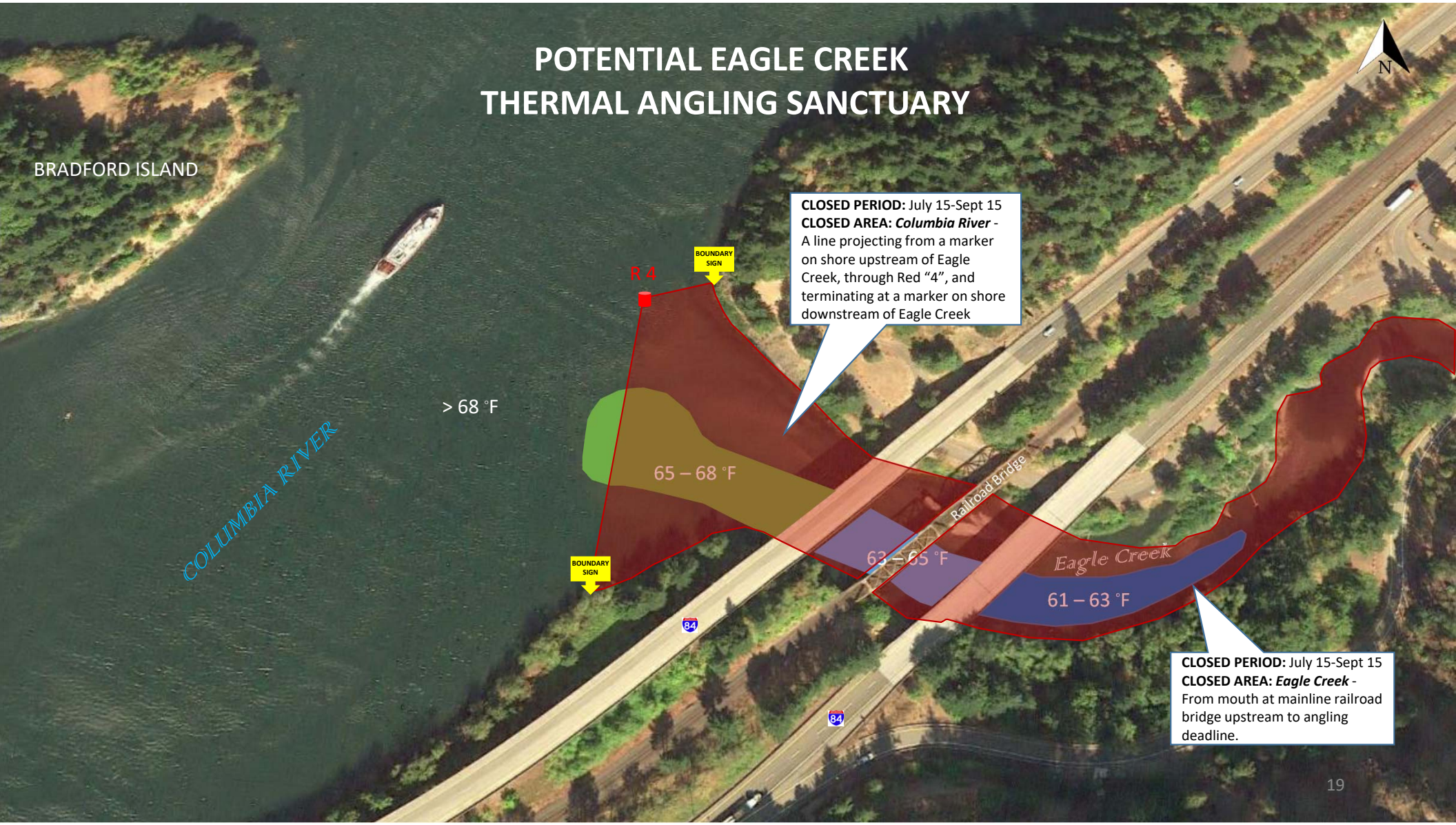
Eagle Creek

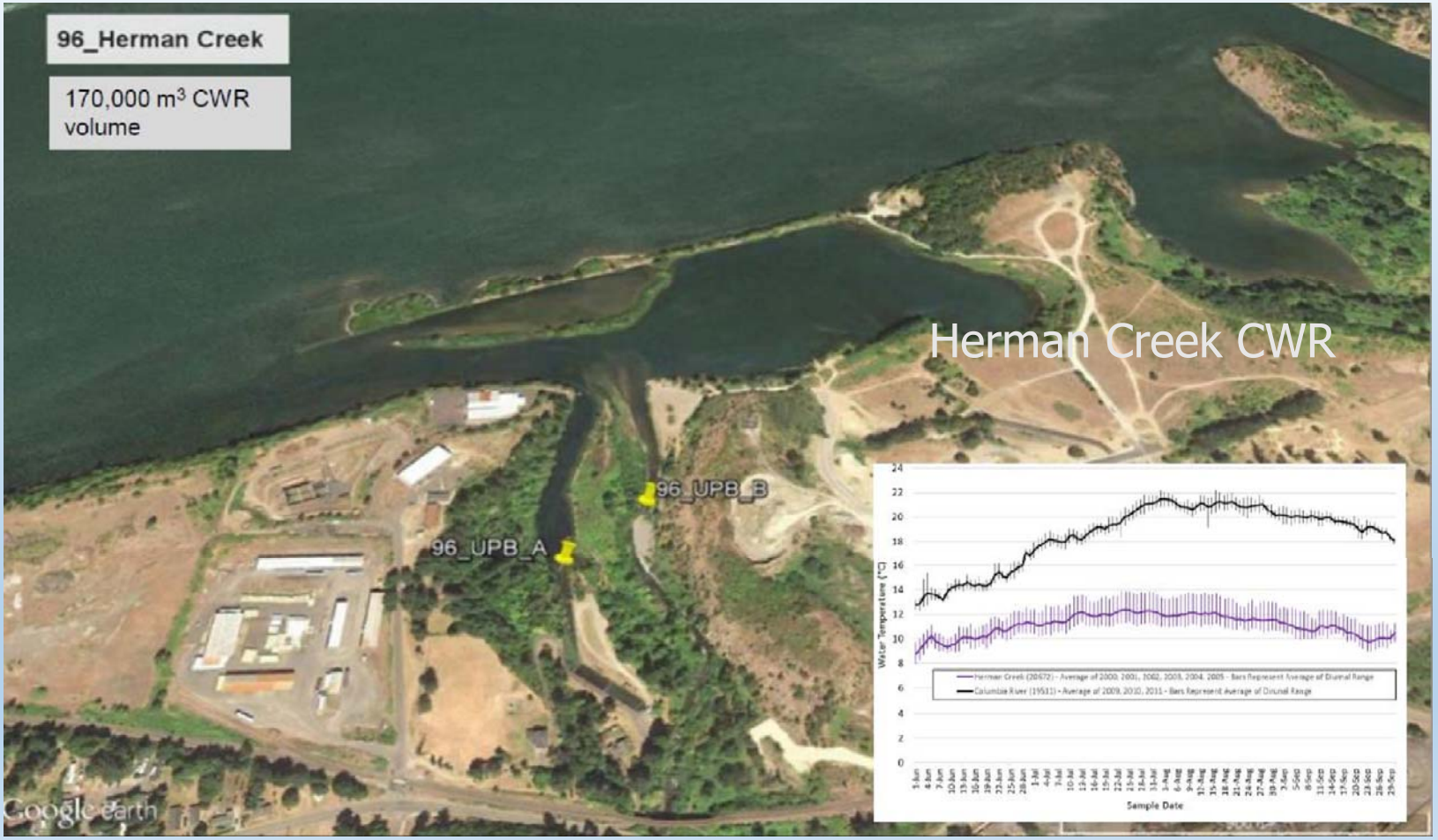

92_Eagle Creek
3,000 m³ CWR volume
92_UPB
Water Temperature (°C)
Sample Date
Eagle Creek CWR
Google earth
N
500 ft

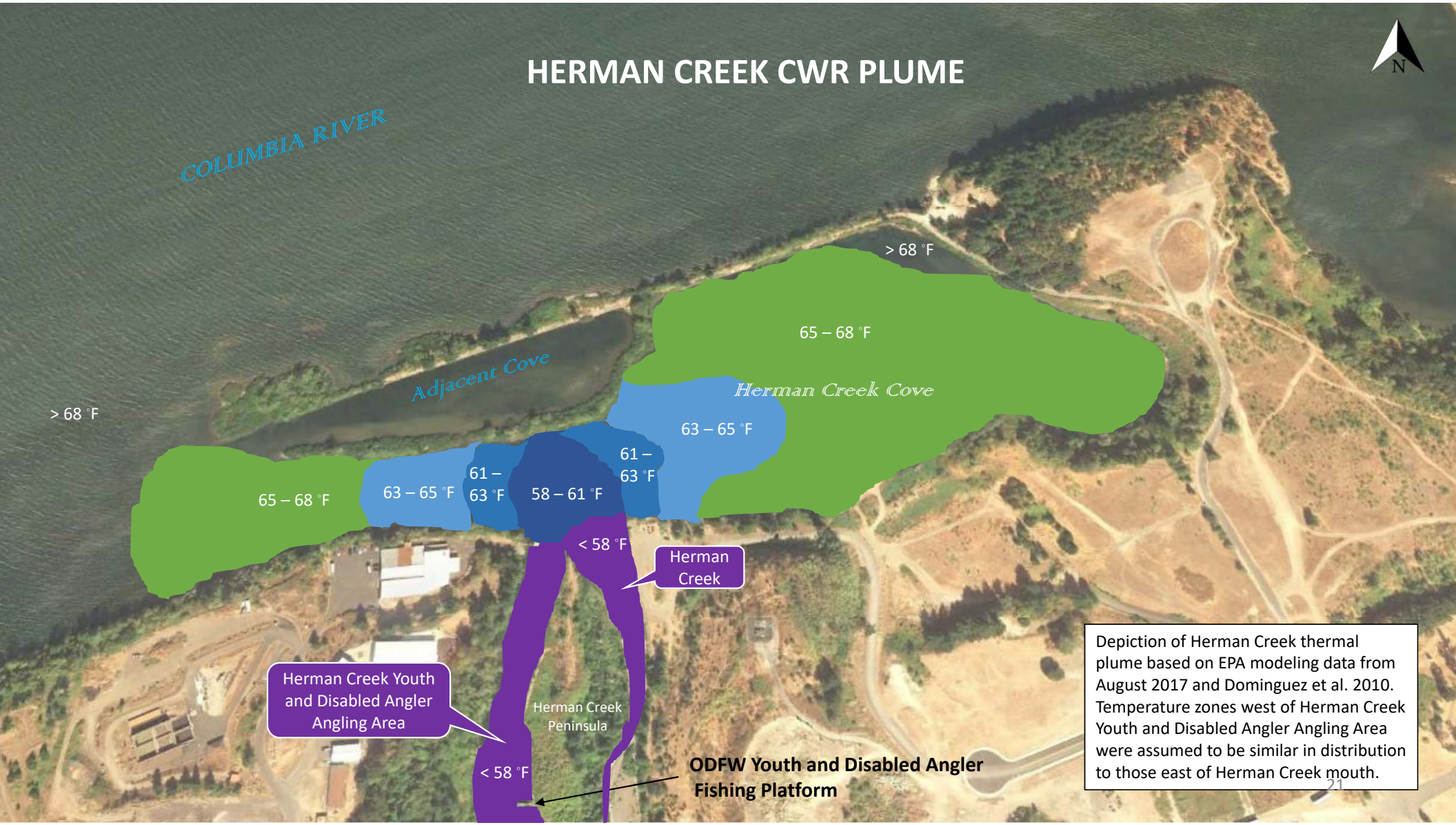


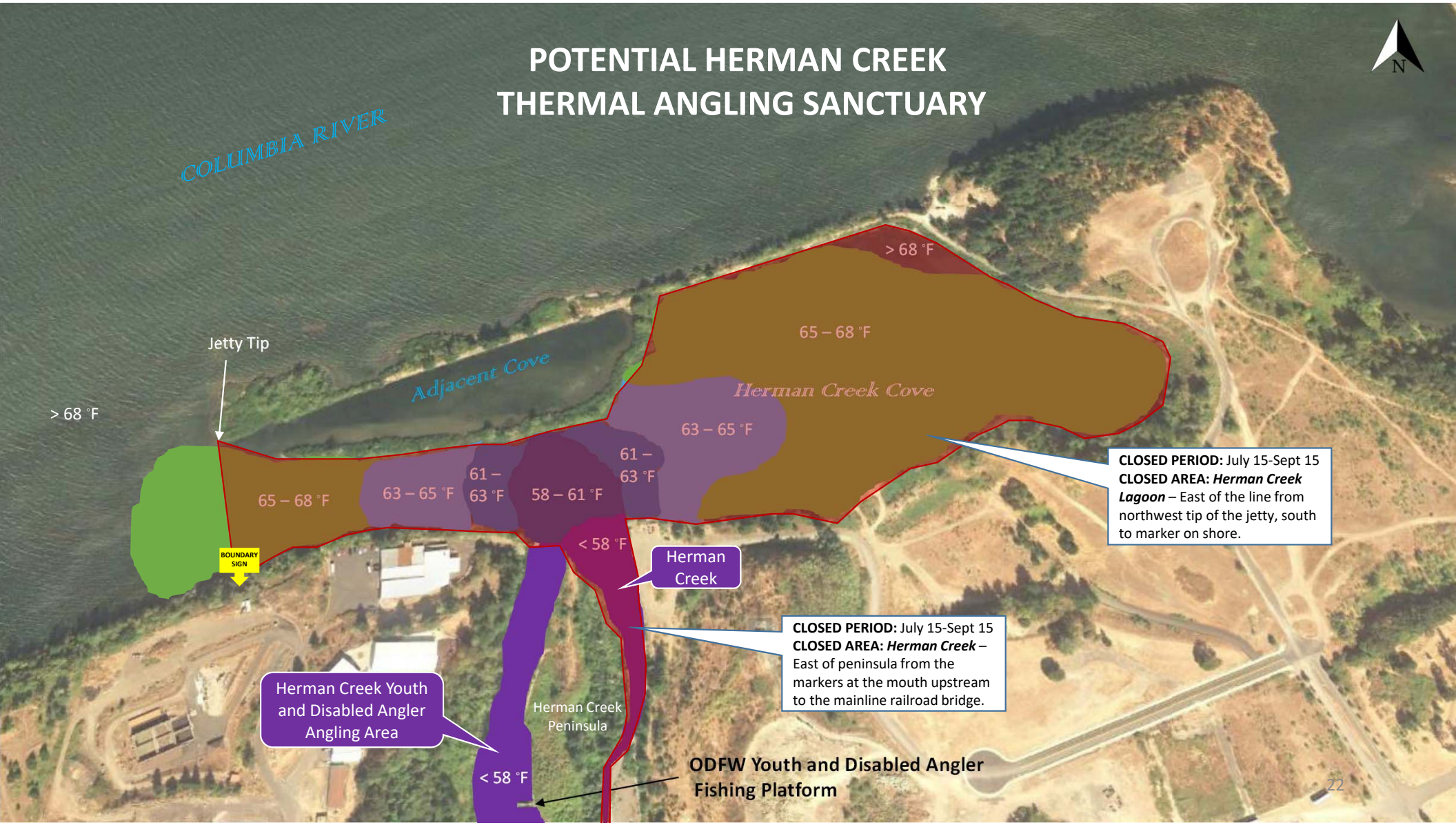
Depiction of Eagle Creek thermal plume based on thermal profile data collected by the Lower Columbia Estuary Partnership in August 2014.


POTENTIAL EAGLE CREEK
THERMAL ANGLING SANCTUARY
BRADFORD ISLAND
COLUMBIA RIVER
> 68 °F
R 4
BOUNDARY SIGN
BOUNDARY SIGN
65 – 68 °F
63 – 65 °F
61 – 63 °F
Railroad Bridge
Eagle Creek
84
84
N
CLOSED PERIOD: July 15-Sept 15
CLOSED AREA: Columbia River - A line projecting from a marker on shore upstream of Eagle Creek, through Red "4", and terminating at a marker on shore downstream of Eagle Creek
CLOSED PERIOD: July 15-Sept 15
CLOSED AREA: Eagle Creek - From mouth at mainline railroad bridge upstream to angling deadline.

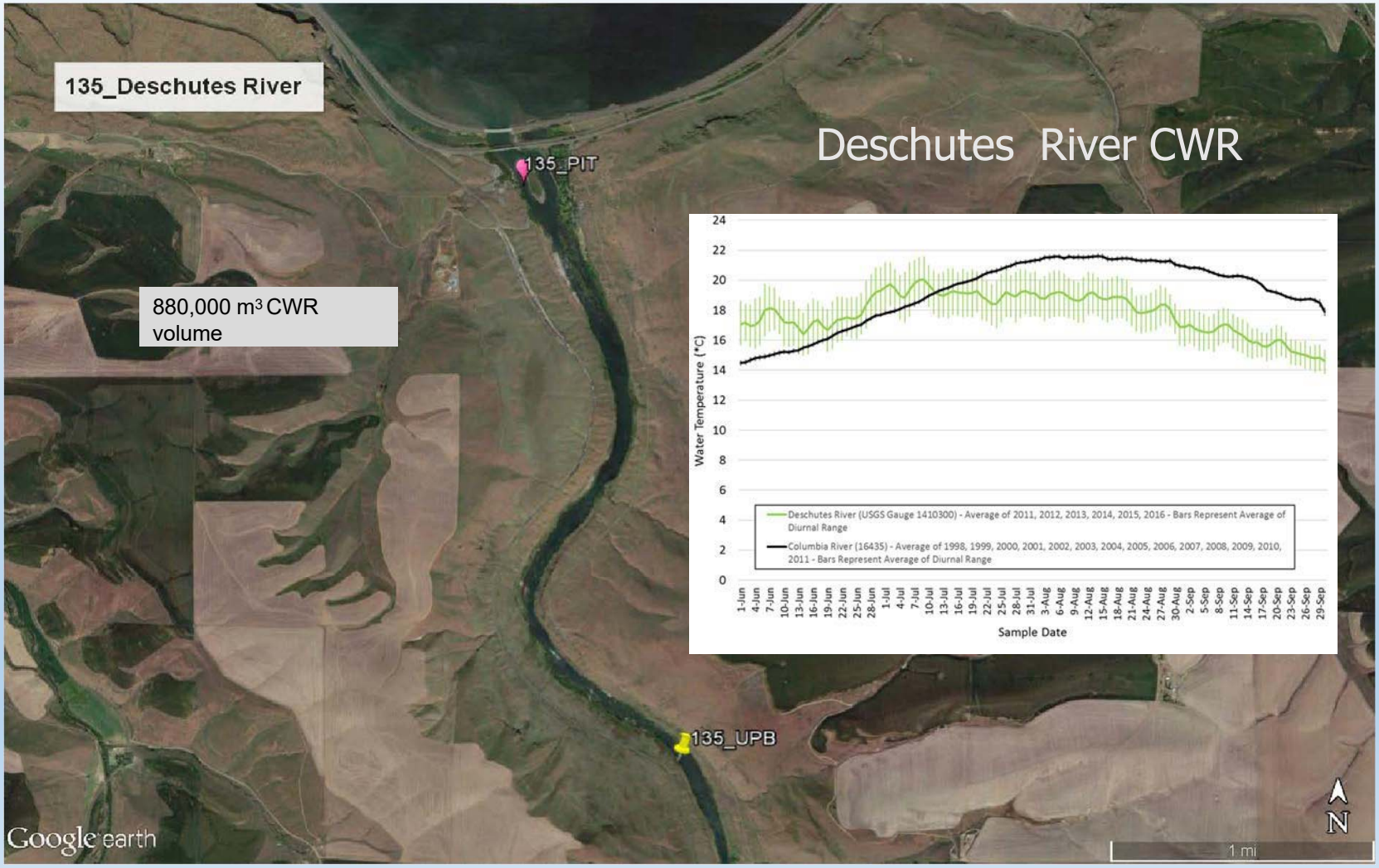
Herman Creek

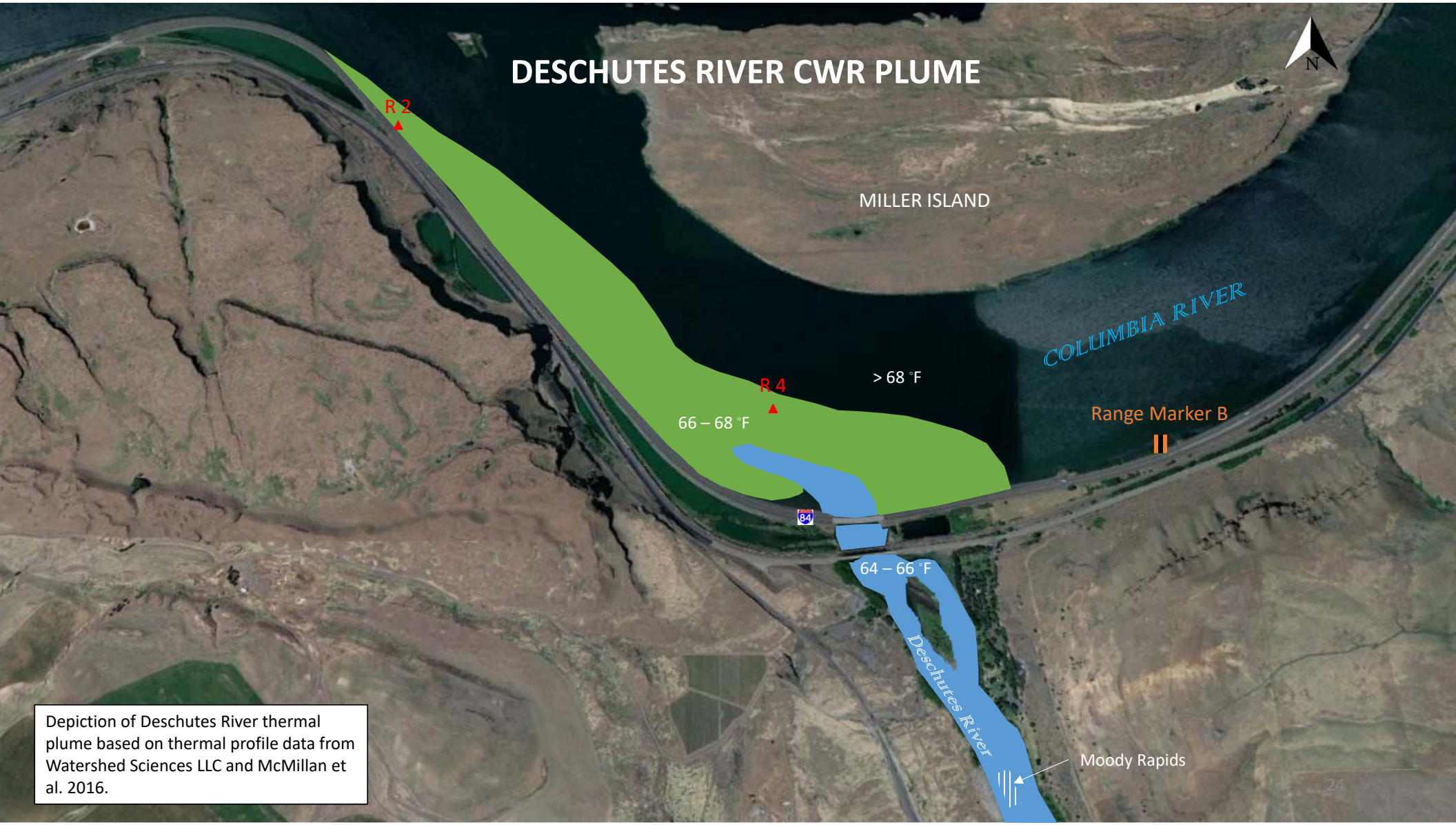



HERMAN CREEK CWR PLUME
N
COLUMBIA RIVER
> 68 ˚F
65 – 68 ˚F
Adjacent Cove
Herman Creek Cove
> 68 ˚F
63 – 65 ˚F
61 – 63 ˚F
65 – 68 ˚F
63 – 65 ˚F
61 – 63 ˚F
58 – 61 ˚F
< 58 ˚F
Herman Creek
Herman Creek Youth and Disabled Angler Angling Area
Herman Creek Peninsula
< 58 ˚F
ODFW Youth and Disabled Angler Fishing Platform
Depiction of Herman Creek thermal plume based on EPA modeling data from August 2017 and Dominguez et al. 2010. Temperature zones west of Herman Creek Youth and Disabled Angler Angling Area were assumed to be similar in distribution to those east of Herman Creek mouth.

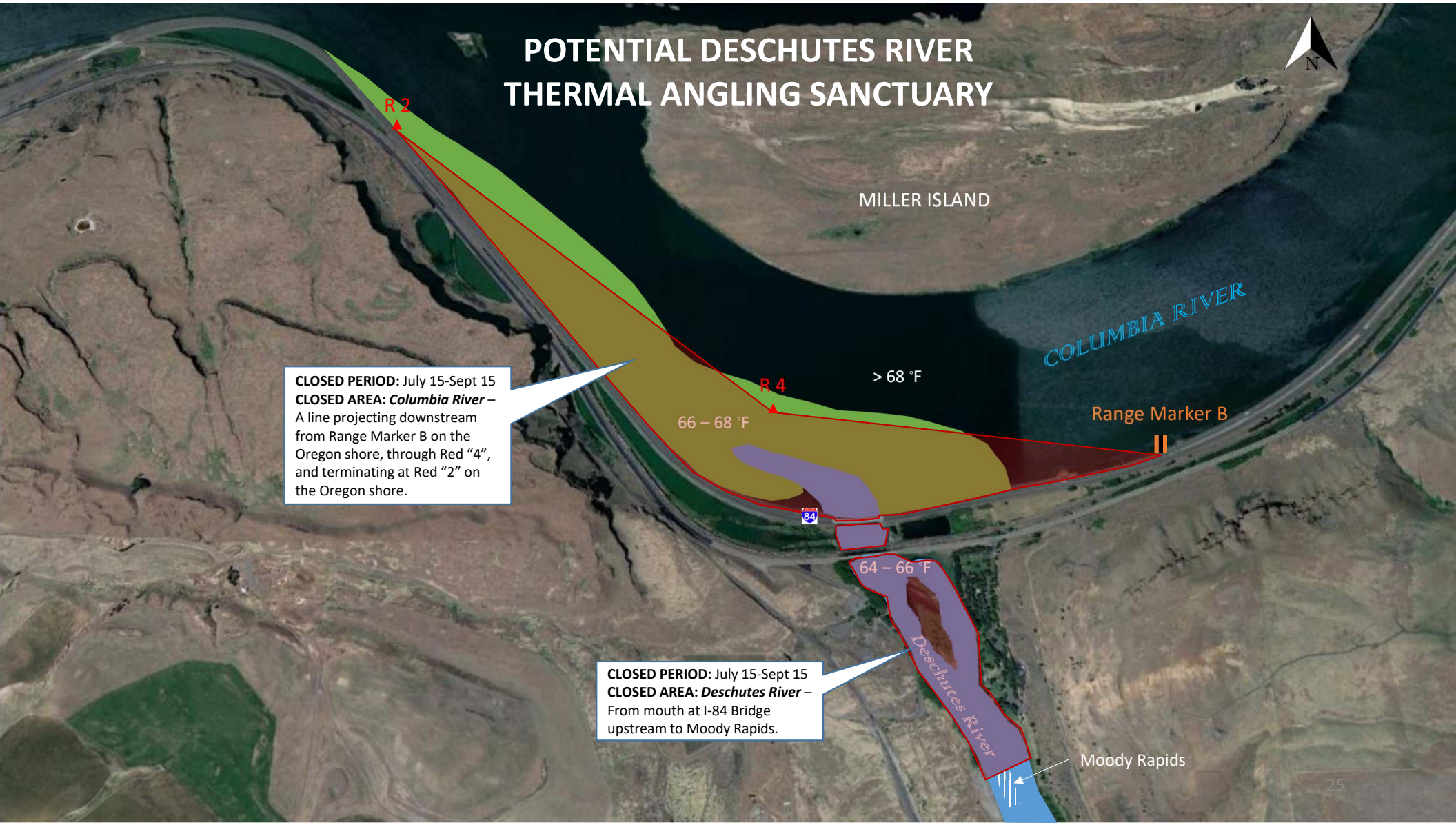

POTENTIAL HERMAN CREEK
THERMAL ANGLING SANCTUARY
COLUMBIA RIVER
N
Jetty Tip
Adjacent Cove
Herman Creek Cove
> 68 °F
65 – 68 °F
63 – 65 °F
61 – 63 °F
58 – 61 °F
< 58 °F
BOUNDARY SIGN
Herman Creek
Herman Creek Peninsula
CLOSED PERIOD: July 15-Sept 15
CLOSED AREA: Herman Creek Lagoon – East of the line from northwest tip of the jetty, south to marker on shore.
CLOSED PERIOD: July 15-Sept 15
CLOSED AREA: Herman Creek – East of peninsula from the markers at the mouth upstream to the mainline railroad bridge.
Herman Creek Youth and Disabled Angler Angling Area
ODFW Youth and Disabled Angler Fishing Platform

Deschutes River





Depiction of Deschutes River thermal plume based on thermal profile data from Watershed Sciences LLC and McMillan et al. 2016.


POTENTIAL DESCHUTES RIVER
THERMAL ANGLING SANCTUARY
N
R 2
MILLER ISLAND
COLUMBIA RIVER
> 68 °F
R 4
66 – 68 °F
Range Marker B
CLOSED PERIOD: July 15-Sept 15
CLOSED AREA: Columbia River – A line projecting downstream from Range Marker B on the Oregon shore, through Red "4", and terminating at Red "2" on the Oregon shore.
84
64 – 66 °F
Deschutes River
CLOSED PERIOD: July 15-Sept 15
CLOSED AREA: Deschutes River – From mouth at I-84 Bridge upstream to Moody Rapids.
Moody Rapids

Potential Management Actions

Recreational	Commercial
Reduced bag limit	Shift opener timing
Rolling retention closures	Reduce # openers
River-wide retention closure	Reduce duration
No boat limits	Reduce soak times
Thermal angling sanctuaries	Gear restrictions
Mainstem angling closures	Fishery closures

Effectiveness of Actions

Tributary	Year	Hatchery Steelhead		Wild Steelhead		#	#
		Kept	Released	Kept	Released	Boats	Anglers
Deschutes	2016	78	11	0	100	279	726
	2017	0	0	0	2	207	531
	2018	0	0	0	0	35	92
	2019	0	13	0	2	473	1285
	Sub-Total	78	24	0	104	994	2634

Conclusions and future plans

- Climate change is a real and pressing issue that will challenge fish and fisheries management in the future
- Thermal Angling Sanctuaries are a means to provide additional, if currently unmeasurable, protections to summer steelhead
- Need to balance those protections with other fisheries and management needs – including IJ coordination
- Plan to use this as a foundation for temporary rules in 2020
- Public feedback on existing proposals wanted
- We plan to provide additional, in-person, meetings on this topic in the future

QUESTIONS?