



Precocious Male Straying: A Case Study of Mini-jack Spring Chinook Salmon Straying from a Captive-brood Program

NWFCC Portland

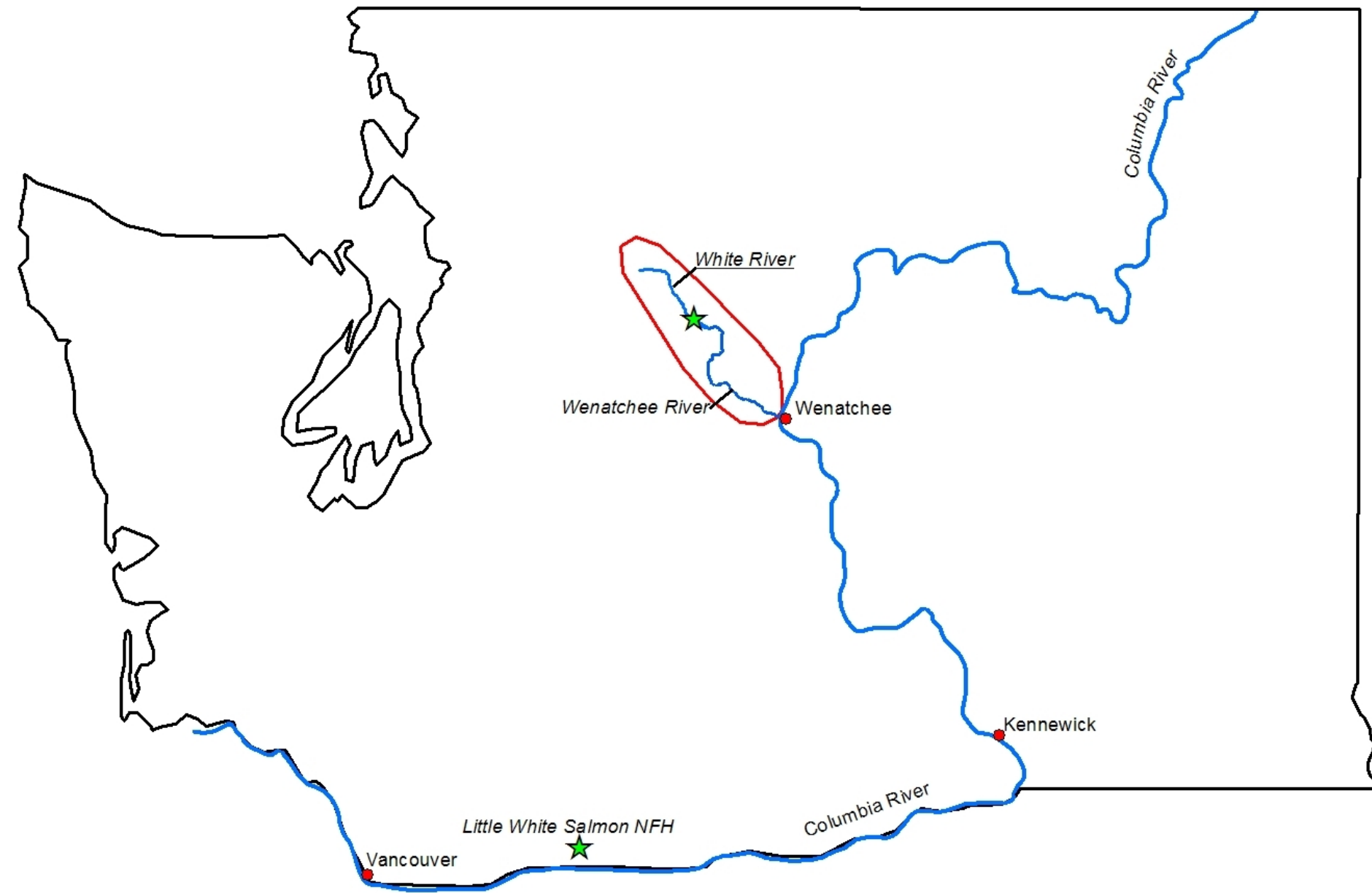
December 12, 2012

Outline

- White River captive-brood program intro
- Geography
- Assumptions and limitations
- Spatial extent of straying
- Temporal variability in straying
- Implications of precocial juvenile straying
- Key Findings/Conclusions

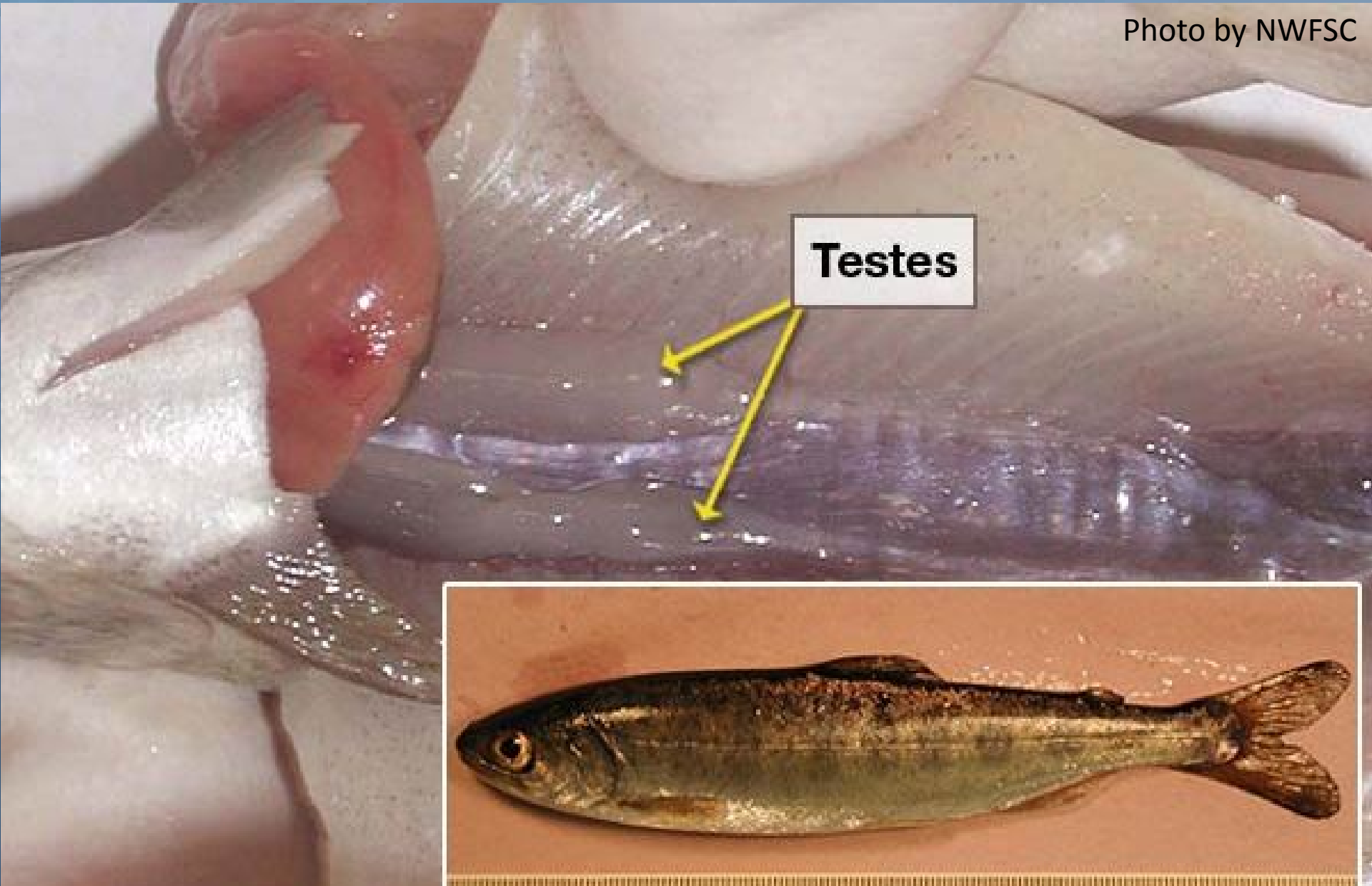
Program History

- ESA-listed spring Chinook salmon
- 1995 only 5 adults on spawning grounds
- 1997 captive-brood program initiated
- BY 2006 – current, significant-sized release groups
- High rates of precocious maturation and straying



Age 2 precocious male Chinook salmon

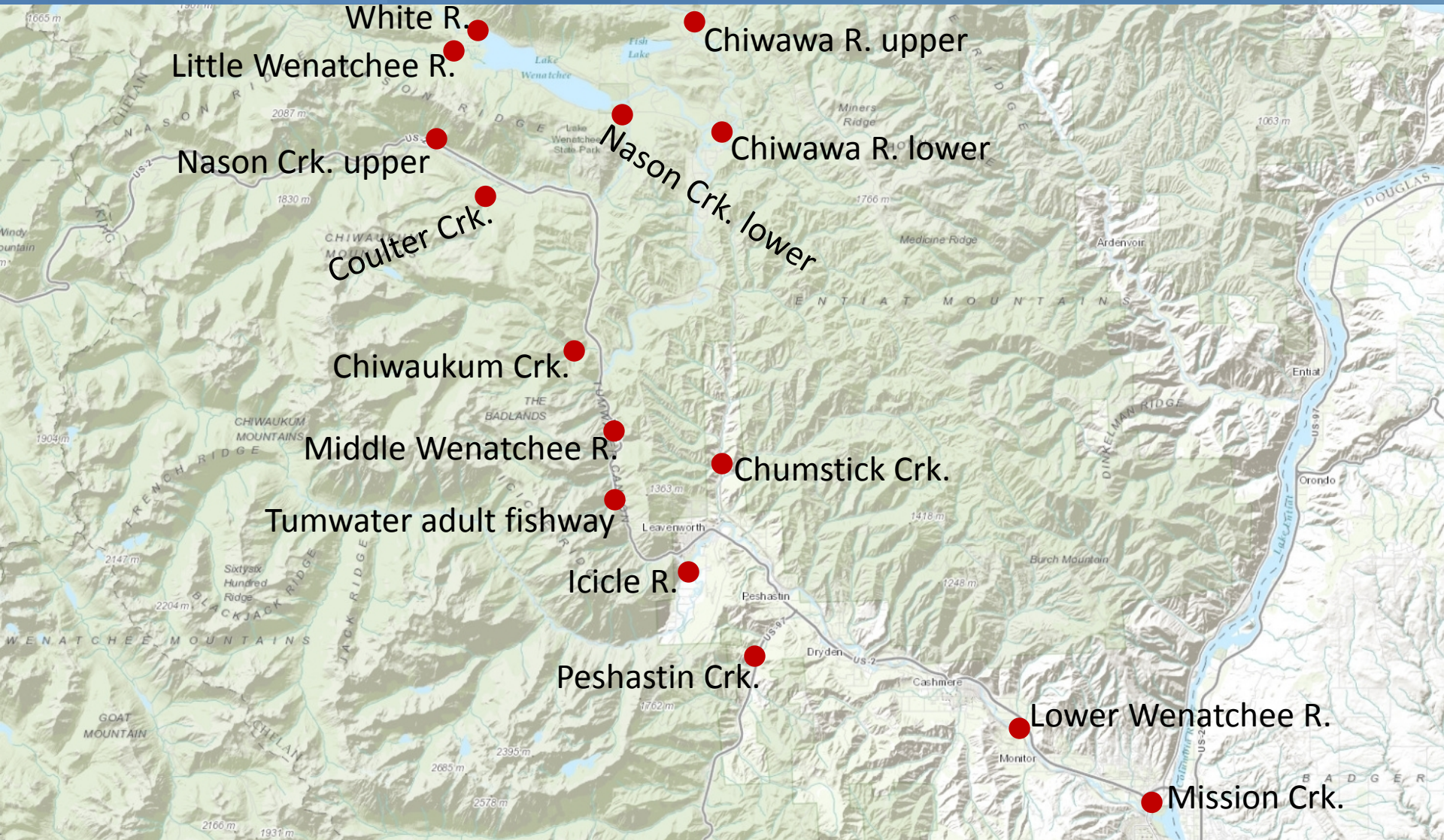
Photo by NWFSC



Assumptions and Limitations

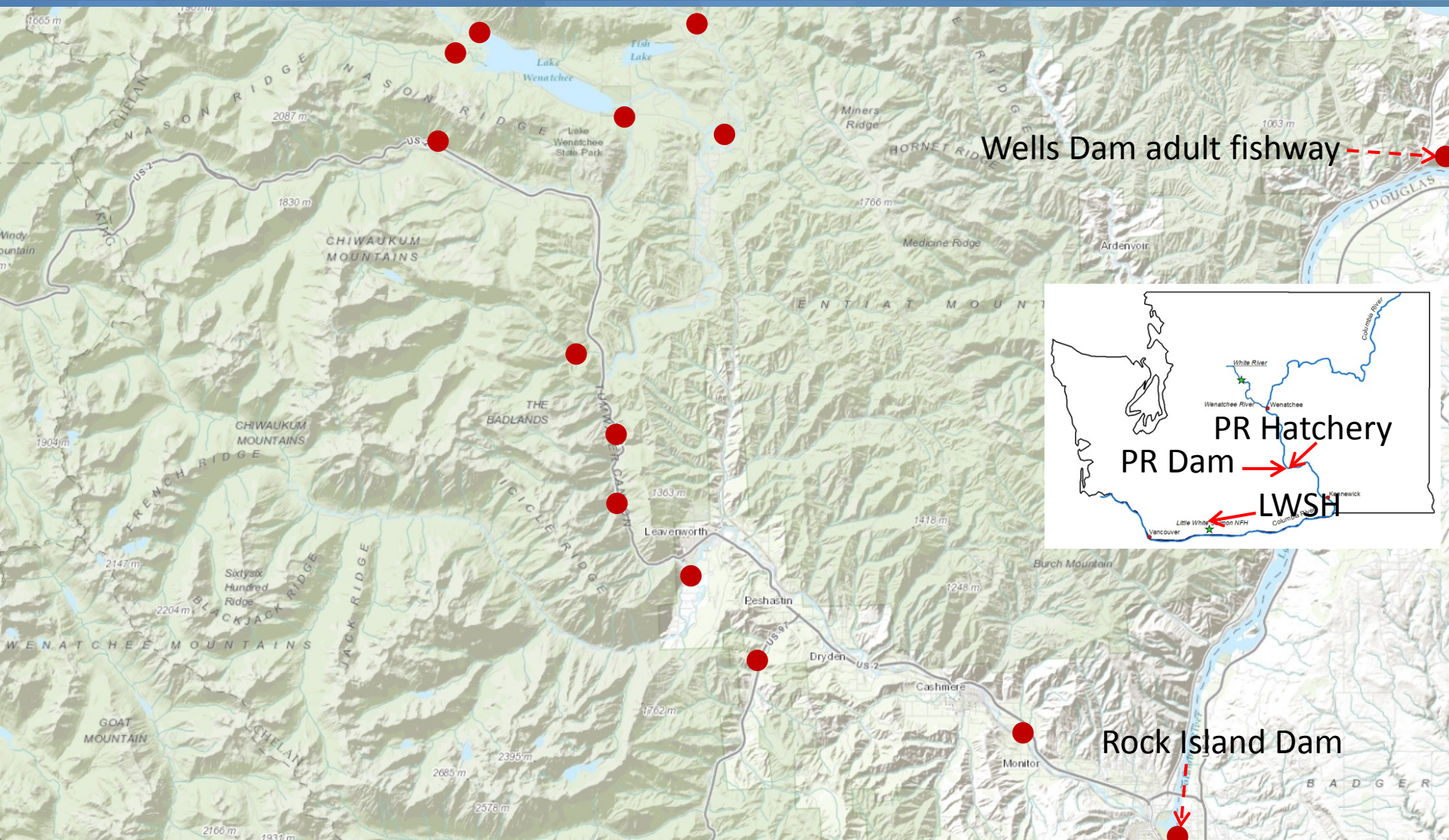
- Precocial juveniles are males
- Final detections from July – September
- Fish detected July – September are contributing
- Not all interrogation sites were installed
- Raw detection data

Wenatchee River Basin PIT-tag Interrogation Sites





Precocious Juvenile Stray Extent for Brood Years 2006 – 2010, based on PIT-tag Detections

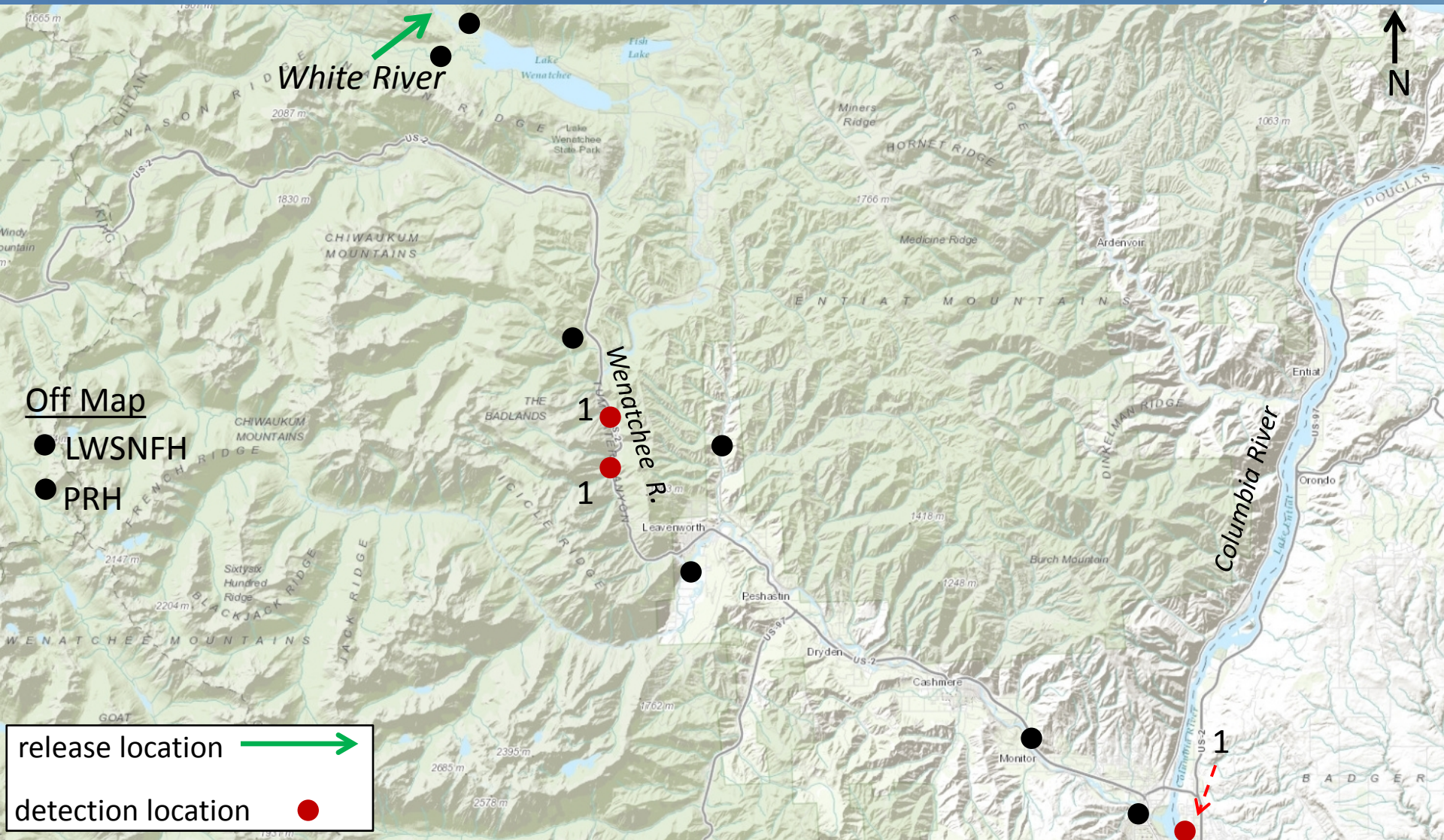


Precocious Juveniles' Final PIT-tag Detections

July – September, 2008

Brood-year 2006

29,844 PIT tags
281,677 total

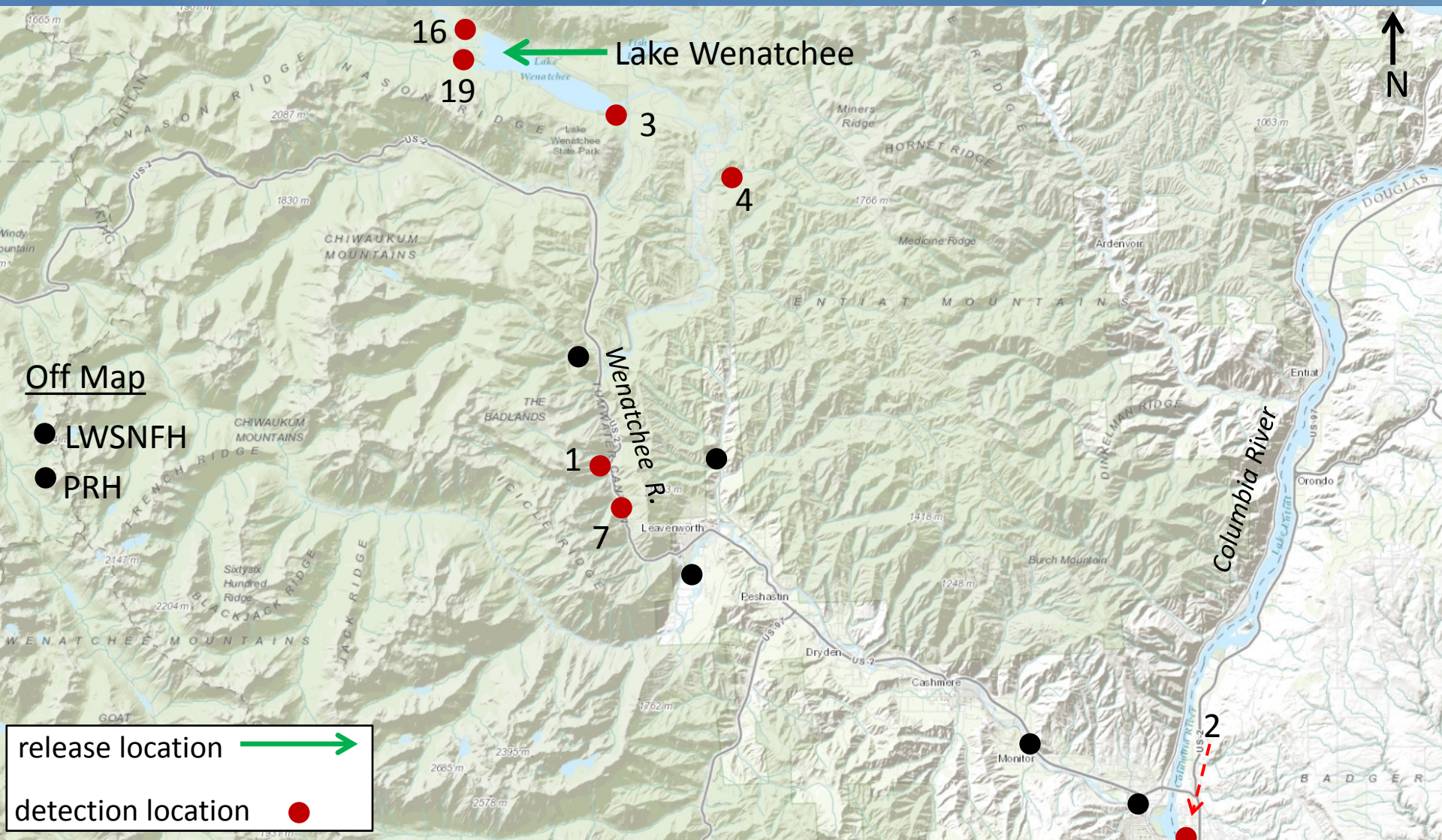


Precocious Juveniles' Final PIT-tag Detections

July – September, 2009

Brood-year 2007

29,863 PIT tags
131,843 total

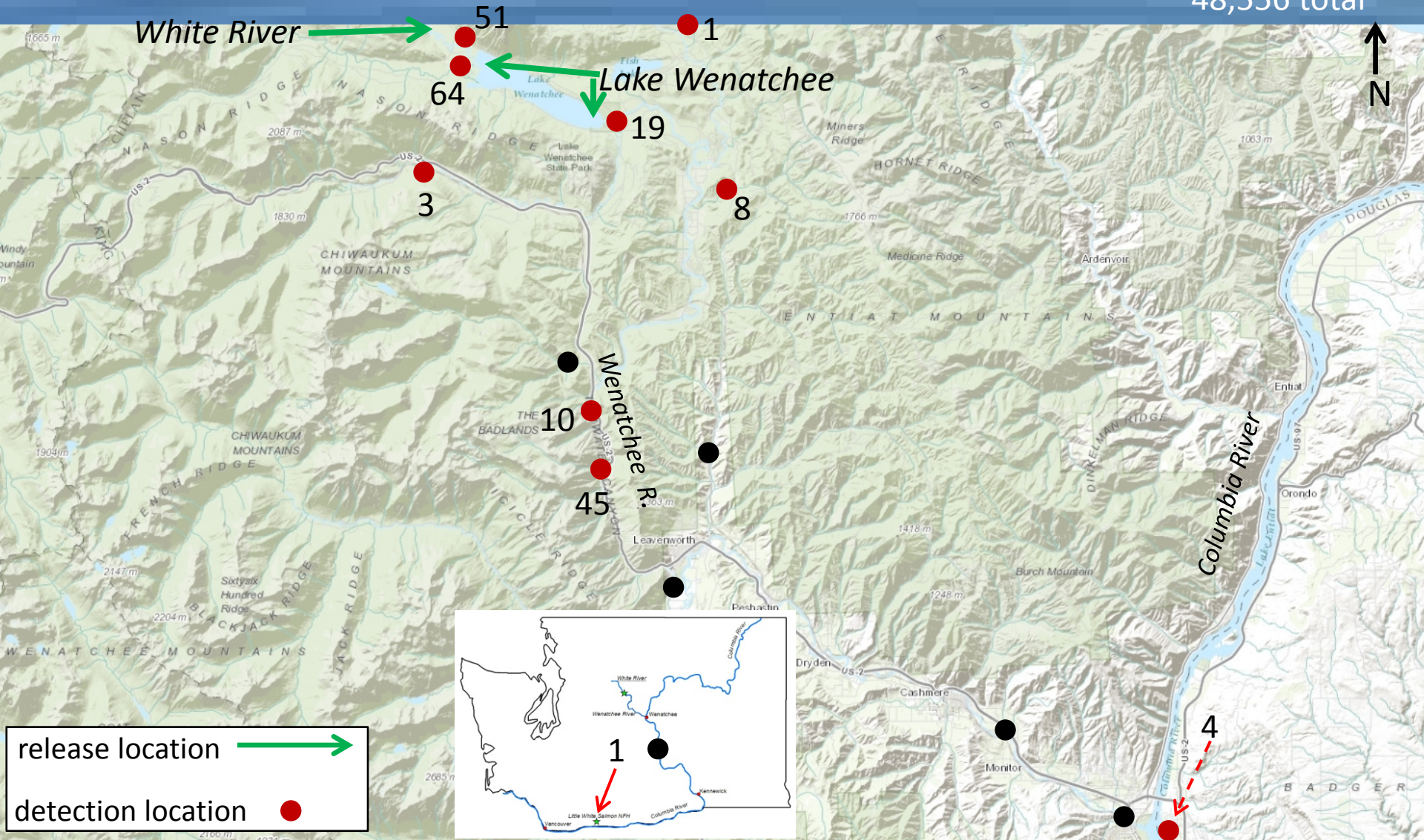


Precocious Juveniles' Final PIT-tag Detections

July – September, 2010

Brood-year 2008

40,531 PIT tags
48,556 total

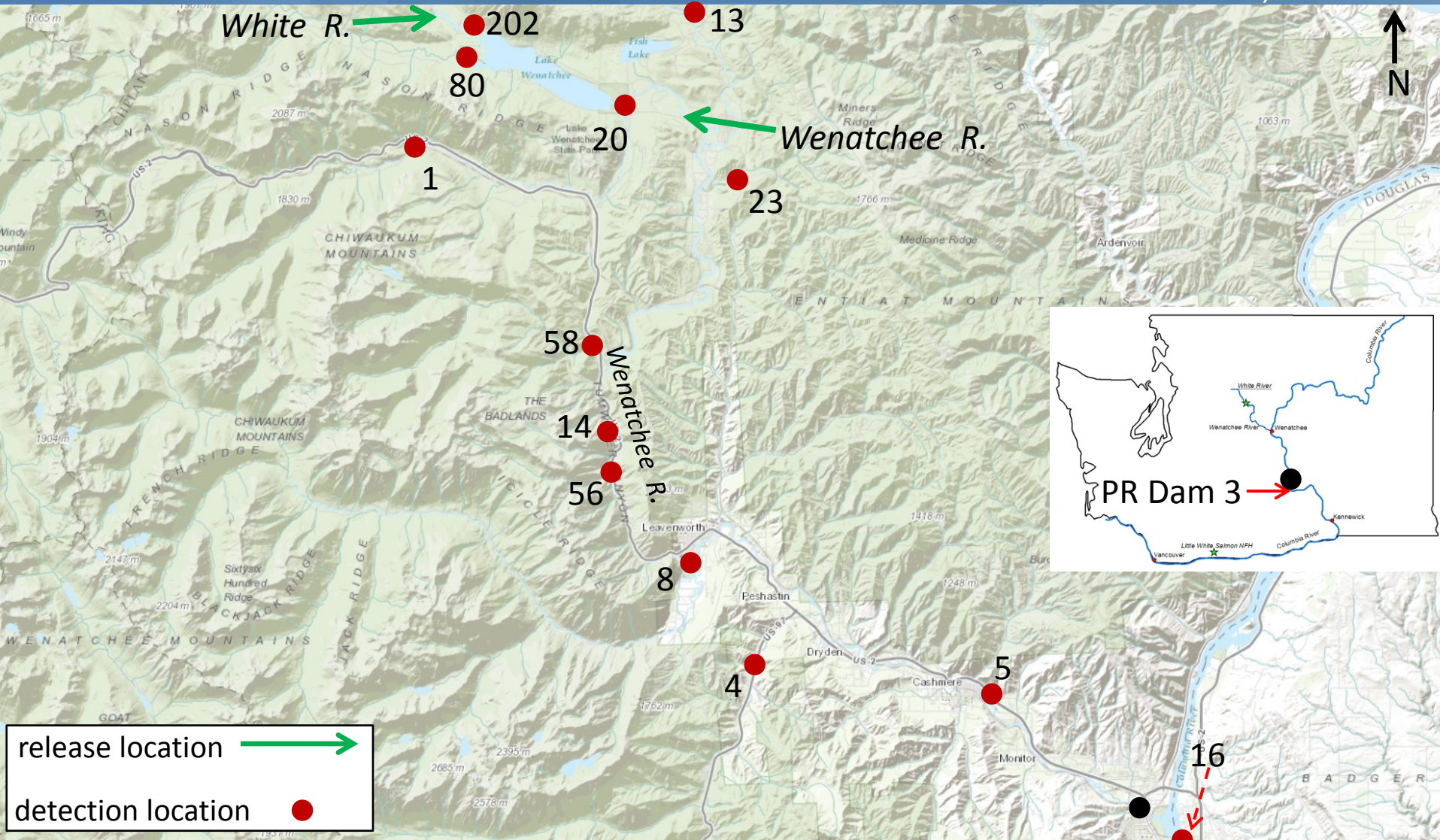


Precocious Juveniles' Final PIT-tag Detections

July – September, 2011

Brood-year 2009

41,767 PIT tags
112,596 total

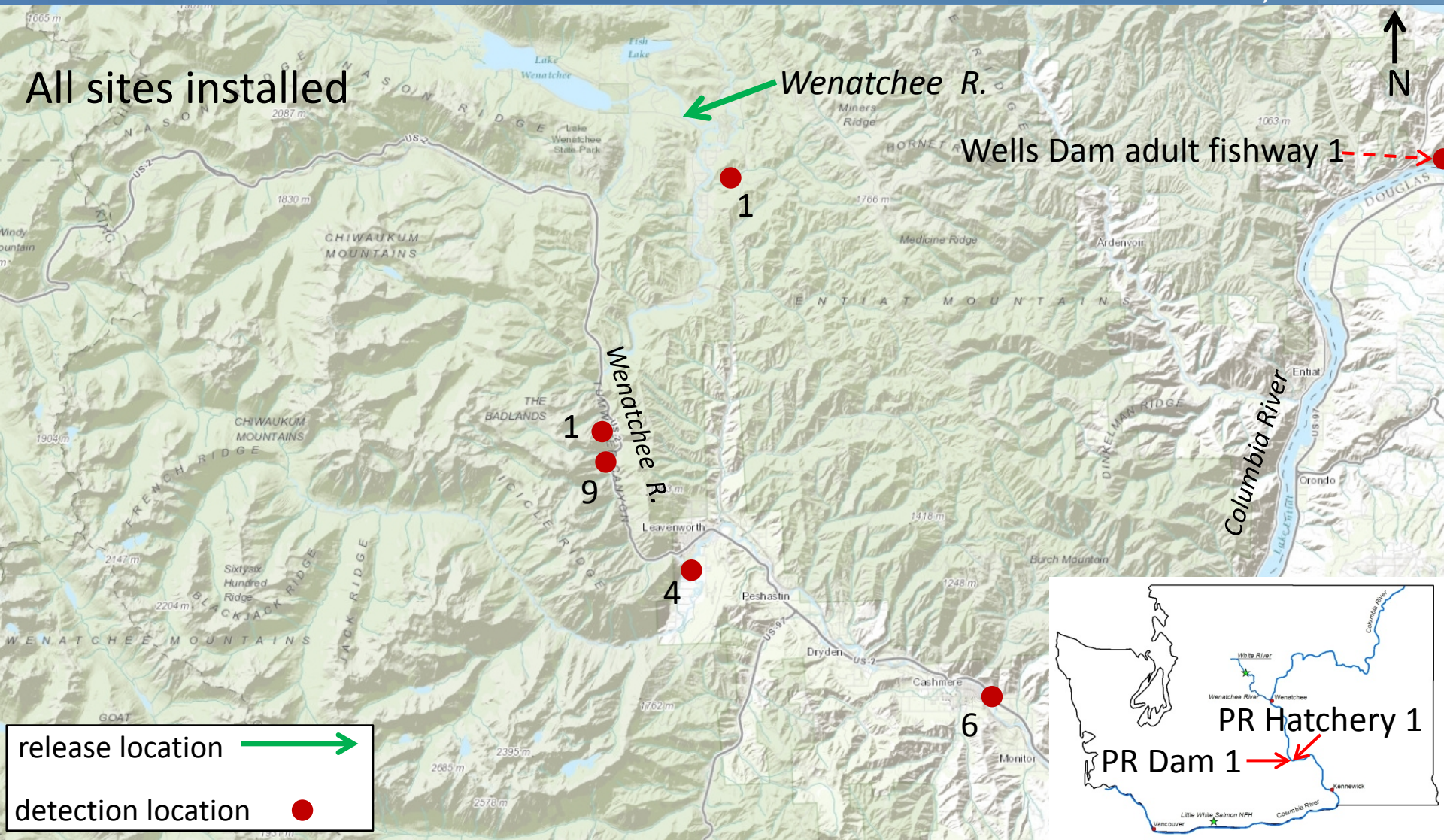


Precocious Juveniles' Final PIT-tag Detections

July – September, 2012

Brood-year 2010

12,937 PIT tags
~18,000 total





Implications of Precocious Juveniles and Straying for the White River Captive-brood Program and Wenatchee Basin

- adverse ecological interactions
- domestication selection in White River and non-target streams
- lost production in White River

Key Findings/Conclusions

- Unintended early releases may have increased straying (BY09)
- Reducing precocious maturation (*and transporting?*) reduced straying (BY09 vs. BY10)
- Fewer PIT tags in BY10 biases detections low
- Continued monitoring is necessary



Thank You



Stream Name	Percentage of in-basin strays
Lower Wenatchee River	1.5
Peshastin Creek	0.5
Icicle River	1.6
Tumwater Dam Fishway	15.6
Chiwaukum Creek	7.7
Middle Wenatchee River	3.6
Lower Chiwawa River	4.7
Upper Chiwawa River	1.8
Lower Nason Creek	5.5
Upper Nason Creek	0.5
Little Wenatchee River	21.5
White River	35.5