

Ellensburg Urban Stream Fish Passage Study

Kelsey Martin-Harbick, Ethan Green,
Jennifer Hermann, and Paul James



Objectives

- Assess fish passage through buried reaches
- Identify potential barriers
- Assess feasibility for reintroduction of native fish

Background

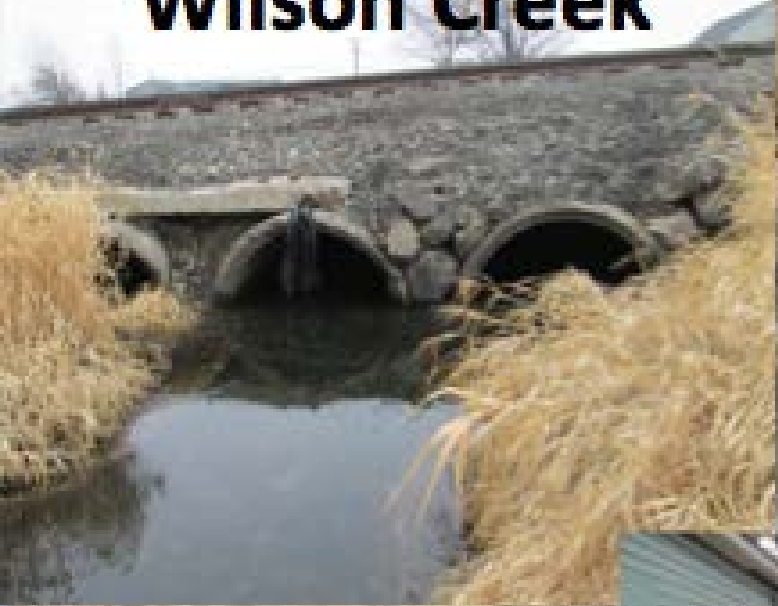
- Downtown Ellensburg built over Wilson creek and Mercer Creek
- Both streams had native anadromous fish
 - Coho salmon
 - Steelhead trout
- Both species locally extirpated
- Spawning habitat upstream of Ellensburg
 - Restored reaches



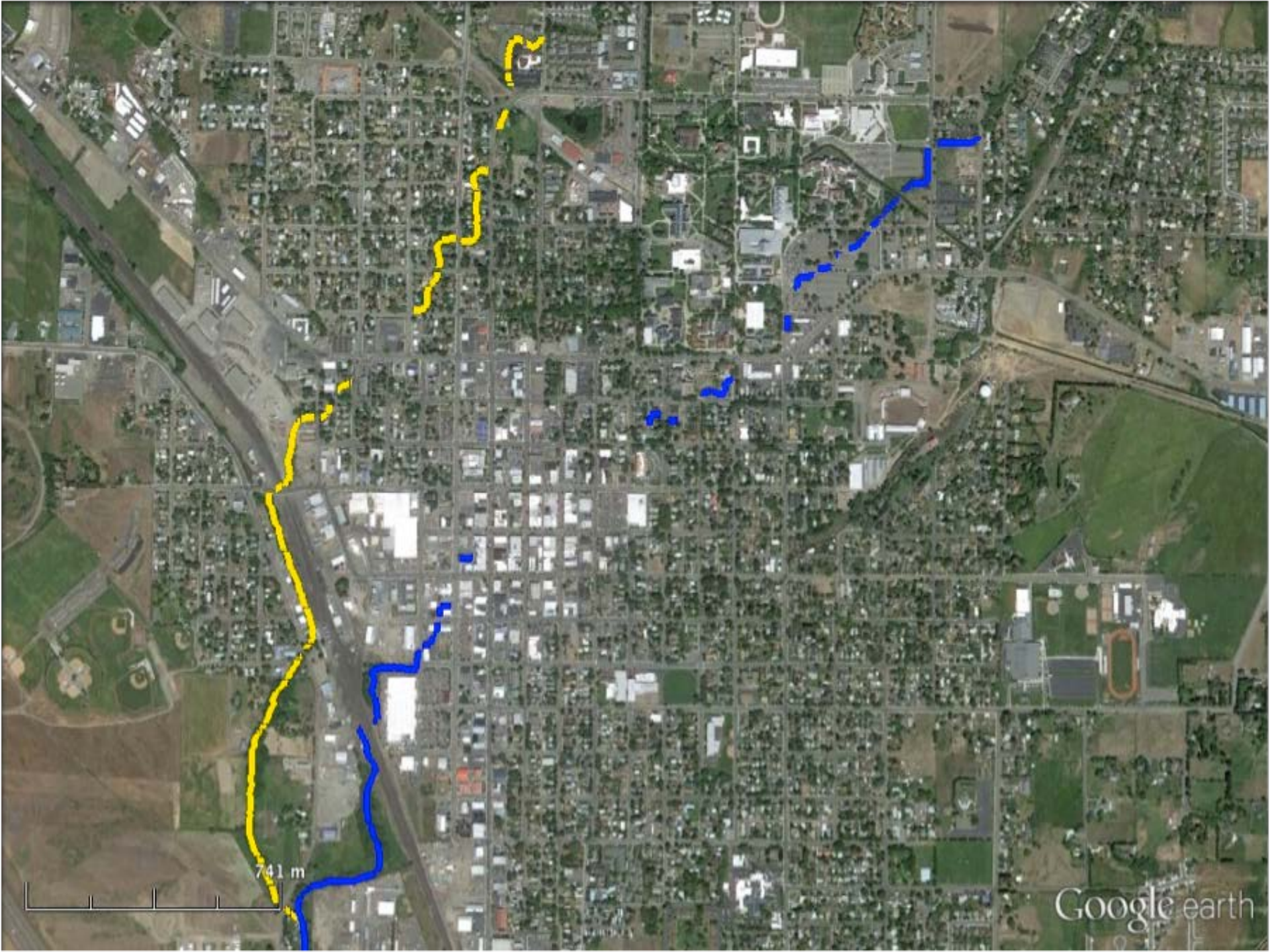
Mercer Creek



Wilson Creek

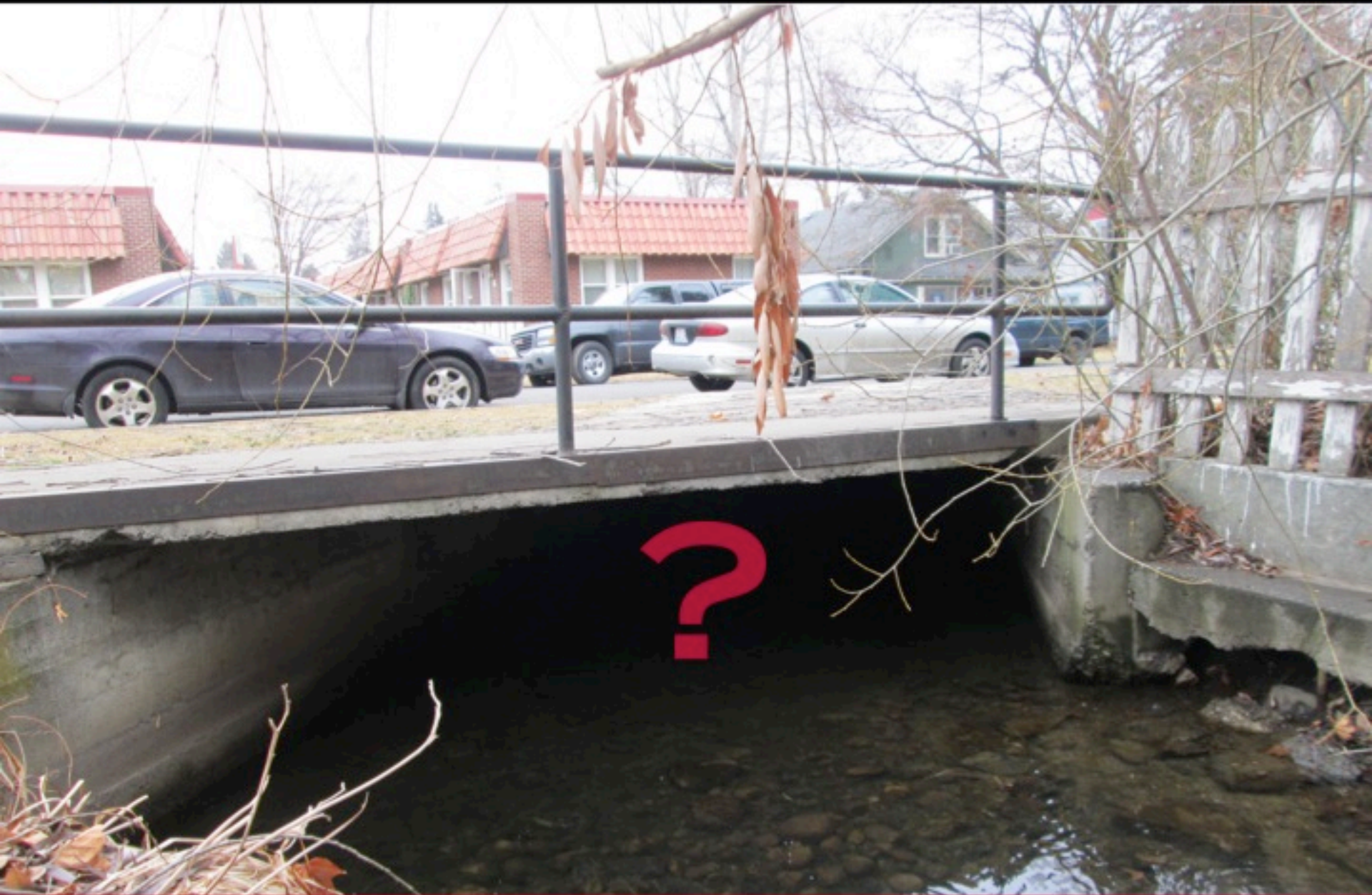






741 m

Google earth



Methods

- 6024 passive integrated transponder (PIT) tagged juvenile coho salmon
- 4 Release sites, 2 streams
 - One upstream and one downstream/creek
- Surveys July 28, 2012-October 15, 2013
 - Biomark[®] portable underwater PIT tag antenna
 - Smith-Root, Inc. [®] backpack electrofisher



Upper Wilson Creek



Lower Wilson Creek

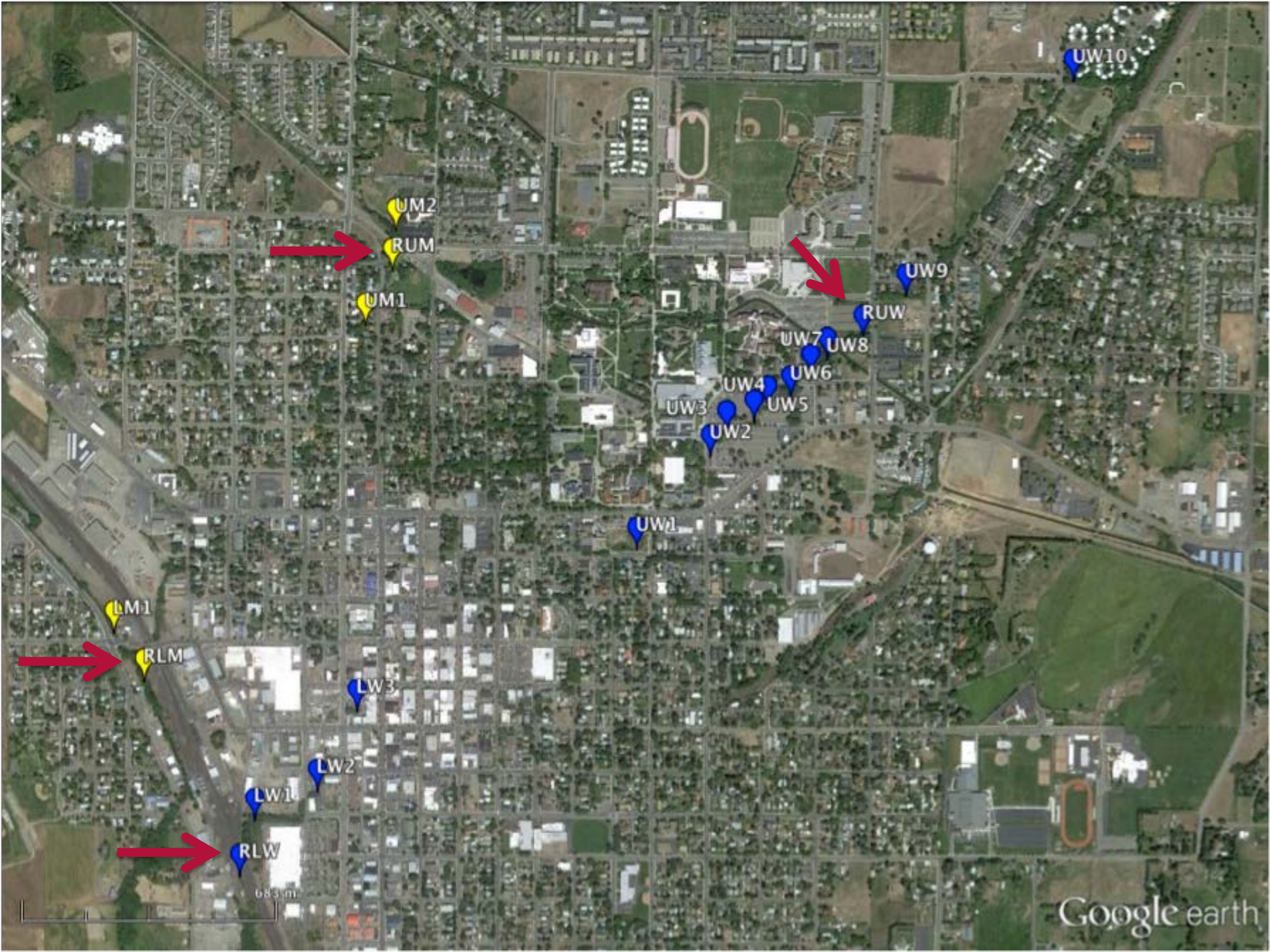


Release Sites

Upper Mercer Creek



Lower Mercer Creek



UW10

UM2

RUM

UM1

UW9

RW

UW7

UW8

UW6

UW4

UW5

UW3

UW2

UW1

LM1

RLM

LW3

LW2

LW1

RLW

683 m

Google earth

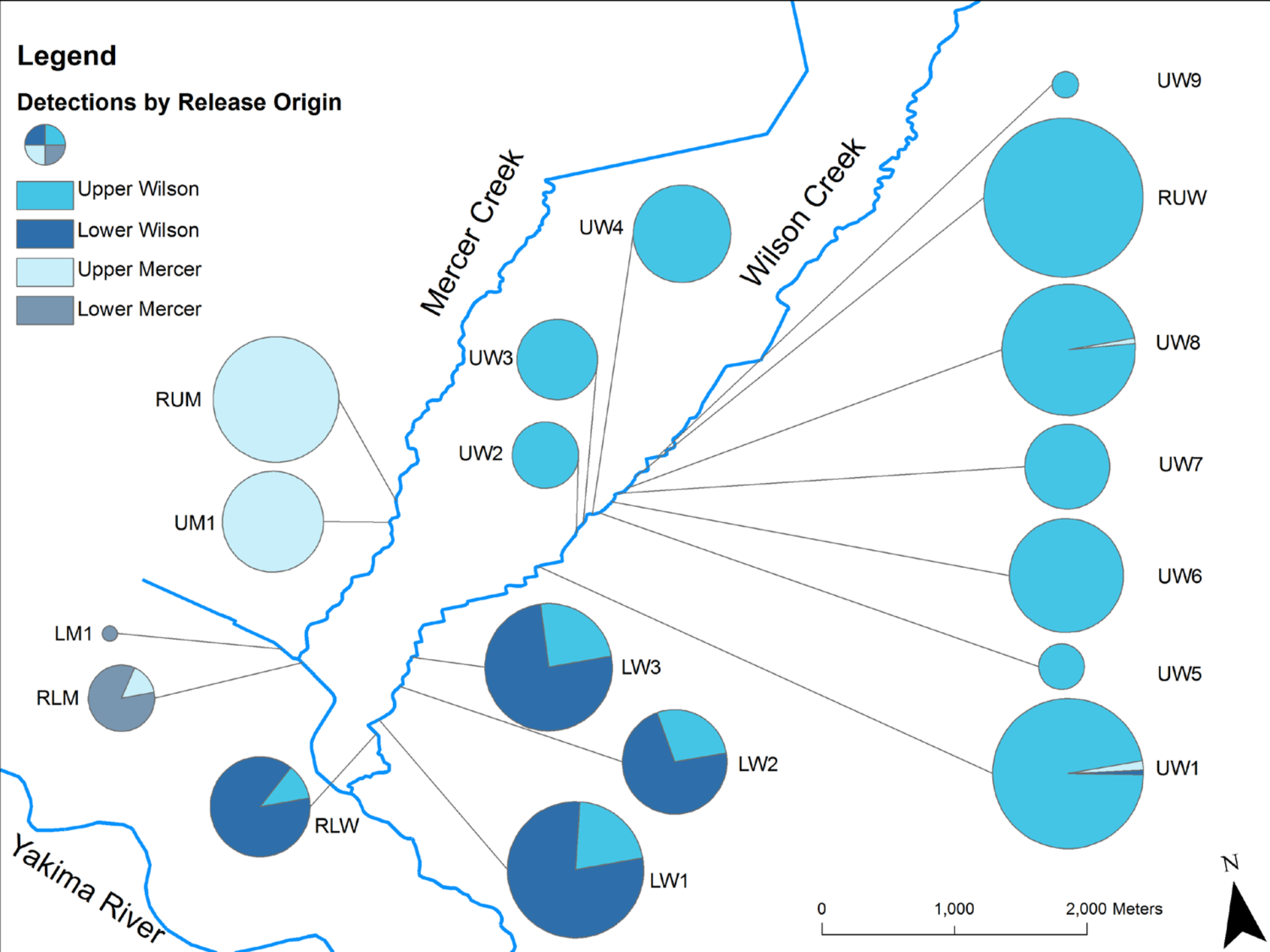
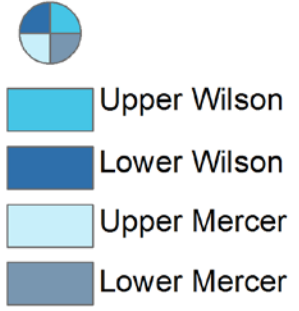


Results

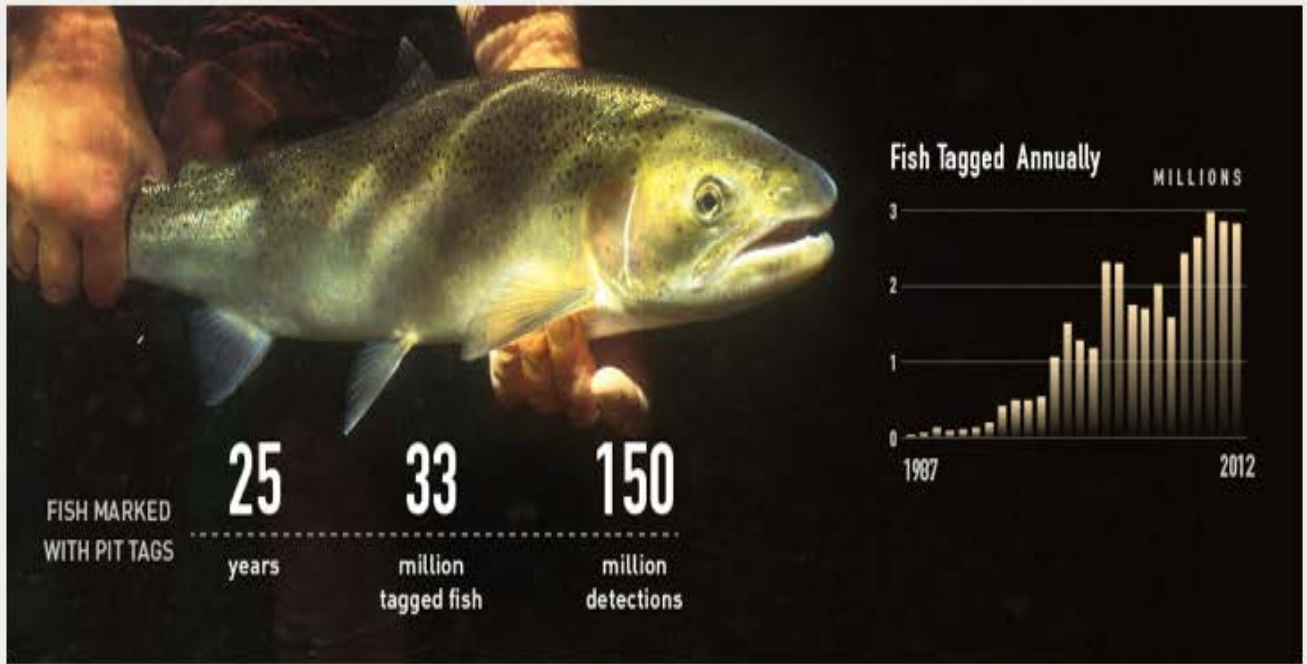
- Fish were able to move downstream through covered sections
- No upstream movement was recorded
- <7% of the released fish were detected on the Yakima or Columbia Rivers
- 3 jacks detected

Legend

Detections by Release Origin







Fish Tagged Annually MILLIONS

Year	Millions Tagged
1987	0.1
1988	0.2
1989	0.3
1990	0.4
1991	0.5
1992	0.6
1993	0.7
1994	0.8
1995	1.0
1996	1.2
1997	1.4
1998	1.6
1999	1.8
2000	2.2
2001	2.3
2002	2.1
2003	1.8
2004	2.0
2005	1.6
2006	2.4
2007	2.6
2008	2.8
2009	2.9
2010	2.8
2011	2.9
2012	3.0

25 years
FISH MARKED WITH PIT TAGS

33 million tagged fish

150 million detections




FORUMS




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QUICK REPORTS




View reports without logging in.

TUTORIALS



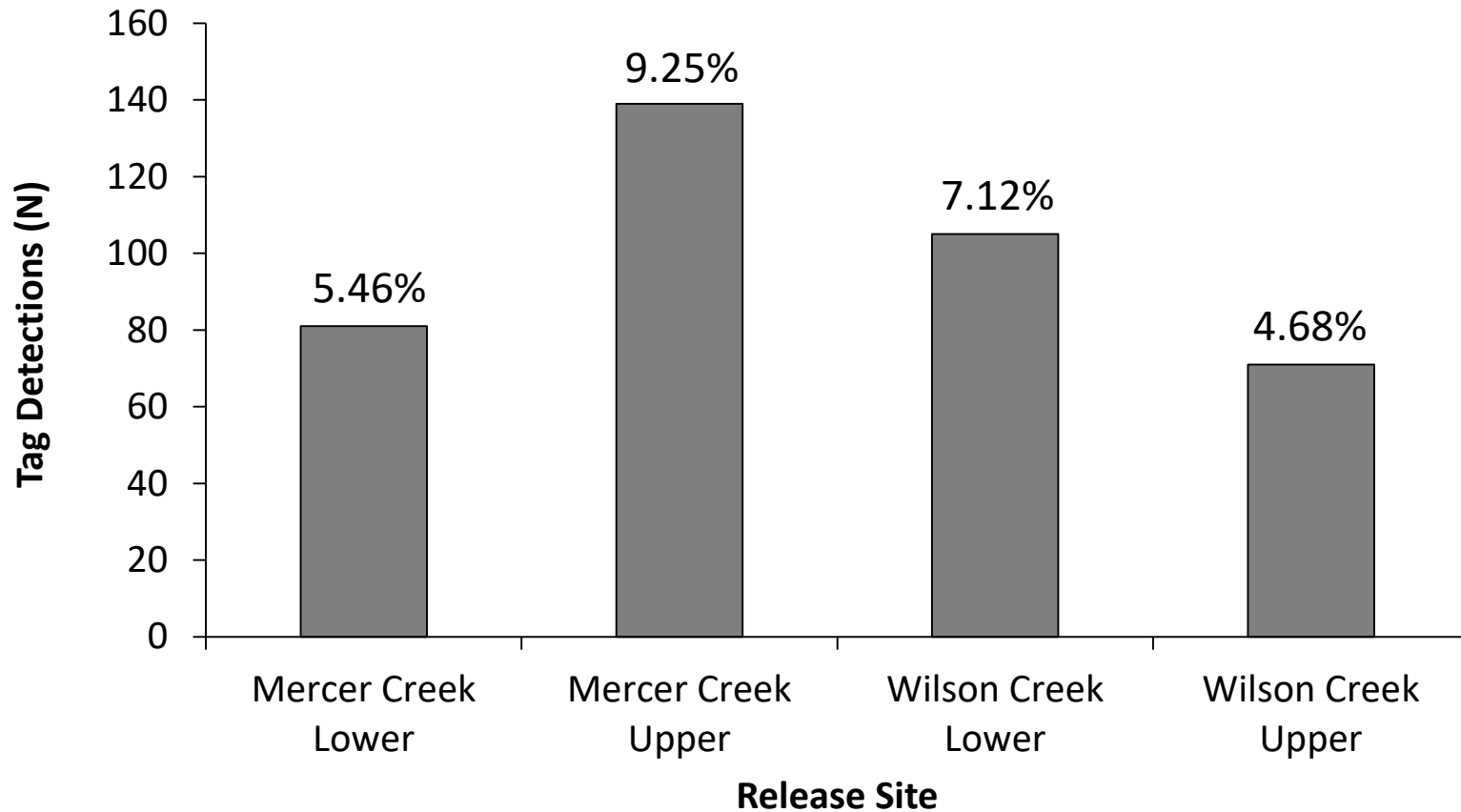
Watch videos on how to create reports with the new tools.

ADVANCED REPORTING



REQUIRES LOGIN. Create and save custom queries, download query results, and interact with data in a pivot table.

Detections in the Yakima River or Columbia River downstream of Ellensburg, WA.



Unknown Tags

Tag Source	Number of Tags Found
Coho salmon from 2010 Wilson Creek Release	44
Unidentified Tags	20
Chinook salmon from other streams	9
Coho salmon from 2007 Wilson Creek Release	2
Coho from 2012 Big Creek Release	1
Steelhead from Little Salmon River	1

Discussion

- High mortality post release
 - Brook trout (*Salvelinus fontinalis*) predation
 - Poor water quality (high temperatures)
- No obvious downstream barriers during spring months
 - Downstream passage mortality rate is unknown
- No fish moving upstream through buried reaches
- Need to survey the buried sections that appear to be upstream passage barriers to determine channel course, channel shape, and substrate structure

Acknowledgments

- Brent Renfro, Washington Department of Fish and Wildlife (WDWF)
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- David Reavill, CWU



Mid-Columbia
FISHERIES
ENHANCEMENT
GROUP

