

Homing, migratory patterns and spawning site selection of YKFP spring Chinook salmon released in the Teanaway River

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Outline

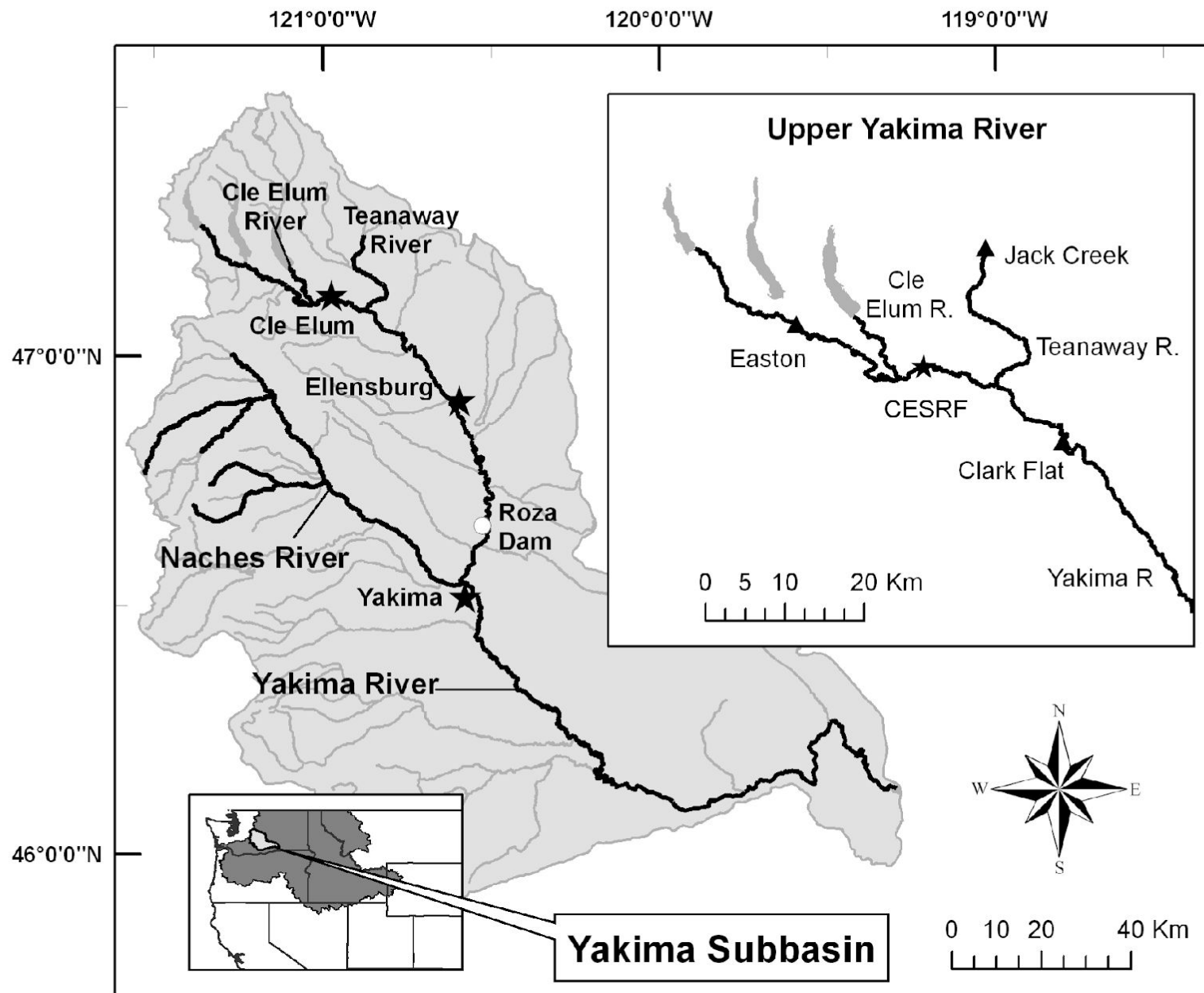
-Upper Yakima Spring Chinook homing

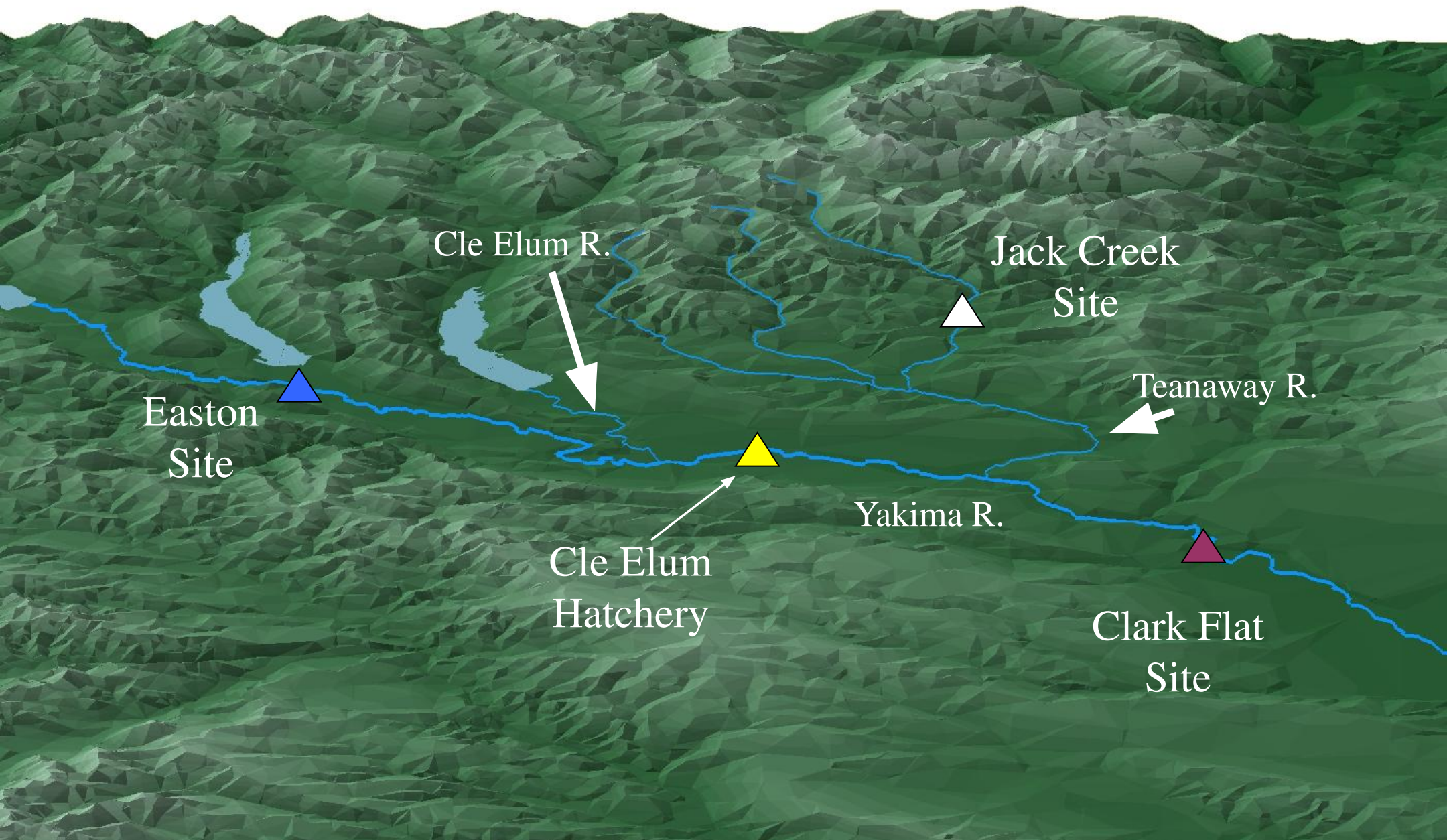
-Teanaway River Spring Chinook

-Factors affecting homing fidelity

-PIT tag analysis of Spring Chinook migratory behavior in Teanaway River







Cle Elum R.

Jack Creek Site

Teanaway R.

Easton Site

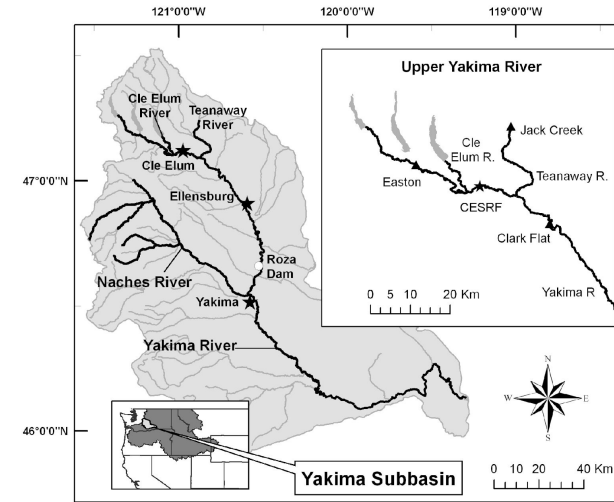
Yakima R.

Cle Elum Hatchery

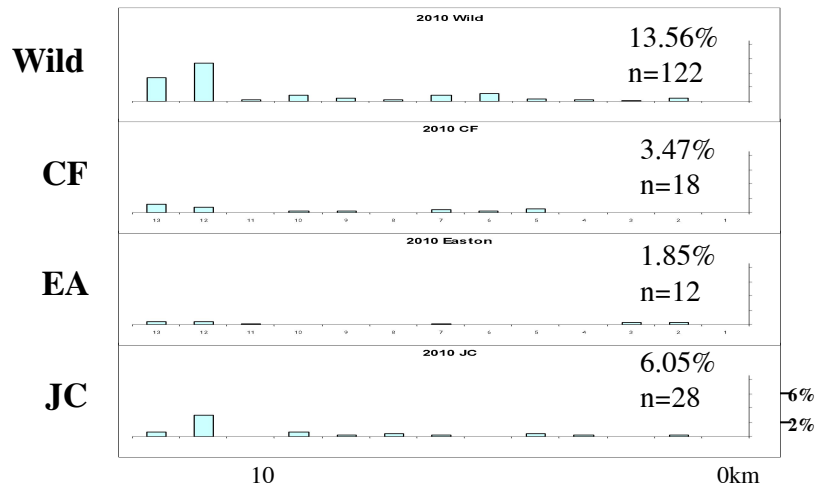
Clark Flat Site

Comprehensive carcass surveys of upper Yakima Basin (2002-2010)

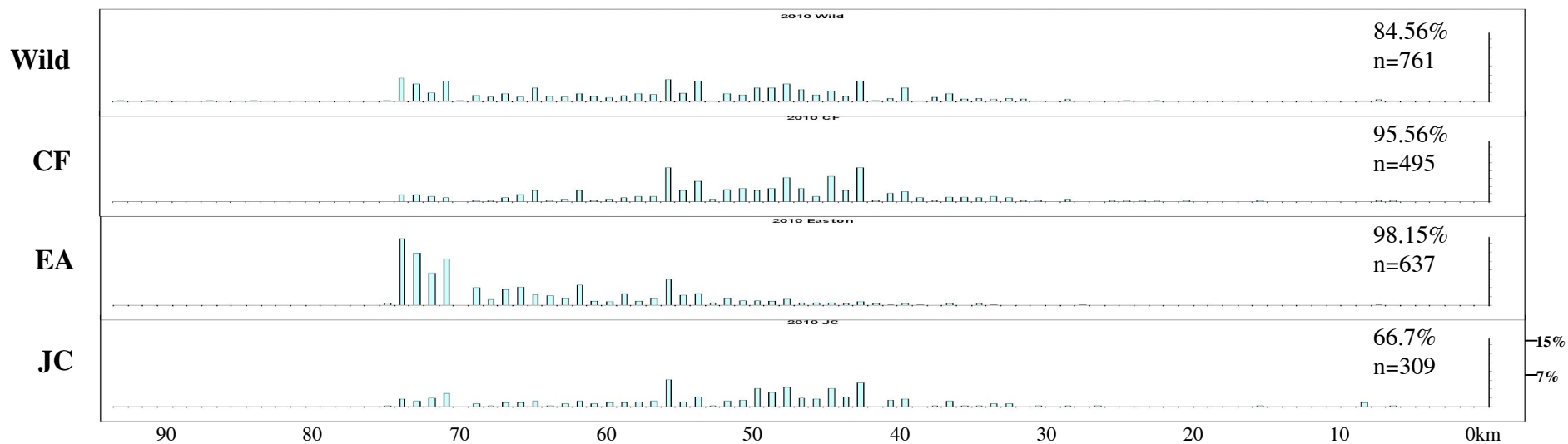
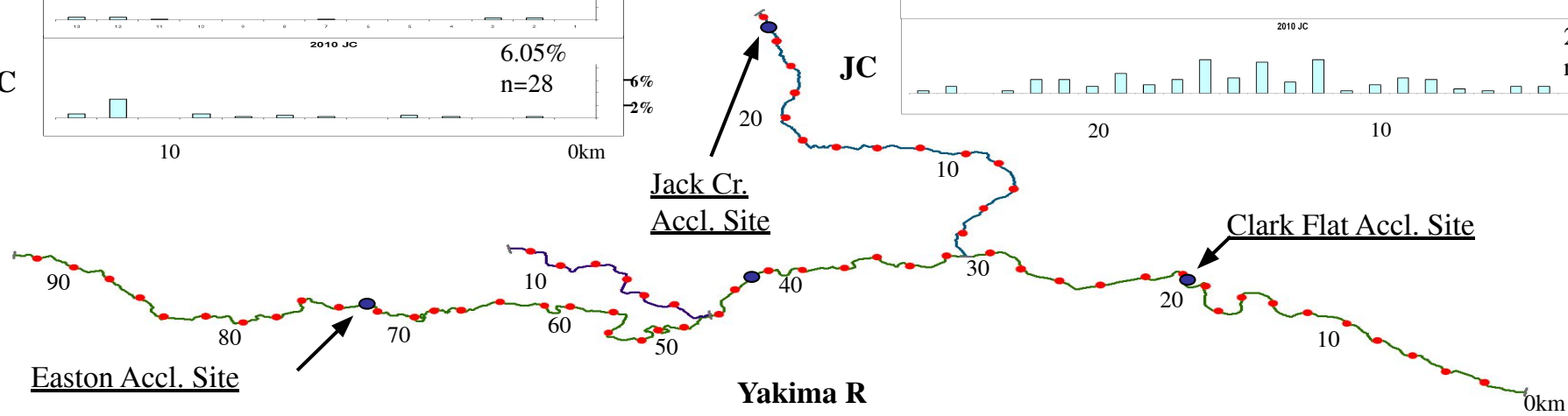
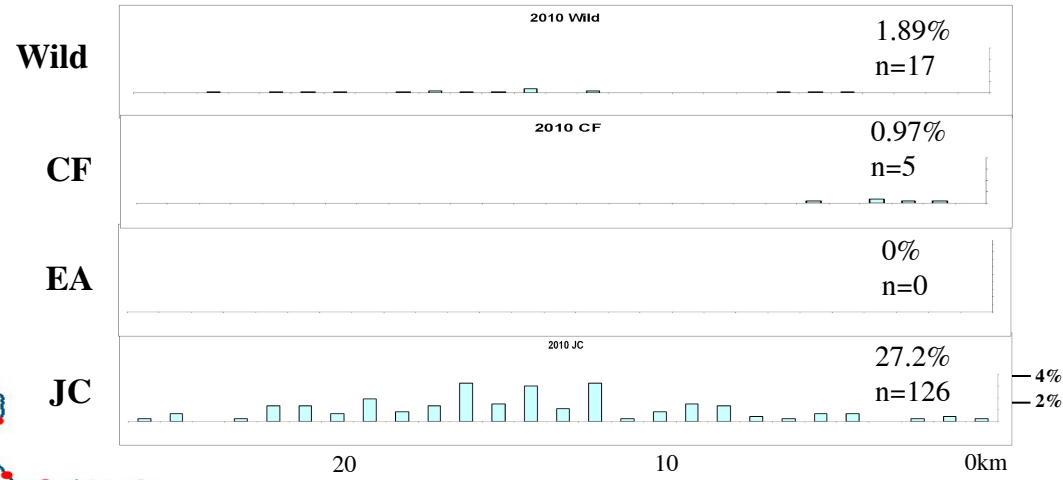
- GPS location (3 m accuracy); date
- hatchery/wild
- male/female; jack, precocious
- length, scale
- tag location, recovery
- egg retention; disease
- dna (2003-2010; 3000 samples),
- otolith (2002-2010; ~1500 samples)
- ~15,000 carcasses sampled



Cle Elum R



Teanaway R



Outline

-Upper Yakima Spring Chinook homing

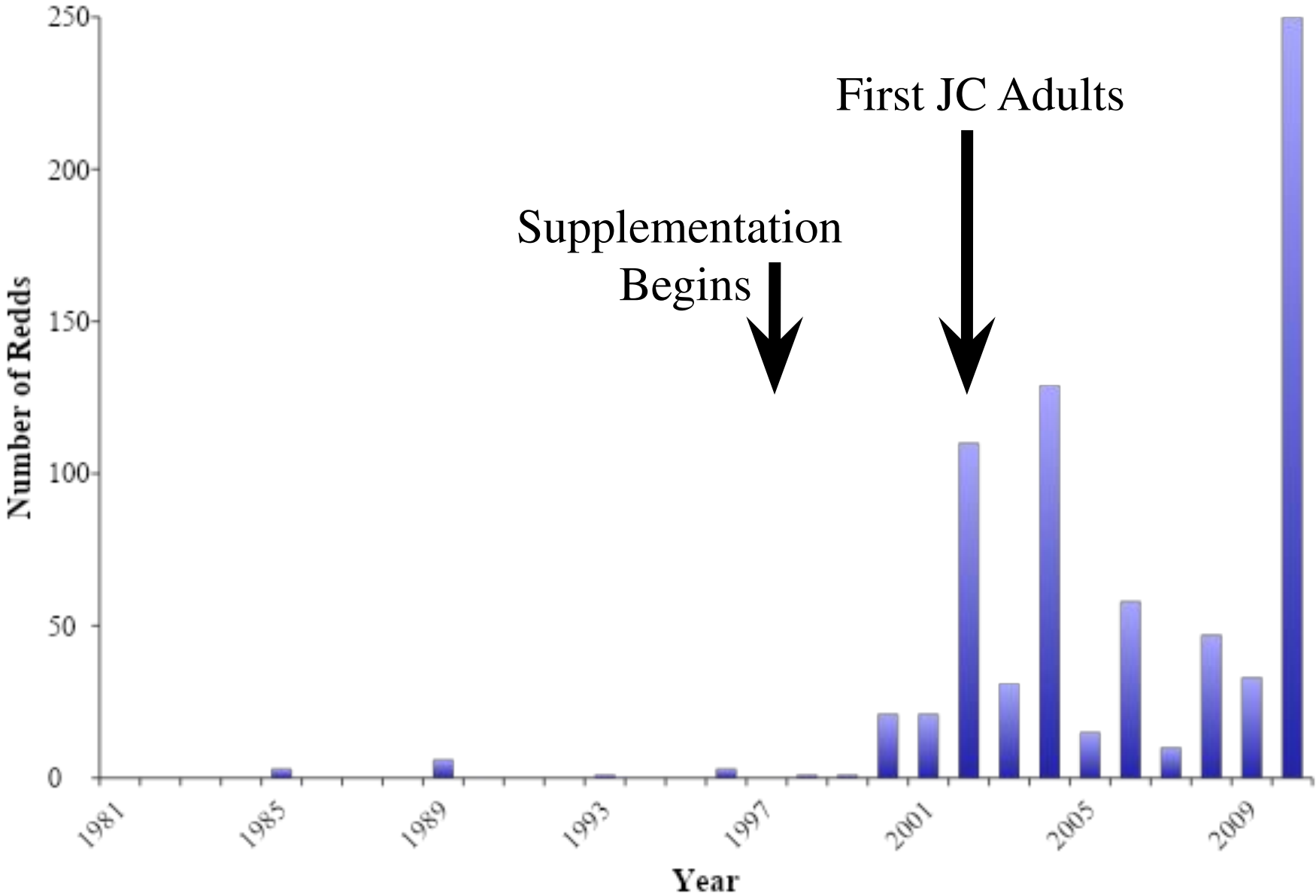
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-Factors affecting homing fidelity

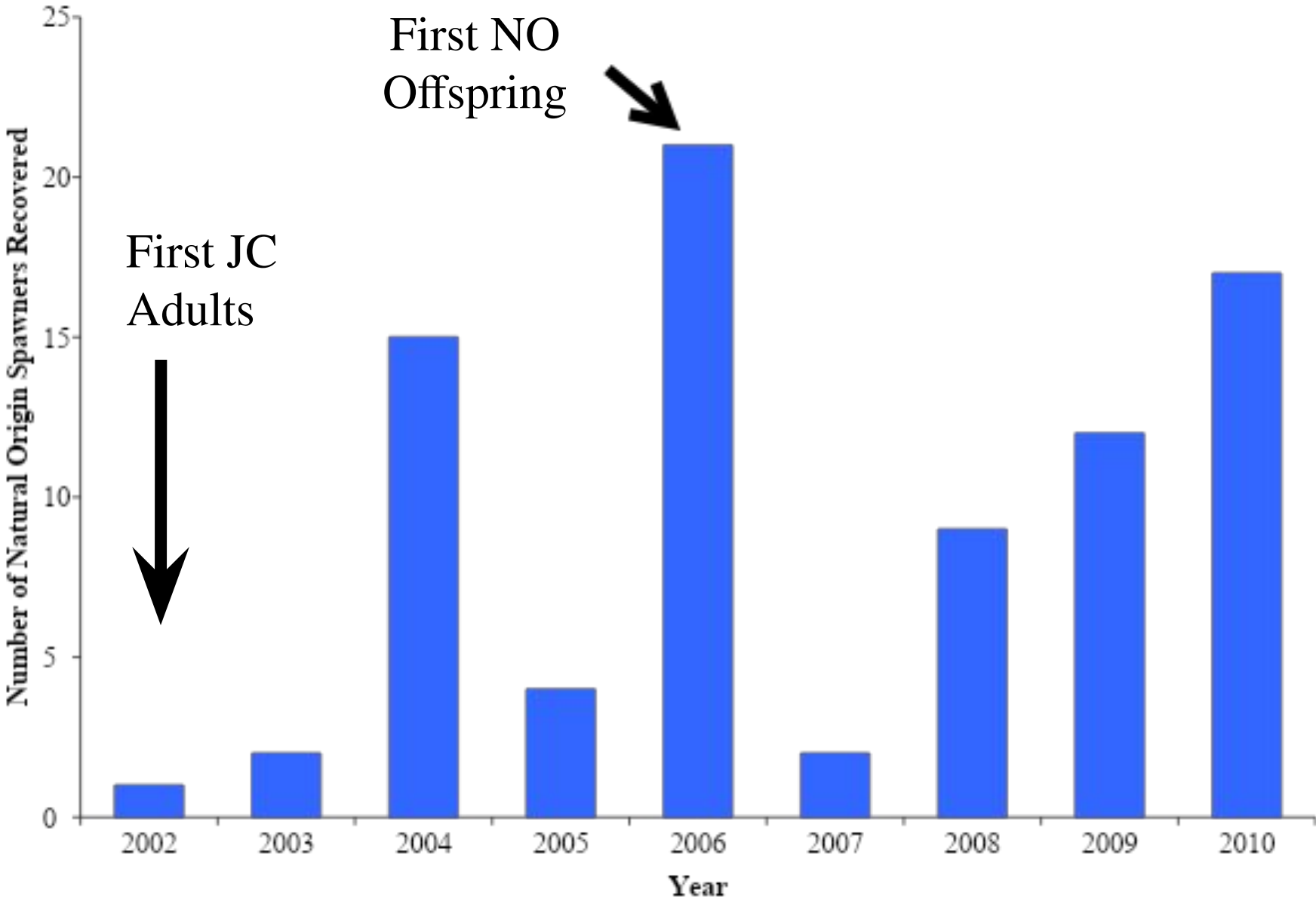
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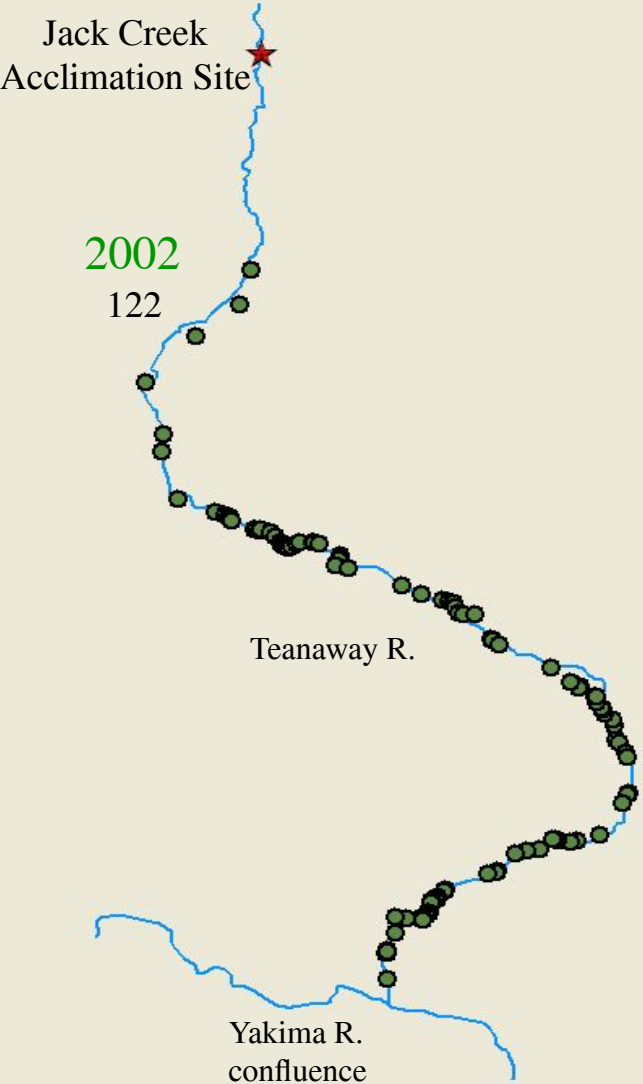
Utilization of the Teanaway River by Spring Chinook spawners



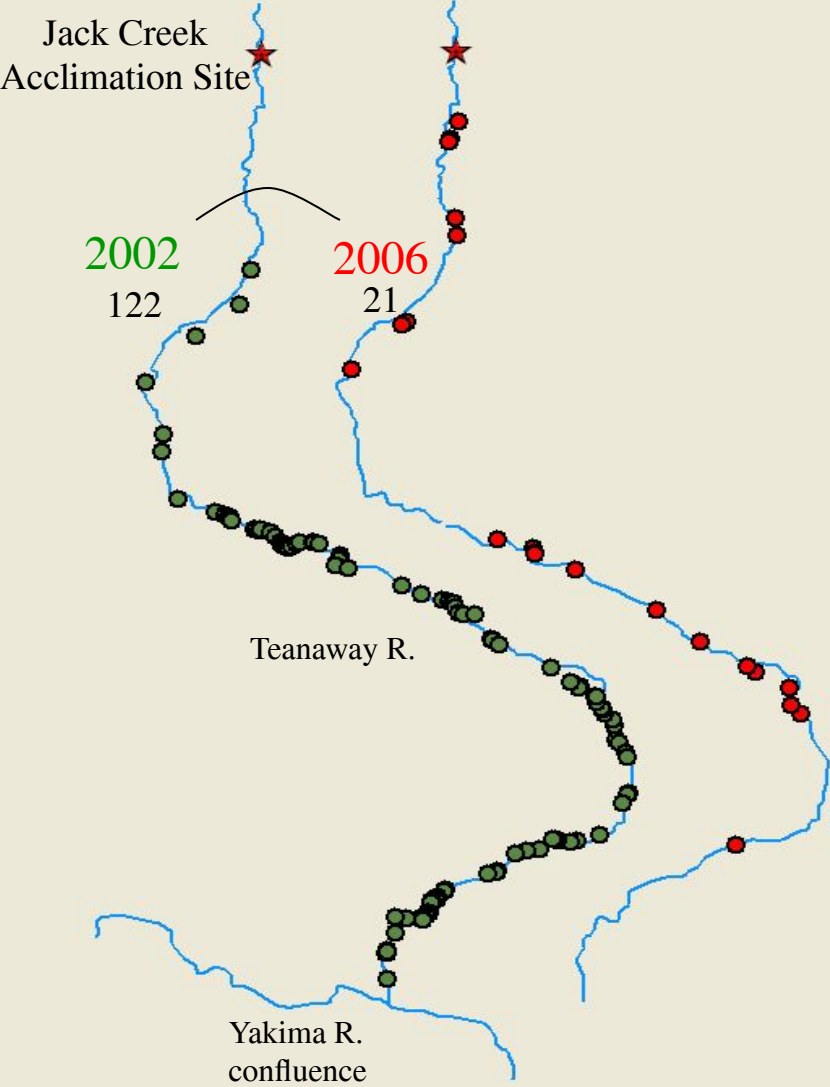
Utilization of the Teanaway River by Natural Origin spawners



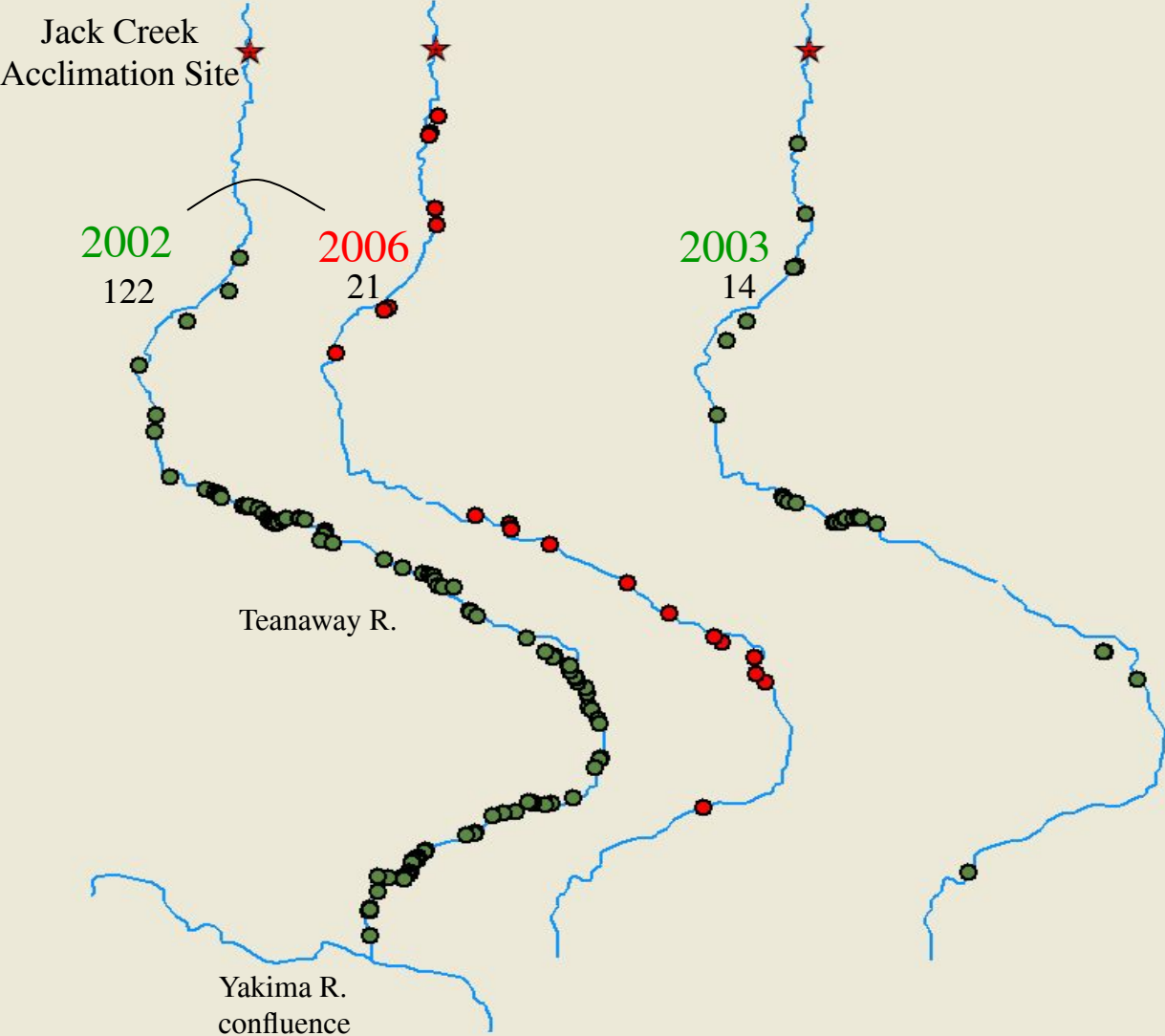
Effects of supplementation on Teanaway River spawning



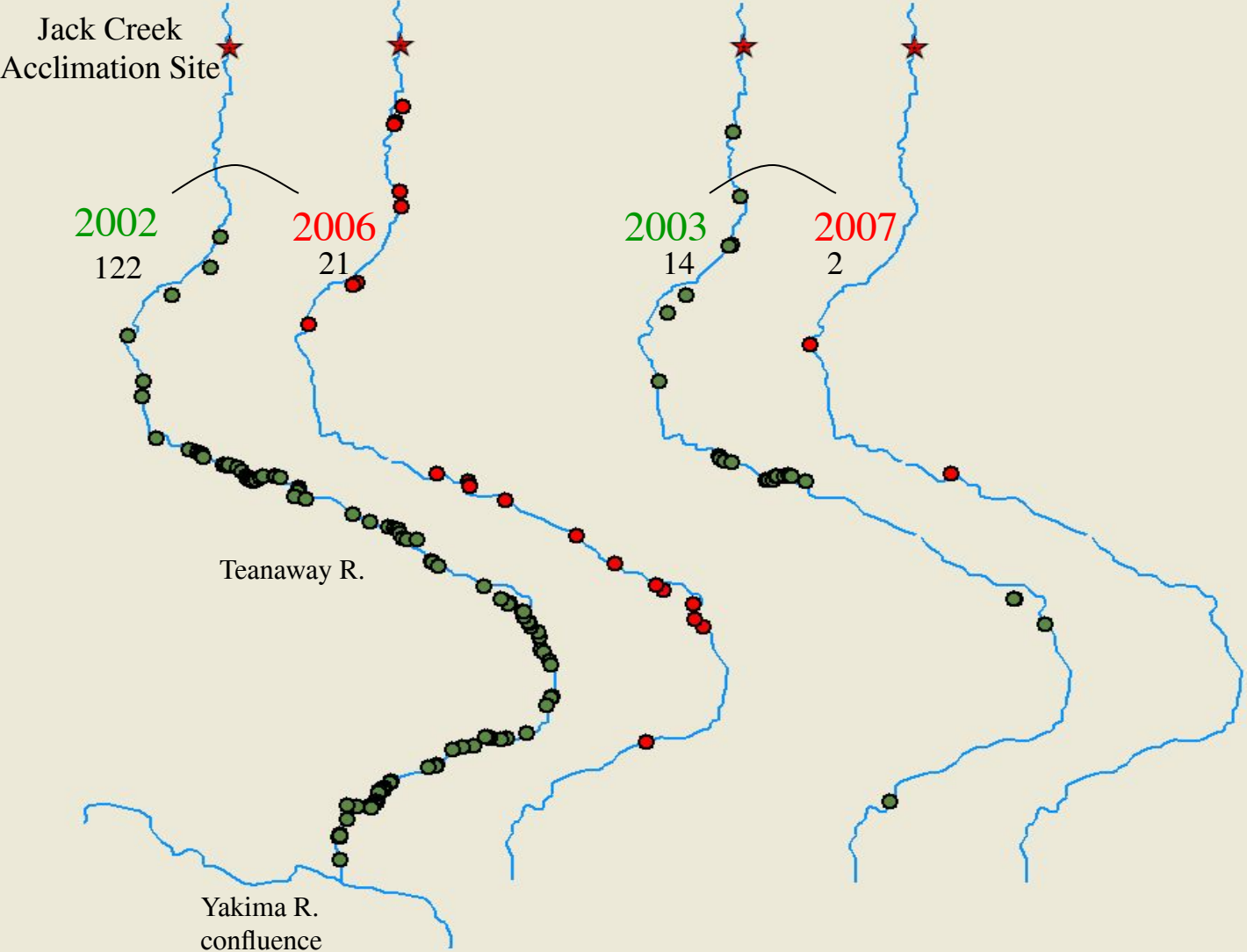
Effects of supplementation on Teanaway River spawning



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Effects of supplementation on Teanaway River spawning

Jack Creek
Acclimation Site



2002
122

2006
21

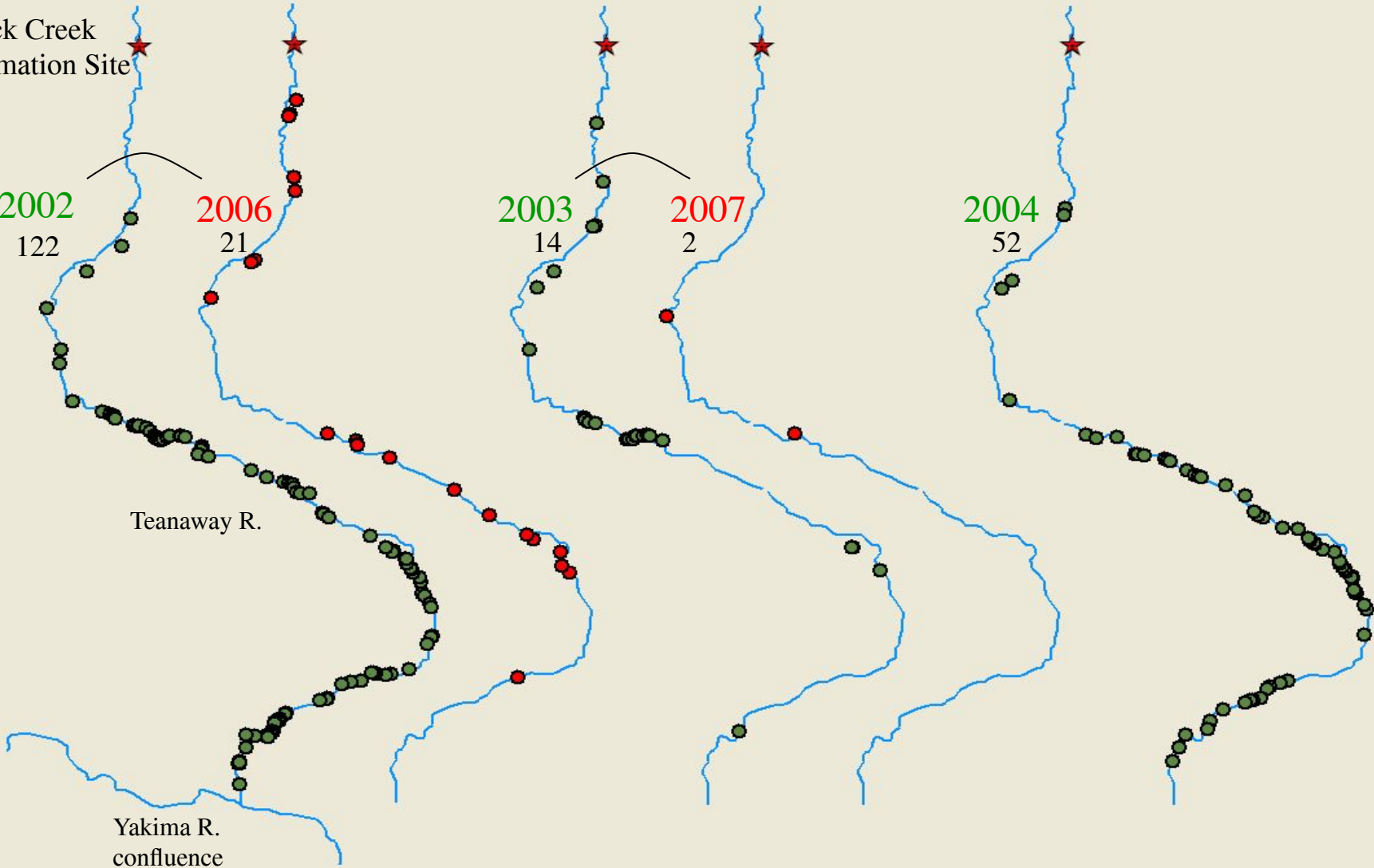
2003
14

2007
2

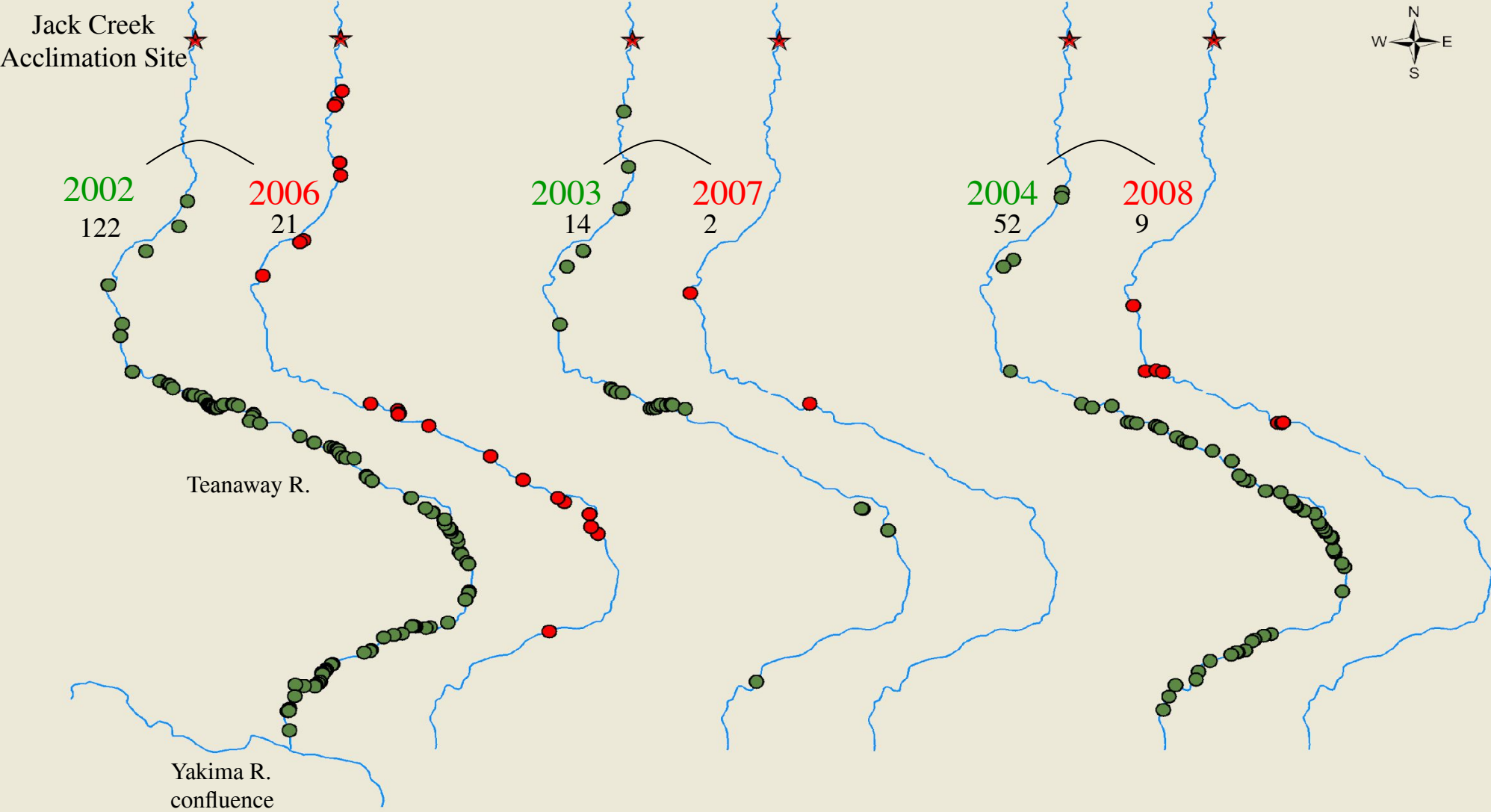
2004
52

Teanaway R.

Yakima R.
confluence



Effects of supplementation on Teanaway River spawning



Outline

-Upper Yakima Spring Chinook homing

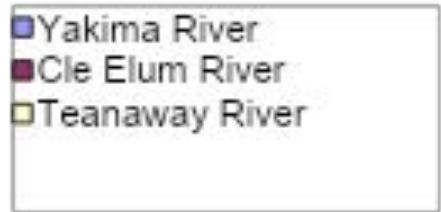
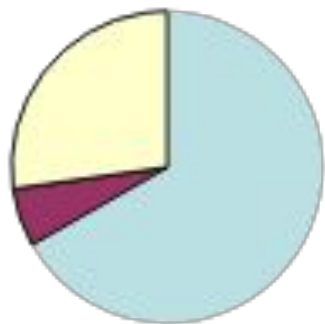
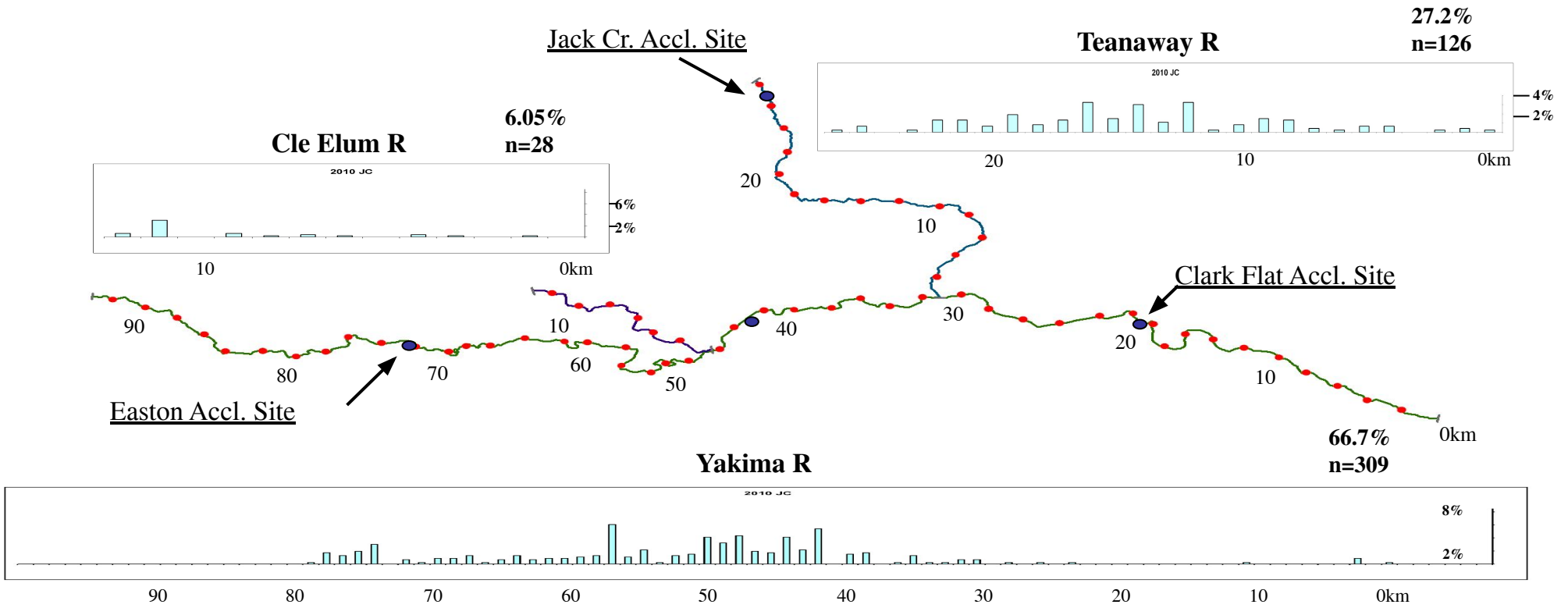
-Teanaway River Spring Chinook

-Factors affecting homing fidelity

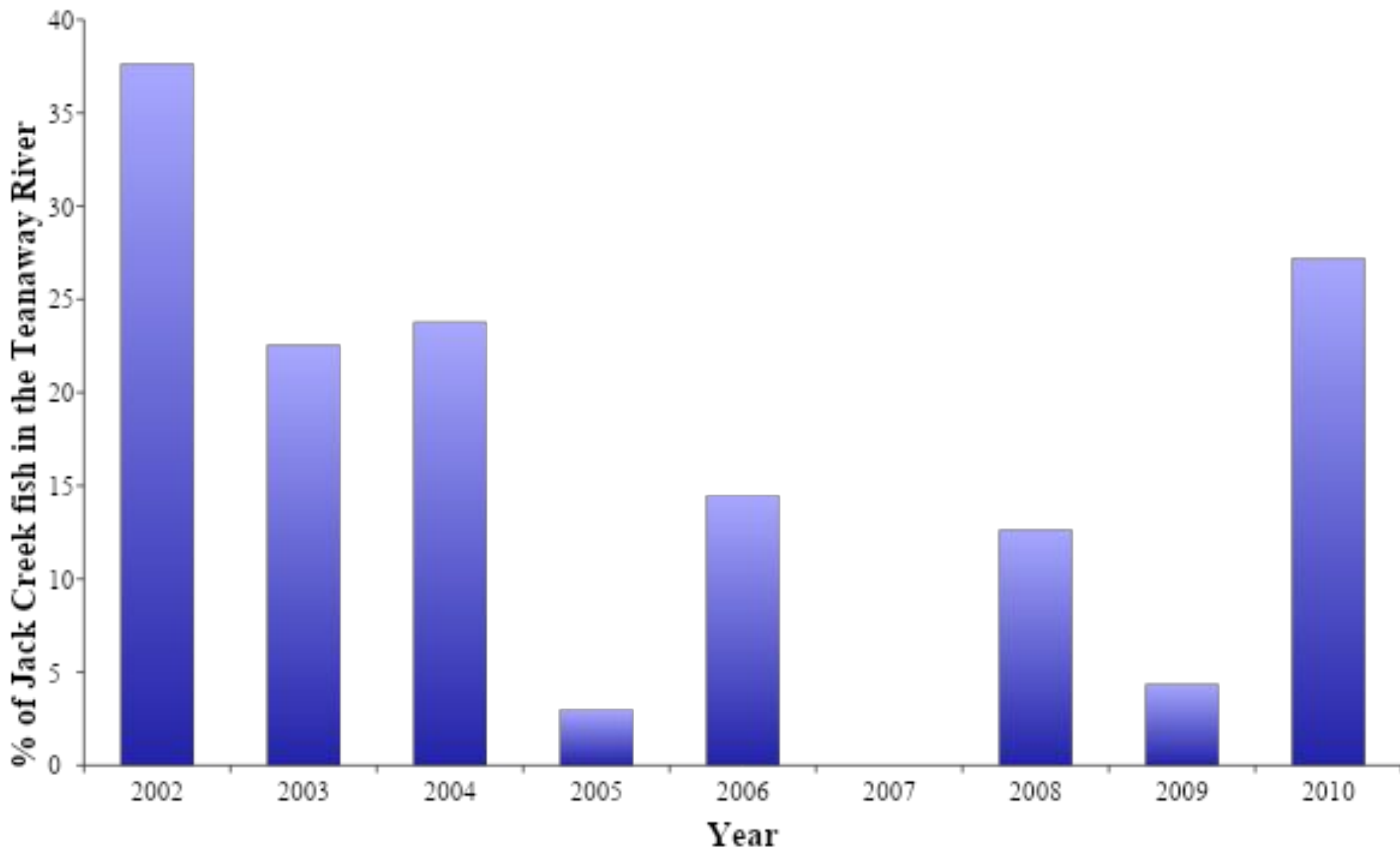
-PIT tag analysis of Spring Chinook migratory behavior in Teanaway River



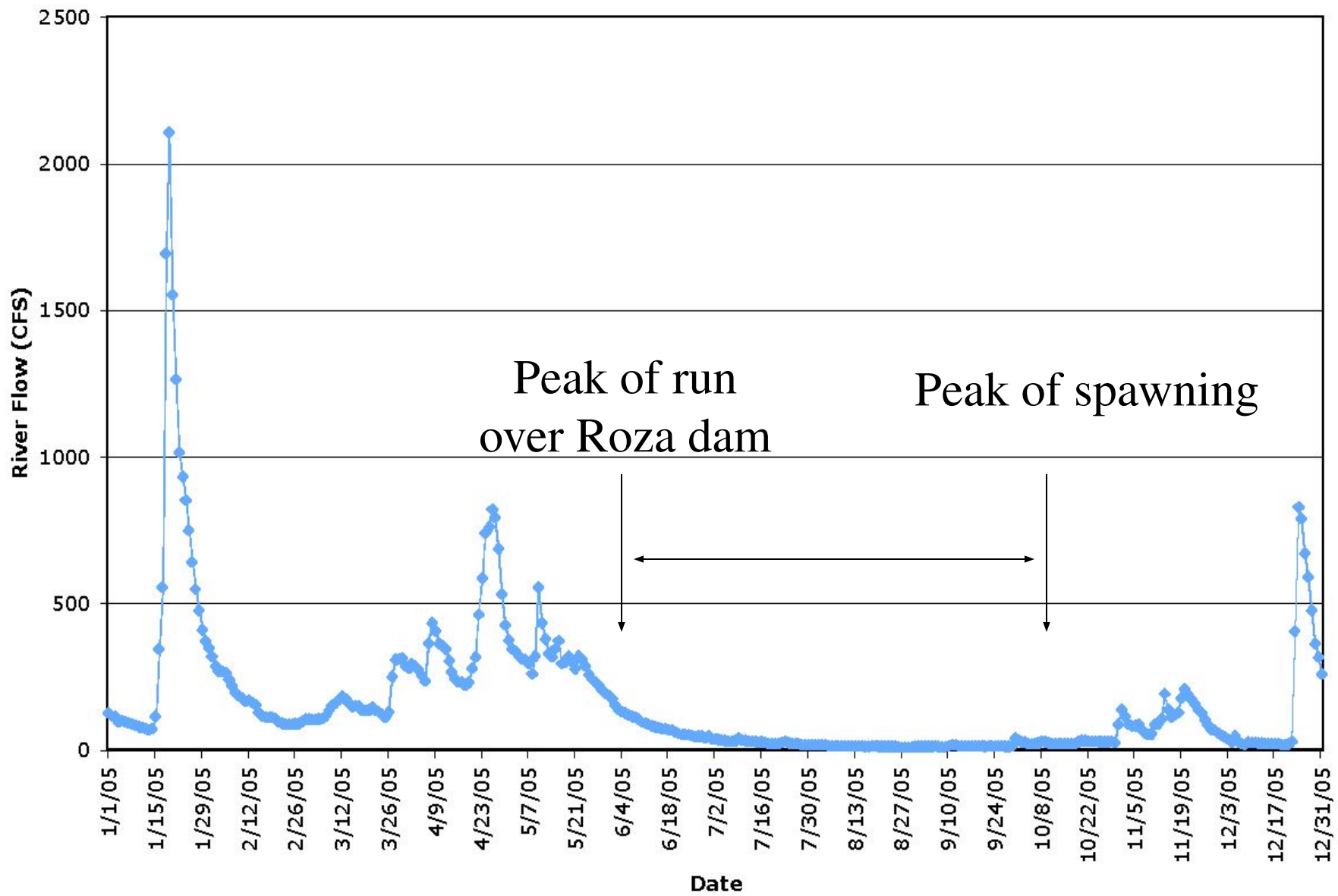
Distribution of Jack Creek Fish 2010



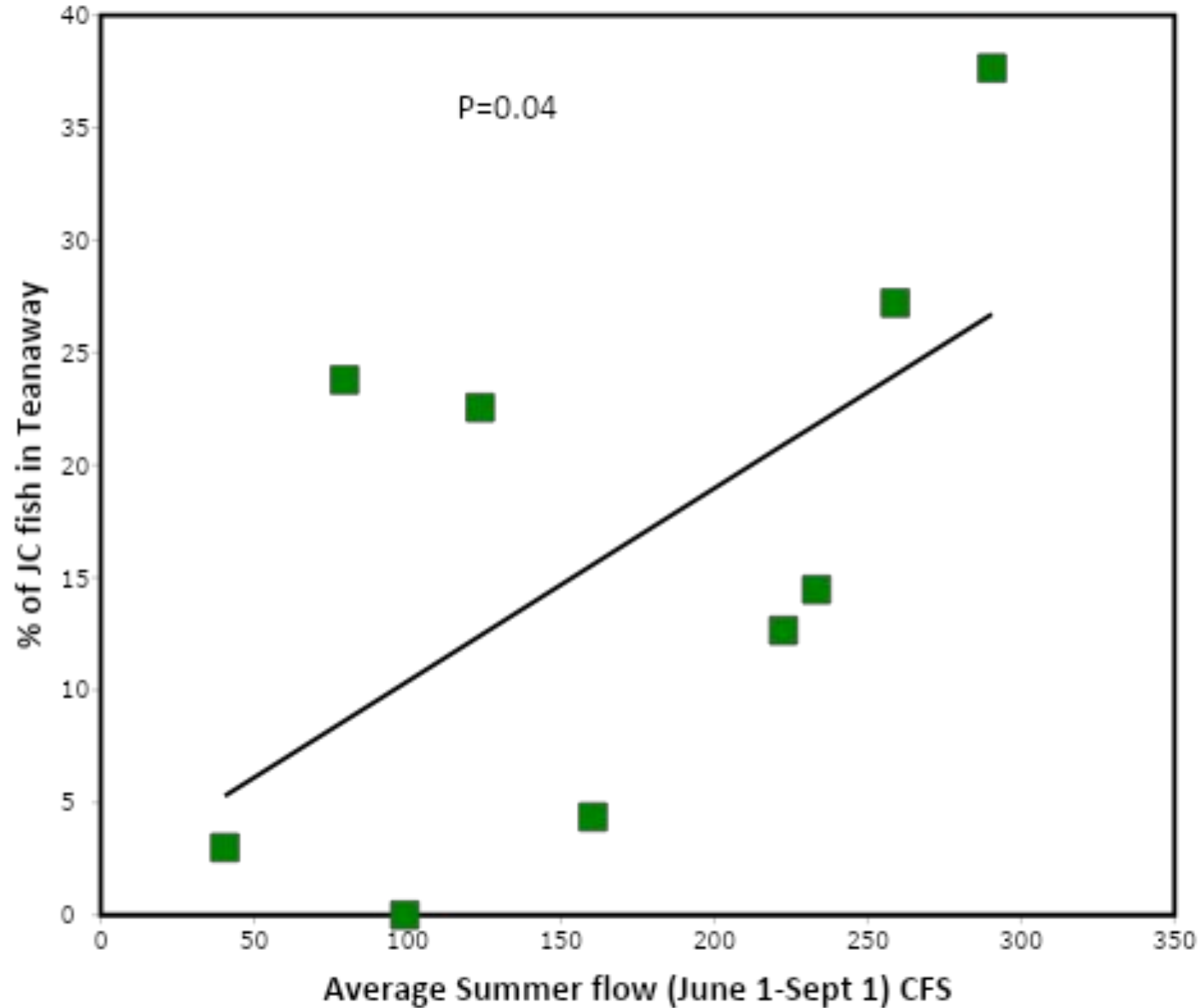
Homing fidelity to the Teanaway R. is highly variable between years



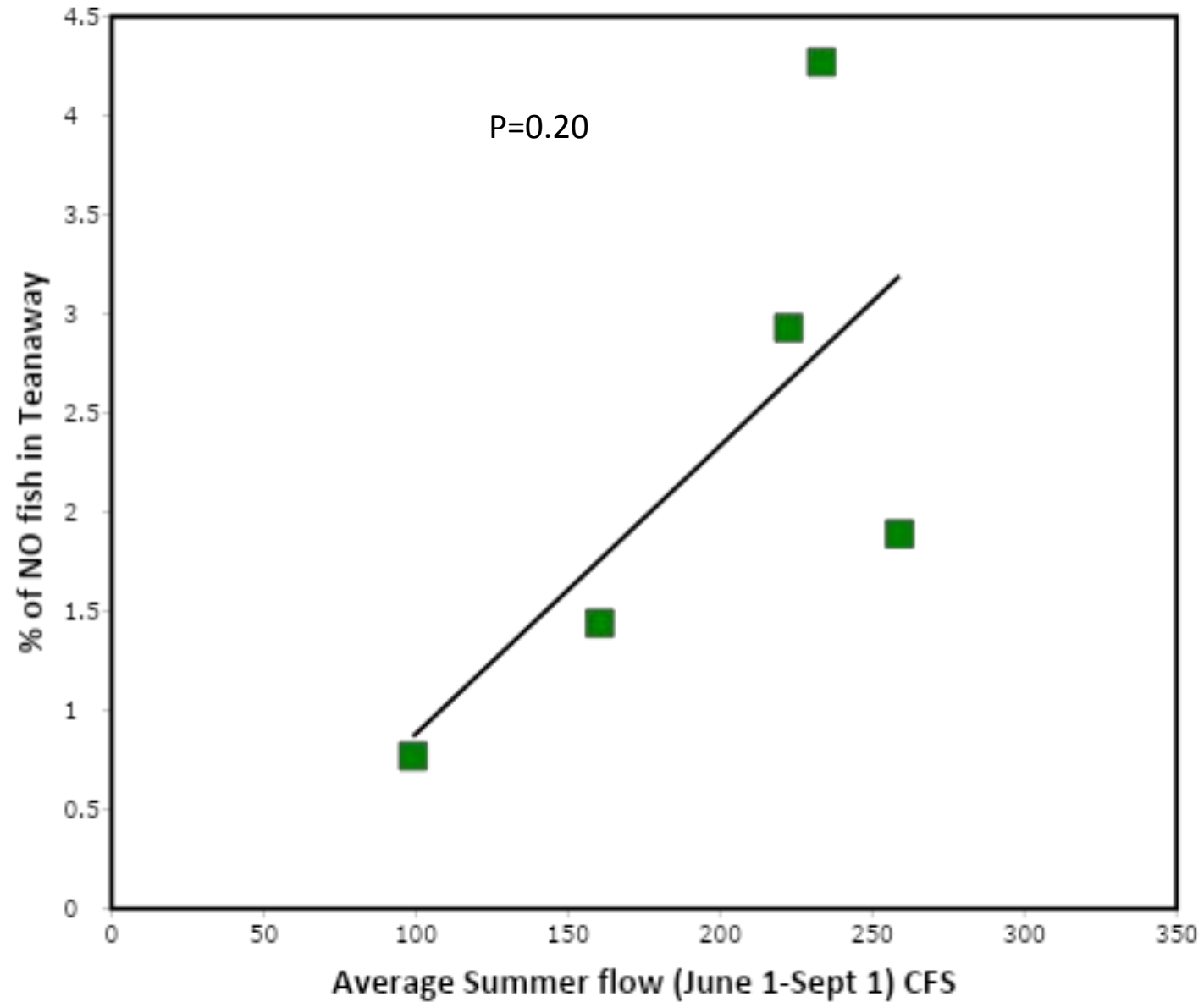




Relationship between homing fidelity and Teanaway R. flow



Relationship between homing fidelity and Teanaway R. flow



Are there phenotypic differences in fish that stray vs. home?



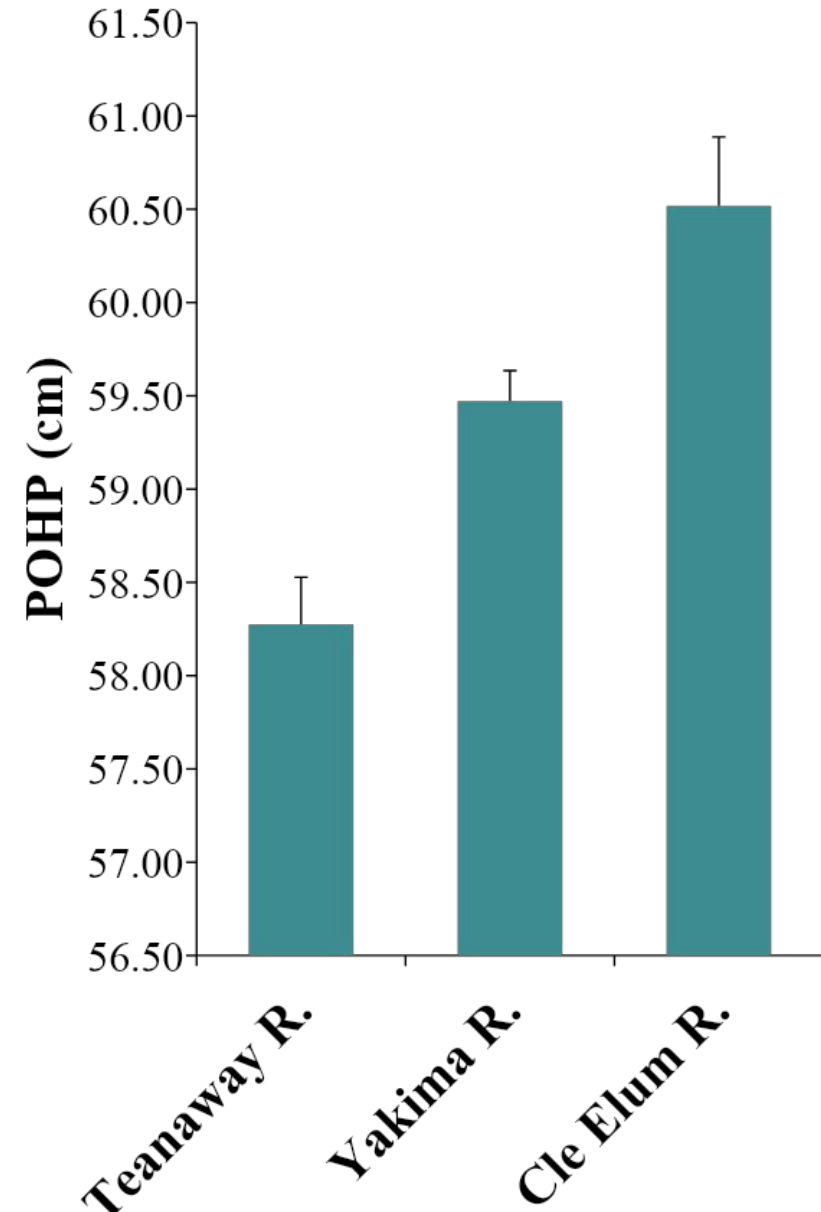
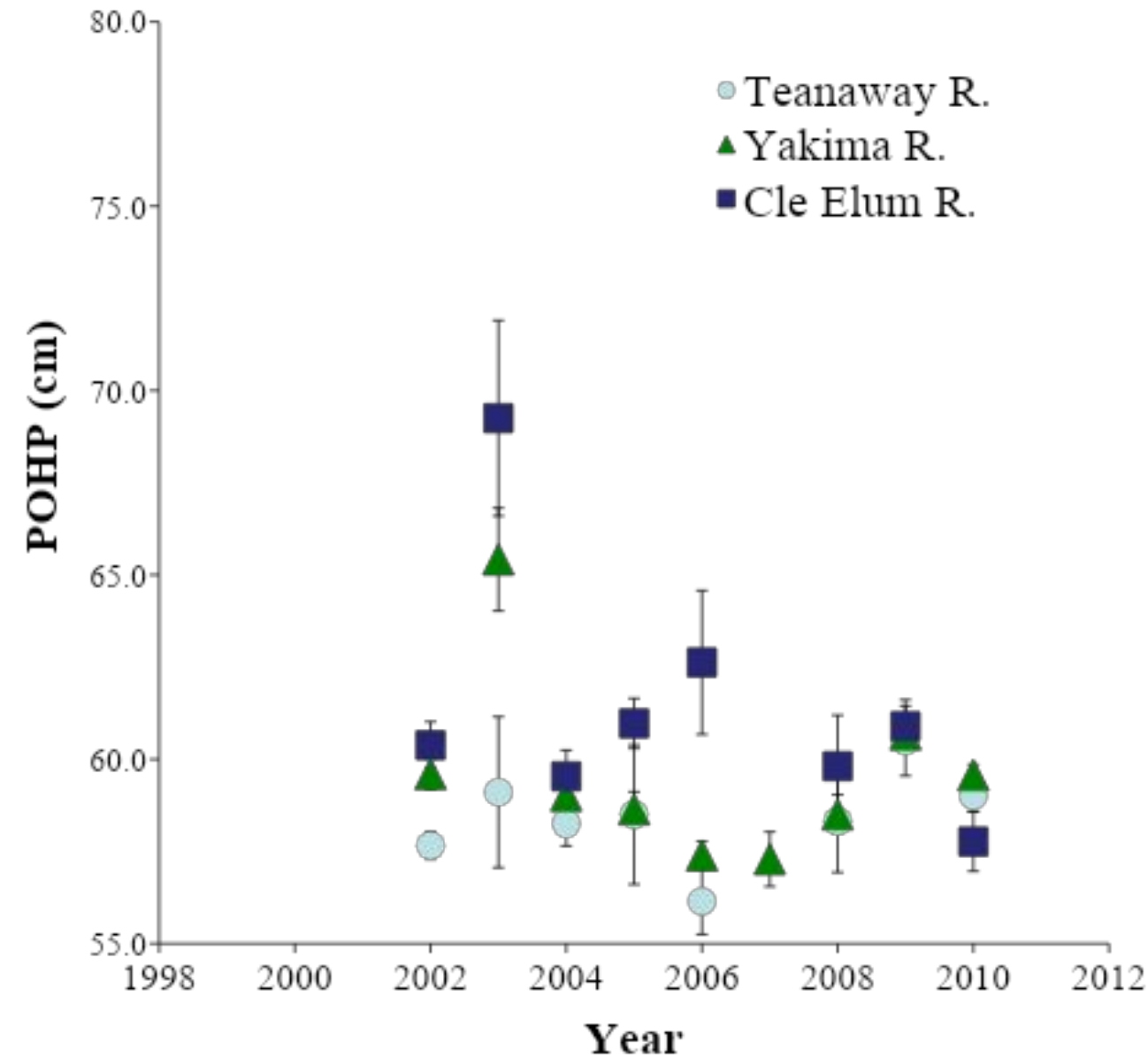
Cle Elum R.



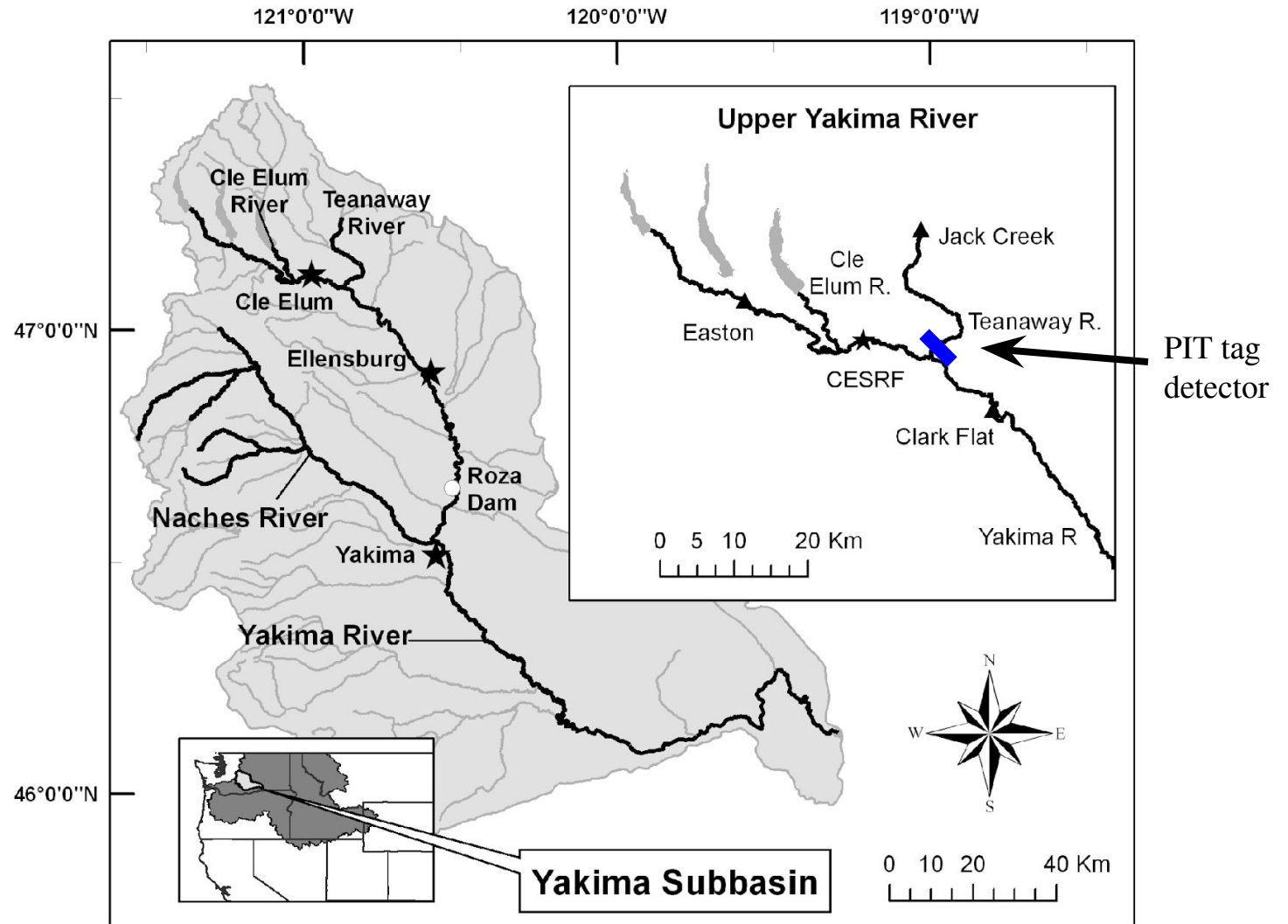
Teaway R.

Spawning site location is size dependent

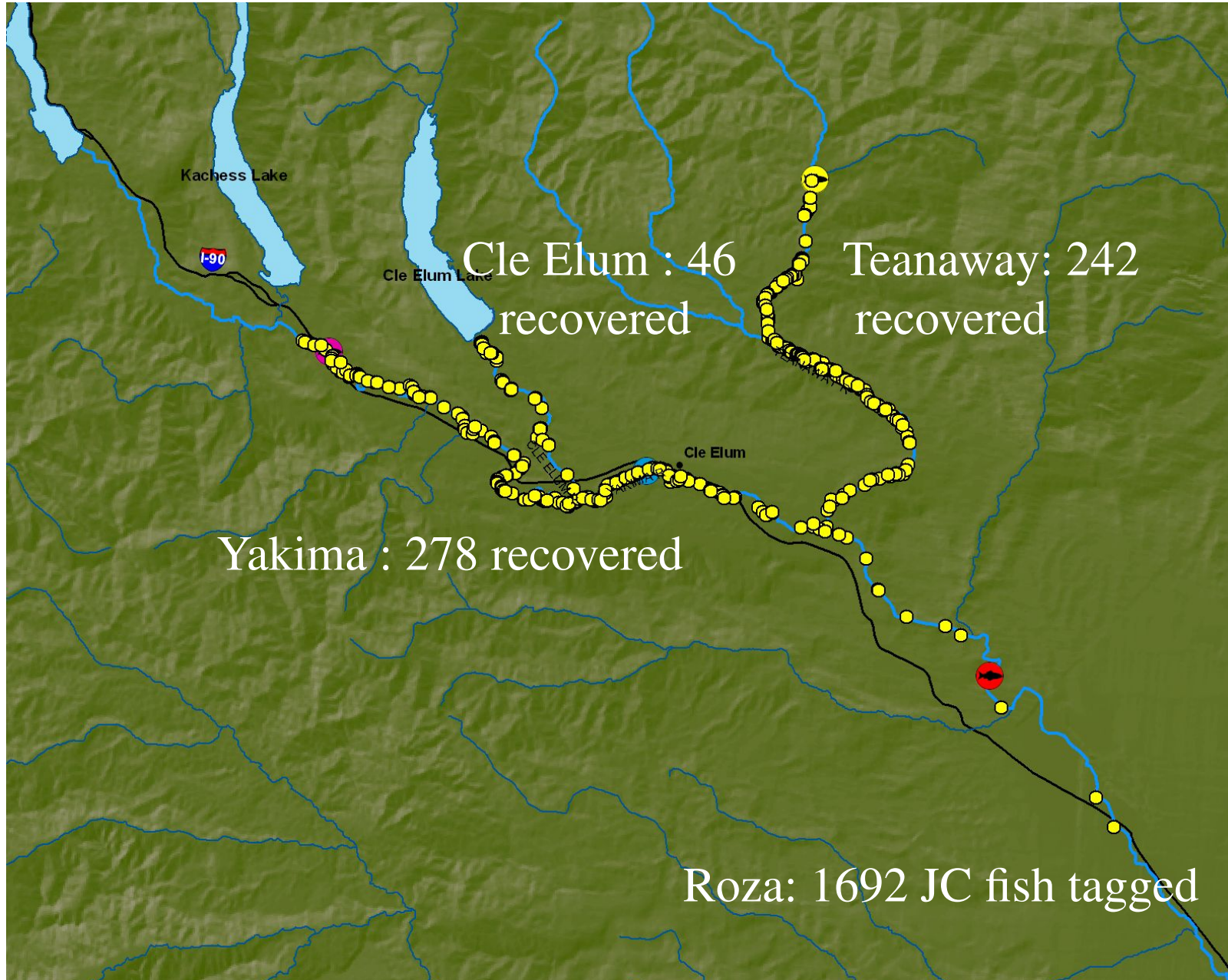
Jack Creek releases (4 y.o. female)



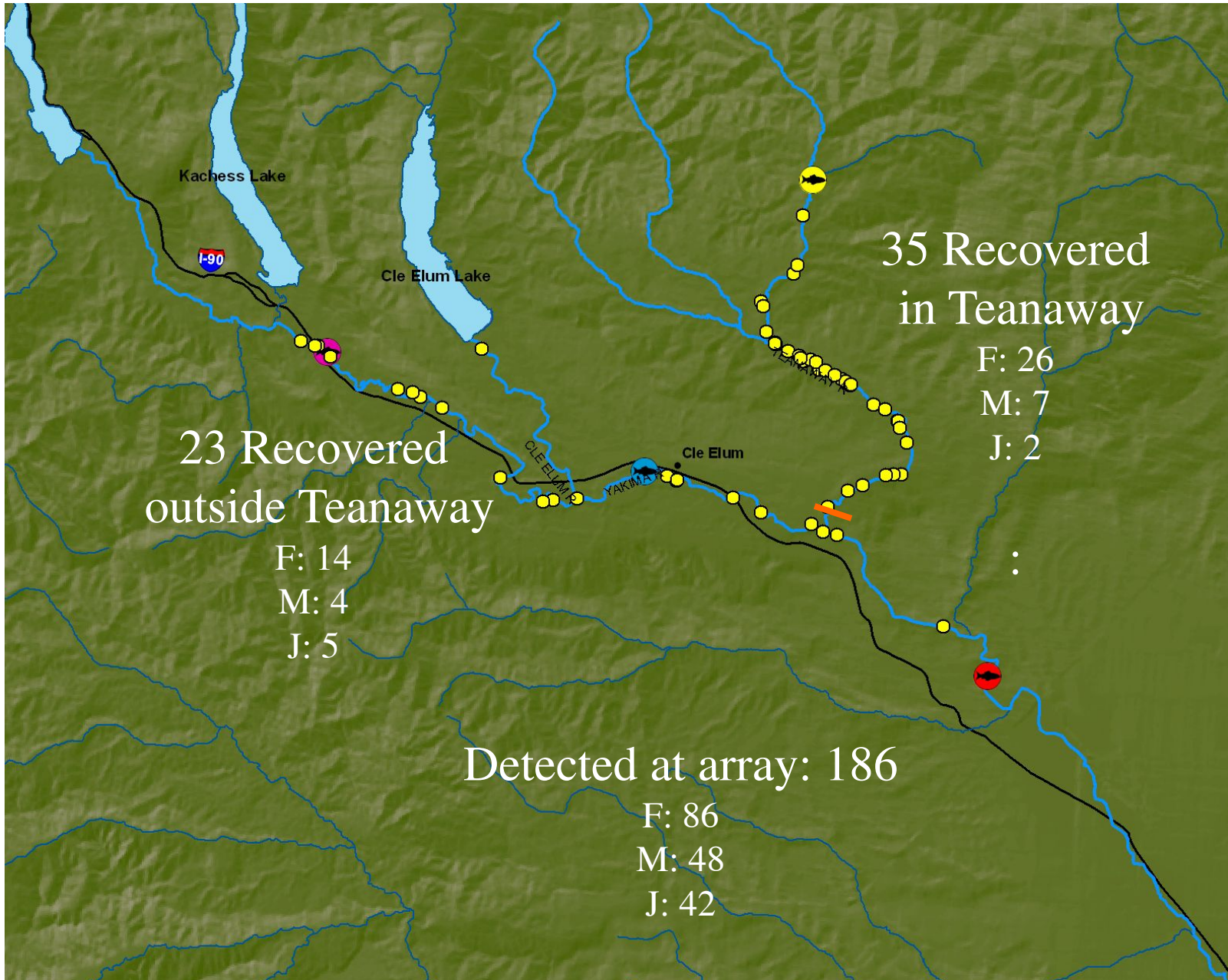
PIT tag analysis of Spring Chinook migratory behavior in Teanaway River



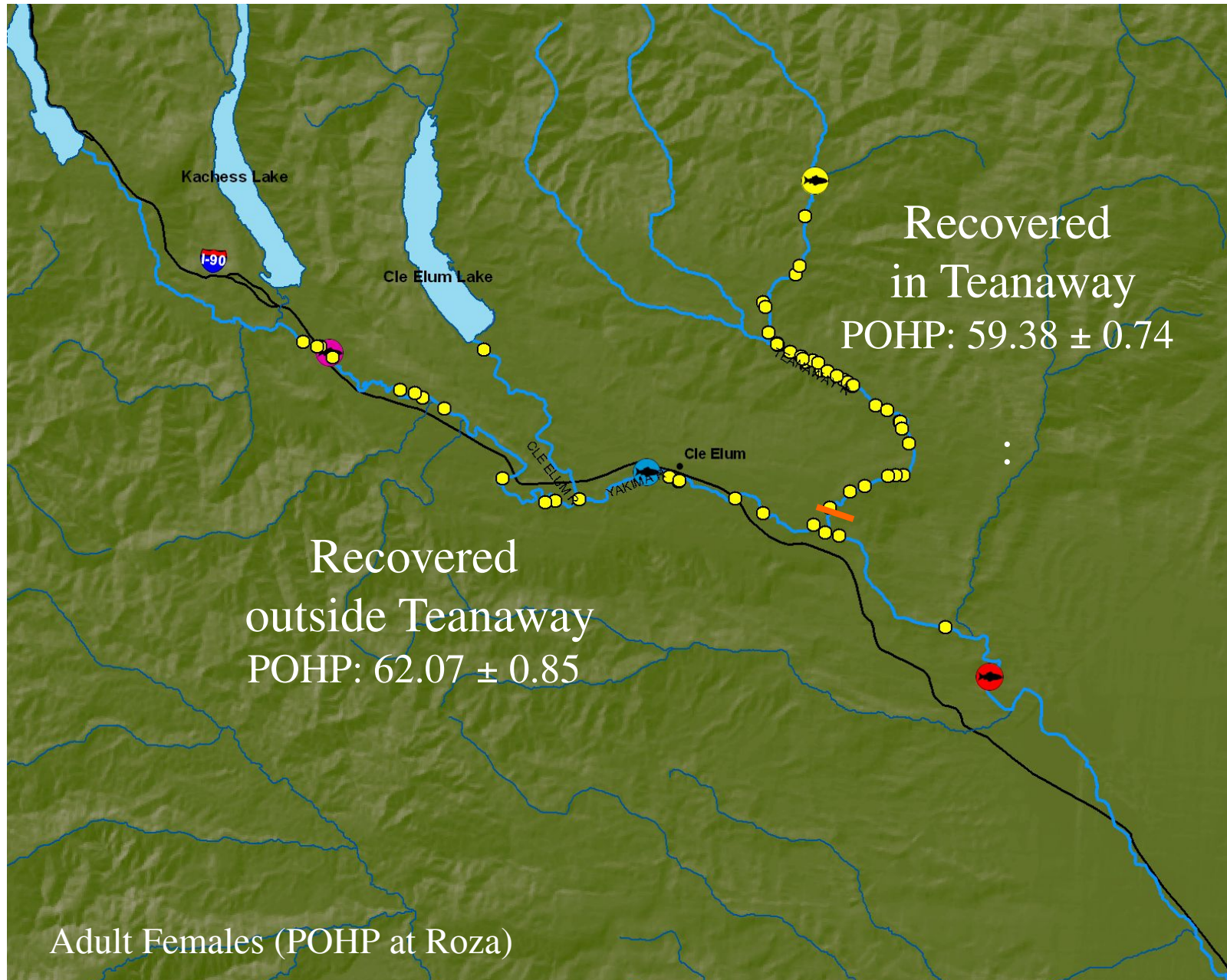
PIT Tag Recoveries – Carcass survey



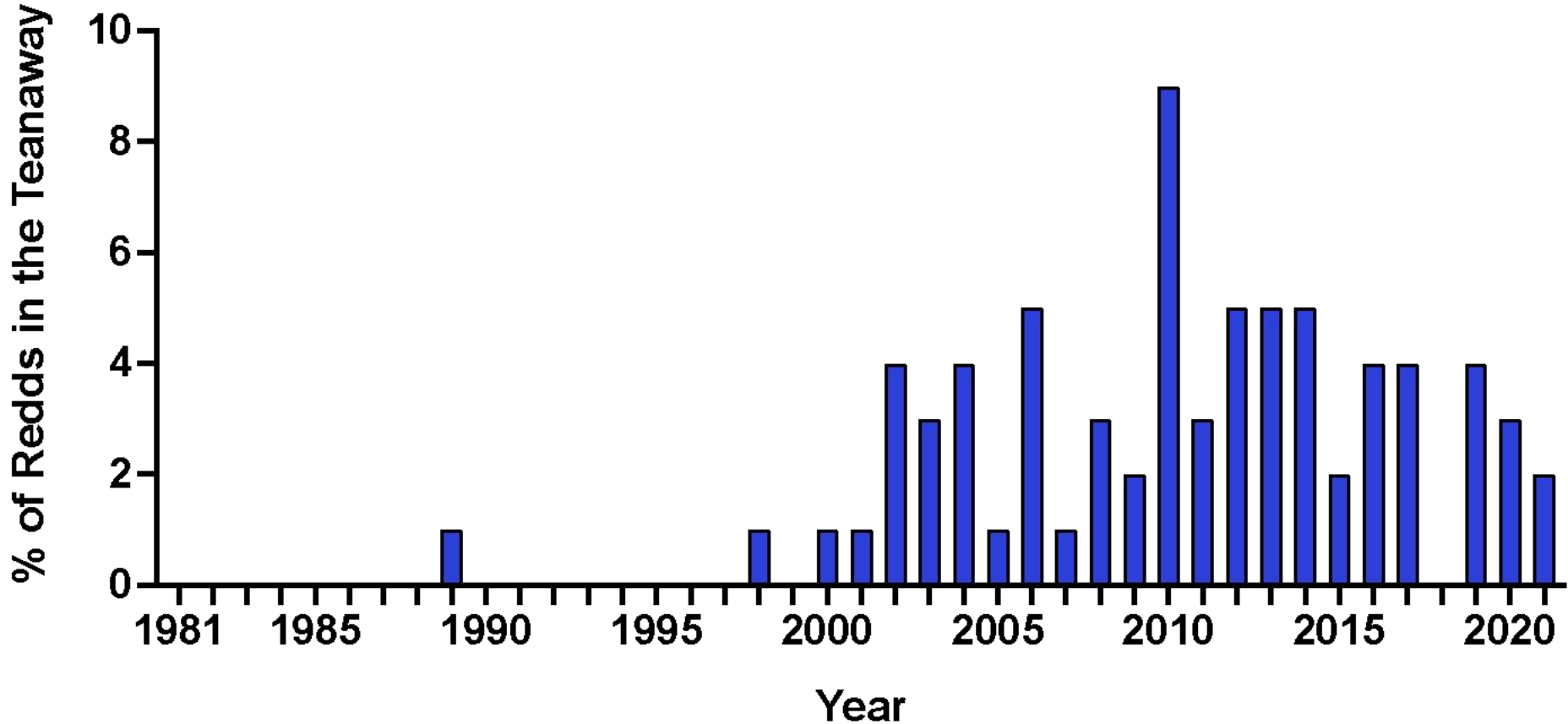
PIT Tag Detections – Teanaway array



Size selective emigration of JC fish



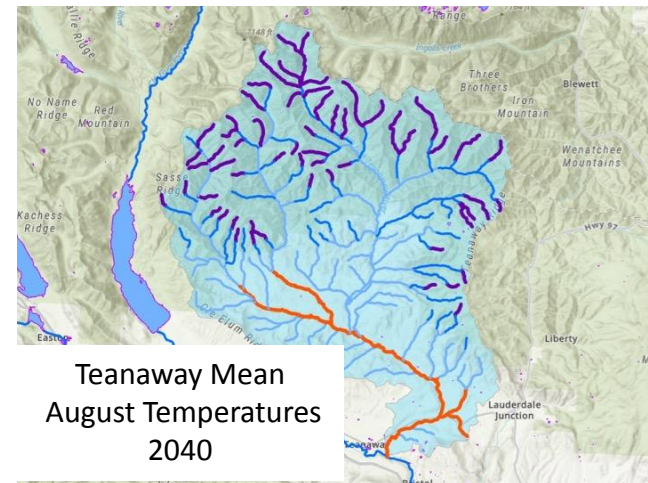
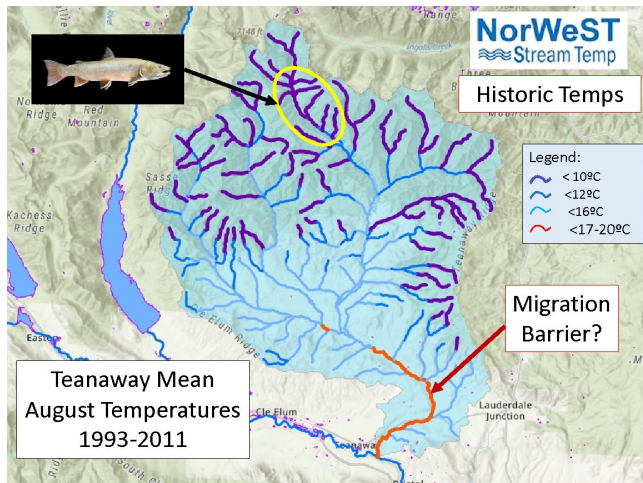
Has a changing environment and/or habitat restoration affected Teanaway River Spring Chinook?



A lot has happened since 2010

- Purchase and creation of the Teanaway Community Forest 2013.
- Many restoration projects to improve passage and habitat (YKFP, MCFG, YBFW Recovery Board, American Rivers, Trout Unlimited, Wilderness Society).
- Nature Conservancy, DNR, UW, efforts to quantify and restore natural water storage and preserve/restore cold water refuge
- Increased efforts to monitor and improve temperature/flow

BUT:



Stolen from
William Meyer

Acknowledgements



Yakama Nation

Bill Bosch

Yakama biologists

WDFW

PIT Tag crew

Lynne Anderson

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especially Physiology team

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