

Factors Affecting Recolonization of the Teanaway River by Spring Chinook Salmon

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Anthony Fritts
Mark Johnston
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Outline

-NOAA/UW/USGS Research

**-Teanaway River Spring
Chinook**

**-Factors affecting homing
fidelity**

**-PIT tag analysis of Spring
Chinook migratory behavior
in
Teaaway River**



Imprinting, Homing, and Straying

Homing research and the NWFSC mission

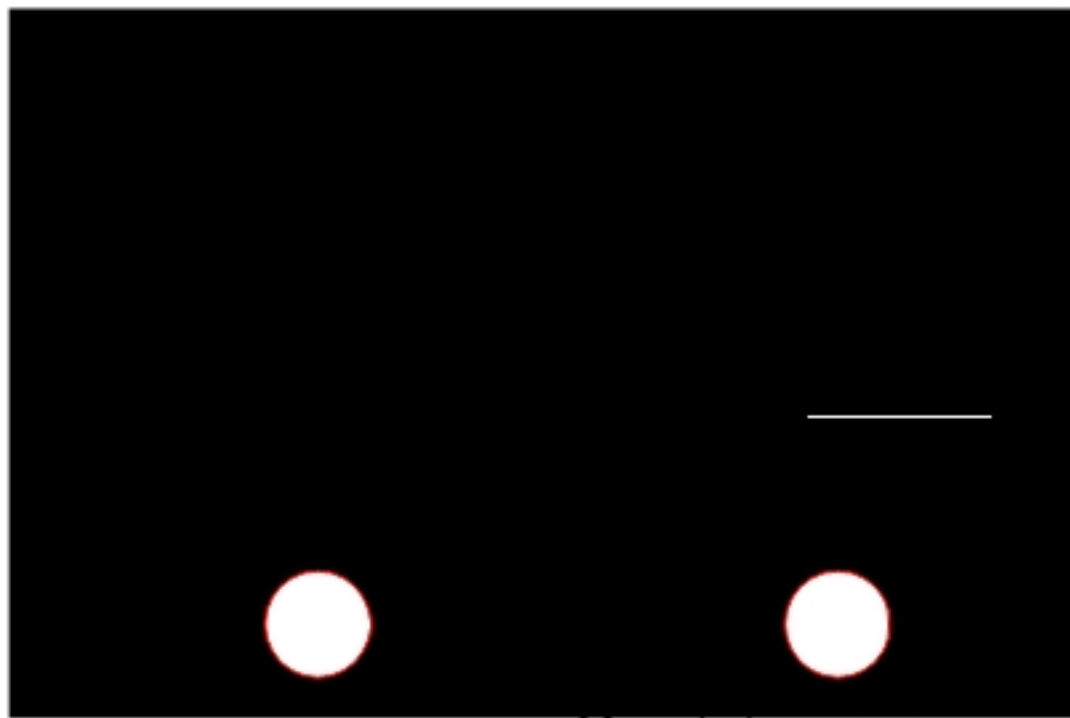


- Recovery science: Spatial structure and patterns of dispersal for population/ESU viability
- Ecological and genetic interactions between naturally-spawning (stray) hatchery and wild salmon
- Identification of Essential Fish Habitat for conservation and recolonization
- Anthropogenic impacts on homing/spawning success (e.g. contaminants, rural development, dams and transport, irrigation and water transport)

Monitoring –Redd mapping and analysis

(1981-2010)

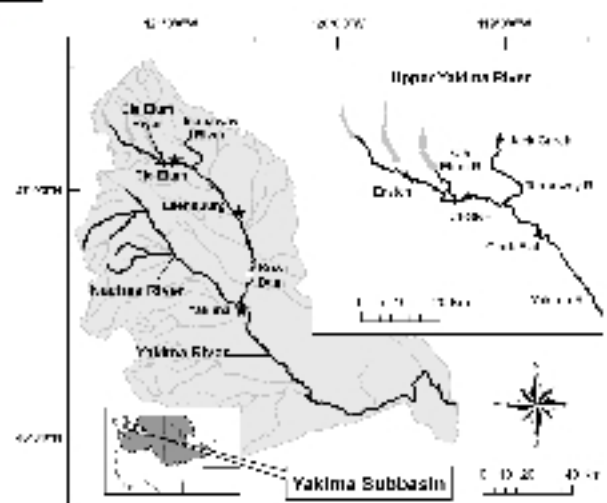
- Weekly redd Surveys
- Float or walk reaches
 - 1-5 times during season
 - Marked with flagging
- Georeferenced to reaches (2002-2010)



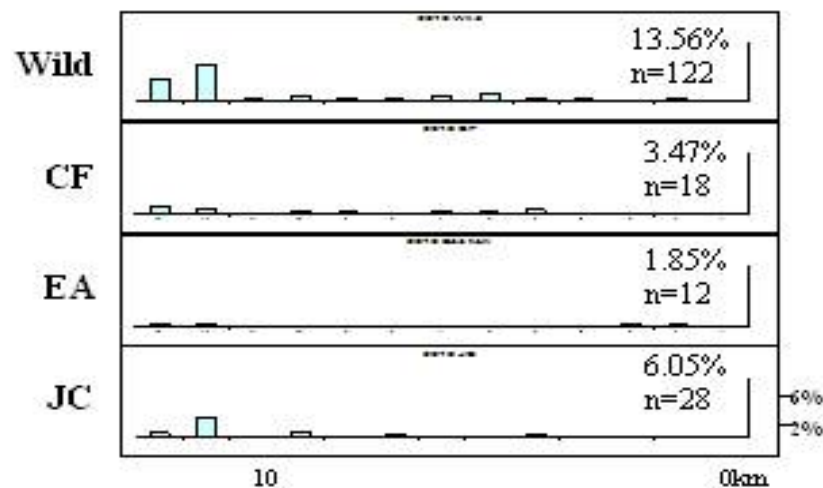
May et al. in prep.

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

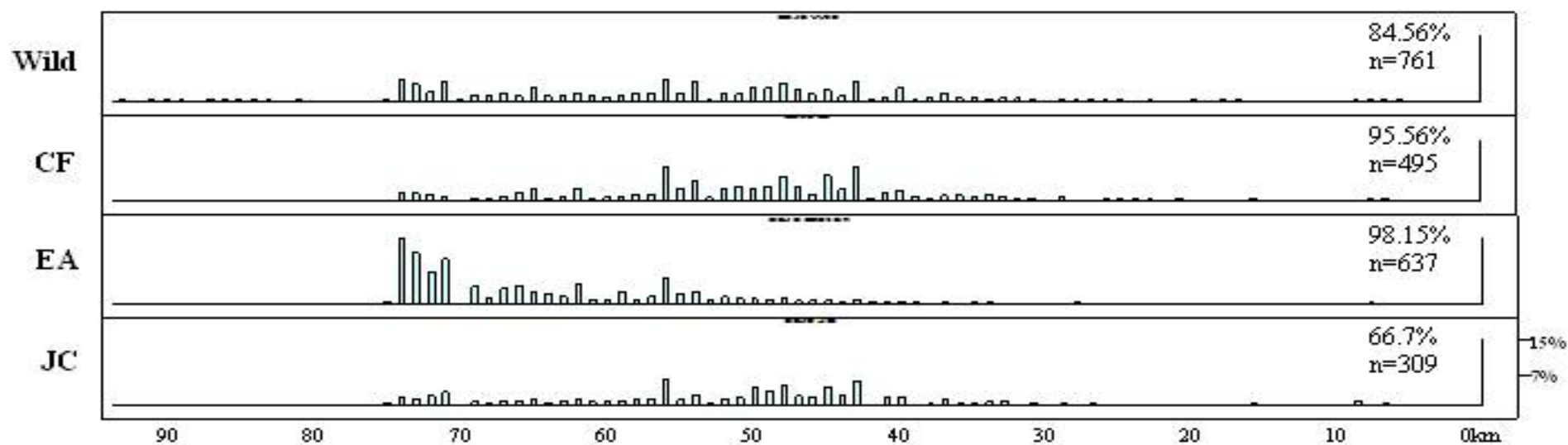
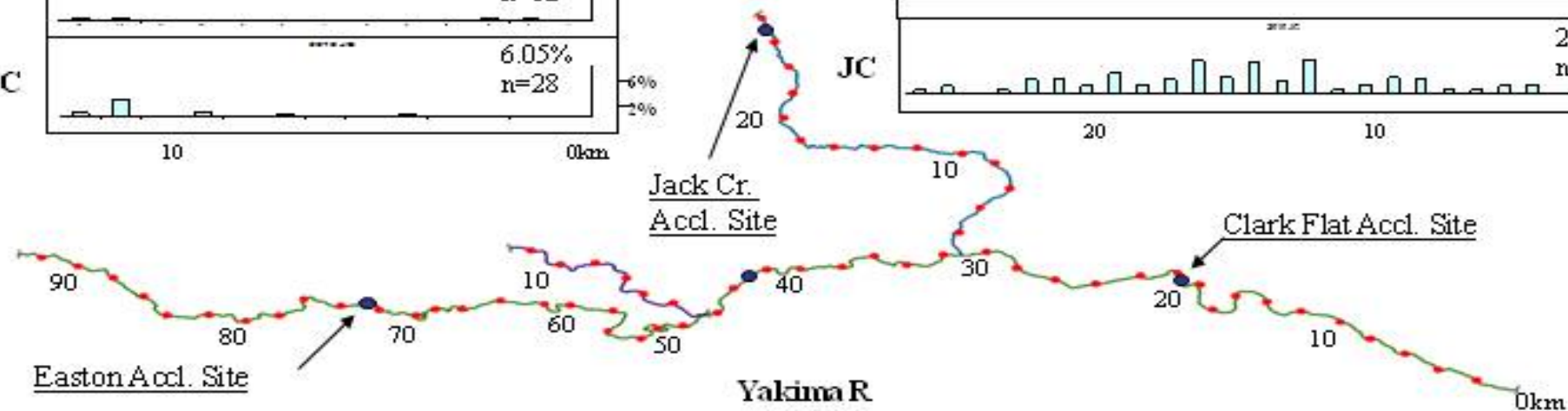
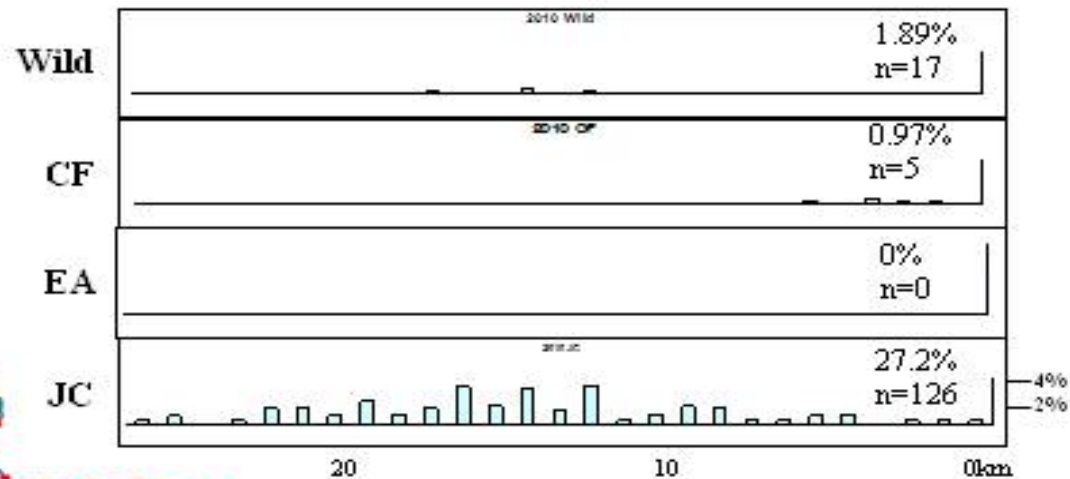
- GPS location (3 m accuracy); date
- hatchery/wild
- male/female; jack, precocious
- length, scale
- tag location, recovery
- egg retention; disease
- dna (2003-2010; 3000 samples),
- otolith (2002-2010; ~1500 samples)
- ~15,000 carcasses sampled



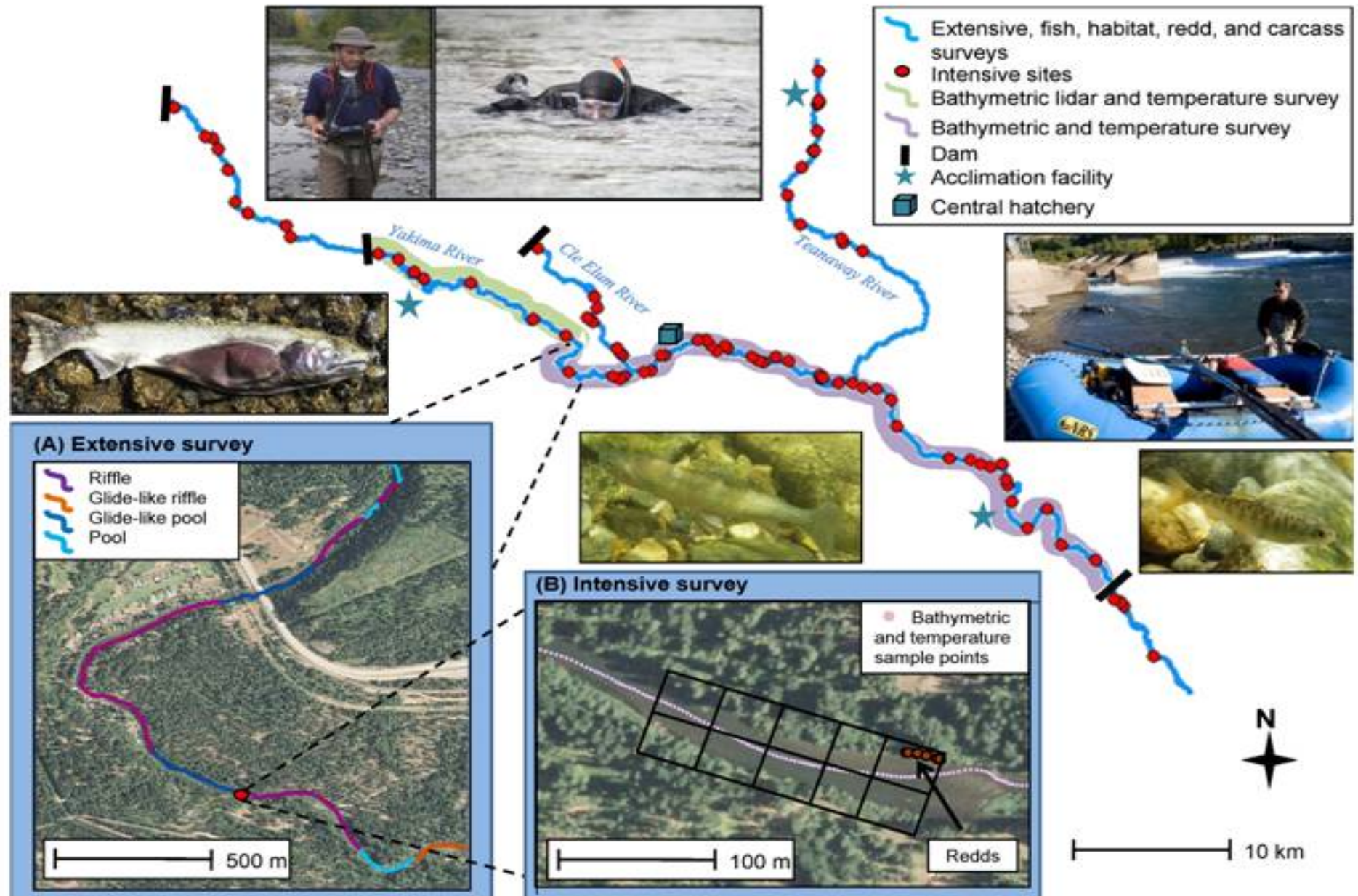
Cle Elum R



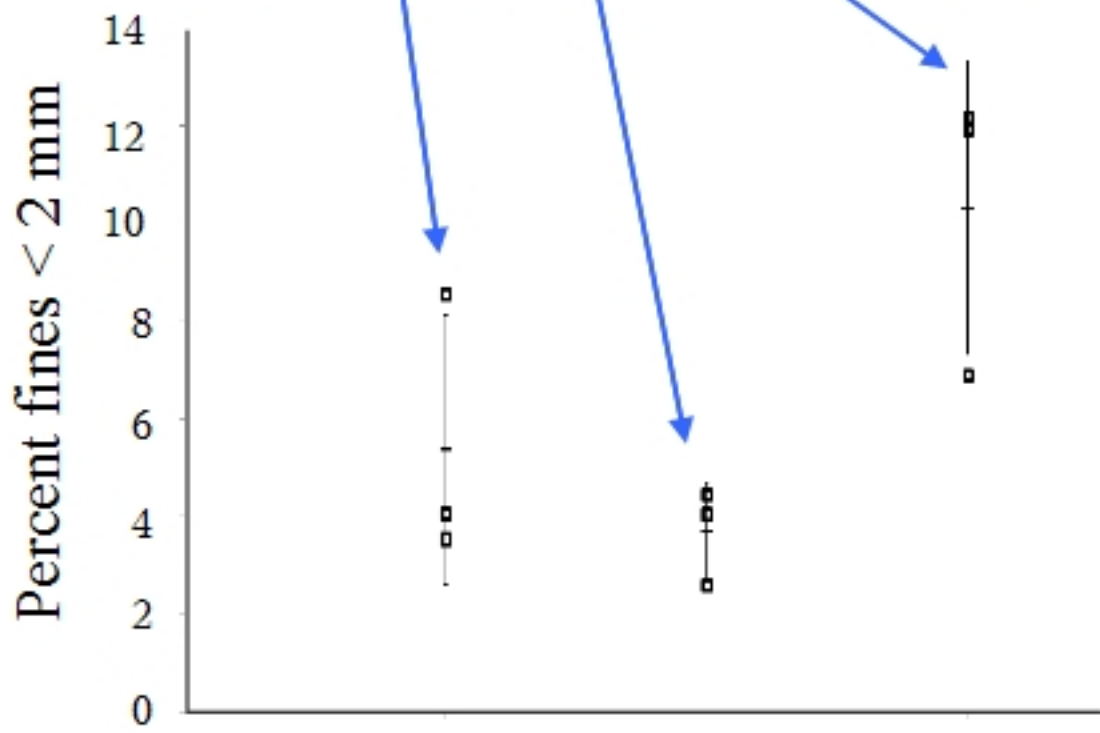
Teanaway R



Tradeoffs between homing and habitat quality (Cram et al., in review)



Spatial patterns of fine sediment infiltration (Klett et al., in prep.)



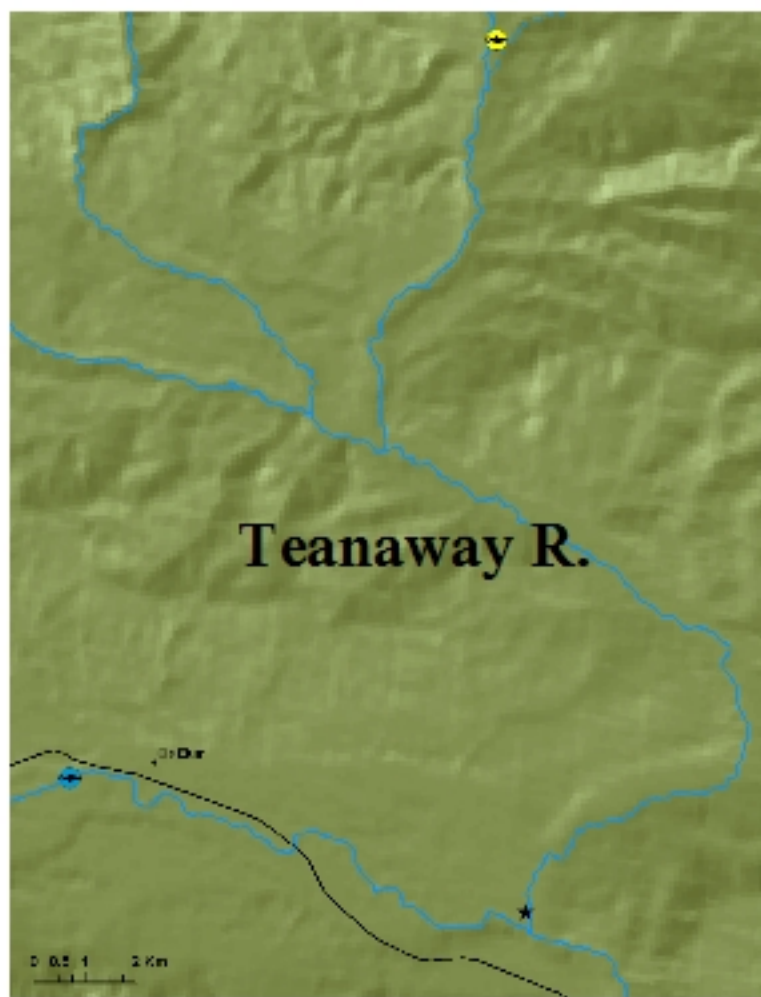
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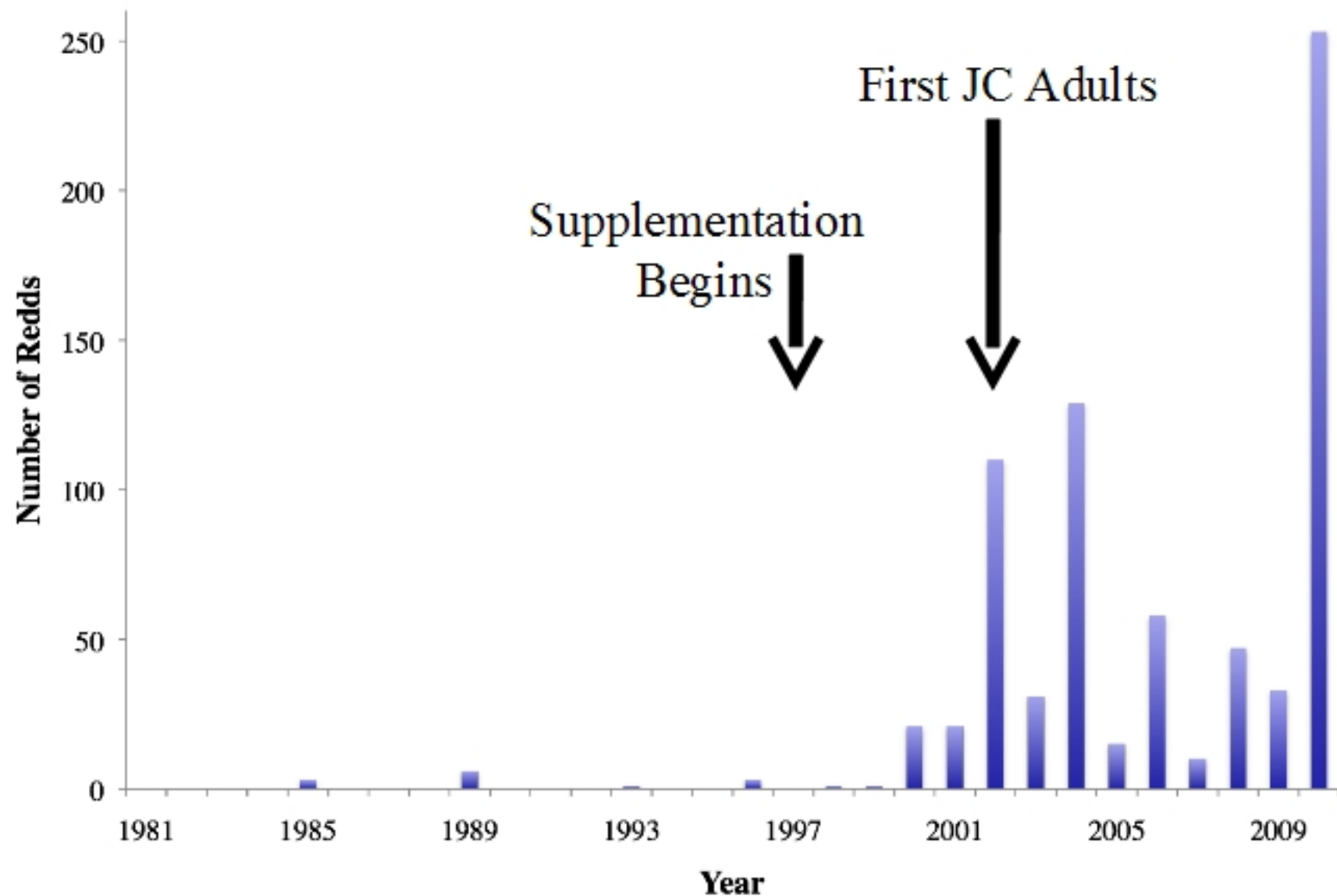
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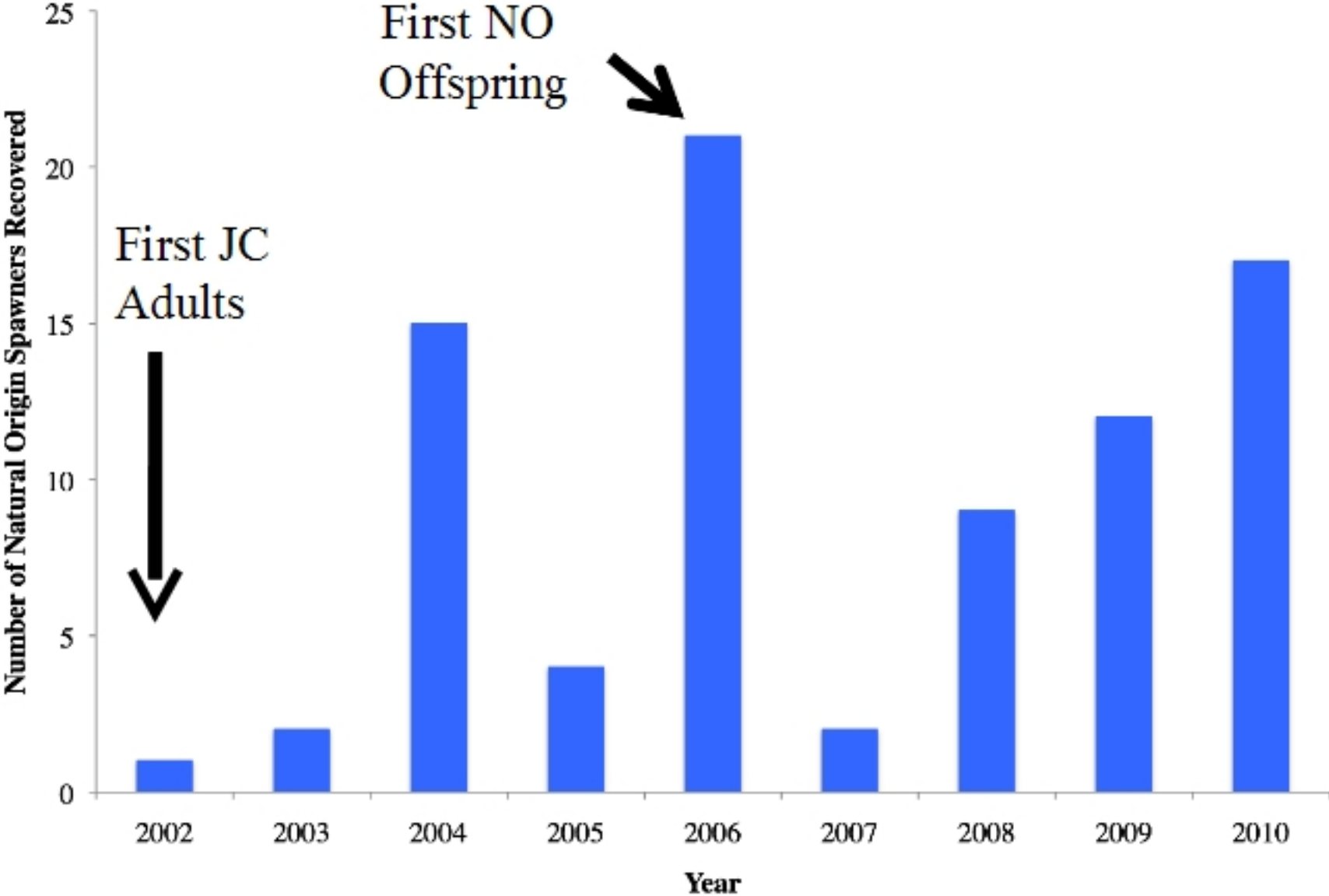
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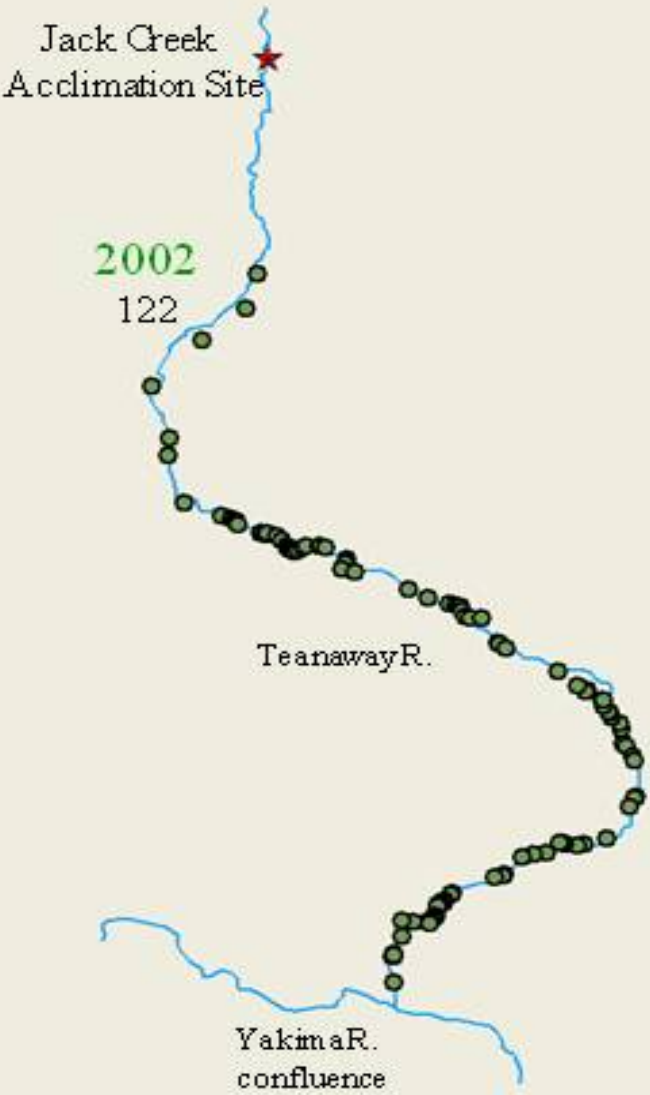
Utilization of the Teanaway River by Spring Chinook spawners



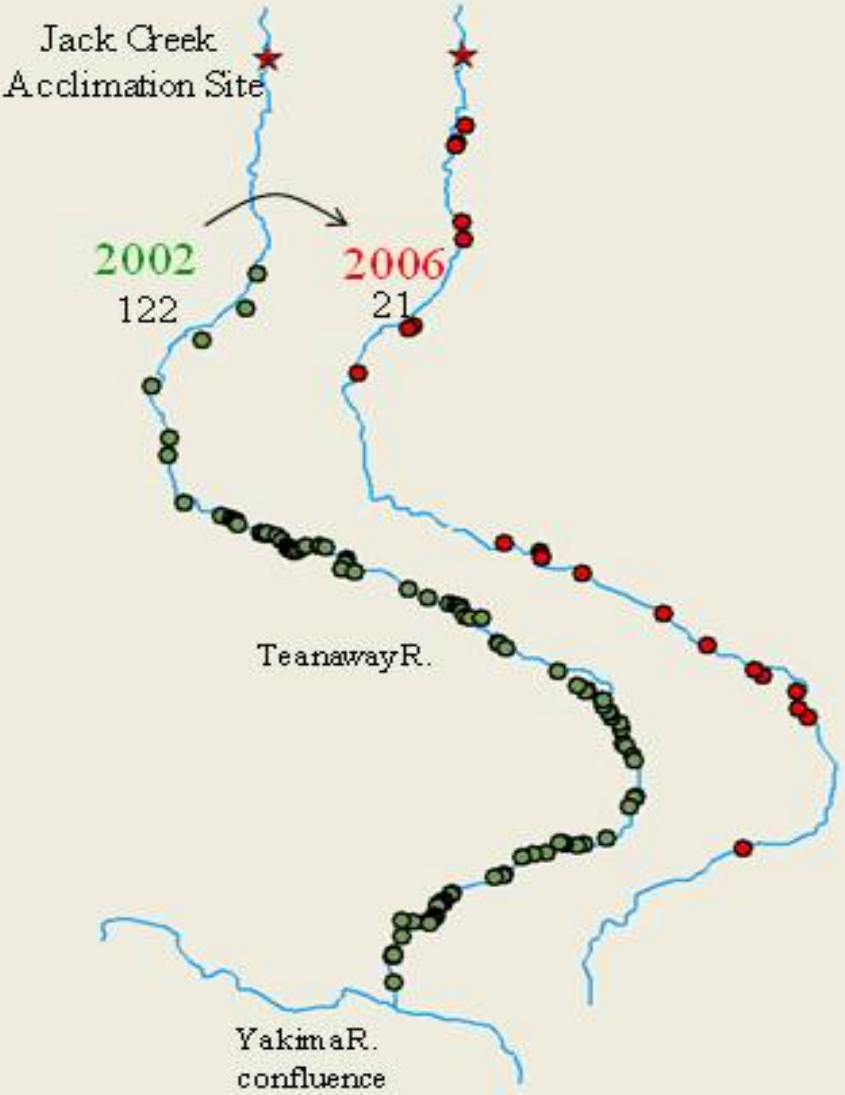
Utilization of the Teanaway River by Natural Origin spawners



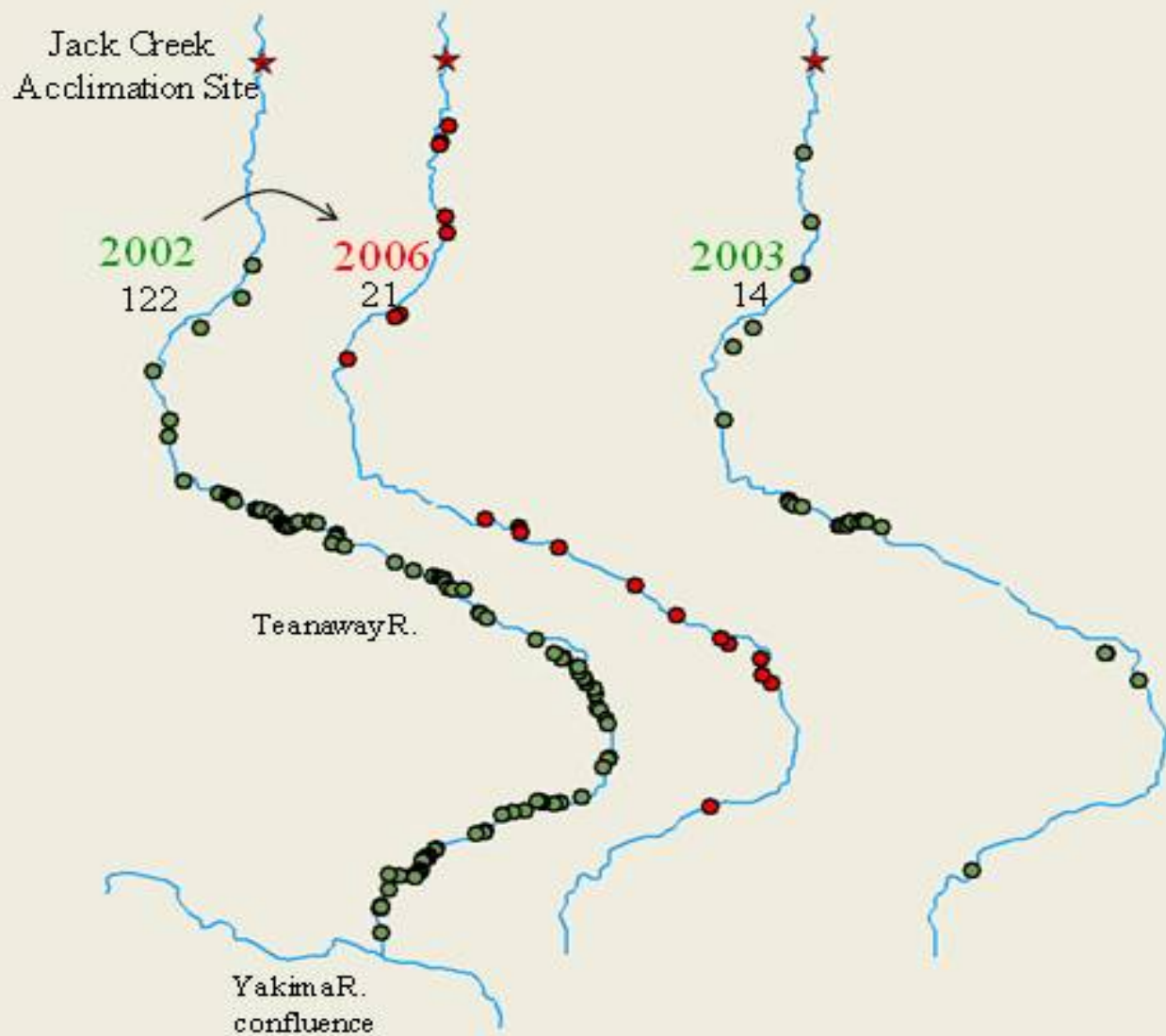
Effects of supplementation on Teanaway River spawning



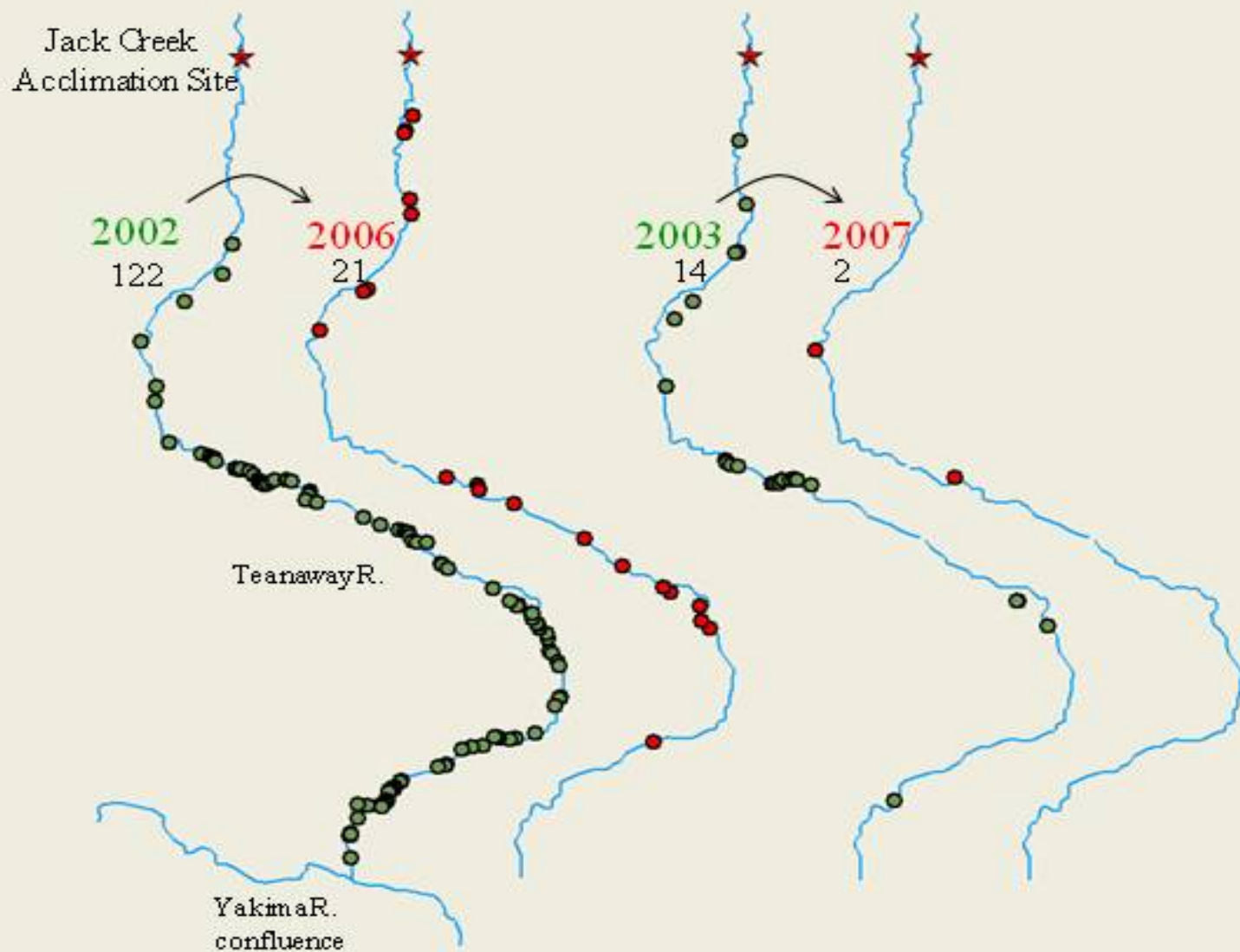
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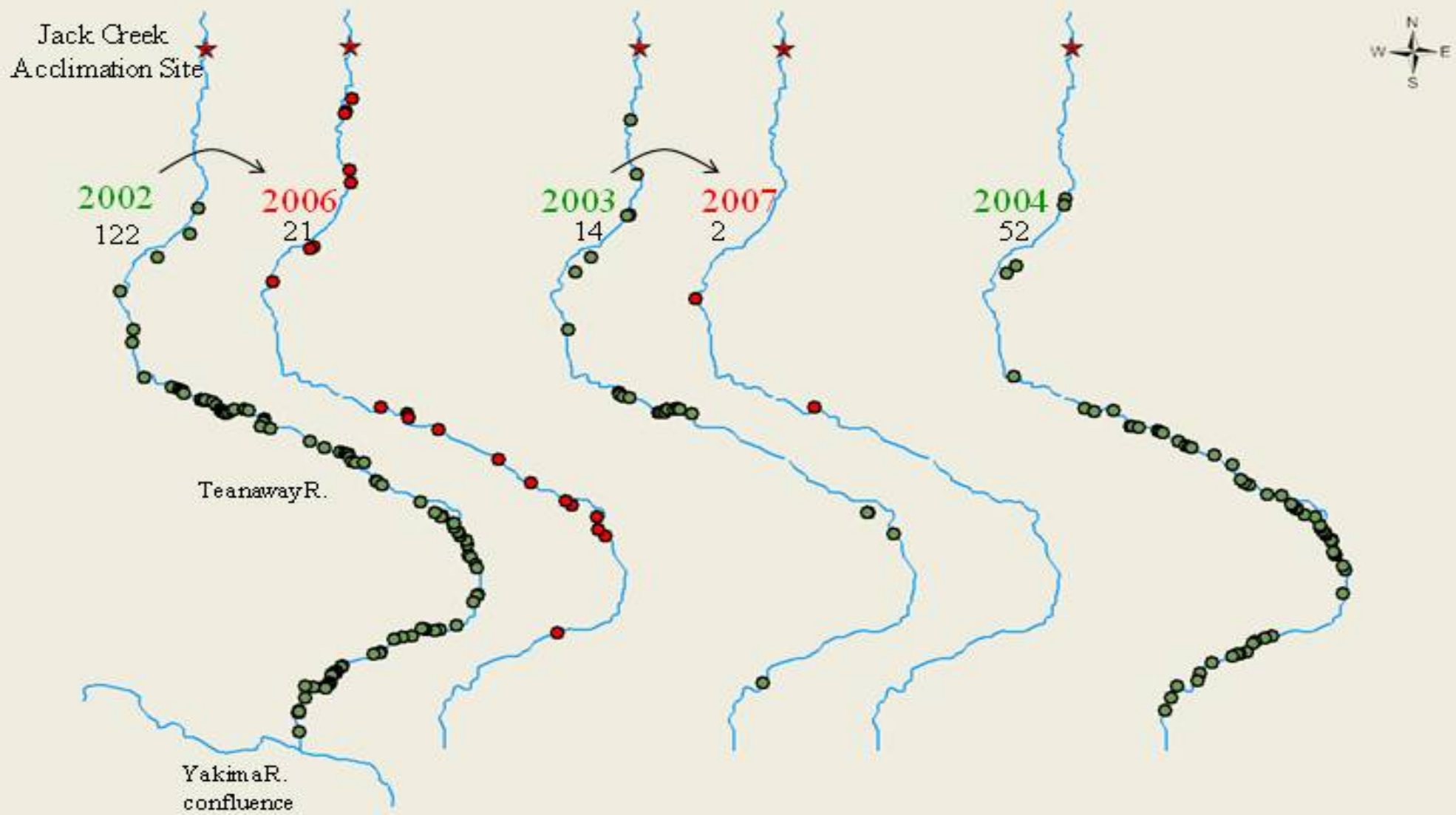
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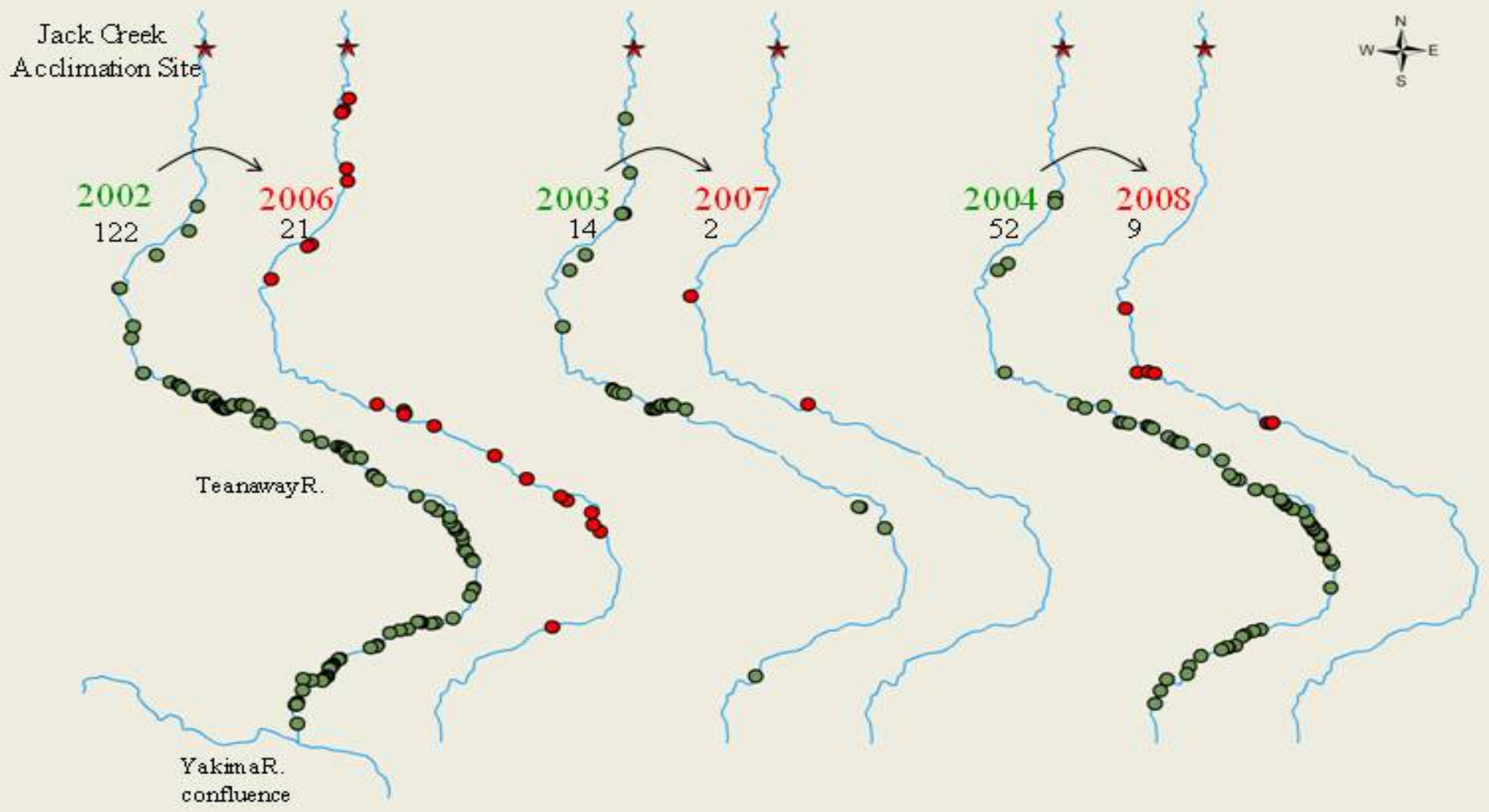
Effects of supplementation on Teanaway River spawning



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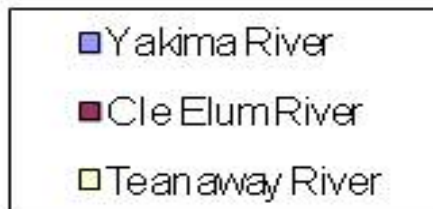
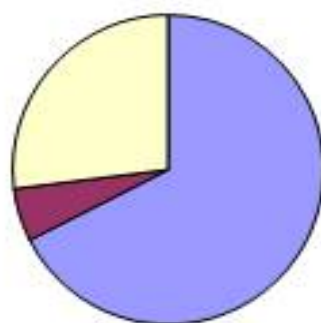
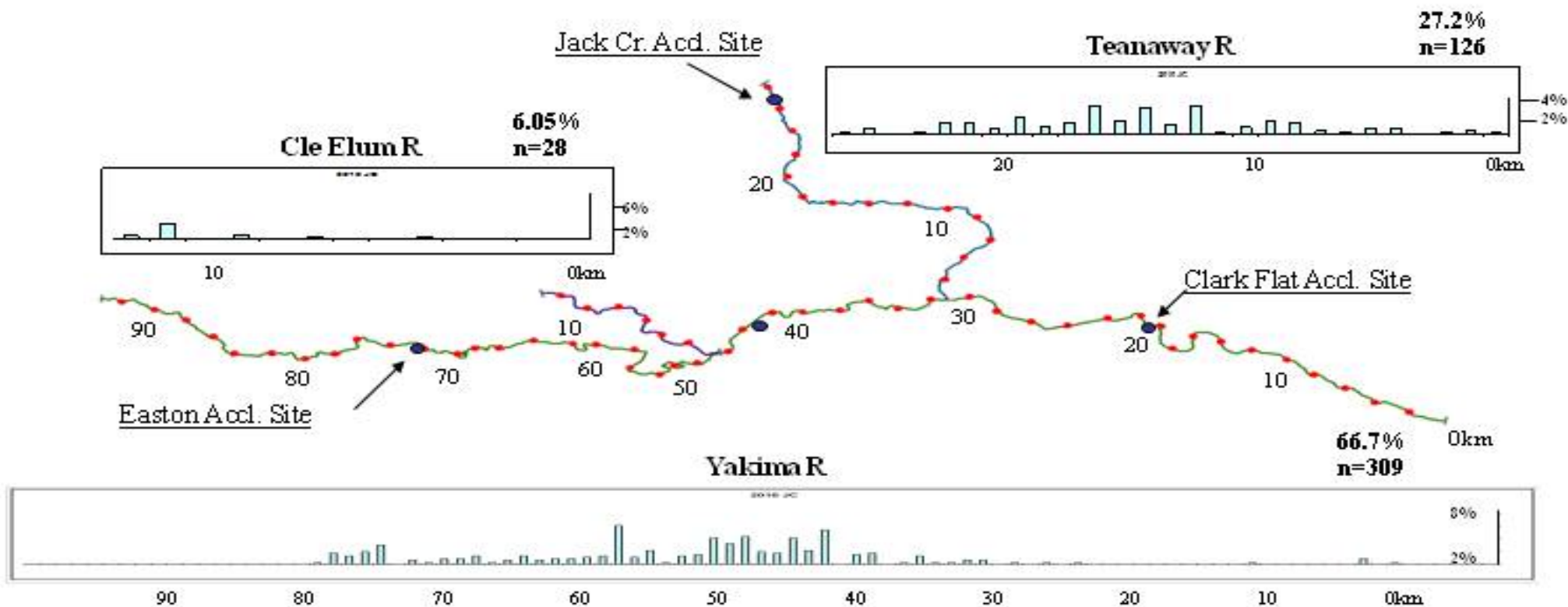
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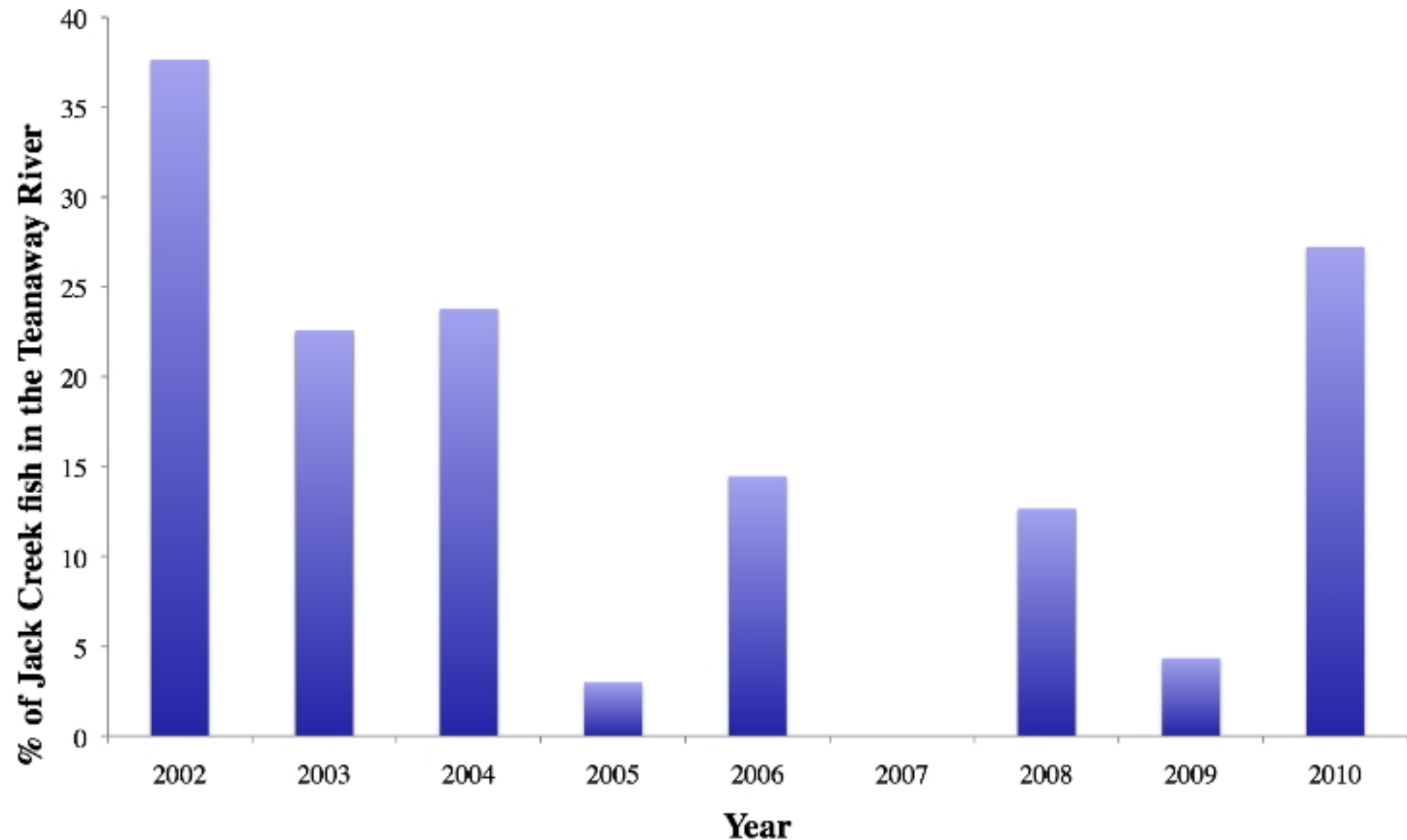
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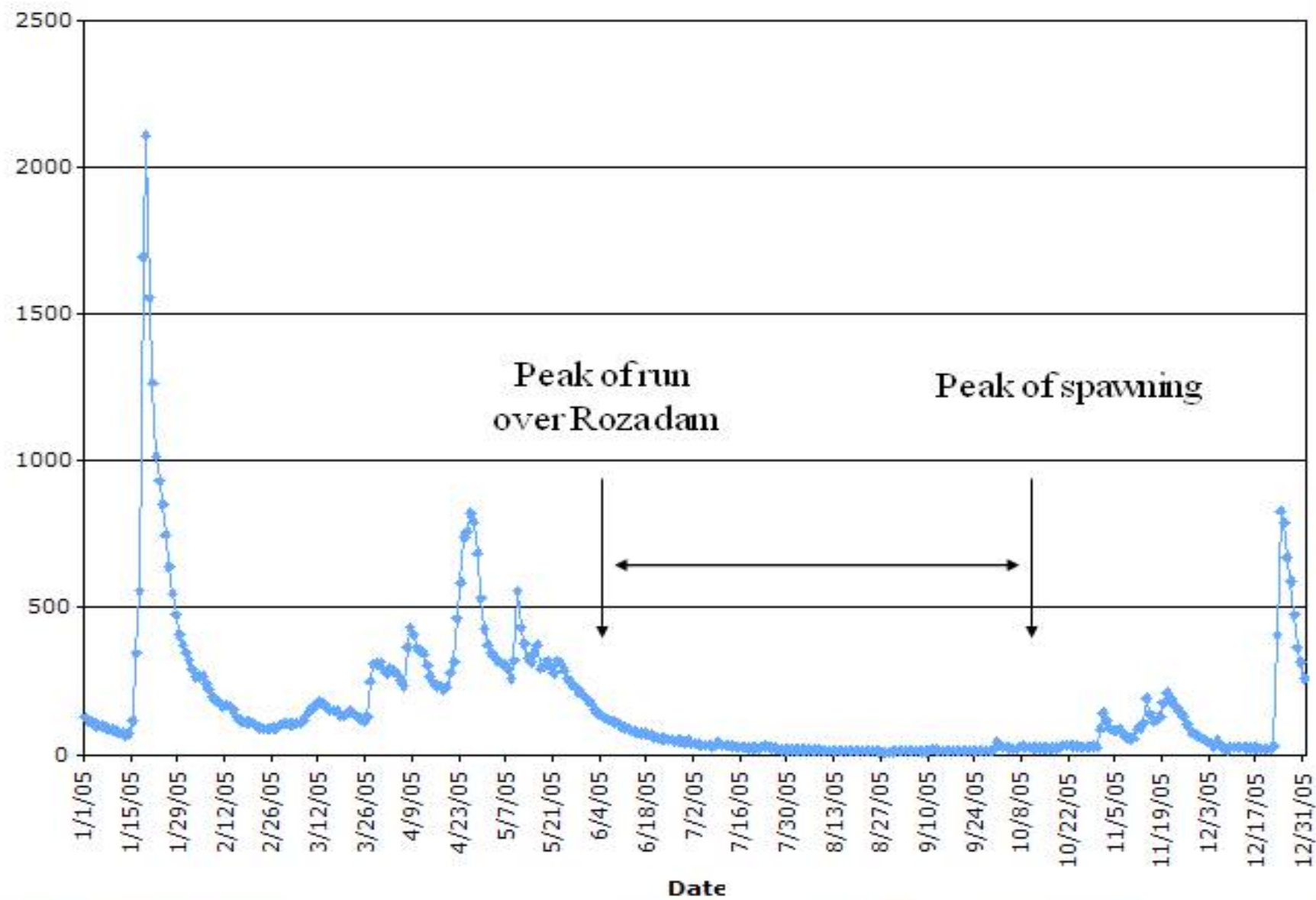


Distribution of Jack Creek Fish 2010



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



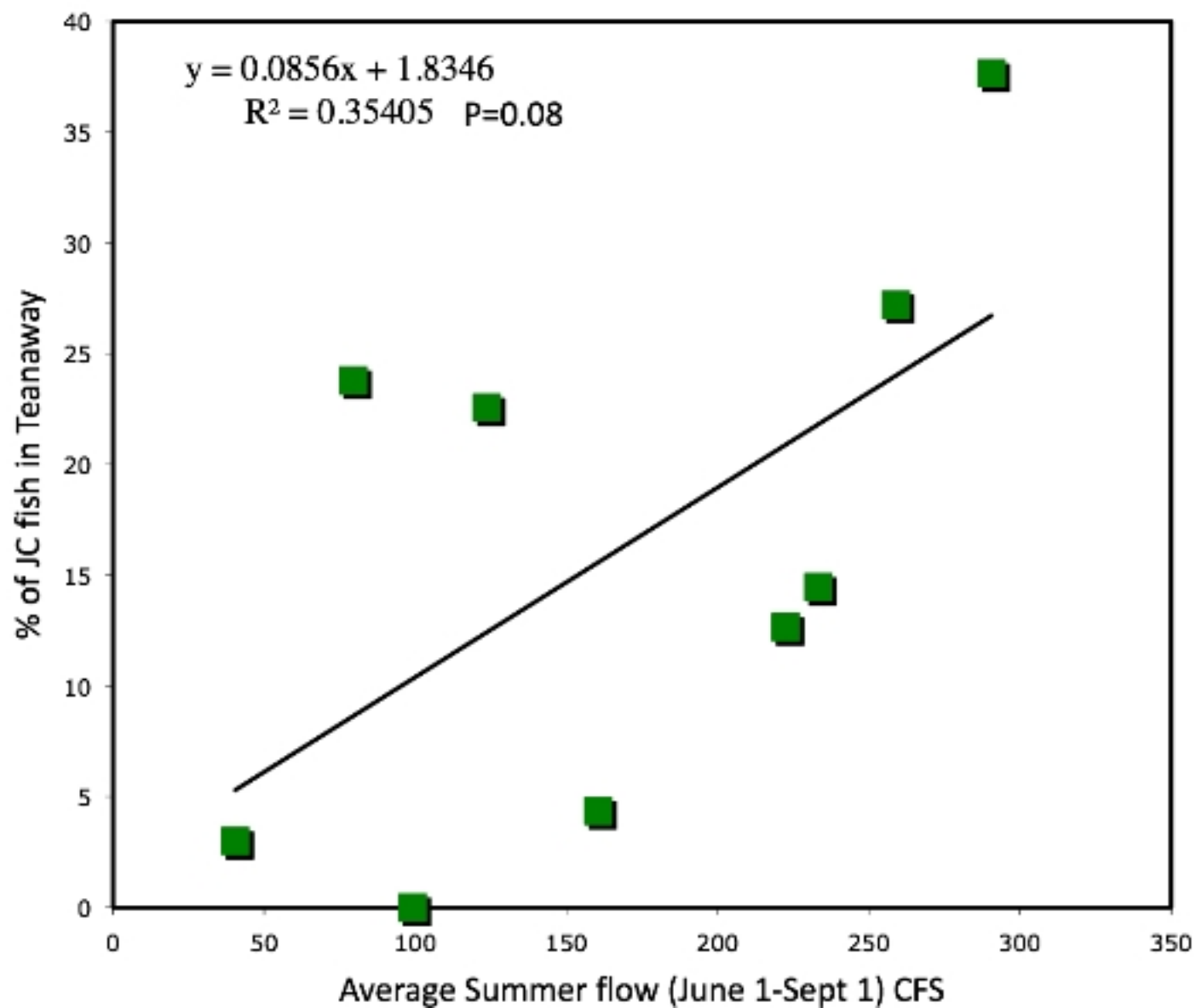


Peak of run
over Rozadam

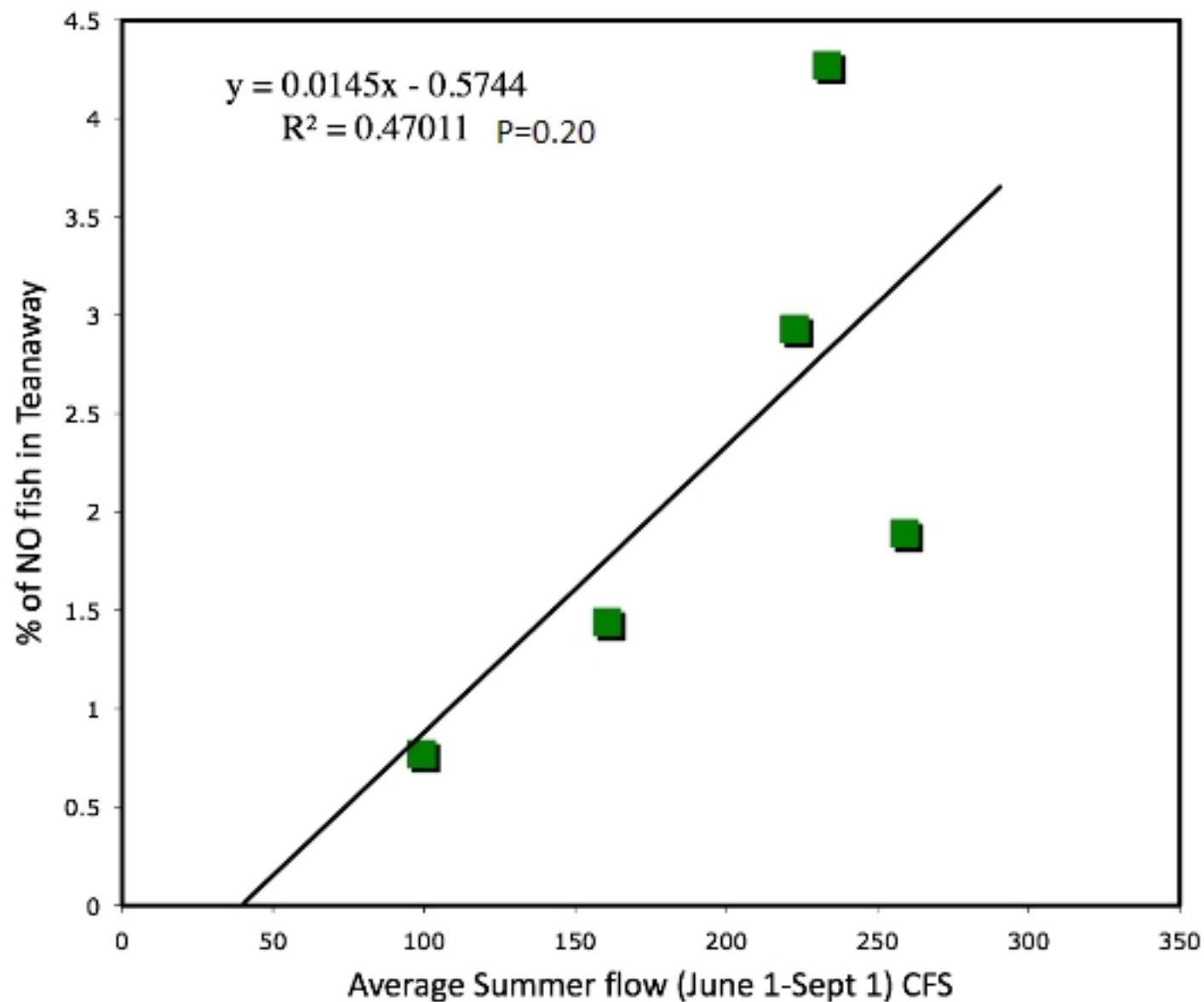
Peak of spawning

Date

Relationship between homing fidelity and Teanaway R. flow

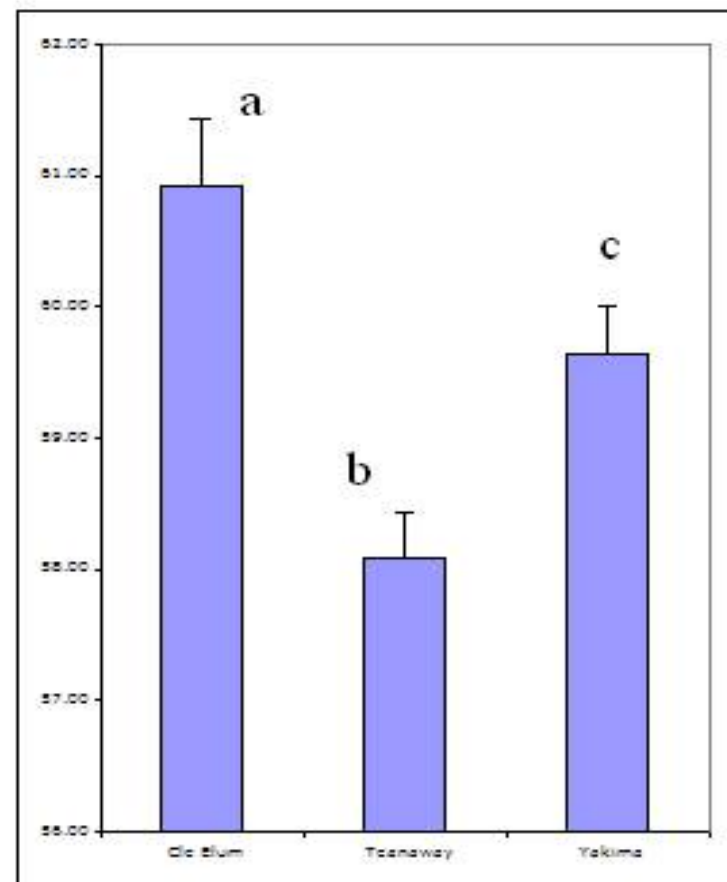
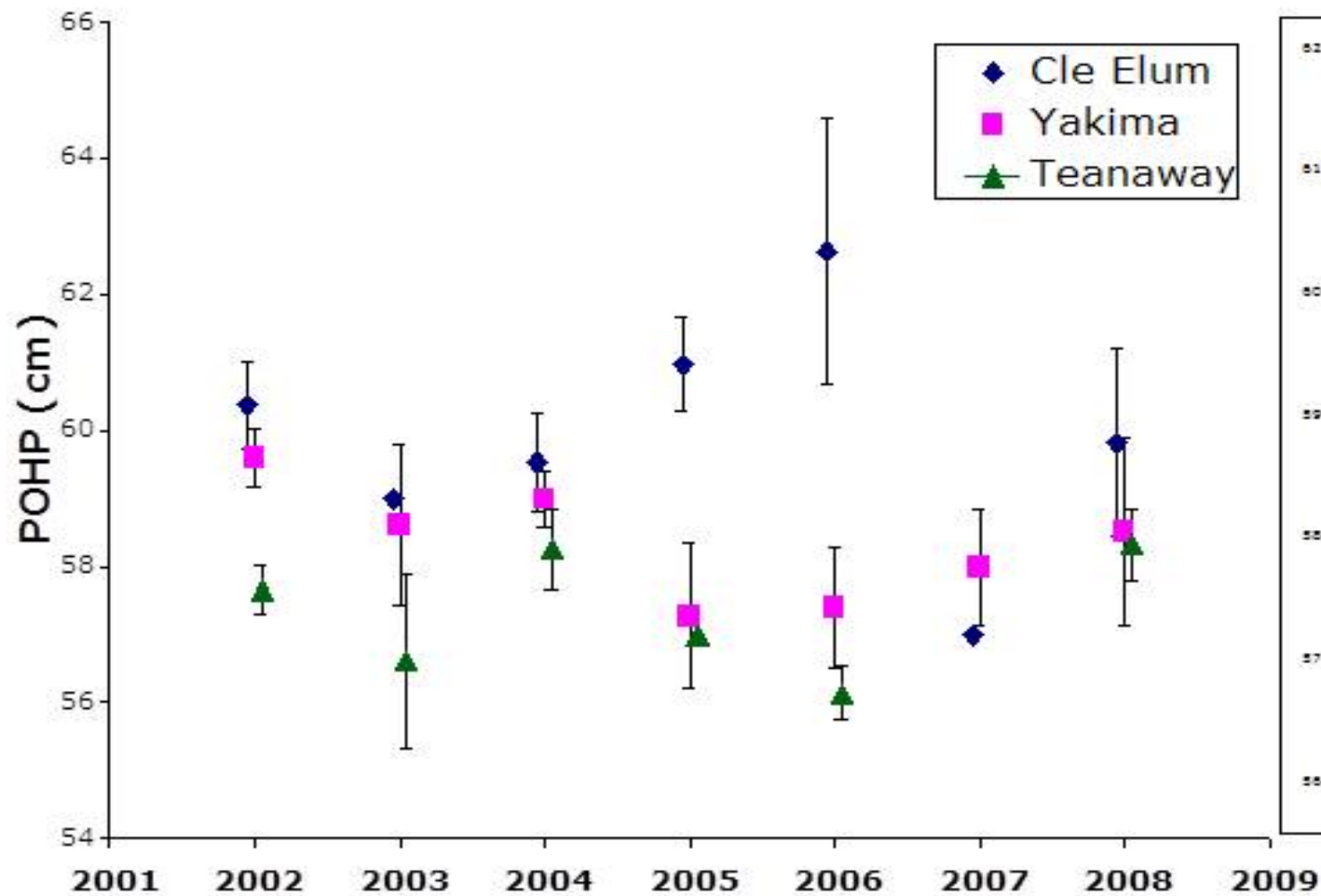


Relationship between homing fidelity and Teanaway R. flow



Spawning site location (selection?) is size dependent

Jack Creek releases (female)



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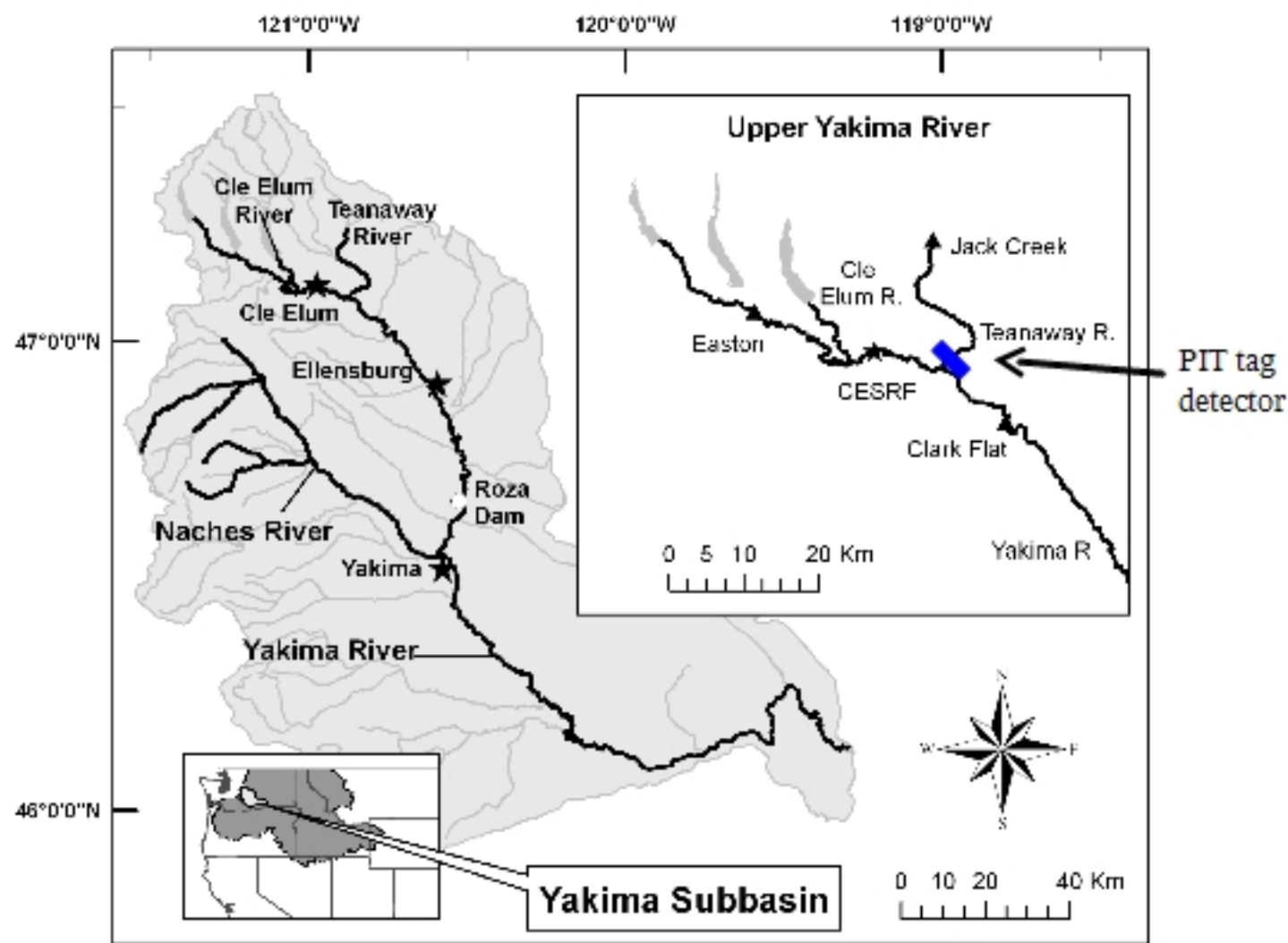
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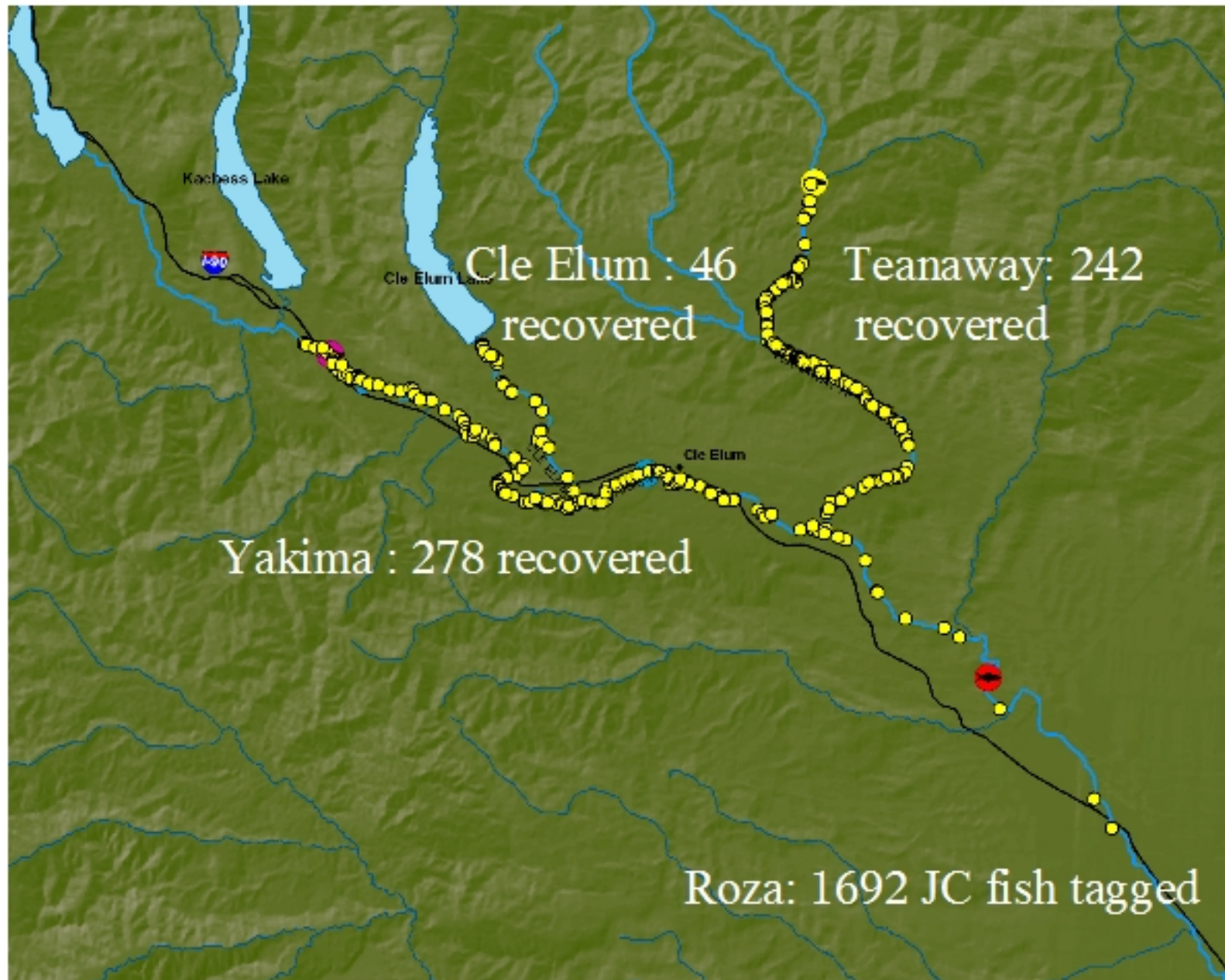
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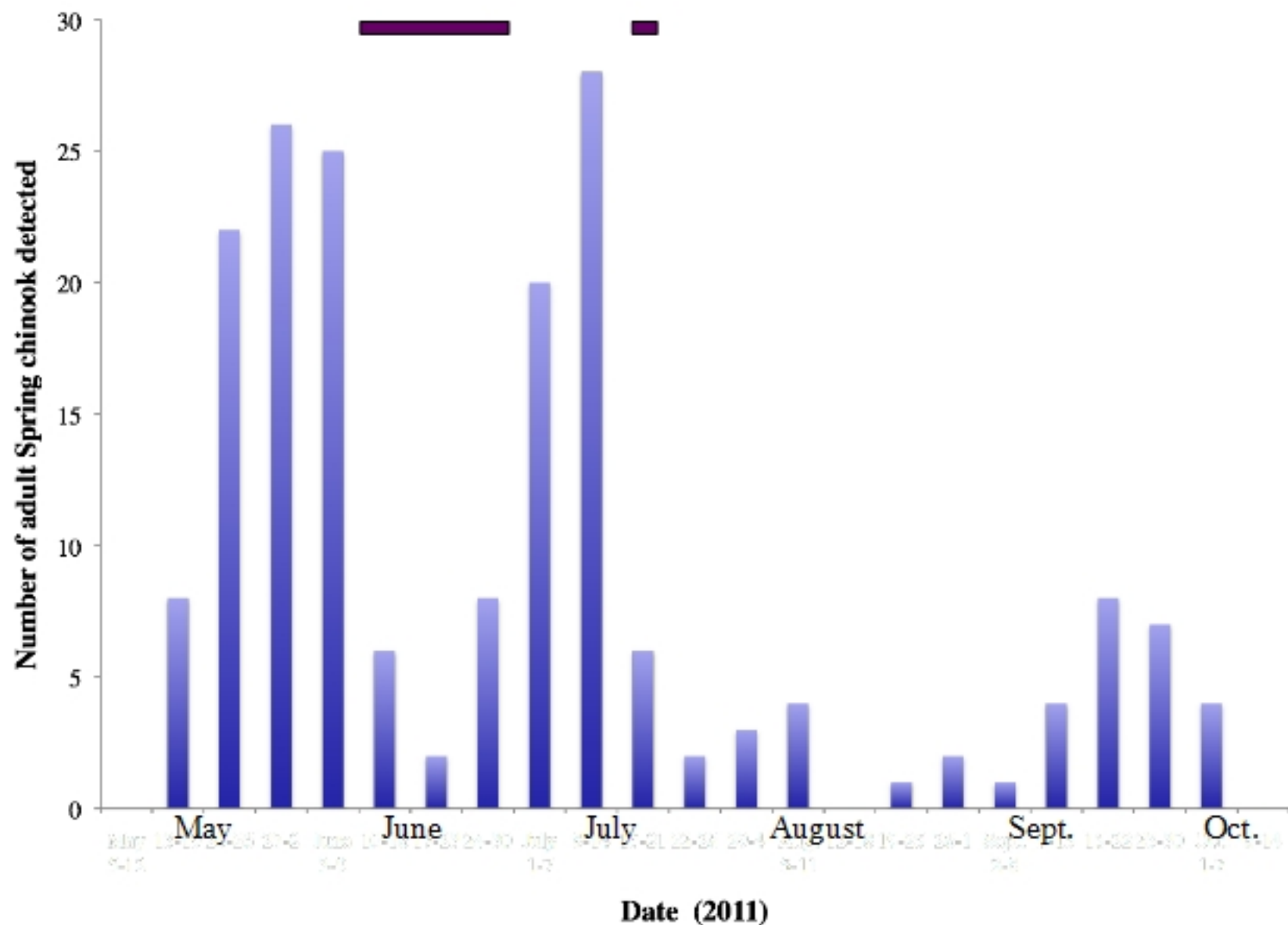
PIT tag analysis of Spring Chinook migratory behavior in Teanaway River



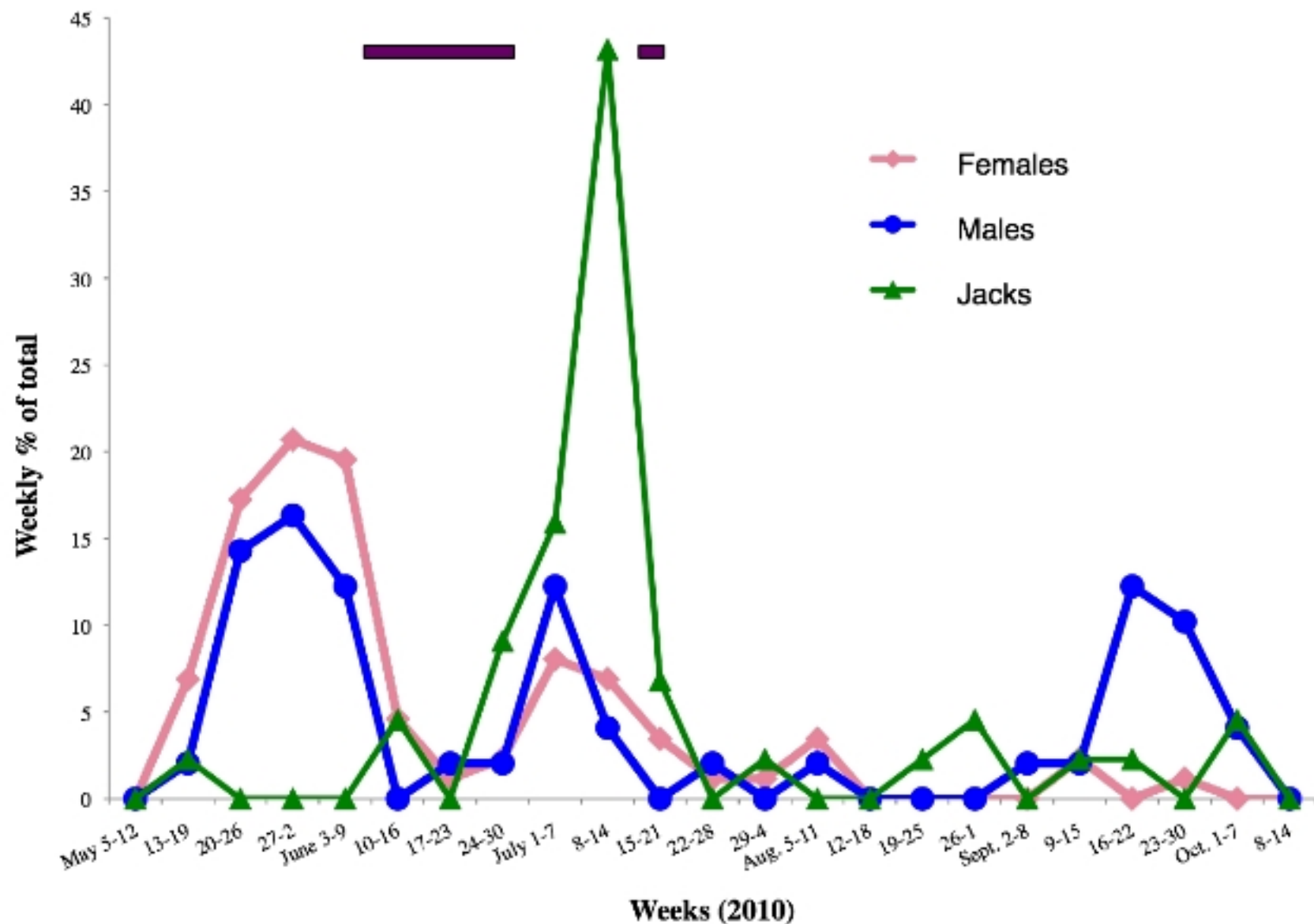
PIT Tag Recoveries – Carcass survey



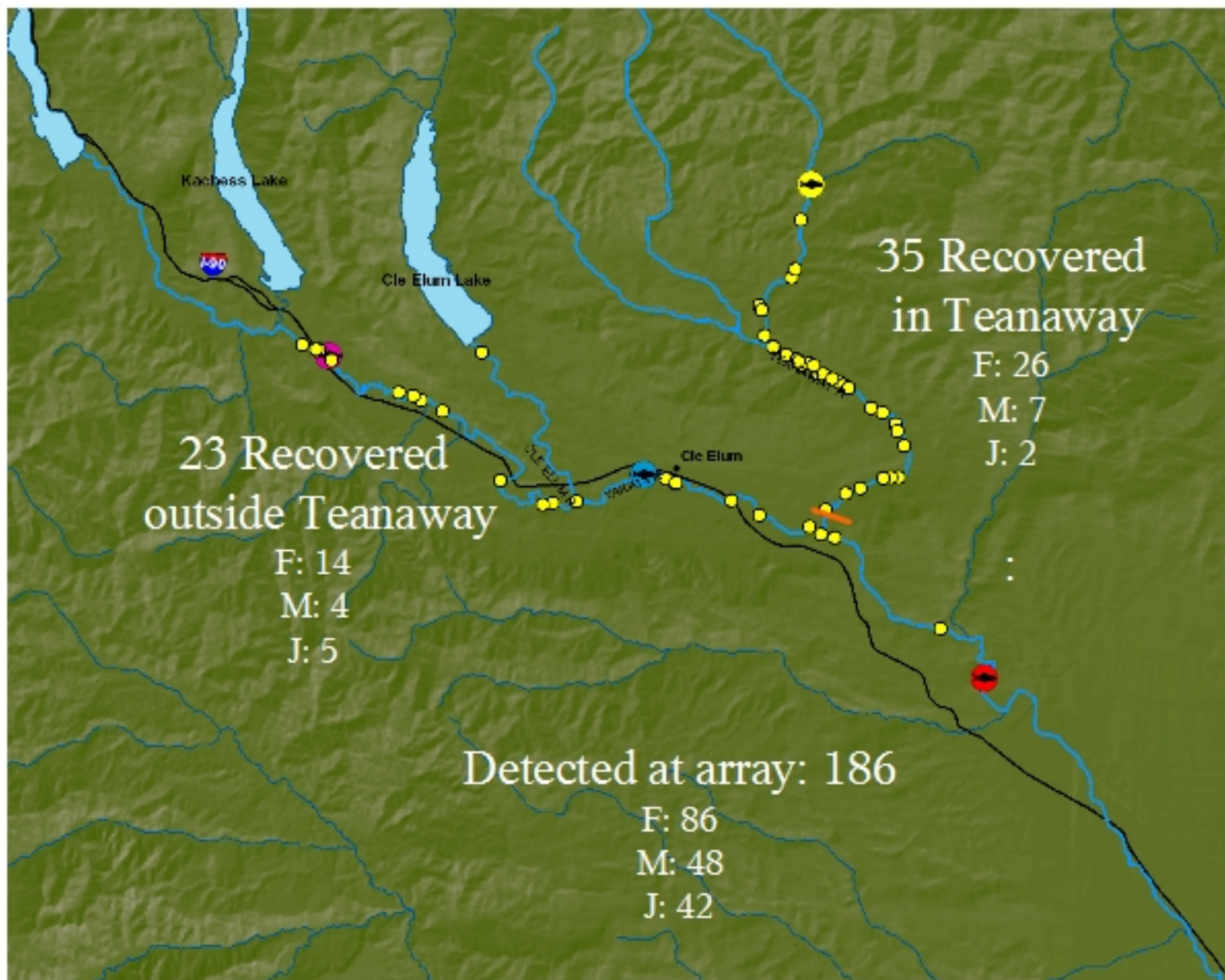
Migratory patterns of Spring Chinook into Teanaway River



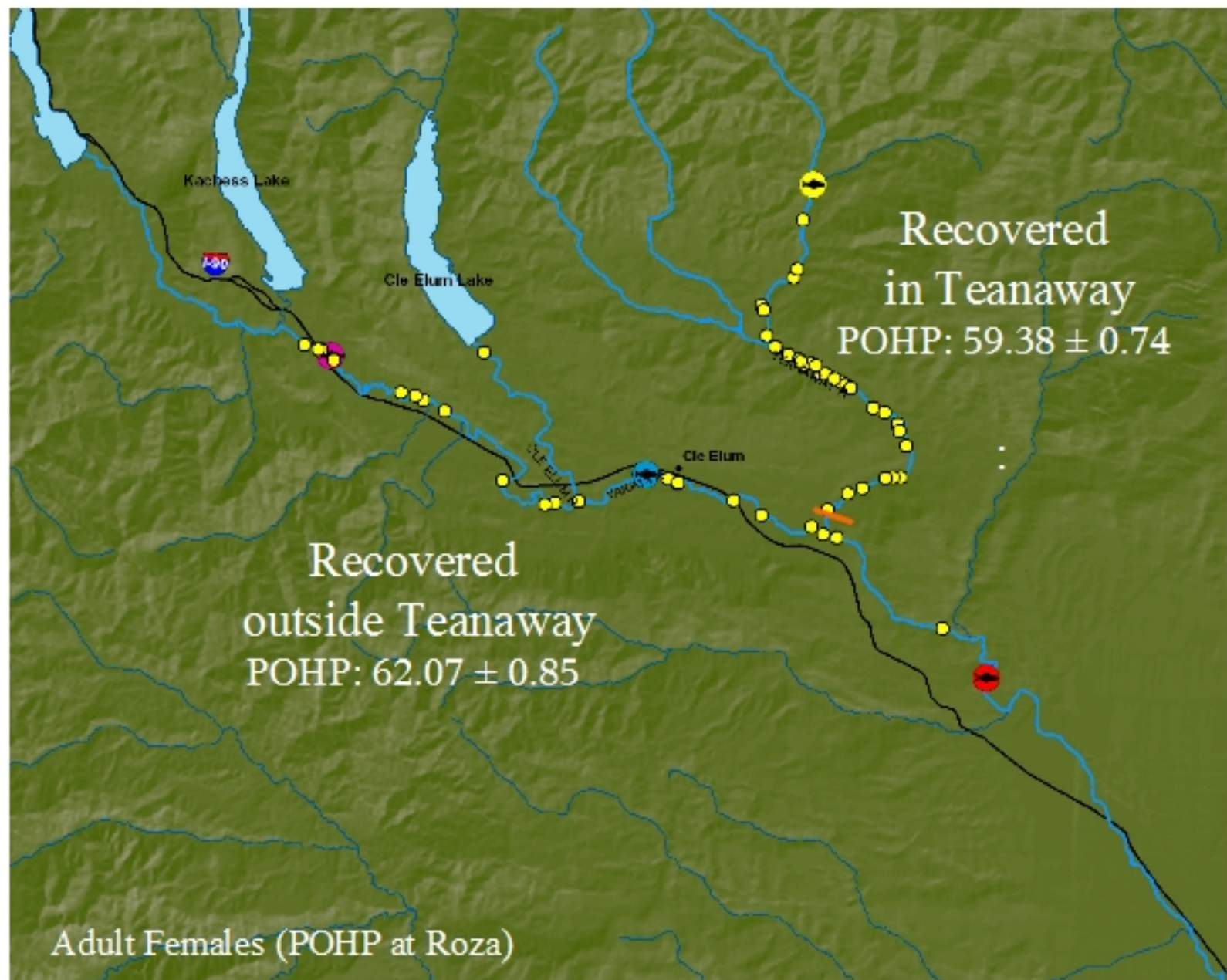
Gender specific migratory patterns of Spring Chinook into Teanaway River



PIT Tag Detections – Teanaway array



Size selective emigration of JC fish



Acknowledgements



Yakama Nation

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Yakama biologists

WDFW

PIT Tag crew

Lynne Anderson

Field help

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especially Physiology team

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