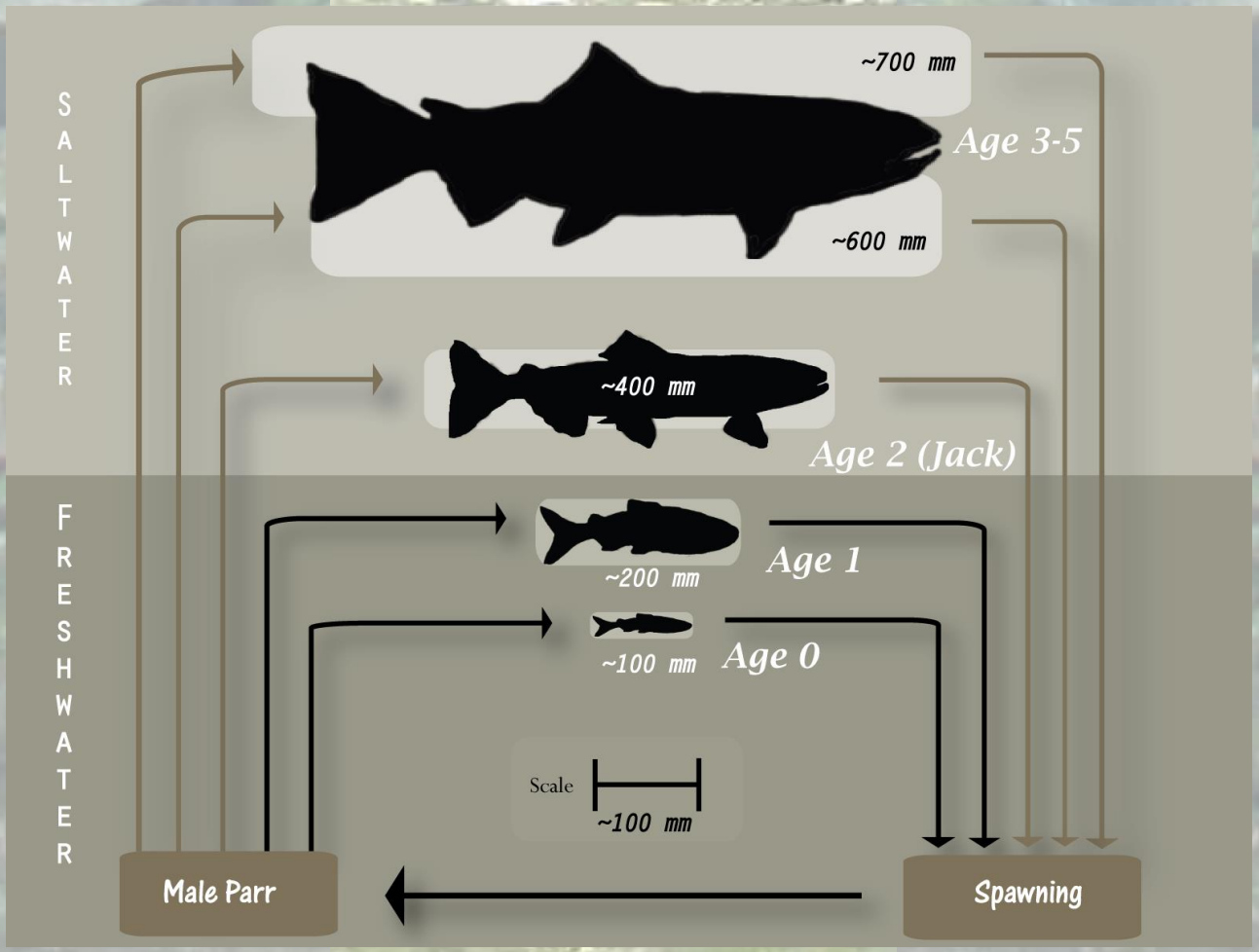
Precocious salmon on the spawning grounds

Christopher Johnson , Todd Pearsons, Brenda James, and Gabriel Temple

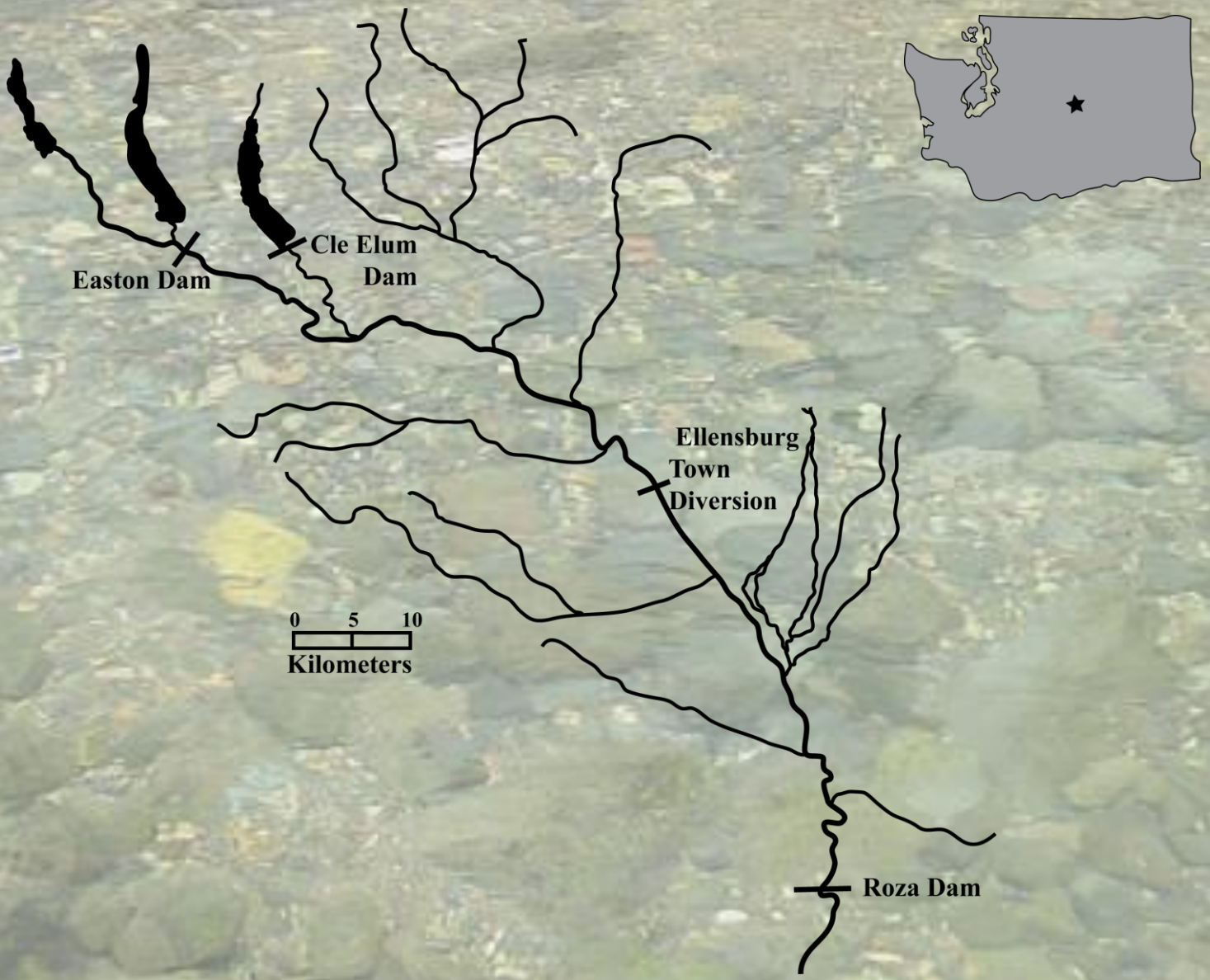
Spring Chinook
Precocious Male Life-History



Study Objectives

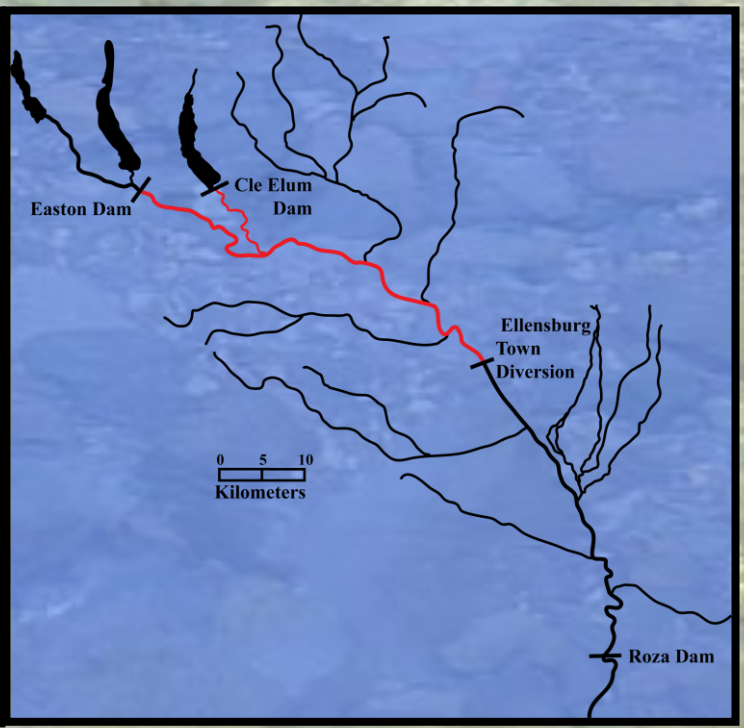
Determine if the Cle Elum Supplementation and Research Facility alters the abundance, distribution, age/size, or behavior of precociously maturing males in the natural environment.

Study Area


Easton Dam
Cle Elum
Dam
Ellensburg
Town
Diversion
0 5 10
Kilometers
Roza Dam

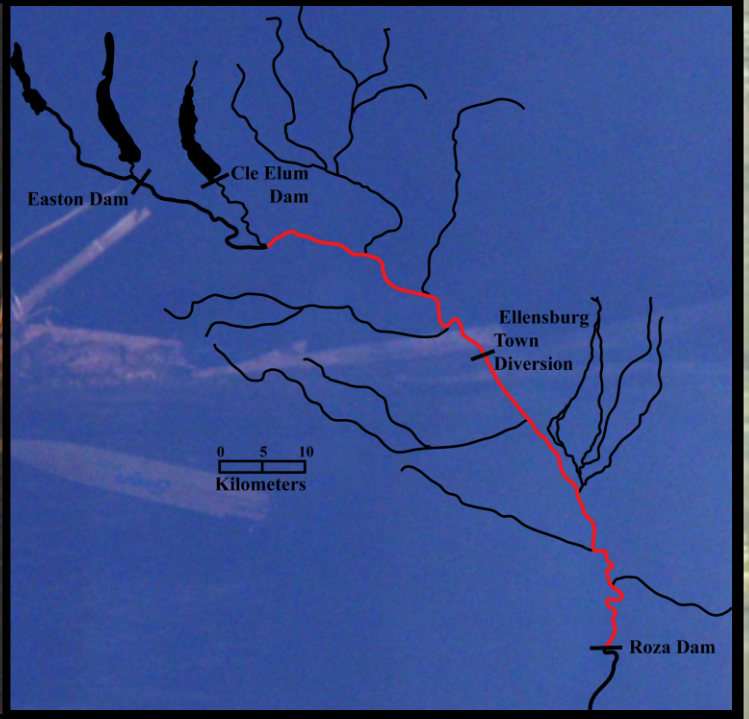
Methods

Precociously mature males on the redds

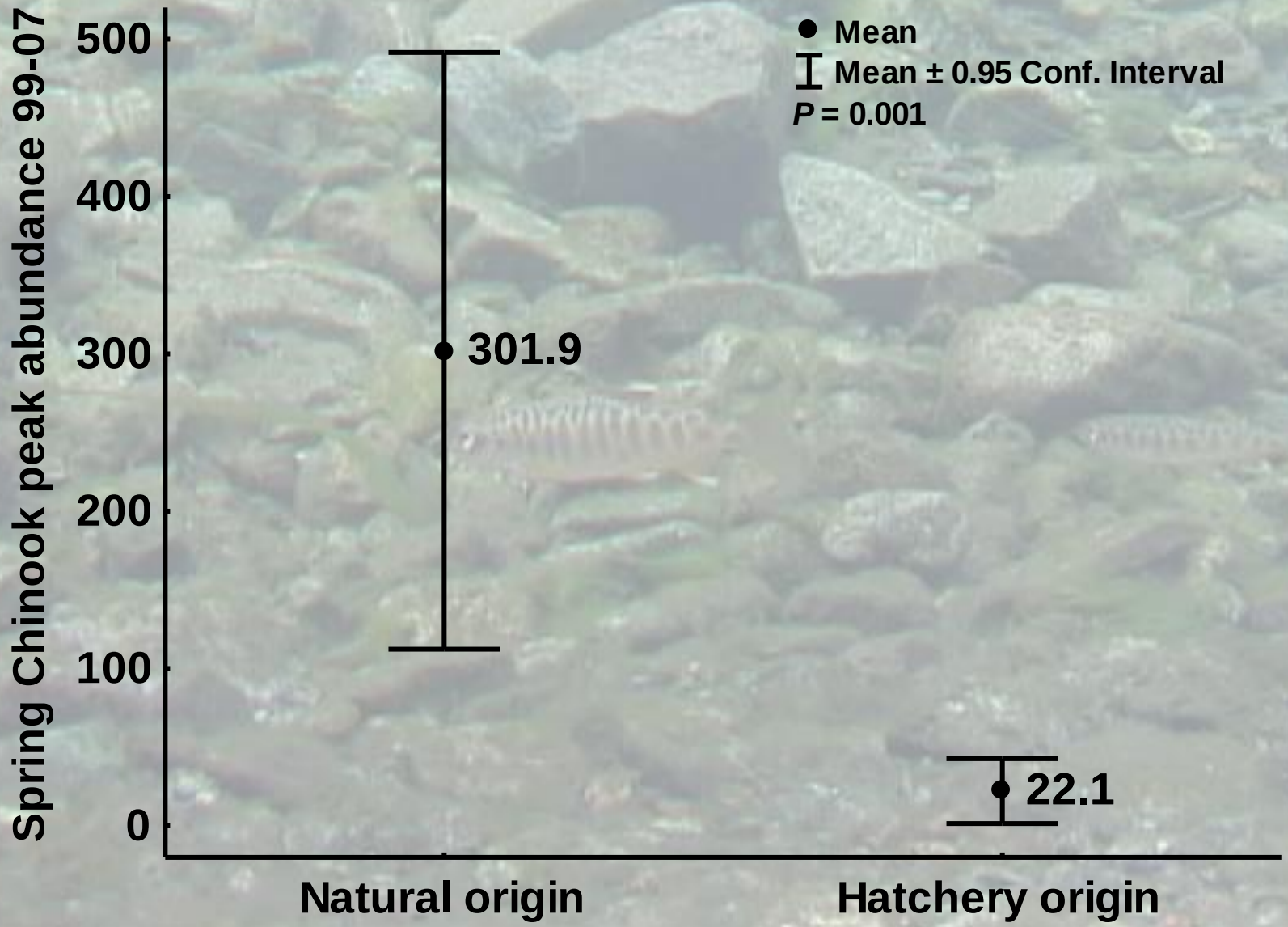


Methods

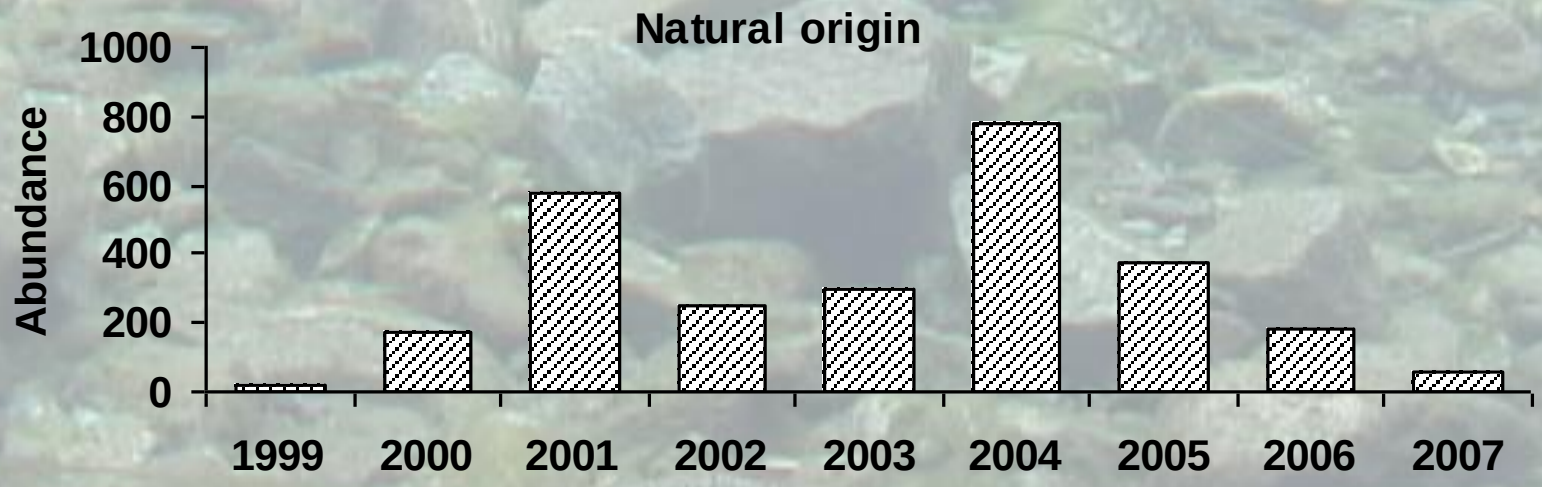
Precociously mature males off the redds (hatchery origin)

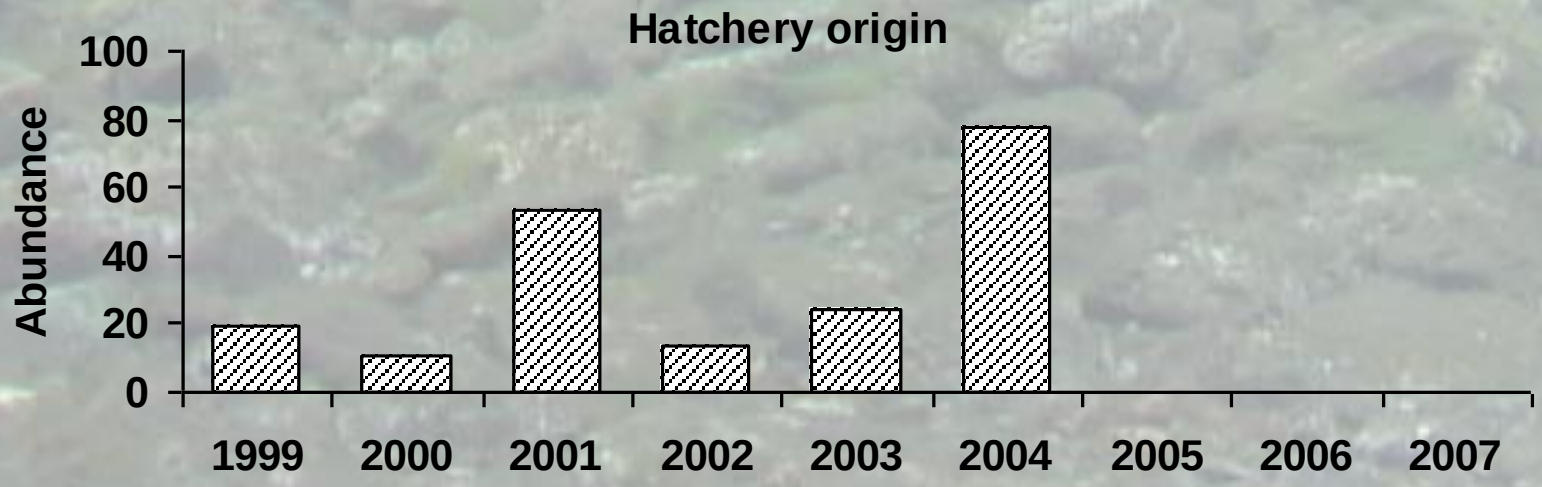


Abundance on the spawning grounds

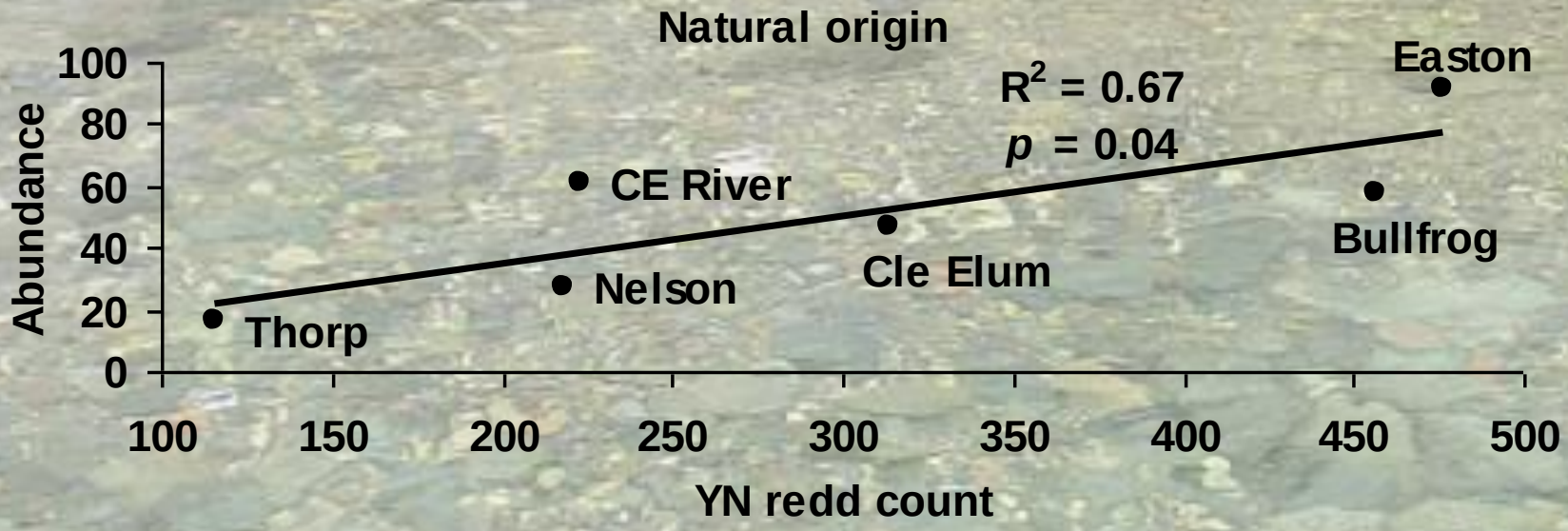


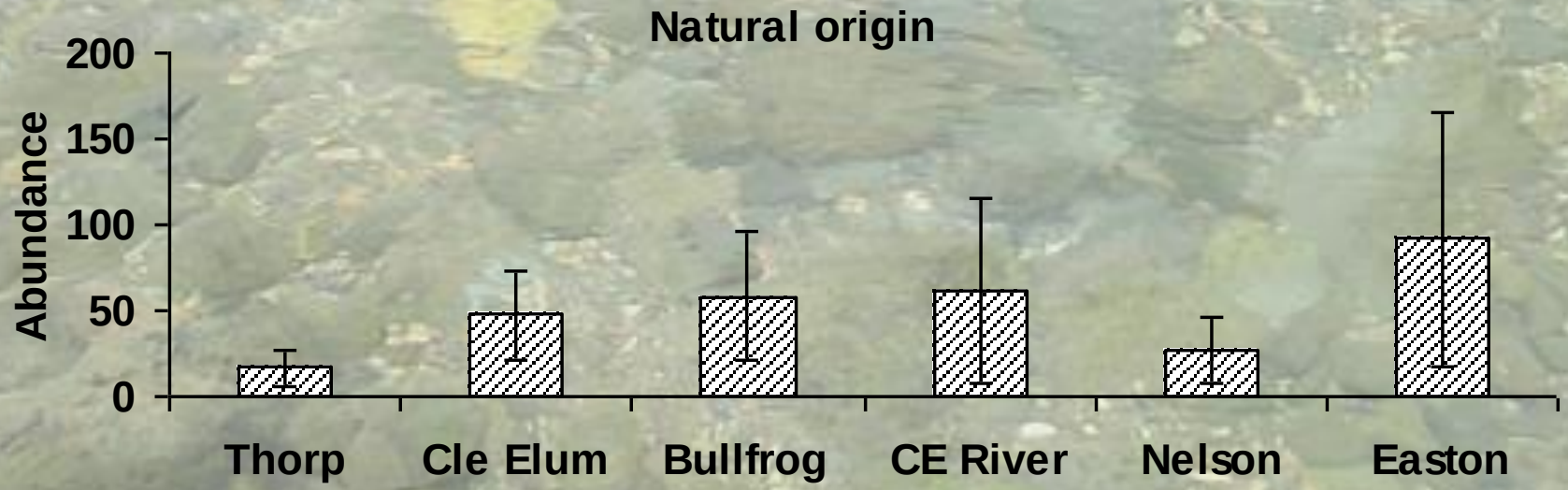
Abundance by year



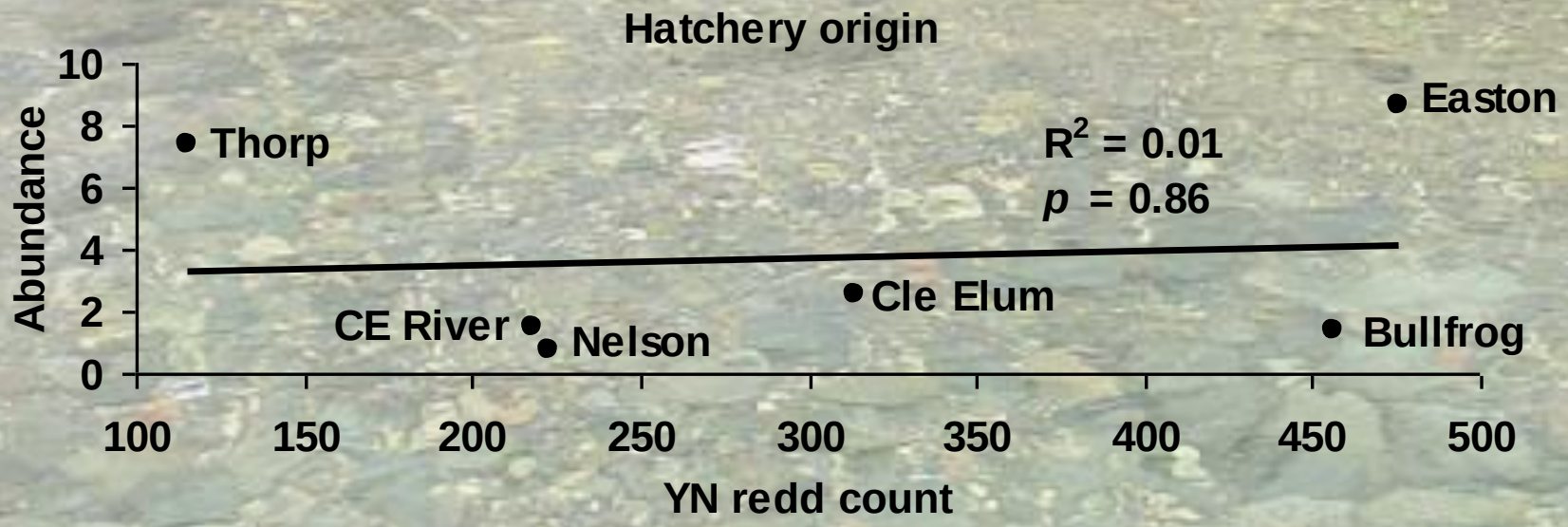


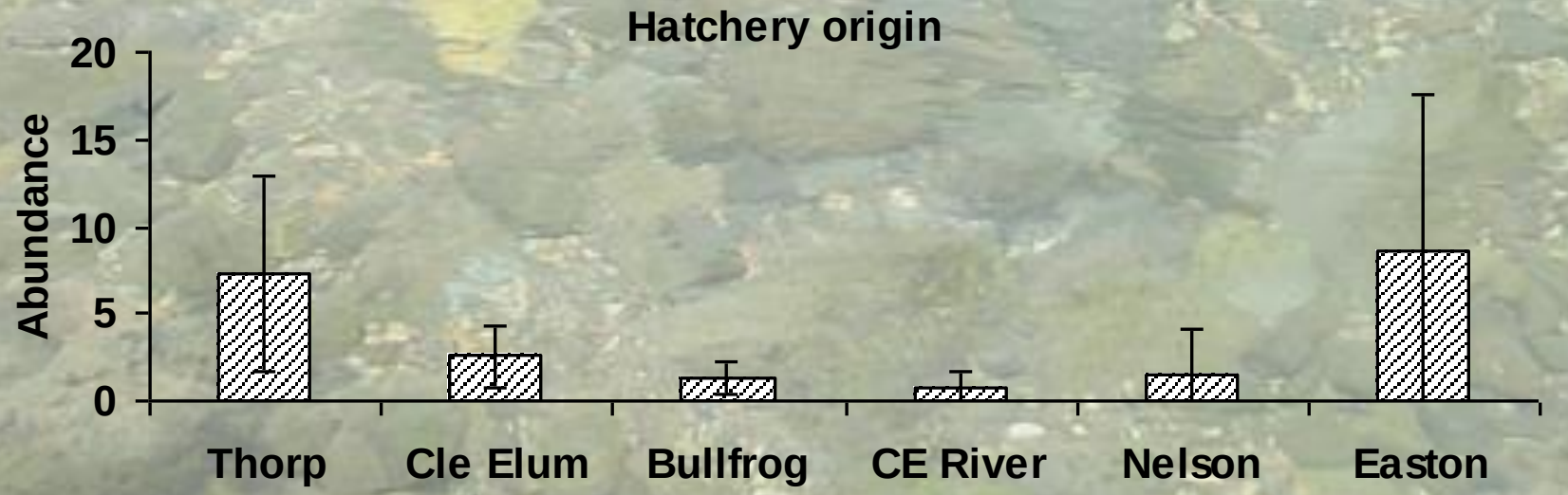
Natural origin PM distribution



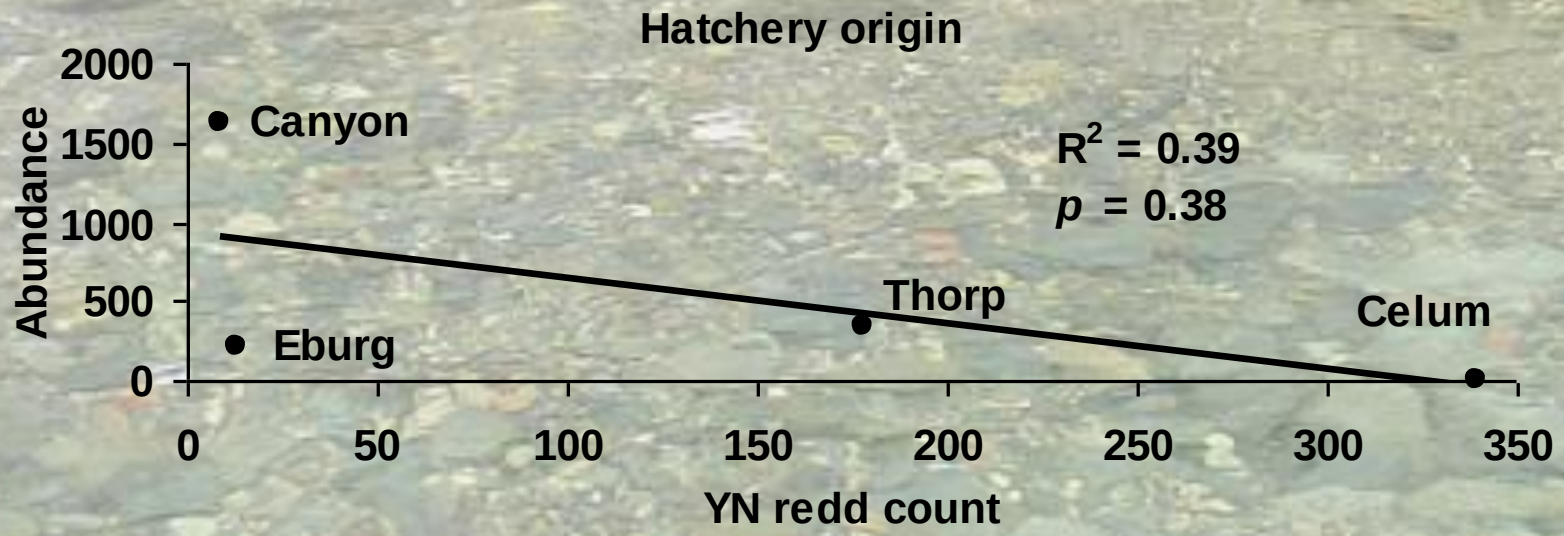


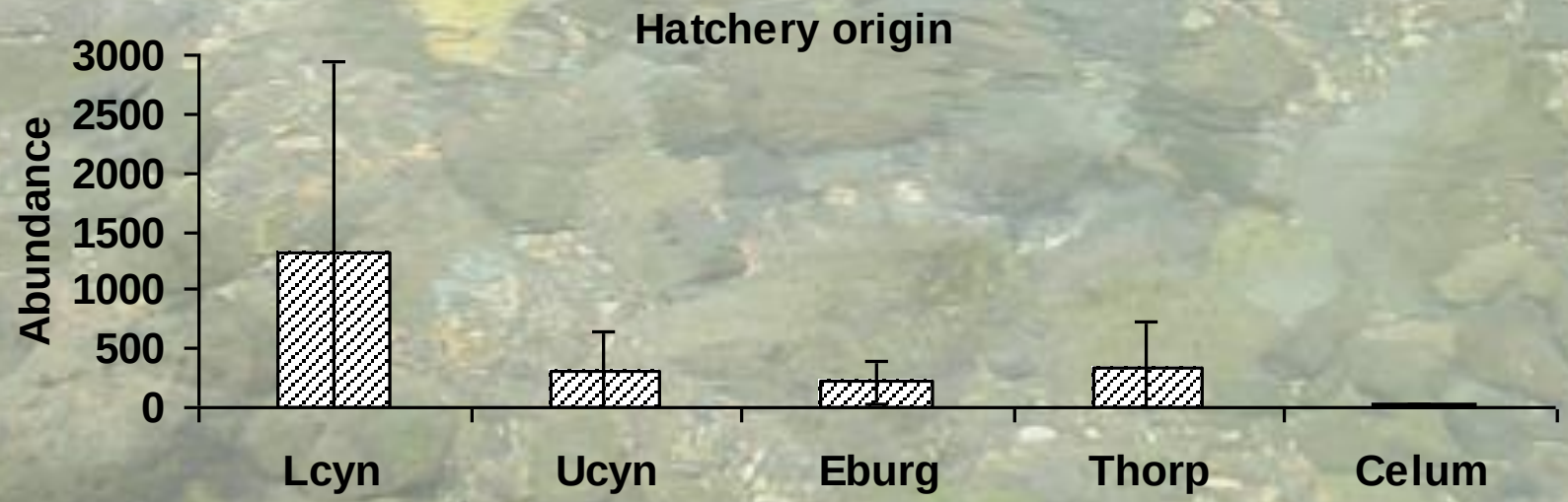
Hatchery origin PM distribution



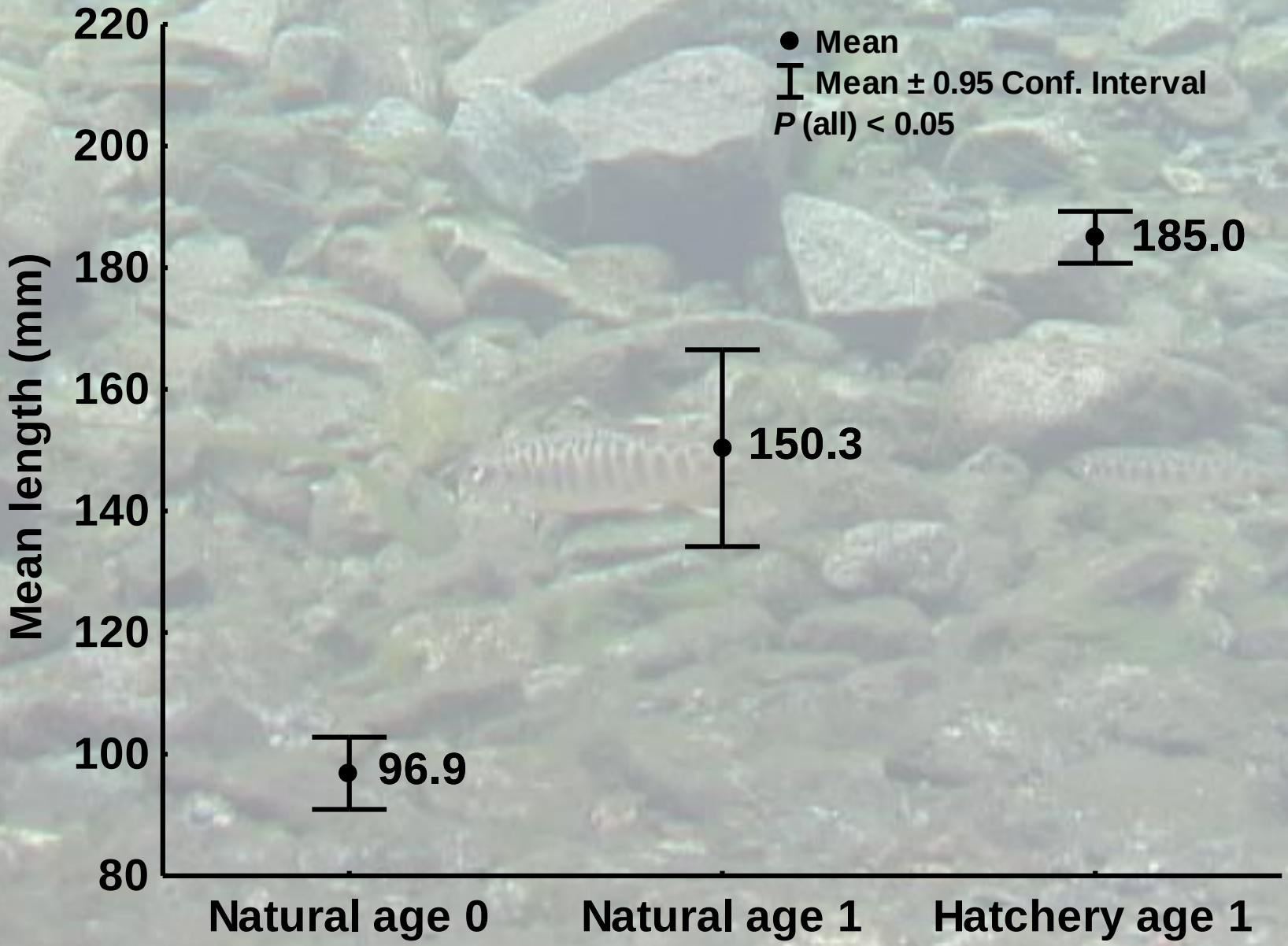


Hatchery origin PM distribution away from the redds

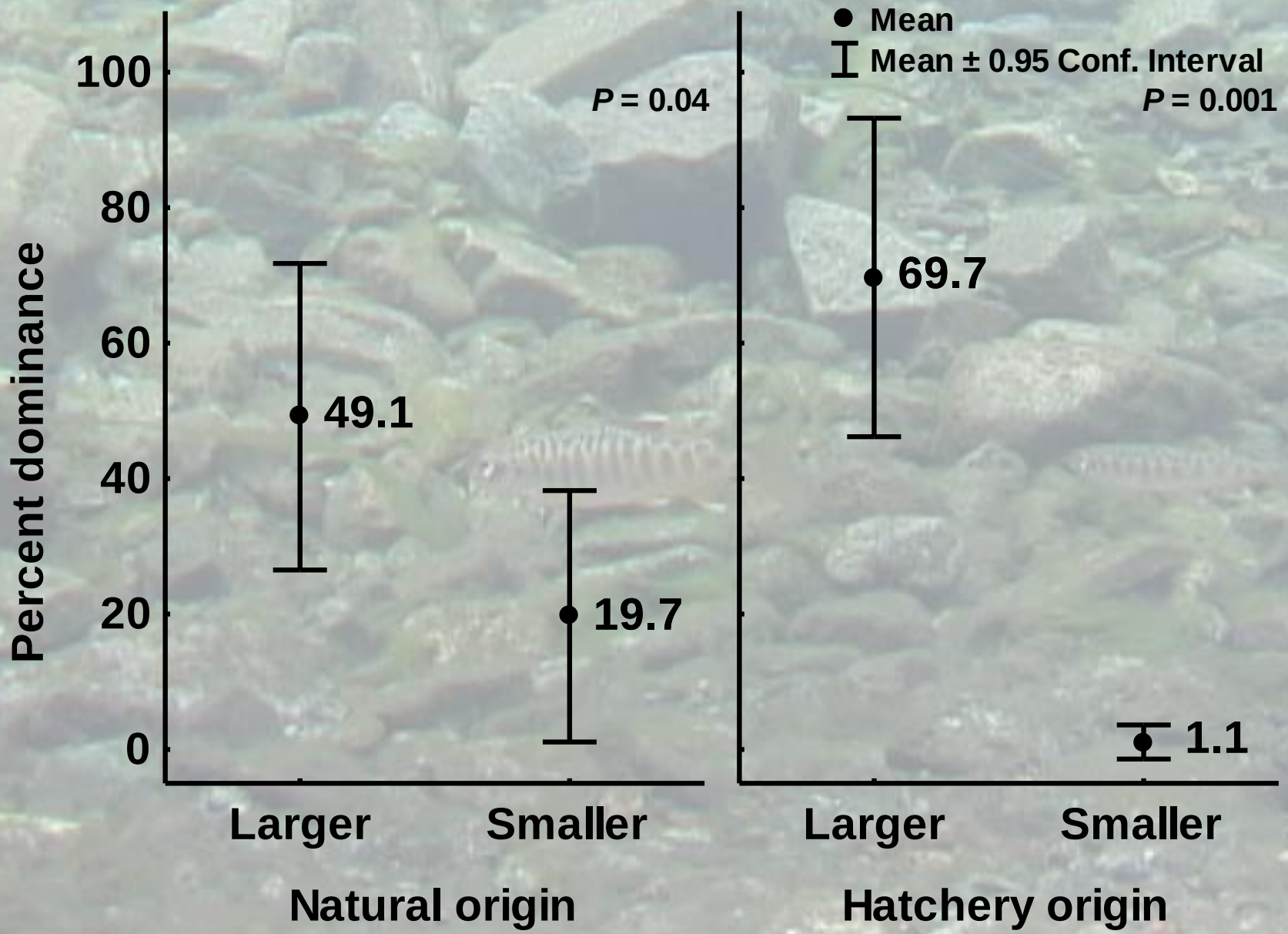




Size at the time of spawning



Interactions on the redds



Proportional abundance

Summary

- **Natural origin precociously mature males are more abundant on the spawning grounds**
- **Environmental conditions appear to regulate both natural and hatchery origin abundance in some years**
- **Hatchery origin precocious males are predominantly in areas of low spawning density**
- **Hatchery precocious males are larger and appear to dominate interactions with natural production precocious males**

Acknowledgements

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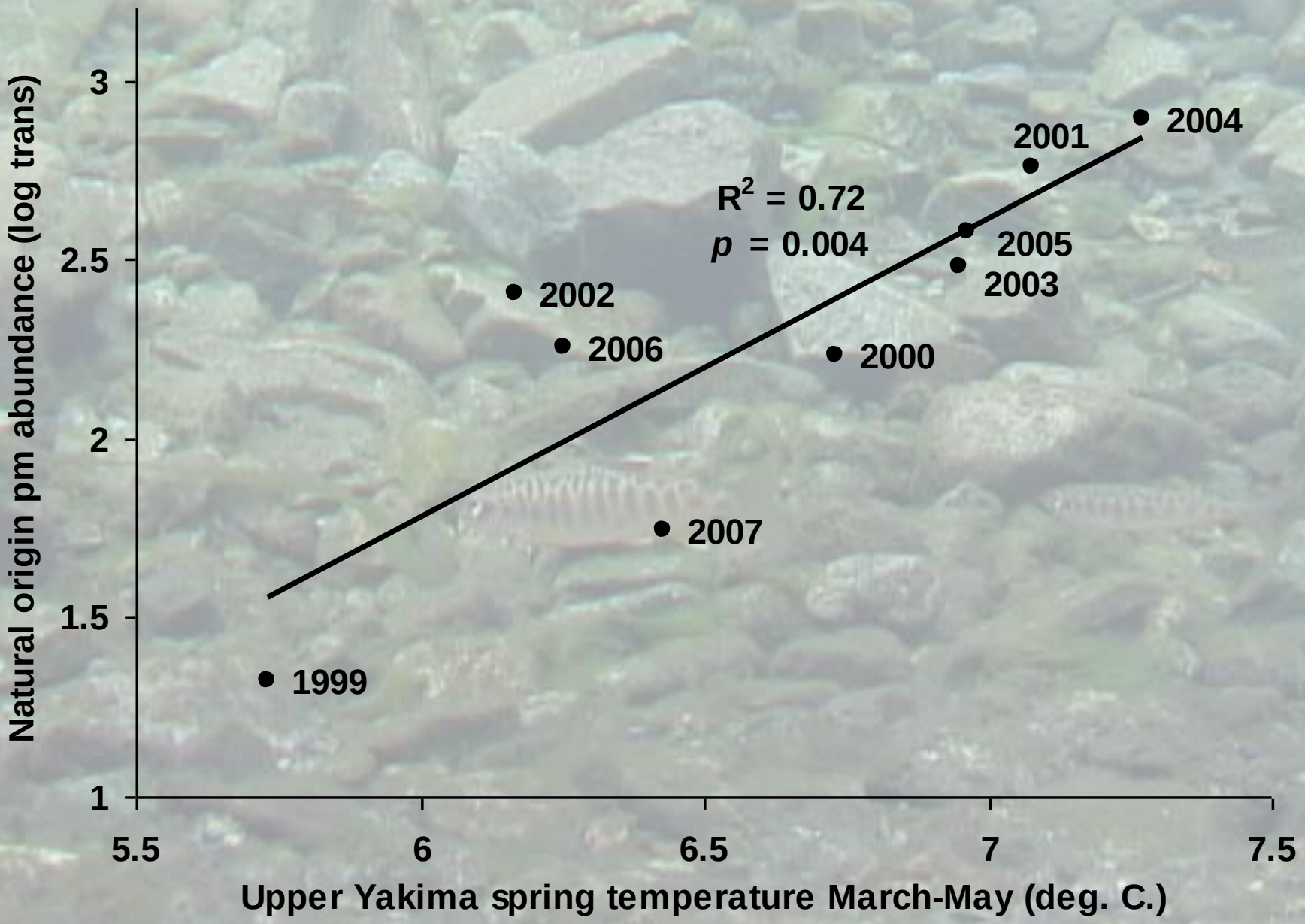
- **Cascade Aquatics – Paul James, Keith Pitts, Tyler Forman, Corene Luton, Marlene Farrell, Devona Ensmenger, and David Childs**


Natural origin pm abundance (log trans)
3
2.5
2
1.5
1
5.5
6
6.5
7
7.5
Upper Yakima spring temperature March-May (deg. C.)
R^2 = 0.72
p = 0.004
2004
2001
2005
2003
2002
2006
2000
2007
1999