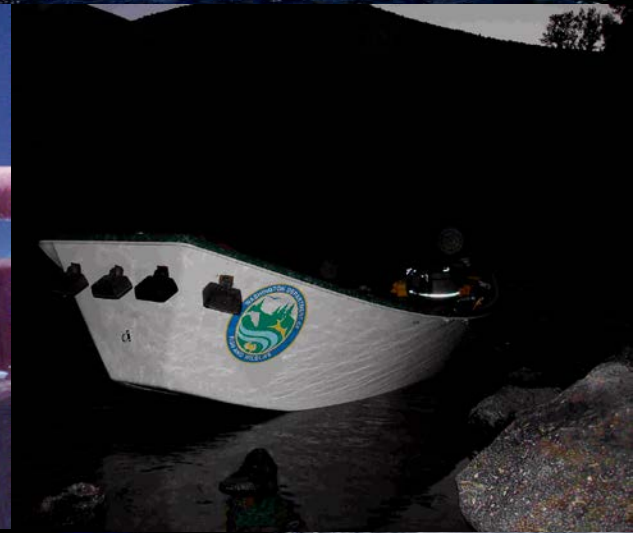


Precocious Wild and Hatchery Spring Chinook on the Spawning Grounds

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



Background

- Hatcheries have the potential to unintentionally produce high or low numbers of precocious males
- Artificially high or low number of precocious males may harm wild populations



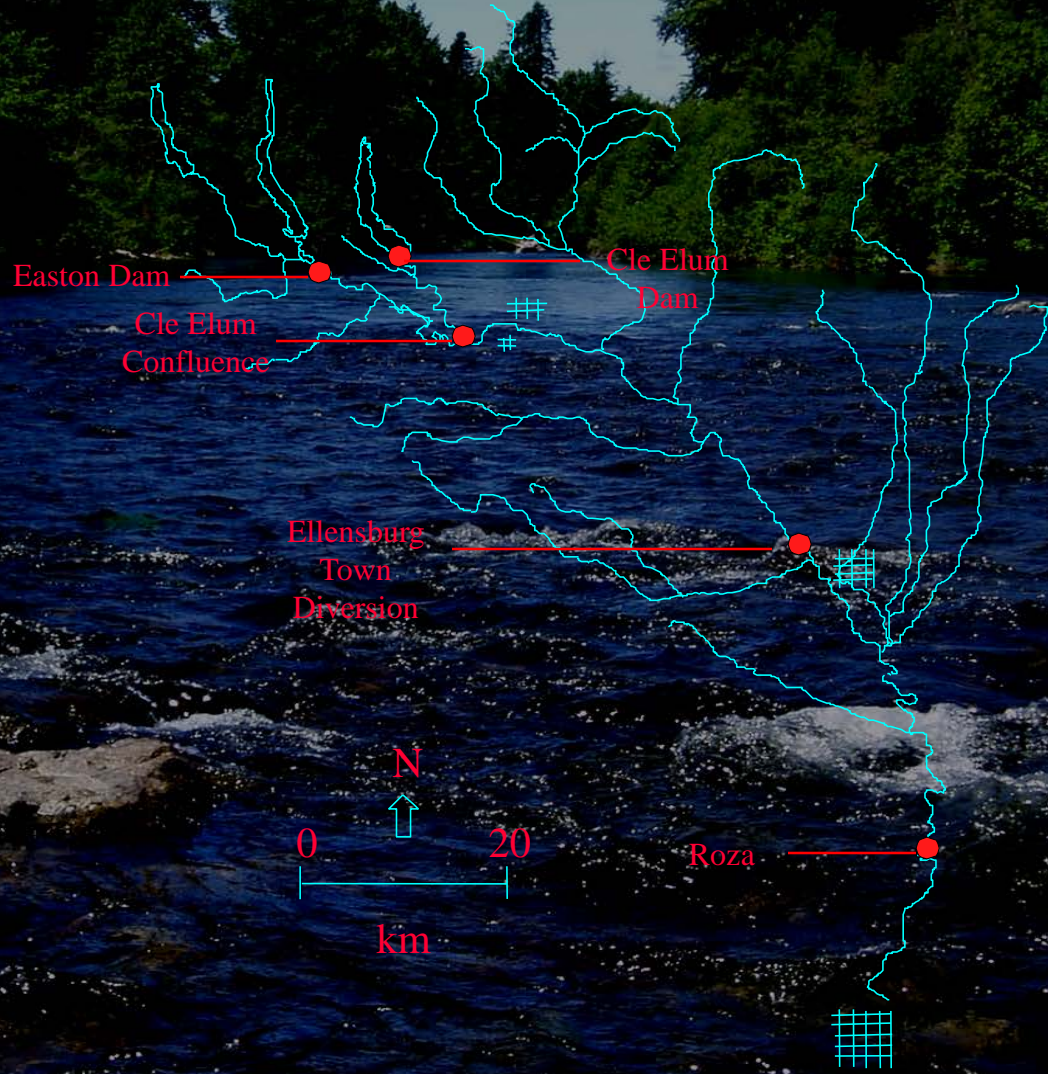
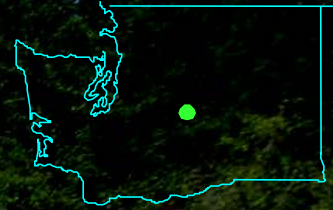


Study Objectives

- Determine if the Cle Elum Supplementation and Research Facility alters the distribution, abundance, age/size, and behavior of precociously maturing males in the natural environment.
- Focus on potential differences in observations between 1999-2003 and the first two release years of precocious males subjected to growth modulation, 2004-2005.



Study Area



Methods

- Peak of spawning snorkeling surveys
- Fall abundance estimate of HSPC (drift boat electrofishing)
- Backpack electrofishing / hook and line sampling
- Behavioral interactions on redds (snorkeling)

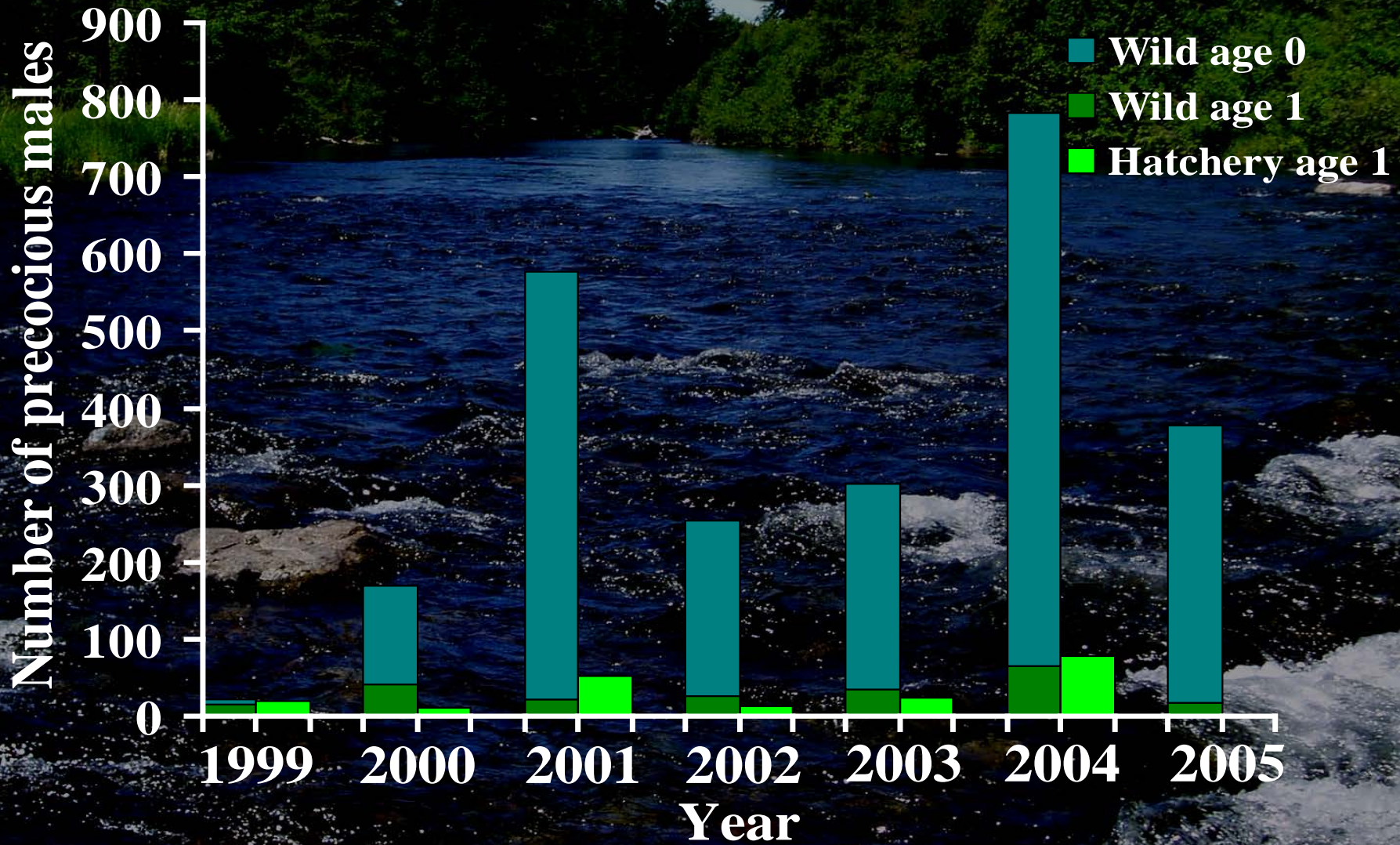


1999-2003

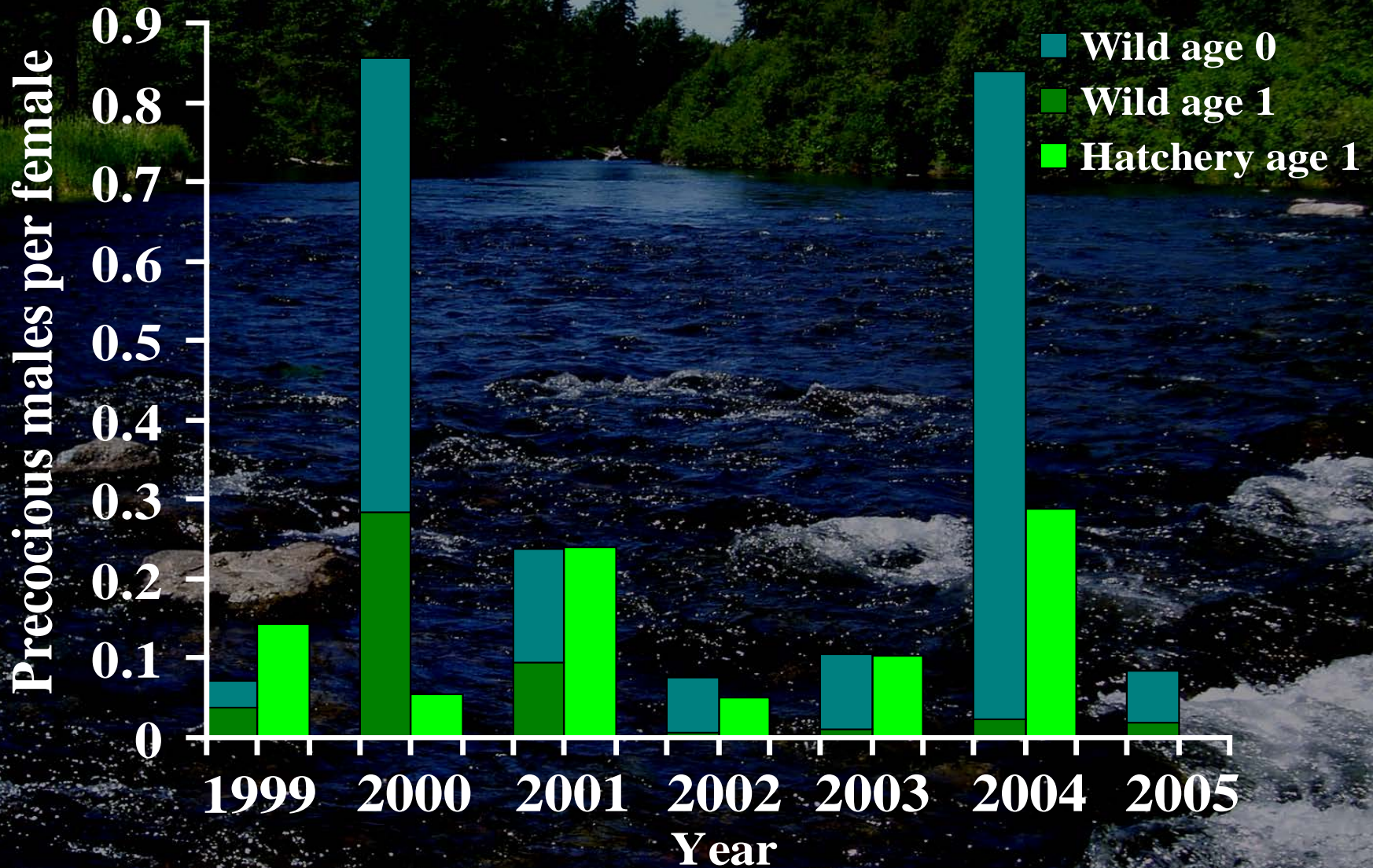
- Low numbers of hatchery spring Chinook observed on the spawning grounds relative to wild
- Hatchery precocious males were most abundant in areas of low spawner density
- Hatchery spring Chinook were significantly larger than both wild age classes



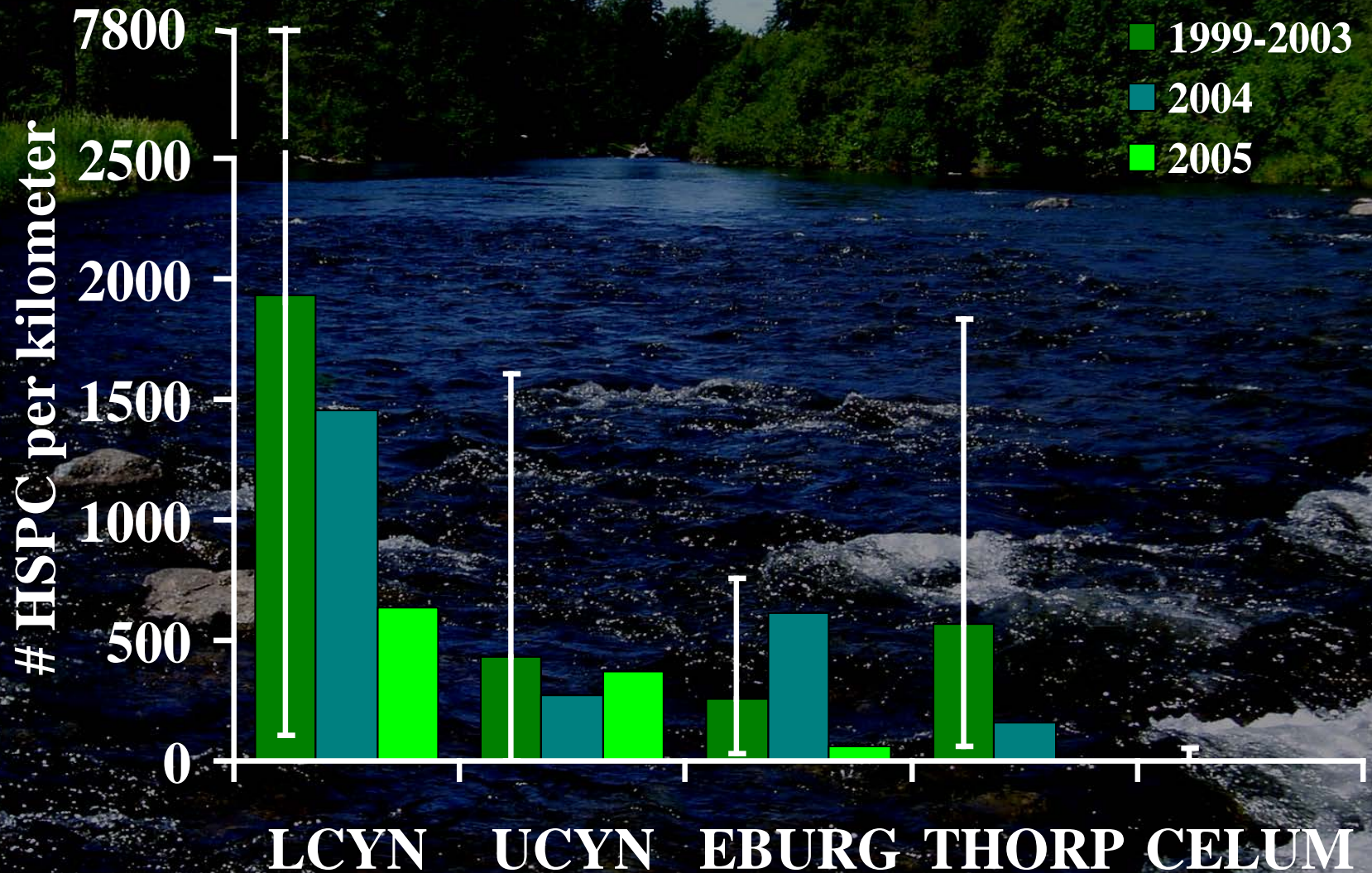
Index of abundance on the spawning grounds



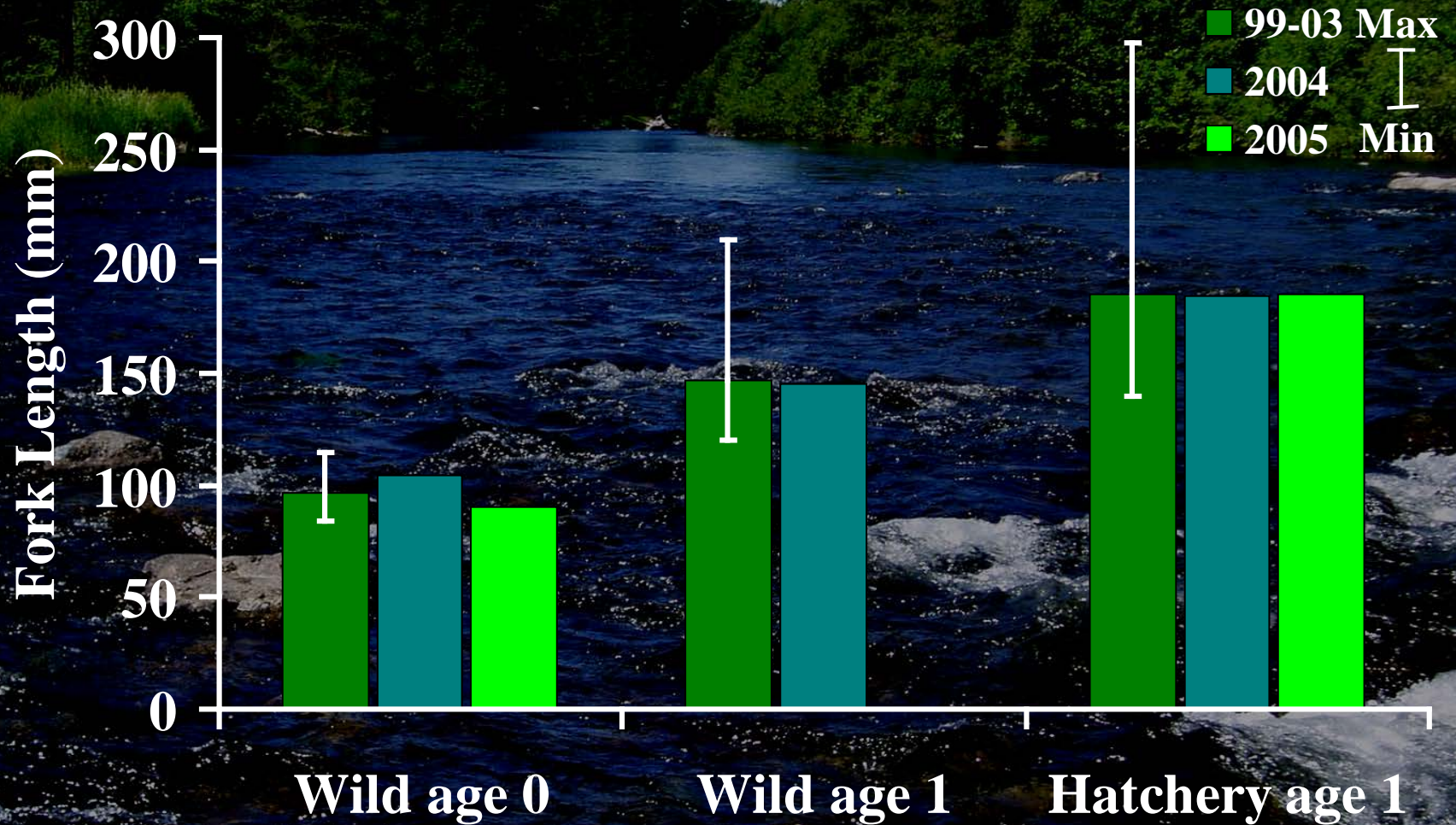
Index of precocious males per female parent



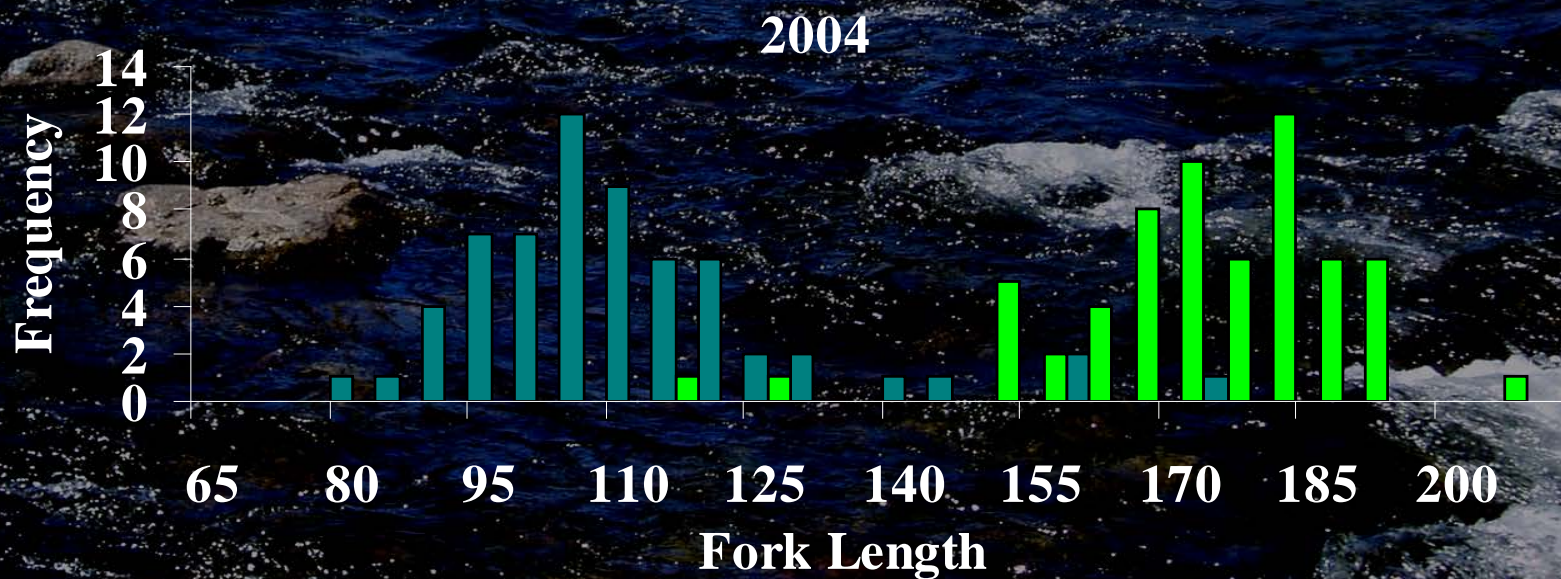
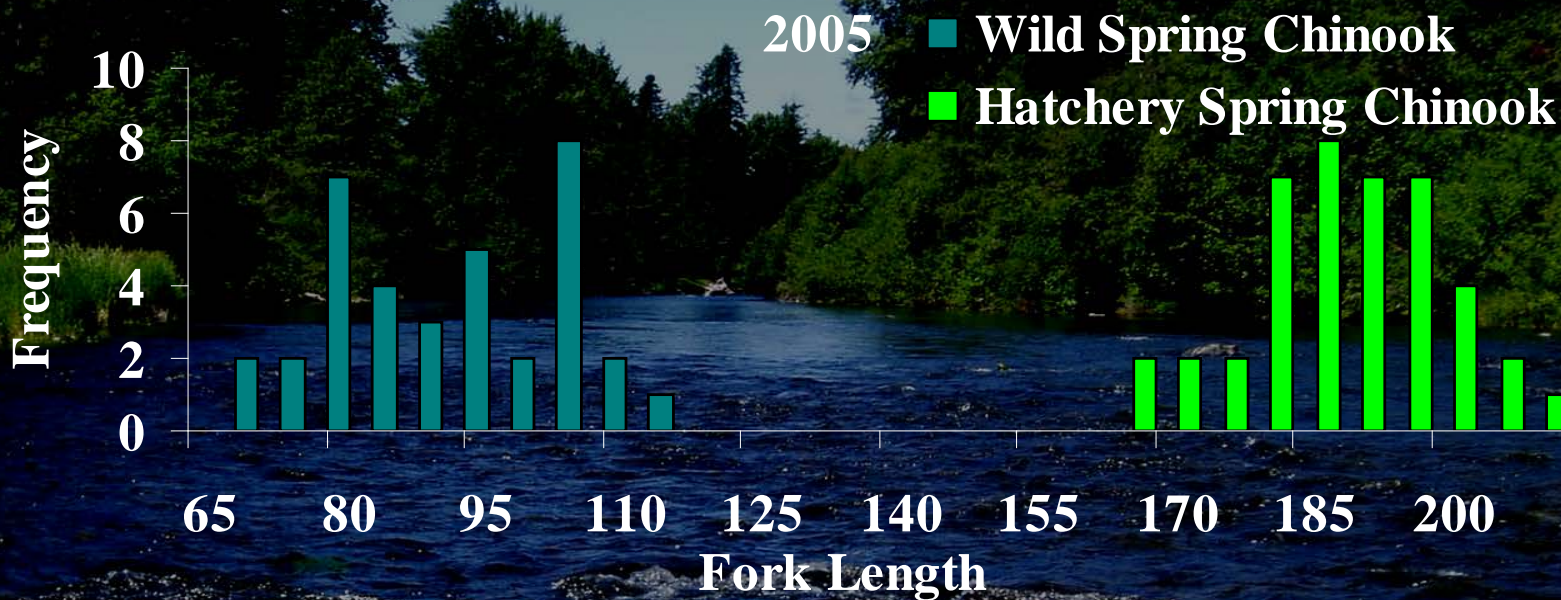
Distribution off the redds



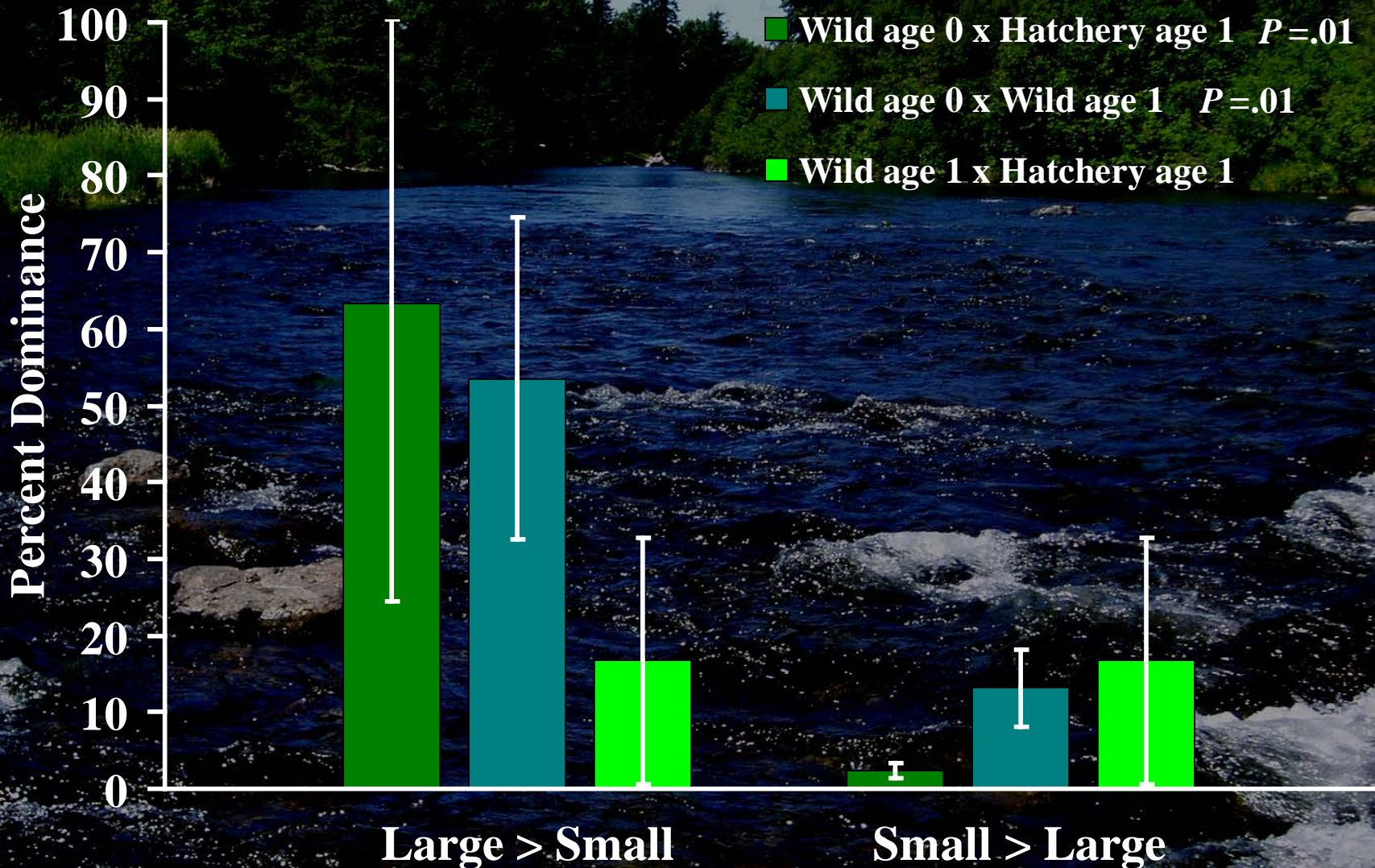
Size



Length Frequency



Dominance by Size 03-04



Preliminary Findings

- Growth modulation reduces the number of precocious males released. (Larsen et al.)
- Inter-annual variation in environmental conditions appear to play a large role in determining the abundance of hatchery precocious males on the spawning grounds.

Preliminary Findings

- Hatchery precocious males continued to be most abundant in areas downstream of spawning locations.
- Hatchery precocious males were larger than those observed in the wild.
- Larger Chinook dominated smaller ones in the majority of interactions.

