

A photograph of a person wading in a shallow, clear stream surrounded by dense forest. The person is wearing a yellow backpack and a light-colored shirt, and is holding a long pole or stick. The water is clear, revealing rocks and the forest floor. The trees are tall and green, with sunlight filtering through the canopy.

The Russian River Coho Salmon Captive Broodstock Program

Part 2: Monitoring coho survival in Russian River tributaries

***Mariska Obedzinski and Paul Olin
University of California Cooperative Extension***

***Manfred Kittel
California Department of Fish and Game***

Background: Russian River Coho Salmon Captive Broodstock Program

Program goal: Re-establish self-sustaining runs of native coho salmon in historic habitat within the Russian River watershed

Monitoring goal: Evaluate success of coho releases to help guide the future direction of the program and improve the likelihood of restoring coho salmon to the Russian River watershed

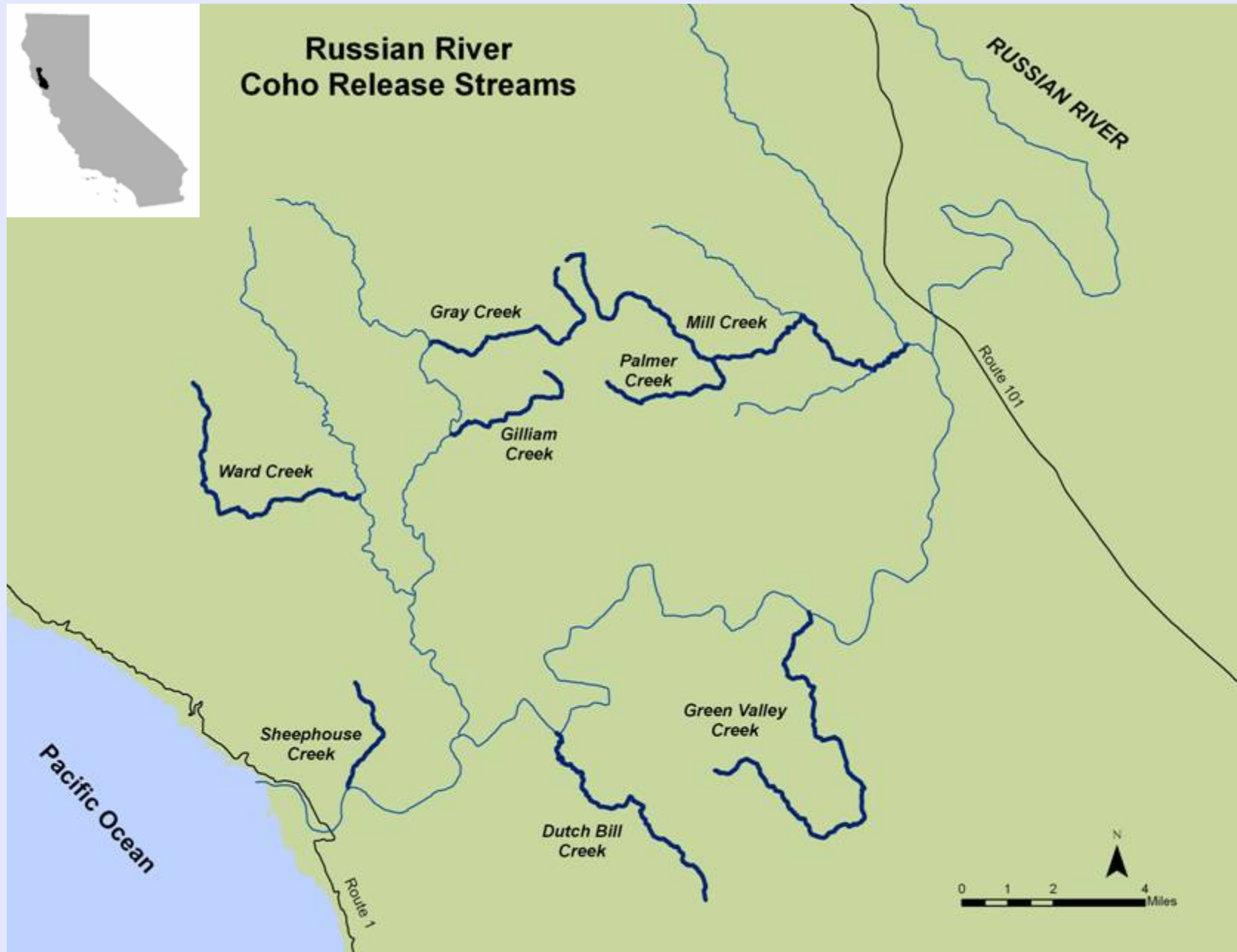


Monitoring objectives

- **estimate seasonal survival and growth rates of different release groups**
- **compare environmental characteristics among release streams and compare them to growth and survival**
- **estimate abundance of returning adults**



Russian River Coho Release Streams



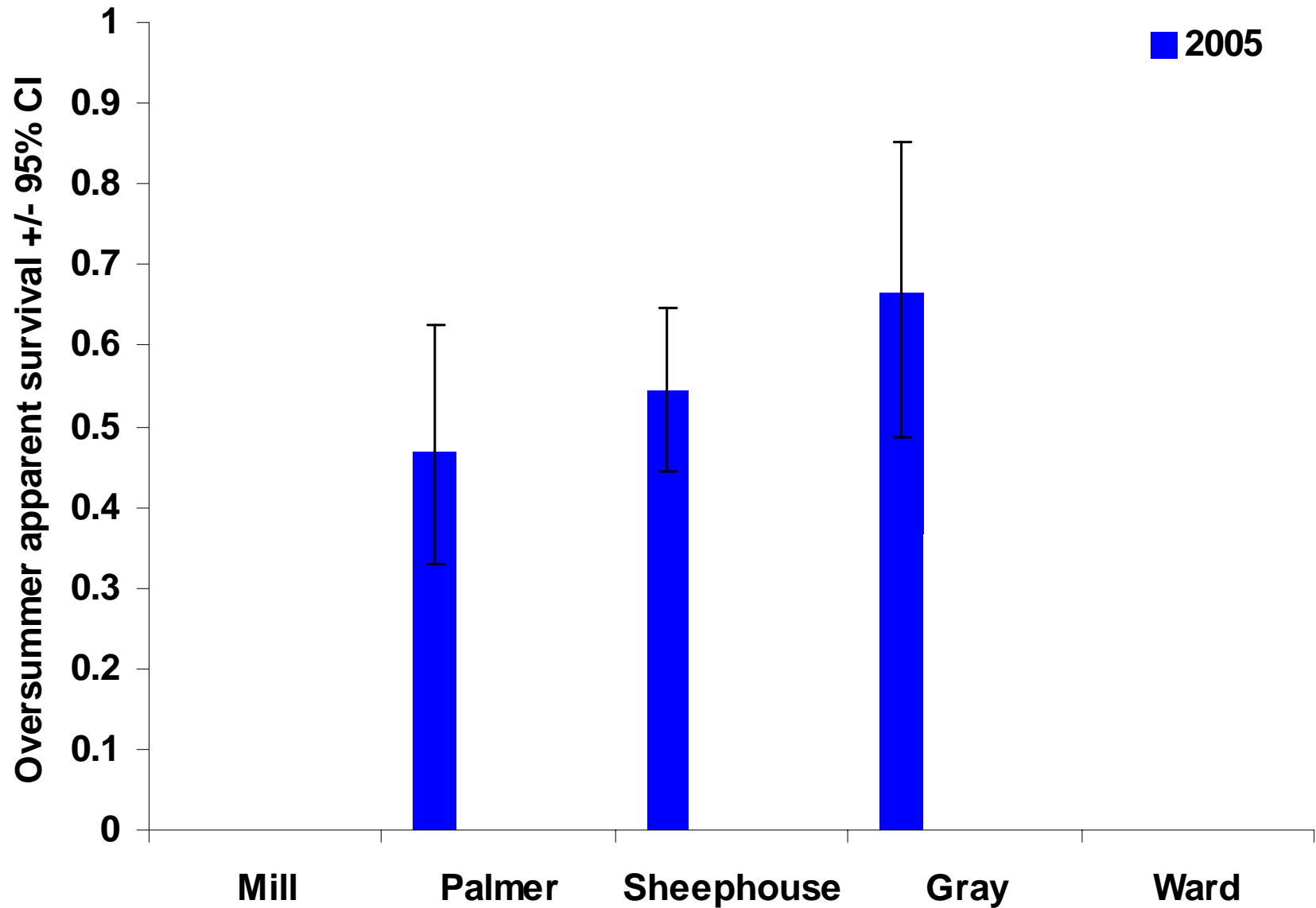
Oversummer survival of spring released coho



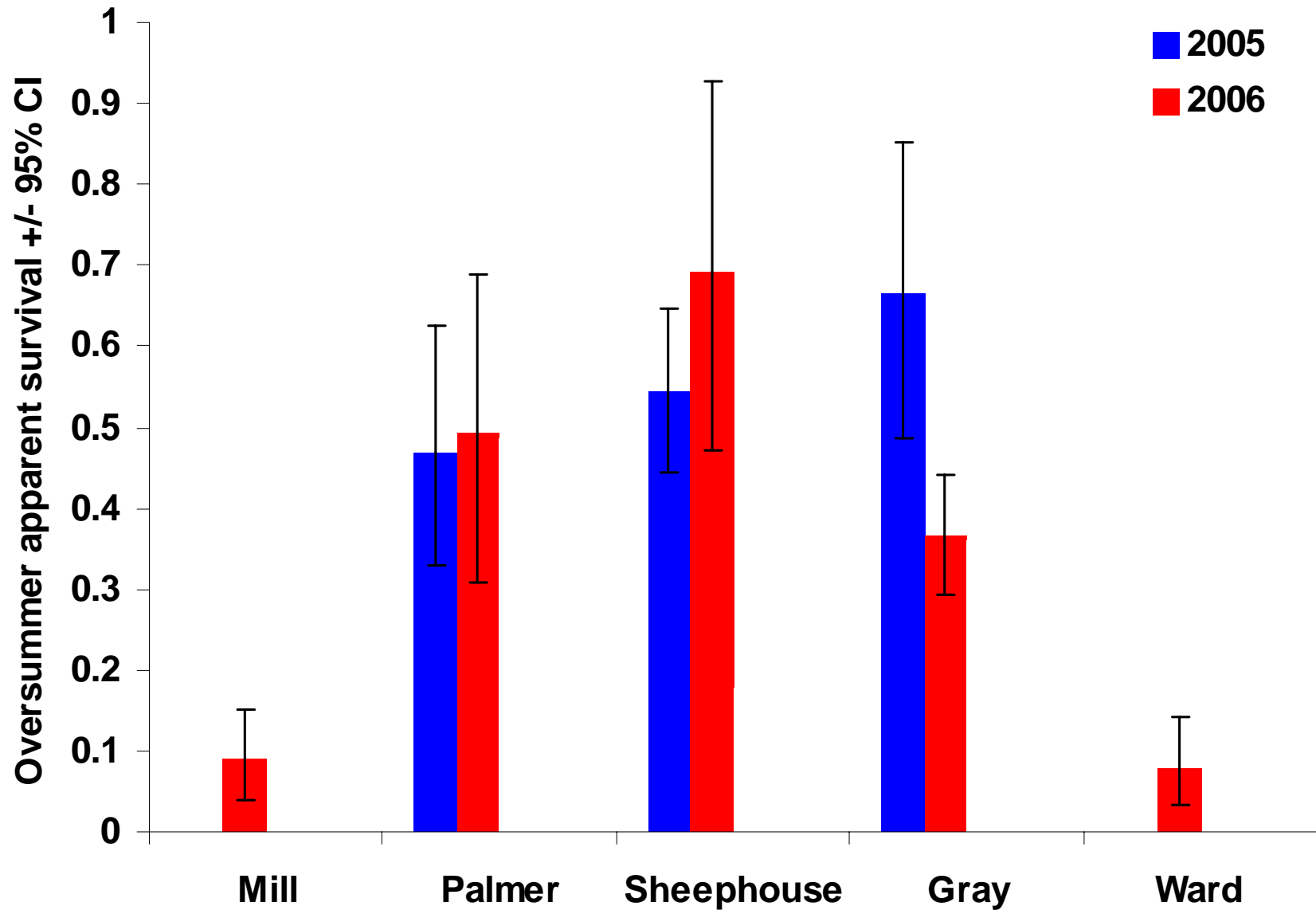
Late summer abundance estimates



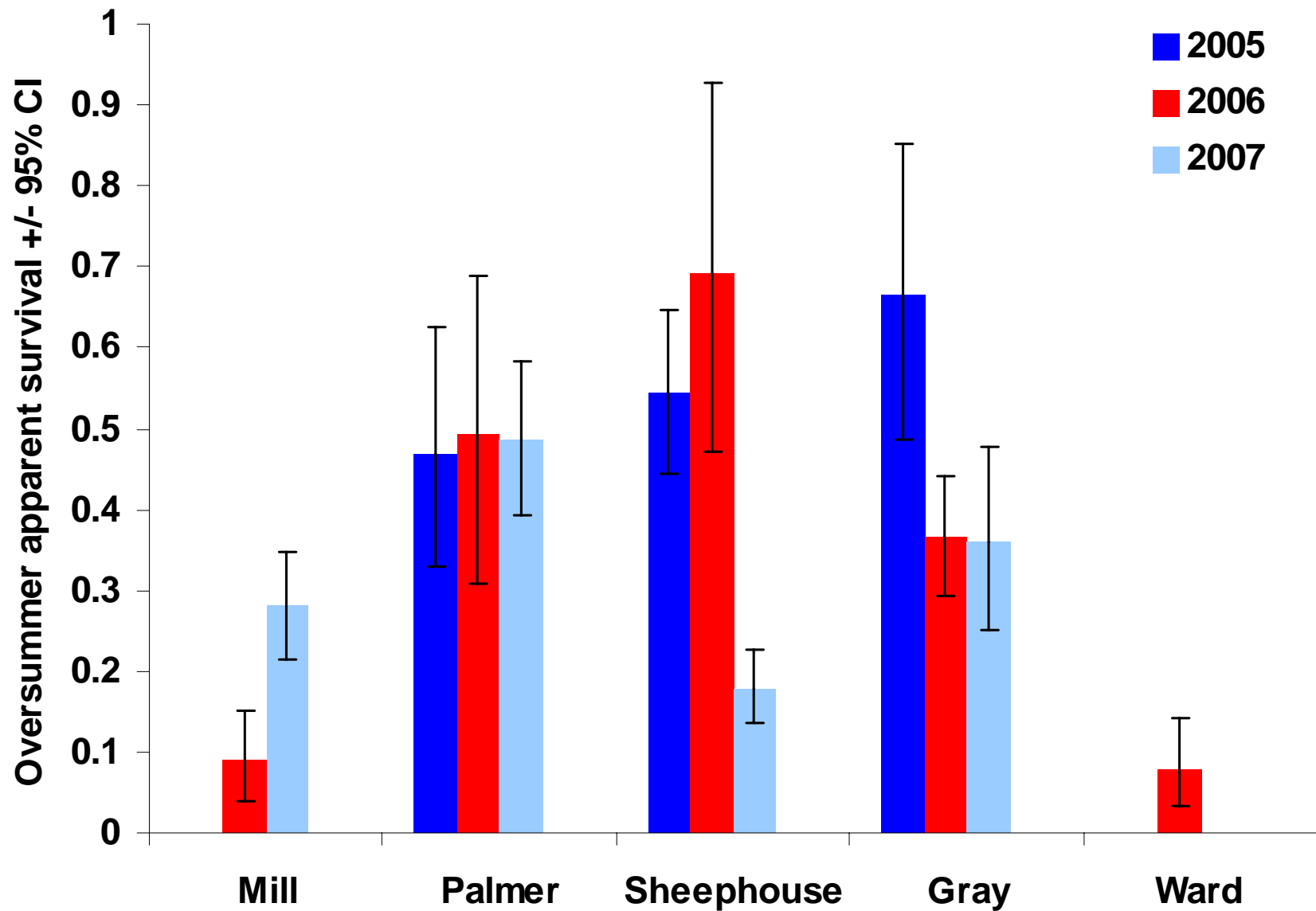
Oversummer survival estimates



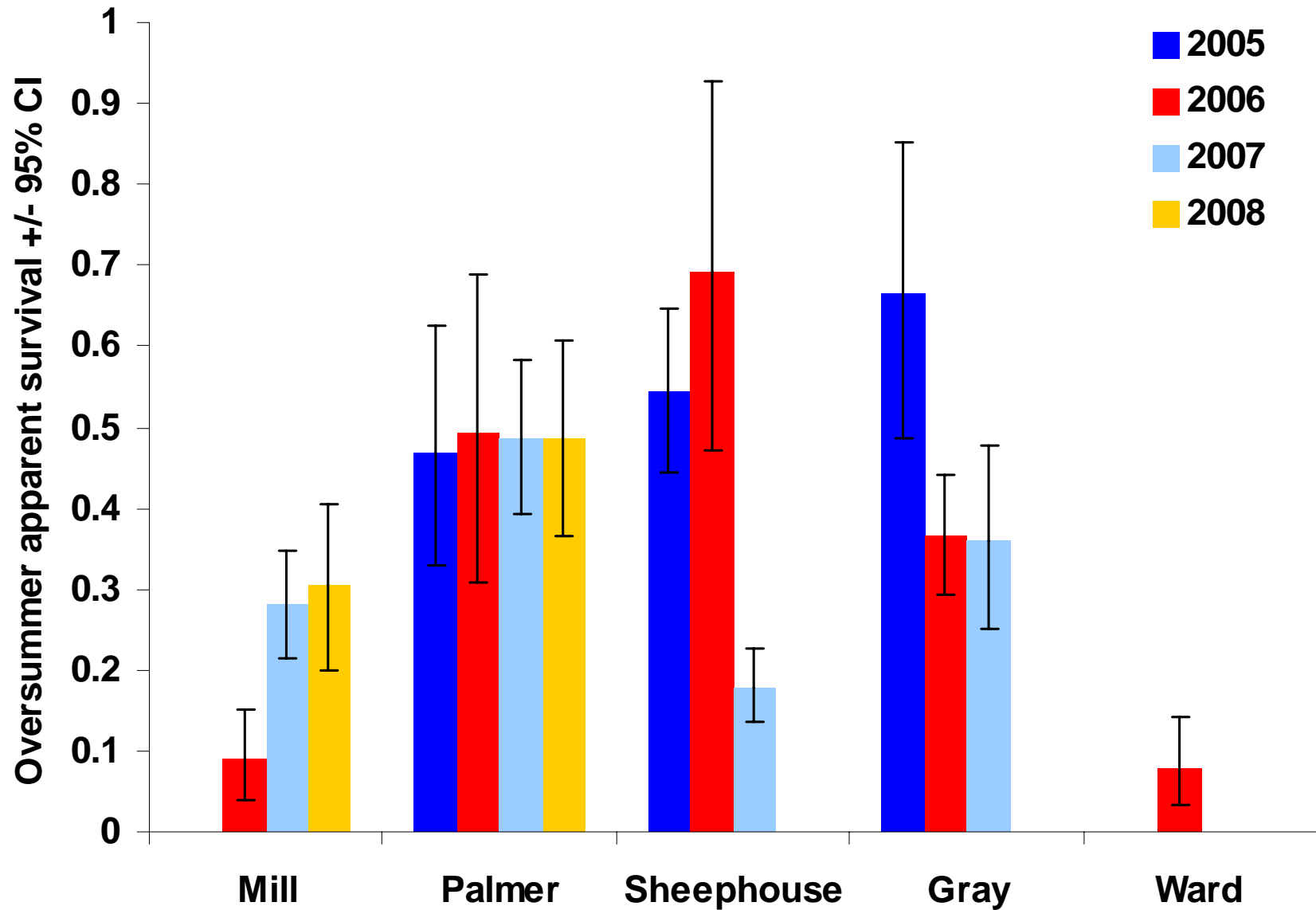
Oversummer survival estimates



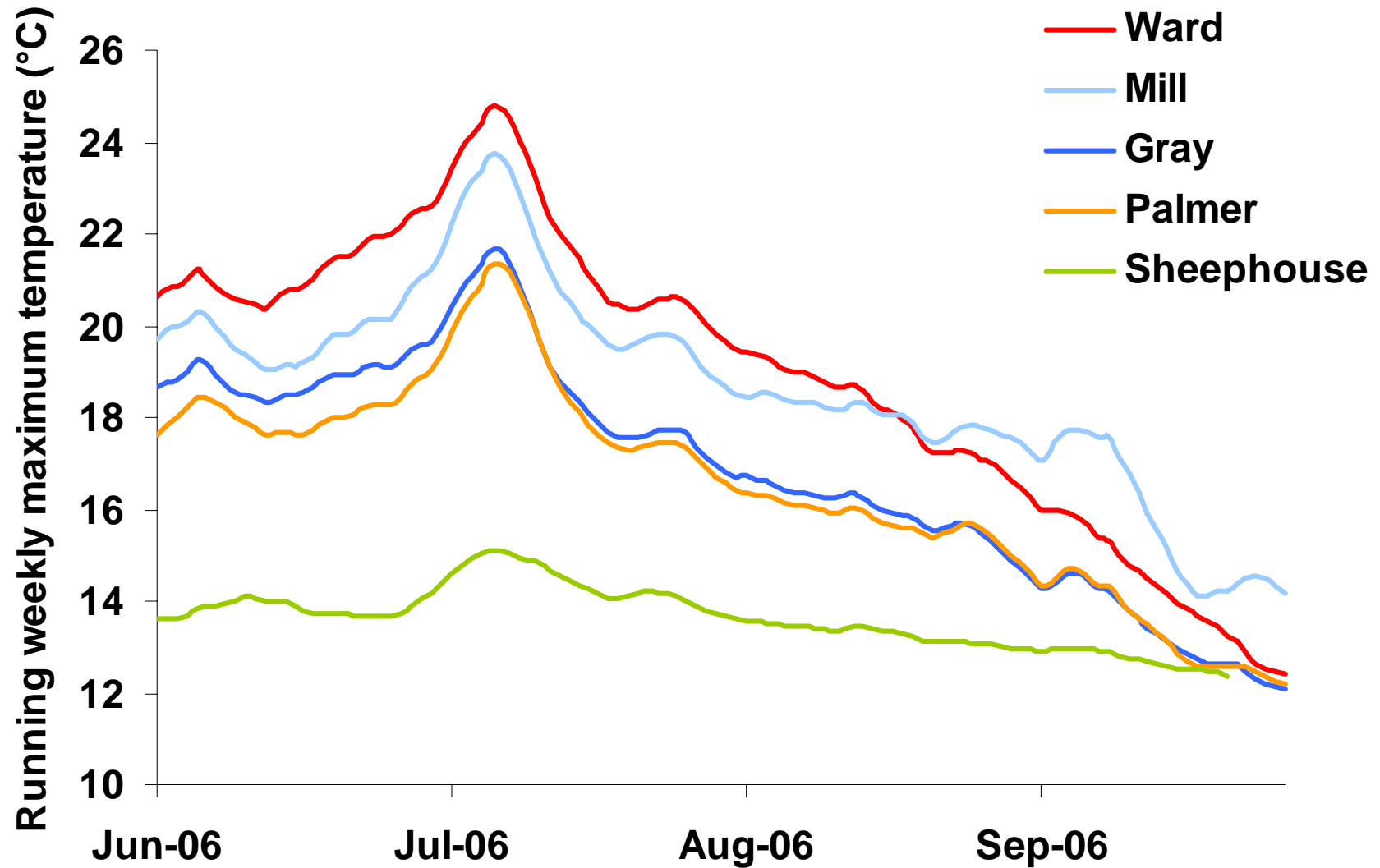
Oversummer survival estimates



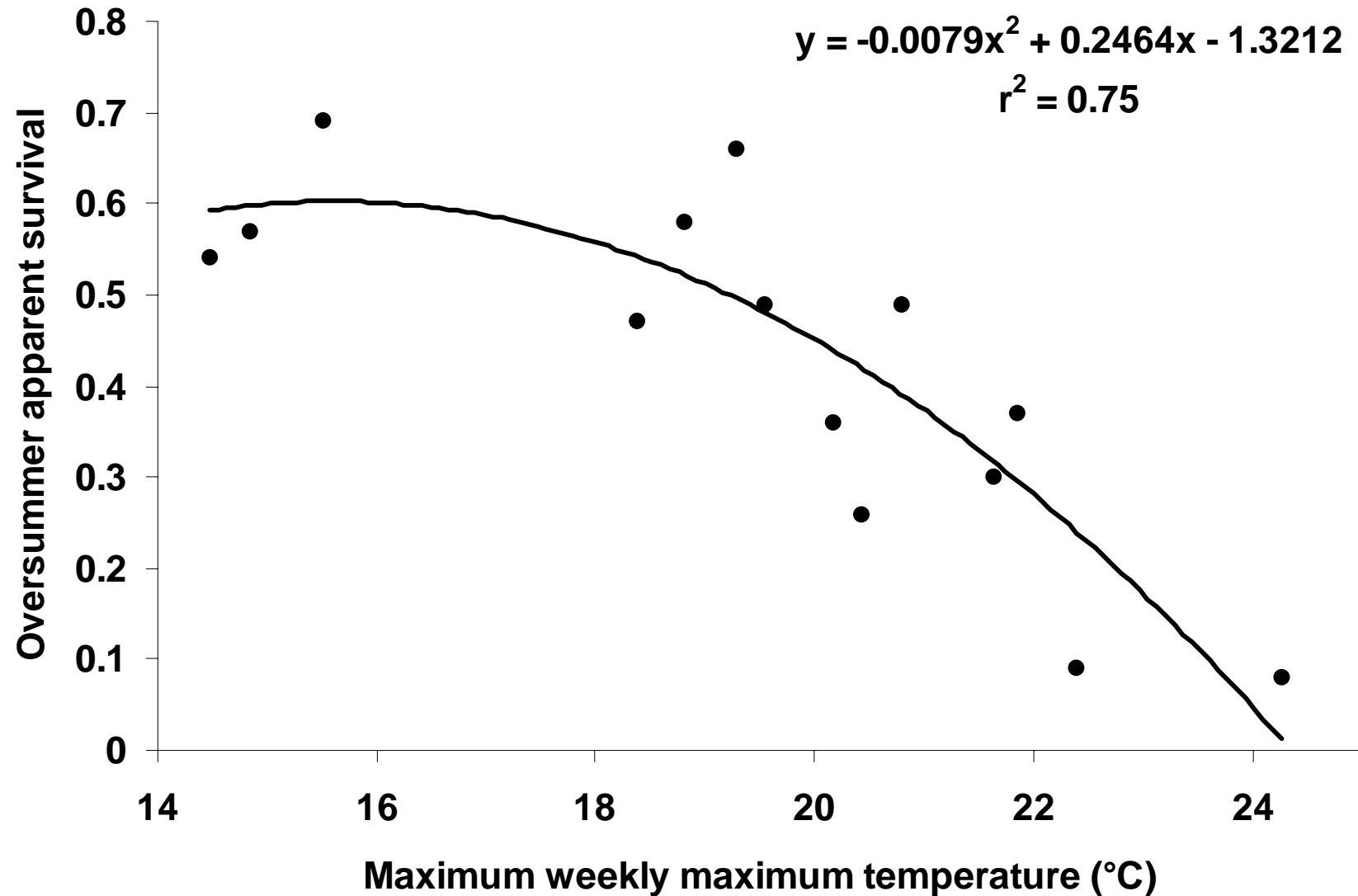
Oversummer survival estimates



Stream temperature comparison



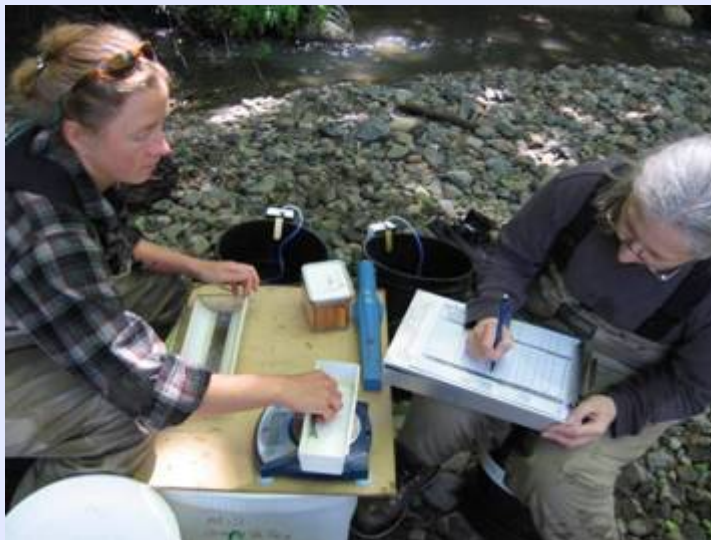
Survival and temperature comparison



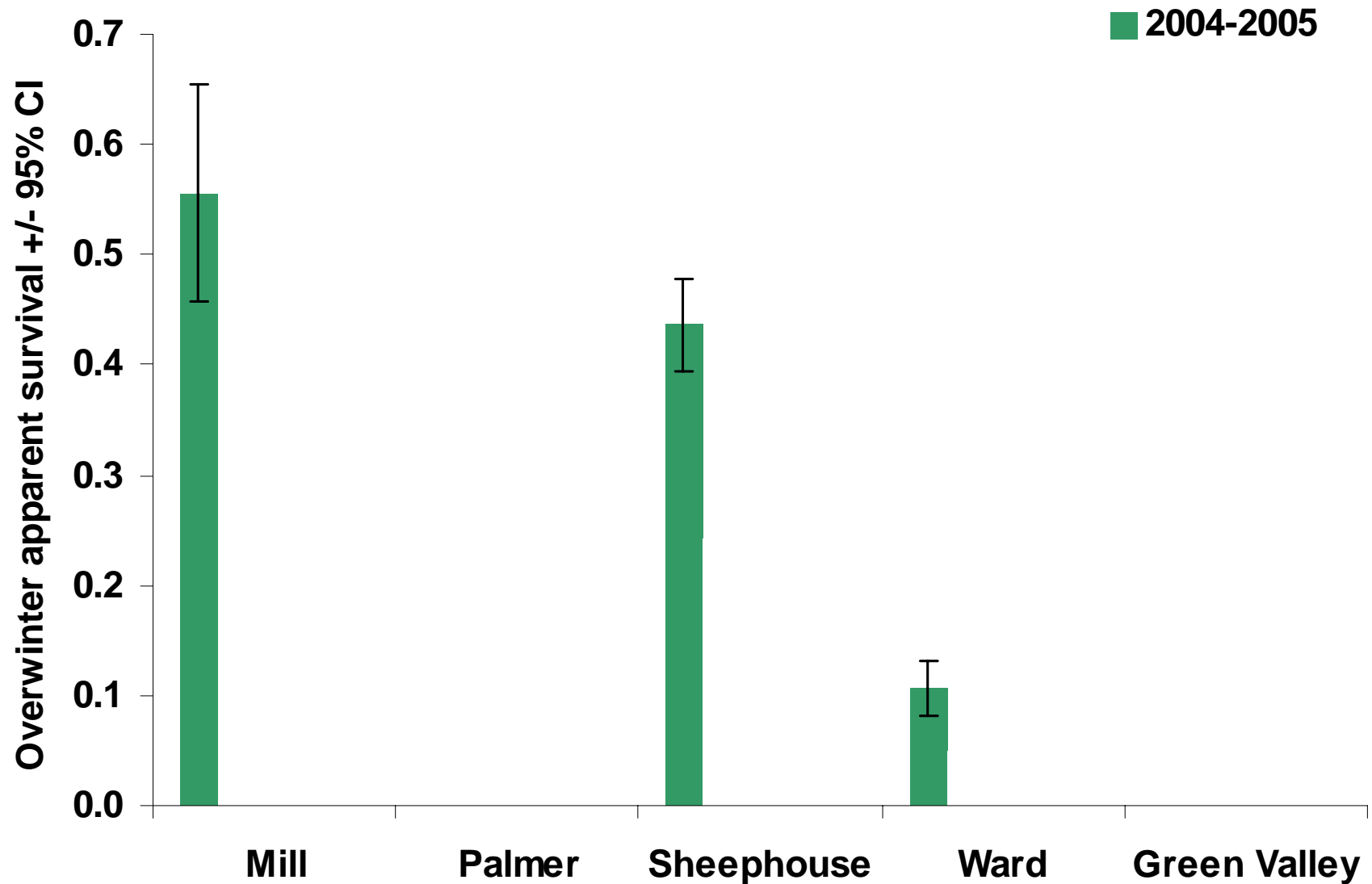
Overwinter survival of fall released coho



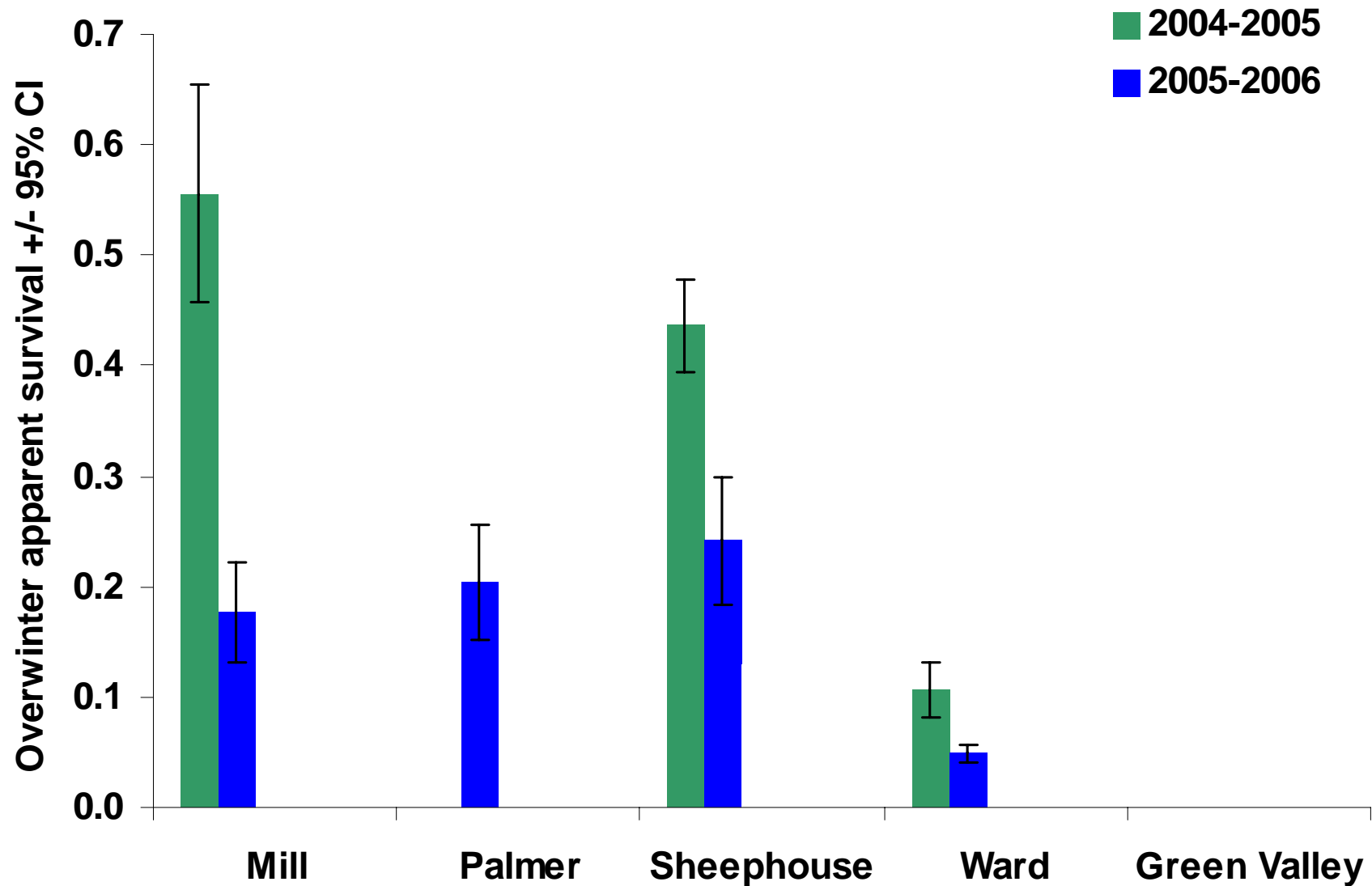
Smolt abundance using mark recapture at downstream migrant traps



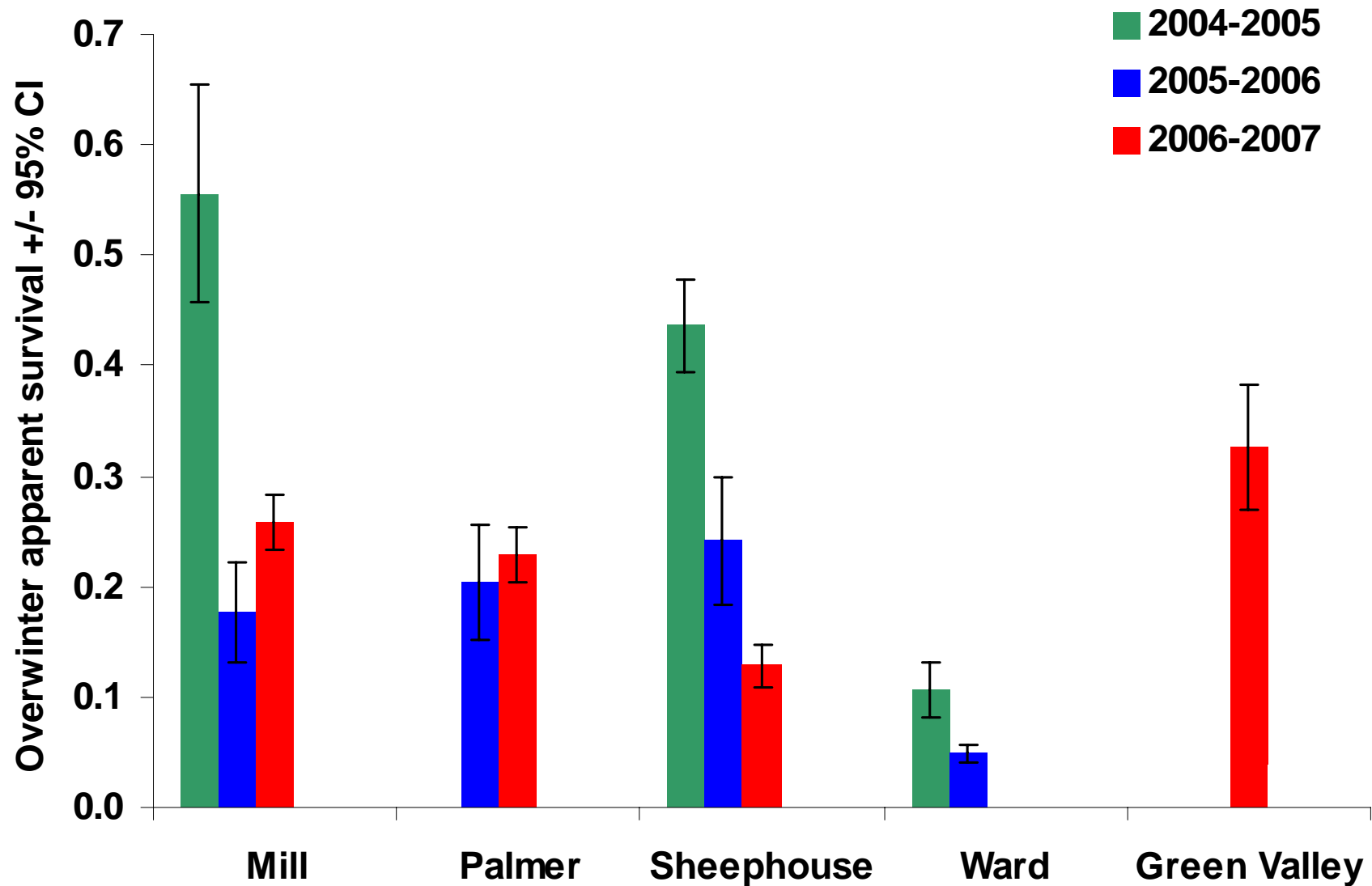
Overwinter survival of fall released coho



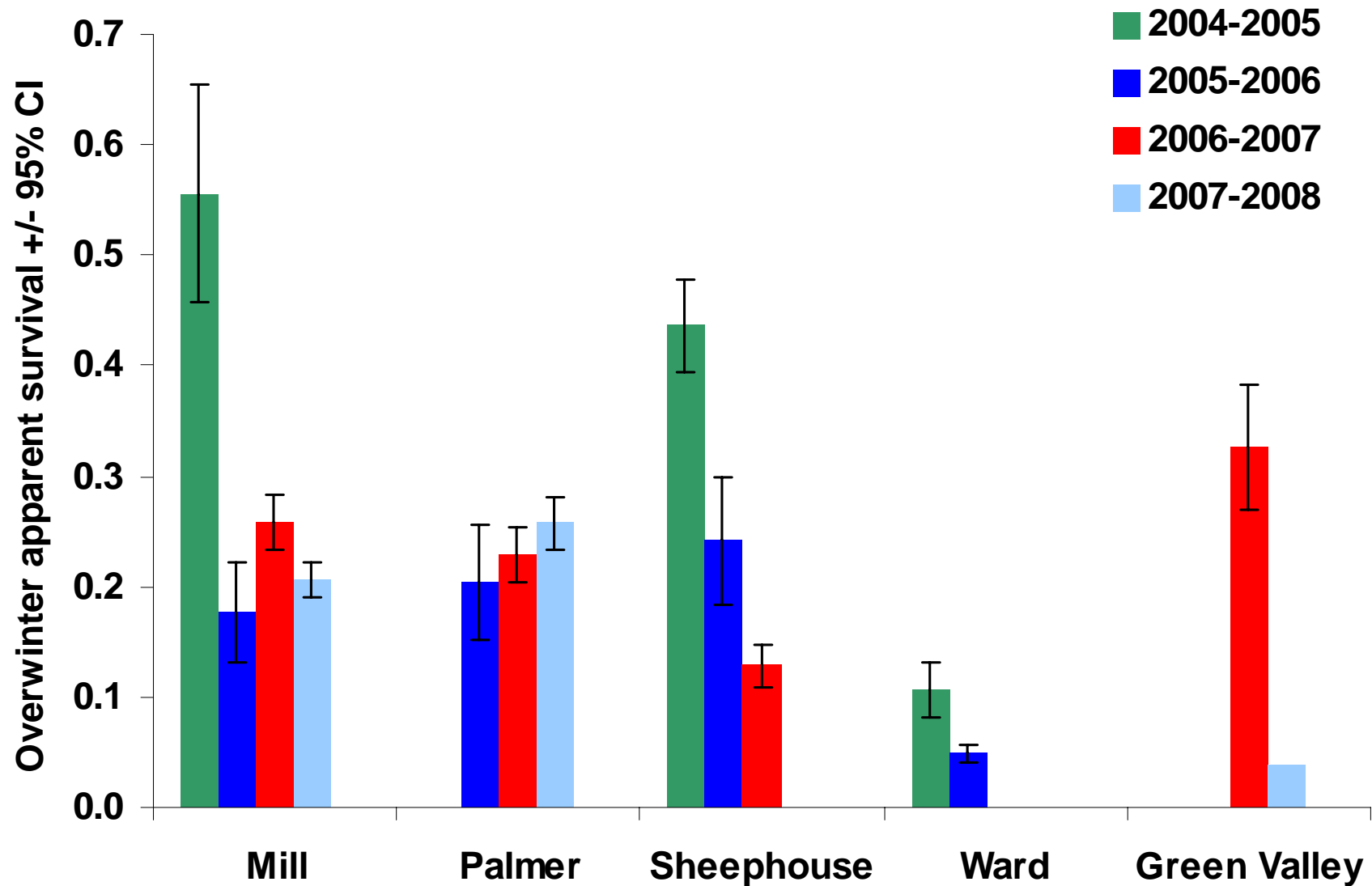
Overwinter survival of fall released coho



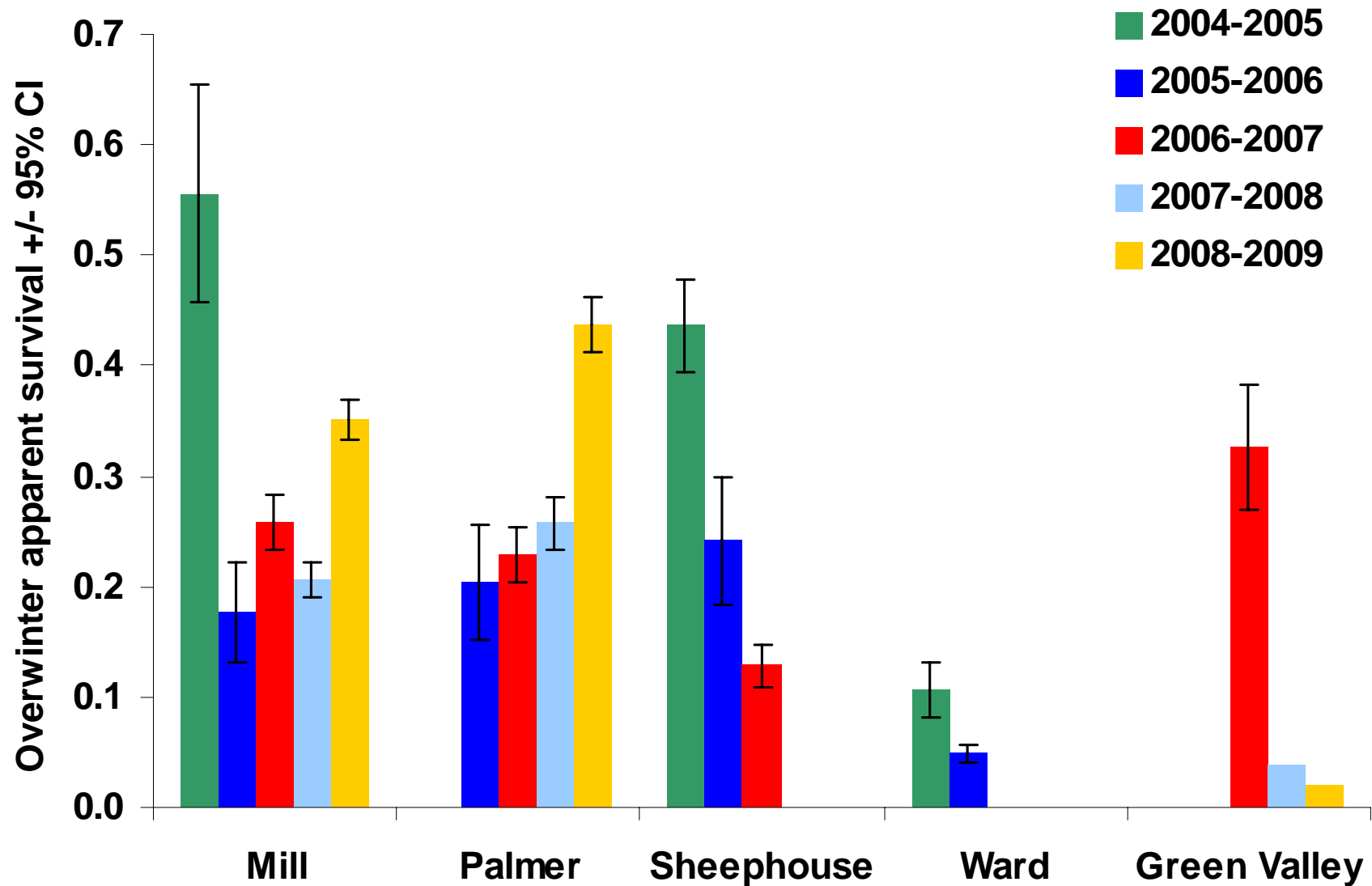
Overwinter survival of fall released coho



Overwinter survival of fall released coho



Overwinter survival of fall released coho



Adult estimates: trapping



Adult estimates: redd and spawner surveys



Presence/absence dive surveys



Evidence for adult returns



Evidence for adult returns



Evidence for adult returns



Photo taken by Sonoma County Water Agency

Oversummer survival comparison of cross-types

- **3 cross-types:** *Russian x Russian, Russian x Olema, Olema x Russian*

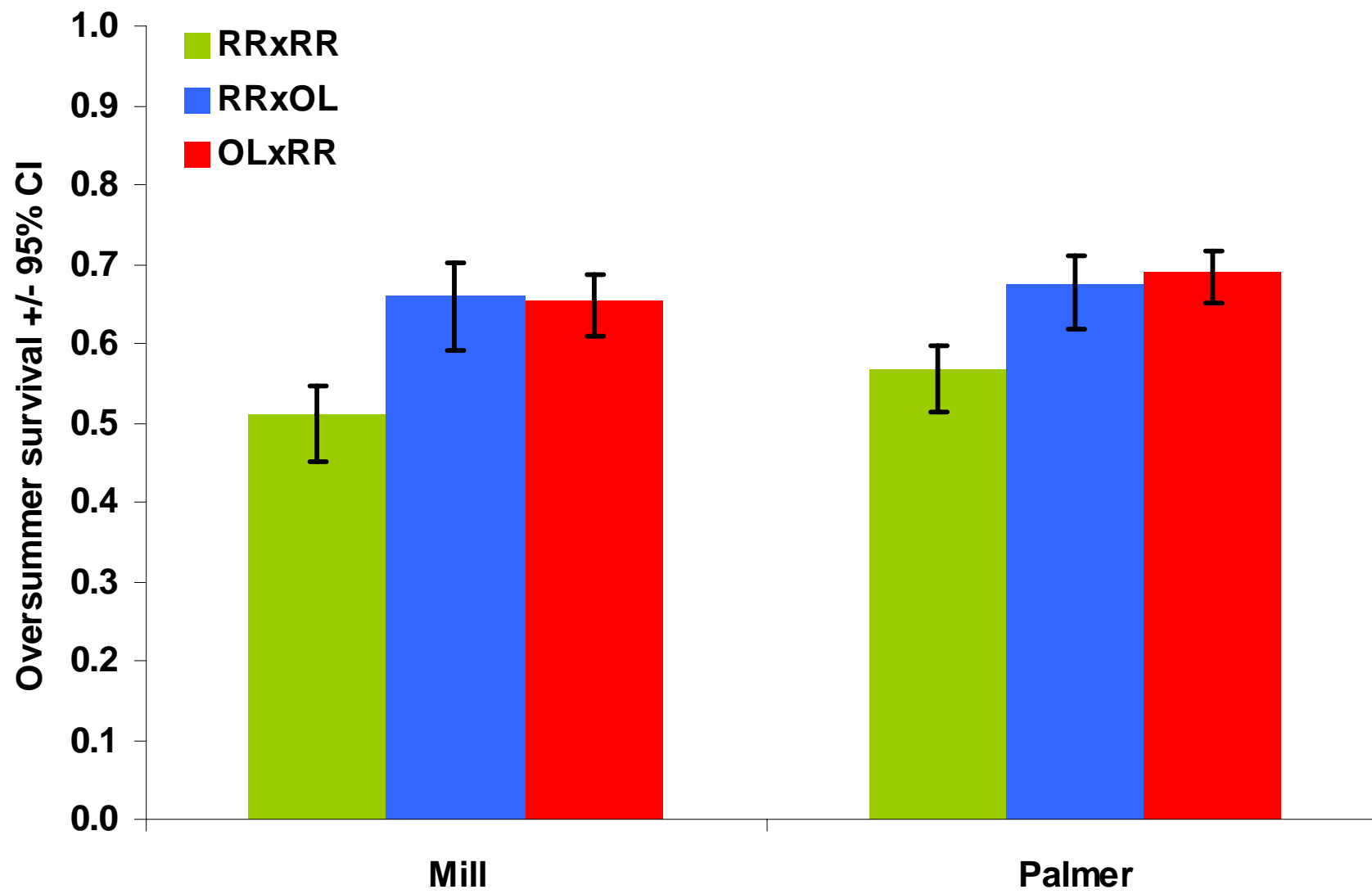
2 tributaries: *Mill Creek, Palmer Creek*

Tributary	Cross-type	Number stocked	Avg FL (mm) +/- 95% CI	Avg WT (g) +/- 95% CI
Mill	RRxRR	275	67.6 +/- 1.4	3.9 +/- 1.2
	RRxOL	274	65.2 +/- 1.2	3.5 +/- 1.0
	OLxRR	273	66.6 +/- 1.2	3.7 +/- 1.2
Palmer	RRxRR	274	66.6 +/- 1.6	3.9 +/- 1.4
	RRxOL	274	64.9 +/- 1.3	3.6 +/- 1.1
	OLxRR	272	65.6 +/- 1.4	3.7 +/- 1.2

Portable PIT tag detection system



Oversummer survival of cross-types



Future goals of monitoring program

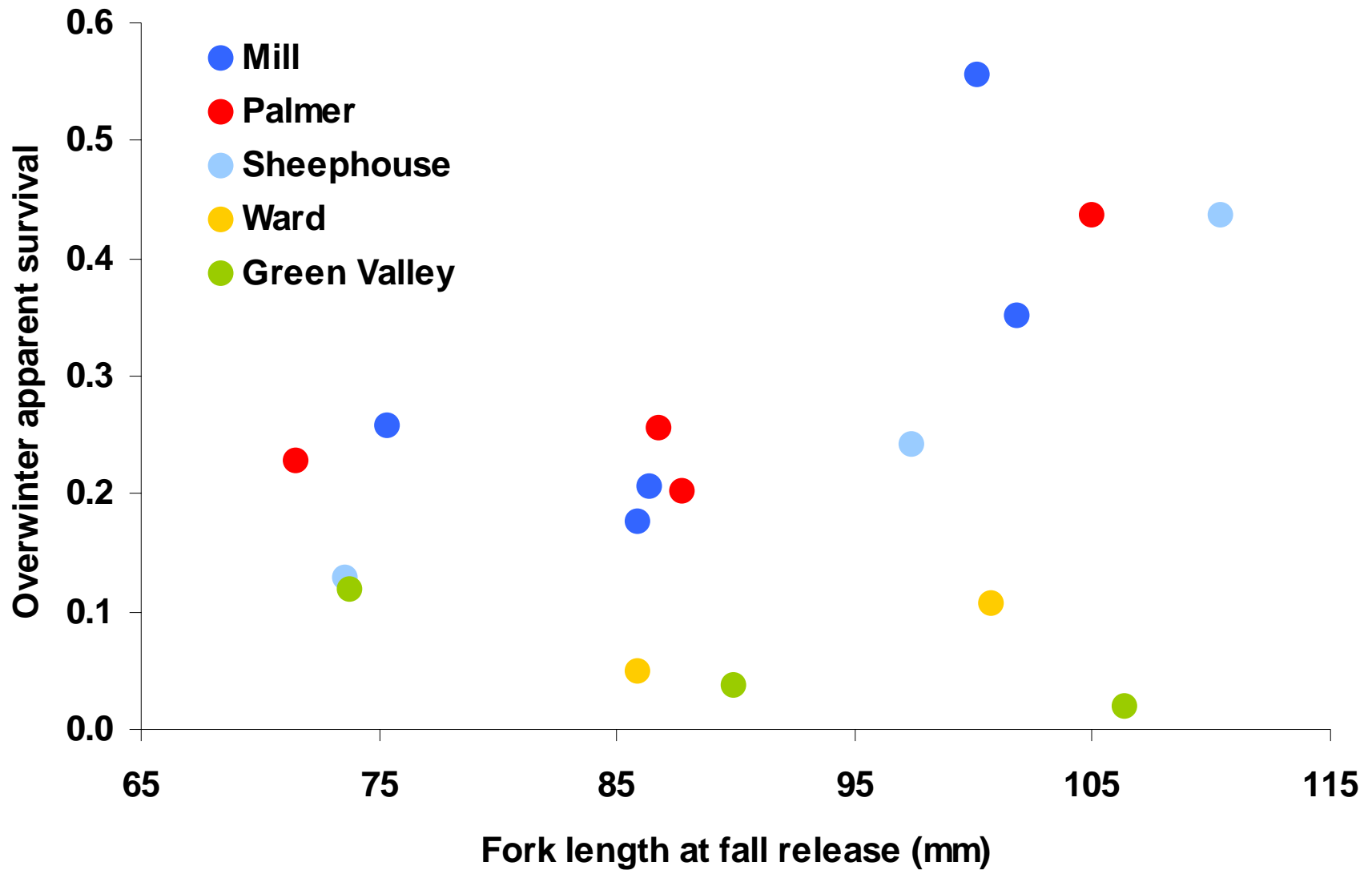
- **Continue long term monitoring of seasonal growth and survival of different release groups**
- **Investigate potential causes of low survival in Green Valley Creek**
- **Compare overwinter and smolt to adult growth and survival of different cross-type**
- **Expand monitoring to include river and estuary**

Acknowledgements

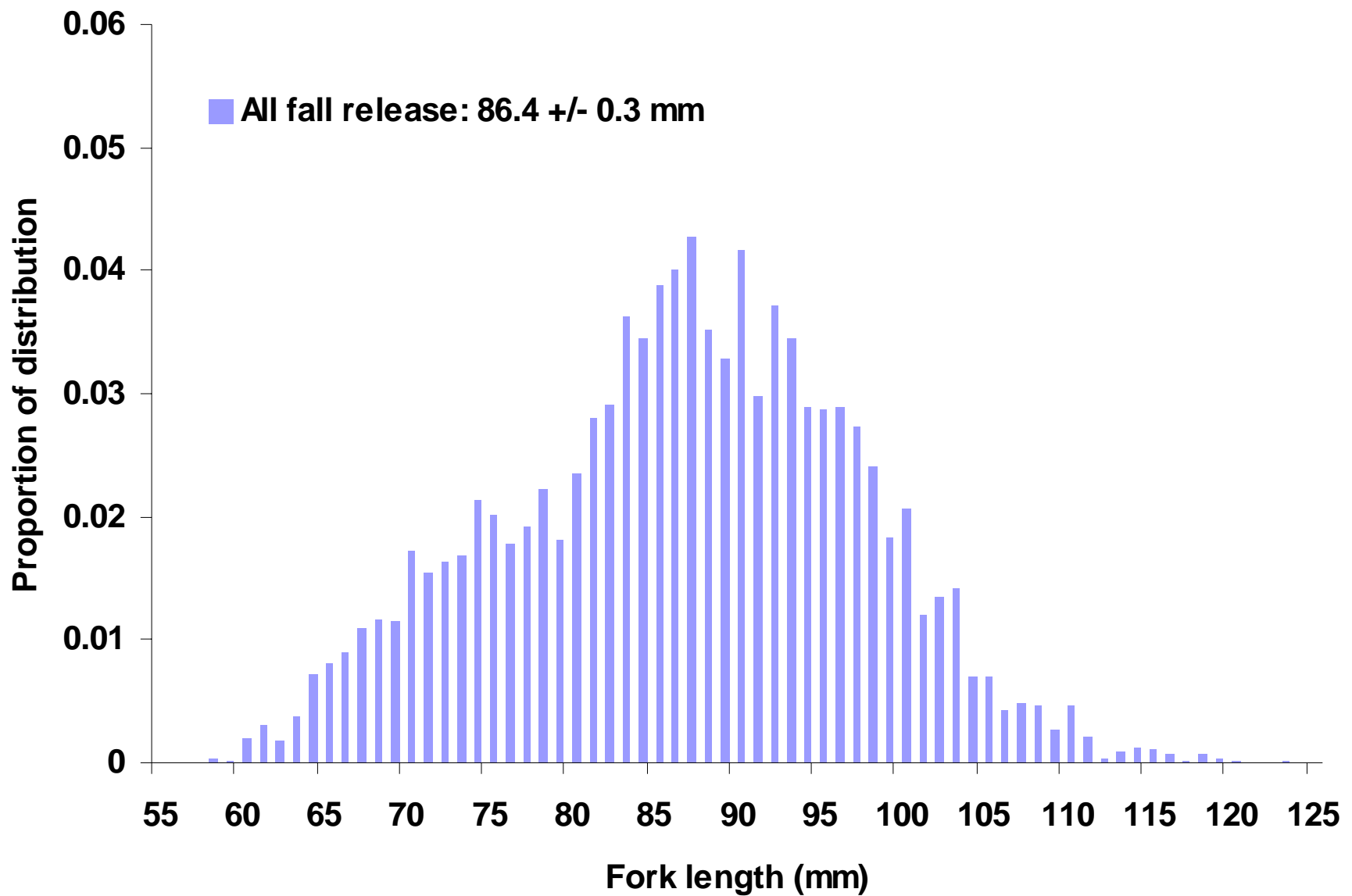
- Hatchery and Field Crews
- Cooperating Landowners
- CDFG Fisheries Restoration Grant Program
- Sonoma County Fish and Wildlife Commission
- Russian River Coho Salmon Captive Broodstock Program Monitoring and Hatchery Committees
- Conte Anadromous Fish Research Center
- Staff and children of Westside School



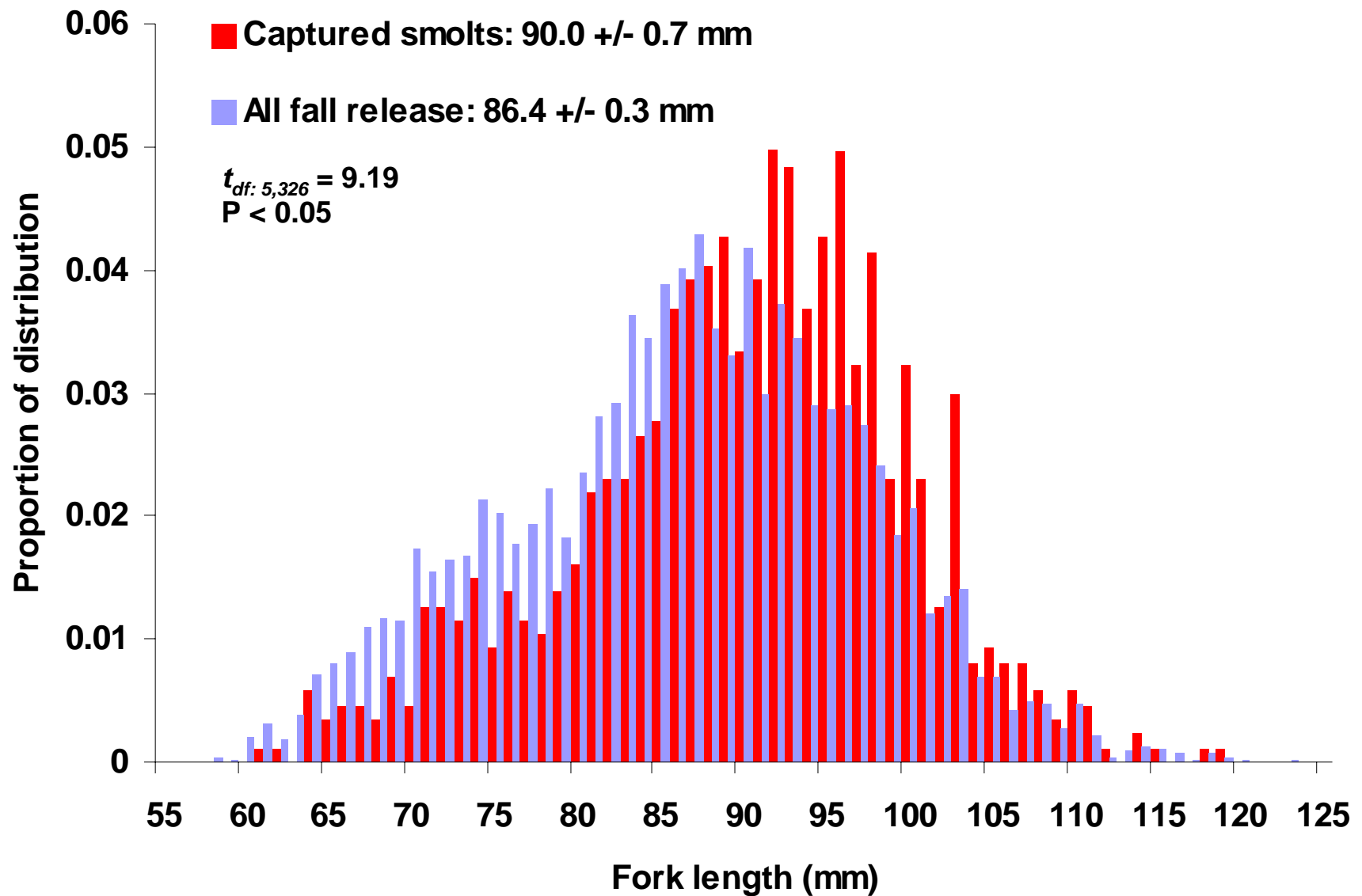
Fall release size v. overwinter survival



Fall release size v. overwinter survival



Fall release size v. overwinter survival



Comparison of overwinter growth and food availability

