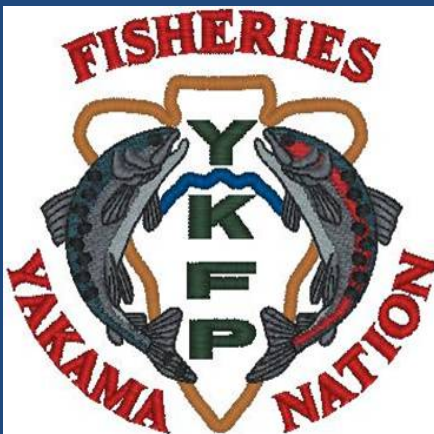


Yakima Basin Steelhead Check-In : Habitat Restoration (~15 yrs) + Kelt Reconditioning (~10 yrs) = Population Response?

Yakama Nation Fisheries
Columbia River Inter-Tribal Fish Commission

Presented by

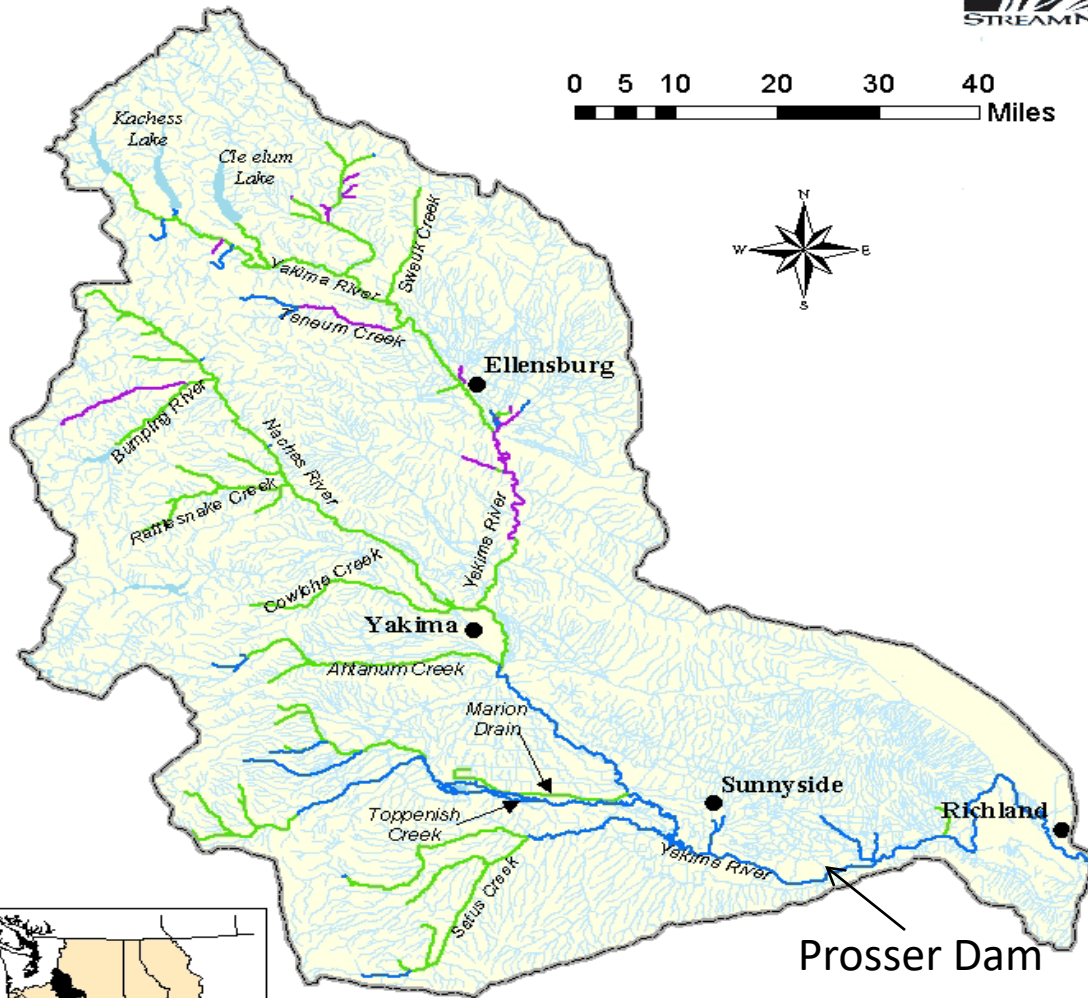
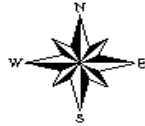
Bill Bosch – YN, Yakima-Klickitat Fisheries Project (YKFP)



Summer Steelhead Distribution - Yakima Subbasin



0 5 10 20 30 40 Miles

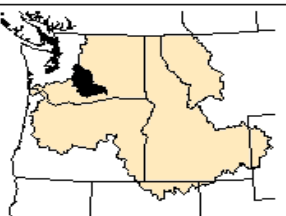


Outline

- Habitat Restoration
- 'Traditional' Col. R. Steelhead Production programs
- Kelt Reconditioning
- Population Response

Summer Steelhead Distribution

- Primarily spawning and rearing
- Primarily rearing and migration
- Primarily migration



Yakima subbasin shown in black.
Columbia River basin shown in tan.

Universe of Columbia River Steelhead Diversity

Age-2 migrant

Age-4 migrant

Summer Run

Repeat Spawner

Age-1 migrant

Resident
Rainbow

Age-5 migrant

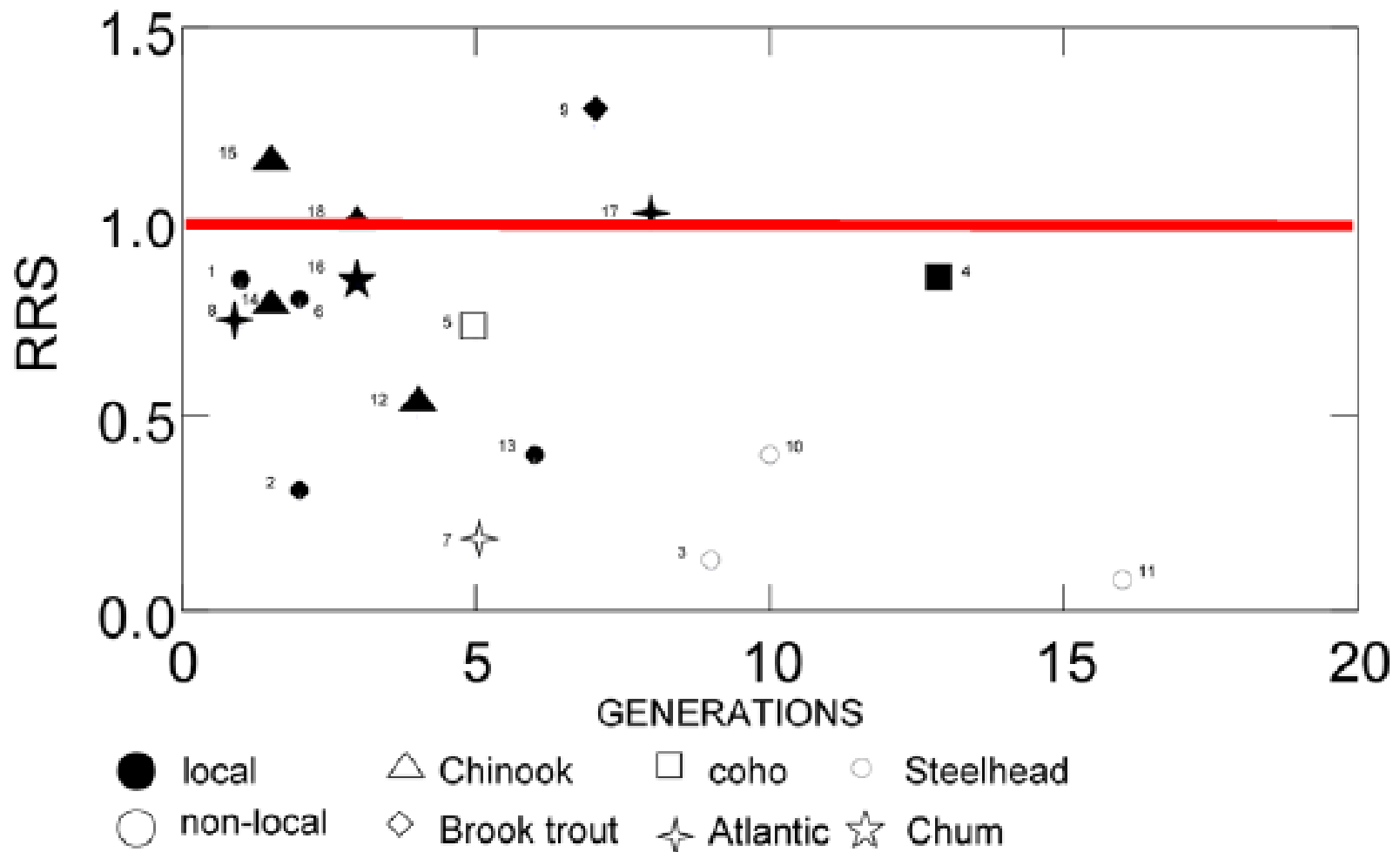
Age-3 migrant

Winter Run

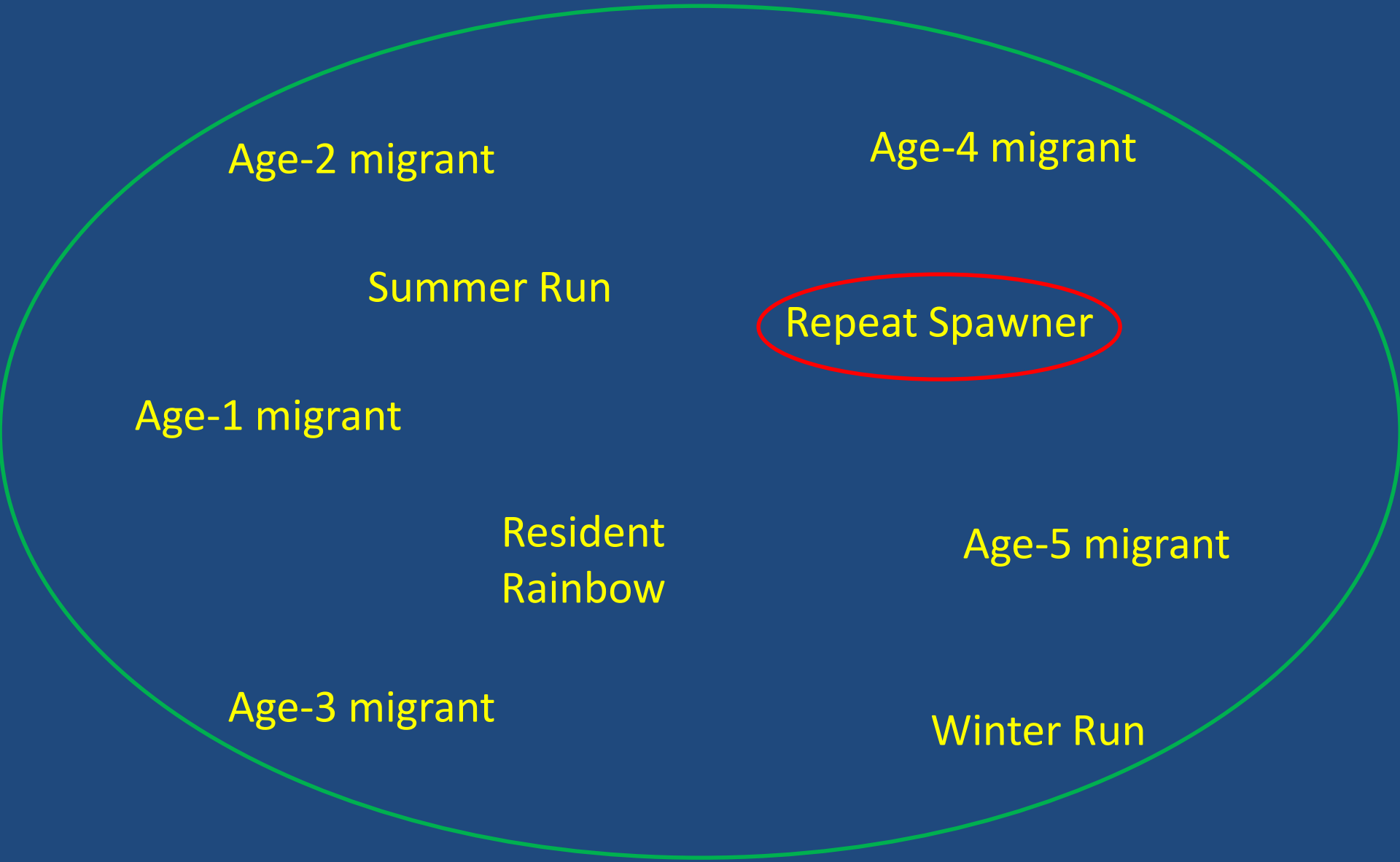
‘Designer’ Steelhead : e.g., Mackey et al. 2001

“In Washington State, the approach to management of wild and hatchery steelhead trout *Oncorhynchus mykiss* has been to separate the timing of return and spawning by the two groups through selective breeding for early timing in hatchery fish.”

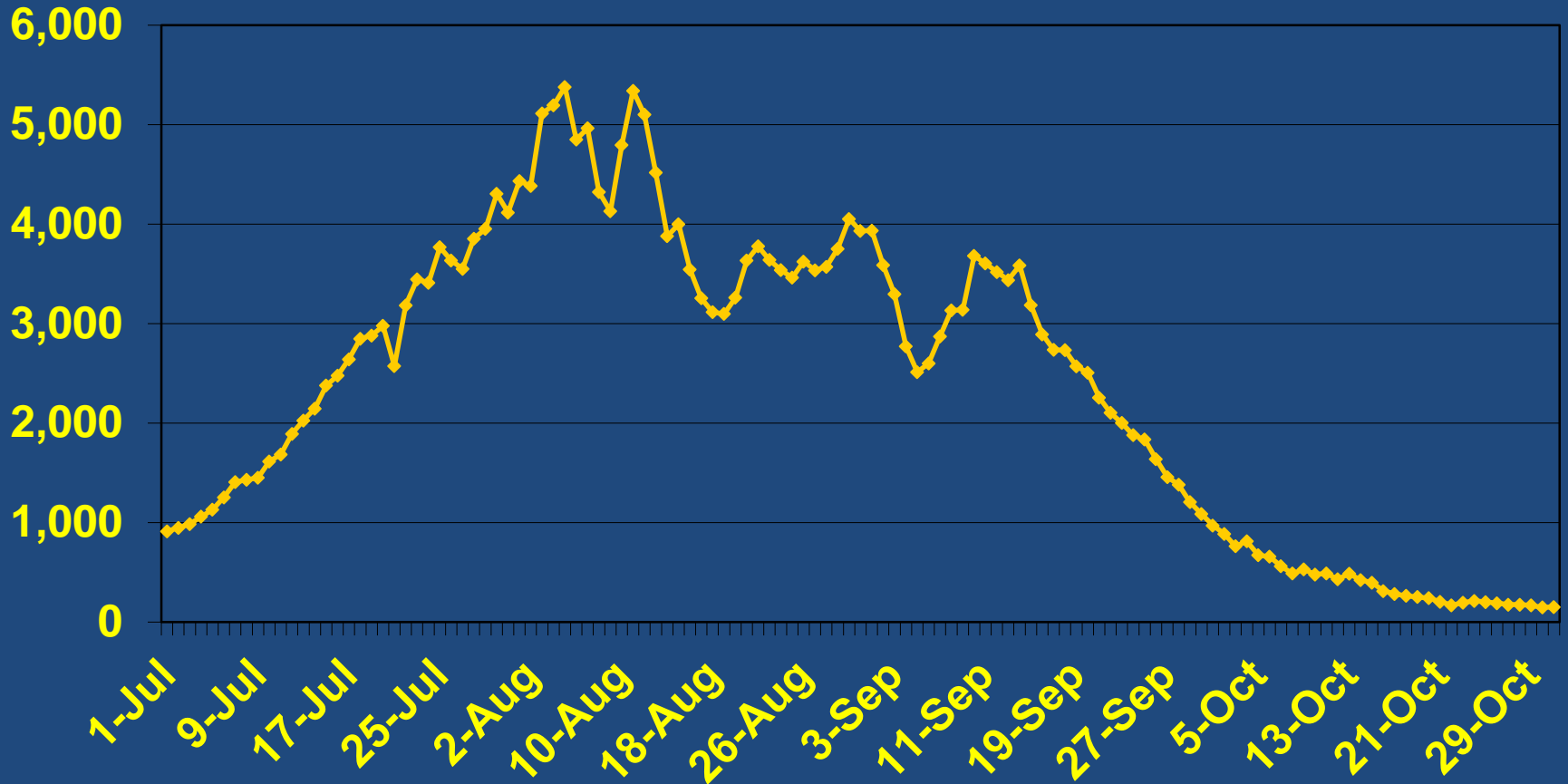
How general is low hatchery fitness?



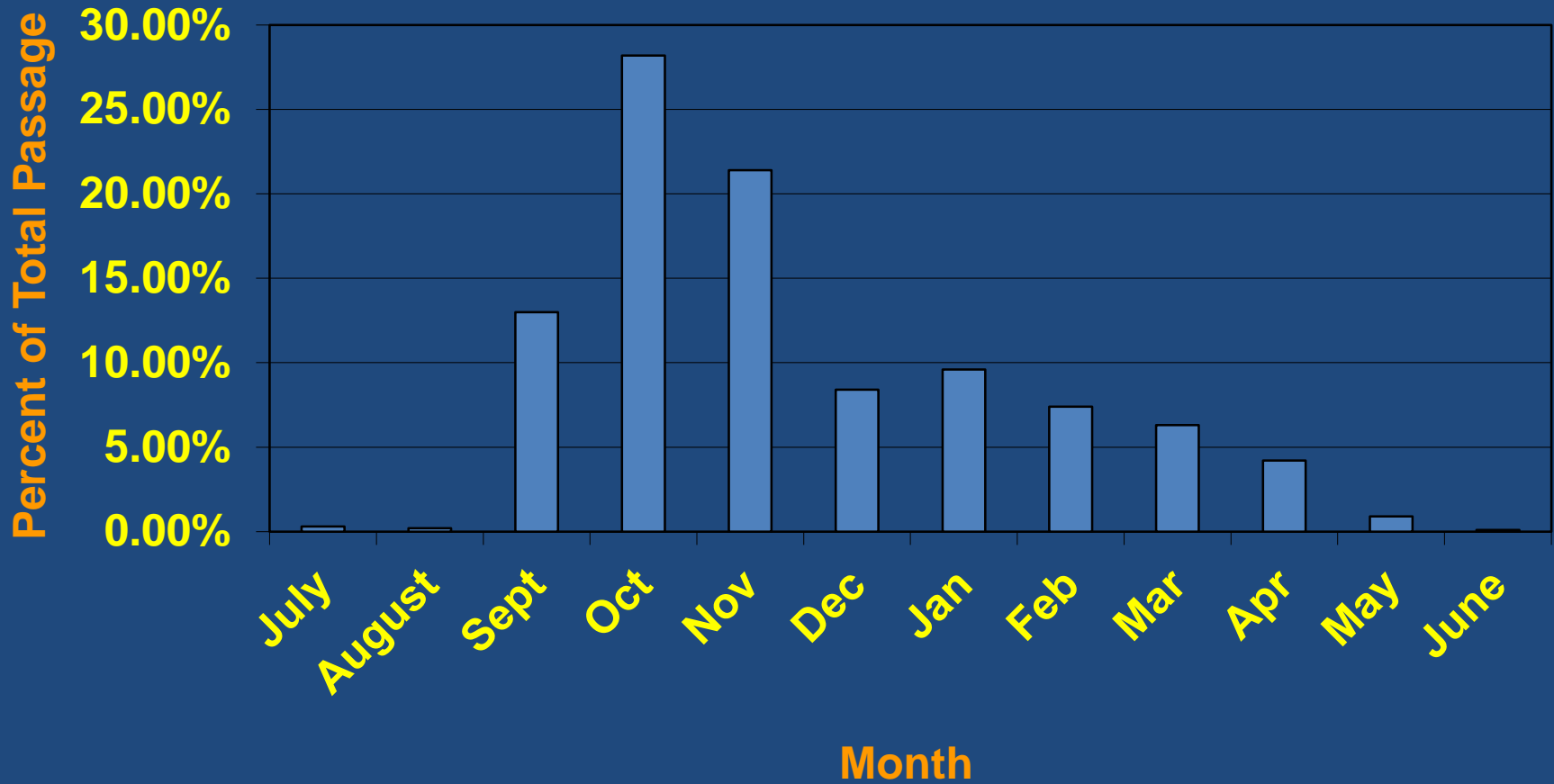
Universe of Columbia River Steelhead Diversity



Summer Steelhead Passage Timing at Bonneville Dam



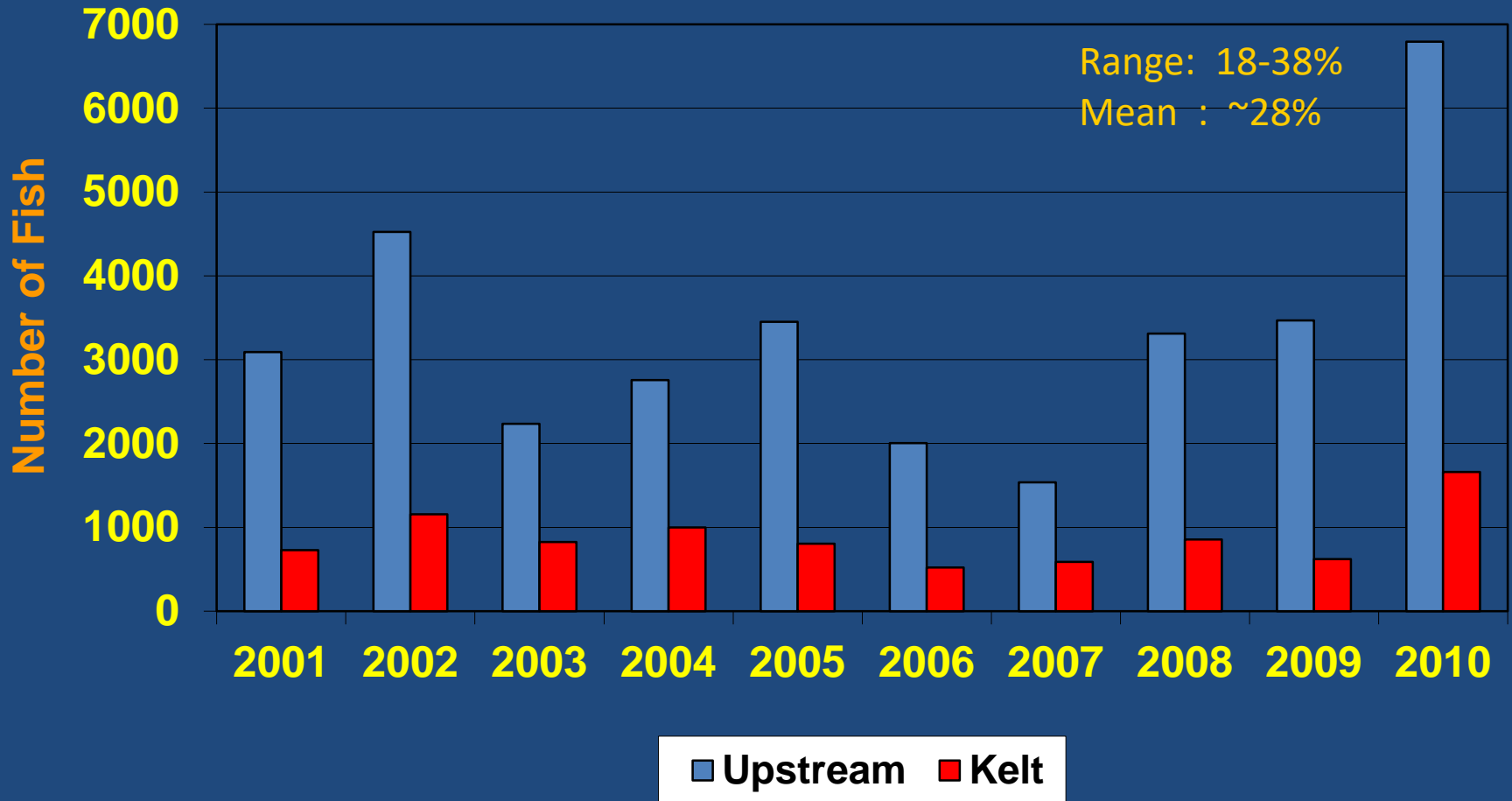
Average Upstream Passage Timing at Prosser Dam



Downstream Kelt (post-spawner) steelhead passage and capture at Prosser Hatchery

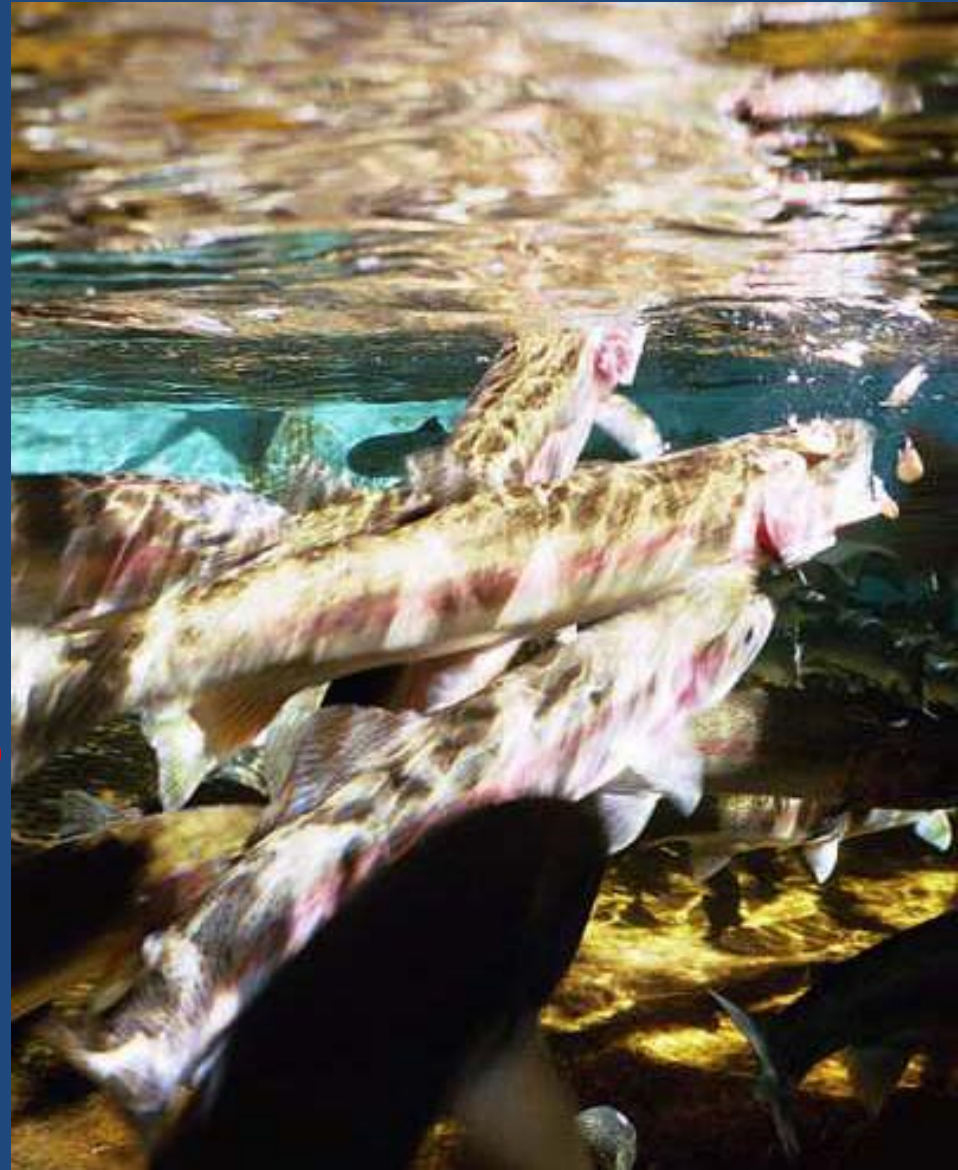


Chandler Kelt Collection, 2001-10

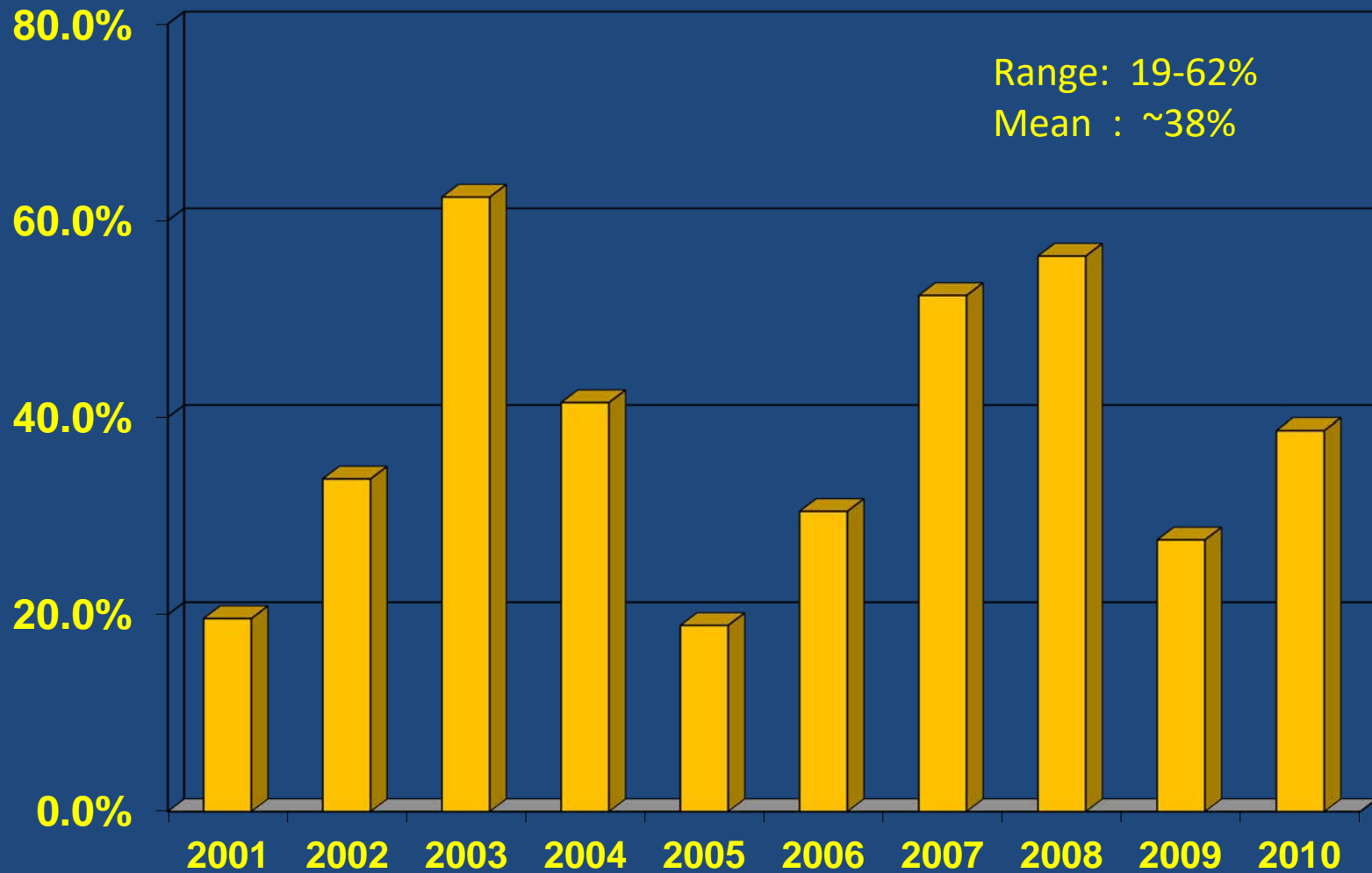


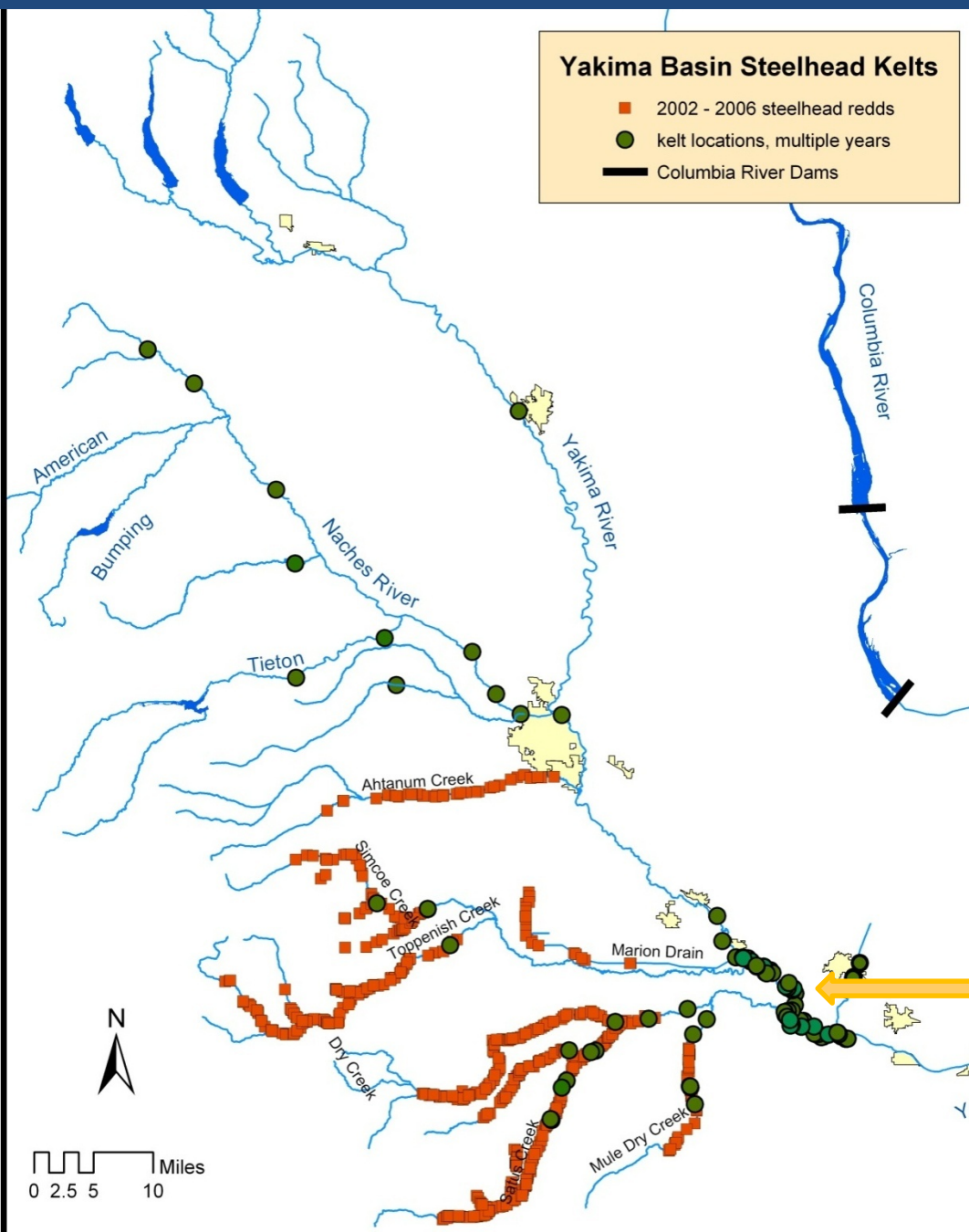
Reconditioning Program

- Most (>90%) are females
- Held and fed for 6-8 months
- Released in mid-late October (beginning of upstream migration peak)
- Select own mates, where to spawn, when to spawn



Survival of Reconditioned Kelts to Release





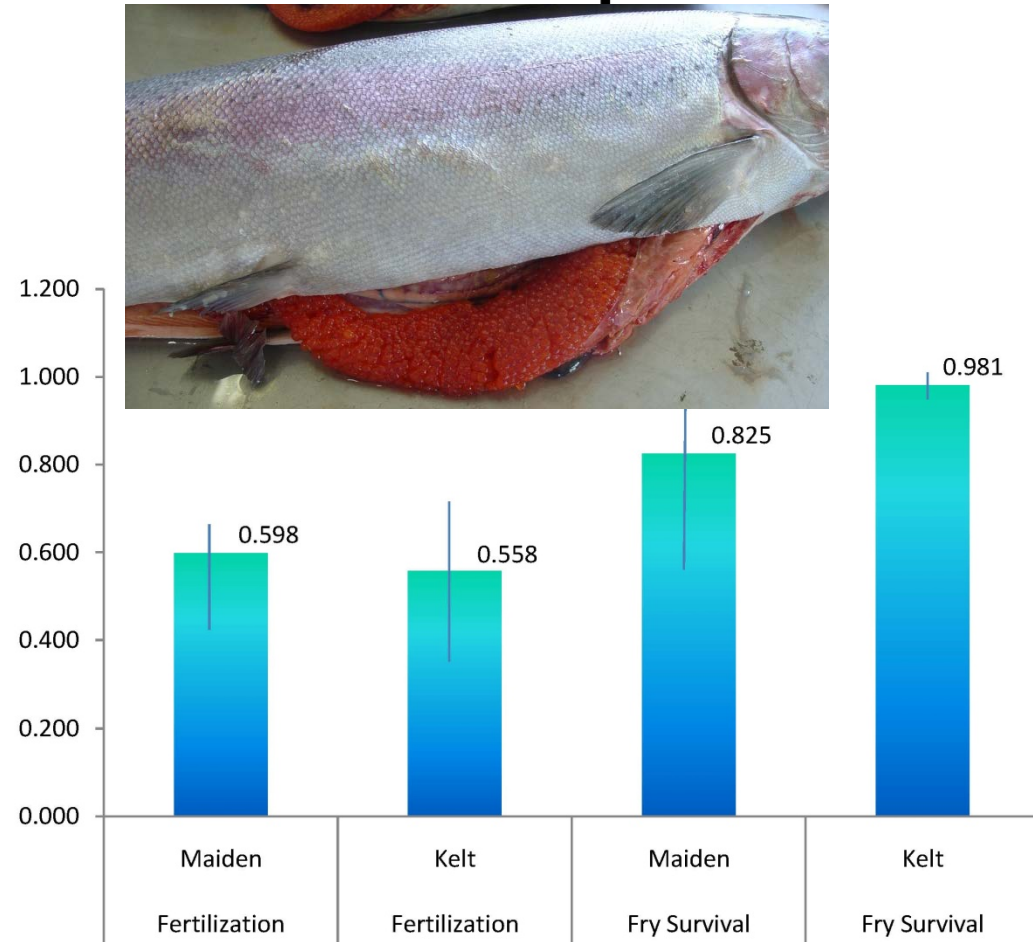
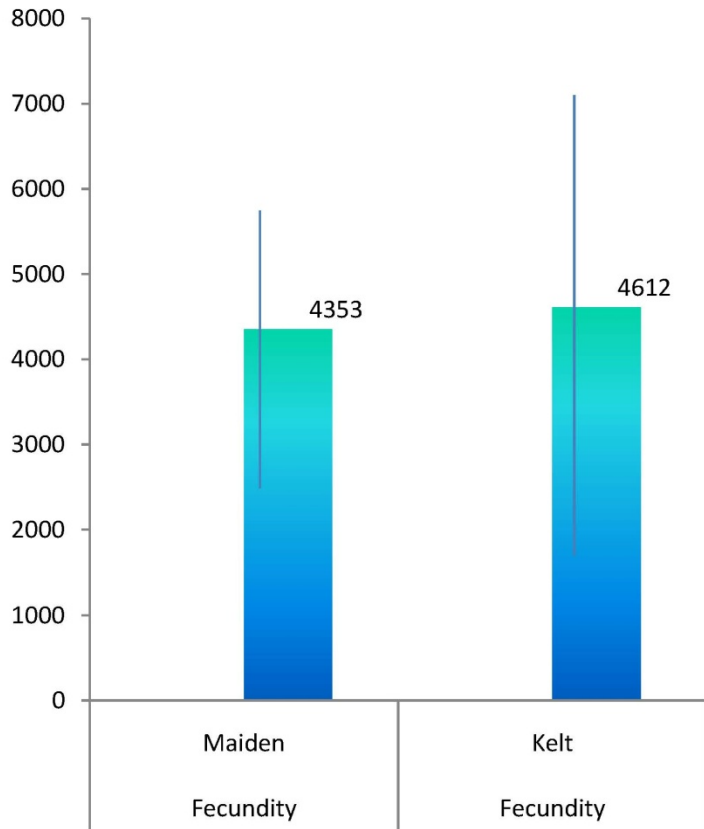
What happens to reconditioned kelts after release?

	2008	2009	2010
Release	246	140	425
PRO Detect	91	46	145
Detect Proportion	37.0%	32.9%	34.1%

2001-2005 radio telemetry studies found 70% of recaptured tags at mouths of Satus and Toppenish Creeks

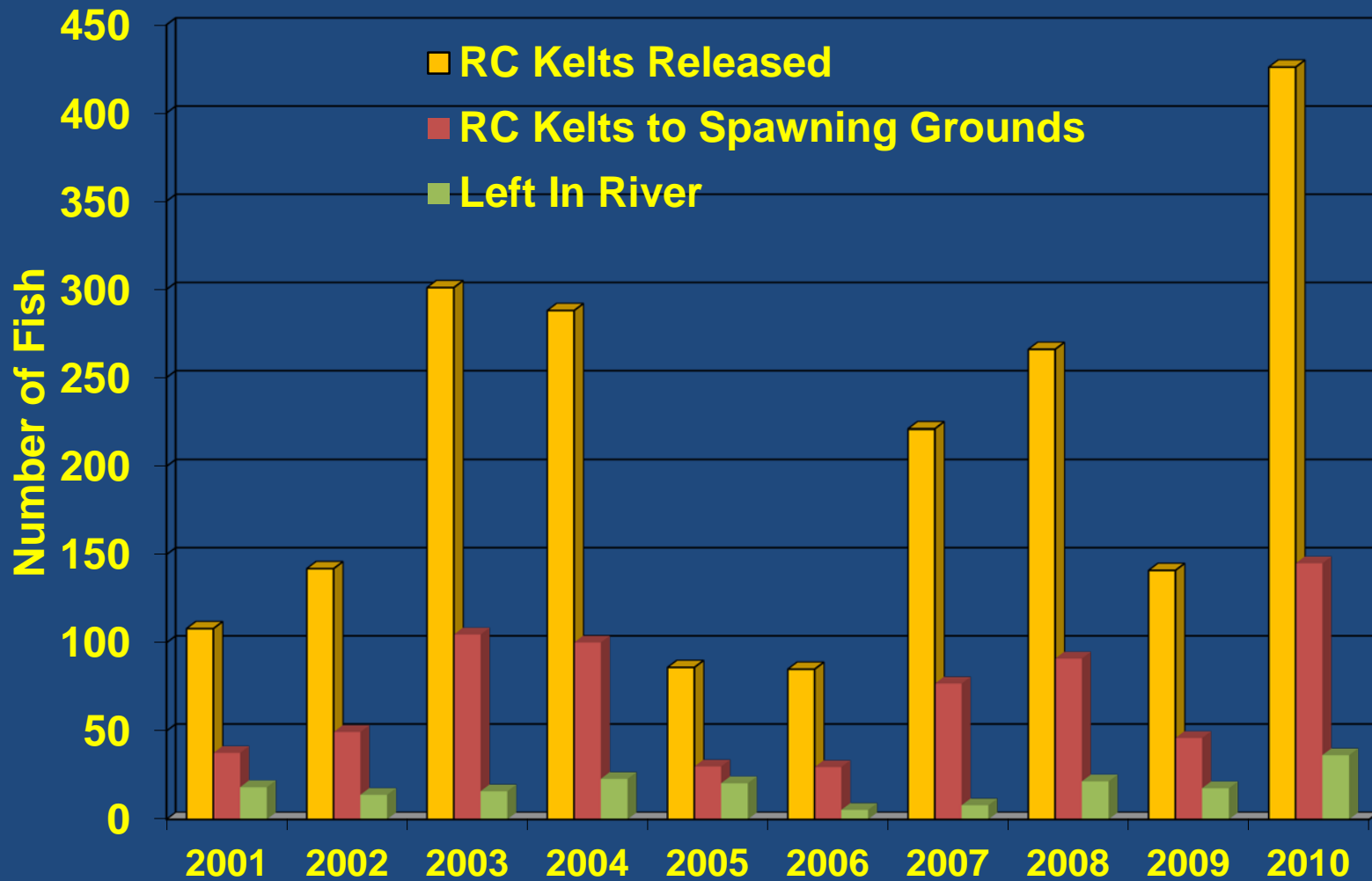


Progeny & Gamete comparison



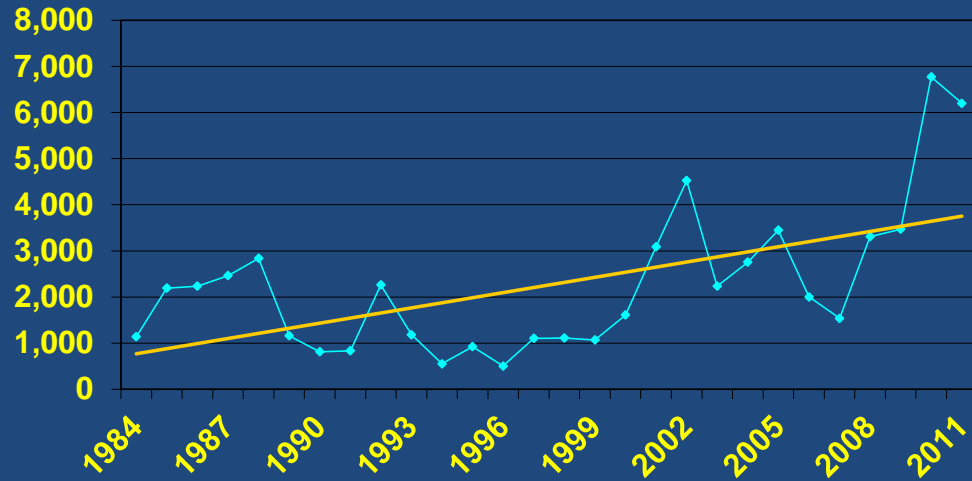
Summary: Reconditioning vs In-River Migration

Average 4-Fold Increase in Repeat Spawners

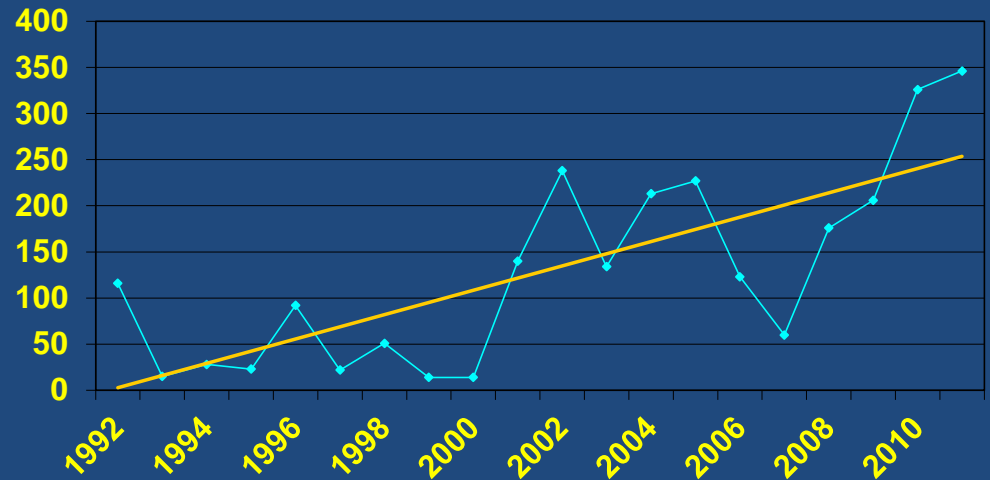


Population Response: Abundance Trends

Prosser Adult Abundance

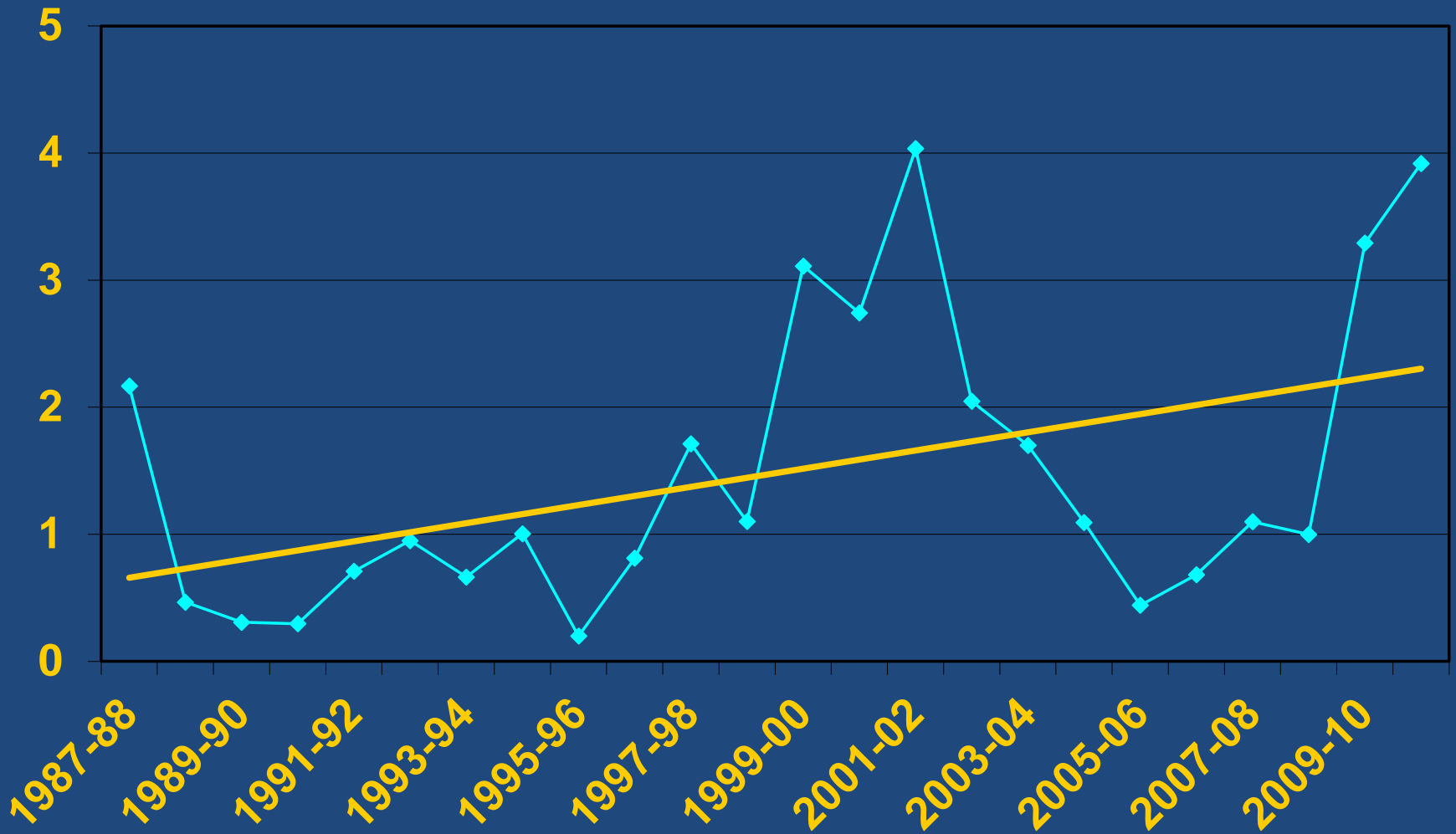


Roza Adult Abundance

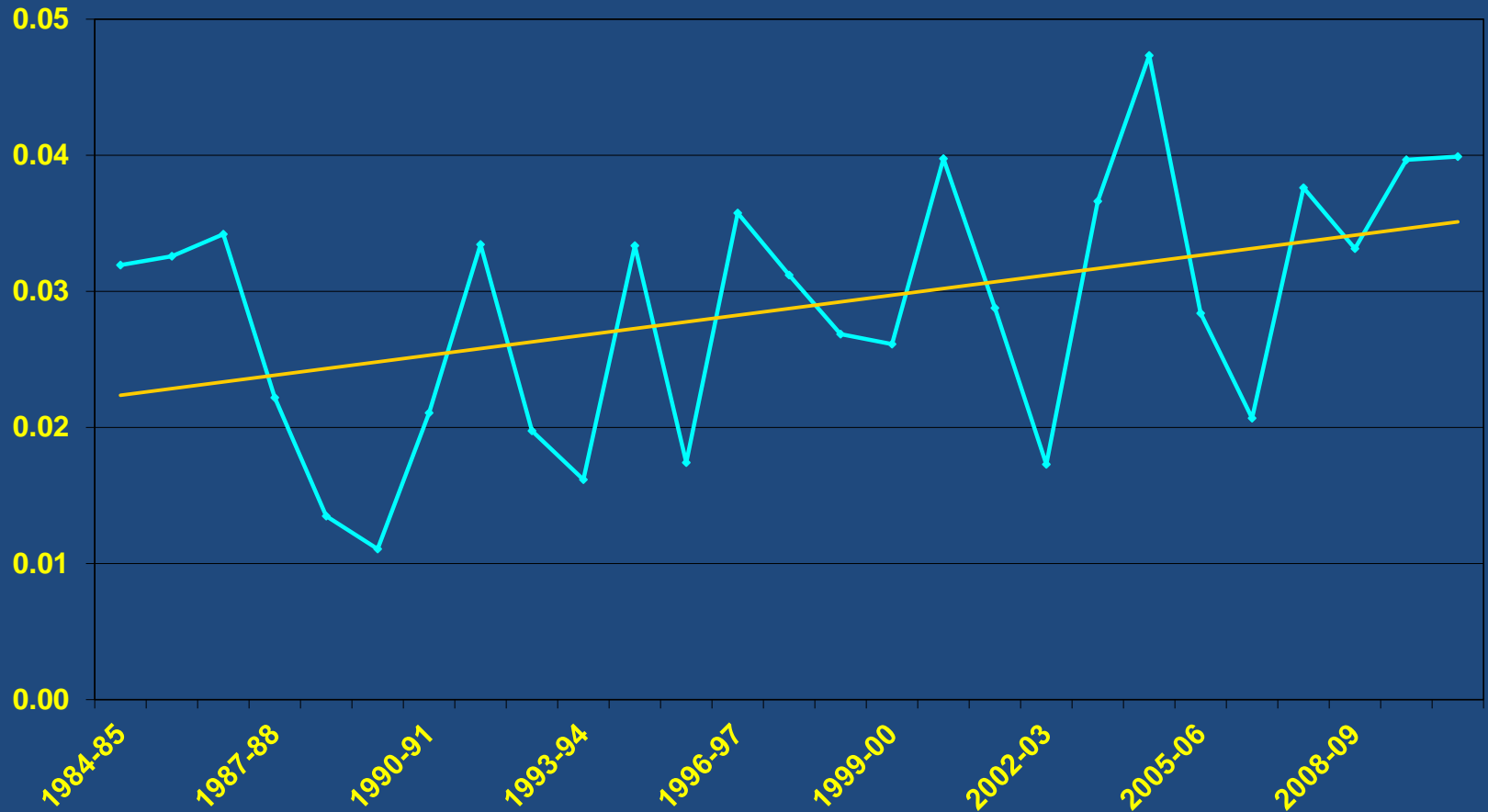


Population Response: Adult-Adult Productivity Trend

('gross' estimate of age-4 wild recruits to Prosser per spawner)



Population Response: Yakima Proportion of Bonneville Aggregate Wild Steelhead



THANKS!!!

