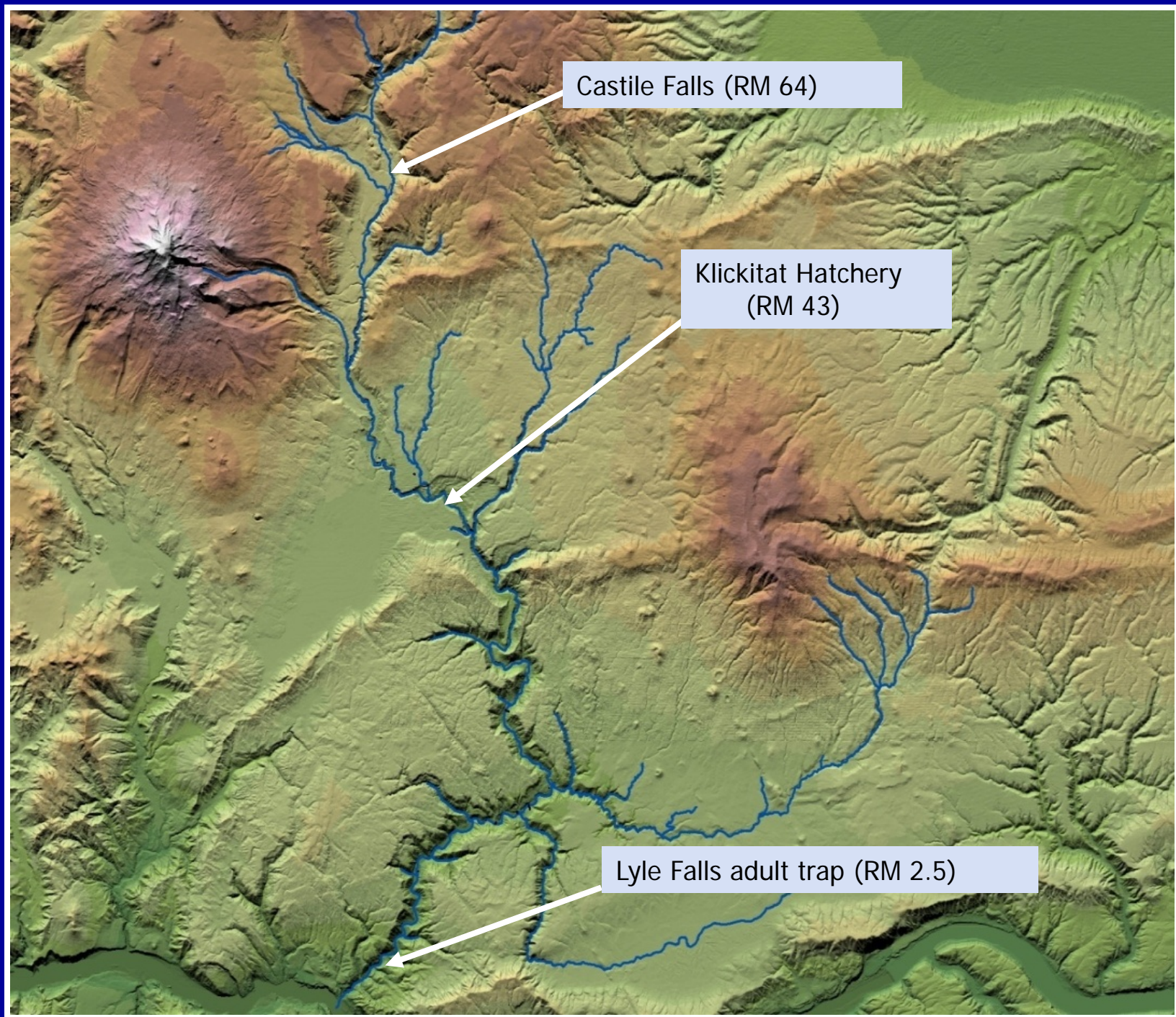


# Klickitat River Adult Salmon and Steelhead Monitoring Updates

Joe Zendt  
Yakama Nation Fisheries Program







Castile Falls (RM 64)

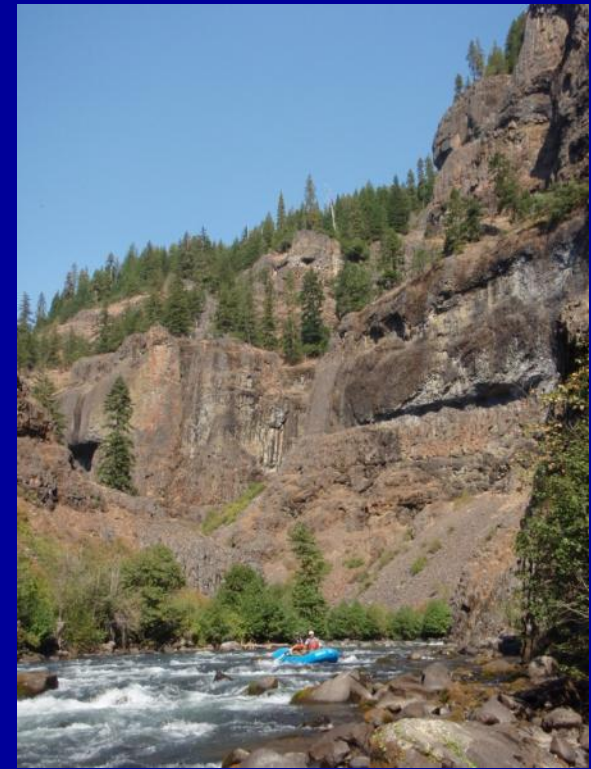
Klickitat Hatchery  
(RM 43)

Lyle Falls adult trap (RM 2.5)



# Spring Chinook and Steelhead Adult Monitoring in the Klickitat subbasin

- **Redd counts (spawner surveys)**
  - Rafting and wading surveys
  - GPS locations recorded for redds
  - Biological data collected from carcasses
- **Run Reconstruction (Harvest + Escapement)**
  - Relies on redd counts for natural escapement
- **Mark-recapture population estimates**
  - Floy-tagged at Lyle Falls adult trap
  - Recaptured at Klickitat Hatchery (Spring Chinook) or by anglers (steelhead)
  - Peterson estimate

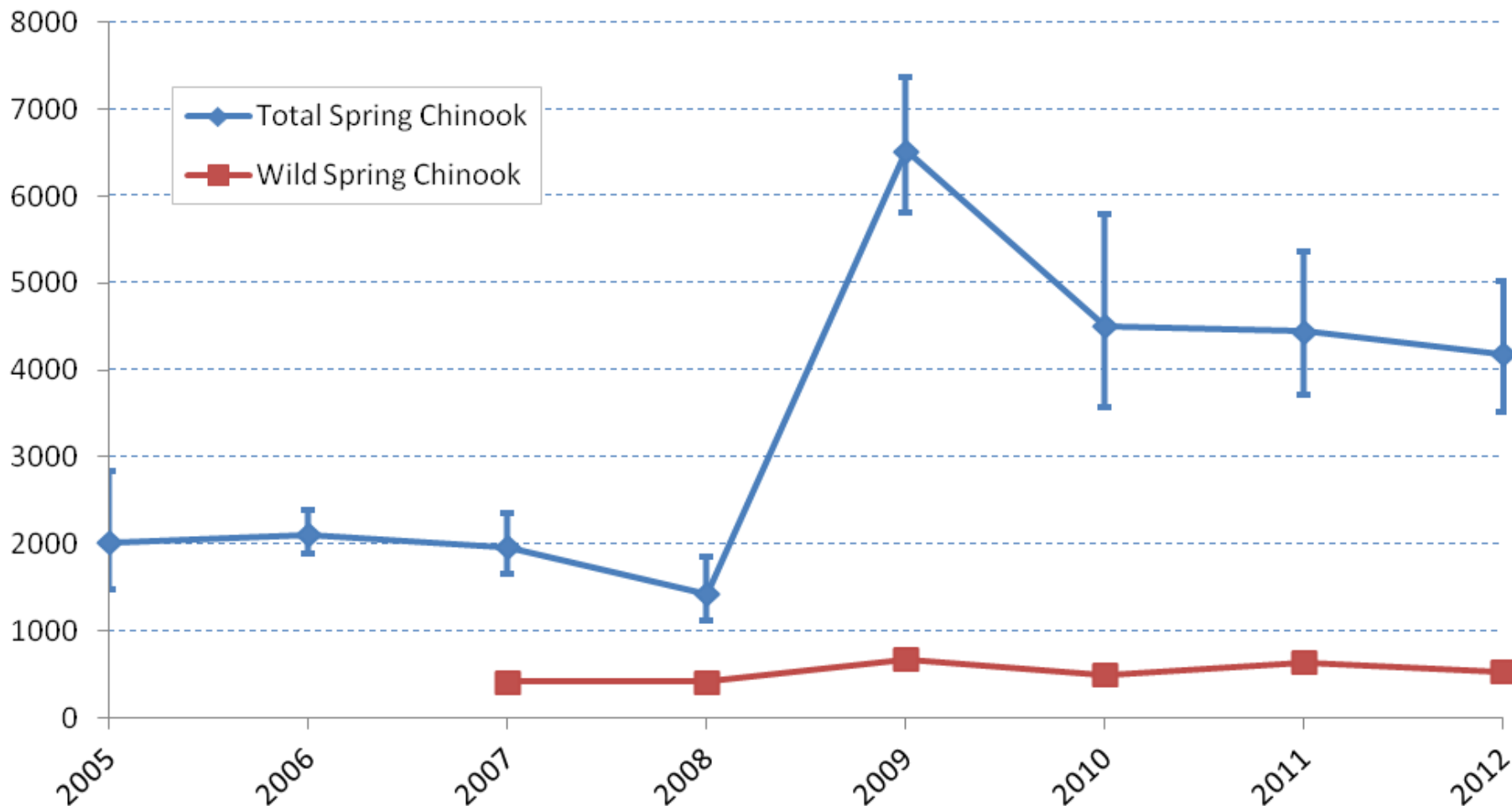


# Lyle Falls Fishway and Adult Trap



# Klickitat Spring Chinook run size

## Mark-recapture estimates at Lyle Falls

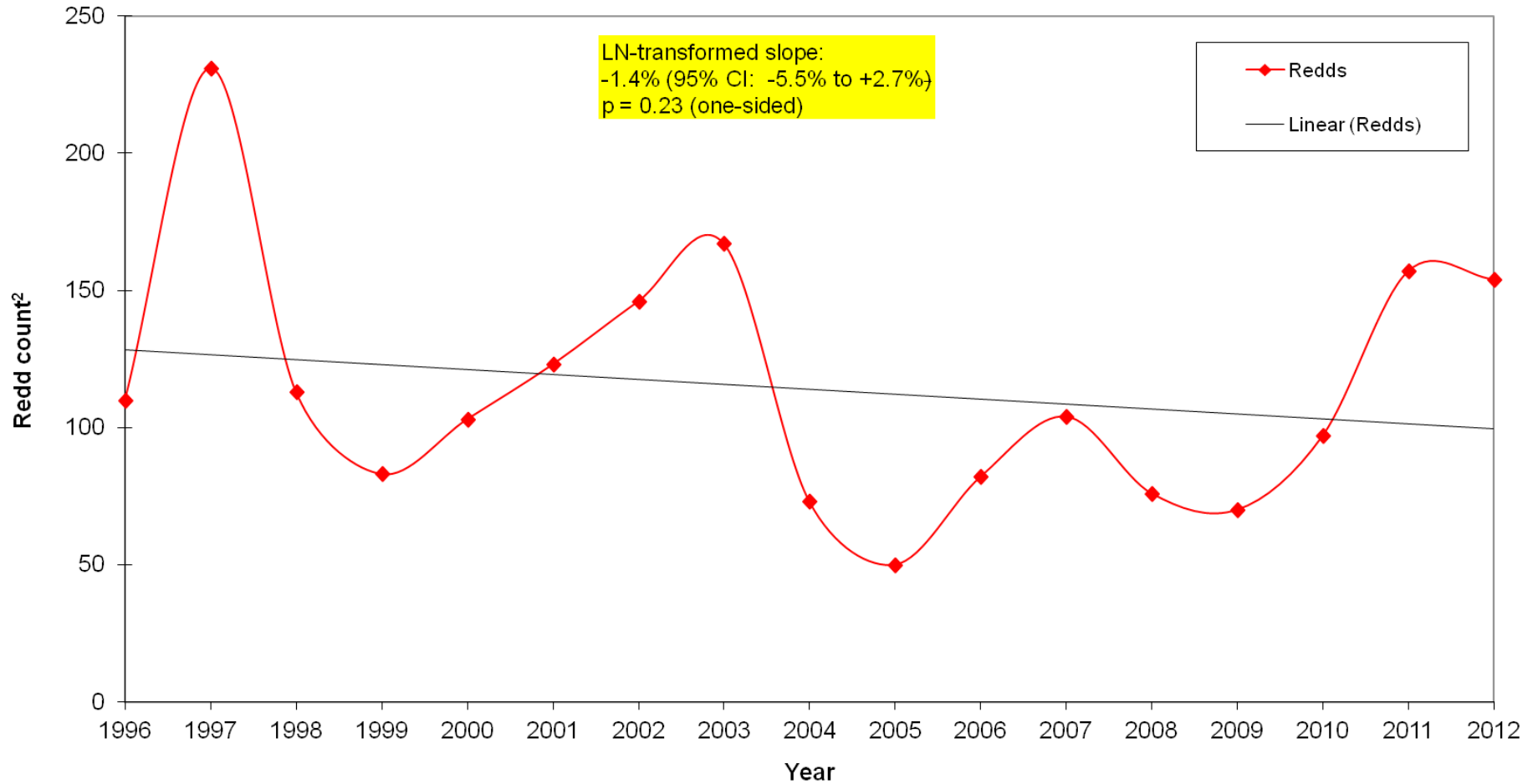


Wild Spring Chinook average: ~530

Hatchery Spring Chinook average: ~3300

includes Jacks: ~10-22%

# Klickitat Spring Chinook Redd Counts 1996-2012<sup>1</sup>



1 - 1996-2009 time period selected for consistency in geographic area coverage during redd surveys  
2 - Total redd counts minus hatchery adult releases above Castile

No longer evidence of decline in redd counts, BUT.....



# Spring Chinook Hatchery carcasses on spawning grounds:

Year	Ad-clipped	Ad-present	% Ad-clipped
2007	6	10	38%
2008	2	4	33%
2009	1	8	11%
2010	4	3	57%
2011	11	7	61%
2012	4	3	57%
Avg.			43%

### Small samples sizes of carcasses

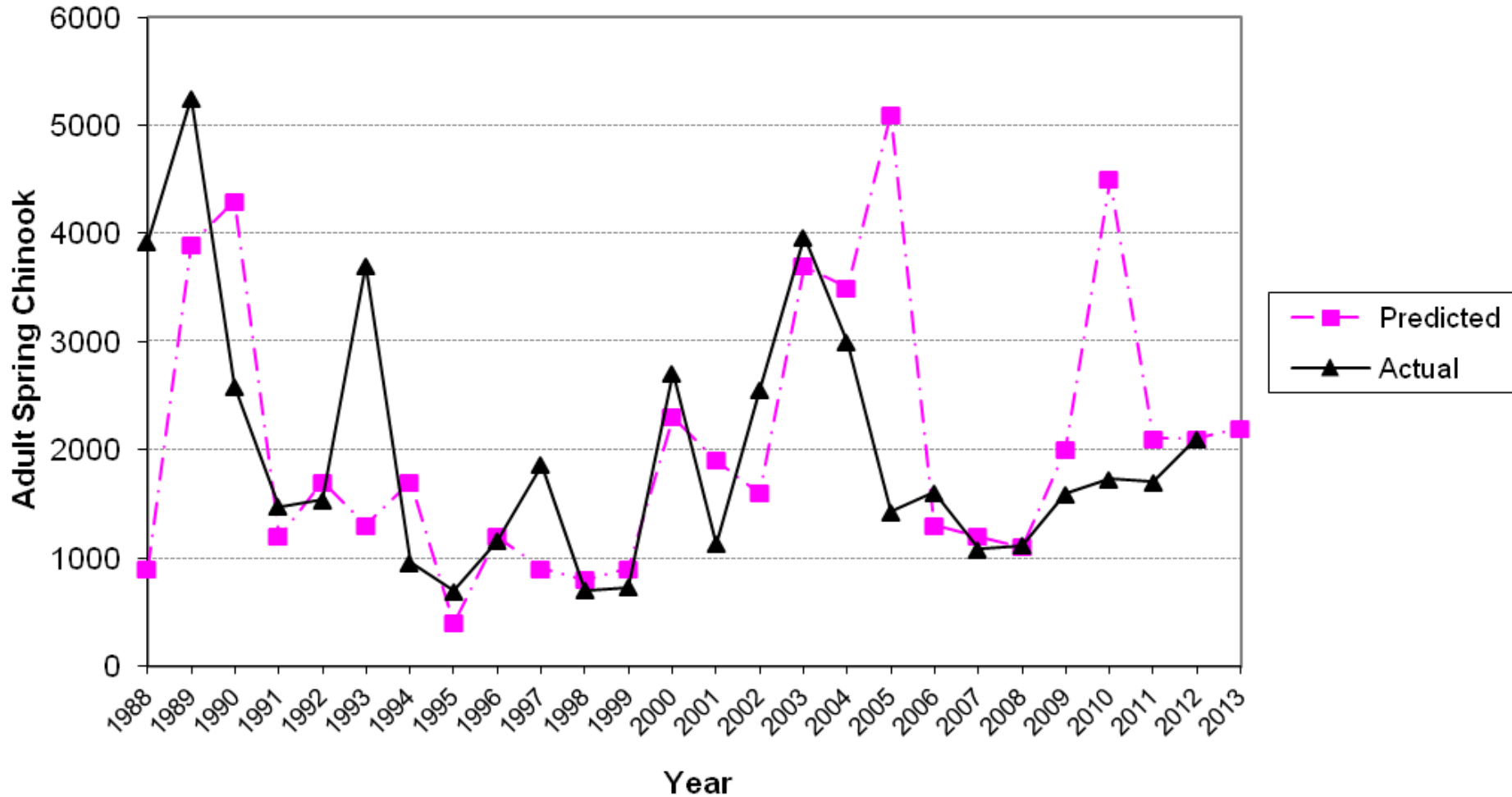
- Due to low fish numbers and river conditions
- But does suggest significant Hatchery-origin percentage

### Preliminary Radio Telemetry Result:

- 15% of Hspchk likely spawned in wild
  - % could be higher due to regurgitated tags

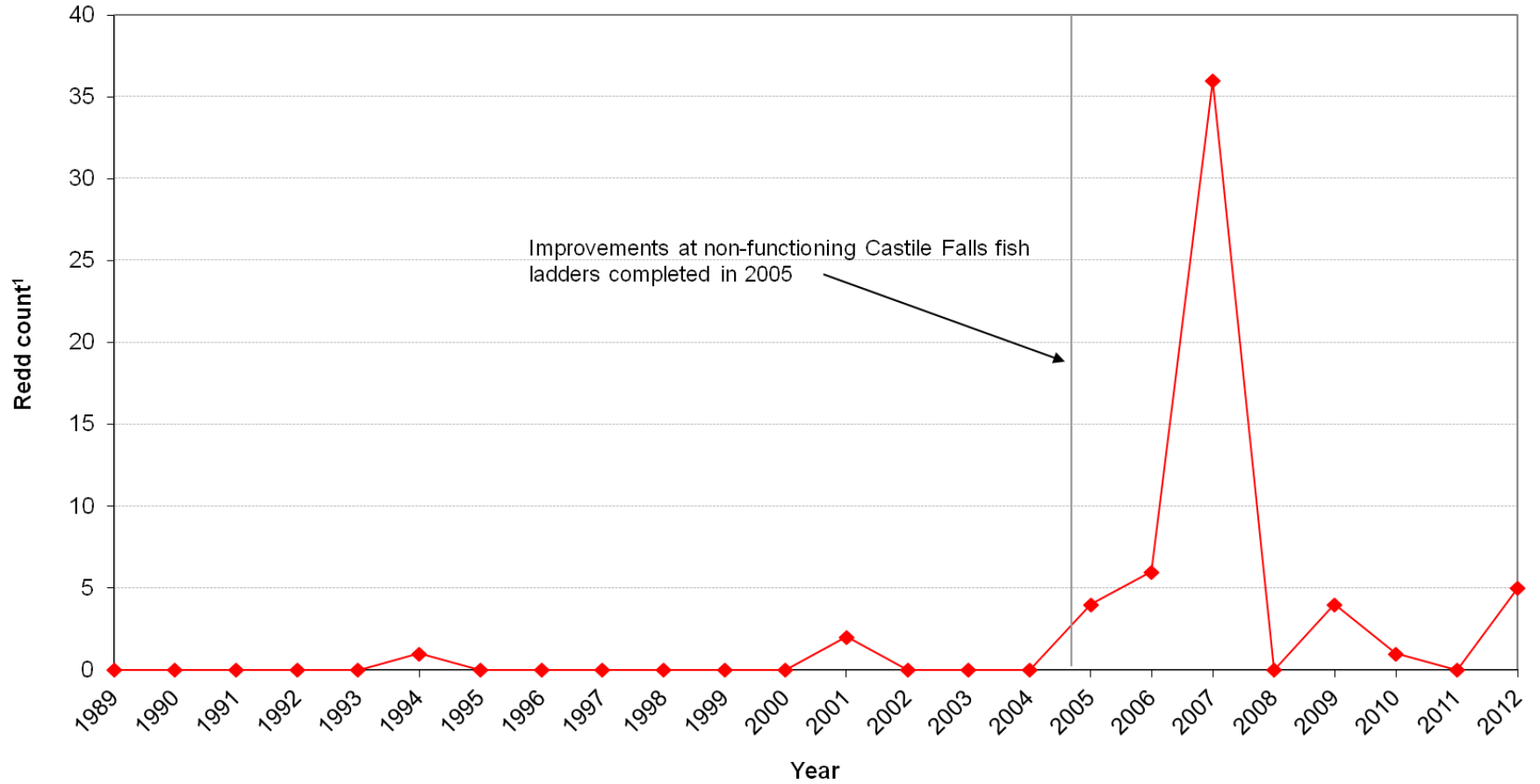


# Spring Chinook Forecasts and Actual Adult Returns (Run Reconstruction method)



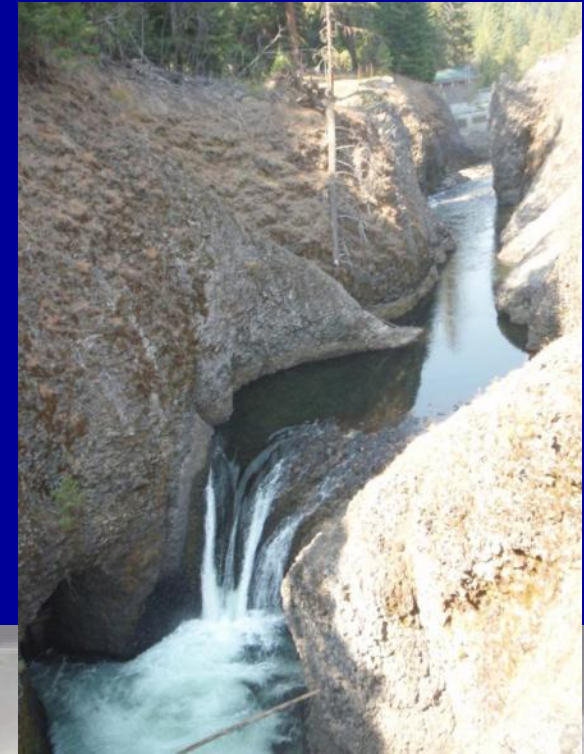


### Klickitat Spring Chinook Redd Counts above Castile Falls, 1989-2012



1 - Total redd counts minus hatchery adult releases above Castile

# Castile Falls Fishway and Monitoring Facility

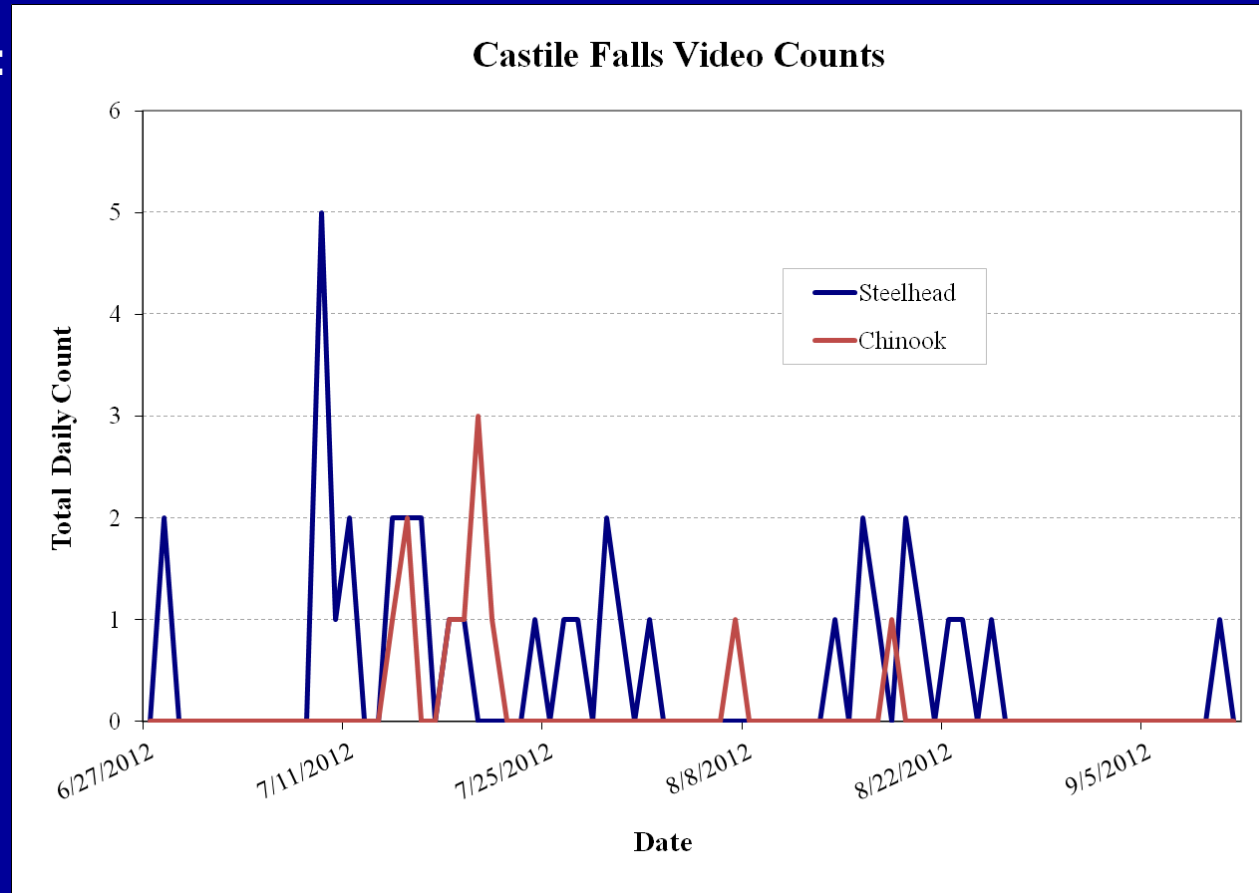




# Castile Falls Video Monitoring 2012

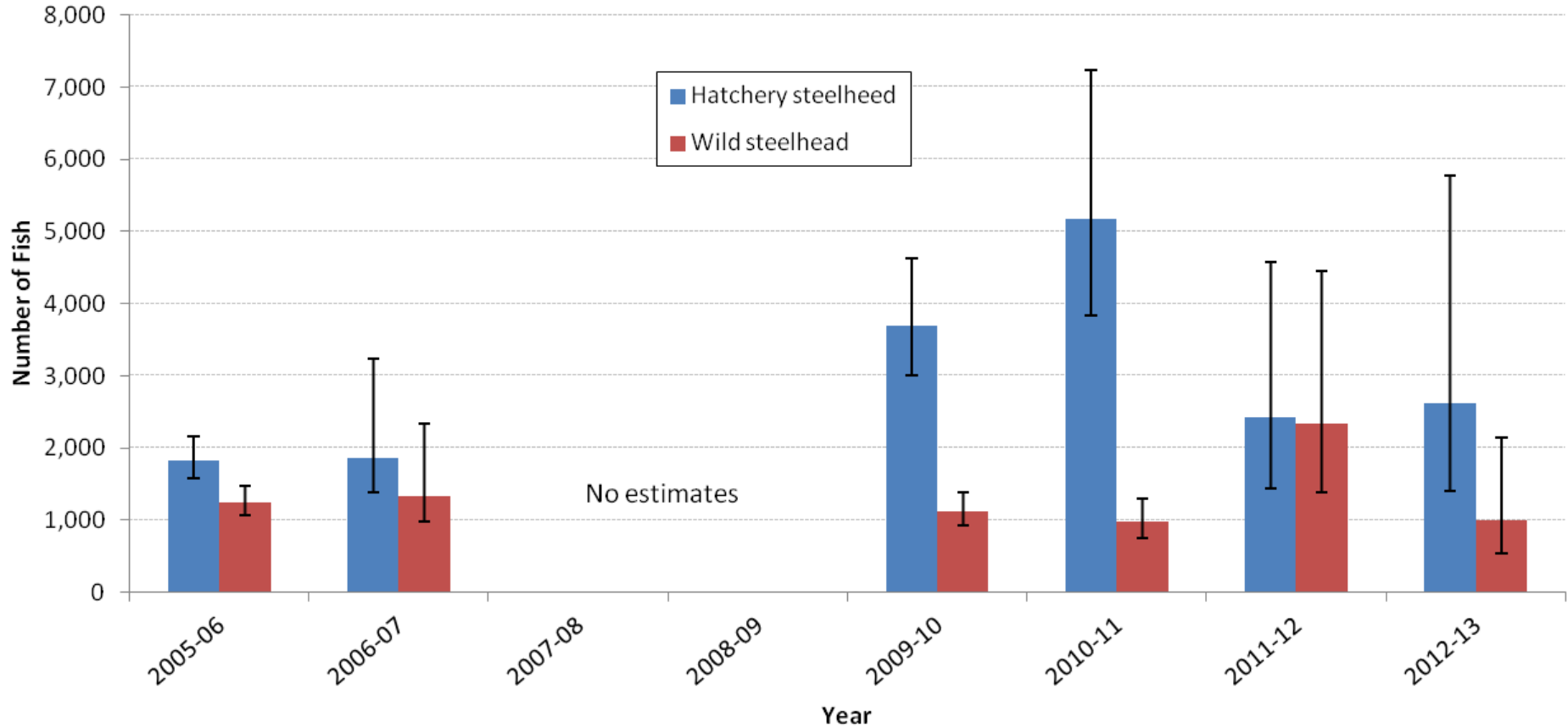
## Totals (June 28 – Sept 10):

- 11 Wild Spring Chinook
- 29 Wild steelhead
- 7 Hatchery steelhead?
  - Recent lighting improvements may increase adipose fin visibility
- Indicates more steelhead, fewer Chinook than assumed in previous DIDSON sonar counts



# Klickitat summer steelhead run size

## Mark-recapture estimates at Lyle Falls



Total Wild Steelhead (summer and winter): average 1600 fish, range of ~1100-2430



Preliminary Steelhead Genetic Stock Identification assignments  
Lyle Falls adult trap, 2007-2011

	Natural-origin			Hatchery-origin		
	Avg.	Min	Max	Avg.	Min	Max
Klickitat	69.6%	62.5%	78.6%	2.6%	0.0%	5.7%
Skamania	5.1%	1.4%	9.4%	67.0%	48.8%	83.1%
Snake R	11.7%	4.9%	21.7%	26.5%	13.5%	46.5%
Lower_Col	1.1%	0.0%	2.4%	0.0%	0.0%	0.0%
Mid_Col	8.2%	4.8%	12.1%	3.2%	1.1%	5.7%
Yakima	1.3%	0.0%	4.8%	0.0%	0.0%	0.0%
Upper_Col	3.0%	0.0%	6.5%	0.8%	0.0%	3.8%
All Non-Klick	25.2%	9.7%	47.4%	30.4%	14.6%	55.9%

Red values may have assignment error issues to be resolved



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Genetic data

Jon Hess