May 1st, 1:30 PM - 3:00 PM

Movement of transplanted adult salmonids in previously inaccessible habitat in the Elwha River

Kinsey Frick
United States. National Marine Fisheries Service, kinsey.frick@noaa.gov

Raymond Moser
Lower Elwha Tribal Community

John McMillan
United States. National Marine Fisheries Service

Sam Brenkman
United States. National Park Service

Roger J. Peters
U.S. Fish and Wildlife Service

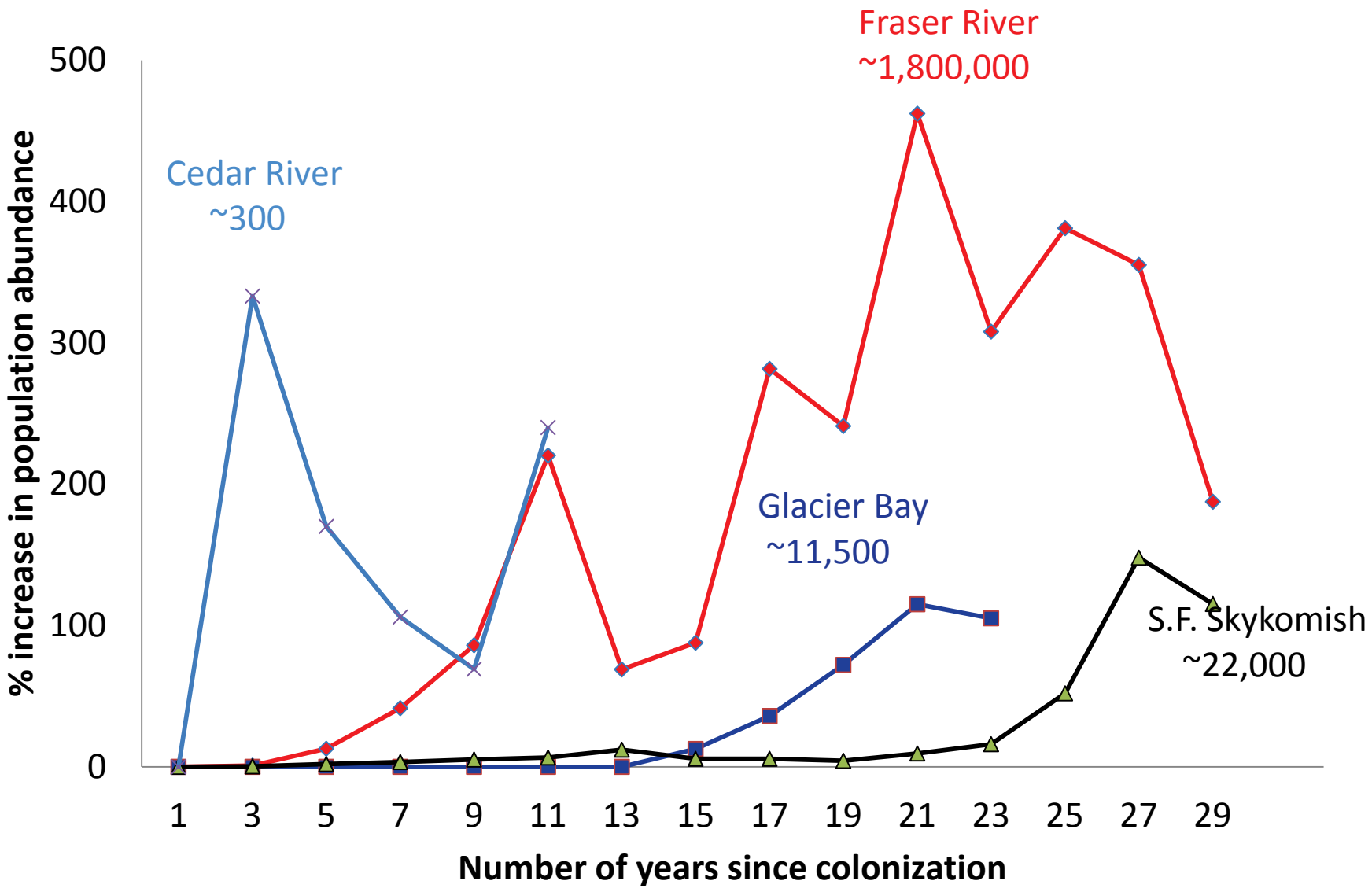
Movement of transplanted adult salmonids in previously inaccessible habitat in the Elwha River

Kinsey Frick, John McMillan, Raymond Moses,
Roger Peters, Sam Brenkman, George Pess

How will salmon colonization progress with the removal of the Elwha River dams?

- Do adult salmonids show migrational behavior in the turbid conditions that exist during dam removal?
- Are adults colonizing newly available habitat?
- What habitats and locations will different salmon species colonize?

Salmon can successfully colonize newly available habitats



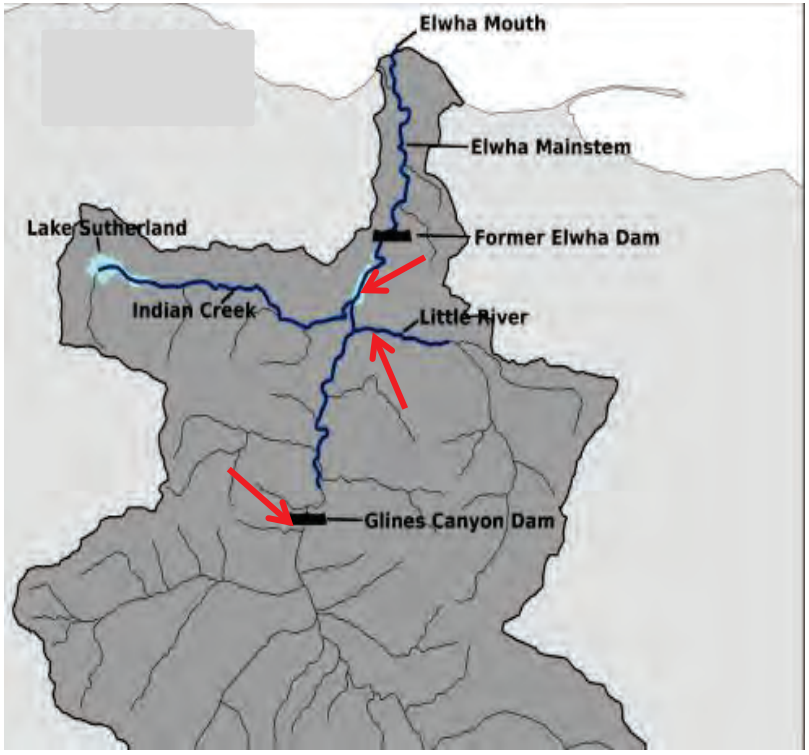
Fish recolonization in the middle Elwha

- Life stage specific distribution and abundance
  - Redd counts
  - Snorkel surveys
  - Summer parr and smolt estimates

- Radiotelemetry study
  - Adult salmonids relocated to middle river locations

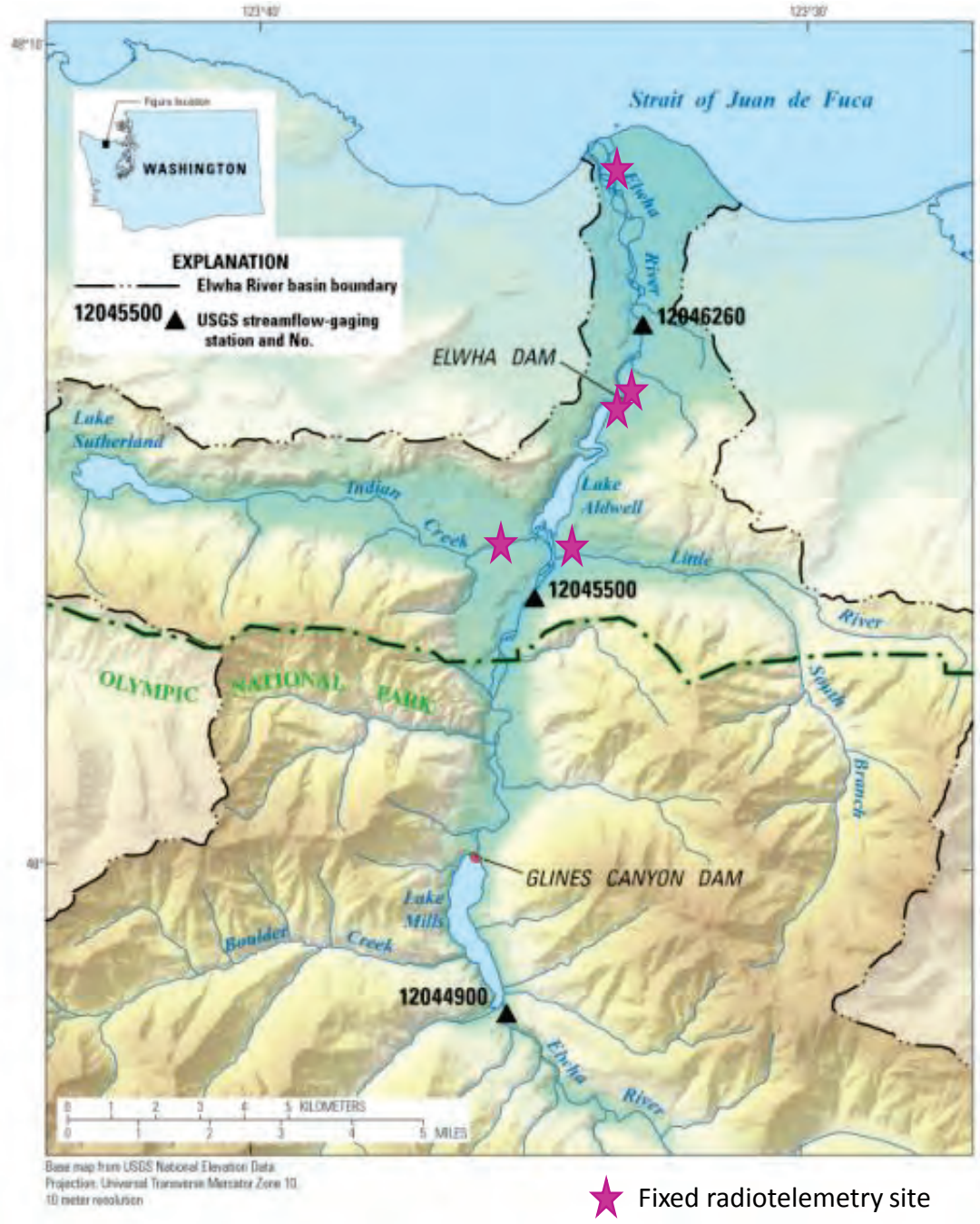
Tagging Summary

	2011	2012	2013	Release Site
Chinook	20 (100%W)			upstream of Glines
Coho	46 (76%W)	10 (10%W)		middle river mainstem
Steelhead		37 (100%W)	33 (68%W)	Little River



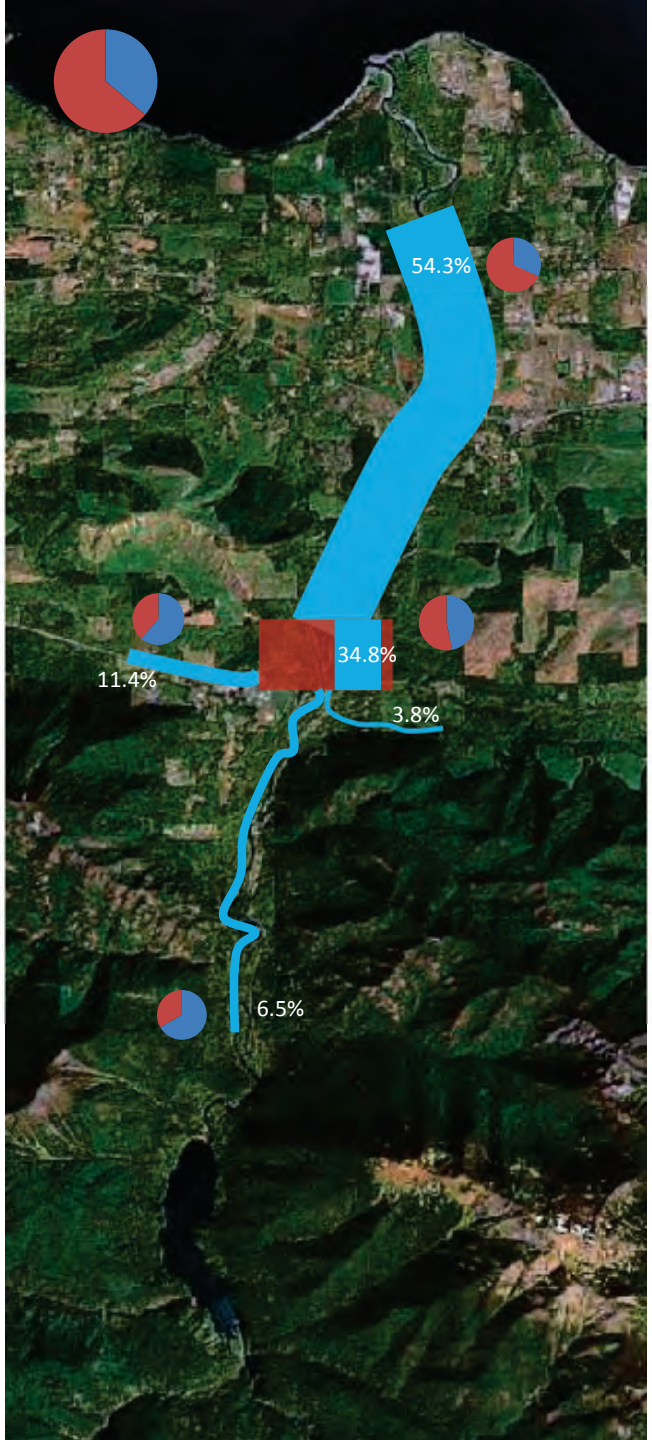
Tracking movement

- Continuous monitoring using fixed site receivers
- Periodic locations via mobile tracking (by truck, on foot, from the air)
- Recaptures



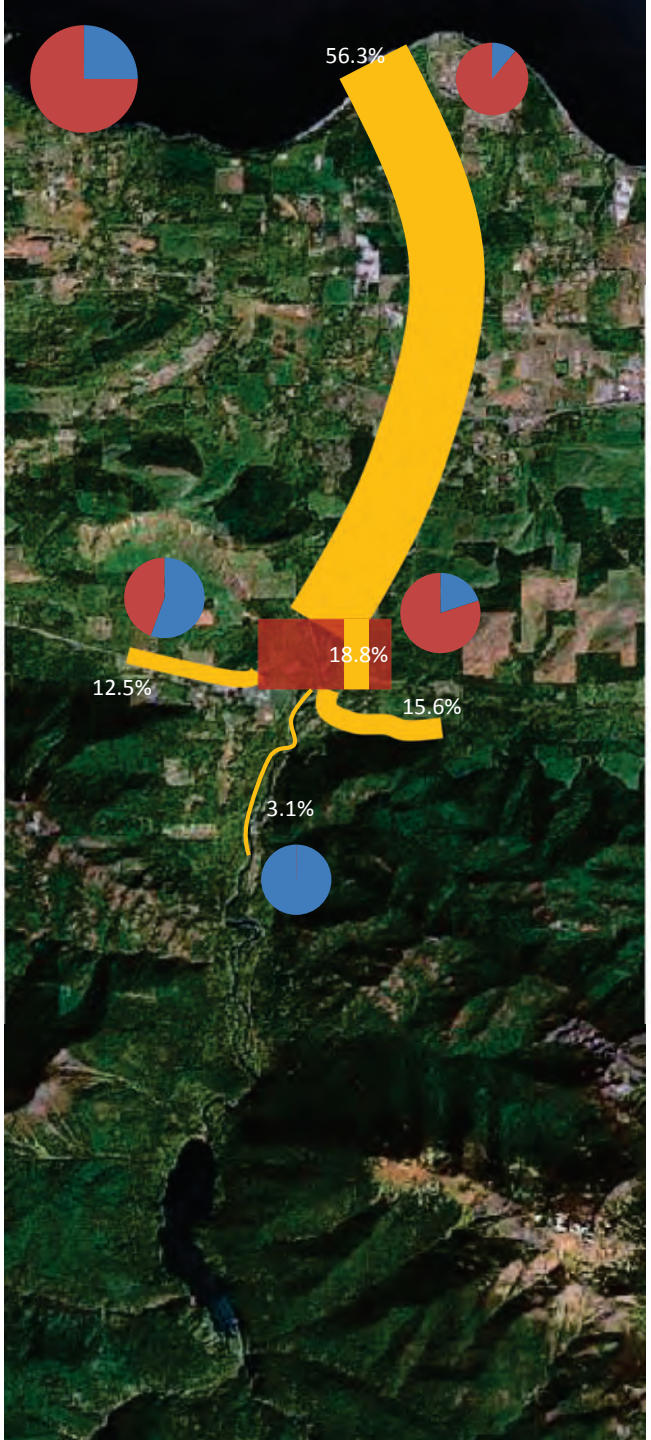
Coho salmon movement

- Majority of exploratory movement by males
- Half of tagged fish moved downstream (unknown fate)
- For tributaries, more movement into Indian Creek than Little River



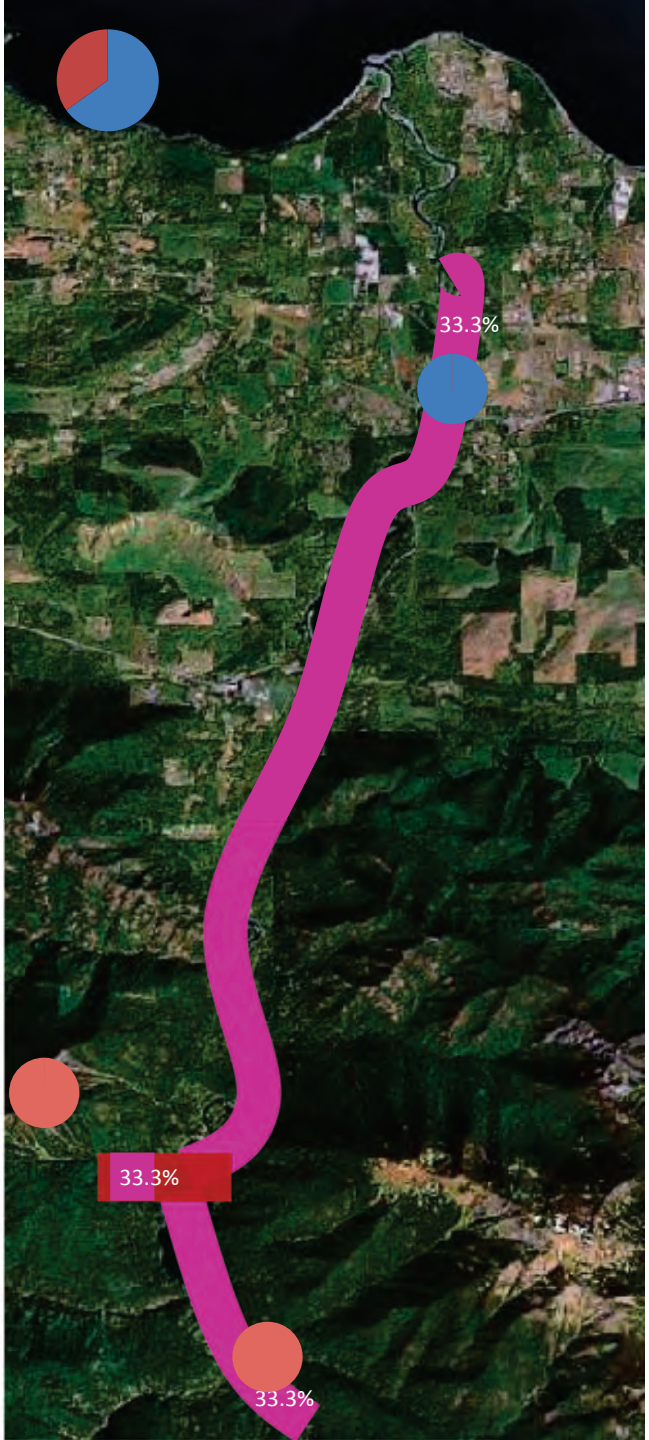
Steelhead movement

- Releases into Little River but almost half of tributary migrants tracked in Indian Creek
- High proportion of males in tributary migrants
- Kelting behavior stongest in females



Chinook movement

- Lowest success in tracking movement
- First release and above Glines Canyon; encouraging upstream migration
- Resultant redd building in upper river



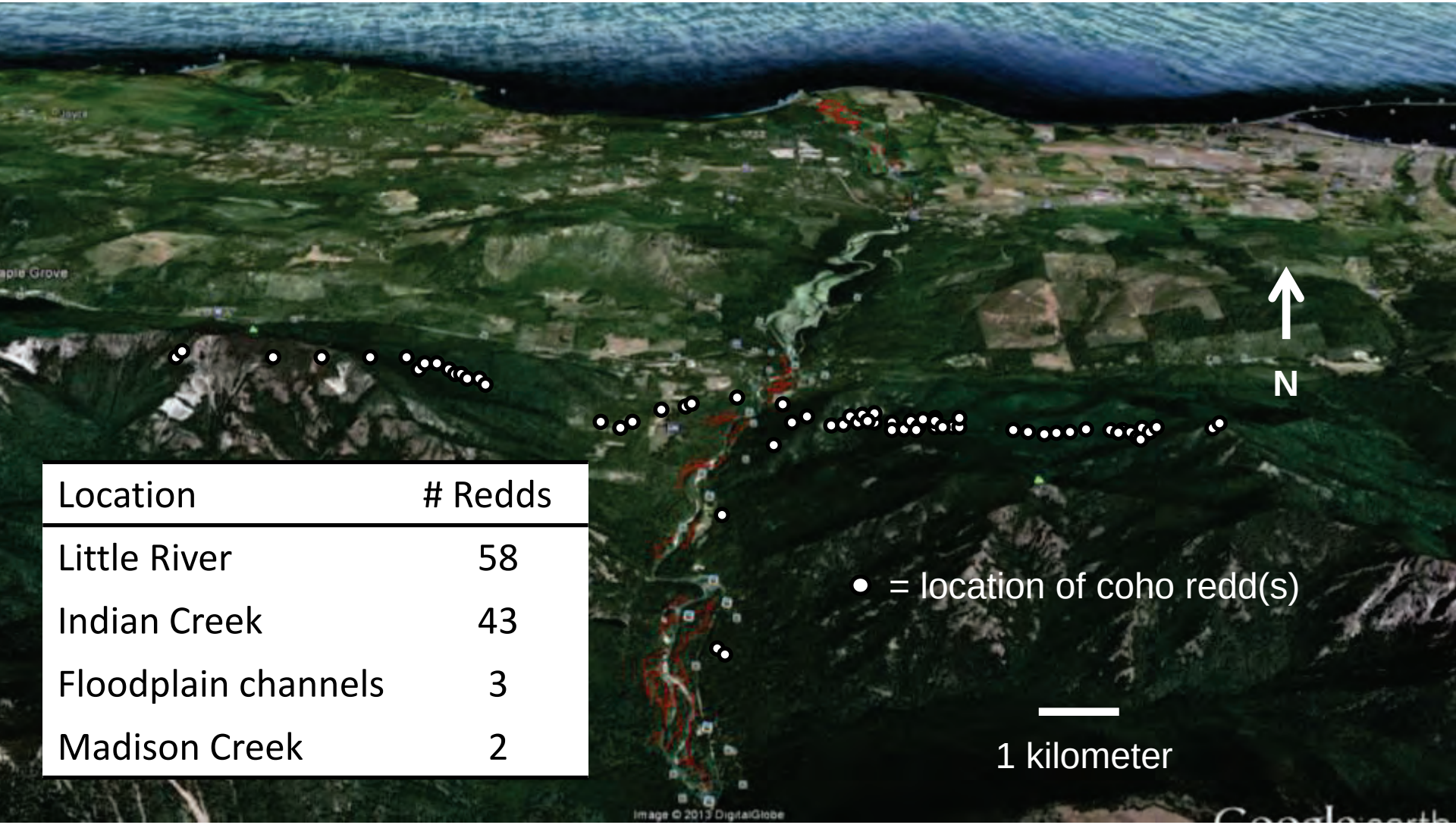
Redd and juvenile sampling population estimates

- 15 sites
  - 8 tributary
  - 7 floodplain
  - Sampling ~5% of anadromous zone in Middle Elwha
- Mark/recapture
  - 3 pass electroshock
  - 100 meter reaches

Photos by John McMillan

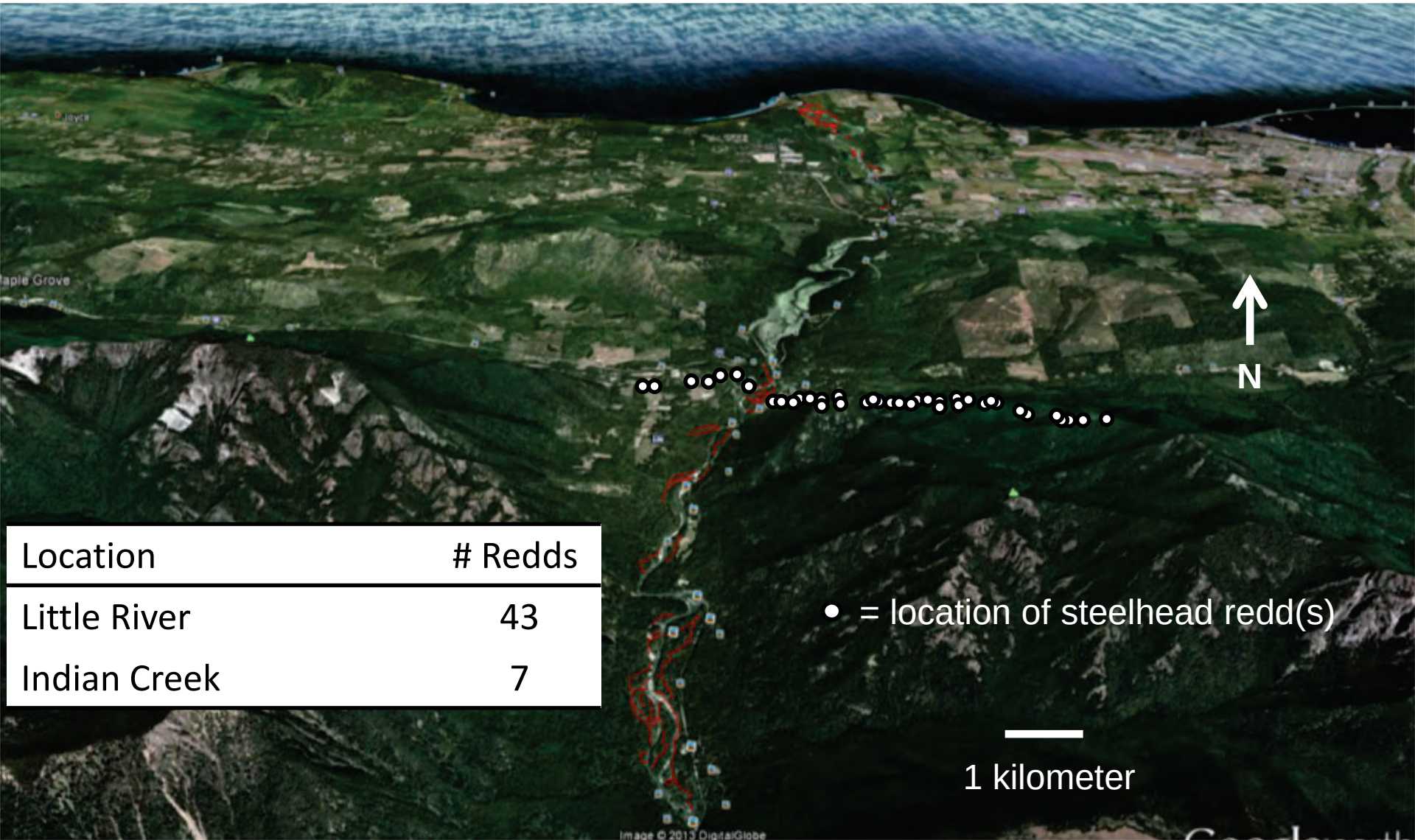
Mike McHenry, George Pess, Raymond Moses, John McMillan, Roger Peters, Mel Elofson, Sonny Sampson, Jeff Duda, Tim Beechie, Wilson, Alan Bennett, Heidi Hugunin, Anna Torrance, Sam Brenkman, Martin Liermann, Todd Bennett, WCC crew, Emily Thornton, Neala Kendall, KathiJo Jankowski

Coho salmon redds in the middle Elwha
Fall of 2011



Location	# Redds
Little River	58
Indian Creek	43
Floodplain channels	3
Madison Creek	2

Steelhead redds in the middle Elwha
Spring & summer of 2012

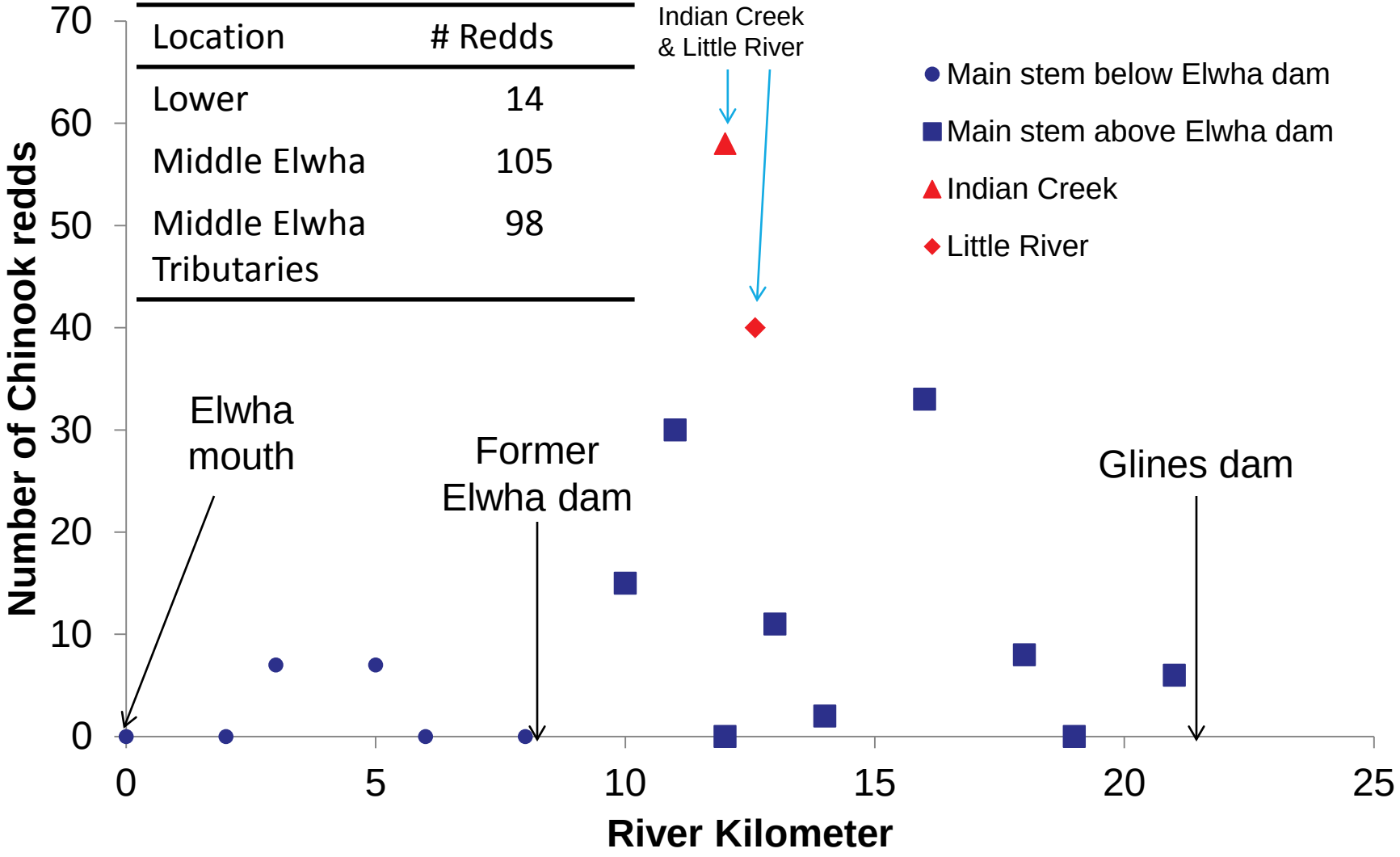


Location	# Redds
Little River	43
Indian Creek	7

• = location of steelhead redd(s)

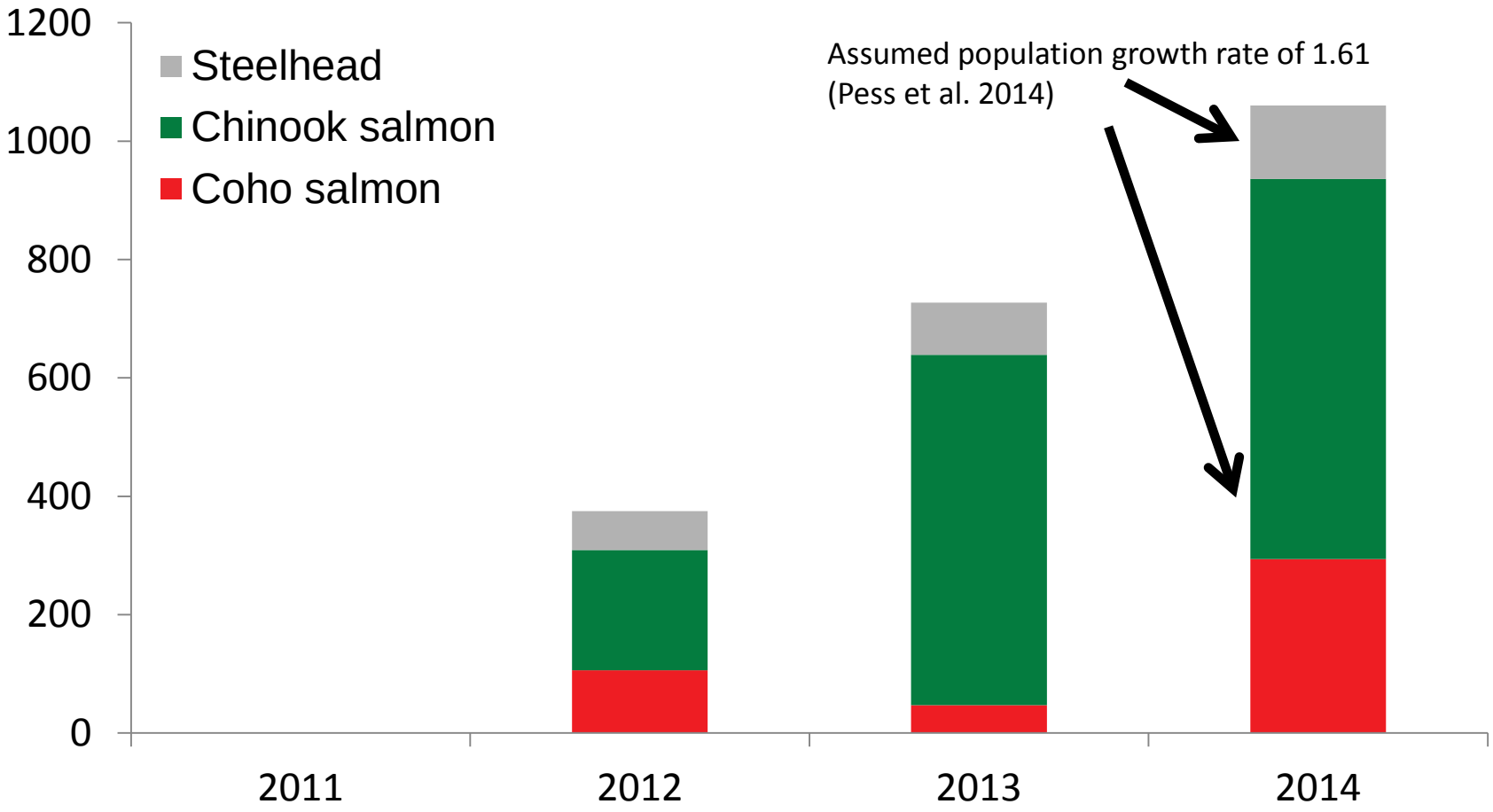
Natural recolonization of Chinook salmon in the middle Elwha River – Summer 2012

Location	# Redds
Lower	14
Middle Elwha	105
Middle Elwha Tributaries	98

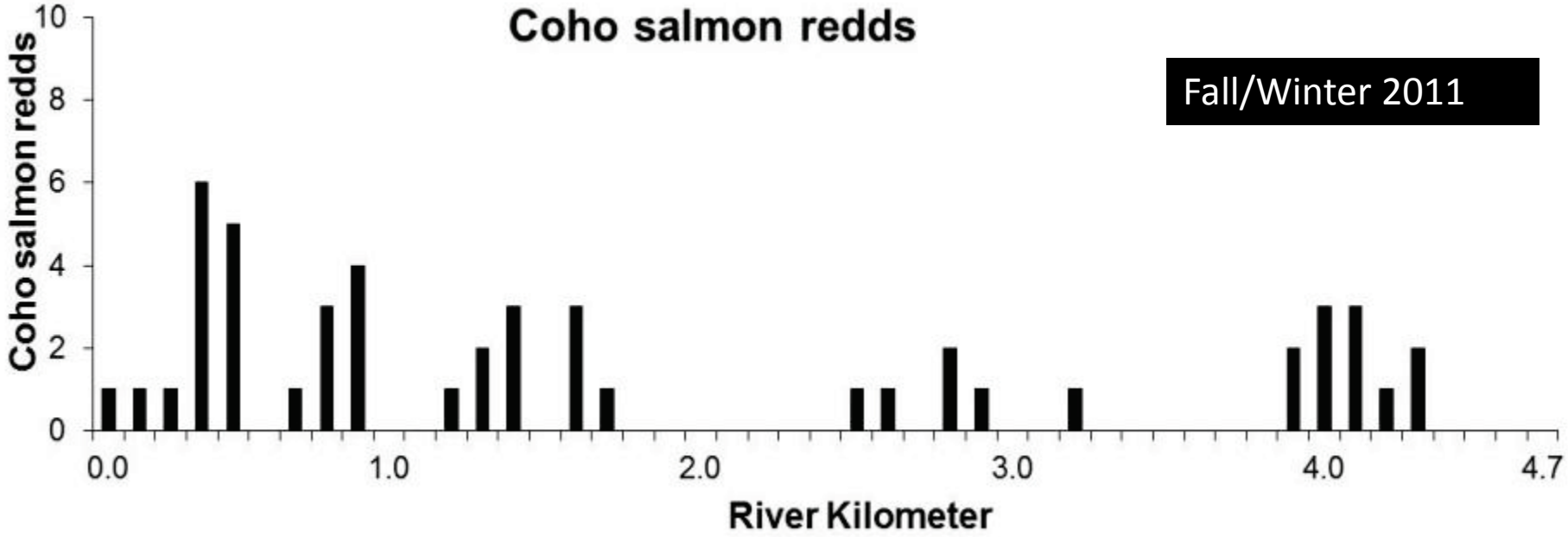


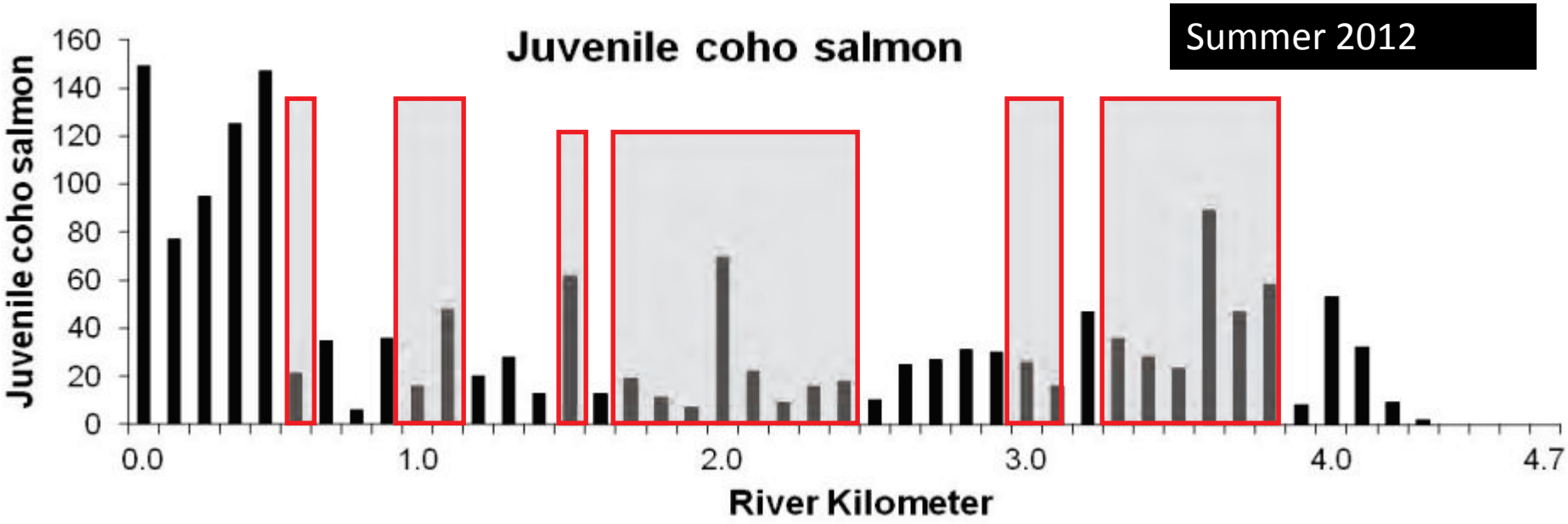
Data courtesy of Pat Crain, NPS

Number of actual & estimated redds above former Elwha dam 2012 to 2014



Little River coho salmon redd & juvenile snorkel surveys





Fish recolonization summary

- Transplanted adult salmonids show migrational behavior in the Elwha despite high turbidity conditions.
- Adults salmonids are colonizing newly available habitat. Coho, steelhead & Chinook salmon redds are in the middle Elwha and tributaries.
- Juveniles are dispersing to colonize new areas.

Next Steps

- Explore migrational behavior of fish released in the lower river
  - Does the Elwha Dam site present an impediment to passage? For a percentage of migrants? Certain species? Smaller fish?
- As passage is available at the Glines site, do fish approach and pass there? How far upriver do they travel?