

# Adfluvial Life History - Chinook in the Upper Willamette Basin

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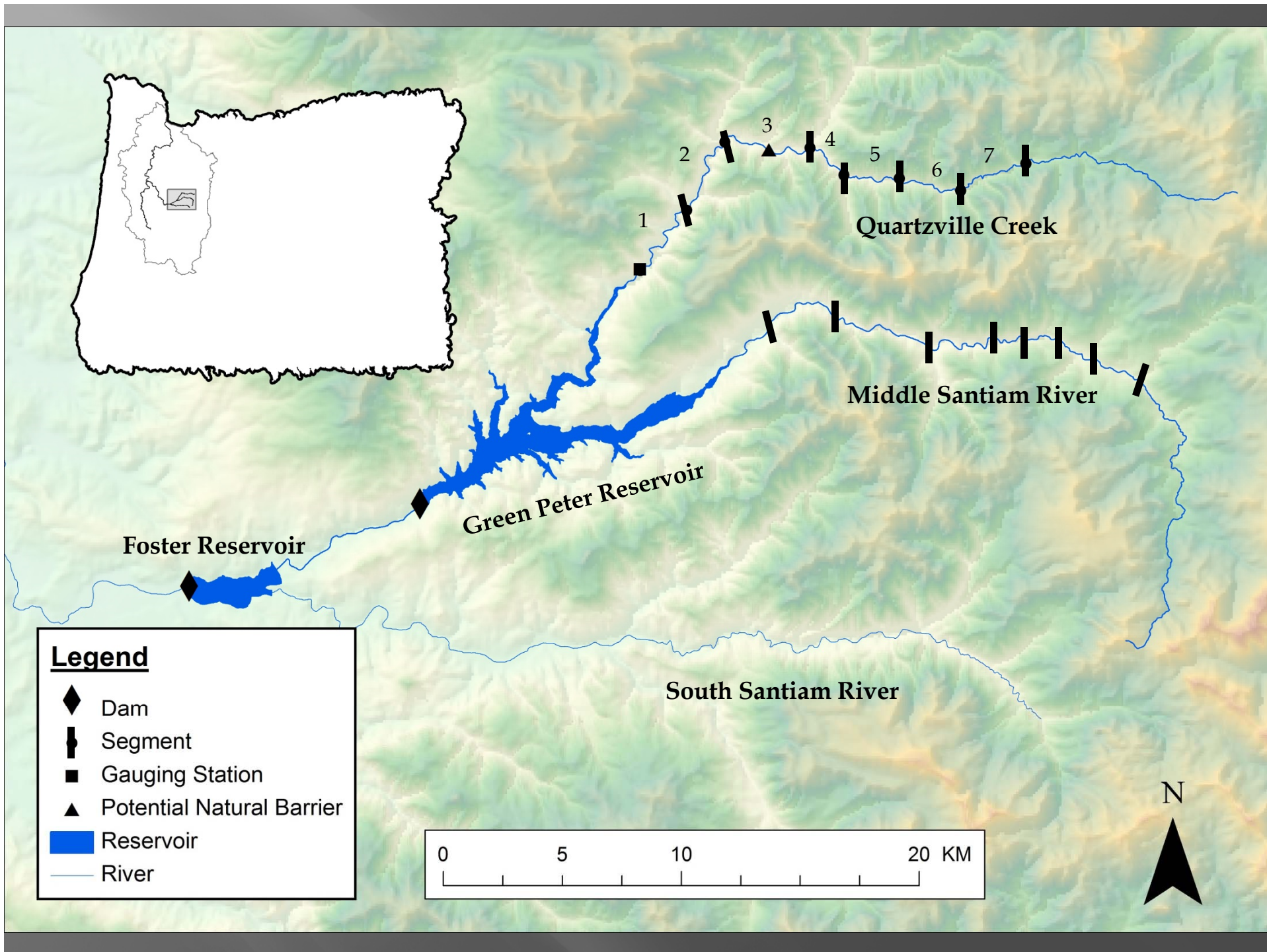
The term adfluvial defines a fish life history in which adults spawn in rivers or streams and juveniles subsequently migrate to lakes (or reservoirs) to rear to adulthood before returning to rivers or streams to spawn.



Detroit Reservoir



Cougar Reservoir





# Chinook ?



Statesman Journal - Jul 12, 2012

# Questions

- Where did they come from ?
- Do Green Peter Reservoir Chinook return to tribs to spawn ?
- When do they return to the tributaries ?
- Do their progeny survive / Are they self sustaining ?
- Where else does this occur ?
- Potential impacts for recovery monitoring, current research ?

**Where did they come from ?**

# ODFW Surplus Releases

Brood Year	Hatchery	Number Released	Mean Fork Length at Release (mm)	Marks	Release Date	Release Site
2006	S. Santiam	7,856	137	AD	9/5/2007	Green Peter
2006	Willamette	101,217	66	AD, OT	5/24/2007	Quartzville Creek
2007	S. Santiam	15,000	148	AD	9/30/2008	Green Peter
2007	Willamette	84,000	64	AD, OT	6/12/2008	Quartzville Creek

100% AD clip, 89% OT marked

**Did Green Peter Reservoir Chinook  
return to tributaries to spawn ?**



# Spawning Ground Surveys

September 17 - October 15, 2012

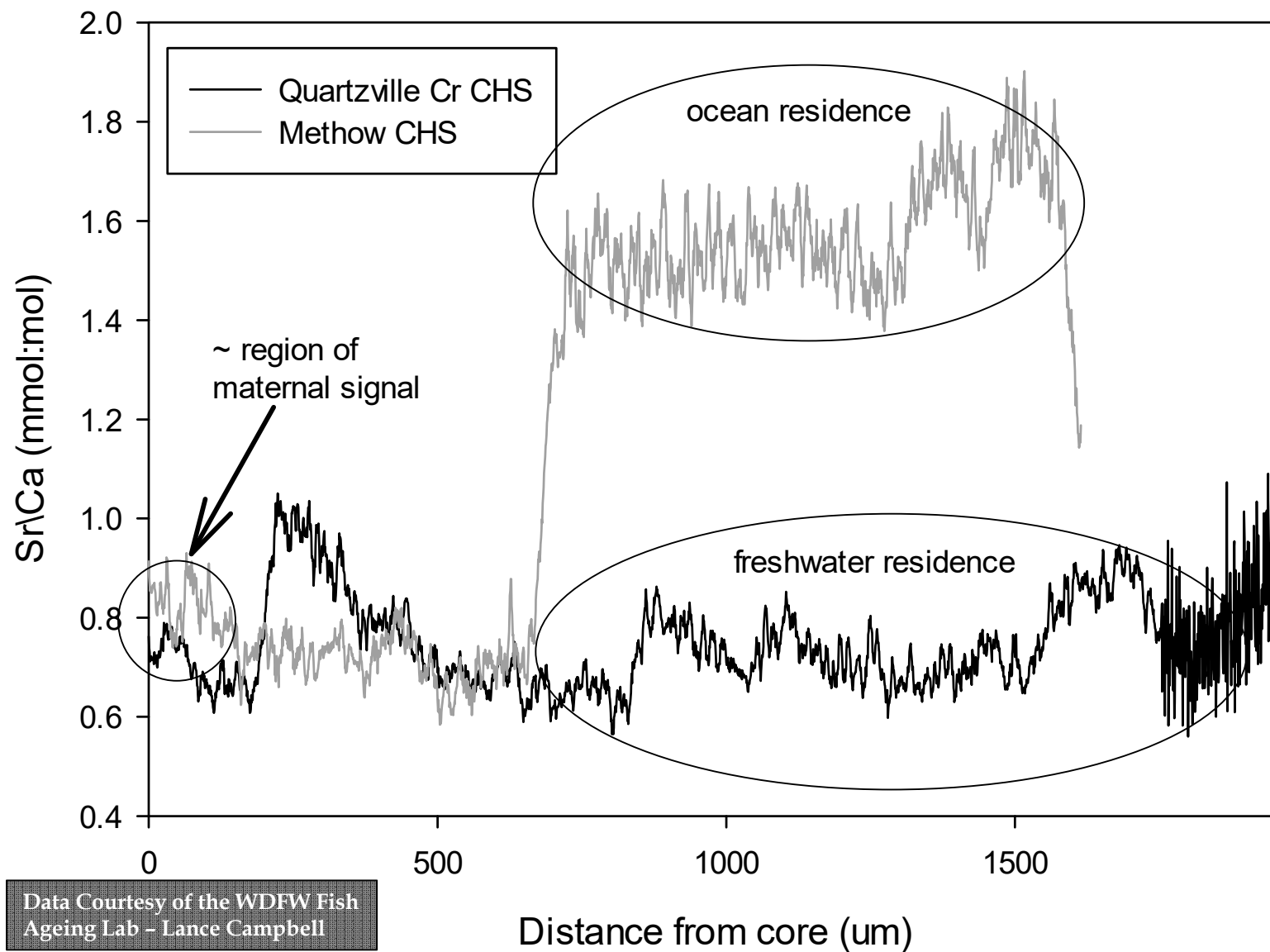


# Spawning Ground Survey Results 2012

- 9 Individual adult Chinook observed
- 9 Redds observed
- 6 Carcasses recovered (4 verified female)  
All females appeared to have spawned
- 2 Unmarked (non-hatchery) carcasses recovered



# Otolith and Scale Analyses





← = Annulus

← = Estimated ocean entrance

4 yr old, unclipped

*South Santiam* – Below  
Foster Dam

Mount no. 11116.393

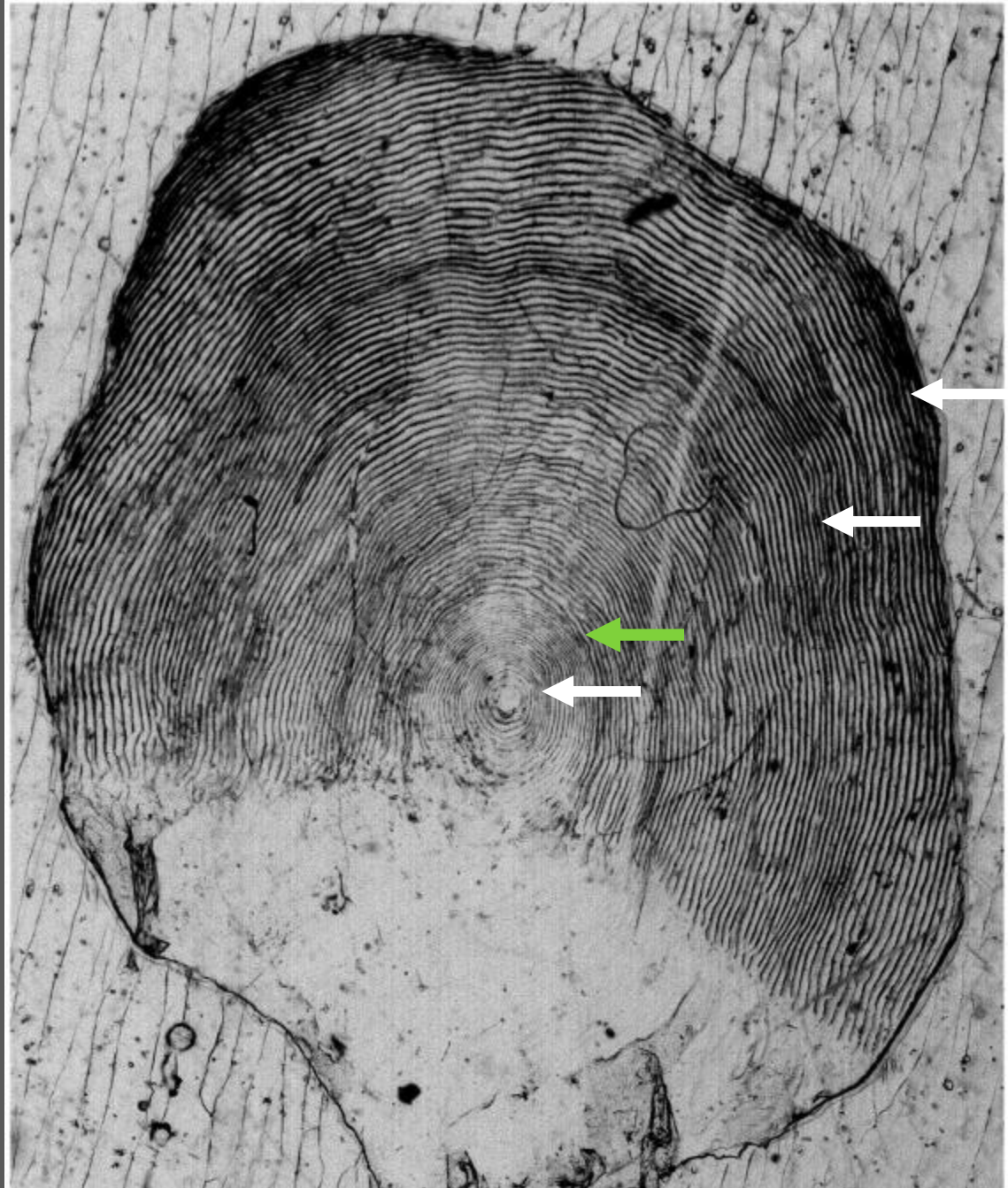
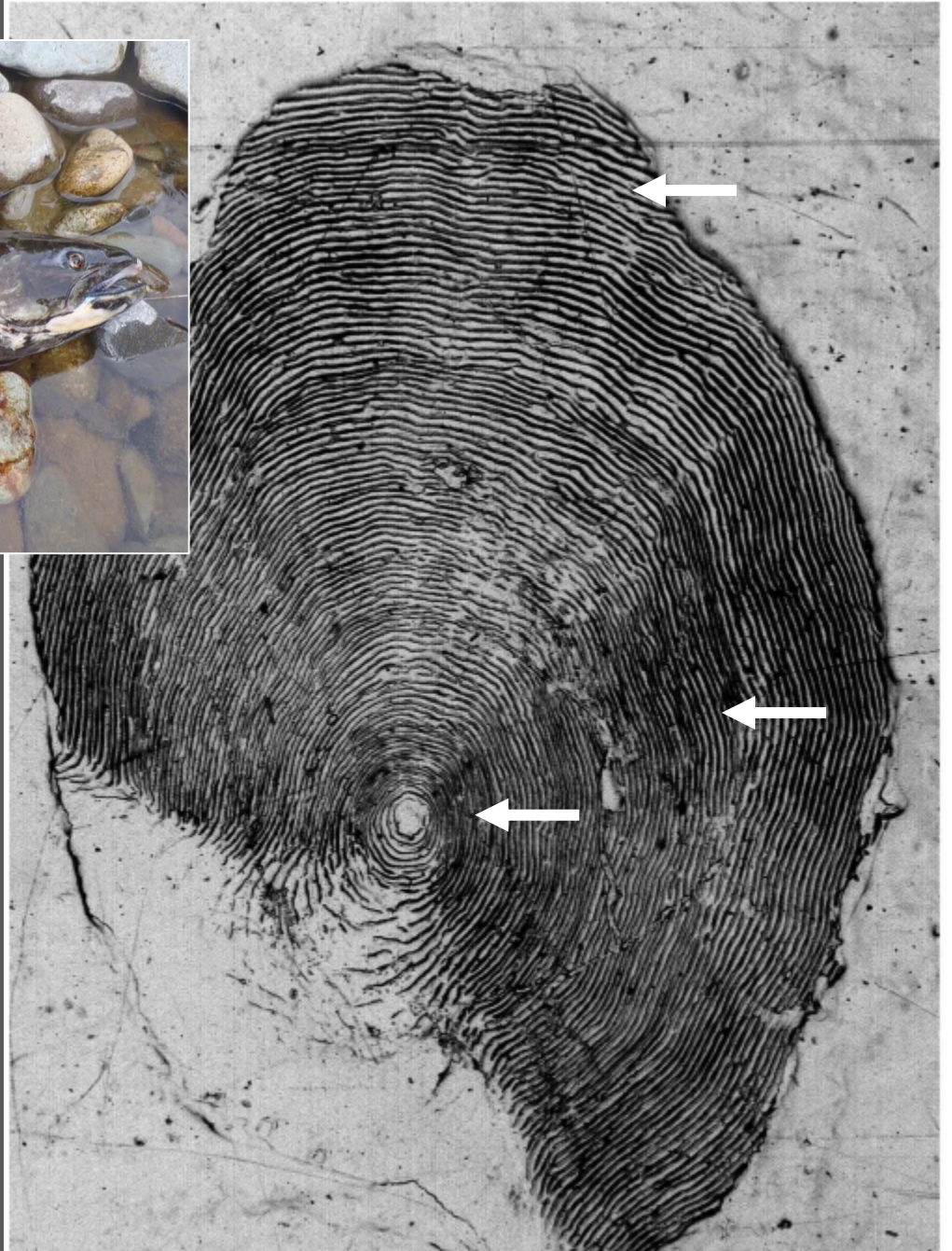


Image Courtesy of the ODFW Fish Life History Analysis Project - Ben Clemens, Kanani Bowden





← = Annulus

5 yr old, unclipped female  
Fork length 687 mm

*Quartzville Creek* – upstream of  
Green Peter Reservoir

Mount no. 12116.4001

Image Courtesy of the ODFW Fish Life History Analysis Project - Ben Clemens, Kanani Bowden



## Quartzville Cr. – Spawning Ground Surveys

**All spawners were observed upstream of this potential natural barrier.**





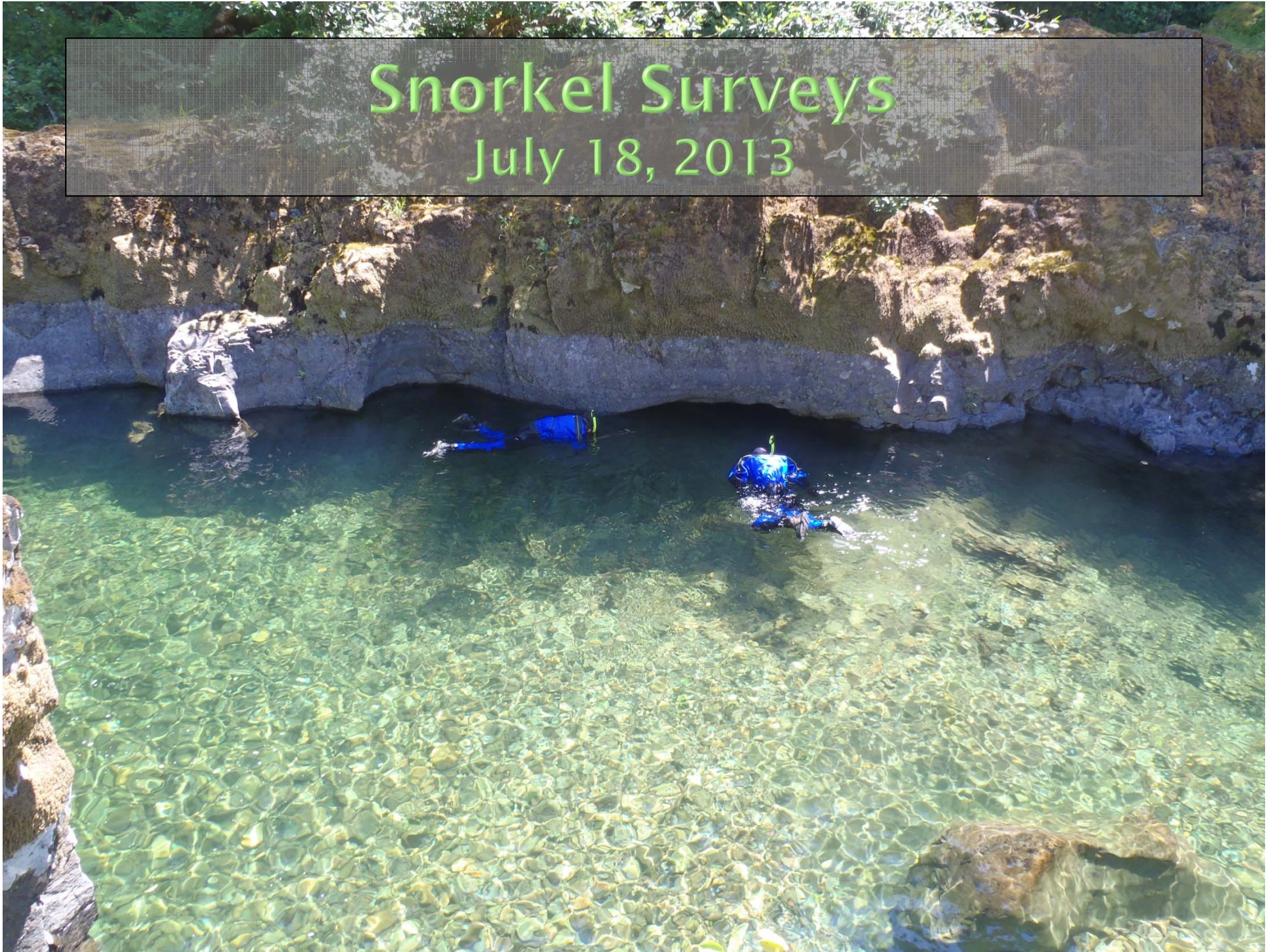
**When do they return to tributaries ?**

**Do progeny survive / Are they self-sustaining ?**



# Snorkel Surveys

July 18, 2013





# Snorkel Survey Results

## 2013

- 1 Adult Chinook observed (July 18) upstream of 2.2 m step.
- 3 Juvenile Chinook observed in August 2013 in Quartzville Cr.



# Green Peter Reservoir



Scubatylar - Jun 16, 2013 ifish post.



Albany Democrat Herald - May 9, 2013.



Statesman Journal - Jul 12, 2012



Fisherman Shane - Feb 20, 2013 ifish post.



Prowler44 - Feb 13, 2010 ifish post.

# Where else does this occur ?

## Other Adfluvial Chinook Populations in the Pacific Northwest

<u>Location</u>	<u>Size (acres)</u>
Lake Coeur d' Alene - ID	31,872
Lake Chelan - WA	33,335
Cushman Lake - WA	4,010
Green Peter Res. - OR	3,720
Lake Billy Chinook* - OR	3,916
Folsom Lake - CA	11,450



# Potential impacts on recovery monitoring and current research

Overestimate redd counts and production from outplanted females.

Affect ongoing pedigree studies above Cougar, Foster and Detroit dams.

Eventually could lead to higher frequency of adfluvial life history expression.

# Acknowledgements

**RESERVOIR DOGS**

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Meghan Horne-Brine  
John Elliott  
Kevin Stertz  
Matt Walker





# Questions ?



Fisherman Shane - 2013