

Steelhead Populations, Movement, and Habitat Use in Rock Creek

(Klickitat County)



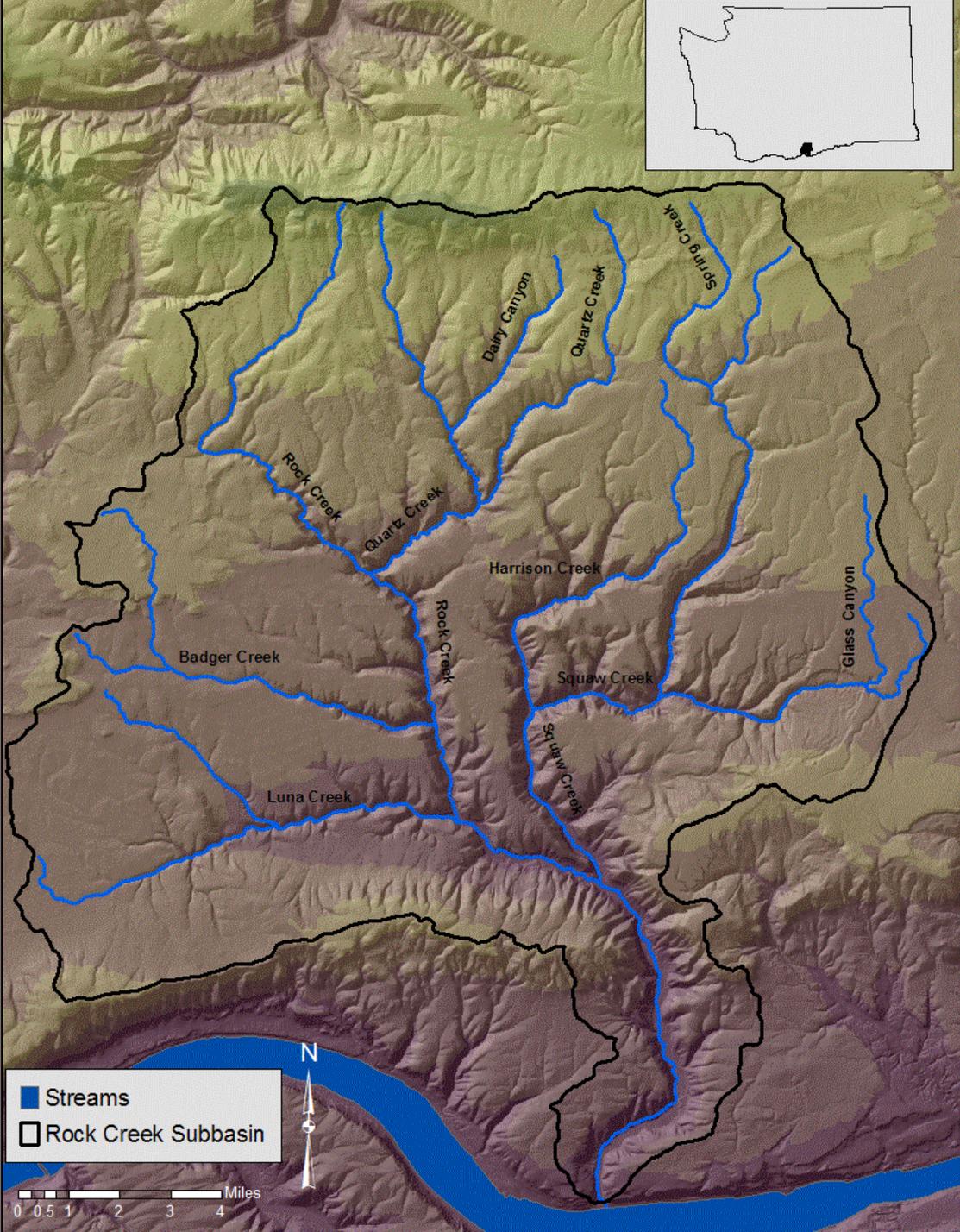
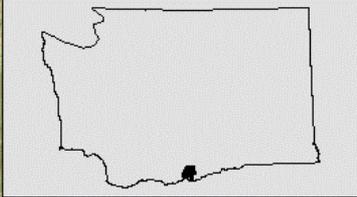
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Yakama Nation Fisheries Resource Management

Overview

- Subbasin map
- Rock Creek fish & habitat assessment project
 - Steelhead spawner surveys
 - Juvenile steelhead distribution, abundance, and life-histories
 - PIT-tag interrogations
 - Steelhead genetic analyses





Spawner Surveys

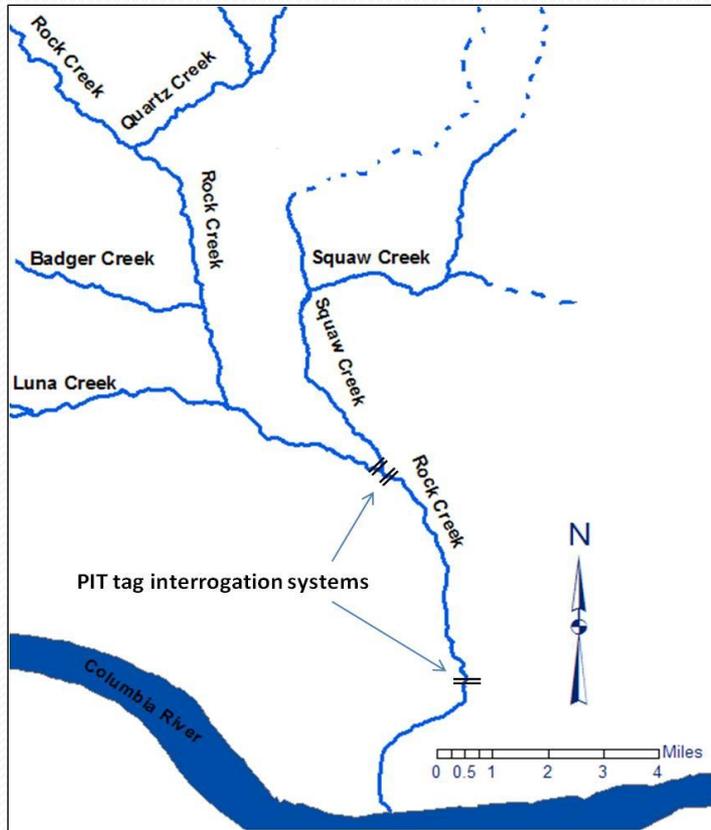
- Rafting and wading redd count surveys
- Annual survey of the Rock Creek mainstem and its tributary streams
- Covering 27 total stream miles – 2-3 passes
- GPS coordinate record for redd locations
- Sex, scale samples, and mark or tags were recorded for each carcass



2008 – 2010 Rock Creek cumulative redd count and spawner abundance surveys

	Subbasin	Rivermiles	Live		Mainstem Redd	Tributary Redd	Mainstem Live	Tributary live
	Redd Total	Total Surveyed	Total Observed	Carcass Total	% Contribution	% Contribution	% Contribution	% Contribution
2008	45	12.5	37	0	36	73	81	19
2009	127	14.7	104	3	70	30	19	81
2010	287	27	154	2	64	36	47	53

Juvenile steelhead PIT-tagging



- Juvenile steelhead trout were PIT-tagged each year beginning fall 2009 through fall 2011
- Two multiplex PIT-tag readers were installed in Rock Creek and Squaw Creek during summer 2009
- Steelhead smolt out-migration and adult return data is currently being collected

Presence and absence of fish species found in Rock Creek during 2009-2011

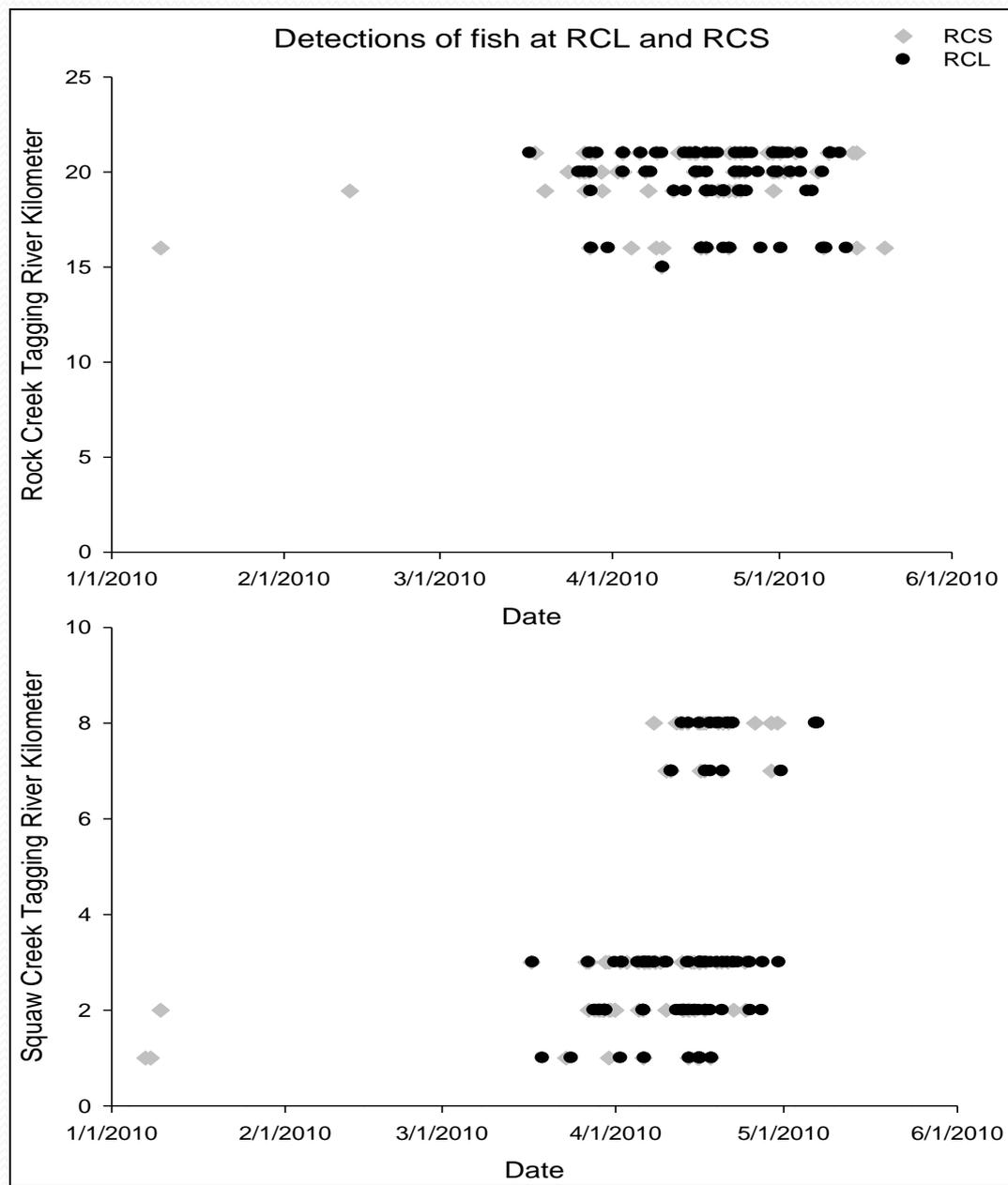
Reach	Rock Creek			Squaw Creek	
	Rkm 2 to 4	Rkm 4-12	Rkm 13 to 22	Rkm 0-2	Rkm 2-8
→ Rainbow trout	P	P	P	P	P
Coho salmon	P	P	P	P	P
Shorthead sculpin	P	P	P	P	P
Speckled dace	P	P	P	P	P
Red sided shiner	P	P	P	P	A
Bridgelip Sucker	P	P	P	P	P
Northern Pikeminnow	P	P	A	A	A
Smallmouth bass	P	A	A	A	A
Brown Bullhead	P ^a	A	P ^b	A	A

^a One individual was collected in one pool at rkm 2.

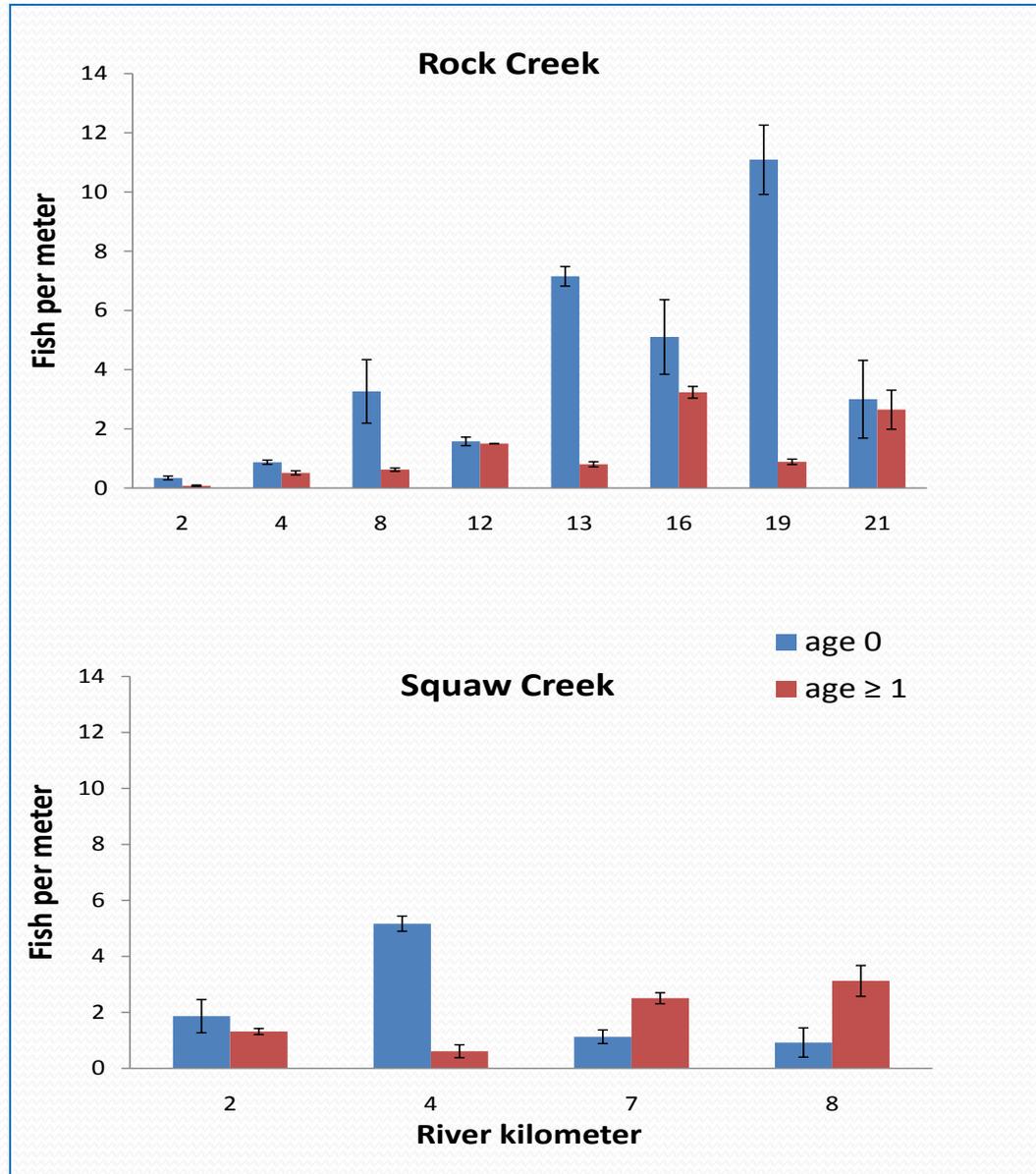
^b One individual was collected in one pool at rkm 17.

P = Present

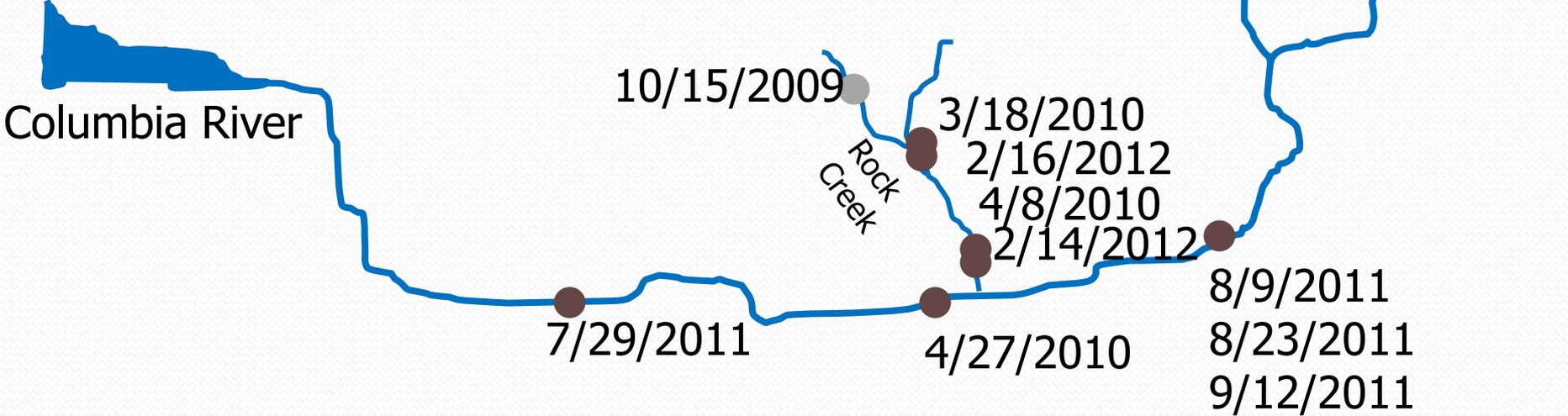
A = Absent



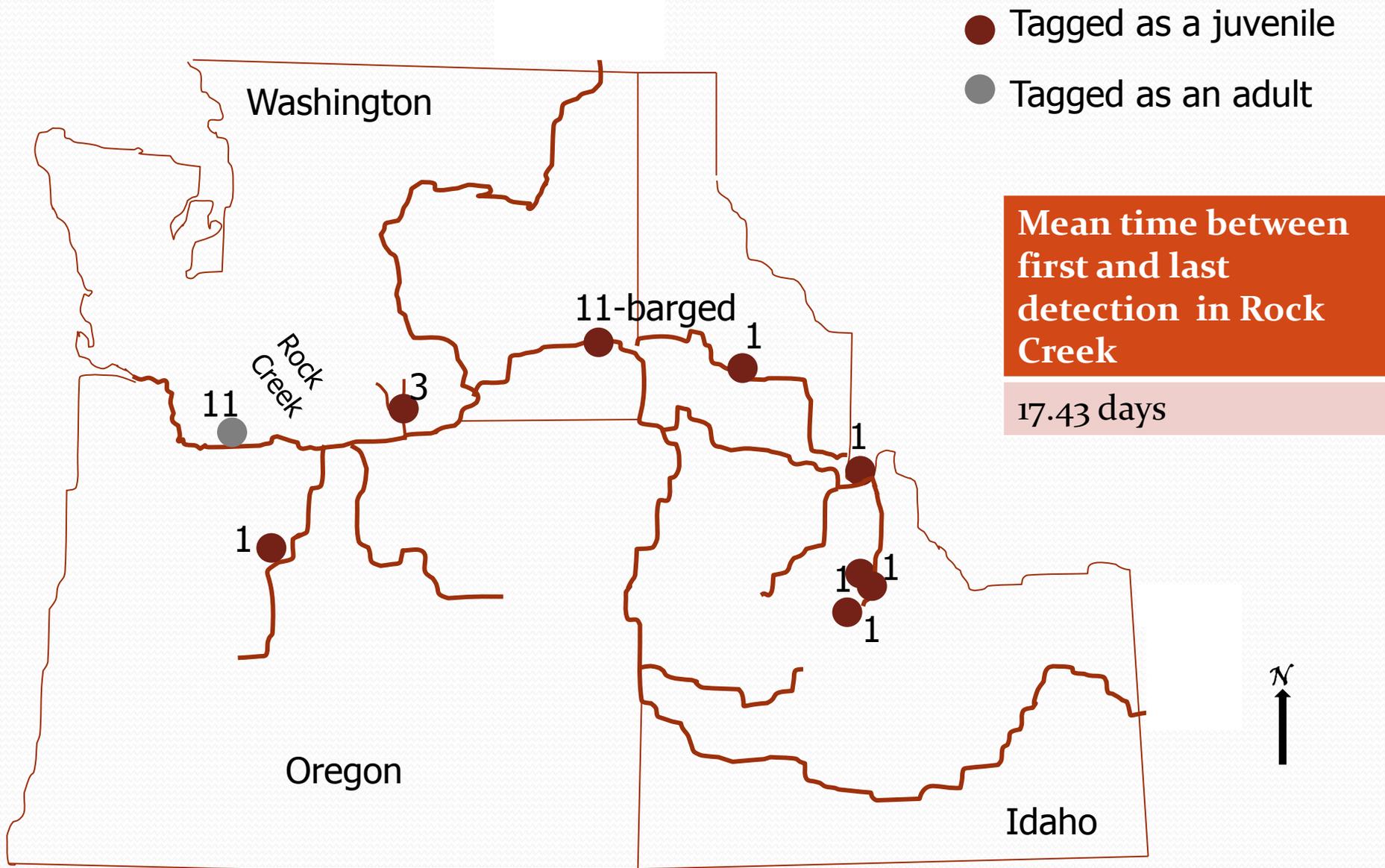
2011 Population estimates of Rainbow trout/steelhead in Rock Creek and Squaw Creek



Life history of one individual steelhead tagged in Rock Creek as a juvenile and recently returned to spawn



- Tagged as a juvenile in Rock Creek, RKM 21
- Instream detections



Adult steelhead detections in Rock Creek

Genetic sample collection

Objective: genetic analysis to include in evaluation an of steelhead trout in the Rock Creek watershed of the Middle Columbia River Basin

1. determine genetic composition of the population and its relatedness to adjacent populations in the region
2. determine if the Rock Creek steelhead are in fact its own distinct population

2008-2010 genetic samples were collected from sampled sites in Rock Creek and Squaw Creek and sent to the CRITFC Genetics Lab for analyses

Genetic analyses

2009 Results:

1. CRITFC geneticists found genetic similarity between the collections of juvenile *Oncorhynchus mykiss* within the watershed
2. A significant distinction from other populations from out-of-basin in the Middle Columbia region

2010 Results:

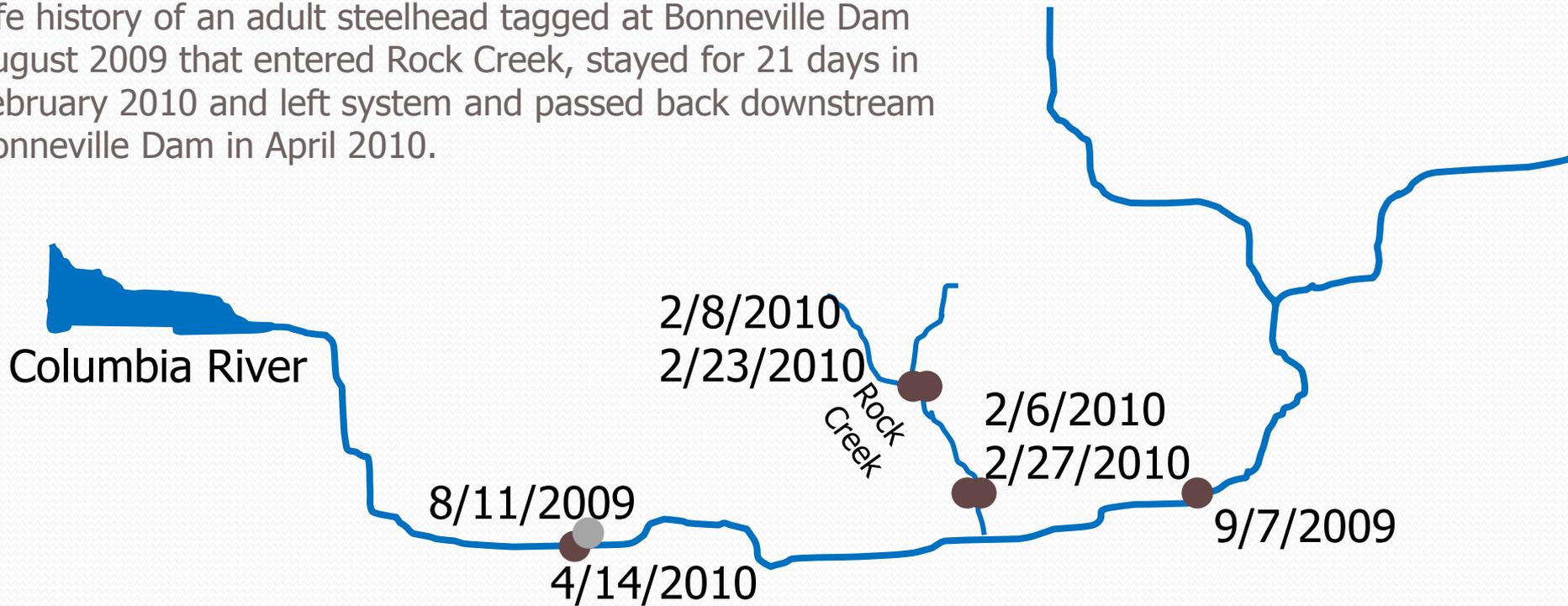
1. There is a genetic similarity between collections of juvenile *O. mykiss* within the Rock Creek watershed and Snake River stocks



By Sonya Jackson

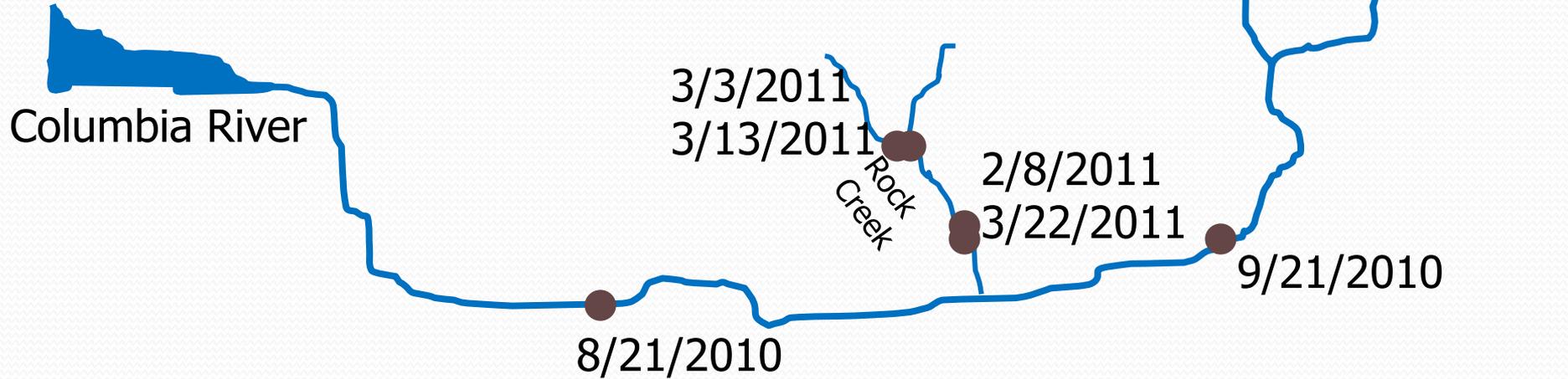
The End

Life history of an adult steelhead tagged at Bonneville Dam August 2009 that entered Rock Creek, stayed for 21 days in February 2010 and left system and passed back downstream Bonneville Dam in April 2010.



- Tagged as adult at Bonneville Dam
- Instream detections

This same fish passed the Bonneville Dam upstream in August 2010, made its way to Mc Nary Dam September 2010, and back up to Rock Creek in February 8, 2011 and stayed in the system for 42 days and left the system 42 days later.



● Instream detections