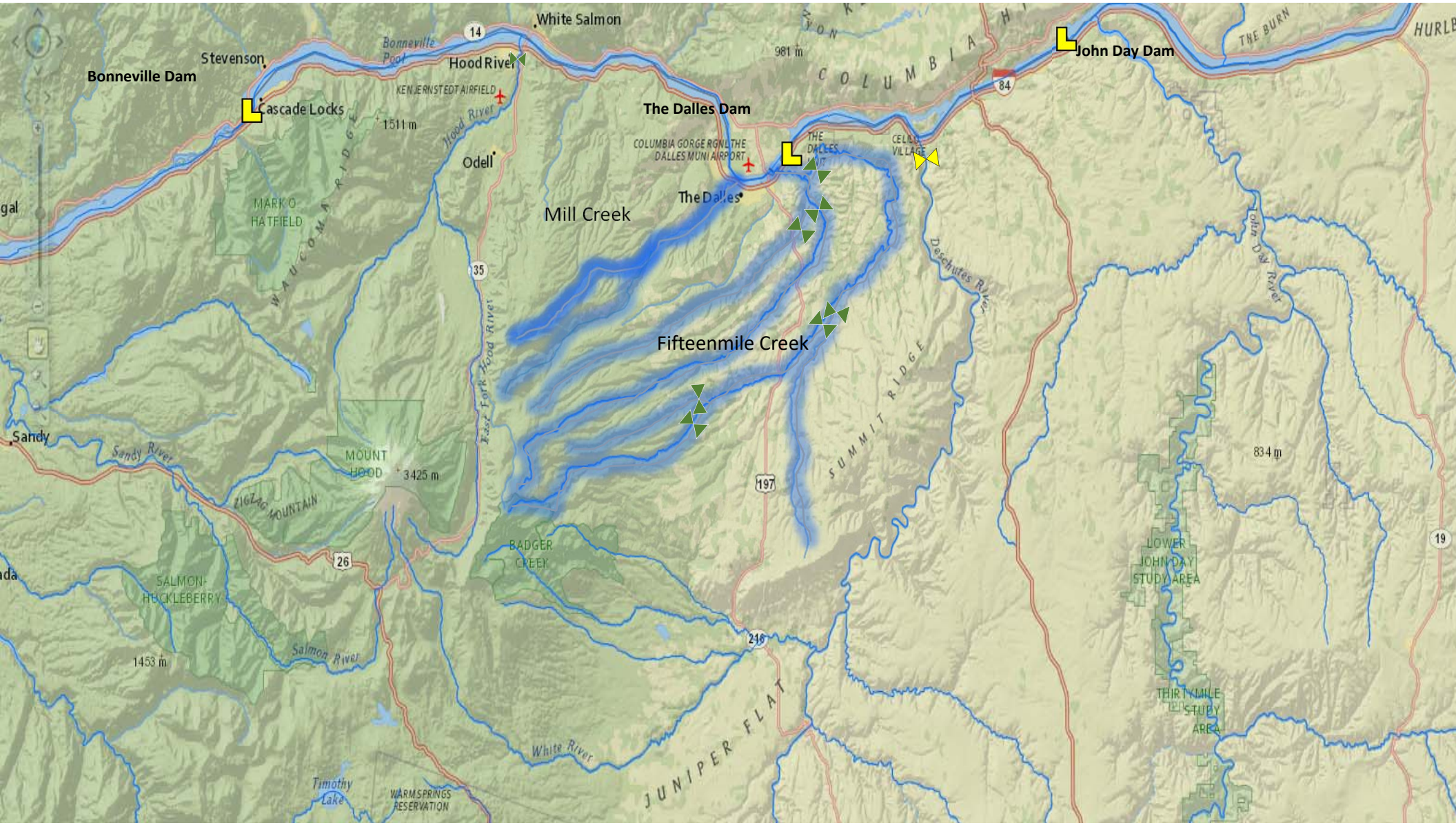
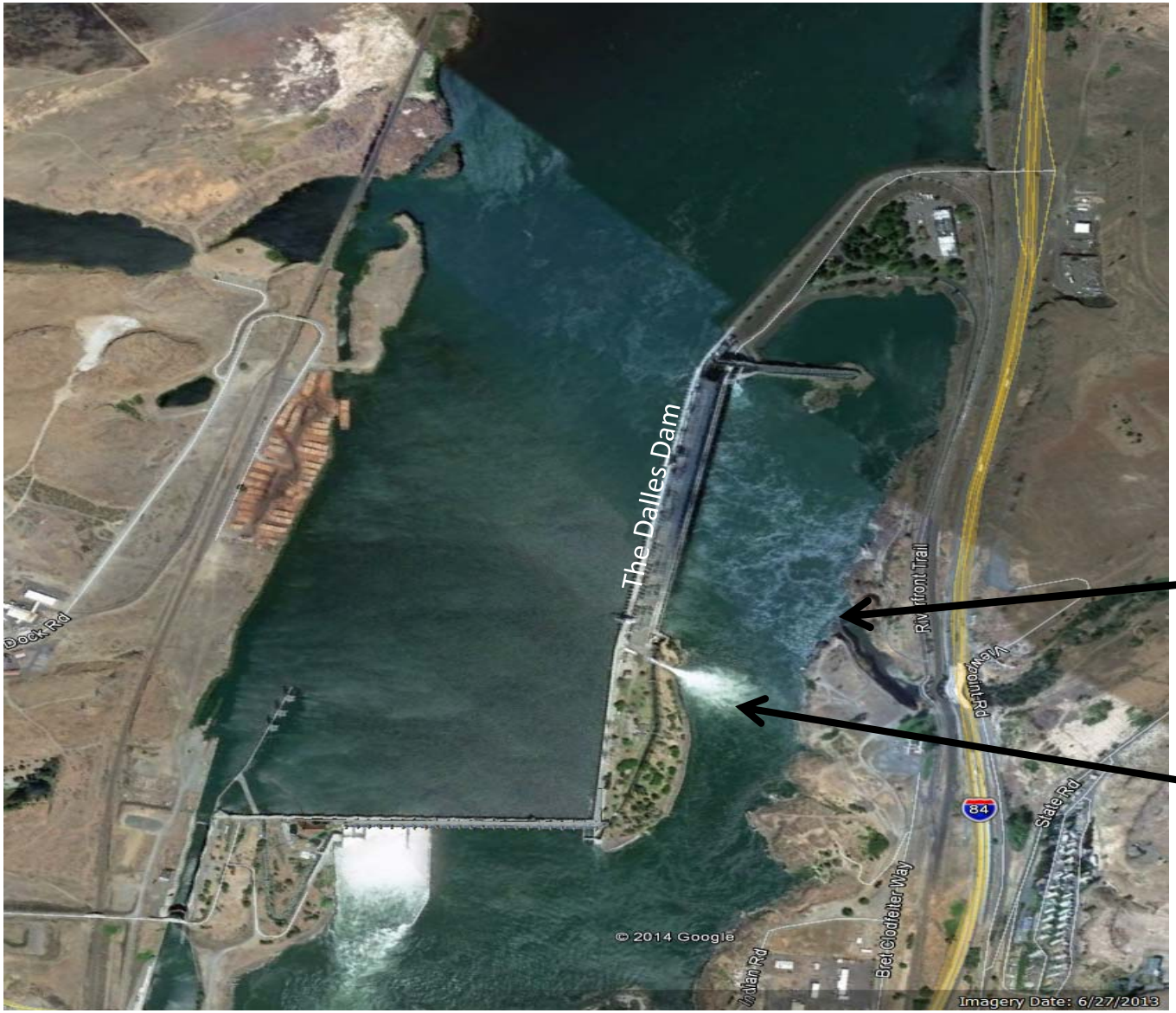
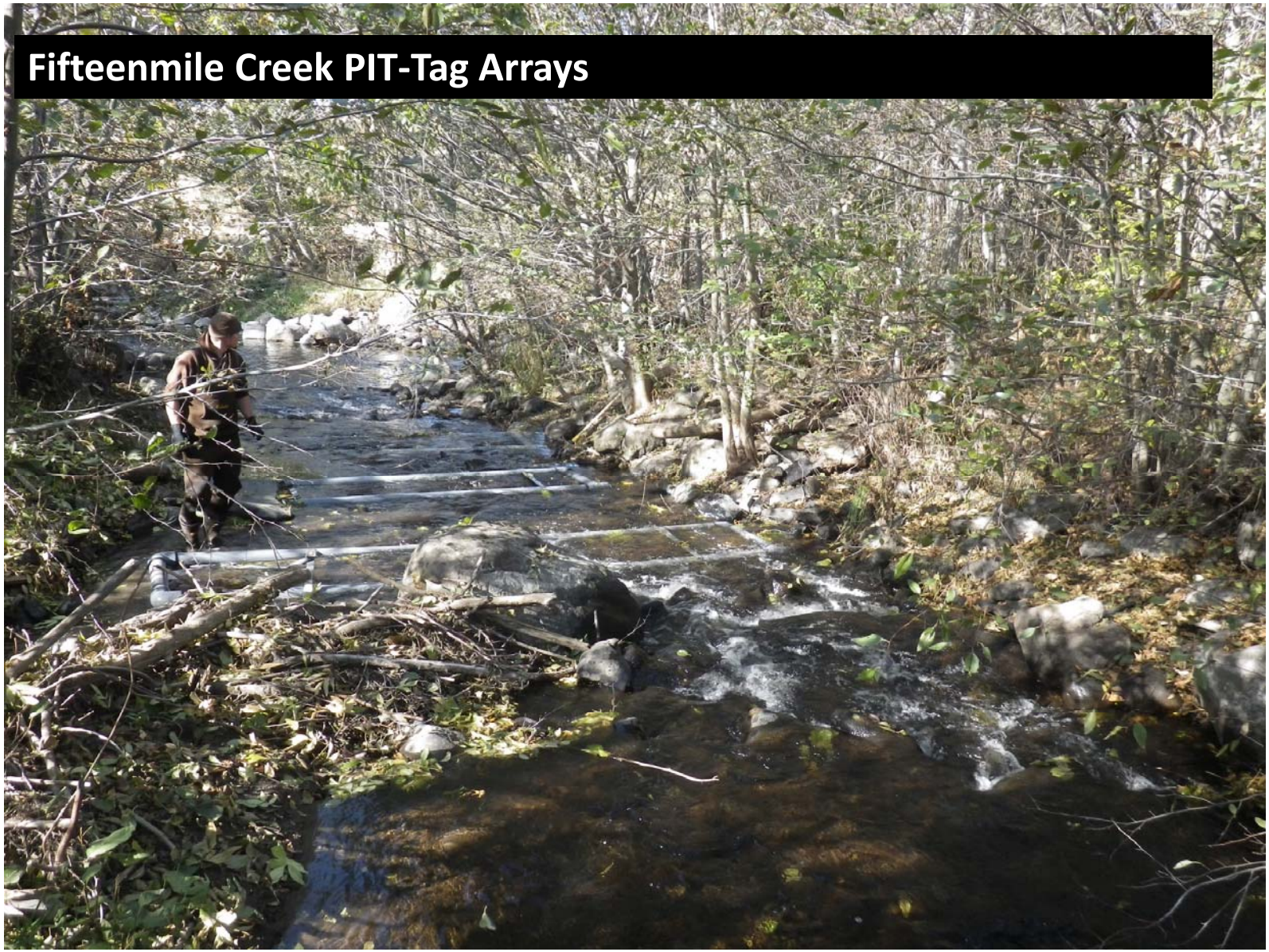

Bonneville Dam
Stevenson
Cascade Locks
White Salmon
Hood River
Bonneville Pool
KEN JERNSTEDT AIRFIELD
1511 m
Hood River
Odell
The Dalles Dam
COLUMBIA GORGE RGNL/THE DALLES MUNI AIRPORT
The Dalles
John Day Dam
981 m
COLUMBIA
THE BURN
84
14
35
197
26
216
19
MARK O HATFIELD
WAUCOMA RIDGE
Mill Creek
Fifteenmile Creek
East Fork Hood River
Deschutes River
John Day River
SUMMIT RIDGE
Sandy
Sandy River
MOUNT HOOD
3425 m
ZIGZAG MOUNTAIN
BADGER CREEK
SALMON-HUCKLEBERRY
1453 m
Salmon River
White River
JUNIPER FLAT
Timothy Lake
WARMSPRINGS RESERVATION
834 m
LOWER JOHN DAY STUDY AREA
THIRTYMILE STUDY AREA

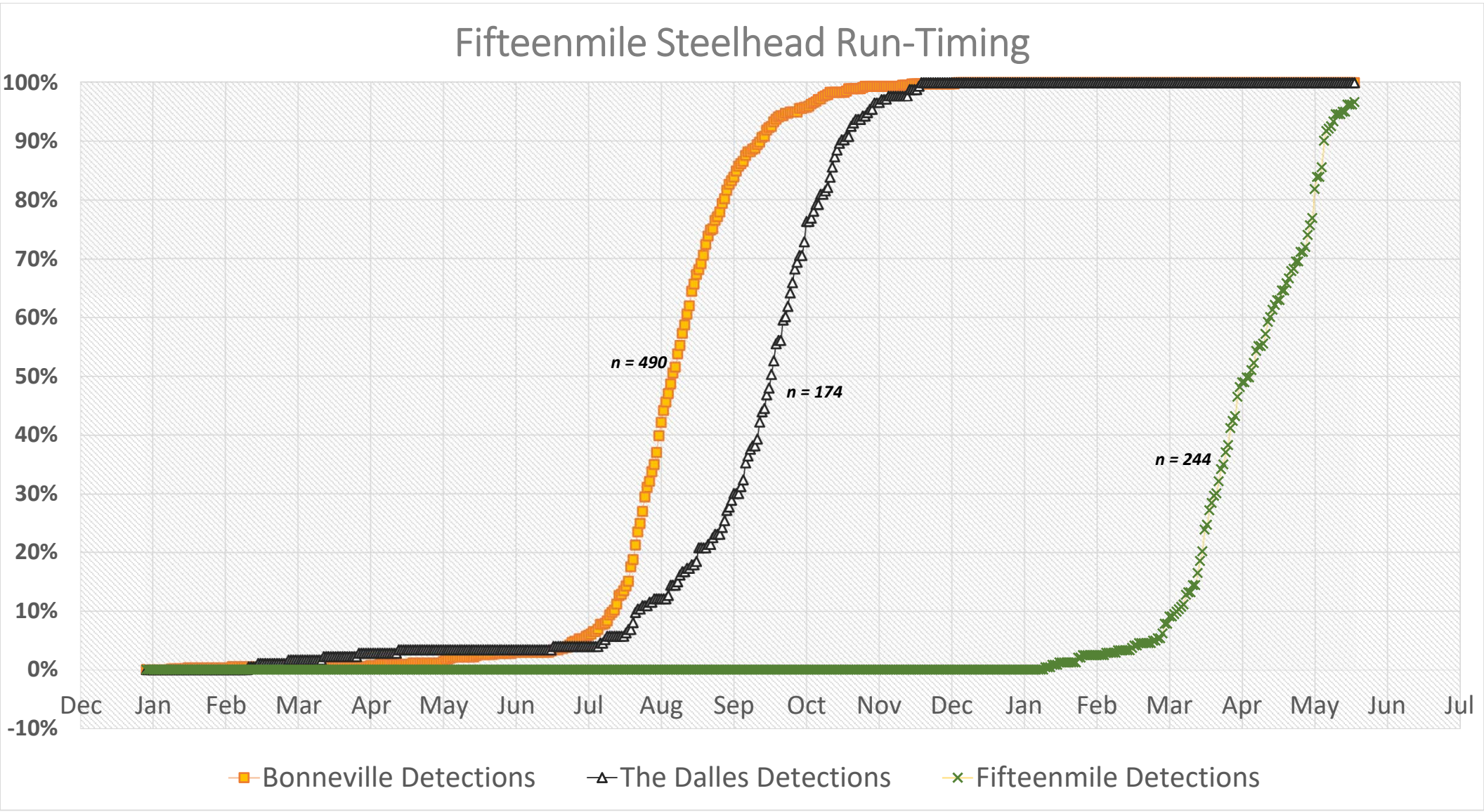

The Dalles Dam
Fifteenmile Creek
Sluiceway
Dock Rd
Bret Clodfelter Way
State Rd
84
© 2014 Google
Imagery Date: 6/27/2013

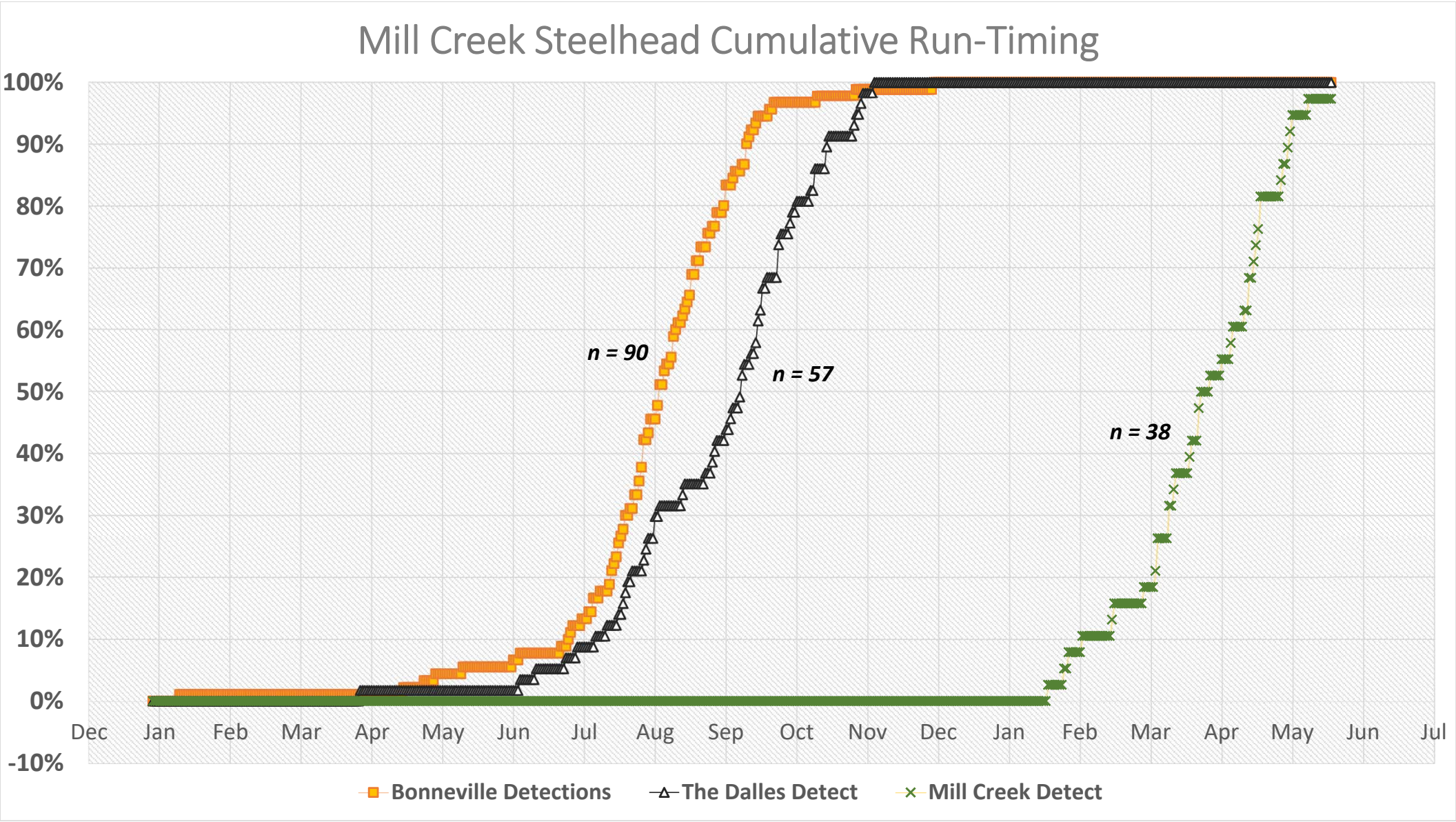

Columbia River
OREGON
Columbia River
Lewis & Clark
Festival Park
84
Mill Creek
OREGON
84
84
The Dalles

Fifteenmile Creek PIT-Tag Arrays

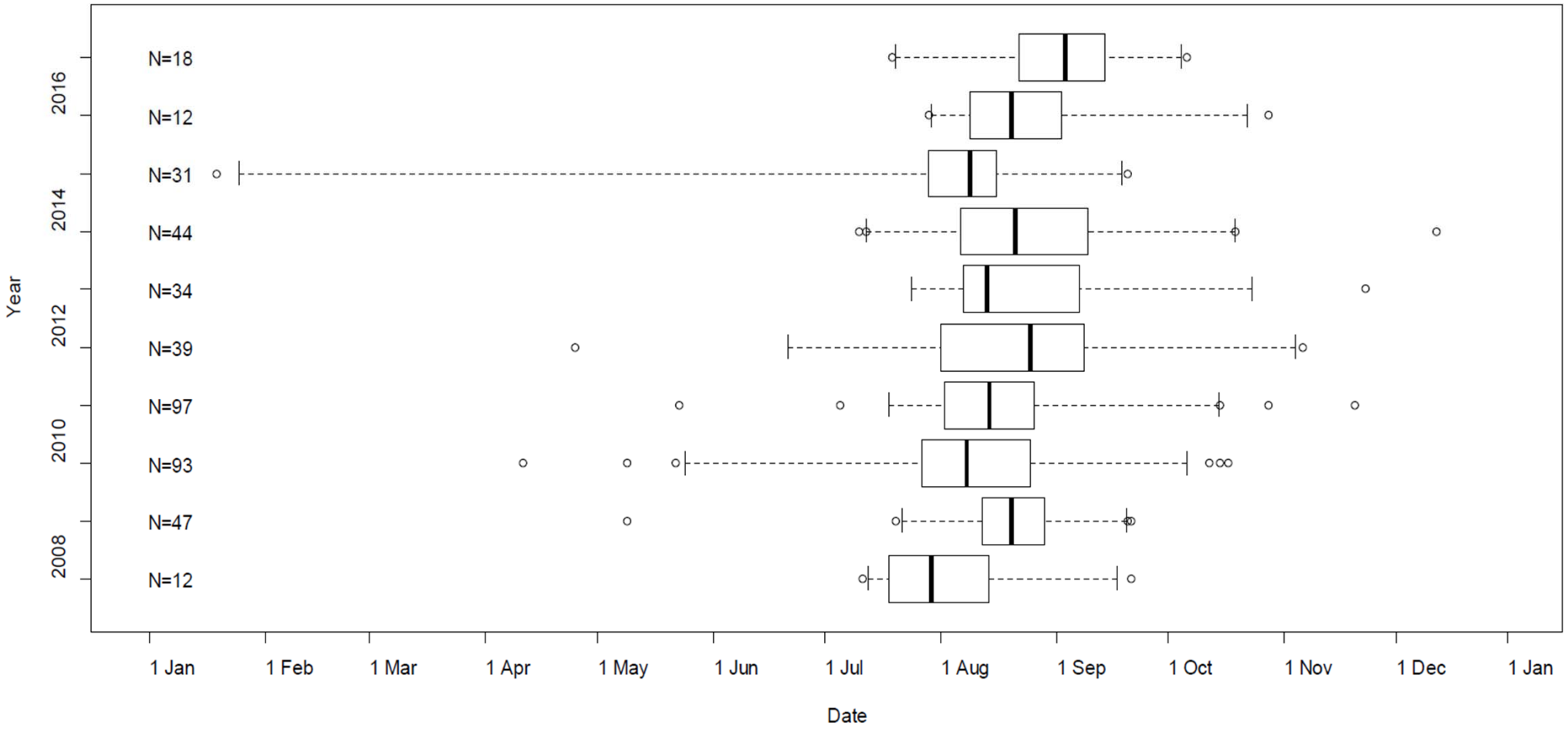


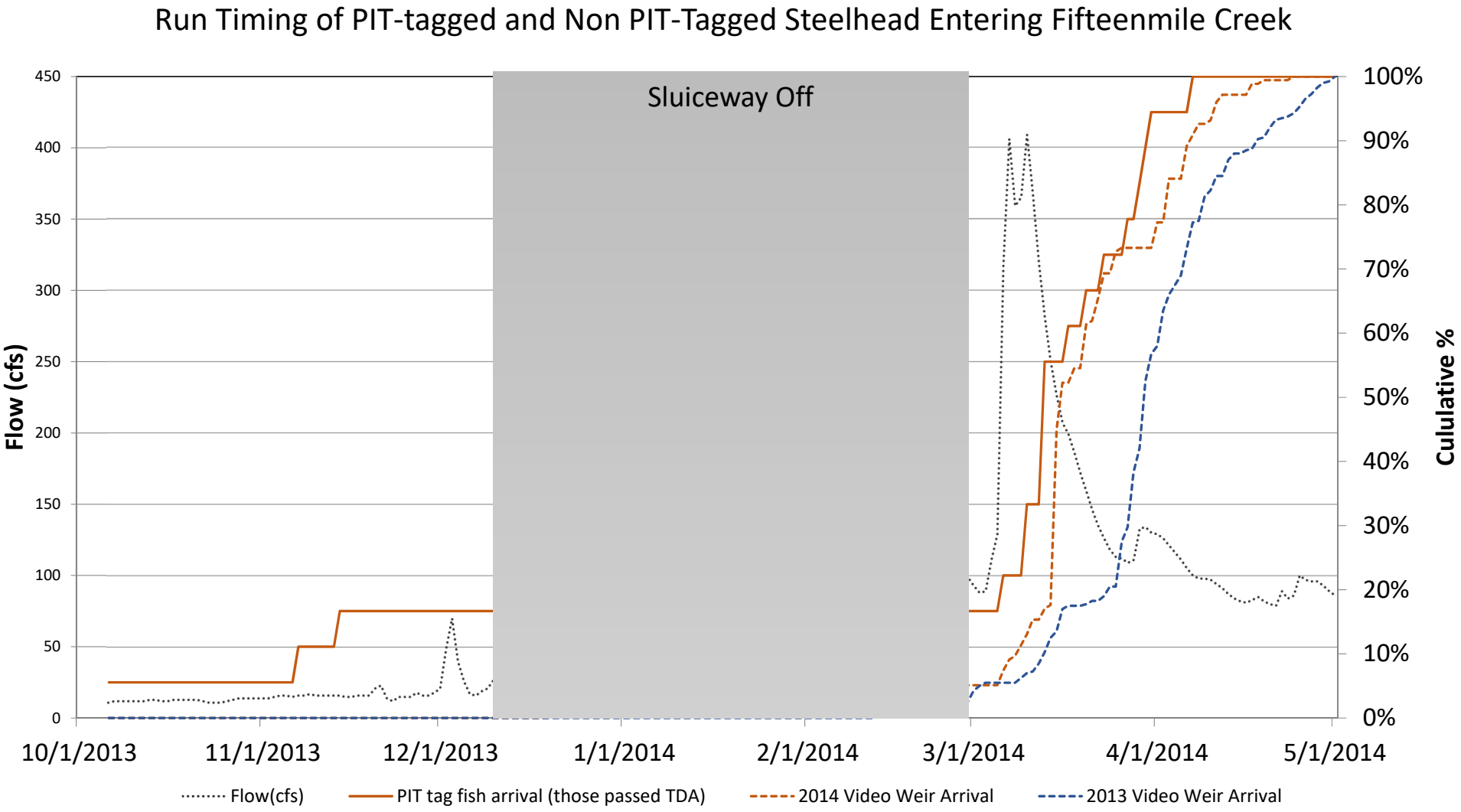
Run Timing


Fifteenmile Steelhead Run-Timing
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-10%
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
n = 490
n = 174
n = 244
Bonneville Detections
The Dalles Detections
Fifteenmile Detections


Mill Creek Steelhead Cumulative Run-Timing
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-10%
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
n = 90
n = 57
n = 38
Bonneville Detections
The Dalles Detect
Mill Creek Detect

Run Timing Distribution – Bonneville Ladder Detections
Fifteenmile Creek Steelhead 2008-2017




Run Timing of PIT-tagged and Non PIT-Tagged Steelhead Entering Fifteenmile Creek
Sluiceway Off
Flow (cfs)
Cululative %
450
400
350
300
250
200
150
100
50
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
10/1/2013
11/1/2013
12/1/2013
1/1/2014
2/1/2014
3/1/2014
4/1/2014
5/1/2014
Flow(cfs)
PIT tag fish arrival (those passed TDA)
2014 Video Weir Arrival
2013 Video Weir Arrival

Survival

Table 14. Return-year-specific apparent survival of Fifteenmile Creek adult steelhead (previously tagged at the Fifteenmile Creek rotary screw trap as juveniles) in the main stem Columbia River above Bonneville Dam assuming 100% detection efficiency at Bonneville Dam. Spawning migration year is defined as between April 1 of the first year to April 1 of the second year. Apparent survival in Bonneville pool, is assuming the fish passing Bonneville are destined to go to Fifteenmile Creek.

Spawning Migration Year	Detection Efficiency of Fifteenmile Creek PIT array	Number passed Bonneville	Number Detected in Fifteenmile Ck.	Bonneville Pool Apparent Survival %	L95% CL	U95% CL
2009-2010	Unknown	44	26	59%	*	*
2010-2011	Unknown	87	45	52%	*	*
2011-2012	94%**	94	39	44%	42%	46%
2012-2013	95%**	31	17	55%	52.3%	57.8%
2013-2014	98%**	34	18	53%	50%	56%
2014-2015	97%**	44	21	48%	47%	50%
2015-2016	91%**	30	14	47%	42.0%	49.6%
2016-2017	82%/99%***	12	6 (7.3) †	61%		

*Confidence level not possible because efficiency of Fifteenmile Creek PIT array was not known. However, efficiency of PIT array was likely very high due to the configuration of pass-thru PIT antennas deployed adjacent to a fish passage barrier (weir). The easiest passage option was through the PIT antennas.

** Actual detection percentage of adults tagged at Fifteenmile adult trap. This efficiency estimate includes all flow conditions, tag loss, adult fallback, mortality, and seasonal effects. Actual detection efficiency of the PIT array located at the confluence of Fifteenmile Creek and Eightmile Creek, as measured by known PIT tags passing over array antennas, was 99.5%.

*** Array efficiency for Fifteenmile Creek and Eightmile Creek respectively. All returning fish from previous years' were only detected in Fifteenmile Creek. Therefore the detection efficiency was applied solely from the Fifteenmile Creek PIT array.

† Actual and adjusted fish detected in Fifteenmile Creek.

Cumulative Overshoot and Survival Estimates

Mill Creek Steelhead
The Dalles Overshoot (2014-2018) – 74%
Average Estimated Survival (2015-2018) – 54%

Fifteenmile Creek Steelhead
The Dalles Overshoot (2013-2018) – 75%
Average Estimated Survival (2011-2017) – 47%