



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
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April 23, 2015

To: Interested Parties

From: Josh Gruber, Fish Biologist, Red Bluff Fish and Wildlife Office

Subject: Biweekly report (April 9, 2015 - April 22, 2015)

Please find attached preliminary daily estimates of passage, 90% confidence intervals, and fork length ranges of juvenile salmonids sampled at Red Bluff Diversion Dam for the period April 9, 2015 through April 22, 2015. Race designation was assigned using length-at-date criteria.

This report also contains graphical displays of salmonid passage dating back to 2008 for comparison.

Please note that data contained in these reports is subject to revision as this data is preliminary and undergoing QA/QC procedures.

If you have any questions, please feel free to contact me at (530) 527-3043 ext 233.

Table 1.— Preliminary estimates of passage by brood-year (BY) and run for unmarked juvenile Chinook salmon and steelhead trout captured by rotary-screw traps at Red Bluff Diversion Dam (RK391), Sacramento River, CA, for the dates listed below. Results include estimated passage, peak river discharge volume, water temperature, turbidity, and fork length (mm) range in parentheses. A dash (-) indicates that sampling was not conducted on that date.

Date	Discharge volume (cfs) <sup>1</sup>	Water temperature (°C)	Water turbidity (NTU)	Estimated passage				
				BY14 Winter	BY14 Spring	BY14 Fall	BY15 Late-Fall	BY15 RBT
4/9/2015	4,340	12.8	4.7	222 (106 – 163)	4,916 (79 – 104)	2,932 (36 – 78)	0 (–)	102 (60 – 71)
4/10/2015	4,230	13.7	5.3	77 (135 – 152)	4,459 (79 – 105)	4,133 (37 – 78)	0 (–)	136 (49 – 139)
4/11/2015	4,170	14.4	4.7	59 (130 – 132)	1,526 (80 – 106)	1,208 (37 – 79)	20 (36)	40 (64 – 67)
4/12/2015	4,090	14.7	4.4	81 (141 – 148)	2,956 (80 – 106)	1,806 (38 – 79)	82 (33 – 36)	101 (62 – 102)
4/13/2015	4,030	15.0	4.6	84 (118 – 152)	2,421 (81 – 105)	1,676 (37 – 80)	41 (34 – 35)	0 (–)
4/14/2015	4,000	14.7	4	95 (111 – 140)	2,132 (81 – 109)	1,158 (37 – 80)	38 (31 – 36)	57 (52 – 72)
4/15/2015	3,910	14.1	4.5	41 (114 – 125)	2,361 (82 – 107)	1,399 (38 – 81)	229 (32 – 37)	41 (56 – 71)
4/16/2015	3,830	14.6	3.8	0 (–)	1,571 (83 – 107)	923 (38 – 82)	0 (–)	35 (48 – 63)
4/17/2015	4,610	15.4	5	19 (141)	3,336 (83 – 110)	1,589 (62 – 82)	56 (34 – 36)	112 (56 – 83)
4/18/2015	4,660	15.7	4.3	37 (116 – 120)	3,975 (84 – 108)	3,733 (38 – 83)	92 (34 – 37)	127 (52 – 74)
4/19/2015	4,530	16.2	5.6	0 (–)	4,617 (84 – 109)	3,738 (39 – 83)	107 (33 – 36)	596 (46 – 83)
4/20/2015	4,500	16.5	4.1	28 (152)	2,695 (85 – 108)	3,965 (41 – 84)	28 (36)	1,114 (50 – 80)
4/21/2015	4,500	16.7	3.6	41 (140 – 181)	2,449 (85 – 109)	3,914 (42 – 84)	41 (34 – 36)	572 (49 – 107)
4/22/2015	5,090	16.8	3.7	20 (130)	2,028 (86 – 109)	3,927 (42 – 85)	40 (33 – 38)	436 (47 – 198)
<b>Biweekly Total <sup>2</sup></b>				<b>804</b>	<b>41,442</b>	<b>36,101</b>	<b>774</b>	<b>3,469</b>
<i>Biweekly Lower 90% Confidence Interval</i>				465	35,422	30,641	421	2,569
<i>Biweekly Upper 90% Confidence Interval</i>				1,143	47,462	41,561	1,127	4,369
<b>Brood Year Total</b>				<b>410,592</b>	<b>92,292</b>	<b>3,396,319</b>	<b>830</b>	<b>3,900</b>
<i>Brood year Lower 90% Confidence Interval</i>				242,574	57,368	1,693,308	417	2,433
<i>Brood year Upper 90% Confidence Interval</i>				578,610	127,215	5,099,330	1,243	5,366

<sup>1</sup> Peak daily discharge values do not account for diversions at RBDD and only represent peak flows registered at the Bend Bridge Gauging station (<http://cdec2.water.ca.gov/cgi-progs/queryFx?bnd>).

<sup>2</sup> Biweekly totals may be greater than the sum of the daily estimates presented in this table if sampling was not conducted on each day of the biweekly period. A dash (-) denotes those dates. To estimate daily passage for days that were not sampled, we impute missed sample days with the weekly mean value of days sampled within the week.

## Juvenile Winter Chinook Salmon Estimated Passage

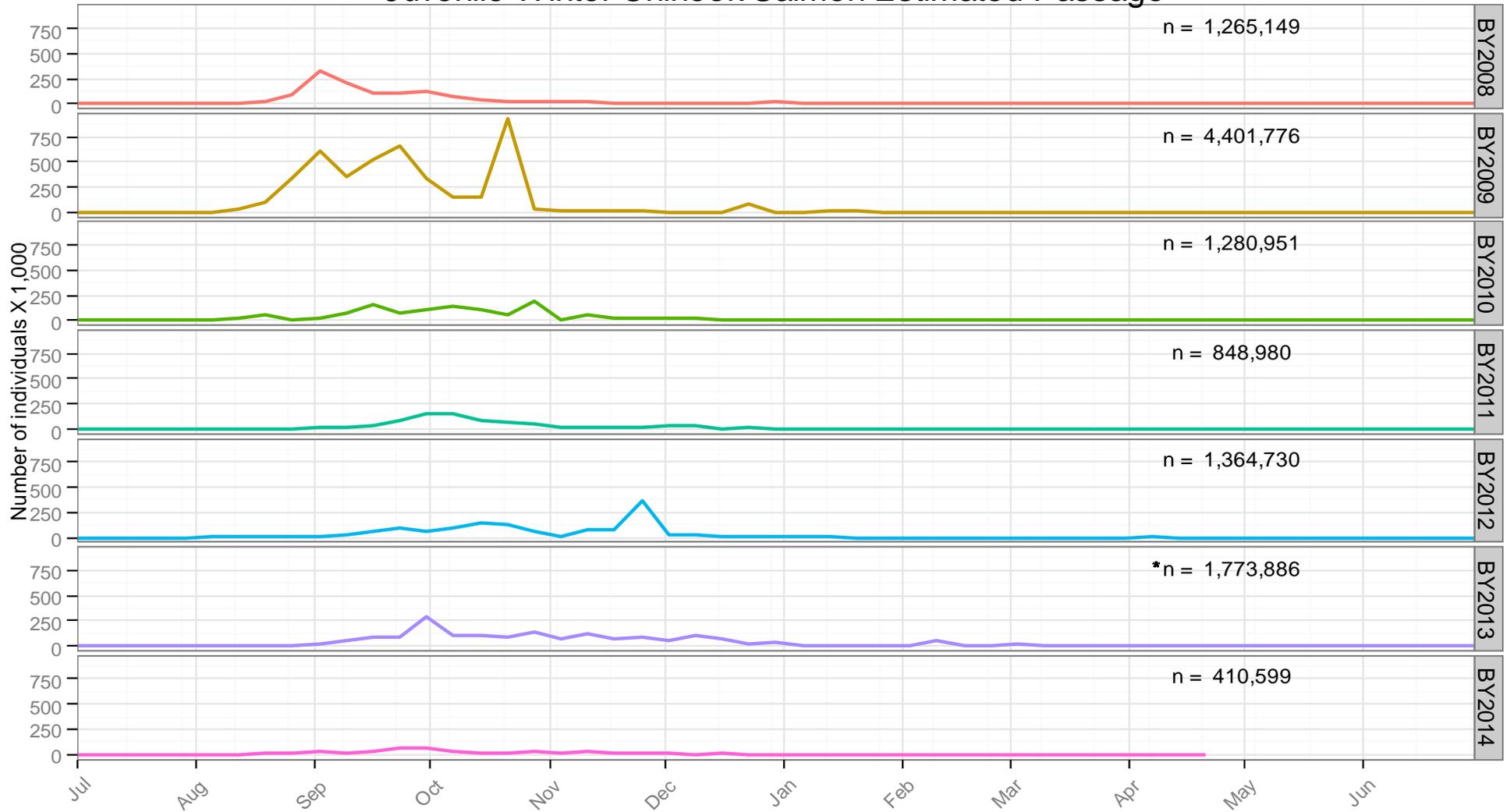


Figure 1. Weekly estimated passage of juvenile winter Chinook Salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period July 1, 2008 to present .

\*Winter run passage value interpolated using a monthly mean for the period October 1, 2013 - October 17, 2013 due to government shutdown .

## Juvenile Spring Chinook Salmon Estimated Passage

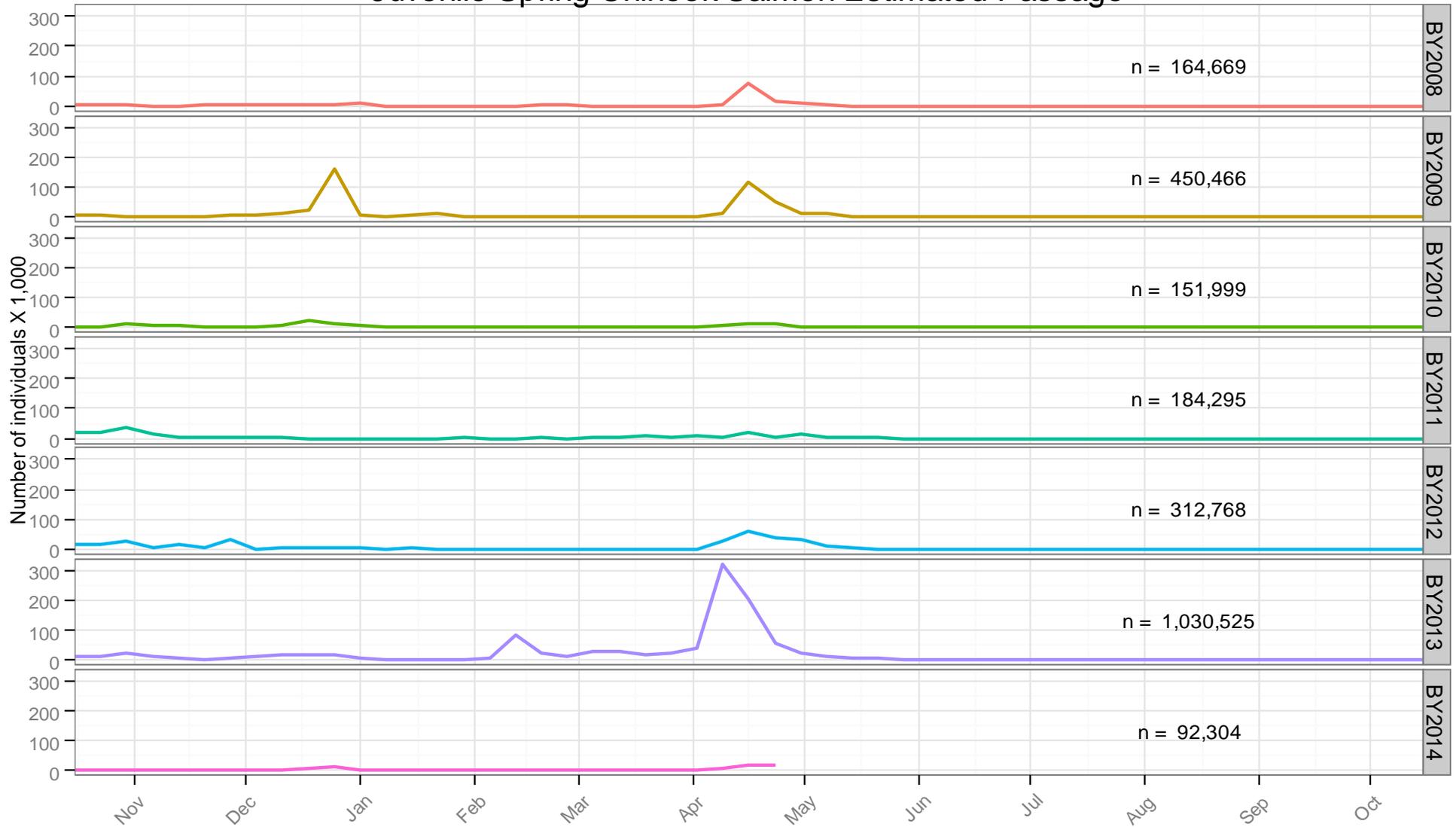


Figure 2. Weekly estimated passage of juvenile Spring Chinook Salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period October 16, 2008 to present .

## Juvenile *Onchorhynchus mykiss* Estimated Passage

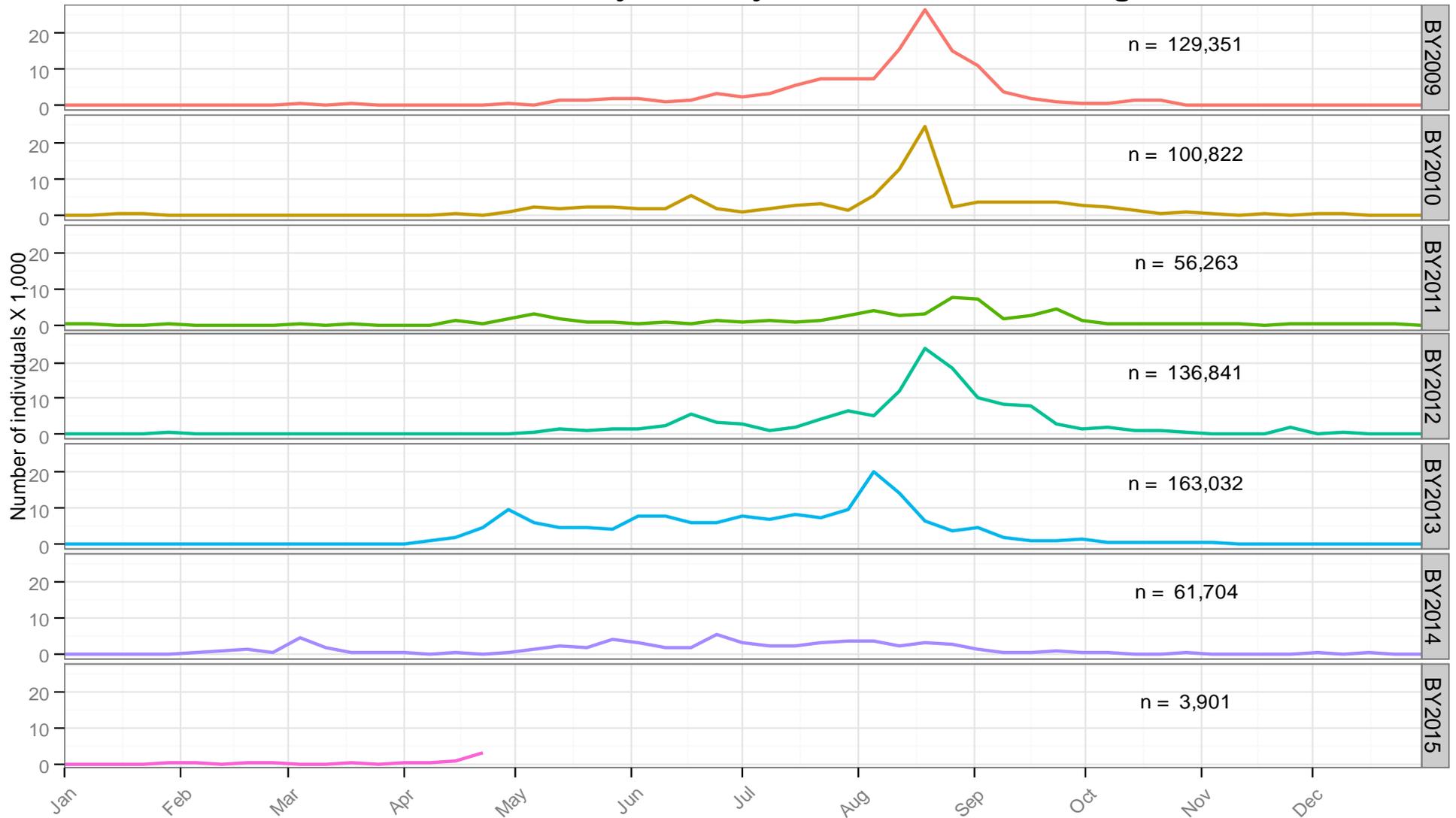


Figure 3. Weekly estimated passage of juvenile Rainbow/Steelhead trout at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period January 1, 2009 to present .

## Juvenile Fall Chinook Salmon Estimated Passage

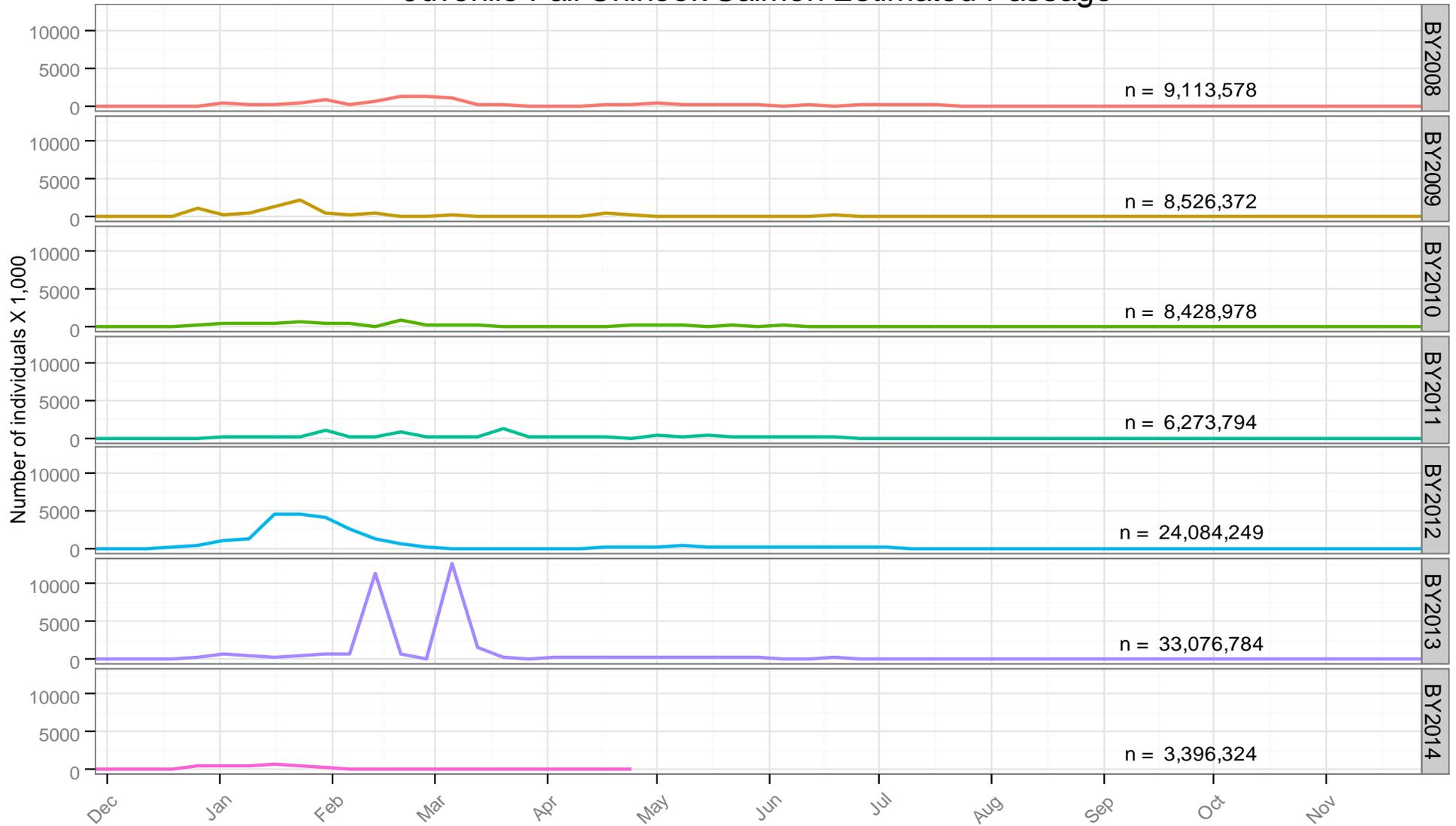


Figure 4. Weekly estimated passage of juvenile Fall Chinook Salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period December 1, 2008 to present .

## Juvenile Late Fall Chinook Salmon Estimated Passage

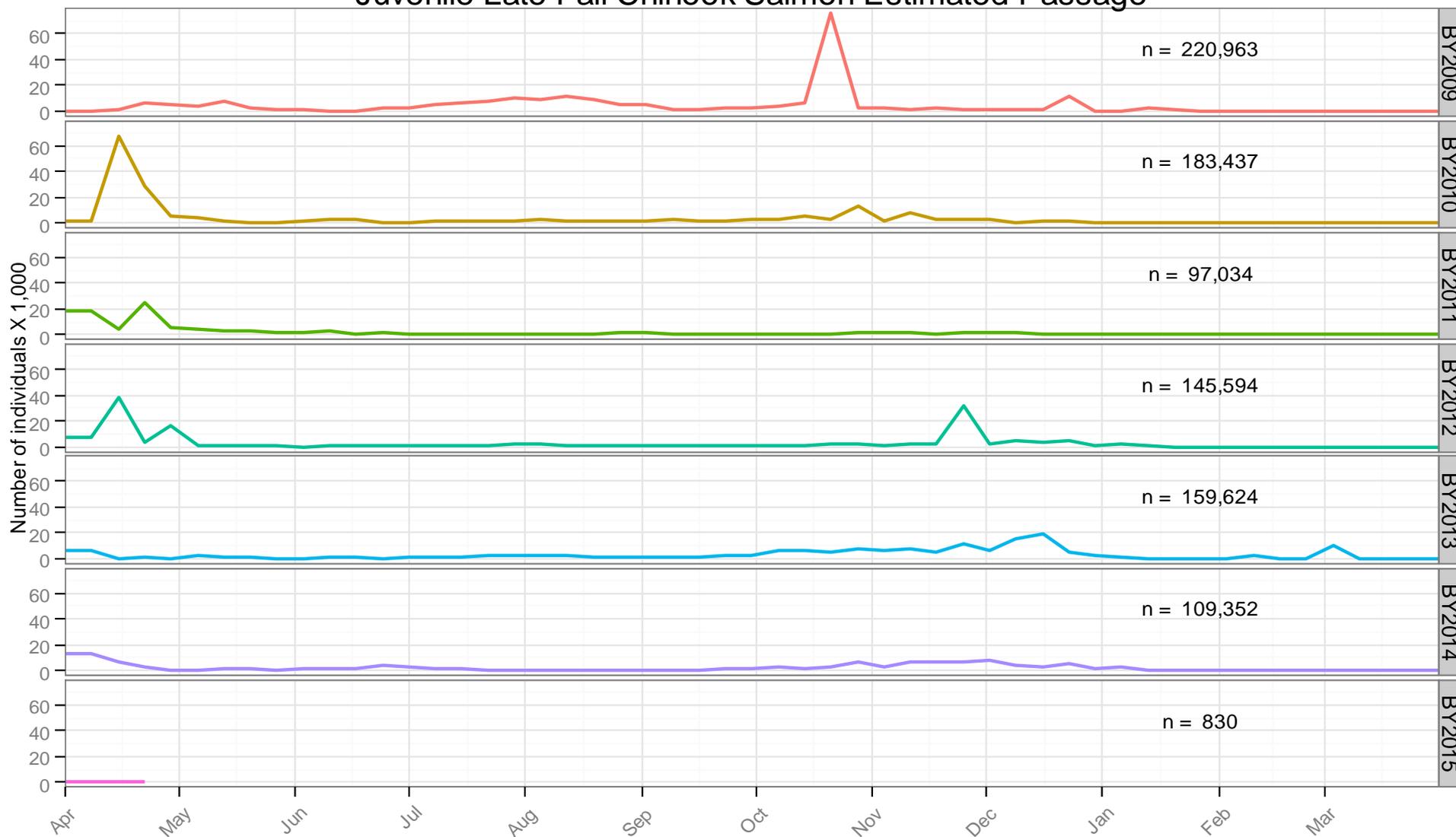


Figure 5. Weekly estimated passage of juvenile Late Fall Chinook Salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period April 1, 2009 to present .

## Weekly Estimated Chinook Passage at Red Bluff Diversion Dam - All Runs Combined

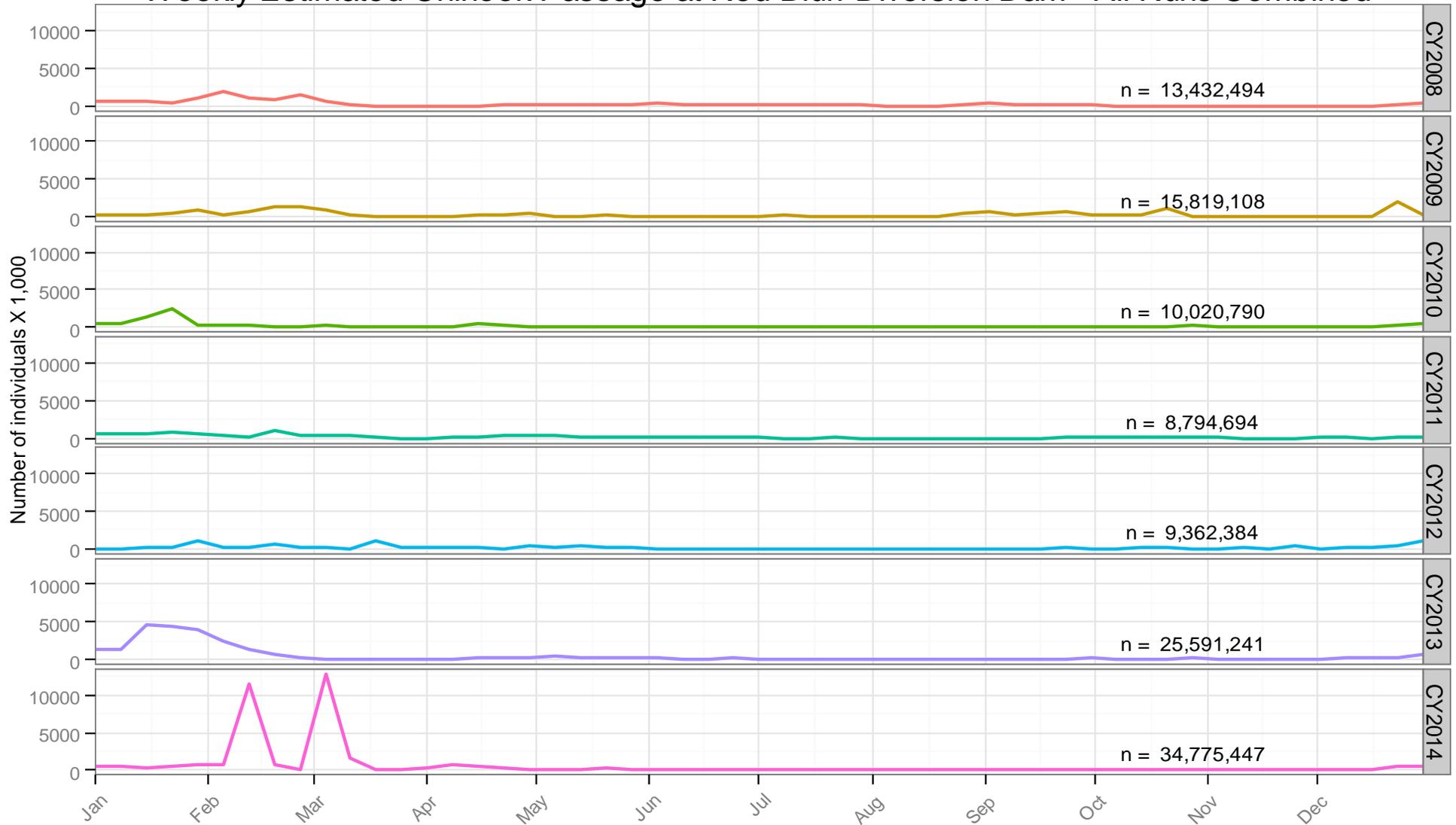


Figure 6. Weekly estimated passage of juvenile Chinook Salmon at Red Bluff Diversion Dam (RK391) by calendar year. Fish were sampled using rotary-screw traps for the period January 1, 2008 to December 31, 2014