



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
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July 2, 2015

To: Interested Parties

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

Subject: Biweekly report (June 4, 2015 - June 17, 2015)

Please find attached preliminary daily estimates of passage, 90% confidence intervals, and fork length ranges of unmarked juvenile salmonids sampled at Red Bluff Diversion Dam for the period June 4, 2015 through June 17, 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
6/4/2015	7,630	17.0	2.6	0 (-)	0 (-)	5,190 (53 – 99)	43 (47)	133 (57 – 74)
6/5/2015	7,630	16.8	2.4	0 (-)	0 (-)	6,431 (55 – 102)	38 (41)	38 (56)
6/6/2015	7,690	17.4	2.8	0 (-)	0 (-)	9,650 (54 – 100)	43 (49)	44 (57)
6/7/2015	7,690	17.9	2.5	0 (-)	0 (-)	12,264 (59 – 101)	94 (45 – 50)	97 (24 – 56)
6/8/2015	7,710	18.1	2.2	0 (-)	0 (-)	6,302 (55 – 102)	41 (52)	81 (28)
6/9/2015	7,690	18.2	2.8	0 (-)	0 (-)	4,458 (56 – 96)	43 (52)	43 (72)
6/10/2015	7,720	17.8	2.8	0 (-)	0 (-)	1,851 (58 – 104)	75 (36 – 46)	75 (25 – 61)
6/11/2015	7,710	18.0	2.7	0 (-)	0 (-)	3,362 (62 – 97)	81 (31)	254 (35 – 92)
6/12/2015	7,650	18.2	2.2	0 (-)	0 (-)	4,206 (54 – 110)	0 (-)	91 (56 – 72)
6/13/2015	7,600	18.3	2.4	0 (-)	0 (-)	5,693 (55 – 104)	0 (-)	569 (63 – 68)
6/14/2015	7,610	18.4	2.2	0 (-)	0 (-)	3,111 (58 – 97)	0 (-)	311 (25 – 83)
6/15/2015	7,720	18.2	2.1	0 (-)	0 (-)	3,380 (55 – 110)	36 (30)	72 (62 – 66)
6/16/2015	7,690	18.1	2.4	0 (-)	0 (-)	3,827 (56 – 96)	0 (-)	87 (56 – 58)
6/17/2015	7,670	18.3	2.3	0 (-)	0 (-)	2,570 (57 – 105)	84 (52 – 53)	79 (60 – 74)
<b>Biweekly Total</b> <sup>2</sup>				<b>0</b>	<b>0</b>	<b>72,295</b>	<b>578</b>	<b>1,974</b>
<i>Biweekly Lower 90% Confidence Interval</i>				0	0	53,299	136	851
<i>Biweekly Upper 90% Confidence Interval</i>				0	0	91,291	1,020	3,097
<b>Brood Year Total</b>				<b>411,303</b>	<b>122,237</b>	<b>3,915,871</b>	<b>3,756</b>	<b>11,608</b>
<i>Brood year Lower 90% Confidence Interval</i>				242,717	80,735	2,088,967	1,246	6,375
<i>Brood year Upper 90% Confidence Interval</i>				579,889	163,739	5,742,776	6,267	16,841

<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

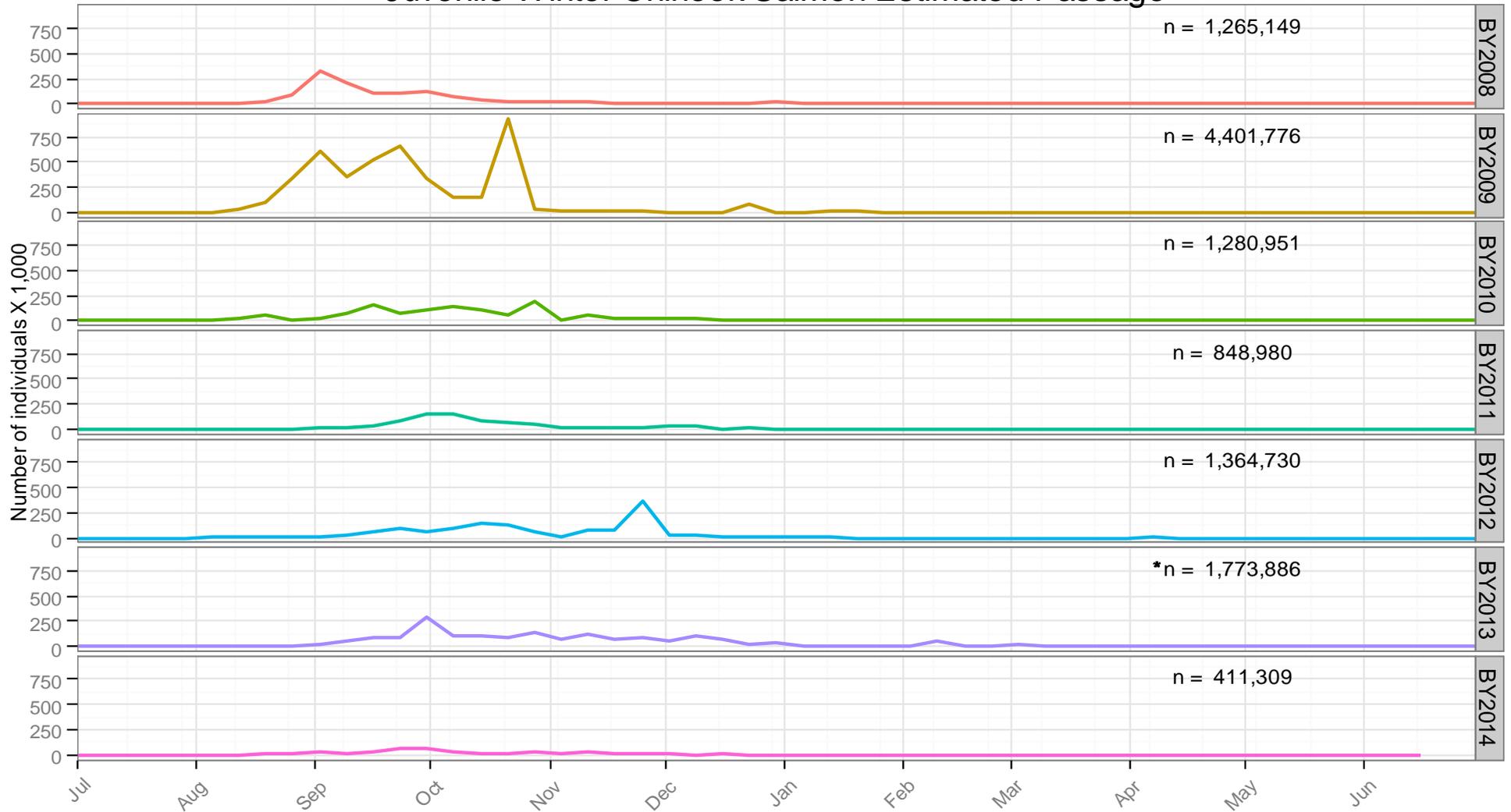


Figure 1. Weekly estimated passage of unmarked juvenile winter Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period July 1, 2008 to present .

\*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

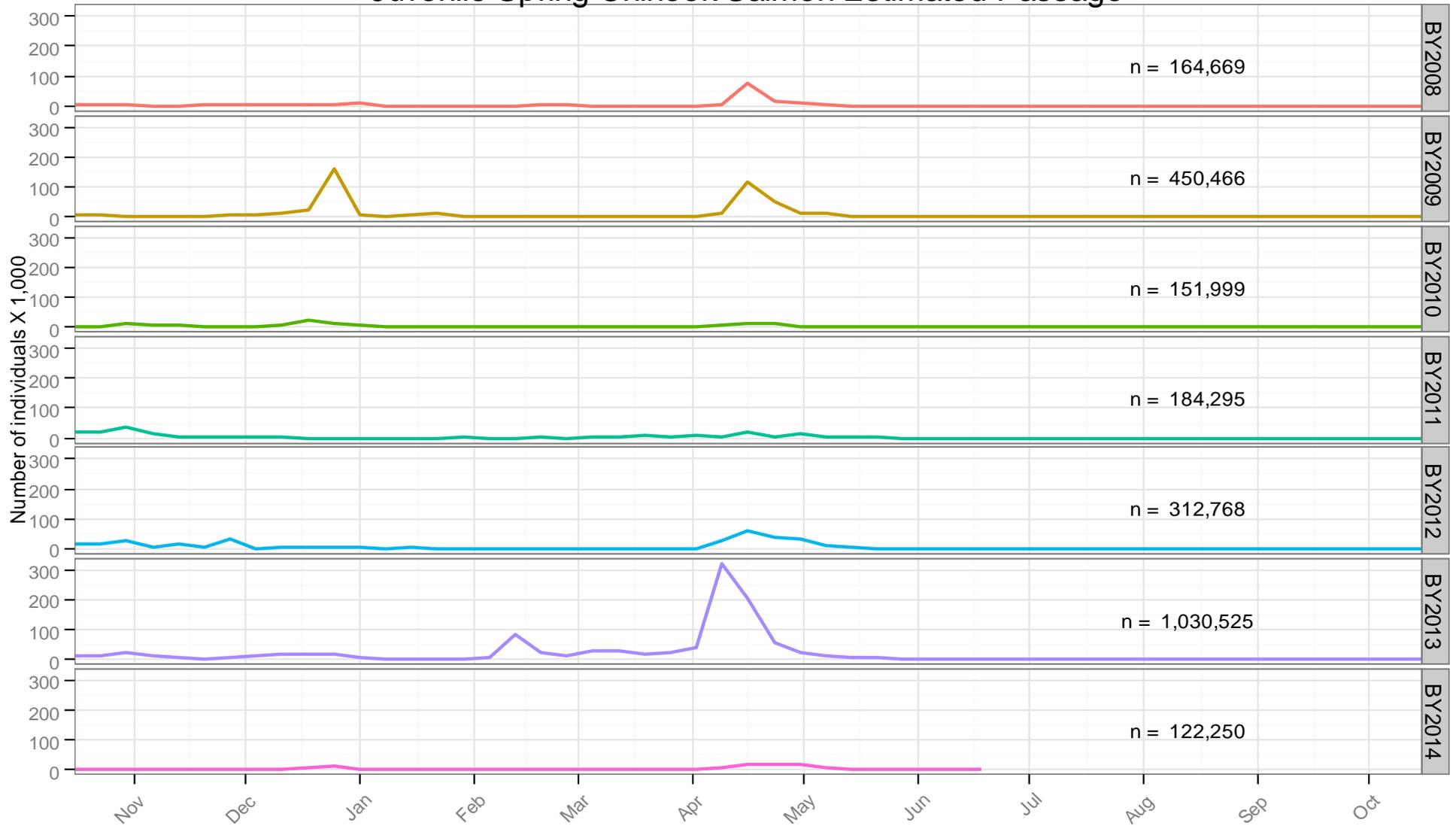


Figure 2. Weekly estimated passage of unmarked juvenile spring Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period October 16, 2008 to present .

## Juvenile *Onchorhynchus mykiss* Estimated Passage

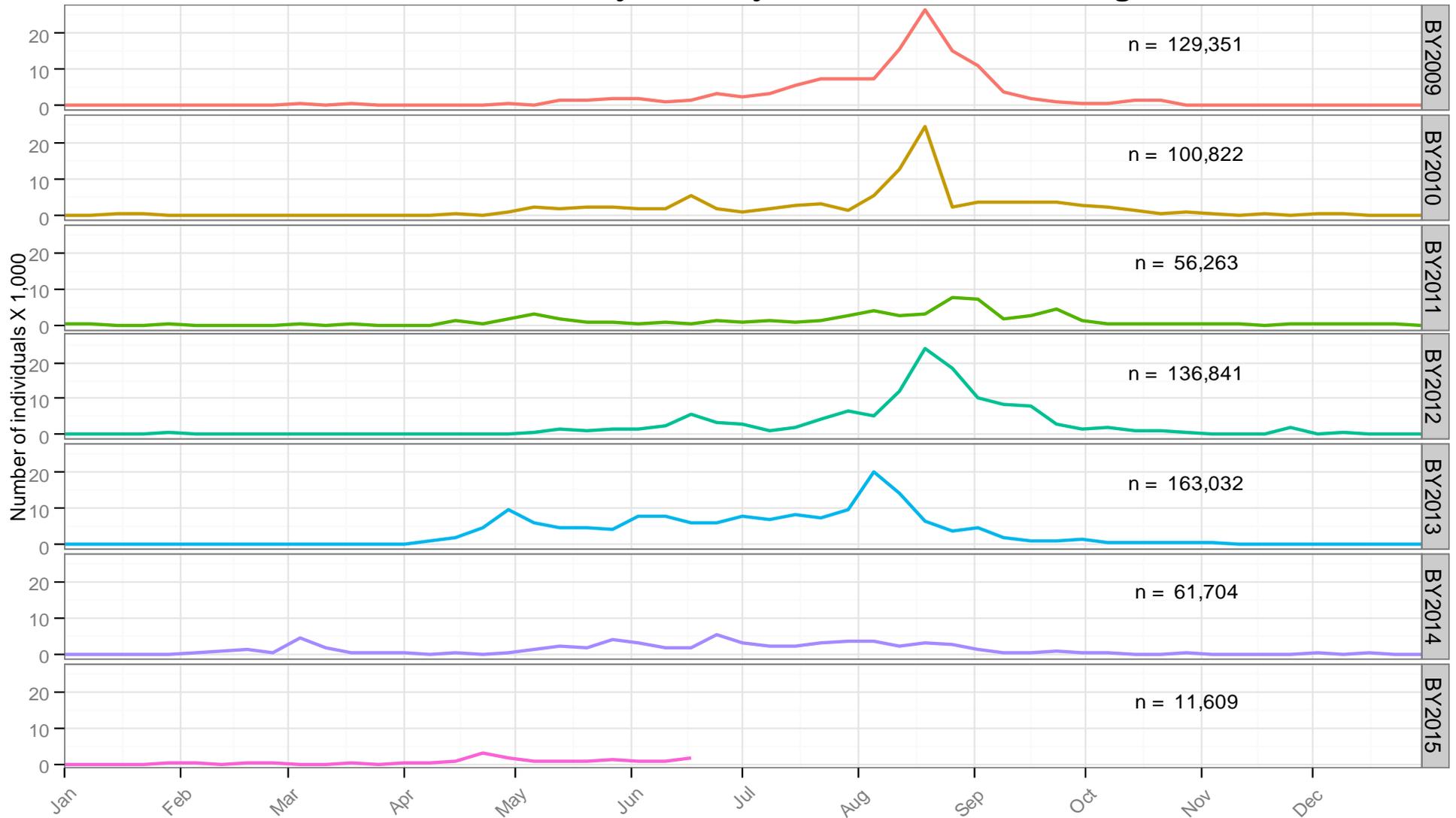


Figure 3. Weekly estimated passage of unmarked juvenile Rainbow/Steelhead trout at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period January 1, 2009 to present .

## Juvenile Fall Chinook Salmon Estimated Passage

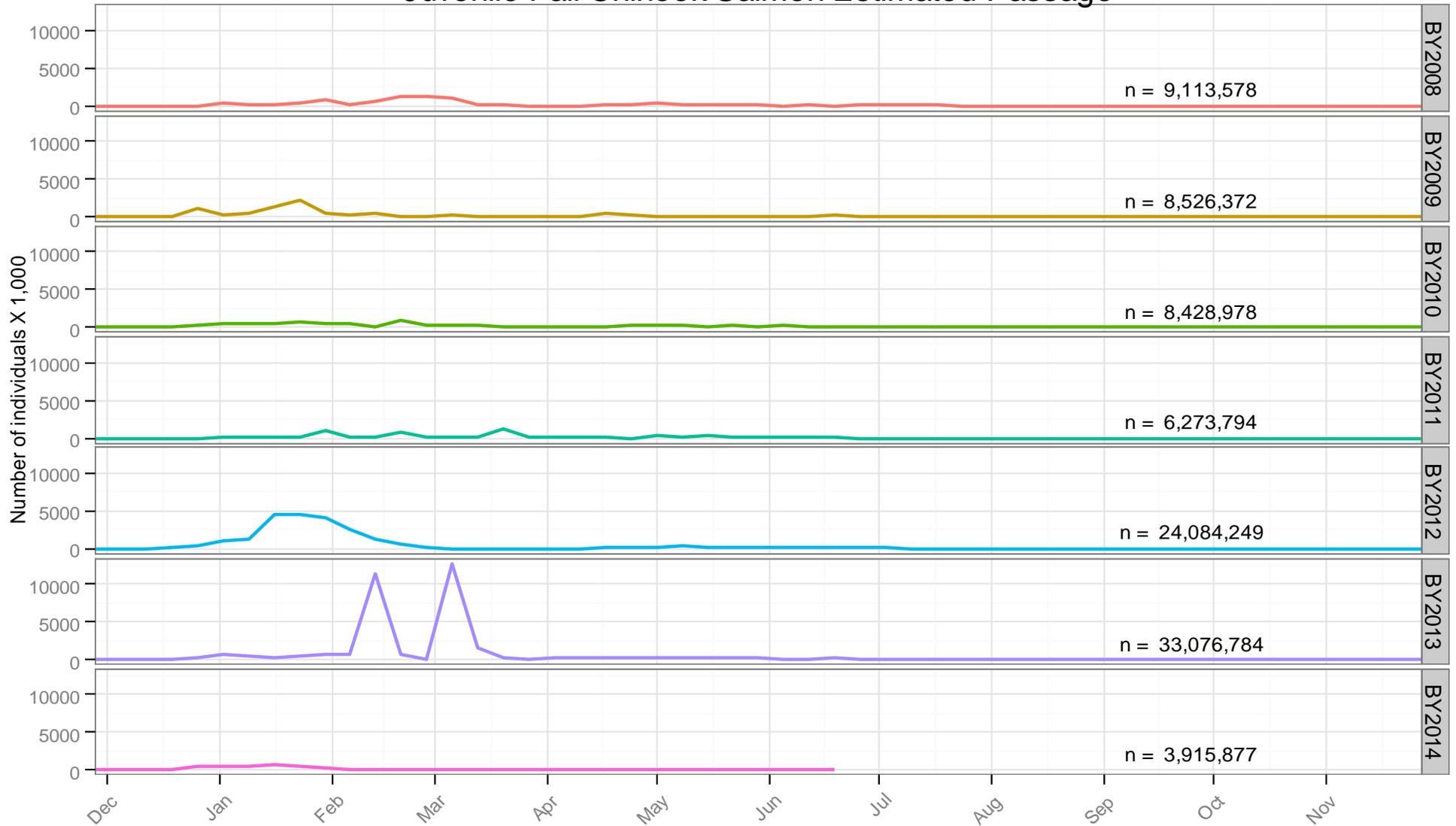


Figure 4. Weekly estimated passage of unmarked juvenile fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period December 1, 2008 to present .

## Juvenile Late Fall Chinook Salmon Estimated Passage

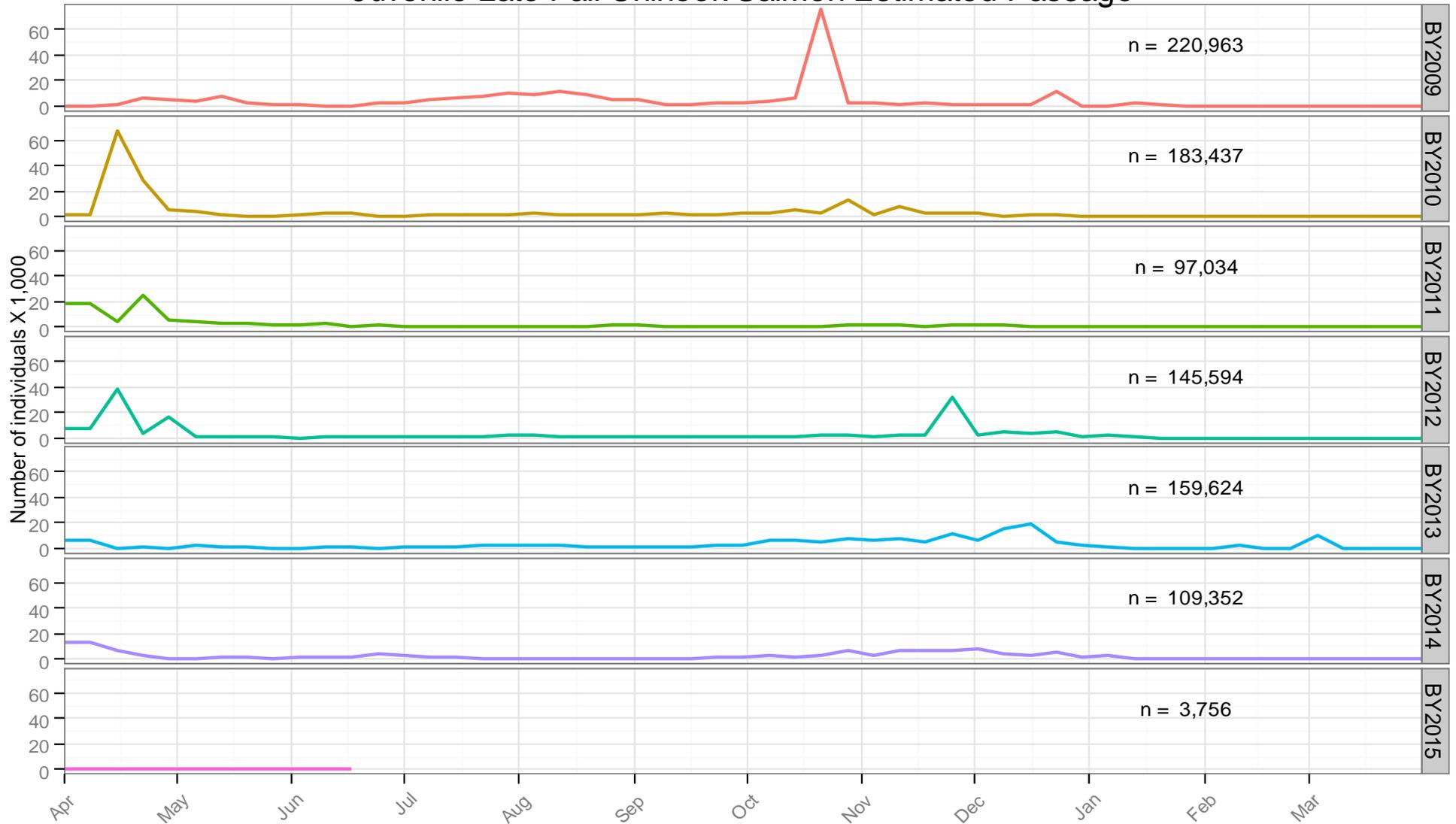


Figure 5. Weekly estimated passage of unmarked juvenile late fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period April 1, 2009 to present .

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

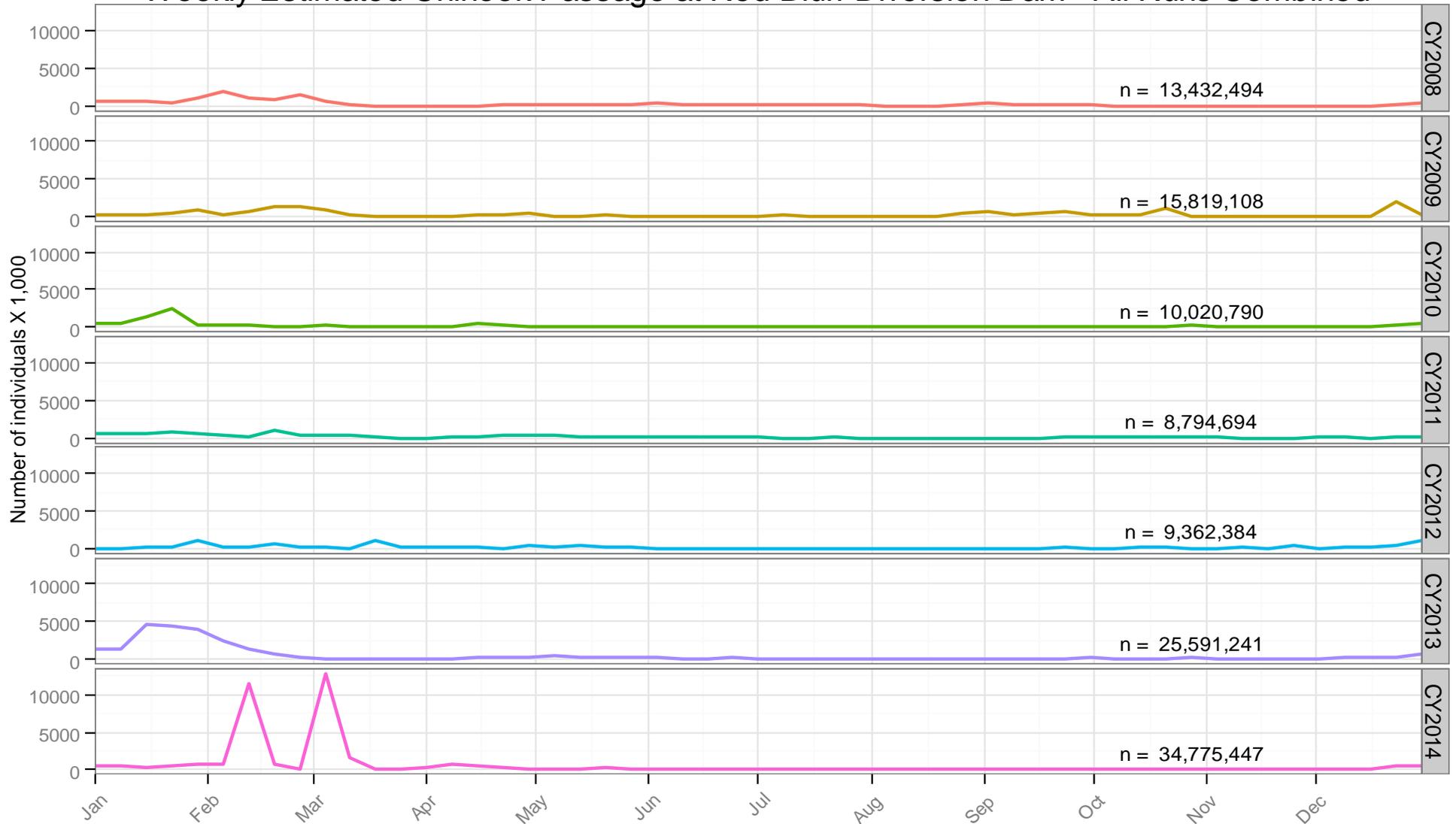


Figure 6. Weekly estimated passage of unmarked juvenile Chinook salmon at Red Bluff Diversion Dam (RK391) by calendar year. Fish were sampled using rotary-screw traps for the period January 1, 2008 to December 31, 2014