# Appendix F Juvenile Salmonid Monitoring, Sampling, and Salvage Timing Summary from SacPAS

Reinitiation of Consultation on the Coordinated Long-Term Operation of the Central Valley Project and State Water Project

#### F.1 Introduction

This appendix contains graphical summaries of juvenile salmonid monitoring, sampling, and salvage timing in the Central Valley, as produced by the Central Valley Prediction and Assessment of Salmon database (SacPAS; <a href="http://www.cbr.washington.edu/sacramento/">http://www.cbr.washington.edu/sacramento/</a>). The appendix is organized by species, monitoring location, and hatchery origin (clipped or unclipped). The maximum number of years (25) was selected in each case, giving summaries from 1993 onwards where available. Trawl and beach seine data are presented as catch indices (trawls = 10 tows/day; each seines = 8 hauls/day). Beach seine data represent stations in the vicinity of Sacramento (Verona, Elkhorn, Sand Cove, Miller Park, Sherwood Harbor, Discovery Park, American River, and Garcia Bend).

#### F.2 Winter-Run Chinook Salmon

#### F.2.1 Winter-Run Chinook Salmon: Red Bluff Diversion Dam

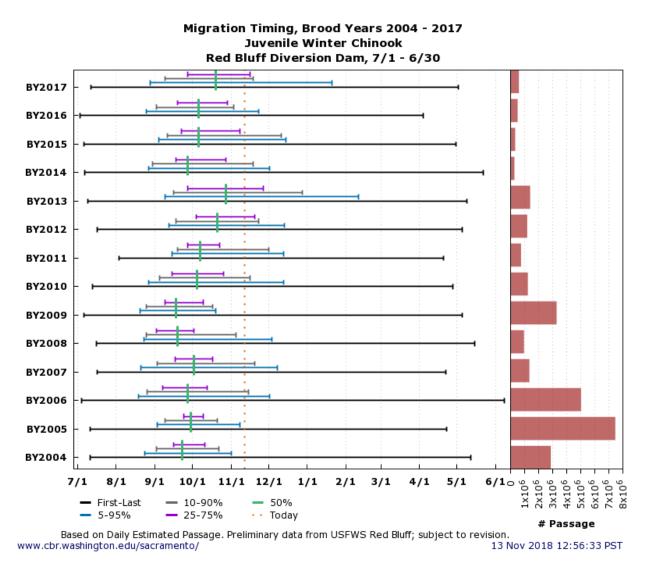


Figure WR\_RBRST. Timing and Number of Juvenile Winter-Run Chinook Salmon in Red Bluff Diversion Dam Rotary Screw Traps.

## F.2.2 Winter-Run Chinook Salmon: Tisdale Weir Rotary Screw Traps

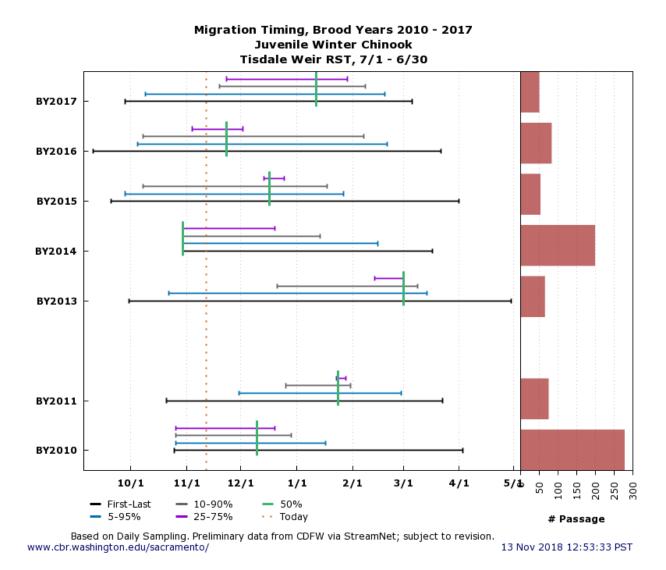


Figure WR\_TWRST. Timing and Number of Juvenile Winter-Run Chinook Salmon in Tisdale Weir Rotary Screw Traps.

#### F.2.3 Winter-Run Chinook Salmon: Knights Landing Rotary Screw Traps

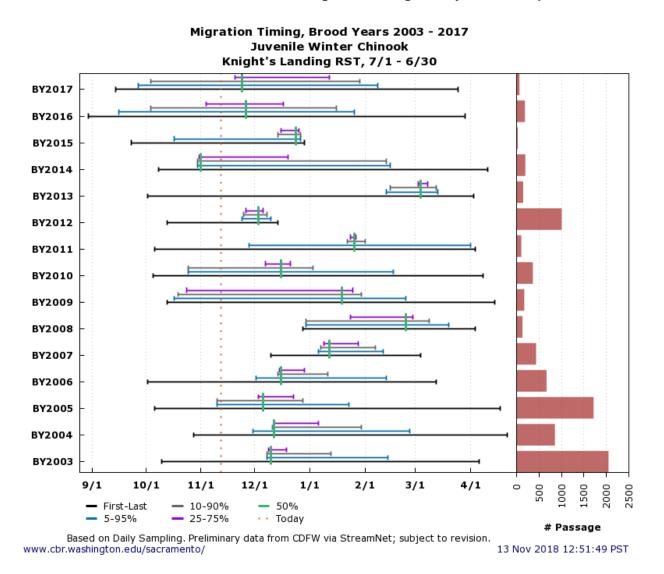


Figure WR\_KLRST. Timing and Number of Juvenile Winter-Run Chinook Salmon in Knights
Landing Rotary Screw Traps.

#### F.2.4 Winter-Run Chinook Salmon: Sacramento Beach Seines Combined

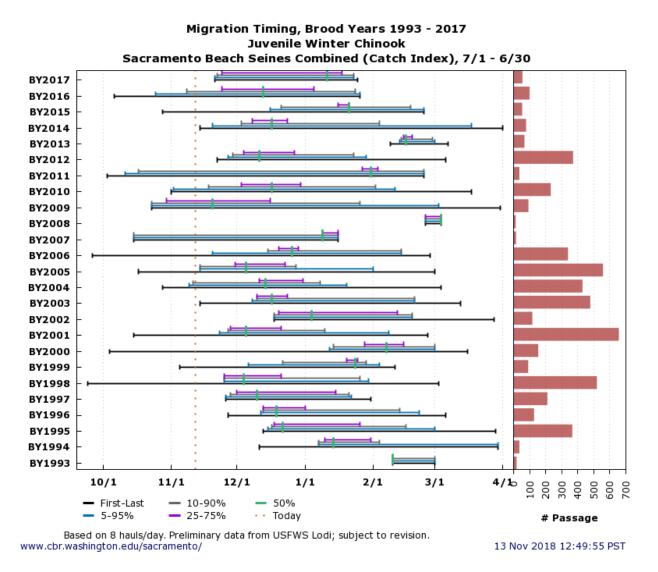


Figure WR\_Seines. Catch Index Timing and Number of Juvenile Winter-Run Chinook Salmon in Sacramento Beach Seines.

#### F.2.5 Winter-Run Chinook Salmon: Sacramento Trawls (Sherwood Harbor)

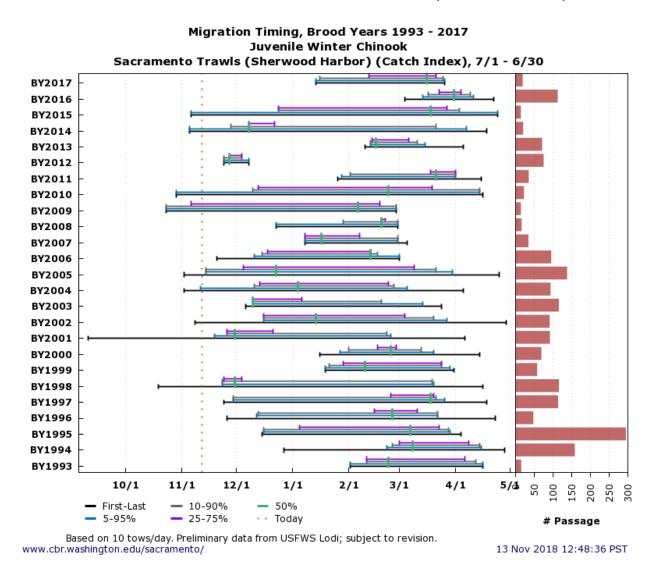


Figure WR\_Sherwood. Catch Index Timing and Number of Juvenile Winter-Run Chinook Salmon in Sacramento Trawls at Sherwood Harbor.

#### F.2.6 Winter-Run Chinook Salmon: Chipps Island Trawls

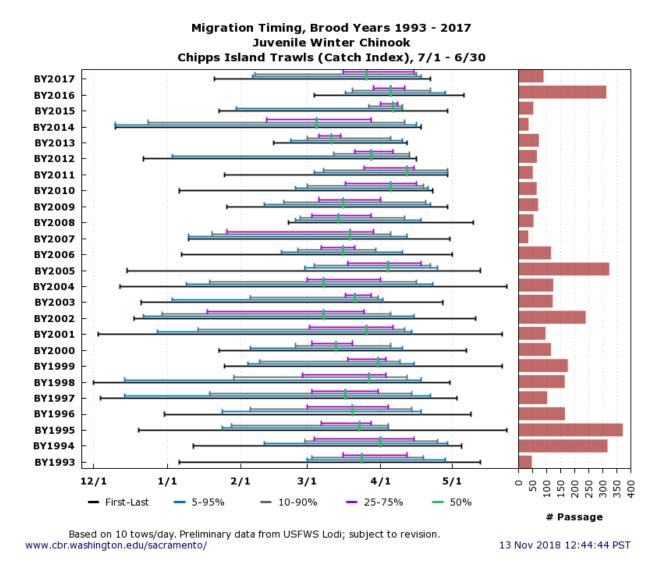
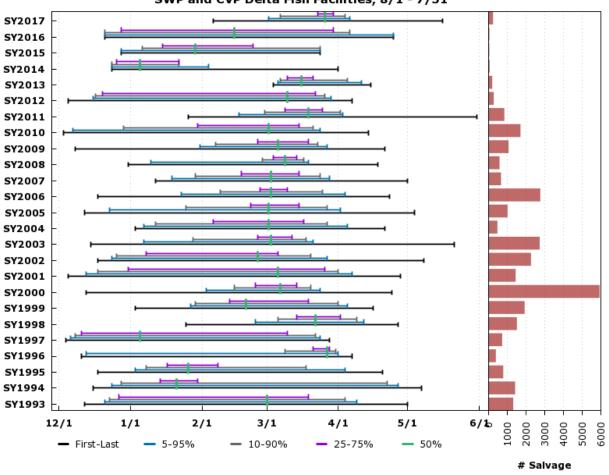


Figure WR\_Chipps. Catch Index Timing and Number of Juvenile Winter-Run Chinook Salmon in Chipps Island Trawls.

#### F.2.7 Winter-Run Chinook Salmon Salvage: Unclipped (Length-at-Date)

Salvage Timing, Start Year 1993 - 2017 Salvaged Unclipped Winter Chinook, Length-at-Date Delta Model SWP and CVP Delta Fish Facilities, 8/1 - 7/31



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Figure WR\_salvage\_unclipped\_date. Timing and Number of Unclipped Juvenile Winter-Run Chinook Salmon (Race Determined from Length at Date) at the State Water Project and Central Valley Project South Delta Fish Salvage Facilities.

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Project South Delta Fish Salvage Facilities.

#### F.2.8 Winter-Run Chinook Salmon Salvage: Clipped (Length-at-Date)

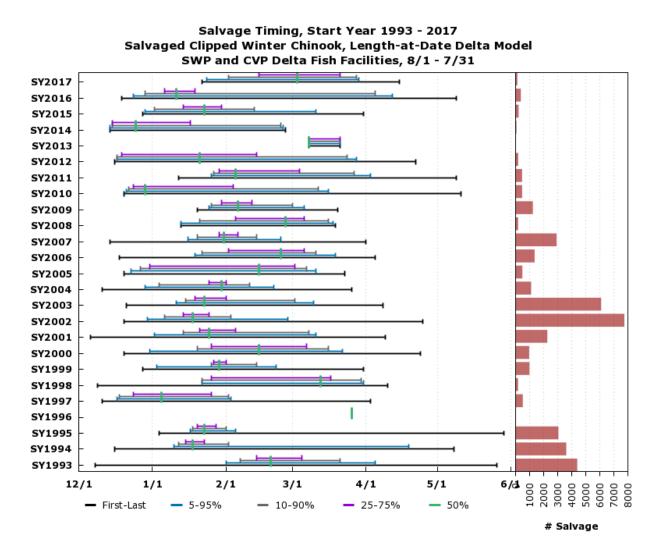
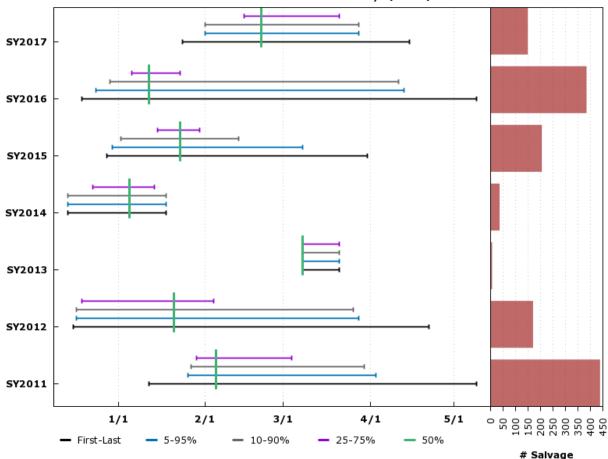


Figure WR\_salvage\_clipped\_date. Timing and Number of Clipped Juvenile Winter-Run Chinook Salmon (Race Determined from Length at Date) at the State Water Project and Central Valley

#### F.2.9 Winter-Run Chinook Salmon Salvage: Clipped (CWT-Race)





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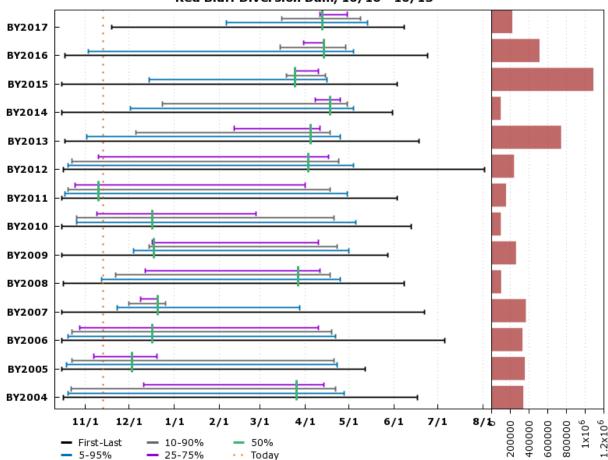
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Figure WR\_salvage\_clipped\_CWT\_race. Timing and Number of Clipped Winter-Run Juvenile Chinook Salmon (Race Determined from Coded Wire Tag) at the State Water Project and Central Valley Project South Delta Fish Salvage Facilities.

## F.3 Spring-Run Chinook Salmon

#### F.3.1 Spring-Run Chinook Salmon: Red Bluff Diversion Dam

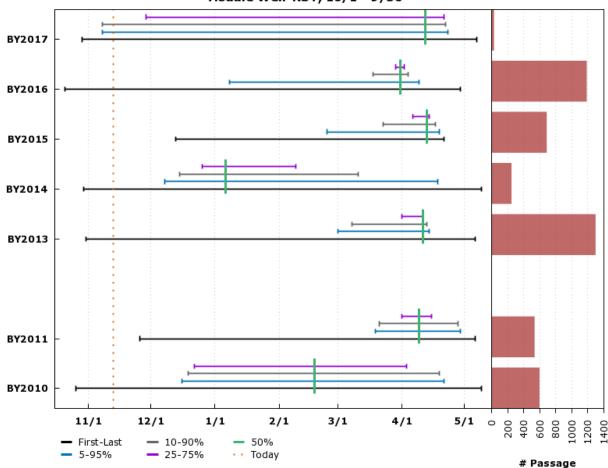




Based on Daily Estimated Passage. Preliminary data from USFWS Red Bluff; subject to revision. # Passage www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:22:09 PST

#### F.3.2 Spring-Run Chinook Salmon: Tisdale Weir Rotary Screw Traps



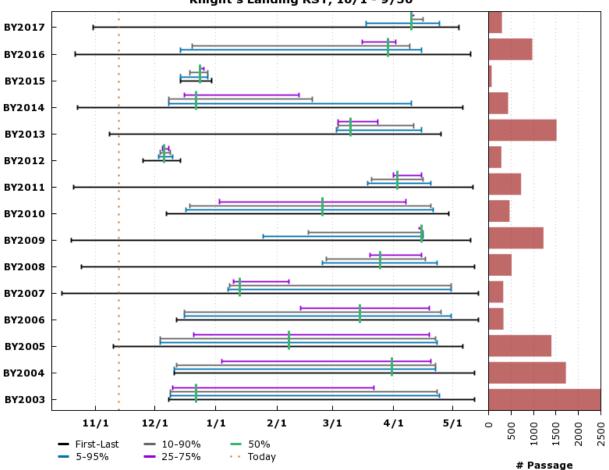


Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision. www.cbr.washington.edu/sacramento/ 14 Nov 2018

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#### F.3.3 Spring-Run Chinook Salmon: Knights Landing Rotary Screw Traps



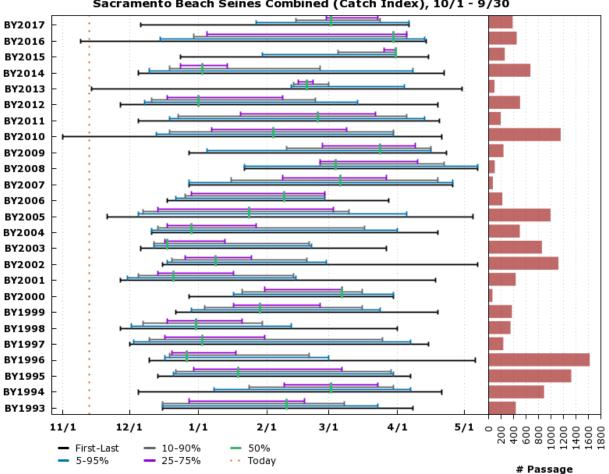


Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.3.4 Spring-Run Chinook Salmon: Sacramento Beach Seines Combined



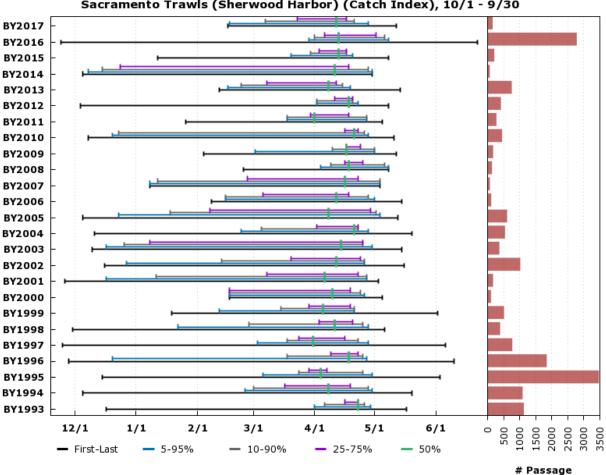


Based on 8 hauls/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.3.5 Spring-Run Chinook Salmon: Sacramento Trawls (Sherwood Harbor)

Migration Timing, Brood Years 1993 - 2017
Juvenile Spring Chinook
Sacramento Trawls (Sherwood Harbor) (Catch Index), 10/1 - 9/30

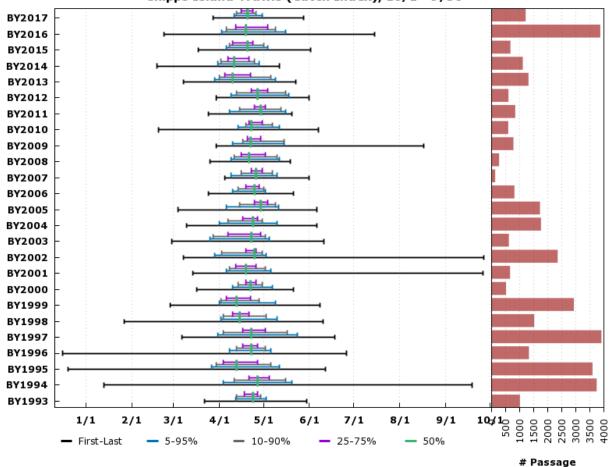


Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.3.6 Spring-Run Chinook Salmon: Chipps Island Trawls

Migration Timing, Brood Years 1993 - 2017 Juvenile Spring Chinook Chipps Island Trawls (Catch Index), 10/1 - 9/30

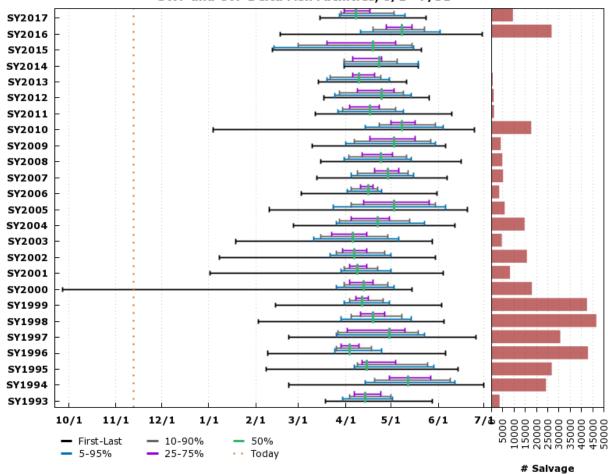


Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

14 Nov 2018 09:28:18 PST

#### F.3.7 Spring-Run Chinook Salmon Salvage: Unclipped (Length-at-Date)

Salvage Timing, Start Year 1993 - 2017 Salvaged Unclipped Spring Chinook, Length-at-Date Delta Model SWP and CVP Delta Fish Facilities, 8/1 - 7/31

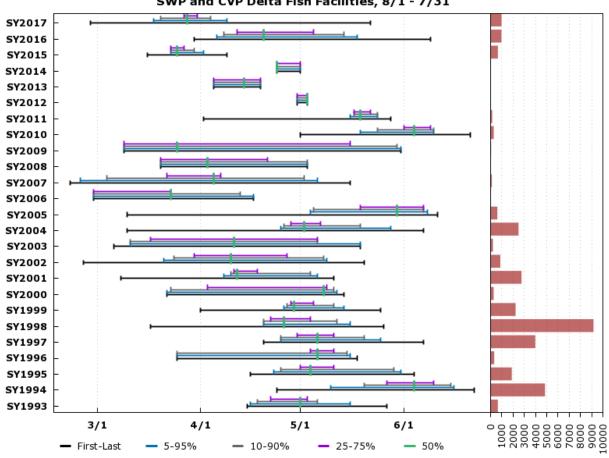


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#### F.3.8 Spring-Run Chinook Salmon Salvage: Clipped (Length-at-Date)

Salvage Timing, Start Year 1993 - 2017 Salvaged Clipped Spring Chinook, Length-at-Date Delta Model SWP and CVP Delta Fish Facilities, 8/1 - 7/31



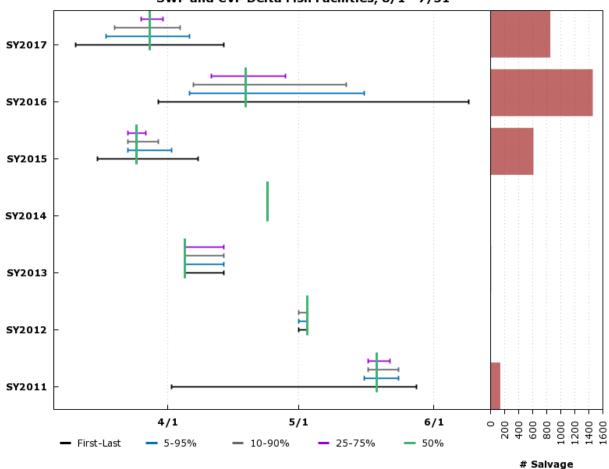
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# Salvage

#### F.3.9 Spring-Run Chinook Salmon Salvage: Clipped (CWT-Race)

Salvage Timing, Start Year 2011 - 2017 Salvaged Clipped Spring Chinook, CWT-race SWP and CVP Delta Fish Facilities, 8/1 - 7/31



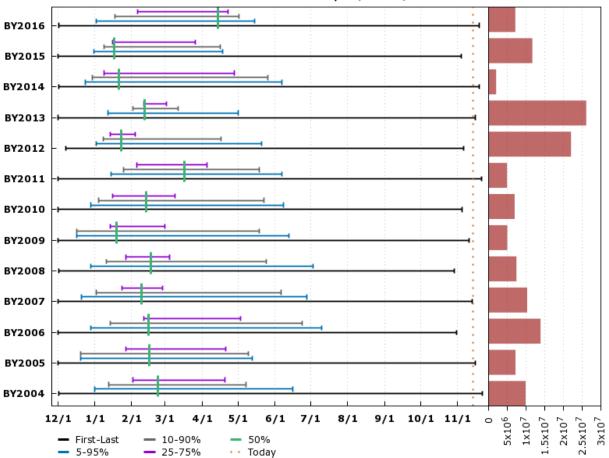
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## F.4 Fall-Run Chinook Salmon

#### F.4.1 Fall-Run Chinook Salmon: Red Bluff Diversion Dam

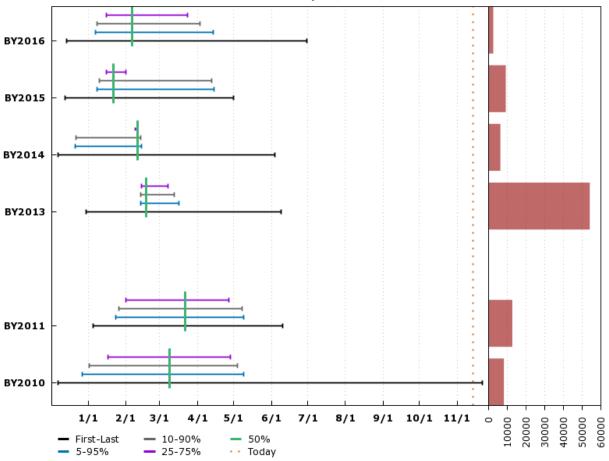
Migration Timing, Brood Years 2004 - 2016 Juvenile Fall Chinook Red Bluff Diversion Dam, 12/1 - 11/30



Based on Daily Estimated Passage. Preliminary data from USFWS Red Bluff; subject to revision. # Passage www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:32:49 PST

#### Fall-Run Chinook Salmon: Tisdale Weir Rotary Screw Traps F.4.2

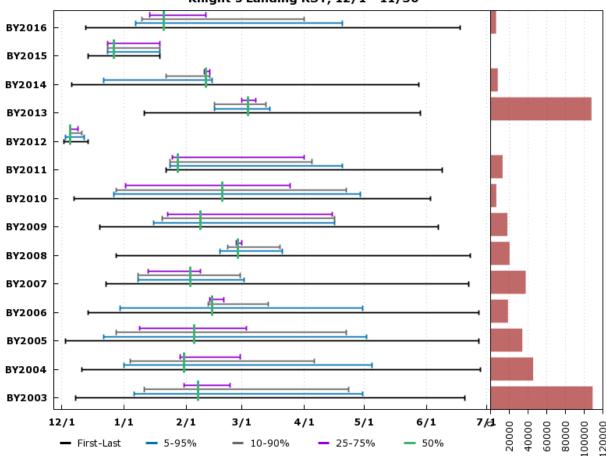




# Passage Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision. www.cbr.washington.edu/sacramento/

#### F.4.3 Fall-Run Chinook Salmon: Knights Landing Rotary Screw Traps

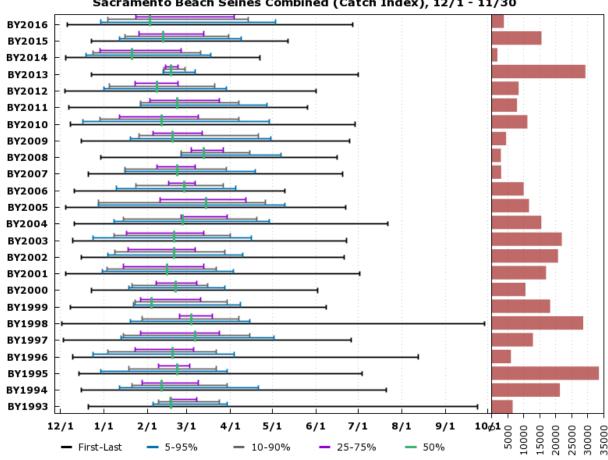




Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision. # Passage www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:34:42 PST

#### F.4.4 Fall-Run Chinook Salmon: Sacramento Beach Seines Combined

Migration Timing, Brood Years 1993 - 2016 Juvenile Fall Chinook Sacramento Beach Seines Combined (Catch Index), 12/1 - 11/30



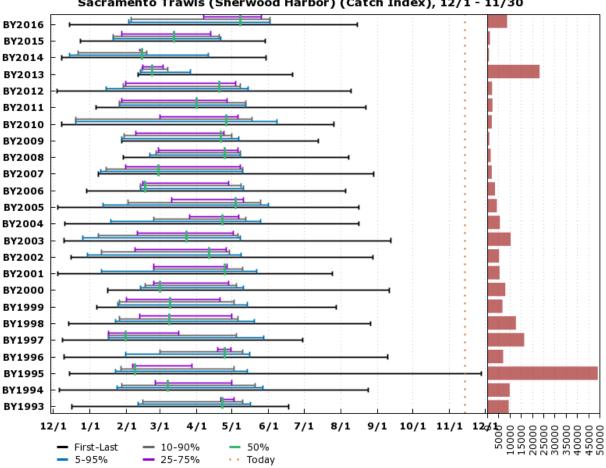
Based on 8 hauls/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.4.5 Fall-Run Chinook Salmon: Sacramento Trawls (Sherwood Harbor)





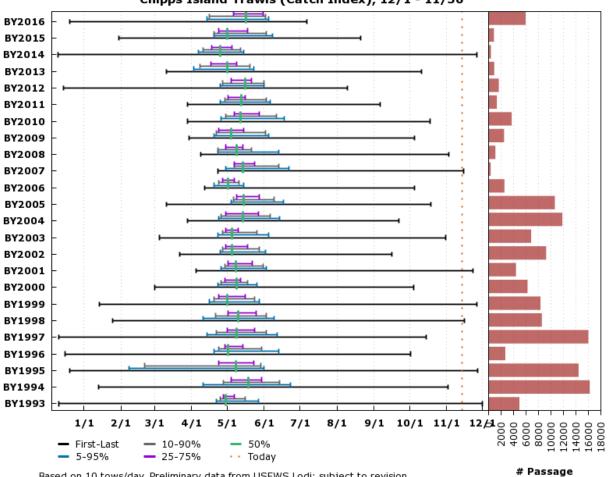
Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

14 Nov 2018 09:35:40 PST

# Passage

#### F.4.6 Fall-Run Chinook Salmon: Chipps Island Trawls



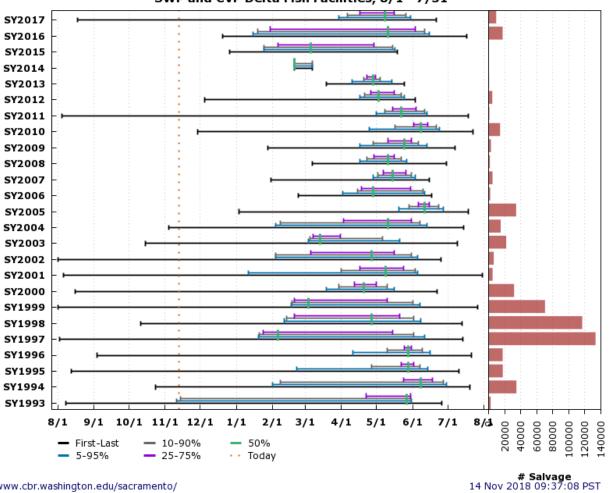


Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

14 Nov 2018 09:36:12 PST

#### F.4.7 Fall-Run Chinook Salmon Salvage: Unclipped (Length-at-Date)

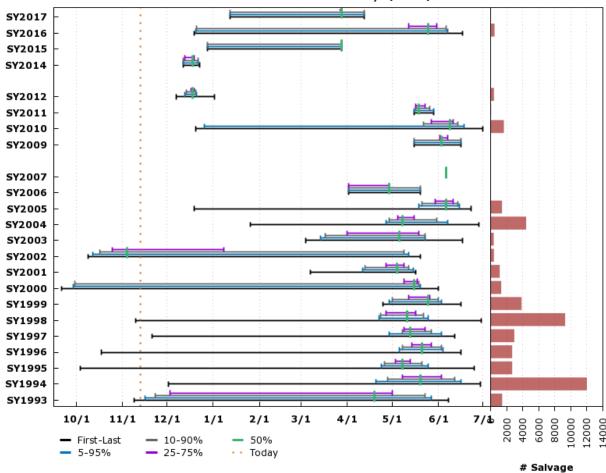
Salvage Timing, Start Year 1993 - 2017 Salvaged Unclipped Fall Chinook, Length-at-Date Delta Model SWP and CVP Delta Fish Facilities, 8/1 - 7/31



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#### F.4.8 Fall-Run Chinook Salmon Salvage: Clipped (Length-at-Date)

Salvage Timing, Start Year 1993 - 2017 Salvaged Clipped Fall Chinook, Length-at-Date Delta Model SWP and CVP Delta Fish Facilities, 8/1 - 7/31

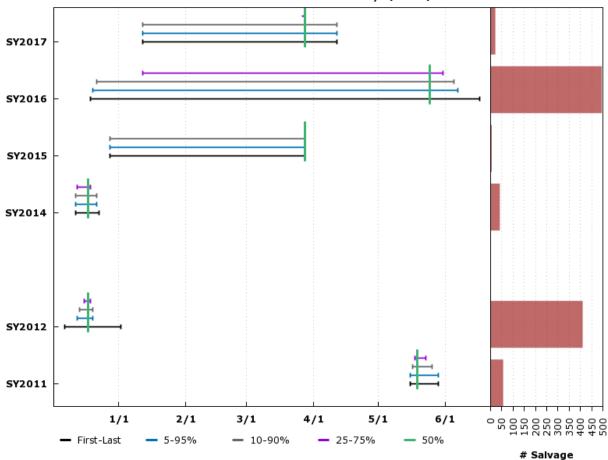


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#### F.4.9 Fall-Run Chinook Salmon Salvage: Clipped (CWT-Race)

Salvage Timing, Start Year 2011 - 2017 Salvaged Clipped Fall Chinook, CWT-race SWP and CVP Delta Fish Facilities, 8/1 - 7/31



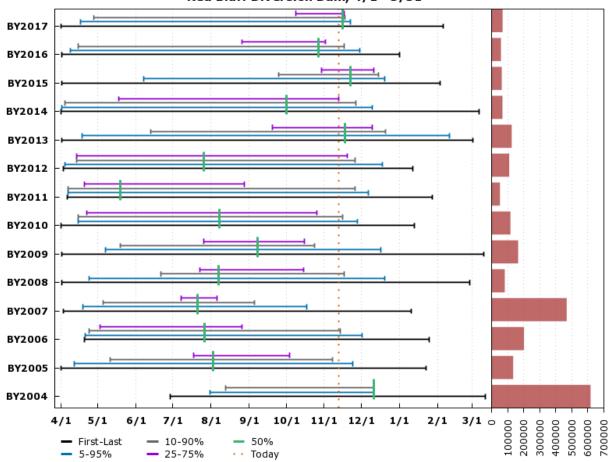
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## F.5 Late Fall-Run Chinook Salmon

#### F.5.1 Late Fall-Run Chinook Salmon: Red Bluff Diversion Dam

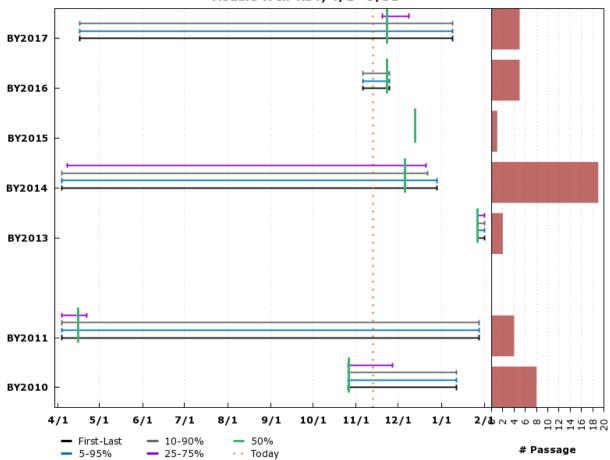




Based on Daily Estimated Passage. Preliminary data from USFWS Red Bluff; subject to revision. # Passage www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:39:55 PST

#### F.5.2 Late Fall-Run Chinook Salmon: Tisdale Weir Rotary Screw Traps

Migration Timing, Brood Years 2010 - 2017 Juvenile LateFall Chinook Tisdale Weir RST, 4/1 - 3/31

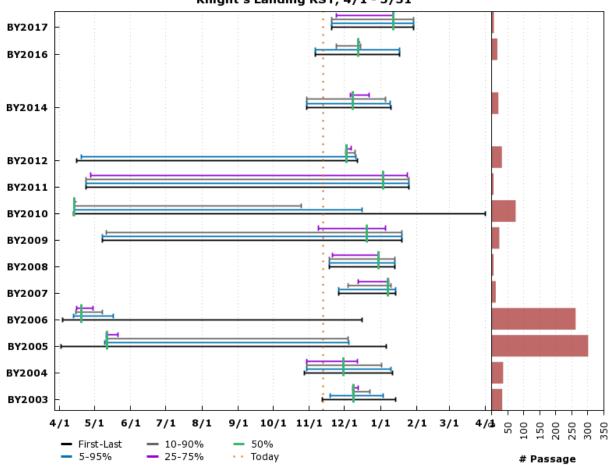


Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.5.3 Late Fall-Run Chinook Salmon: Knights Landing Rotary Screw Traps



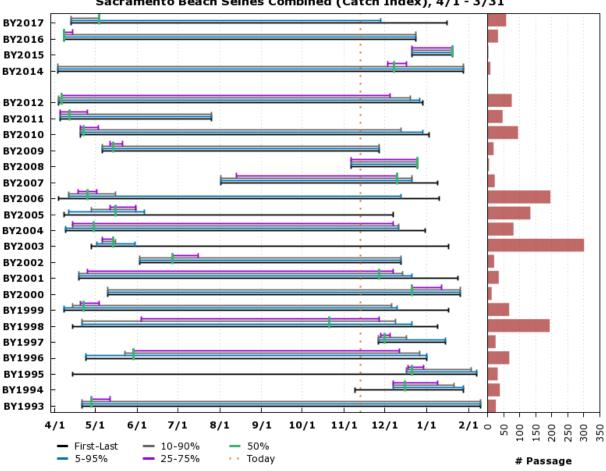


Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision. www.cbr.washington.edu/sacramento/

14 Nov 2018 09:40:58 PST

#### F.5.4 Late Fall-Run Chinook Salmon: Sacramento Beach Seines Combined

Migration Timing, Brood Years 1993 - 2017
Juvenile LateFall Chinook
Sacramento Beach Seines Combined (Catch Index), 4/1 - 3/31

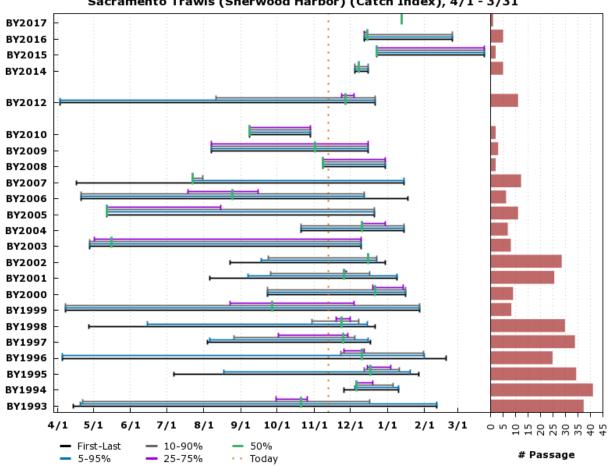


Based on 8 hauls/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.5.5 Late Fall-Run Chinook Salmon: Sacramento Trawls (Sherwood Harbor)

Migration Timing, Brood Years 1993 - 2017 Juvenile LateFall Chinook Sacramento Trawls (Sherwood Harbor) (Catch Index), 4/1 - 3/31

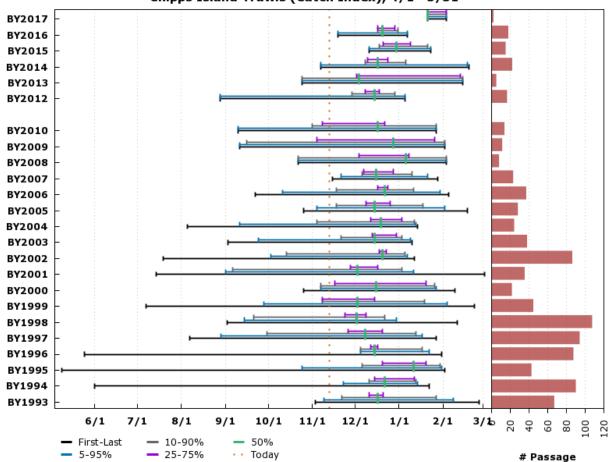


Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.5.6 Late Fall-Run Chinook Salmon: Chipps Island Trawls

Migration Timing, Brood Years 1993 - 2017 Juvenile LateFall Chinook Chipps Island Trawls (Catch Index), 4/1 - 3/31

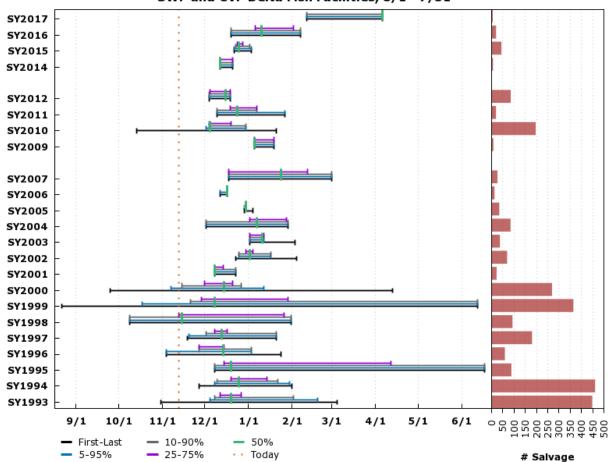


Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

14 Nov 2018 09:42:58 PST

#### F.5.7 Late Fall-Run Chinook Salmon Salvage: Unclipped (Length-at-Date)

Salvage Timing, Start Year 1993 - 2017 Salvaged Unclipped LateFall Chinook, Length-at-Date Delta Model SWP and CVP Delta Fish Facilities, 8/1 - 7/31

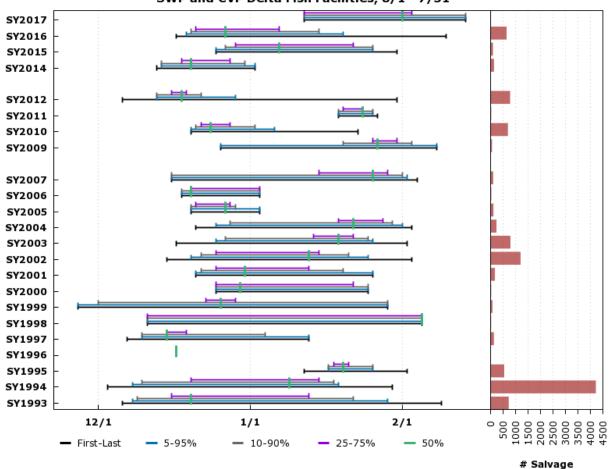


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#### F.5.8 Late Fall-Run Chinook Salmon Salvage: Clipped (Length-at-Date)

Salvage Timing, Start Year 1993 - 2017 Salvaged Clipped LateFall Chinook, Length-at-Date Delta Model SWP and CVP Delta Fish Facilities, 8/1 - 7/31

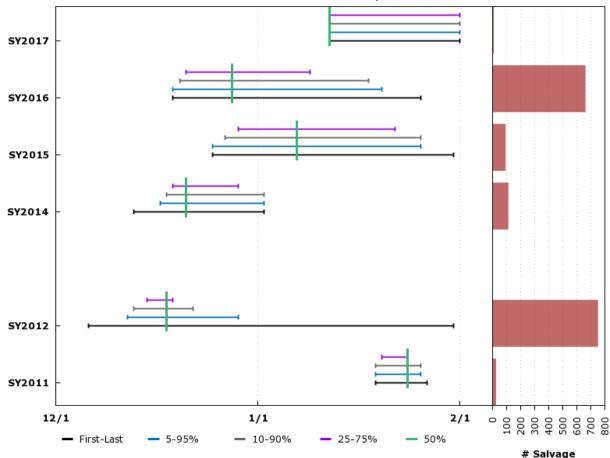


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#### F.5.9 Late Fall-Run Chinook Salmon Salvage: Clipped (CWT-Race)

Salvage Timing, Start Year 2011 - 2017 Salvaged Clipped LateFall Chinook, CWT-race SWP and CVP Delta Fish Facilities, 8/1 - 7/31

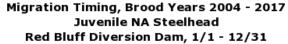


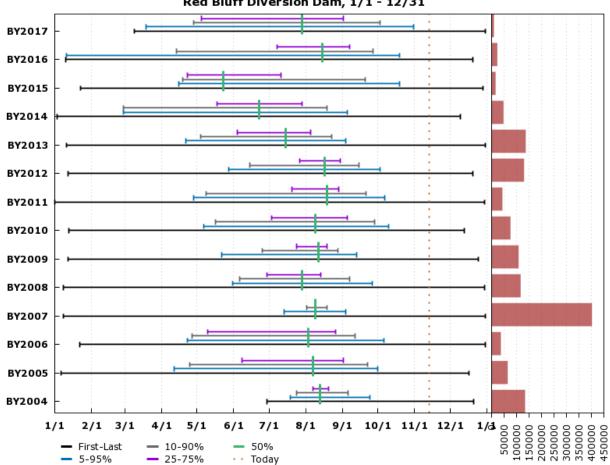
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## F.6 Steelhead

#### F.6.1 Steelhead: Red Bluff Diversion Dam

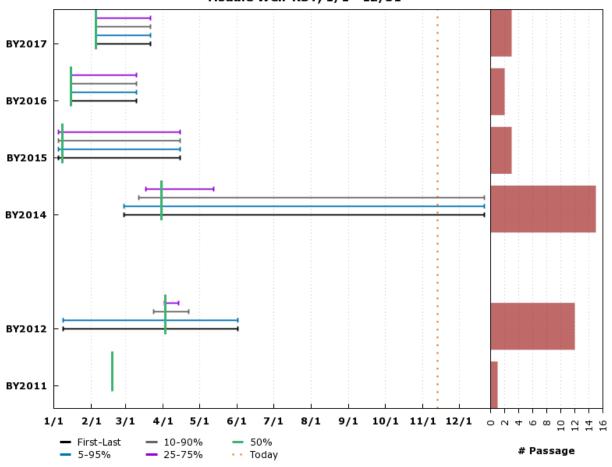




Based on Daily Estimated Passage. Preliminary data from USFWS Red Bluff; subject to revision. # Passage www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:45:42 PST

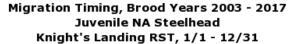
#### F.6.2 Steelhead: Tisdale Weir Rotary Screw Traps

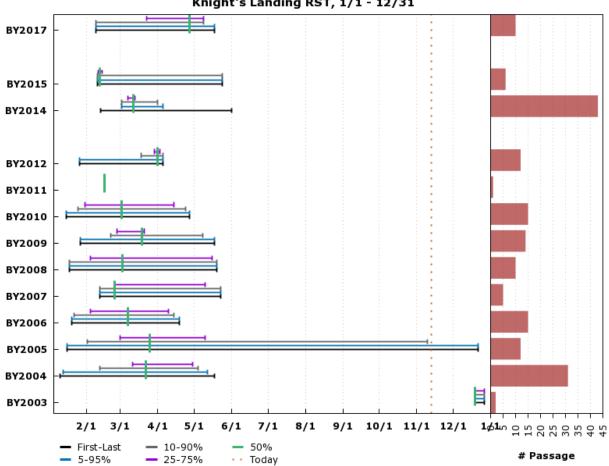
Migration Timing, Brood Years 2011 - 2017 Juvenile NA Steelhead Tisdale Weir RST, 1/1 - 12/31



Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision. www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:46:20 PST

#### F.6.3 Steelhead: Knights Landing Rotary Screw Traps

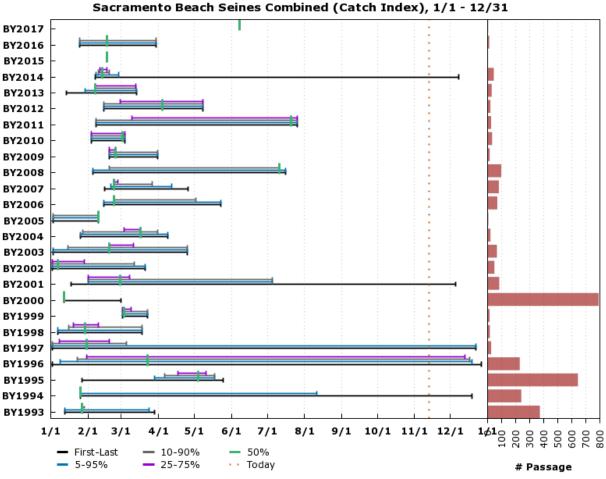




Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision. www.cbr.washington.edu/sacramento/ 14 Nov 2018

#### F.6.4 Steelhead: Sacramento Beach Seines Combined

Migration Timing, Brood Years 1993 - 2017
Juvenile NA Steelhead
Sacramento Beach Seines Combined (Catch Index), 1/1

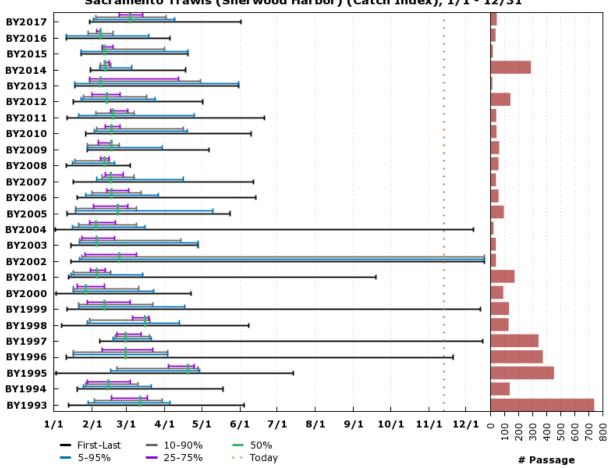


Based on 8 hauls/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

14 Nov 2018 09:47:18 PST

#### F.6.5 Steelhead: Sacramento Trawls (Sherwood Harbor)

Migration Timing, Brood Years 1993 - 2017
Juvenile NA Steelhead
Sacramento Trawls (Sherwood Harbor) (Catch Index), 1/1 - 12/31

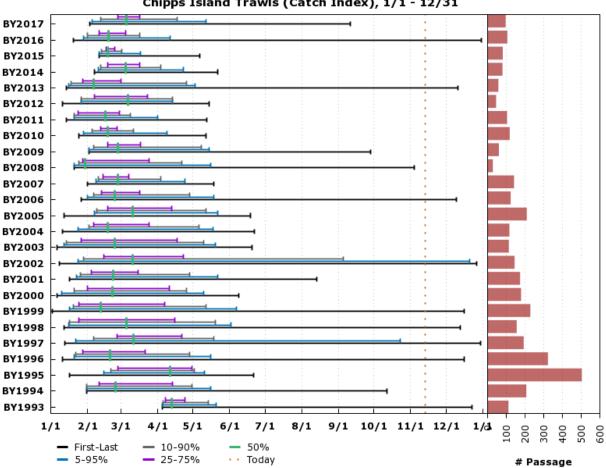


Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.6.6 Steelhead: Chipps Island Trawls

Migration Timing, Brood Years 1993 - 2017 Juvenile NA Steelhead Chipps Island Trawls (Catch Index), 1/1 - 12/31

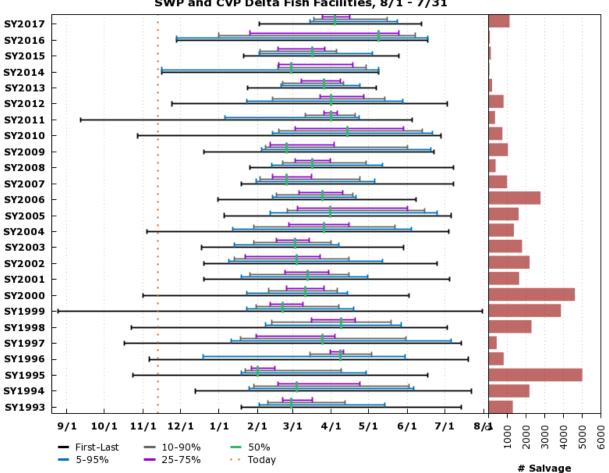


Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision. www.cbr.washington.edu/sacramento/

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#### F.6.7 Steelhead Salvage: Unclipped

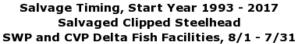
Salvage Timing, Start Year 1993 - 2017 Salvaged Unclipped Steelhead SWP and CVP Delta Fish Facilities, 8/1 - 7/31

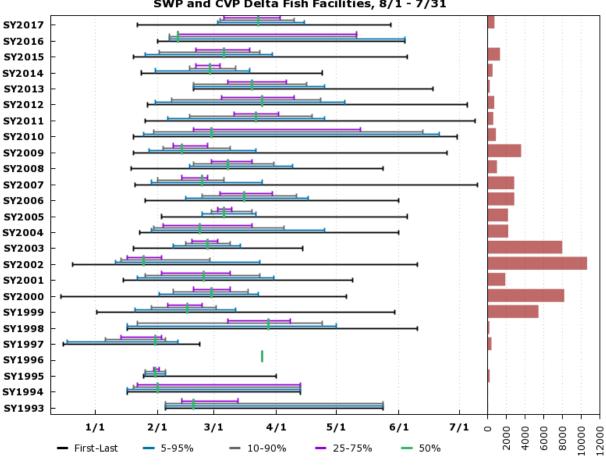


www.cbr.washington.edu/sacramento/

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#### F.6.8 Steelhead Salvage: Clipped





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14 Nov 2018 09:50:26 PST

# Salvage