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; http://www.cbr.washington.edu/sacramento/). 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

Migration Timing, Brood Years 2004 - 2017
Juvenile Winter Chinook
Red Bluff Diversion Dam, 7/1 - 6/30

Based on Daily Estimated Passage. Preliminary data from USFWS Red Bluff; subject to revision.

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

Migration Timing, Brood Years 2010 - 2017
Juvenile Winter Chinook
Tisdale Weir RST, 7/1 - 6/30

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

Migration Timing, Brood Years 1993 - 2017
Juvenile Winter Chinook
Sacramento Beach Seines Combined (Catch Index), 7/1 - 6/30

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

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)

Migration Timing, Brood Years 1993 - 2017
Juvenile Winter Chinook
Sacramento Trawls (Sherwood Harbor) (Catch Index), 7/1 - 6/30

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

Migration Timing, Brood Years 1993 - 2017
Juvenile Winter Chinook
Chipps Island Trawls (Catch Index), 7/1 - 6/30

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

Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision.

13 Nov 2018 12:44:44 PST
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.
F.2.8 Winter-Run Chinook Salmon Salvage: Clipped (Length-at-Date)

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

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 Project South Delta Fish Salvage Facilities.
F.2.9 Winter-Run Chinook Salmon Salvage: Clipped (CWT-Race)

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

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

Migration Timing, Brood Years 2004 - 2017
Juvenile Spring Chinook
Red Bluff Diversion Dam, 10/16 - 10/15

Based on Daily Estimated Passage. Preliminary data from USFWS Red Bluff; subject to revision.
www.cbr.washington.edu/sacramento/
14 Nov 2018 09:22:09 PST
F.3.2 Spring-Run Chinook Salmon: Tisdale Weir Rotary Screw Traps

Migration Timing, Brood Years 2010 - 2017
Juvenile Spring Chinook
Tisdale Weir RST, 10/1 - 9/30

Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision.
www.cbr.washington.edu/sacramento/
F.3.3 Spring-Run Chinook Salmon: Knights Landing Rotary Screw Traps

Migration Timing, Brood Years 2003 - 2017
Juvenile Spring Chinook
Knight's Landing RST, 10/1 - 9/30

Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision.
www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:24:00 PST
F.3.4 Spring-Run Chinook Salmon: Sacramento Beach Seines Combined
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/

14 Nov 2018 09:27:38 PST
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.

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14 Nov 2018 09:28:18 PST
F.3.7 Spring-Run Chinook Salmon Salvage: Unclipped (Length-at-Date)
F.3.8 Spring-Run Chinook Salmon Salvage: Clipped (Length-at-Date)
F.3.9  Spring-Run Chinook Salmon Salvage: Clipped (CWT-Race)
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

- First-Last
- 10-90%
- 50%
- 5-95%
- 25-75%
- Today

Based on Daily Estimated Passage, Preliminary data from USFWS Red Bluff; subject to revision.
www.cbr.washington.edu/sacramento/
14 Nov 2018 09:32:49 PST
F.4.2 Fall-Run Chinook Salmon: Tisdale Weir Rotary Screw Traps

Migration Timing, Brood Years 2010 - 2016
Juvenile Fall Chinook
Tisdale Weir RST, 12/1 - 11/30

Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision.

www.cbfwashington.edu/sacramento/

14 Nov 2018 09:34:13 PST
F.4.3  Fall-Run Chinook Salmon: Knights Landing Rotary Screw Traps

**Migration Timing, Brood Years 2003 - 2016**

**Juvenile Fall Chinook**

**Knight’s Landing RST, 12/1 - 11/30**

Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision.

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# Passage

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/

14 Nov 2018 09:35:10 PST
F.4.5 Fall-Run Chinook Salmon: Sacramento Trawls (Sherwood Harbor)

Migration Timing, Brood Years 1993 - 2016
Juvenile Fall Chinook
Sacramento Trawls (Sherwood Harbor) (Catch Index), 12/1 - 11/30

First-Last  10-90%  50%
5-95%  25-75%  Today

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

Migration Timing, Brood Years 1993 - 2016
Juvenile Fall Chinook
Chipps Island Trawls (Catch Index), 12/1 - 11/30

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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14 Nov 2018 09:37:08 PST
F.4.8  Fall-Run Chinook Salmon Salvage: Clipped (Length-at-Date)
F.4.9 Fall-Run Chinook Salmon Salvage: Clipped (CWT-Race)
F.5 Late Fall-Run Chinook Salmon

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

Migration Timing, Brood Years 2004 - 2017
Juvenile Late Fall Chinook
Red Bluff Diversion Dam, 4/1 - 3/31

Based on Daily Estimated Passage. Preliminary data from USFWS Red Bluff; subject to revision.
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 Late Fall Chinook
Tisdale Weir RST, 4/1 - 3/31

Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision.

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

Migration Timing, Brood Years 2003 - 2017
Juvenile Late Fall Chinook
Knight’s Landing RST, 4/1 - 3/31

Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision.

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14 Nov 2018 09:40:58 PST
F.5.4 Late Fall-Run Chinook Salmon: Sacramento Beach Seines Combined
Late Fall-Run Chinook Salmon: Sacramento Trawls (Sherwood Harbor)
F.5.6 Late Fall-Run Chinook Salmon: Chipps Island Trawls

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

Based on 10 tows/day. Preliminary data from USFWS Lodi; subject to revision.
F.5.7 Late Fall-Run Chinook Salmon Salvage: Unclipped (Length-at-Date)
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

# Salvage

www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:44:20 PST
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

SY2017 -
SY2016 -
SY2015 -
SY2014 -
SY2012 -
SY2011 -

12/1 1/1 2/1

# Salvage

0 100 200 300 400 500 600 700 800

- First-Last  5-95%  10-90%  25-75%  50%

www.cbr.washington.edu/sacramento/

14 Nov 2018 09:45:03 PST
F.6 Steelhead

F.6.1 Steelhead: Red Bluff Diversion Dam

Migration Timing, Brood Years 2004 - 2017
Juvenile NA Steelhead
Red Bluff Diversion Dam, 1/1 - 12/31

Based on Daily Estimated Passage. Preliminary data from USFWS Red Bluff; subject to revision.
www.cbr.washington.edu/sacramento/
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

Migration Timing, Brood Years 2003 - 2017
Juvenile NA Steelhead
Knight's Landing RST, 1/1 - 12/31

Based on Daily Sampling. Preliminary data from CDFW via StreamNet; subject to revision.
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 - 12/31

- First-Last
- 10-90%
- 50%
- 5-95%
- 25-75%
- Today

Based on 8 haunts/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/ 14 Nov 2018 09:48:02 PST
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/
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

- First-Last
- 10-90%
- 5-95%
- 25-75%
- 50%
- Today

# Salvage

www.cbr.washington.edu/sacramento/ 14 Nov 2018 09:49:40 PST
F.6.8 Steelhead Salvage: Clipped

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

# Salvage

www.cbr.washington.edu/sacramento/
14 Nov 2018 09:50:26 PST