



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
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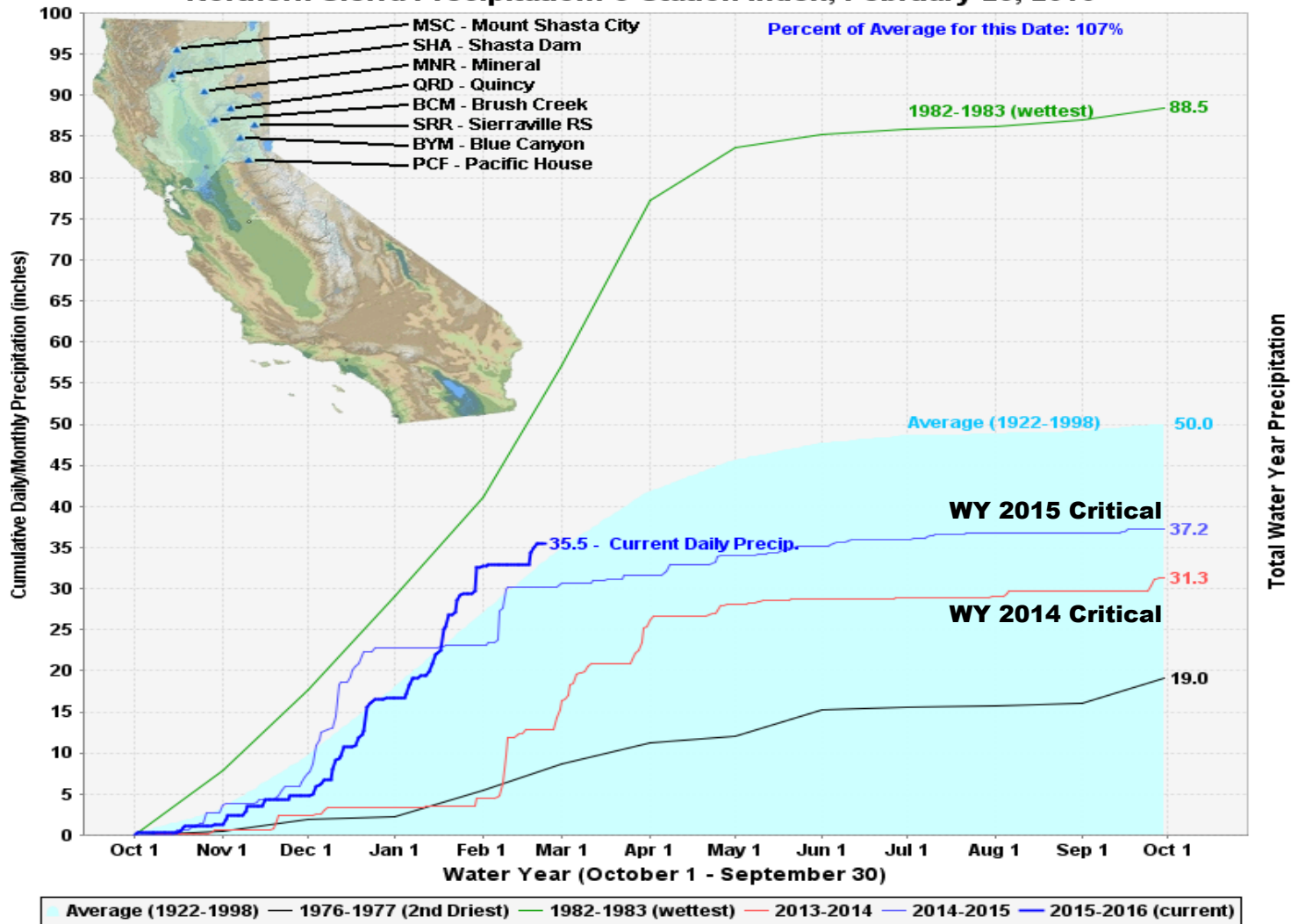


Winter-Run Chinook Salmon in the 2014 and 2015 Drought

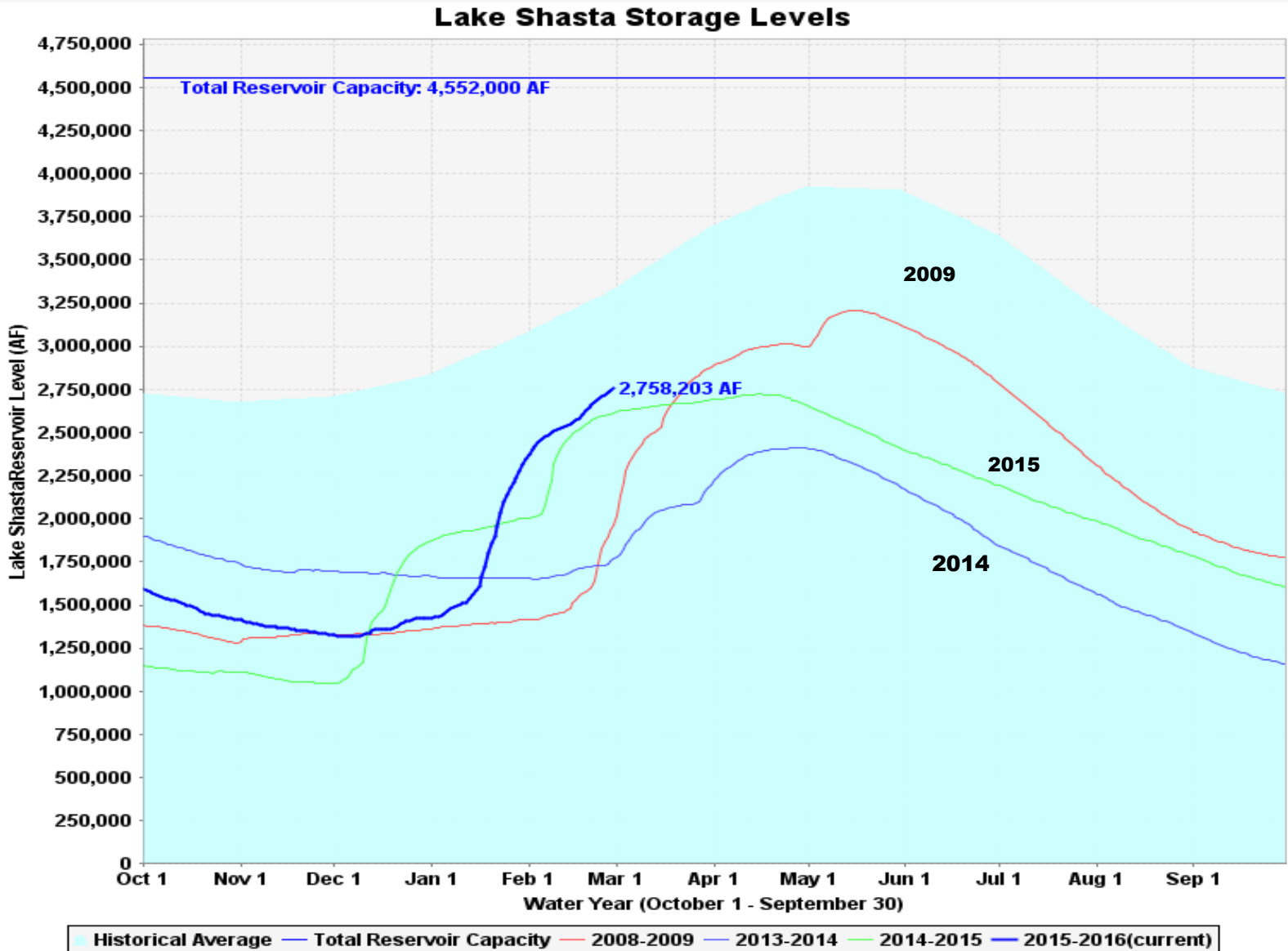
Daniel Kratville

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Northern Sierra Precipitation: 8-Station Index, February 23, 2016



Shasta Storage Levels

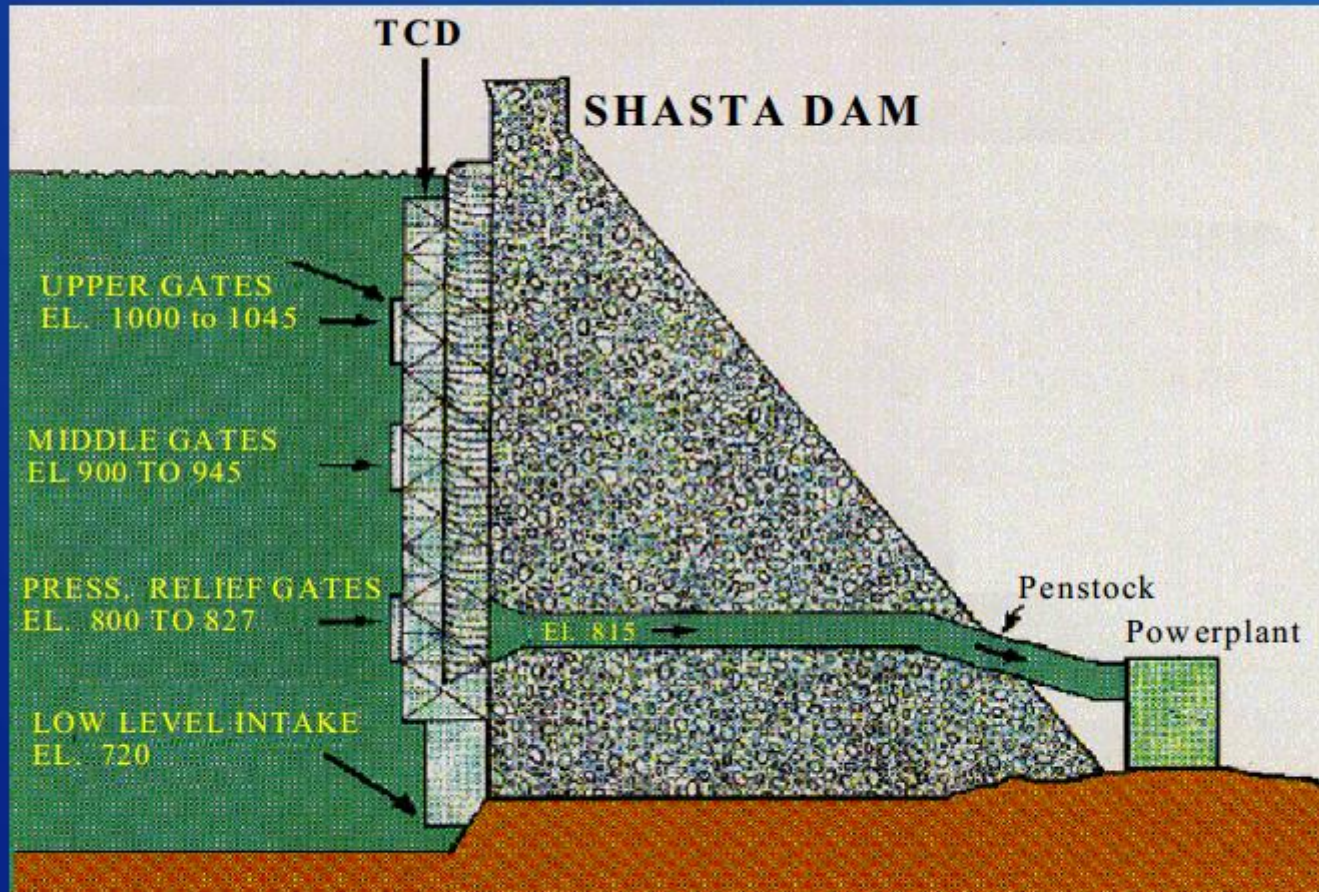


Shasta Dam Temperature Control Device



RECLAMATION

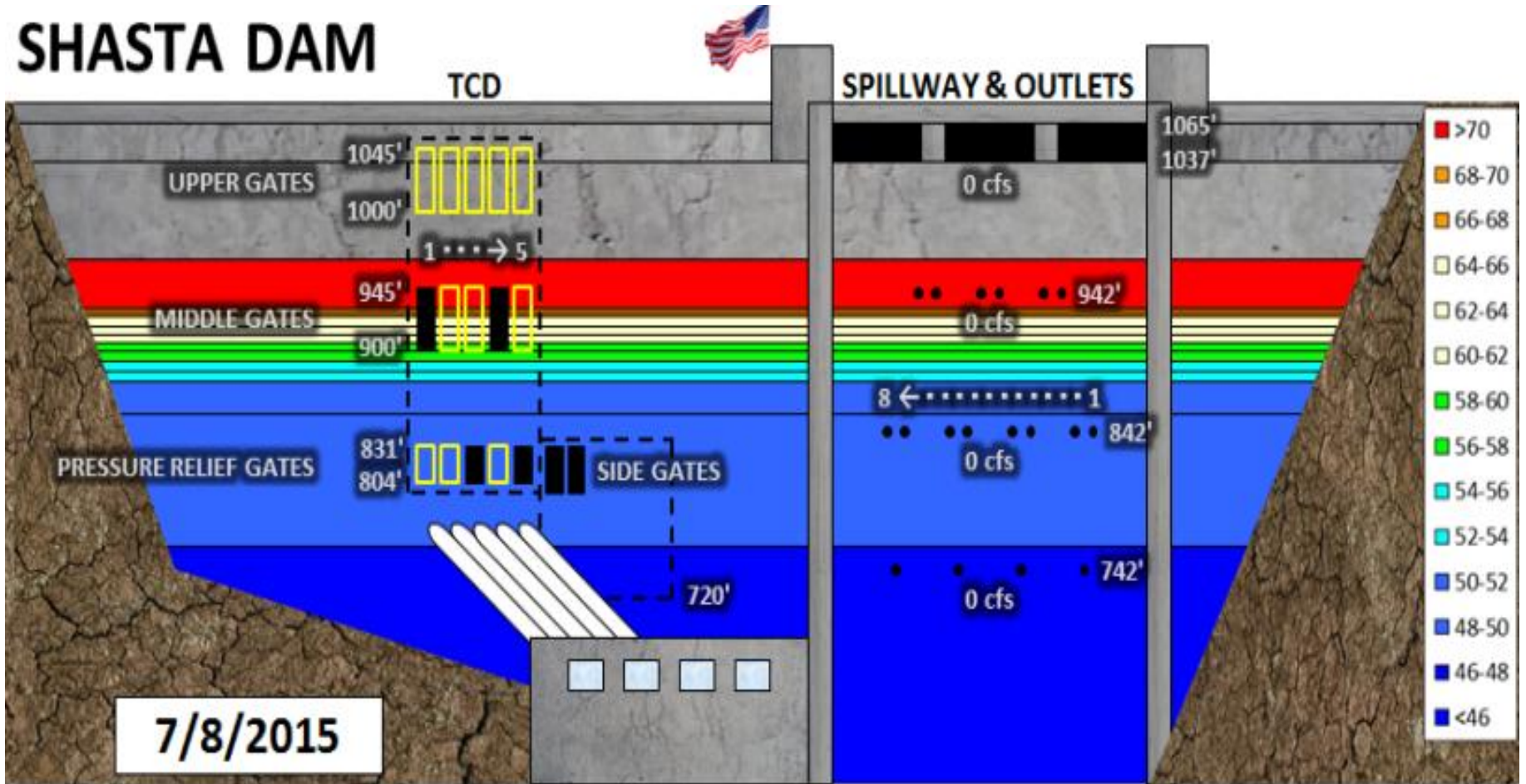
Shasta Dam TCD Configuration



RECLAMATION

Temperature Profile Graph

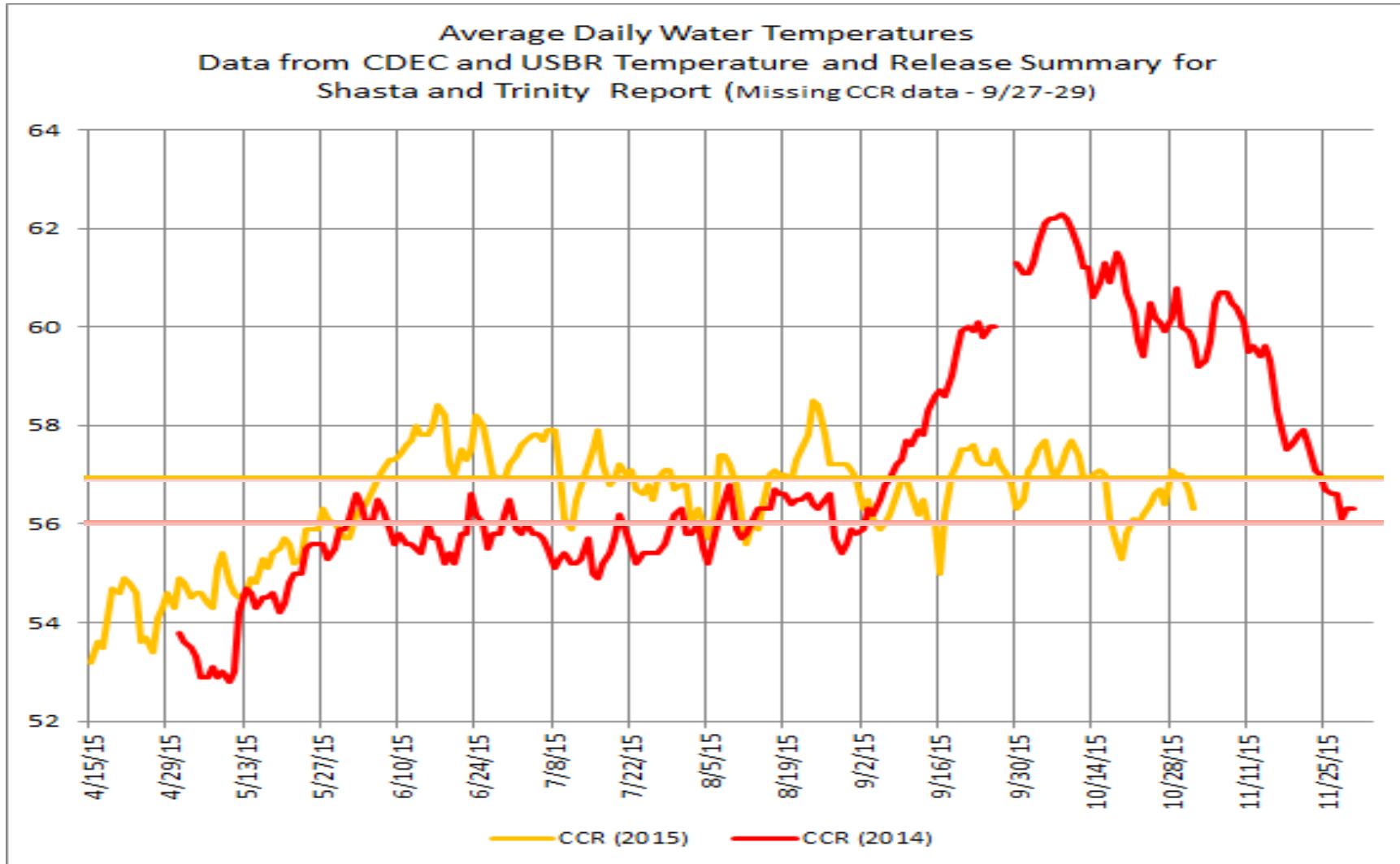
SHASTA DAM



USBR Operations Shasta Reservoir

2014		2015	
CCR 56 F		CCR 57 F	
Month	Flow CFS	Month	Flow CFS
June	9000-10000	June	7250
July	9000-10000	July	7250
August	7000-8000	August	7250
September	4000-5000	September	6500
October	4000	October	5000

CCR comparison 2014 - 2015

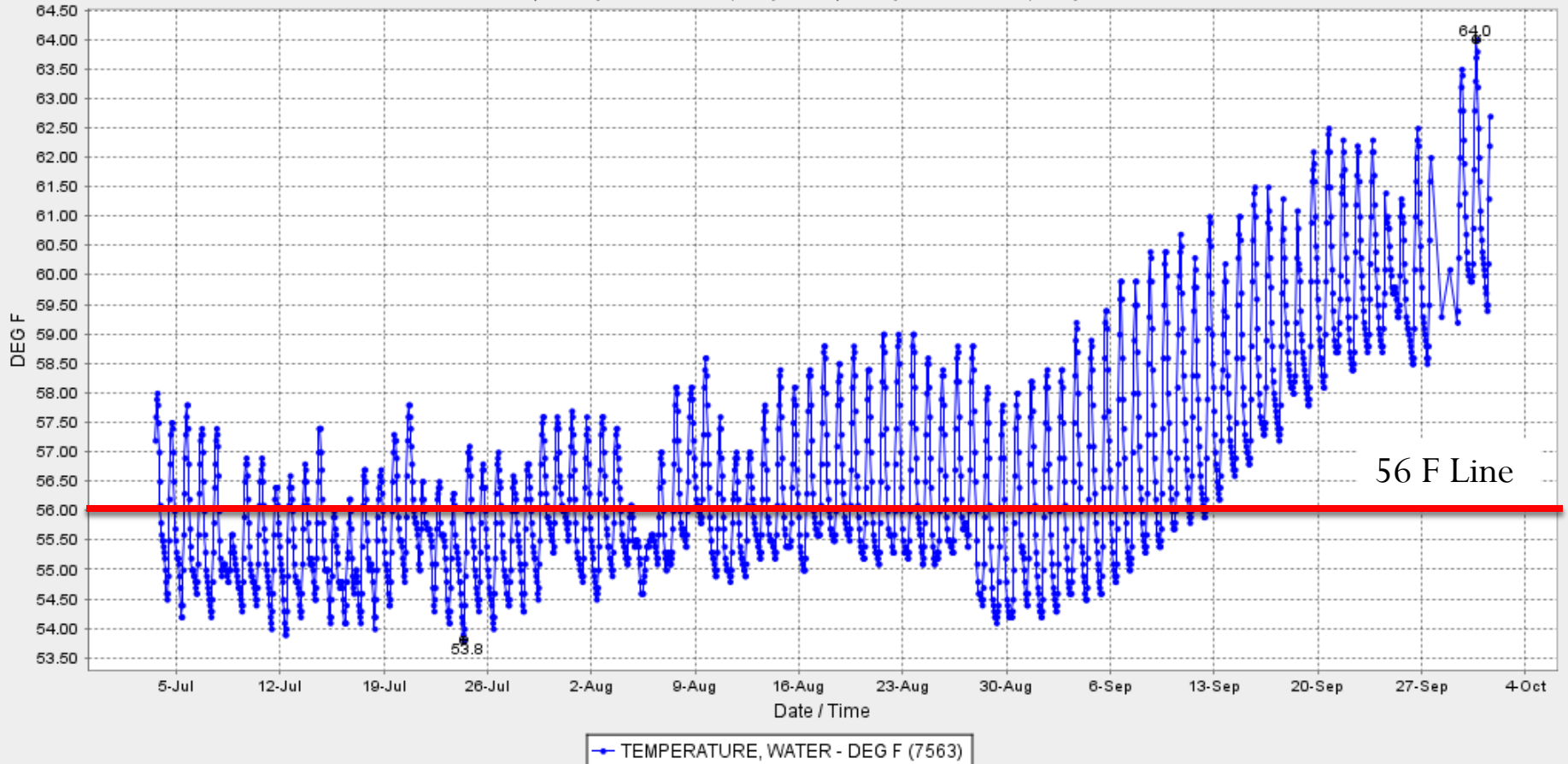


Daily Temperatures at Clear Creek Compliance Point July 03, 2014 to October 01, 2014

SACRAMENTO R ABV CLEAR CK (CCR)

Date from 07/03/2014 14:00 through 10/01/2014 14:00 Duration : 90 days

Max of period : (09/30/2014 16:00, 64.0) Min of period: (07/24/2014 09:00, 53.8)

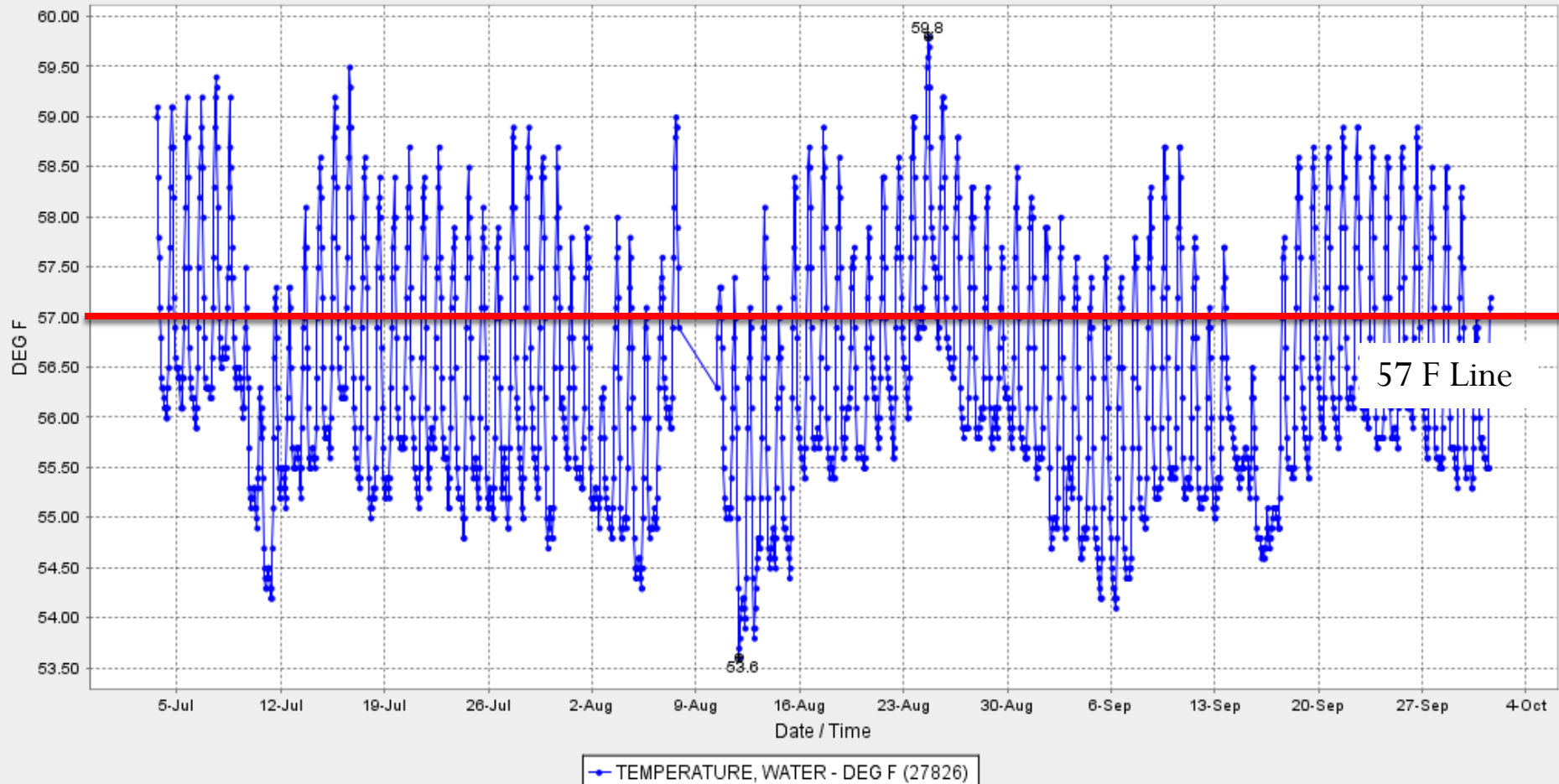


Daily Temperatures at Hwy 44 Bridge Upstream of Compliance Point July 03, 2014 to October 01, 2014

SACRAMENTO R UPSTREAM OF HWY 44 (SAC)

Date from 07/03/2015 14:22 through 10/01/2015 14:22 Duration : 90 days

Max of period : (08/24/2015 16:00, 59.8) Min of period: (08/11/2015 22:00, 53.6)



Juvenile Winter Chinook Salmon Estimated Passage

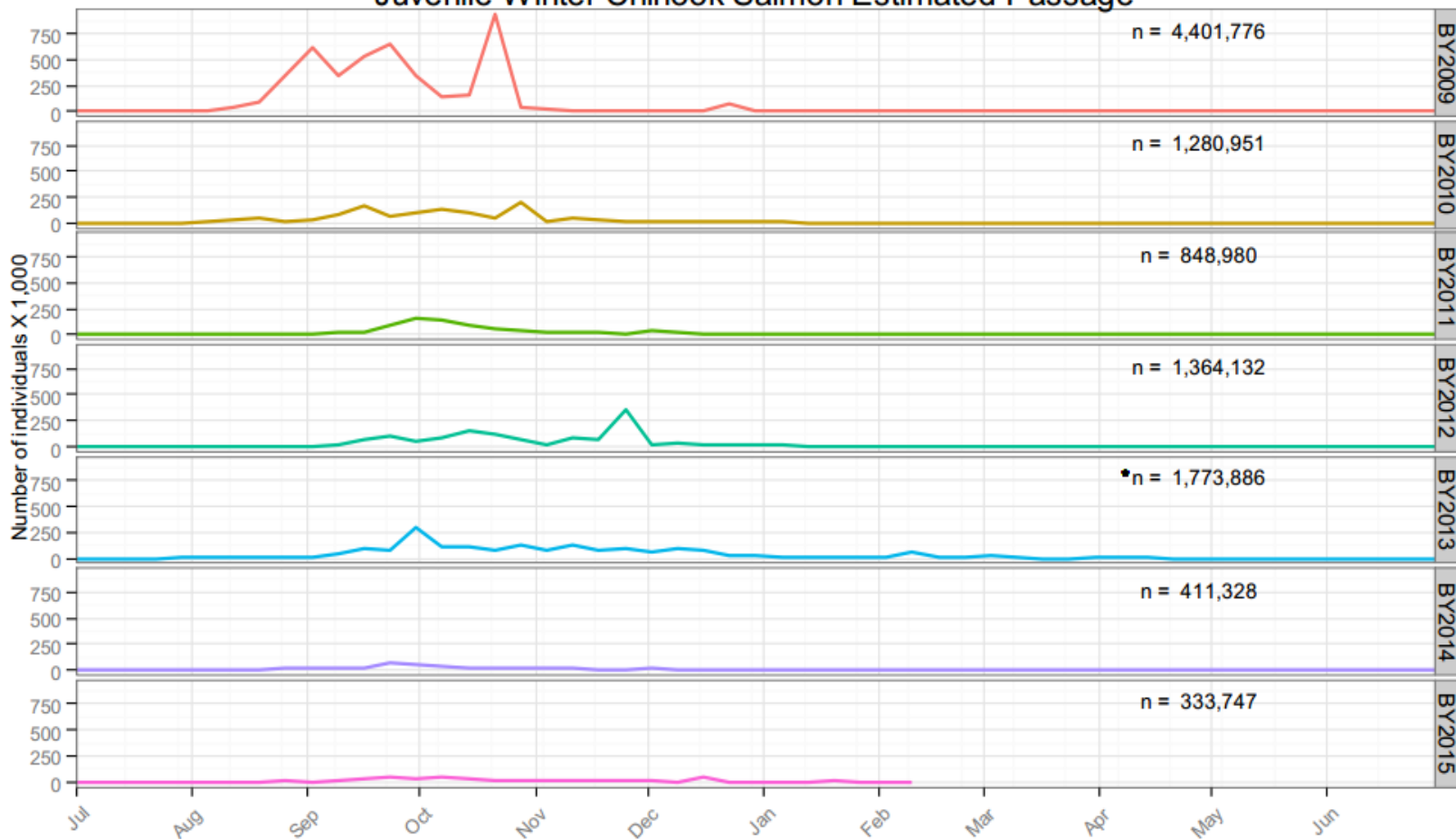


Figure 1. Weekly estimated passage of unmarked juvenile winter Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period July 1, 2009 to present.

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

Hypothesized Causes of Cohort Collapse

- 2014: We think that the loss of temperature control by the USBR was the major cause of the loss from egg to juvenile life stages.
- 2015: While the USBR never fully lost control of temperature, we believe that the average temperatures were too high, resulting in similar losses as 2014.

Livingston Stone National Fish Hatchery

- In 2014 and in 2015 the fish agencies began preparing various contingency plans. One part of those plans was to increase the LSNFH production to maximum.
- Reinstate Captive Broodstock Program

Hatchery Production

- 2014: Approximately 600,000
- 2015: Approximately 400,000 (lower number this year due to disease issues with the adult broodstock and lower numbers of adults trapped)

Juvenile Production Estimate (JPE) Entering the Delta

- 2015: 257,116
- 2014: 331,021
- 2013: 1,227,267

In-River Recreational Fishing Closures

- In 2015 the CDFW enacted a recreational fishing closure on the Sacramento River from the Highway 44 Bridge the Keswick Dam.
- In 2016, a second closure has been approved by the Fish and Game Commission.

Monitoring

- The fish agencies have greatly increased our monitoring efforts over the last three years.
- Increased temperature monitoring in the Sacramento and the tributaries.
- Increased stranding monitoring.
- Increased rescue efforts.

Questions?

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