

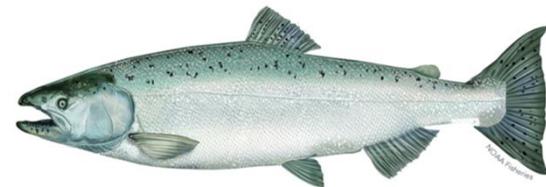
Sacramento River Winter-Run Chinook Salmon

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California Central Valley Office

State Water Resources Control Board Workshop
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NOAA FISHERIES



Sacramento River Winter-Run Chinook Salmon

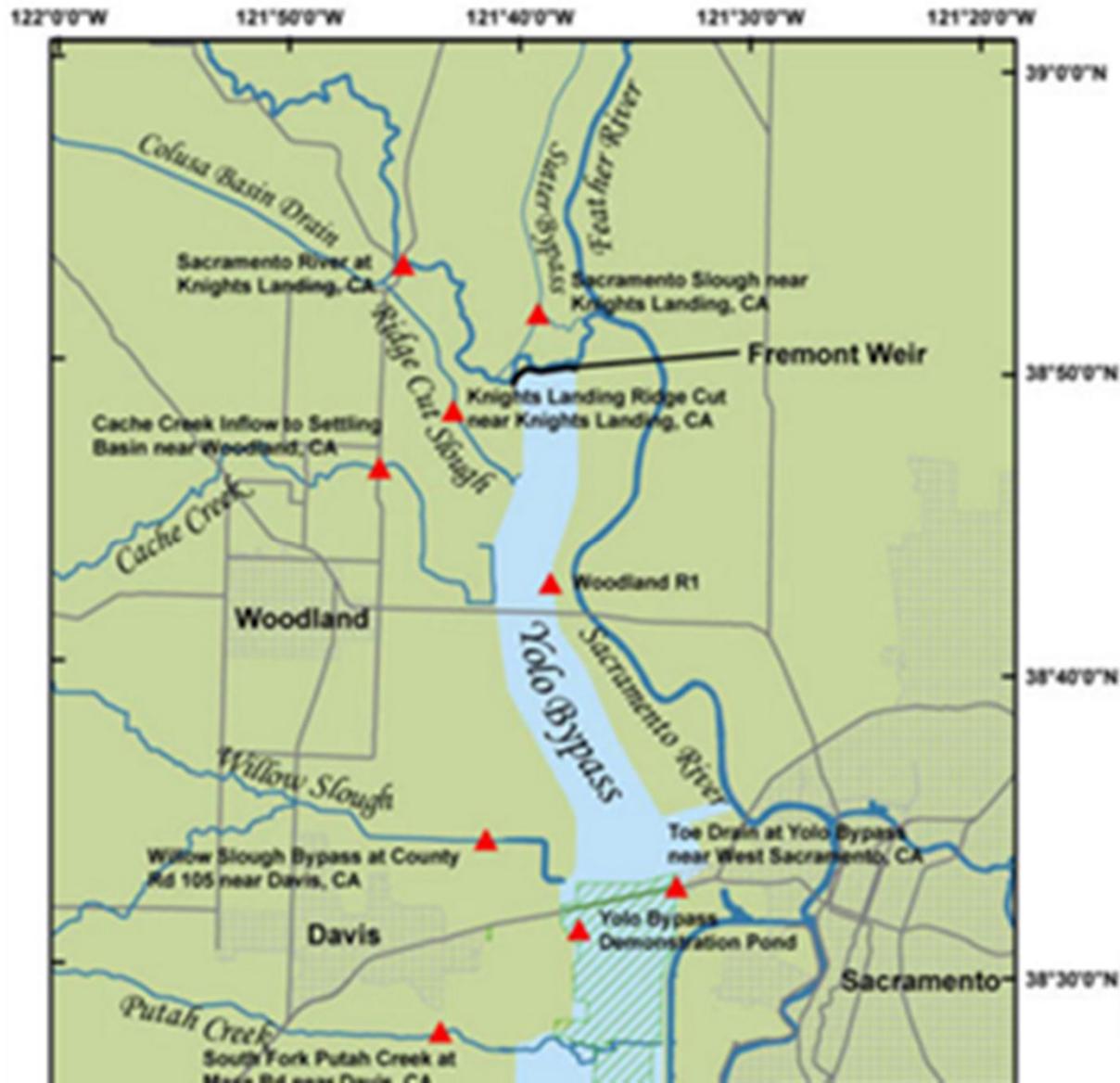
- We're coming home!
- Winter-run made the cut!
- What's in store for 2016?
- Summaries for 2016 and beyond

We're coming home!



Credit: KSN Inc.

We're coming home!

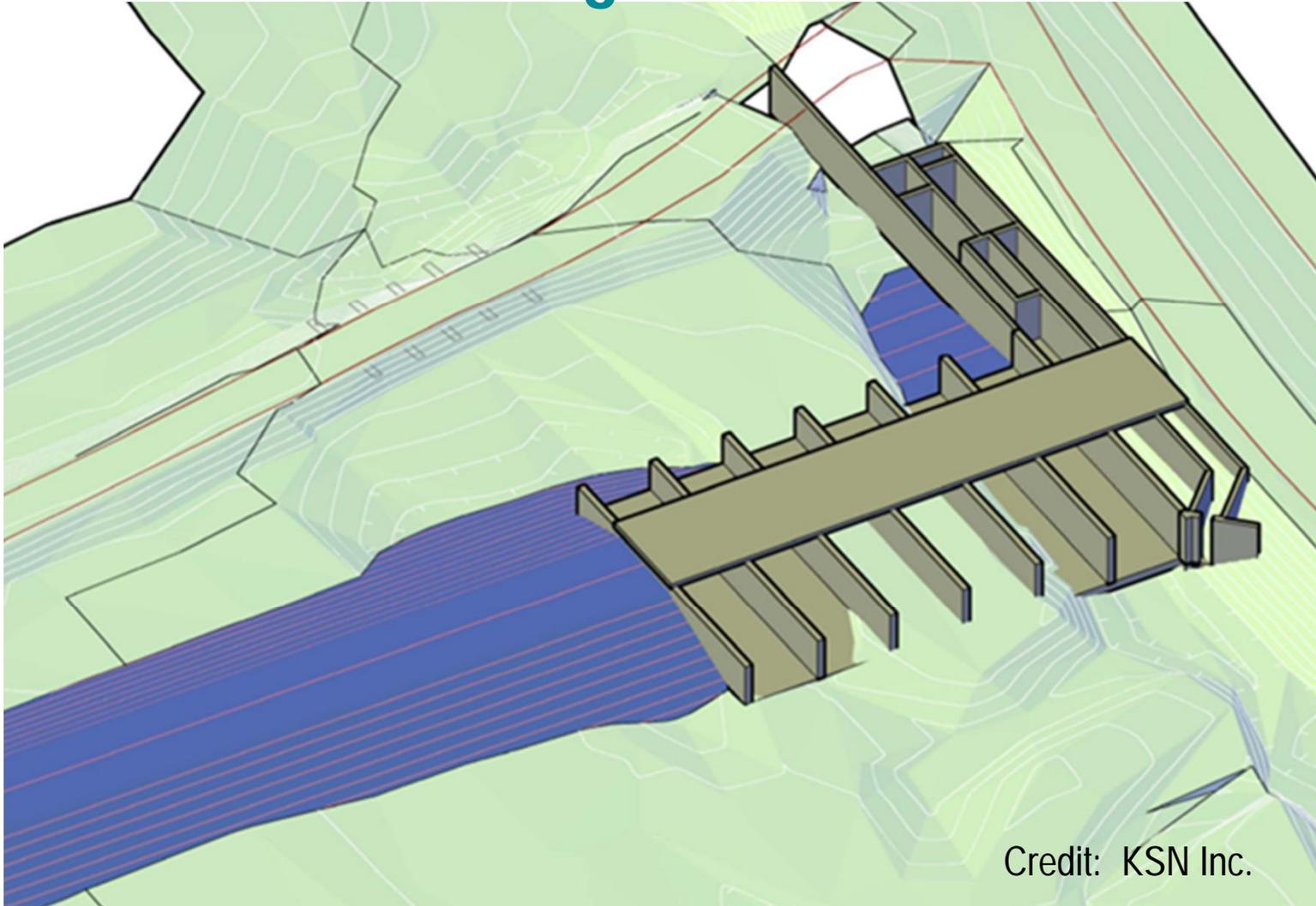


We're coming home!

Recalculating at Knights Landing Outfall Gates



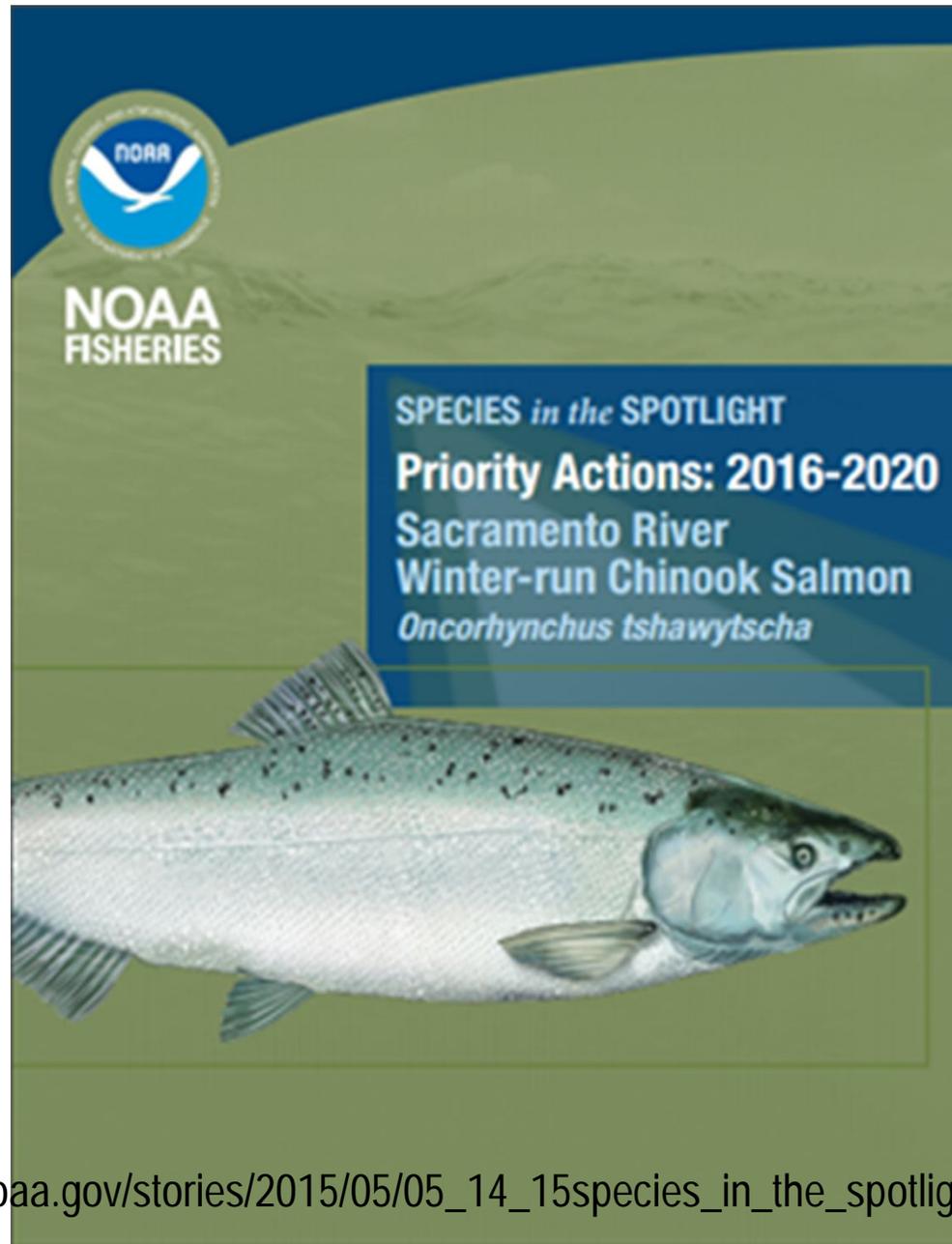
We're coming home! Recalculating at Wallace Weir



Credit: KSN Inc.



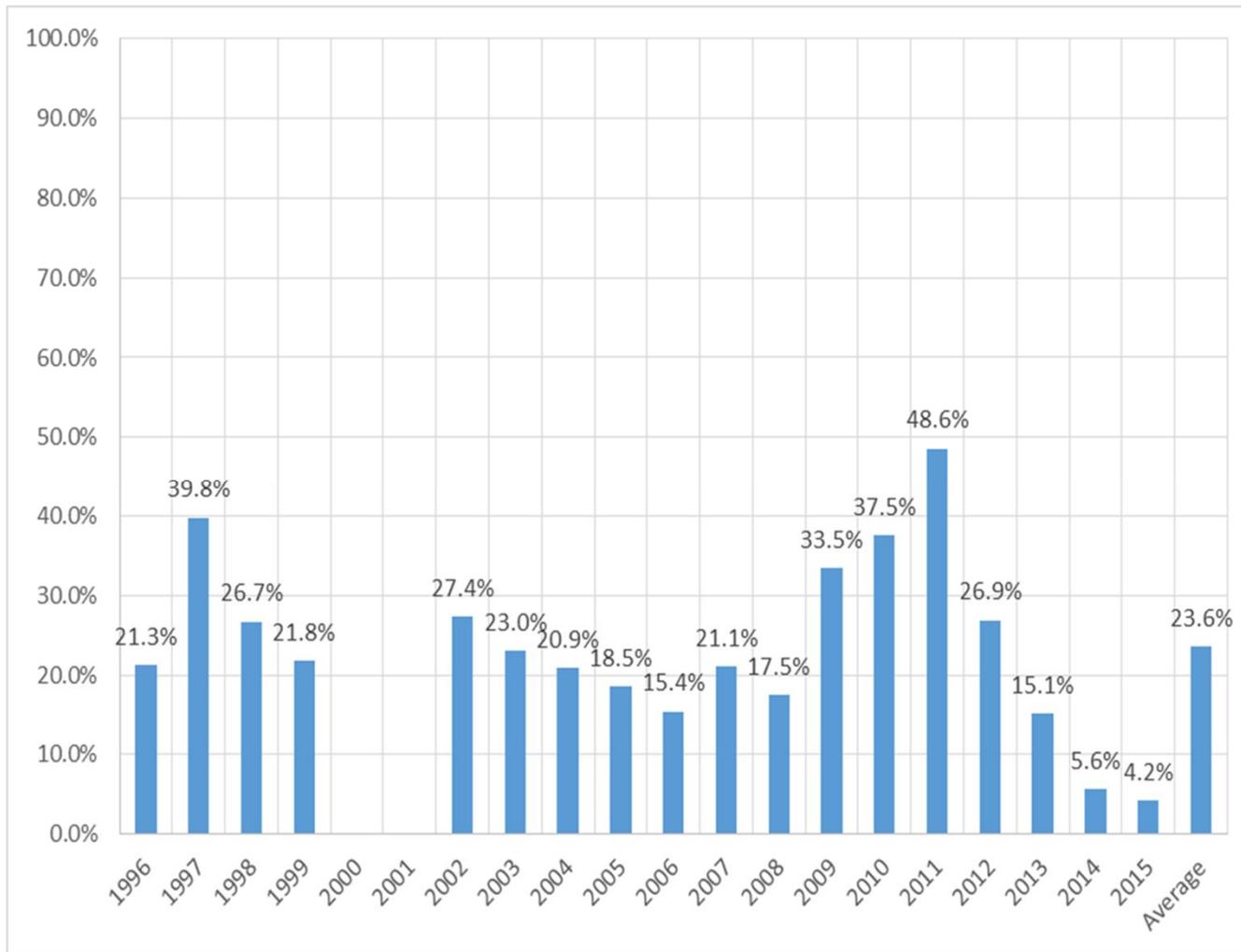
Winter-run
made the cut!



http://www.nmfs.noaa.gov/stories/2015/05/05_14_15species_in_the_spotlight.html

What's in store for 2016?

Estimated egg-to-fry survival from passage at Red Bluff Diversion Dam



What's in store for 2016?

Diseases: C. shasta and white spot disease



What's in store for 2016?

Drought Contingency Planning (part 1)

ATTACHMENT 4: NOAA/NMFS Considerations for 2016 Shasta Operations Potential Temperature Criteria Adjustments and Suggested Model Inputs

Potential Adjustments to the Shasta temperature criteria: 2016 will be the third of 3 winter-run cohorts. 2014 and 2015 resulted in very low survival of juvenile winter-run, and therefore, there will be the need to manage very conservatively to protect the third cohort of winter-run in 2016. As such, in the coming months, NMFS will be considering adjustments to the Shasta temperature criteria to provide for greater likelihood of protecting juvenile winter-run from broodyear 2016, as follows:

| Criterion | 2009 RPA | Implementation through 2015 | 2016 adjustment |
|------------------------------|---|--|--|
| Temperature | Not in excess of 56°F daily average temperature (DAT) | | 55°F 7-Day Daily Average Daily Maximum (7DADM) or 53°F DAT |
| Temperature Compliance Point | Between Balls Ferry and Bend Bridge May 15 through October 31 10-year Average: <ul style="list-style-type: none"> • Clear Creek 95% of the time • Balls Ferry 85% of the time • Jellys Ferry 40% of the time • Bend Bridge 15% of the time | Current 6-year Average (2010-2015): <ul style="list-style-type: none"> • Clear Creek 66% of the time • Balls Ferry 50% of the time • Jellys Ferry 50% of the time • Bend Bridge 0% of the time | Bonneyview Bridge (CCR) |



What's in store for 2016?

Drought Contingency Planning (part 2)

Temperature modeling scenarios: The following provides for conservative input into the Shasta temperature model, compared to inputs/requirements from the 2009 RPA.

| Criterion | 2009 RPA | 2015 | 2016 Suggested model inputs |
|---|--|---|--|
| Minimum Keswick Releases (Nov 1 – May 15) | 3250 cfs | 4250 cfs (Nov 1 – Dec 23) 3250 cfs (Dec 26, 2015 – Jan 31, 2016) | 2750 to 3250 cfs (Feb 1 – April 30) |
| Hydrological Exceedance Forecasts | 50%, 70%, and 90% | 90% | 90%; with additional weight to El Niño hydrological years |
| Meteorological Forecast | 50% local 3-month temperature outlook (L3MTO) | 10% L3MTO | 2014 or 2015 meteorological data |
| Shasta Reservoir End of September (EOS) Storage | 10-year Average: <ul style="list-style-type: none"> •87% of years: Min 2.2 MAF •82% of years: Min 2.2 MAF and End of April (EOA) storage of 3.8 MAF •40% of years: Min 3.2 MAF | 1.6 MAF Current 6-year Average (2010-2015): <ul style="list-style-type: none"> • 50% of Years: Min 2.2 MAF • 50% of Years: Min 2.2 MAF and EOA 3.8 MAF • 33% of Years: Min 3.2 MAF | 2.2 MAF |
| Shasta Reservoir Temperature Profile | No Requirement | None | Assume a stratification scenario from the record that shows a steep cold water decline in spring |

Summaries for 2016 and beyond

- >1 MAF Shasta storage gain during March 1-16, 2016
- Oak Bottom Curtain replacement
- Modeling (temperature, survival, biological)
- 55°F 7 DADM
- Stable flows from spawning through 100% emergence
- Stable flows for fall-run
- Disease (current flood control releases)
- Cautiously optimistic, hopefully confirm with forecasts and temperature modeling

Questions?