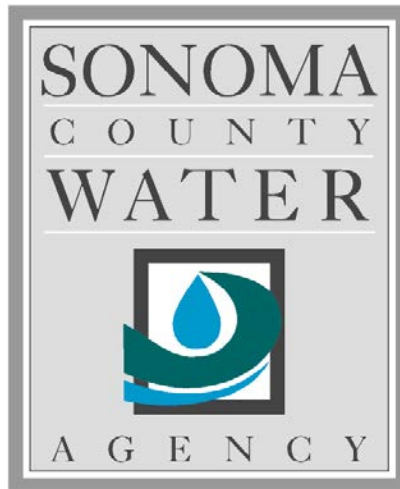


State Water Resources Control Board  
Order 5/19/2017

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Term 2 - Fisheries Monitoring Tasks



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## Introduction

On April 19, 2017, the Sonoma County Water Agency (Water Agency) filed a Temporary Urgency Change Petition (TUCP) with the State Water Resources Control Board (SWRCB) to temporarily reduce minimum instream flows in the upper Russian River to comply with to operational constraints placed on the Water Agency pursuant to the September 24, 2008, National Marine Fisheries Service (NMFS) Biological Opinion for Water Supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation Improvement District in the Russian River watershed (Biological Opinion).

In summary, the Water Agency requested that the SWRCB make the following temporary changes to the Decision 1610 (D1610) instream flow requirements:

- (1) From May 1, 2017, through October 15, 2017, reduce instream flow requirements for the upper Russian River (from its confluence with the East Fork of the Russian River to its confluence with Dry Creek) from 185 cubic feet per second (cfs) to 125 cfs.
- (2) From May 1, 2017, through October 15, 2017, reduce instream flow requirements for the lower Russian River (downstream of its confluence with Dry Creek) from 125 cfs to 70 cfs.

The TUCP also requested that compliance with these minimum instream flow requirements be measured based on a 5-day running average of average daily stream flow measurements, provided that instantaneous flows on the upper Russian River shall be no less than 110 cfs and on the lower Russian River shall be no less than 60 cfs. These 5-day running average provisions allowed the Water Agency to reduce the operational buffers needed to manage these stream flows, thereby allowing the Water Agency to conserve more water in Lake Mendocino. The SWRCB issued an Order (Order) approving the Water Agency's TUCP on May 19, 2017 (SWRCB 2017).

The State Water Board's Order included fisheries monitoring and reporting tasks which are summarized in term 2 of the Order. Term 2 required that the Water Agency monitor and record the daily number of adult salmonids moving upstream through the Russian River past the Dry Creek life cycle monitoring station and past the Healdsburg fish ladder. Beginning October 1, 2017 if the mouth of the river was open and adult salmon and steelhead could enter the Russian River the Water Agency was to monitor the number of adult salmon and steelhead in relatively deep pools in the lower Russian River (downstream of the Mirabel inflatable dam) on a weekly basis continuing through the duration of the order or until sustained flow at Hacienda (USGS gage 11467000) was above 135 cfs. Prior to October 15, 2017, or after a cumulative seasonal total of 100 adult salmon and steelhead move upstream past the Mirabel Dam fish counting station, whichever is earlier, the Water Agency was to consult with NMFS and CDFW regarding the possibility of increasing the instream flow at the Hacienda gage (USGS gage 11467000) to a level not to exceeding 135 cfs. Consultations were to occur every two weeks

and a summary report of consultation details and any increases to the minimum flows was to be submitted to the Deputy Director for Water Rights within one week of each consultation meeting.

## Methods

### Adult fish counts

In 2017 the Water Agency experimented with operating an underwater video camera in the newly constructed Mirabel fish ladder on the west side of the Mirabel Inflatable Dam, as well as the “old” fish ladder on the east side of the dam, to count adult salmon returning to the Russian River. A camera was deployed in the west side counting station on September 13, and the east side fish ladder was deployed on September 29.

### Snorkel surveys

Flows were sufficient to provide suitable conditions for adult upstream migration in 2017. As a result, snorkel surveys were not conducted.

## Results

### Flow

From May 1, 2017 to October 15, 2017 flow in the Russian River at Hacienda ranged from a high of over 1,350 cfs on May 1, to a low of 143 cfs on September 3. During the period of the Order, the Russian River was influenced by tributary in-flow until June, and was generally controlled by reservoir releases from July through early-October, and again by tributary inflow in late October. During the adult Chinook migration period flows were above 135 cfs and flows were not limiting to adult salmonid upstream migration (Figure 1).

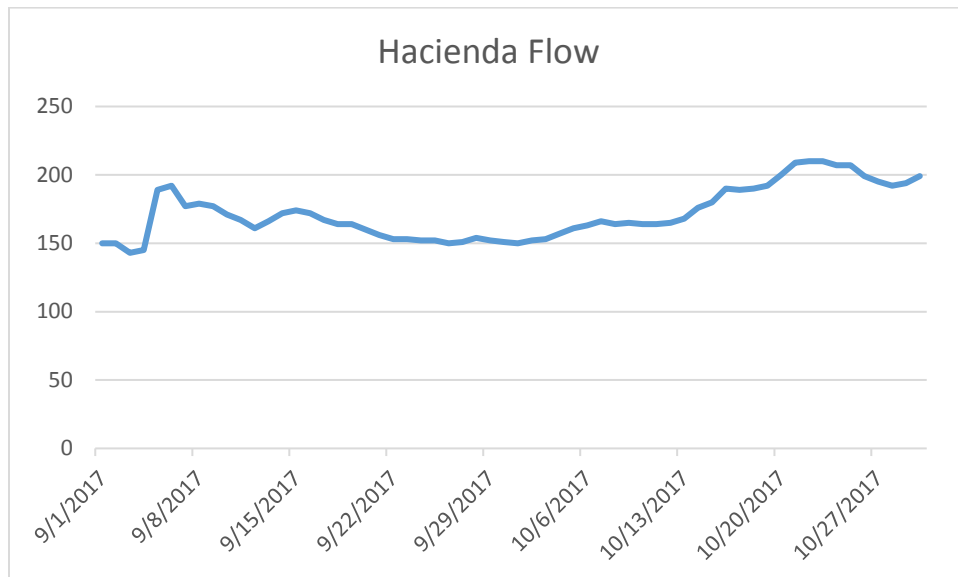


Figure 1. Flow at the USGS stream gages at Hacienda during the period of the Order that overlaps with the adult salmon migration (September 1 through October 15).

## Adult counts

### Video and DIDSON counts

The Water Agency operated two video cameras at Mirabel from September 13 to after the Order expired. Typically 2 video cameras are operated at Mirabel, one in the east fish ladder and one in the west fish ladder. In 2017 we installed a video camera in the west ladder on September 13 and a camera in the east **camera** on September 29. There were multiple periods of significant data loss at Mirabel due to technical problems mainly related to power loss. However, overall the system performed well (Figure 2).

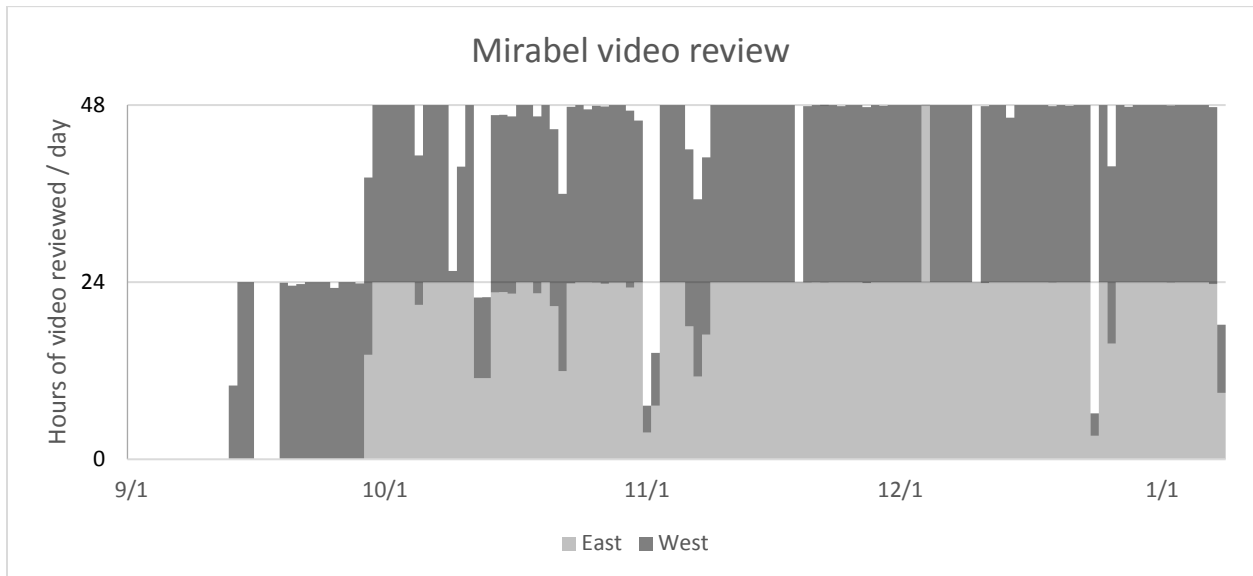


Figure 2. The number of hours of underwater video that has been reviewed per day at the Mirabel Fish ladder on the mainstem Russian River. Missing hours are due to corrupt data and technical difficulties.

At Mirabel 146 Chinook, 1 fish that had coho characteristics, 3 steelhead adults, and 2 unidentified adult salmonids were observed during the Order. The river mouth was closed for much of September (Figure 2). With the exception of 5 Chinook salmon, all salmonids were observed after October 1, 2017. The start date for the Chinook salmon run in 2017 is consistent with past years.

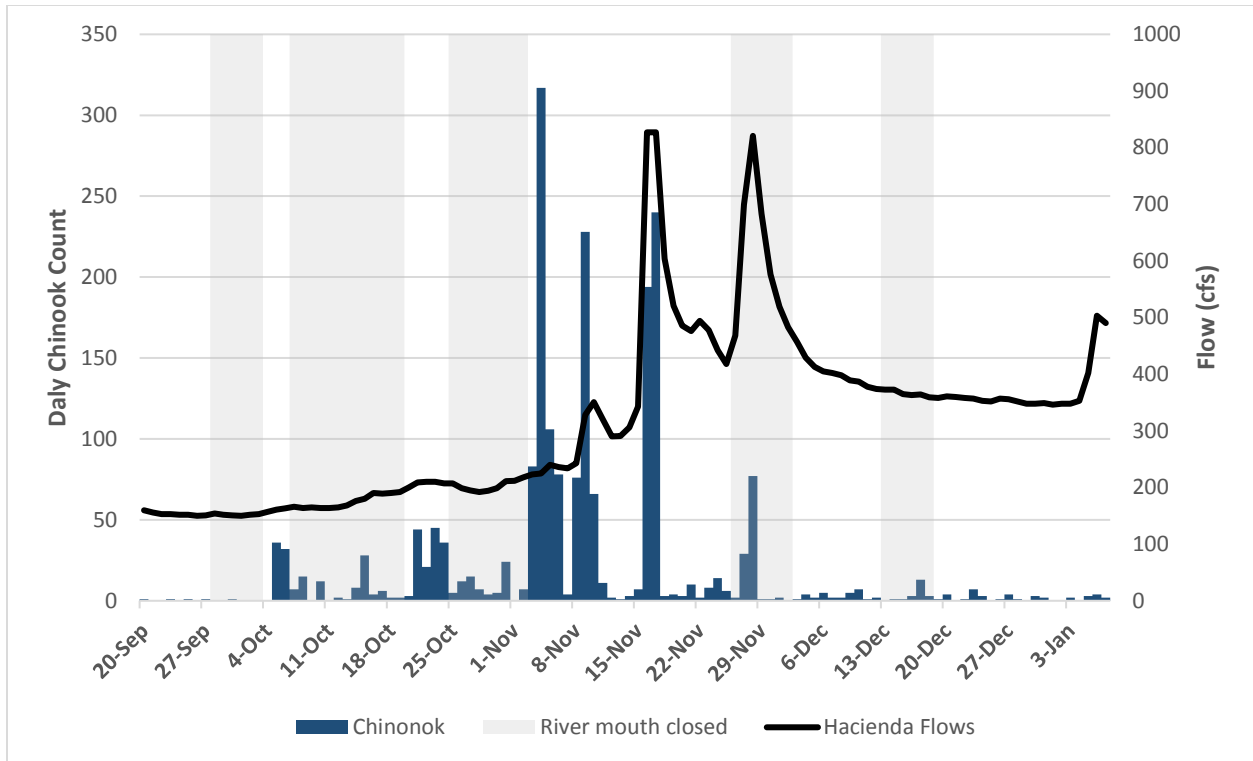


Figure 2. The period of time that the mouth of the Russian River was closed, the flow in the Russian River from the USGS Hacienda gage, and the number of adult salmonids observed at the Dry Creek DIDSON, Healdsburg underwater video, and Mirabel underwater video during the period of the Order.

## Discussion

### Flow

Flow in the Russian River was controlled by releases from project reservoirs through the end of the Order. The mouth of the river was closed periodically by sand bars from late September through mid-December. However, the mouth was open sufficiently to allow for upstream migration by adult salmonids. Flows in the lower river remained above 135 cfs throughout the 2017 upstream salmonid migration period, thus, project flows did not inhibit migration.

### Adult Counts

#### Video counts

The bulk of the adult Chinook migration occurred after the end of the Order. This is consistent with past sampling efforts conducted by the Water Agency which has documented that approximately 85% of the Chinook salmon run occurs after mid-October. In 2017, approximately 95% of the run occurred after mid-October. Upstream migration is influenced by the sand bar condition at the mouth of the river (opened or closed) and streamflow in the river. Fall freshets reduce mainstem temperatures and increase flows and likely stimulate upstream migration by adult salmonids into the Russian River.

### Snorkel Surveys

In 2017 we did not conduct dive surveys because flow was above 135 cfs which is the minimum flow required by the Order to conduct dive surveys. Years of video monitoring at Mirabel have shown that Chinook salmon can move upstream in the Russian River at a flow of approximately 135 cfs. During the Order flow was above 150 cfs during September 1, to October 15.

### Consultations with NMFS and CDFW

#### Adjustments of flow

The Order required that the Water Agency consult with the NMFS and CDFW about the possibility of increasing flow to 135 cfs for adult passage once 100 adult salmonids have passed Mirabel. However, flow was above 135 cfs from September 1 to October 15.

### References

State Water Board, In the matter of permits 12947A, 12949, 12950, and 16596 (applications 12919A, 15736, 15737, 19351) Sonoma County Water Agency order approving petitions for temporary urgency change permit terms and conditions. May 19, 2017. State Water Resource Control Board. Sacramento Ca.