

State Water Resources Control Board  
Order 6/20/2019

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Term 2 - Fisheries Monitoring Tasks



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**Prepared by**

**Sonoma County Water Agency  
404 Aviation Blvd  
Santa Rosa, CA 95403**

## Introduction

On April 24, 2019, the Sonoma County Water Agency (Sonoma Water) 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 operational constraints placed on Sonoma Water 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, Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation Improvement District in the Russian River watershed (Biological Opinion).

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

- (1) From May 1 through October 15, 2019, 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 through October 15, 2019, reduce instream flow requirements for the lower Russian River (downstream of its confluence with Dry Creek) from 125 cfs to 70 cfs.

The SWRCB issued an Order (Order) approving Sonoma Water's TUCP on June 20, 2019 (SWRCB 2019).

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 Sonoma Water monitor and record the daily number of adult salmonids moving upstream of the Mirabel dam through the Mirabel fish ladder. Beginning October 1, 2019 if the mouth of the river was open and adult salmon and steelhead could enter the Russian River, Sonoma Water 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, 2019, or after a cumulative seasonal total of 100 adult salmon and steelhead move upstream past the Mirabel Dam fish counting station, whichever is earlier, Sonoma Water was to consult with NMFS and CDFW. If flows were below 135 cfs during that period, the possibility of increasing instream flow at the Hacienda gage (USGS gage 11467000) to a level not to exceed 135 cfs would be considered. 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 2019, Sonoma Water operated underwater video cameras to count adult salmon returning upstream of Mirabel inflatable dam. Cameras were deployed in the west side and east side fish ladders on September 1.

### Snorkel surveys

Snorkel surveys were conducted by two divers entering relatively deep pools in the lower Russian River (downstream of the Mirabel inflatable dam) and visually searching for adult salmonids. When adult salmonids were encountered, divers recorded the number of fish they observed by species. After the pool was surveyed, divers compared counts and the largest number for each species observed was recorded as the minimum count for that pool.

## Results

### Flow

From May 1, 2019 to October 15, 2019, flow in the Russian River at Hacienda ranged from a high of 3,870 cfs on May 20 to a low of 139 cfs on August 16. 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 (e.g., flows would not be limiting to adult salmonid upstream migration (Figure 1)).

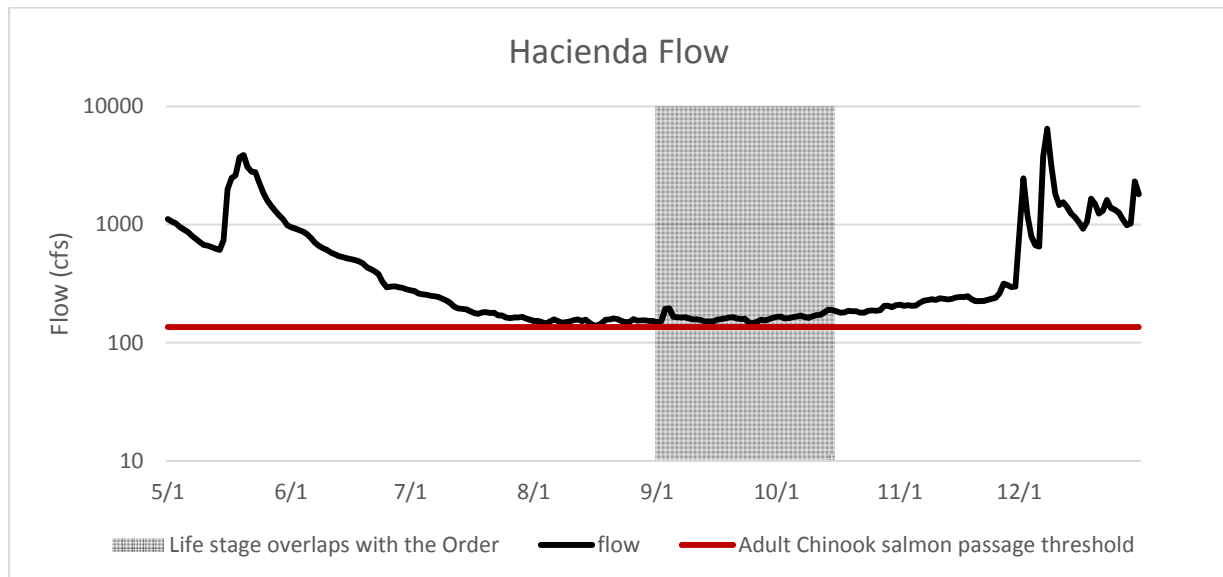


Figure 1. Flow at the USGS stream gages at Hacienda during the period of the Order that overlaps with the adult salmon migration (September 1 through October 15). The horizontal red line indicates the flow below which adult salmonid upstream migration may be impacted. This threshold flow is based on video data collected at the Mirabel dam from 2000 to 2015 (SCWA 2016).

Adult counts

Video and DIDSON counts

With few exceptions, two video cameras, one in the east fish ladder and one in the west fish ladder, are operated at the Mirabel inflatable dam each season coinciding with the onset of adult Chinook salmon migration in September until the dam is deflated, typically by mid-December. In 2019, Sonoma Water operated both video cameras at Mirabel from September 1 to after the Order expired on October 15. There were multiple periods of significant data loss at Mirabel due to technical problems mainly related to power loss (Figure 2).

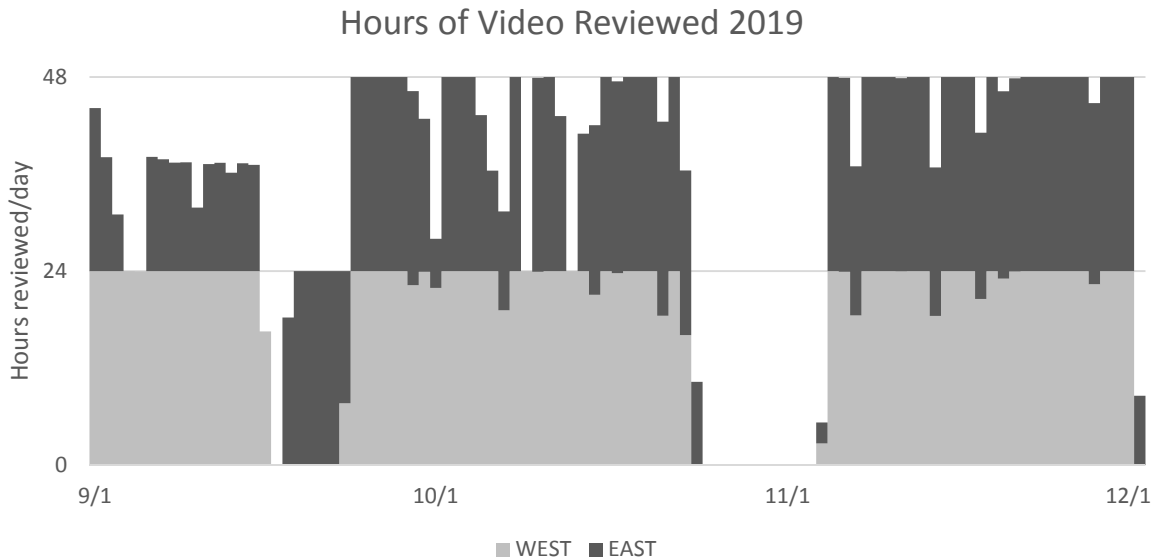


Figure 2. The number of hours of underwater video recorded and reviewed per day at the Mirabel inflatable dam on the mainstem Russian River. Missing hours are due to corrupt data, power loss and technical difficulties.

Ninety-six adult Chinook salmon and five adult steelhead were observed during the period covered by the Order. The river mouth was open for the majority of the adult Chinook run (Figure 3). With the exception of 96 Chinook salmon, all salmonids were observed after October 15, 2019. The start date for the Chinook salmon run in 2019 is consistent with past years.

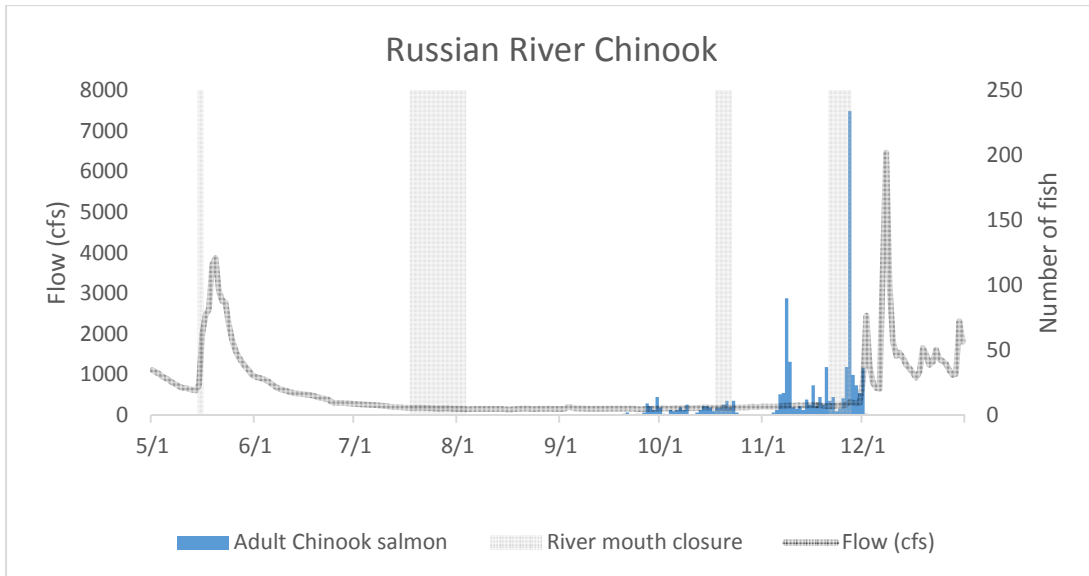


Figure 3. The period of time the mouth of the Russian River was closed, flow in the Russian River at the USGS Hacienda gage, and the number of adult salmonids observed at the Dry Creek DIDSON, Healdsburg underwater video, and Mirabel underwater video during the period of the Order.

### Snorkel surveys

Dive surveys for adult salmon were conducted in the lower Russian River on October 2, 2019 and on October 10, 2019. Sites sampled were Forestville River Access, Hacienda Bridge, Johnsons Beach, and Monte Rio. No salmonids were observed, however, visibility was often less than 2 meters and likely impacted our ability to count fish.

## Discussion

### Flow

Flow in the Russian River was controlled by releases from project reservoirs through the end of the Order. In 2019 the mouth of the river was closed periodically by sand bars in May, July, October and November. However, the mouth was open sufficiently to allow upstream migration by adult salmonids. Flows in the lower river remained above 135 cfs throughout the 2019 upstream salmonid migration period, thus, project flows did not inhibit migration (see Figure 1 and related text).

### 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 Sonoma Water, which have documented that approximately 85% of the Chinook salmon run occurs after mid-October. In 2019, approximately 89% 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, increase flows and likely stimulate upstream migration by adult salmonids into the Russian River.

#### Snorkel Surveys

In 2019, we did not observe any adult salmon during dive surveys in October. However, conditions in the lower Russian River during the fall are not conducive to dive surveys. The pools that adult Chinook occupy are large and deep, and have poor visibility. This coupled with an animal that tries to avoid detection by divers, makes it unlikely to detect adult Chinook with dive surveys. We believe that video counts are a more reliable way to assess the fall Chinook run except during years with very low flow in the lower mainstem Russian River.

#### Consultations with NMFS and CDFW

##### Adjustments of flow

The Order required that Sonoma Water consult with the NMFS and CDFW about the possibility of increasing flow to 135 cfs for adult passage once 100 adult salmonids passed the Mirabel inflatable dam. However, flow remained above 135 cfs during the period covered by the Order (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. June 20, 2019. State Water Resource Control Board. Sacramento, CA.