



**BIALLA VINEYARDS WDMP ANNUAL REPORT
for
Year 2015**

This Annual Report is hereby submitted to the State Water Resources Control Board (SWRCB) as a supplement to the Water Demand Management Program (WDMP) in accordance with Regulation 862 and consistent with Resolution No. 2011-0047 stipulating a phased approach to WDMP preparations and approvals. Moreover, this report specifically addresses frost protection activities for the period March 15th – May 15th for this year and actions associated with respect to these frost protection activities.

Bialla Vineyards is an independent grape growing entity within the Russian River Watershed, unaffiliated with any governing body. As such, it is owned and administered by:

Paul Bialla
2740 River Road
Windsor, CA 95492

who is solely responsible for the preparation and content of this report. The approximate location with respect to the Russian River watershed is shown in Figure 1. Precise coordinates for Bialla Vineyards are defined in Part 1, below.

Part 1. Frost Inventory

1.1 System description

The frost protection system comprises a temporary weir emplaced in a seasonal creek with water drawn by a gasoline engine driven pump. Because stream flow rates during frost season are typically quite low, supplemental water is provided by pumping from a high-output well directly into the creek. Any changes to the frost protection system inventory as reported in the WDMP are noted below.

- A. Name of Diverter: Bialla Vineyards
- B. Source of Water: [1] Unnamed seasonal creek
[2] Well
- Location of Diversion: 38.48888, -122.797867

Seasonal creek: approximately 8500 ft. to confluence with Mark West Creek
Well: approximately 3.9 miles from Russian River

C. Diversion System Description: 292 sprinklers @ 1.26 GPM/sprinkler head*
[1] 63 HP gasoline engine: 533 GPM (max)
368 GPM (operating)*
[2] Supplemental 20 HP well pump:
235 GPM

D. Frost Protection Acreage: 10.8 acres (by irrigation)
0 acres (by other means)

E. Diversion Rate and Quantities*: Diversion rate: 133 GPM
Duration of operation: 3.0 – 7.0 hrs
Volume diverted: 0 – 0.17 acre-feet/event

Net diversion rate is equal to the amount delivered by the gasoline pump less that replenished by the supplemental well pump. Net diversion rates are shown as a function of outlet pump pressure in Figure 2. In operation, actual volume diverted varies from zero (when there is no natural flow through the creek) to 0.17 (max) acre-feet/event (when there is maximum free flow over the weir for the longest duration event).

*Note: These diversion rates are somewhat lower than those presented in the original WDMP as the sprinkler head flow rates had been reduced in 2015 in the interests of water conservation and will be maintained in future years.

1.2 Diversion Data for each frost event

In year 2015 one (1) frost event occurred during the period March 15 – May 15, 2015. Diversion data is as follows:

<u>Date</u>	<u>On-time (hrs)</u>	<u>Rate(Gal/hr)</u>	<u>Net Consumption (Gal)</u>
4/06/15	4.5	19,800	89,000

1.3 Source of water for each frost event.

As there was no natural water flow in the seasonal stream due to the drought, all consumption was sourced from the well on the property as described in Part 1.1.

Part 2. Stream Monitoring

Stream flow gages are infeasible for monitoring purposes because flow rates during frost seasons are typically very low to nil. The most practical monitoring approach, when flows exist at all, is through measuring flows over the weir as described in the following sub-sections.

2.1 Description of monitoring process

Stream monitoring is accomplished by measuring the height of water over the weir and converting that into a flow rate, using the standardized formula developed for that purpose as shown below.

FLOW OVER A RECTANGULAR WEIR

$$Q = 1495 (W - 0.2h)h^{3/2}$$

Q = Flow Rate (GPM)

W = Width of Weir (ft)

h = Height of water above weir (ft)

For the conditions that exist in the on-site seasonal creek, the resulting flow is found from the chart in Figure 3. It is intended to perform stream monitoring throughout the frost season should natural flows exist.

2.2 Monitoring results as obtained throughout frost season

Throughout the 2015 frost season there was no flow in the stream. Similarly, in years 2013 and 2014 there was no flow for the periods March 15 – May 15.

The most recent year with natural flow was experienced during the early portion of the frost period in 2012. According to records from that time, some natural flow occurred during a frost event on March 26, 2012; but at the time of the next frost event, on April 5, 2012, all natural flow had ceased. However, during that year and all prior years, flow rates were not monitored.

Part 3. Risk Assessment

Salmonids have never been present in this seasonal creek; therefore strandings are not an issue within its boundaries. However, it is recognized that flows from the stream, when they are present, do contribute to the overall flow in Mark West Creek, the related tributary to the Russian River, where salmonid strandings are of concern. Consequently, measures should and will be taken to ensure flows are maintained during frost diversion periods.

3.1 Supplemental data and/or analysis requirements

There are no requirements for supplemental data or analysis.

3.2 Fulfillment Schedule

No fulfillment schedule is required.

Part 4. Corrective Action Plan

A corrective action plan is being formulated as a consequence of consultations with California Department of Fish and Wildlife and National Marine Fisheries Service as described in Part 6.

4.1 Summary of corrective actions to date

No corrective actions were planned or taken during this reporting period.

4.2 Planned corrective actions

A pipe and fitted valve is planned to be installed on the lower portion of the weir in order to facilitate continuous flow downstream during diversion periods. As the weir comprises three wooden barriers, placed one atop the other, the pipe/valve installation will be made on the lowest of the three barriers. The pipe shall be sized to replicate, as nearly as possible, the natural flow of the stream while diversions are occurring. When implemented, the maximum diversion rates and volume per event will be reduced from those values currently experienced, as presented in Part 1 and shown in Figure 2.

The analysis and design of the pipe/valve assembly and its installation is scheduled for completion prior to the 2016 frost season. The results of this action will be presented in the 2016 annual report.

Part 5. Non-Compliance Report

5.1 Identification of non-compliance items

No non-compliance items have been identified.

Part 6. Consultations

Preliminary contacts were made with both California Department of Fish and Wildlife and National Marine Fisheries Service during preparation of the WDMP and thereafter. Specific consultations are described in the following subsections.

6.1 Summary of consultations with Department of Fish and Wildlife

On July 27th of this year Corrine Gray of DFW visited the site for an inspection and review of the frost protection system. It was concluded that the operation of the system was satisfactory; however it was recommended that, to effect continuous flows downstream during frost events, a properly sized pipe with valve be installed on the lower portion of the weir. On those occasions when natural stream flows are present, the valve would be opened to maintain downstream flows as the dammed portion of the creek is depleted. It was agreed that such an action would be implemented prior to the 2016 frost season.

6.2 Summary of consultations with National Marine Fisheries Service

During the course of the year, several telephone conversations were conducted with David Hines of NMFS concerning the frost protection operations. The latest discussion occurred on September 3 subsequent to the visit by Ms. Gray. Mr. Hines explained that he had been in contact with Ms. Gray in regard to her on-site review and recommendations. He had concurred with her findings and felt that an additional site visit was not necessary at this time.

Part 7. WDMP Effectiveness

Thus far it appears that the WDMP process may be an effective means of monitoring diversions from the Russian River and its major tributaries, including its hydraulically connected groundwaters. However, it is not clear if that will lead to the desired goal of mitigating salmonid strandings during frost events.

Part of this difficulty is that, because of widely varying microclimatic conditions that exist throughout the Russian River watershed, as well as the many different frost protection methods that are employed, net diversions that conceivably could lead to salmonid strandings are unpredictable and would vary considerably throughout the watershed region. Of perhaps equal concern is the ability to determine if strandings, when they do occur, are the result of such diversions or would have been experienced to some degree even in the absence of frost protection measures.

However, inasmuch as this is the first frost season under WDMP guidelines, and especially because California is experiencing its worst drought in many years, it is premature to judge how effective the process will be on a long term basis.

7.1 Recommended modifications

No changes or modifications to the WDMP are recommended at this time.

Paul Bialla, owner

Date