

Water Demand Management Program:

for participating growers in \_\_\_\_\_ watershed

**Background:**

This Water Demand Management Program (WDMP) for the \_\_\_\_\_ watershed recognizes that the State Water Board's (Board's) adopted regulation specifically provides for continuation of the use of water for frost protection purposes in the Russian River watershed by growers participating in a Board-approved WDMP. (See Exhibit A.)

This WDMP is intended to address impacts to fisheries from the sudden drop in water levels due to instantaneous demand for water for frost protection. If electing not to participate in or comply with a Board-approved WDMP, the regulation provides that a grower's frost diversion is unreasonable, not illegal.

The regulation is applicable to diversions for frost protection from March 15 through May 15. It does not curtail the use of water for frost protection during this season, nor does it necessarily require real-time monitoring of diversions.<sup>1</sup>

**WDMP:**

The program includes the following: (1) an inventory of the frost diversion systems within the area subject to the program, (2) a stream stage monitoring program, (3) an assessment of the potential risk of stranding mortality due to frost diversions, (4) development and implementation of a corrective action plan if necessary to prevent stranding mortality, and (5) annual reporting of program data, activities, and results.

The WDMP furthers the Board's goals: (a) to promote local development and governance of programs that prevent stranding mortality during the frost season, (b) to provide transparency of diversion and stream stage monitoring data, (c) recognizing that the Board can require any changes to the WDMP that are necessary to ensure it is successful and is implemented on a timely basis, (d) to provide for Board enforcement against non-compliance, and (e) to include all diverters of water for frost protection use, including diverters who pump groundwater that is hydraulically connected to the stream system.

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<sup>1</sup> Note: Participating Growers having permits and license issued by the State Water Board may already have measuring device requirements; and growers with applications or change petitions before the State Water Board will be subject to the measuring and monitoring conditions of the North Coast Instream Flow Policy.

**A. Local Governing Body: \_\_\_\_\_, the approved entity**

Success of the governing body's ability to satisfy the requirements of this WDMP is dependent upon grower cooperation. Overall, if compliance is not satisfied, such diversions would be a violation of the regulation and an unreasonable use. The Board and not the Governing Body will enforce the regulation, though the governing body will report any instances of noncompliance with the WDMP to the Board.

The Board recognizes that it may take time for aspects of the WDMP to be completed, such as the identification of all sensitive stream reaches, installation of stream gages, completion of a comprehensive risk assessment, and implementation of any necessary corrective actions.

Inclusion in such a program does not necessarily mean that the same restrictions would apply to all diverters. It simply means that frost diverters must coordinate their diversions to avoid reductions in stream stage that cause salmonid stranding mortality. Furthermore, the regulation contemplates the continued use of most if not all water rights for frost protection, albeit in compliance with a WDMP to ensure that diversions for frost protection use do not cause stranding mortality of salmonids.

The regulation does not limit or restrict the authority of any state or federal agencies and identifies the Board's intent to allow participating growers to reasonably continue to divert water for frost protection, under a Board-approved WDMP, while the WDMP is fully developed and implemented consistent with the regulation and Resolution 2011-0047.

## **1. Inventory:**

**A. Governing Body:**

1. Conduct inventory of frost protection sites. Include operator's name, source of water, system's capacity, and acreage.
2. Prepare annual budget.

**B. Grower:**

1. Maintain a log of diversion, hours of operation and volume of water diverted during each frost event.
2. Provide diversion data to the Governing Body.

Each grower in the Sonoma County portion of the Russian River watershed using water to protect their crops from frost damage is required to register with the Agricultural Commissioner.

This requirement is met by submitting mapped information on the nature of each frost diversion system, including a description of each water source. For streams, each point of diversion will be mapped and the capacity of the diversion will be given. For wells, the distance from the nearest stream, well depth, seal depth, and diversion capacity will be reported. Registration will

include identifying the board-approved WDMP; payment of that Program's annual fees and selection of a compliance option for review of diversion records.

Identification of water right claimed is not required. The Board maintains records of all known water rights so requiring water right information is unnecessary. Compliance with the regulation does not, however, obviate the need for each diverter to hold a valid right to divert the water.

The regulation requires participating frost diverters to identify the rate of diversion, hours of operation, and volume of water diverted during each frost event. Recording hours of operations and determining the volume of diversion may or may not require additional meters.

## **2. Stream Stage Monitoring:**

### **A. Governing Body:**

1. Consult with agencies to determine gage locations in watershed's streams.
2. Oversee installation and operation of gages in selected streams and conduct analysis and review of monitoring data.
3. In subsequent years, review and update locations to reflect new data and information collected.
4. Use stream monitoring data to guide frost diversion management where needed.

### **B. Grower:**

1. Where possible, provide access to placement of stream gages.
2. Provide monitoring data to Governing Body in useable, least costly format.
3. Use stream monitoring data to guide frost diversion management where needed.

Implementation of the stream stage monitoring program will be site specific and carried out by the Governing Body in consultation with NMFS and DFG. The stream stage monitoring program will determine and set critical stage levels to protect salmonids from stranding mortality at stream channel features, such as gravel bars, side channels, and pocket pools along river margins. This determination would apply in all types of water years and could be variable for the type of year.

Results from the first year will be used as the basis for future recommendations on monitoring program design. All stream gages will collect and record data at 15-minute intervals at a minimum. The Russian River watershed monitoring program will include at least eight (8) of the stage gages that are accessible over the internet via real-time uploading. The long term estimate is that 22 streams will have between one and five gages each, but the final number of streams and gages will be defined by the Governing Body, NMFS and DFG following completion of the inventory. Many of those will likely be conventional data loggers that will require periodic manual downloading of the data. The Governing Body will ensure that the stream gages are functioning properly throughout the monitoring period. The f stage data will be submitted to the

Board as part of the Annual Report by September 1 following the frost season. Data submitted to the Board is available for public review.

The precise locations of the stream gages, within a given stream segment, will be determined in consultation with NMFS and DFG and the gages will be properly installed to ensure a secure location that accurately represents flow conditions in the reach. All gage sites will be described in the monitoring reports using maps, photo-documentation and written descriptions.

NMFS and DFG will be consulted to provide technical assistance to define critical stage levels when hydrologic conditions can be conducive to stranding. These levels will function as a threshold above which diversions can occur and are unlikely to cause stranding mortality. Setting critical stage levels will assist growers scale diversions to flow conditions and minimize cumulative acceleration of the flow recession limb. For example, limiting diversions to a percentage of instantaneous flows would prevent abrupt drops in stage while allowing for greater volumes of water to be diverted with higher flows.

### **3. Risk Assessment:**

#### **A. Governing Body:**

1. Show on map the areas of priority concern identified by NMFS.
2. Provide notice to growers in specific areas showing risk by year type and of options available.

#### **B. Grower:**

1. Pay an annual RA support fee.
2. Respond to requests from Governing Body to provide data to determine risk level for stranding mortality.

If areas of risk are identified through this process, a notice letter will be provided to the specific grower with information of the risk and options to help mitigate that risk. It should be clear that the regulation is intended to apply and does apply only to diversions of water for frost protection from March 15 to May 15 of each year, including diversions from tributaries. If natural stranding occurs, the regulation does not place fault or responsibility on the frost protection diverters who are participating and complying with a Board-approved WDMP or diverters exempted by the Board. However, the regulation is drafted so that cumulative frost diversions do not exacerbate natural conditions that may already cause stranding mortality.

The regulation provides that both NMFS and DFG must be consulted for determination of stream stages that are needed to prevent salmonid mortality and for the risk assessment process. The regulation does not prohibit NMFS or DFG from delegating consultation activity to the other agency, if the workload and resources become an issue.

The regulation does not define when “a reduction of stream stage causes salmonid stranding mortality.” This term is not specifically defined because it will vary for each stream segment geometry and flow conditions. During consultation with NMFS and DFG to determine the stream stage that will prevent salmonid stranding mortality, it is possible that the stage determined to be protective will be too restrictive on frost diversions. Further consultation can provide for a lower stage provided cumulative frost diversion rates are more closely monitored to restrict the rate that stream flow is decreased as a result of frost diversions.

## **4. Corrective Actions:**

### **A. Governing Body:**

1. Identify measures to address problems calling for corrective actions.
2. Provide notice to individual growers.
3. Consider adding real time monitoring in the highest risk areas.

### **B. Grower:**

1. Pay an annual CA support fee.
2. Respond to requests from Governing Body and, where problems are identified, take appropriate corrective actions in an agreed upon time frame.

The regulation will likely not require all growers to implement changes, or corrective actions, to their existing operation. The regulation does not prohibit the diversion of water for frost protection under any valid type of water right, but requires the diversion to be managed in a Board-approved WDMP. The Board will allow the governing body and grower to determine the best acceptable type of system to be used, consistent with the terms of the regulation, if corrective action is determined necessary. The regulation is designed to require diverters in problem areas to take corrective action, which might require real time monitoring in the highest risk areas or other corrective actions.

The regulation anticipates varying needs and situations of diverters for frost protection and therefore provides flexibility allowing the WDMP to appropriately address the specific problems and needs of the participating growers. Full compliance with ESA is outside the Board’s authority.

It is reasonable to assume that an area less than the entire acreage of the geographic area affected by the regulation would undergo some corrective action. The regulation allows adaptive management as an avenue for taking corrective actions to solve any identified problems.

## 5. Annual Reporting:

### A. Governing Body:

1. Submit to Board a publicly available all diversion and stream monitoring data, risk assessments and corrective actions.
2. Focus of report in WDMP's initial years will be on the highest risk areas.

### B. Grower:

1. Provide to the Governing Body the inventory diversion data for frost protection data.
2. Update frost system information when changes have been made.

The method for recording and reporting diversion data is determined by the individual grower or Governing Body managing a Board-approved WDMP. If a groundwater diverter is exempted from the regulation, there is no obligation to report diversions.

The Board considered requiring real-time reporting of all data and the public posting of such data but the economic cost of real-time posting of data was found excessive for the limited benefits obtained from that requirement. The regulation requires the governing body to monitor stream stage data every 15 minutes and gather growers' hours of operation and volume of water diverted for frost event. That data must be available to the Governing Body to assess risks and consider corrective actions on a timely basis. The regulation provides that the Board would receive an Annual Report and all supporting data by September 1 of each year, and the Board's records are available for public review.

Initial annual reporting will alert the Governing Body and Board to existing problem areas and lead to development of corrective actions in these areas. The annual reporting provides a necessary component that allows for Board review and public review of operations.

Additionally, nothing should stop the various agencies and non-profit organizations from offering up their available funds to further the desired monitoring and reporting if that is something those agencies or organizations support. The governing bodies administering the WDMPs are not likely to turn away funding that would help carry out the Program.

## **B. Hydraulically Connected Groundwater:**

The effects on stream stage of pumping percolating groundwater can be less than the effects caused by direct surface water pumping at the same rate. However, the pumping of groundwater in close proximity to a surface stream to frost protect large acreage, especially wells that pump the subsurface stream, can have a larger effect on stream stage than a surface diverter frost protecting a small vineyard or orchard. Additionally, the cumulative effects of pumping multiple groundwater wells may be significant. Therefore, to be excluded from the regulation, diverters from wells will need to make the showings required by subdivision (d) of the regulation. The Board anticipates that groundwater wells will be evaluated on a case by case basis.

The Board anticipates that groundwater pumpers will use a variety of available methods to determine whether their wells are hydraulically connected to the Russian River stream system. For many groundwater pumpers remaining in a WDMP, the governing body may require little or no change in the way the diverters conduct their pumping for frost protection.

## **C. Enforcement:**

The regulation does not provide for enforcement by the Governing Body or by any local governmental agency. Authority for enforcement of violations of the regulation is solely retained by the Board. Any current authority of Sonoma County or other governmental agencies is neither enhanced nor restricted by the regulation.

## **Summary:**

If the stream gage monitoring suggests that cumulative frost diversions may cause stranding mortality, some diverters will need to take corrective actions to reduce that risk. The ultimate authority to enforce remains with the Board and has not been delegated to the individuals or governing bodies administering the WDMPs. However, solutions and corrective actions can be made by the Governing Body and growers.

Many diverters will not be required to change current operations, but only to report diversions on an annual basis to allow the Governing Body to assess cumulative risks based on existing and future demands, variable stream stage conditions, and presence of salmonids.

The regulation applies specifically to stranding mortality that occurs due to the cumulative instantaneous demand for water during frost protection that creates a rapid reduction in stream stage. Other diversions could contribute to the instantaneous reduction in stage. The Board will, in approving WDMPs, exercise “every effort ... to respect and enforce the rule of priority.” No parties will be required “to give up their priorities under law.”

The task of making the regulation work will in the end fall back on the shoulders of those operating the water demand management group. The analysis and direction they provide will be key as the Board is not in a position to be micro-managing every facet of the WDMP.

Exhibit A:

Map of \_\_\_\_\_ watershed's portion of Russian River Watershed

Exhibit B: Required Annual Reports due September 1 of each year:

Schedule for completing tasks identified in \_\_\_\_\_'s Water Demand Management Program:

**2012:** By February 1, 2012, provide identity of Governing Body, list of participating diverters and for each participating diverter, the sources of water used and the acreage frost protected. Also, provide a schedule for completing Frost Inventory; developing and implementing a Stream Stage Monitoring Program and conducting Risk Assessment. Prioritize stream gage installation to high priority streams. Recognize there will not be sufficient stage monitoring data during 2012 frost season to conduct a Risk Assessment or to evaluate whether corrective actions are needed.

A three-months Update is required for rest of the inventory requirements, except for diversion data. This includes for each diverter participating in the WDMP, the acreage frost protected by means other than by water from the Russian River watershed for participating growers.

The first Annual Report is due to the Board on September 1, 2012. This first report will contain updates to the inventory, including the diversion data pursuant to subdivision (c)(1)E of the Regulation, stream stage monitoring data, and the Governing Body's progress towards development of protective stream stages.

**2013:** Update Inventory and Stream Stage Monitoring data and install medium priority stream gages. For a portion of installed gages, determine stream stages needed to prevent stranding mortality. Conduct initial Risk Assessment and provide preliminary Corrective Actions, including notifying growers of the potential risk.

**2014:** Complete determinations of stream stages needed to prevent stranding mortality, knowing these may be revised in future years if additional data or information indicates a revision is needed. Revise as necessary the Risk Assessment due to the completion of the determination of stream stages needed to prevent stranding mortality. Include a Corrective Action Plan and implementation schedule if the Risk Assessment indicates Corrective Action is needed.

**Subsequent years:** Provide all information identified in subdivision (c)(5) of the regulation.