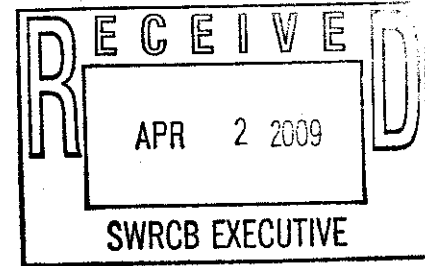


State Water Resources Control Board
Division of Water Rights
101 I Street, 14th Floor
Sacramento, CA 95814

E-mail: commentletters@waterboards.ca.gov



April 1, 2009

RE: 4/7/09 Russian River Frost Protection Workshop

Dear State Water Resources Control Board:

On behalf of Russian Riverkeeper (RRK), I welcome the opportunity to submit these comments to the Russian River Frost Protection Workshop.

We strongly support the letter from the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) which requested that the State Water Board take immediate action, such as implementing emergency regulations, to address concerns that direct water diversions for frost control will cause significant salmonid mortality. The letter documents two episodes of fish stranding mortality that occurred in April 2008, one on Felta Creek in Sonoma County, and the second on the mainstem of the Russian River, near Hopland in Mendocino County.

According to Steven Edmondson, NMFS Northern California Habitat Supervisor, his agency has been working closely with the water board and area growers to address the issue. "While we are exploring several promising long-term solutions, few practical ideas for avoiding additional take of salmonoids this spring have arisen. Given that we are likely to experience similar dry-year conditions this spring, and the need to protect crops from frost damage still exists, it seems imperative to act now in order to avoid a potentially widespread reduction in the reproductive success of salmonoids in watersheds where this is an issue," he wrote. "We therefore urge the SWRCB to take immediate action, such as implementing emergency regulations, to protect this important public trust resource from further harm."

The 2008 frost protection season was the worst in recent history. The two incidences where frost protection diversions killed federally listed species included one case where endangered coho salmon were killed because the small creek where they lived was pumped dry. Some pools in this creek were three feet deep. The other incident occurred not in a small stream, but the mainstem of the Russian River. Close to 37% of the Russian River's flow as measured at the Hopland USGS gauge was directly diverted and used for frost protection.

Mortality due to direct diversions likely more widespread than documented and fish impacts not limited to frost control

The fact that only 2 incidences were documented is just the tip of the iceberg. Declining stream flows are occurring throughout the Russian River watershed as you well know, and there are negative impacts to stream flows occurring on every tributary where vineyards are present. It is difficult and sometimes impossible to document fish mortality or direct diversion impacts to streams since over 90% of the Russian River watershed is privately owned preventing public and even agency access to streams.

Despite protections in our system of laws, northern California rivers and streams are being progressively de-watered with disastrous impacts to fisheries, aquatic ecosystems and recreational opportunities. Mighty rivers that once teemed with fish and provided countless hours of recreation for citizens of the region are now dry during summer or so stagnant as to be unsuitable for human contact.

Agriculture, specifically vineyards, already account for over 80% of water use in Sonoma County and vineyards/wineries are creating an unsustainable overdraft of water availability. Your notice states that there are over 800 reservoirs for which there is no record of a water right, in other words, illegal diversions. Unauthorized diversions of water from this watershed contribute to a cumulative impact on habitat of federally protected steelhead trout and Coho salmon. Moreover, the Russian River has been under strict conservation restrictions during the summers of 2004, 2005, 2007, 2008 and 2009. Sonoma County Water Agency and its members have been required to implement a 15% reduction in diversions from the River but this requirement does not extend to vineyards and no means of monitoring water conservation compliance exist due to lack of metering.

When all reservoirs are filled simultaneously with the first rains of fall or winter, Chinook and coho salmon spawning migrations may be impeded (Band 2008). In a drought year, adult steelhead may be similarly stranded or unable to migrate to spawning grounds due to reservoir induced drops in flow. When reservoirs are filled in summer using stream flows or connected groundwater, nearby streams may dry up. Other impoundment related impacts that Sonoma County should be considering are effects of legal and illegal impoundments on water temperatures, for which the entire Russian River watershed is listed as temperature impaired. (Patrick Higgins et al., 1992).

During a frost, the high instantaneous demand for water for frost protection by numerous vineyards and other water users frequently exceeds the supply in the Russian River stream system. This results in uncoordinated diversions and infringements upon other rights, including public trust rights.

Mark West Creek is a major tributary of the Russian River that two decades ago supported Coho and still supports a highly diminished Steelhead Trout population. Stream surveys conducted by the California Department of Fish and Game (DFG) indicate that Coho Salmon are present in Upper Mark West Creek, and steelhead are present in Upper Mark West Creek and its tributaries. A 1969 DFG Stream Survey noted steelhead ranging from 1 to 8 inches in length in numbers approximately 60 per 100' of stream in pools averaging 3' deep, 15' wide and 30' long.

A report in 2008 by Mr. Stacy K. Li, a salmon and steelhead ecologist recently retired from the National Marine Fisheries Service, notes that "Streamflow in the MWC in late October

2008 was very low, on the order of 0.01 cubic feet per second. This is about the same volume as the full flow of a garden hose. Water diversions under these very low flow conditions could easily drain the stream. Based on my observations of the condition of the Mark West Creek in this reach....the cumulative adverse habitat conditions on steelhead could easily reduce steelhead production in the Mark West Creek by at least an order of magnitude." (Stacy K. Li, 2008).

Regional Water Quality Control Board comments re Mark West Creek (Nov 2008):

"It has become evident that the cumulative impacts of land use changes within the Mark West Watershed are significantly impacting water quality and beneficial uses of water within this watershed. This reflects the potential need for a full environmental assessment, including an assessment of cumulative impacts, of the Mark West Creek watershed to determine how water quality and all beneficial uses of water are affected, prior to approval of new developments in this area. Pending such assessments, the regional Water Board encourages the implementation of available tools to address these issues, including water conservation practices, dry year contingency plans, riparian restoration, and low impact development practices to reduce soil erosion and increase infiltration. Balancing domestic and agricultural water usage while maintaining sufficient flows to sustain viable fish populations is the goal and will require community based solutions."

The example of Mark West Creek shows that the cumulative impacts from diversions, some for rural residences but mostly to supply vineyards, have had on stream flows and fish populations. Adding the impacts of high diversion rates for frost control places the future of steelhead and opportunities to attempt Coho reintroduction from broodstock at sever risk.

Indirect diversions impact stream flow in addition to direct diversions

Although direct diversion of water for frost protection is the issue being discussed, we are also very concerned with the pumping of underflow or indirect diversions that lower stream flows and the density of wells located near the Russian River and tributaries where Steelhead and Coho are present. In the Alexander Valley, winegrape growers pump water from an underground aquifer using wells, many of which are located within a few thousand feet of the Russian River. A recent USGS report found that groundwater is significantly influenced by river percolation;" The ionic composition of most historical and recent samples from many wells in the Alexander Valley is similar to that of the historical surface-water samples collected from the Russian River near Healdsburg. This similarity in ionic composition suggests that recharge to most wells, particularly wells that are less than 200 ft total depth and perforated in Quaternary alluvial deposits, may be a combination of infiltration from precipitation and seepage from the Russian River and its tributaries." (Metzger, Et al, 2006)

The accompanying graphs for the Russian River and dam releases show dips in stream flow that correspond with periods of frost control diversion on April 2,3,4,8,10,16,17,19-21, 24th when the coldest temperatures were reached in the month. The Hopland gauge had a very strong response to frost warning days with Cloverdale in upper Alexander Valley having a similar response with the Healdsburg gauge showing a muted response due to higher accretion flows from tributaries such as Maacama Creek. During the same period the

releases from Coyote Dam at Lake Mendocino were constant. The Dry Creek gauge showed a constant drop throughout the month although the Warm Springs Dam releases were fairly constant and some accretion flows were occurring. The graphs show that streamflow is affected by pumping at during the numerous frost and freeze warnings in April, 2008. (see attached)

Indirect diversions from wells located adjacent to smaller streams can directly impact stream flow levels since by creating a hydraulic gradient that can span an entire channel underground pulling the stream underground to recharge the well.

Unpermitted and illegal diversions should be investigated and enforced.

As stated in the notice for the April 7th workshop the State Water Board has identified over 800 ponds and reservoirs with no record of water right or water right claim and notes that over 1750 water rights, water rights claims and water rights applications are on file, with most of the pending applicants diverting water prior to a valid water right permit being issued. It is outrageous to us that it is illegal to divert water or impound water without a valid water rights permit but many vineyards still do it and then put a large amount of the illegally appropriated water to wasteful use for frost control.

Alternatives to overhead sprinkler use for frost control exist and are in use

It should be noted that many vineyards do not use overhead sprinklers for frost control and rely instead on micro-misters, frost resistant varieties or wind machines to prevent damage to vines. On April 1, we saw two new wind machines at Gallo's Twin Valley/ MacMurray Ranch property that had just been placed in the vineyards so some vineyards are responding to the lack of water in a positive manner and this should be encouraged by enacting regulations to prevent the use of direct diversion for frost control using overhead sprinklers.

We take note concerning statements made during a California Farm Bureau-sponsored trip to Washington, D.C., last week, CFBF board member Peter Bradford of Boonville discussed the situation with congressional and administration leaders. "This is a clear example of how some of the regulatory issues that are being placed on agriculture during this time of drought have a huge impact," he said. "I pointed out that these regulations that we have to abide by are restricting the amount of water that we can use and they are restricting the development of storage.

"They are restricting food safety and food security down the road, because if we can't grow the crop because we can't pump the water or store the water, then the nation is going to have to get our food from somewhere else at greater cost and from a less secure food source," Bradford said. (*California Farm Bureau Federation, AgAlert 3/25/09*)

We would like to point out that it is not FOOD security that is the issue. It is WINE, and it is misleading to suggest that this is a food security issue. It should be pointed out that in times of drought ESA listed fish species are even more impacted and given the large amounts of public money being spent to recover the Steelhead and Coho that protecting the fish from dewatering is not only protecting the public trust but protecting the public's investment in fish recovery. Arguments of economic hardship are real but so is the possibility that future

generations will never be able to see or catch a native Steelhead or Coho if actions are not taken to prevent wasteful use of water from harming fish.

For these reasons we feel the direct diversion of water for frost protection for Russian River vineyards are an unreasonable method of diversion of water because the diversions create a high instantaneous rate of demand which deplete the flow of the river during certain periods of time during the frost season. In addition we urge the Division of Water Rights to investigate indirect pumping for frost control as well due to above-mentioned impacts on streamflow. As the case in Napa Valley, it appears that the only feasible solution to the problem is (1) to require pumping and storage of water for frost protection during higher winter flows, and (2) to develop other supplemental sources of water so that no direct pumping of water for frost protection would be necessary. On appeal in that case, the First District Court of Appeal concluded that in order to attain the constitutional mandate that waters be put to reasonable and beneficial use, riparian water users could be required to endure some inconvenience and reasonable expense.

The State Water Board also has a duty to protect, where feasible, the State's public trust resources, including fisheries and to prevent the waste or unreasonable use, unreasonable method of use, or the unreasonable method of diversion of all waters of the State.

We appreciate your consideration of our comments and welcome any questions you might have on our letter.

Sincerely,

Don McEnhill
Russian Riverkeeper

Attachments:
USGS Flow Graphs
Dr. Stacy K. Li letter
1969 DFG Mark West Stream Survey
Farm Bureau article on frost protection



CALIFORNIA FARM BUREAU FEDERATION



Frost protection could be curtailed to benefit salmon and steelhead

Issue Date: March 25, 2009

By Steve Adler

Winegrape growers along the Russian River on California's North Coast have been informed that they may not be allowed to turn on their sprinkler pumps for frost protection this spring, because of the potential danger to protected salmon and steelhead that may be brought about by a sudden drawdown of water in the river.

The State Water Resources Control Board, which claims administrative authority over agricultural pumping from the Russian River, has scheduled a public workshop in Sacramento for April 7 to receive information regarding potential impacts on Russian River salmon and steelhead from legal water diversions for frost protection in Mendocino and Sonoma counties.



Alexander Valley winegrape grower Dave Faruechi checks a well in his vineyard that he uses to pump irrigation water to protect emerging grapevines when temperatures drop below freezing in the spring.

In scheduling the workshop, the state board referred to a letter it received Feb. 19 from the National Marine Fisheries Service, which mentioned two fish kills (one in Sonoma County and the other in Mendocino County) that occurred last April during a severe frost. NMFS said a significant drop in water flow that night coincided with frost protection measures.

Winegrape growers in the region say that utilizing overhead sprinklers is the only effective method available to them to protect the tender young shoots that are emerging as their vines come out of winter dormancy.

David Koball, vineyard director for Fetzer Vineyards in Hopland, said he's very concerned. Koball will be one of the speakers at the water board workshop next month.

"According to the timeline from the state water board, we were told that they could implement a frost protection ban fairly quickly after the meeting on the 7th, so I don't know what is going to happen at that point," he said. "They could come back and say we can't use any more frost water or we may be able to continue as is. The worry is that if we have no water for frost protection, there are a lot of growers who don't have any other option for frost control in their vineyards. These growers have no other source of water for either frost protection or irrigation. It takes away all options."

Koball said he has been told by a meteorologist in Southern Oregon that this spring shapes up to be

similar to spring 2008, which was very cold.

In the Alexander Valley, winegrape growers pump water from an underground aquifer using wells, many of which are located within a few thousand feet of the Russian River. One of those wells is situated in Dave Fanuechi's vineyard about 3,000 feet from the Russian River.

Fanuechi is a second-generation grower, farming land that his father bought in 1948. While they grew prunes in the past, they converted totally to winegrapes in the mid-1990s. The concern that he expresses about a potential ban on sprinklers for frost protection is representative of that held by most area winegrape growers.

"All of a sudden frost protection is being looked at as a bad thing. It is a perceived problem that we are damaging fish. Last year we checked the water level in the river and when everyone in the Alexander Valley was running frost protection on 3,000 to 4,000 acres on the valley floor, the river dropped approximately one inch. An inch is nothing," he said.

Fanuechi noted that vines are very susceptible to damage from frost and once the damage occurs it will affect the rest of the season, either severely impacting yield or destroying the crop altogether.

"If we aren't able to protect our vines and we lose them, we don't have a livelihood. If we are making payments on a ranch, we could lose the ranch," he said.

The controversy revolves around salmon and steelhead that spawn in the Russian River and its tributaries. According to the NMFS letter, "Coho salmon, Chinook salmon and steelhead all spawn and rear in the basin and all are protected under the federal Endangered Species Act." The NMFS said it is concerned that rapid depletion of water for frost protection may strand newly emerging fry.

According to Steven Edmondson, NMFS Northern California Habitat Supervisor, his agency has been working closely with the water board and area growers to address the issue.

"While we are exploring several promising long-term solutions, few practical ideas for avoiding additional take of salmonoids this spring have arisen. Given that we are likely to experience similar dry-year conditions this spring, and the need to protect crops from frost damage still exists, it seems imperative to act now in order to avoid a potentially widespread reduction in the reproductive success of salmonoids in watersheds where this is an issue," he wrote. "We therefore urge the SWRCB to take immediate action, such as implementing emergency regulations, to protect this important public trust resource from further harm."

In a related development, the Mendocino County Board of Supervisors voted unanimously last week to submit a letter to the state water board opposing any attempt to prohibit frost protection this spring in the Russian River drainage. Supervisors said frost could lead to millions of dollars in crop losses and cost hundreds or even thousands of jobs.

The water board points out that there are currently voluntary actions being implemented to protect the fish, including grower education activities and inter-agency coordination efforts.

"At the workshop, the state water board hopes to receive information about ongoing actions to reduce the impacts of frost pumping, that will help them to decide whether to adopt emergency regulations, standard regulations or take other actions," said Kathie Smith of the water board.

Board staff has invited speakers to make presentations on issues of interest. The board will take public comment. Depending on turnout, time limits on comments may be imposed to provide everyone an opportunity to participate. Written comments may also be submitted.

If a frost event occurs at some time during the next several days, growers should take all actions necessary to avoid a take of listed species, the board cautioned.

"Ideally, growers in sensitive areas should work together to schedule their diversions to ensure that stream flow is not depleted. The Division of Water Rights, the Regional Board, the National Marine Fisheries Service and the Department of Fish and Game will investigate if we become aware of frost pumping that affects these species. The agencies are working cooperatively on investigations, and intend to work cooperatively on prosecutions, as appropriate," Smith said.

According to the water board, both federal and state laws are involved. The penalty depends on the nature and extent of the violation and on the remedies available to the prosecutors under the pertinent law. Penalties may include fines and criminal prosecution.

The April 7 workshop is scheduled to begin at about 1 p.m., following the board meeting earlier that day. Location of the workshop is the Coastal Hearing Room, on the second floor of the Joe Serna Jr. Cal-EPA Building, 1001 I St., Sacramento.

During a California Farm Bureau-sponsored trip to Washington, D.C., last week, CFBF board member Peter Bradford of Boonville discussed the situation with congressional and administration leaders.

"This is a clear example of how some of the regulatory issues that are being placed on agriculture during this time of drought have a huge impact," he said. "I pointed out that these regulations that we have to abide by are restricting the amount of water that we can use and they are restricting the development of storage.

"They are restricting food safety and food security down the road, because if we can't grow the crop because we can't pump the water or store the water, then the nation is going to have to get our food from somewhere else at greater cost and from a less secure food source," Bradford said.

The California Farm Bureau has been talking with the state water board to try to resolve the issue, said CFBF Director of Water Resources Danny Merkley.

"We're working to find solutions for everyone, fish and farmers alike," he said.

Richard Rued, a fourth generation winegrape grower in Sonoma County, said the frost danger on the North Coast could extend into mid-May.

"Frost is kind of funny. It will move around and hit one area and not another. It is going to be a real problem and I'm not sure what the outcome will be. Maybe we will have a warm spring and it won't be an issue," Rued said. "Hopefully there will be a resolution before the next frost season. But everything moves so slowly. There are so many agencies involved that to do anything is like walking through molasses."

(Steve Adler is associate editor of Ag Alert. He may be contacted at sadler@cfbf.com.)

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Ms. Kimberly Burr, Esquire:
P.O. Box 1246
Forestville, CA 95436

9 November 2008

Dear Ms. Burr:

Here is my declaration in relation to the proposed Henry Cornell Winery negative declaration.

Qualifications

I am Stacy K. Li, Ph.D. and have recently retired from the National Marine Fisheries Service (NMFS), where I served as a salmon and steelhead ecologist, an Instream Flow Specialist and the Water Rights Specialist for the Habitat Conservation Division of the South West Region from 12 February 2001 to 30 September 2008. I also served briefly as the Enforcement Biologist for the South West Region of the Office of Law Enforcement, National Marine Fisheries Service. I was the first and thus far the only Enforcement Biologist for the Office of Law Enforcement. I was awarded a NOAA Bronze Medal for superior federal service in April 2008 for a section 9 (Take under the Endangered Species Act) investigation involving timber harvest rules for a timberland conversion to vineyard, resulting sedimentation, and take of steelhead in Mendocino County.

Previous to federal service, I ran my own consulting business, Aquatic Systems Research, from 1989 to 2001. I was the California Department of Fish and Game's expert witness on instream flow flows for tributaries to Mono Lake in the historic State Water Resources Control Board Hearing on Mono Lake in the early 1990s and was part of the Mono Basin Streams Restoration Team. Prior to forming my own consulting firm, I worked for a number of environmental consulting firms, Beak Consultants (Sacramento), Holton Associates (Berkeley), EIP Associates (San Francisco), and D. W. Kelley and Associates (Newcastle). I began my professional biological career in 1980.

In addition to my experience as a biologist, I also participated in applied planning. I served as the Chairman of the Loomis Planning Commission in Placer County. The town's first general plan was created when I was chairman. I also helped develop storm water management guidelines for Placer County and participated on the Loomis general plan update committee.

I was educated at the University of California at Davis where I earned a Ph.D. in 1976 for work emphasizing animal behavior, ecology and evolution, a M.A. in 1971 in psychobiology, a B.A. in 1969 in psychology and a B.S. in 1968 in zoology.

Proposed Negative Declaration

I have read Sonoma County Planning Department's proposed negative declaration, dated September 2008, for the Henry Cornell Winery, located at 245 Wappo Road in Santa

Rosa, File Number UPE07-008 and have first hand knowledge of upper Mark West Creek where this project is proposed having visited twice as an employee of NMFS. In that proposed negative declaration, potential project related adverse effects to biological resources were not checked. Therefore, the proposed negative declaration is inadequate because I have observed severe adverse impacts from deposited sediments from the Cornell property that has adversely affected federally threatened steelhead trout (*Oncorhynchus mykiss*) and their habitat in Mark West Creek.

I understand from North Coast Regional Water Quality Control Board (NCRWQCB) inspection reports and conversations with neighbors that a substantial pile of fill material from the Cornell property was pushed into a low lying area near North Fork (NF) Mark West Creek in order to repair a landslide. The stored fill material resulting from the landslide entered the NF Mark West Creek and then into Mark West Creek during the winter of 2005-2006. Mr. Paul Keiran, NCRWCB, estimated the sediment volume from the Cornell property at 10,000 cubic yards.

Because I have inspected Mark West Creek when I worked for NMFS on at least two previous occasions prior to the sediment spill reaching the Caplinger property, I saw more clearly the adverse effects to steelhead trout and steelhead habitat from this large volume of sediment spill. I have reviewed pictures of the sediment spill taken by local residents and Mr. Keiran. The turbidity of the water appears to be sufficiently high to kill steelhead if steelhead were exposed to it for a day. The sediment from this release could be detected by its size composition (small gravel and finer) and its color (brownish) for over 4,000 lineal feet downstream of NF Mark West Creek in Mark West Creek during habitat inventory survey that I conducted on 20, 21, and 30 October 2008.

The Cornell property is evidently prone to landslides. I do not recommend any activity that would tend to make these slides active. Upslope development will inevitably result in some loss of soil. Best management Practices are imperfect at best and do not eliminate soil loss or sediment deposition.

Description of Affected Reach of Mark West Creek

The reach of Mark West Creek from the Tarwater Bridge upstream to its confluence NF Mark West Creek consists mostly of a consistent gradient (approximately four percent) stream flowing through a narrow bedrock confined canyon. Long and deep pools occur at periodic nick points, but they are not many. Within the steeper segments of the stream are many small step pools and step pocket pools with steep cascades in between these juvenile rearing areas. On one hand, these rearing areas are more sensitive to degradation by sedimentation because of their small size they are easily filled. On the other hand, sediment travels through these habitat types more quickly because they are small and within steeper portions of the stream. Stream banks and tributaries other than NF Mark West Creek show little evidence of contributing substantial amounts of sediment to the stream. Riparian canopy and topographic shade were extensive.

Adverse Effects of Sedimentation from the Cornell Landslide on Mark West Creek

The adverse effects of sedimentation are so well known that monographs have been written on the subject (see Waters 1995¹).

- The large pools downstream of NF Mark West Creek were filled in with sediment, some to more than $\frac{1}{2}$ to $\frac{3}{4}$ of their original volume, reducing living space and escape cover, degrading holding and rearing habitat for steelhead trout. Some pool depths were reduced from over eight feet to less than two feet. Smaller step pools and step pocket pools within steeper slopes of the stream were also filled or buried with sediment, reducing juvenile steelhead rearing habitat. Low gradient riffles were generally so clogged with sediment that the space between the dominant bed elements were filled. This embedded condition greatly reduces benthic aquatic invertebrate production, which is used as food by steelhead.
- Steelhead spawning has been adversely affected by the sediment spill. Finer gravels of the Cornell sediment release that are ill suited for steelhead spawning have buried spawning gravel. The appropriate spawning material is hidden and unavailable. The smaller material from the Cornell sediment spill is easily scoured away by modest flows and would have reduced percolation through the redds (fish nest) egg pocket.
- Deposits of sediment from the Cornell property have interrupted surface flow in four places of Mark West Creek to fragment steelhead habitat, interrupt fish food delivery, and create upstream and downstream fish passage barriers.
- I saw five adult steelhead stranded in Mark West Creek since June 2008. I find the number of stranded adults to be unusually high. Could the effects of the sediment spill or water diversion delay the adults and trap them in the stream?
- I also located an adult steelhead skeleton lying on the bank near the pool where three adult steelhead were stranded. There is a lack of space in the large pools for effective escape from predators since the sediment spill.

Based on my observations of the condition of Mark West Creek in this reach prior to the sediment spill, the current state of the same reach degraded by the massive sediment plume, and my 28 years of professional experience assessing salmonid habitat and salmonids populations in California, Oregon, and Washington, the observed cumulative adverse habitat conditions on steelhead in the affected reach of the stream could easily reduce steelhead production in Mark West Creek by at least an order of magnitude.

¹ Waters, Thomas F. 1995. *Sediment in Streams – Sources, Biological Effects and Control*. American Fisheries Society Monograph 7, Bethesda, Maryland: 251 pp.

Streamflow as a Limiting Factor

Streamflow in Mark West Creek in late October 2008 was very low, on the order of 0.01 cubic feet per second (cfs). This is about the same volume as the full flow from a garden hose. Water diversion under these very low flow conditions could easily drain the stream. Water diversion purposes such as frost protection or heat control would be particularly debilitating because water need for these conditions is on a regional rather than an individual basis, so water demand is large and simultaneous.

The 2008 frost protection season was the worst in recent history. There were at least two incidences where frost protection diversions killed federally listed species. In one case endangered coho salmon were killed because the small creek where they lived was sucked dry. Some pools in this small creek were three feet deep. The other incident occurred not in a small stream, but the mainstem of the Russian River. Close to 37% of the Russian River's flow as measured at the Hopland USGS gage was directly diverted and used for frost protection. That volume of diversion was sufficient to expose a gravel bar in the mainstem Russian River and kill recently emerged and threatened steelhead fry living there.

Groundwater extraction as occurring and proposed can also reduce streamflow in streams. Streams with low base flows such as Mark West Creek would be particularly susceptible. The adverse effects are delayed because water percolation underground takes more time to show its effects, but groundwater is part of the hydrologic cycle.

Endangered Species Status

Steelhead trout inhabit Mark West Creek. These fish are part of the Central California Coast Steelhead Distinct Population Segment that was listed as a threatened species under the U.S. Endangered Species Act (ESA) on August 18, 1997; the threatened status was reaffirmed on January 5, 2006 (71FR834). This Steelhead DPS includes all naturally spawned anadromous *Oncorhynchus mykiss* (steelhead) populations below natural and manmade impassable barriers in California streams from the Russian River (inclusive) to Aptos Creek (inclusive), and the drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chippis Island at the confluence of the Sacramento and San Joaquin Rivers. Tributary streams to Suisun Marsh including Suisun Creek, Green Valley Creek, and an unnamed tributary to Cordelia Slough (commonly referred to as Red Top Creek), excluding the Sacramento-San Joaquin River Basin, as well as two artificial propagation programs: the Don Clausen Fish Hatchery, and Kingfisher Flat Hatchery/ Scott Creek (Monterey Bay Salmon and Trout Project) steelhead hatchery programs.

A final designation of Critical Habitat was published on September 2, 2005 with an effective date of January 2, 2006 (70FR52488) and final revised protective regulations (4d rules) were issued for this DPS on June 28, 2005 (70FR37160).

The sediment deposit from the Cornell property is massive and will remain in the stream and continue to degrade steelhead habitat until sufficiently large flows can cleanse the Mark West stream channel. Until that time, steelhead production in Mark West Creek

will remain low. The sediment deposits have degraded all facets of steelhead life history from upstream adult passage impediments, reduction of available spawning gravels, reduced quality of spawning sites, reduced porosity in the interstitial embryo environments, reduced alevin (fry) emergence from the gravel from sediment clogged interstitial space, diminished rearing habitat quantity and quality, downstream migration barriers to both juveniles and adults, and increased incidence of adult stranding. Before any further development is permitted in this area this property, streamflow should be studied and restored, sediments removed naturally and anthropogenic sediment inputs eliminated.

Without regard for the adverse impacts from further development, the culvert on NF Mark West Creek and under Saint Helena Road is inadequate. It is undersized and has backwatered during high flows. If the backwater lasts sufficiently for the roadbed to become saturated the road will fail and send additional sediment to Mark West Creek. In addition, the culvert is also not at grade with the stream, and is therefore a fish passage impediment. Replacement of the culvert would be a project related mitigation. National Marine Fisheries Service has guidelines for culvert replacement.

I, Stacy K. Li, Ph.D., declare the above statements to be true.

Stacy K. Li
Signature

12 Nov 08
Date

Citations

Waters, Thomas F. 1995. Sediment in Streams – sources, biological effects and control. American Fisheries Society Monograph 7, Bethesda, Maryland: 251 pp.

KIMBERLY BURR

Attorney at Law

Post Office Box 1246 Forestville, CA 95436

707.887.7433 • 707.887.0847 facsimile

TO: Dave Hardy
PRMD

FROM: Kimberly Burr

DATE: 11-12-08

RE: Henry Cornell Winery Mitigated Negative Declaration; UPE07-0008;
formerly UPE 03-0092; Public comment

The accompanying comments of Dr. Stacy Li are made in reference to the above entitled mitigated negative declaration to be considered by the Board of Zoning Adjustments tomorrow November 13, 2008. Please make these comments a part of the administrative record and distribute to the Board prior to the hearing.

Thank you, Kimberly Burr



THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF FISH AND GAME

STREAM SURVEY

File form No.

DATE: September 4, 1969NAME: Mark West Creek COUNTY: SonomaSTREAM SECTION: Entire FROM: Headwaters TO: confluence with LENGTH: 29 mi.
Russian RiverTRIBUTARY TO: Russian River hence the Pacific Ocean TWP: 8N R: 9W SEC: 31OTHER NAMES: Unknown RIVER SYSTEM: Russian RiverSOURCES OF DATA: Data were obtained through the personal observations of Keith Himmelrick and Jim Michaels, and from talks with local residents.

EXTENT OF OBSERVATION
Include: Name of Surveyor, Date, Etc

LOCATION

RELATION TO OTHER WATERS

GENERAL DESCRIPTION

Watershed
Immediate Drainage Basin
Altitude (Range)
Gradient
Width
Depth
Flow (Range)
Velocity
Bottom
Spawning Areas
Pools
Shelter
Barriers
Diversions
Temperatures
Food
Aquatic Plants
Winter Conditions
Pollution
Springs

FISHES PRESENT AND SUCCESS

OTHER VERTEBRATES

FISHING INTENSITY

OTHER RECREATIONAL USE

ACCESSIBILITY

OWNERSHIP POSTED OR OPEN

IMPROVEMENTS

PAST STOCKING

GENERAL ESTIMATE

RECOMMENDED MANAGEMENT

SKETCH MAP

REFERENCES AND MAPS

EXTENT OF OBSERVATION - Mark West Creek was surveyed on July 22, 23, 24 and 25 by Keith Himmelrick and Jim Michaels. The stream was surveyed on foot, except for one mile of swamp and a 1/8 mile section upstream from the mouth, which were surveyed from a truck, with frequent stops for closer observation.

LOCATION - Mark West Creek traverses Sonoma County in a general east to west direction and empties into the Russian River approximately 5 miles east of Guerneville.

RELATION TO OTHER WATERS - Mark West Creek is an important drainage of the Santa Rosa Valley and of the mountains to the east of the valley. The stream is an important tributary to the Russian River, contributing both summer and winter flows. The stream was discharging at approximately 4.16 c.f.s. during the time of the survey.

GENERAL DESCRIPTION:

WATERSHED - The topography was mountainous in the headwaters, becoming a flat valley near the mid section and turning to low hills near the mouth. The vegetative cover of the watershed near the headwaters and mouth was characterized by oaks, bays, redwoods, Douglas fir, maples, Horse Chestnut, and madrone trees, Manzanita brush was prevalent in the headwaters. The vegetative cover of the Santa Rosa Valley was characterized by pasture land, orchards, and vineyards.

IMMEDIATE DRAINAGE BASIN - Mark West Creek drains an area of approximately 40 square miles. The basin was a steep "V" shaped canyon

near the headwaters, turning to open valley upon reaching the Santa Rosa Valley and then a wide "U" shaped canyon upon discharging into the Russian River. The stream was characterized by an incised channel near the headwaters and a bowl shape channel in the mid and lower sections of the stream. Streamside vegetation was comprised of willows, oaks, bays, alders, blackberries, maples, and a few redwoods. Approximate 75% of the stream was sheltered.

ALTITUDE - The altitude ranged from approximately 1800' above sea level near the headwaters to approximately 40' above sea level near the mouth.

GRADIENT - The streambed dropped an average of approximately 61 ft. per mile. Gradient was near zero through the valley section and near the Russian River.

WIDTH - Width ranged from approximately one foot wide to 300' wide, and averaged approximately 14' wide. The swamp area averaged approximately 150-200 in width. The section of stream downstream from the swamp averaged approximately 20' in width.

DEPTH - Depth ranged from approximately 2" to 10' and averaged approximately 1.4 ft. in depth. The section of stream downstream from the swamp area averaged approximately 3' in depth.

FLOW - Flows were taken at three points along the stream.

1. Flow taken near headwaters approximately 200' downstream from the St. Helena Road bridge on 7/25/69 at 1630 hours. A flow of approximately 1.41 c.f.s. was recorded with the pigmy meter. Air temperature was 70 degrees F. and water temp. was 68°F.
2. Flow taken near the mid section approximately 100' downstream from Slusser Road bridge on 7/24/69 at 1730 hours. A flow of approximately 1.10 c.f.s. was recorded with the pigmy meter. Air temp. was 74°F., and water temp. was 72°F.
3. A flow taken near the mouth approximately 10' upstream from the confluence with the Russian River, on 7/25/69 at 1345 hours. A flow of approximately 4.16 c.f.s. was recorded with the pigmy meter. Air temp was 70°F., and water temp. 74°F.

Subsurface flows were observed in various places along the section of stream between Porter Creek Road bridge and Calistoga Road bridge. Various sections of stream had subsurface flows in the section of stream from the St. Helena Road bridge to the headwaters.

VELOCITY - The velocity of Mark West Creek was rapid near the headwaters, turning to sluggish upon reaching and continuing through the Santa Rosa Valley.

BOTTOM - Bottom averaged approximately 25% gravel, 9% bedrock, 7% hardpan, 23% rubble, 21% silt and sand, 10% boulder and 5% mud.

SPAWNING AREAS - A total of approximately 2% miles of stream appeared suitable for steelhead spawning. No spawning gravels were observed downstream from Windsor Creek, due to the turbidity of the water. Numerous redds were observed at various sections of stream during the time of the survey. Being crater shaped they were believed to be lamprey redds. See map. (sic)

POOLS - Pools observed in the section of stream from headwaters to St. Helena Road bridge averaged approximately 3' deep, 15' wide, and 30' long. The section of stream from St. Helena Road bridge to the Old Redwood Highway had pools averaging in size of 15' wide, 3' deep and 30' long. The section of stream from the Old Redwood Highway to the Mark West swamp had pools averaging in size of 20' wide, 100' long, 1½' deep. The section of stream from Windsor Creek to the confluence with the Russian River had pools ranging in size of approximately 20' wide, 3' deep, 150' long. Pools were numerous along the entire stream.

SHELTER - approximately 75% of the stream was sheltered by riparian vegetation. Other natural shelter areas for fish were created by fallen logs, boulders, deep pools and undercut banks.

BARRIERS - Numerous 4'-6' shoots and falls were observed near the headwaters. One 10' fall located approximately 2% miles upstream from St. Helena Road bridge appeared to be a barrier to upstream steelhead migration. Trout, believed to be resident rainbows, were observed for approximately 1/2 mile upstream from the barrier. Numerous log jams and flashboard dams were observed at the time of the survey. Also a dam made from fruit boxes was observed. See attached map.

DIVERSIONS - A total of six 1" div., fourteen 2" div., one 3" div., ten 4" div. and one 6" diversion were active during the survey. One 4" inactive diversion was also observed. See attached map. (sic)

Temperatures -

1. Temperatures taken near the headwaters on July 22, 1969 at 1500 hours were: air temp. 86°F., water temp. 62°F.
2. Temperatures taken at St. Helena Road bridge on July 23, 1969 at 0900 hours were: air temp. 66°F., water temp. 62°F.
3. Temperatures taken at Calistoga road on July 23, 1969 at 1030 hours were: air temp. 71°F., water temp. 64°F.
4. Temperatures taken approximately 2 miles downstream from Calistoga Road bridge on July 23, 1969 at 1330 hours were: air temp. 72°F., water temp. 72°F. to 80°F. Algae was observed to be abundant in this section of stream.
5. Temperatures taken at the confluence with Mill Creek on July 23, 1969 at 1400 hours were: air temp. 77°F., water temp. 69°F.
6. Temperatures taken at Old Redwood Highway bridge on July 24, 1969 at 1000 hours were: air temp. 77°F., water temp. 69°F.
7. Temperatures taken approximately 1/4 mile upstream from Mark West slough on July 25, 1969 at 1000 hours were: air temp. 69°F., water temp 69°F.
8. Temperatures taken approximately 10' upstream from the confluence with the Russian River on July 25, 1969 at 1300 hours were: air temp. 70°F., water temp. 74°F.

FOOD - Caddisfly larvae and cases were inhabiting the stream in numbers averaging approximately 10 per 10" rock. Mayfly larvae were also observed in numbers averaging approximately 1.5 per 10" rock. Aquatic snails were observed inhabiting the stream in numbers of approximately 5 per square foot of streambed.

AQUATIC PLANTS - Filamentous algae, sword grass, cattail, bullrush, duck weed were observed at the time of survey. Aquatic plants were abundant upon the entire stream.

WINTER CONDITIONS - The water level appears to rise approximately 1-1½ and filling a 15' wide channel near the headwaters during winter peak flows. The water level appears to rise 20'-25' above the level at the time of the survey, overflowing banks, near the confluence with the Russian River during peak flows.

POLLUTION - Three domestic dumps were observed on Mark West Creek. One was located approximately one mile downstream from Calistoga Road bridge. One was located approximately one mile upstream from Slusser Road, and the last was located approximately 100 yards upstream from the Wohler Road bridge. The section of stream from the swamp to the confluence with the Russian River was so turbid that water clarity was reduced to 5 inches at the time of the survey. The turbidity appeared to be caused by suspended sands and silts.

SPRINGS - Several springs were observed during the survey, contributing only minor seepage.

FISHES PRESENT AND SUCCESS - Steelhead were observed averaging 2" in the total length and ranging from ¾ to 8" total length. They inhabited the stream in numbers of approximately 60 per 100' of stream, and were observed from the headwaters to the Mark West swamp. Sculpin were observed averaging 1" and ranging from ¾-1½ total length. They appeared to inhabit the stream in numbers of approximately 5 per 100' stream and were observed from headwaters to the Calistoga Road bridge. ROACH were observed averaging 1" and ranging from ½ to 3" total length. They inhabited the stream in numbers of approximately 150 per 100' of stream, and were observed from the St. Helena Road bridge to the Mark West swamp. Green sunfish were observed averaging approximately 3" and ranging from 3-5" total length. They were observed to inhabit the stream in approximately less than 5 per 100' of stream, and were observed from

the Calistoga Road bridge to the Mark West swamp. Carp were observed averaging 14" and ranging from approximately 6"-23" total length. They inhabited the stream in numbers of approximately 2 or less per 100' of stream, and were observed from the Mark West Springs Road to the Mark West swamp. Suckers were observed averaging 1" and ranging from ½-16" in total length. They occupied the stream in numbers of approximately 50 per 100' of stream, and were observed from the St. Helena Road to the Mark West swamp. Gambusia were observed averaging ½" and ranging from ¼-1" total length. They inhabited the stream in numbers of approximately 100 per 100' of stream. No other fish but Gambusia were observed in the section downstream from the swamp to the confluence with the Russian River. This was assumed due to the observers inability to make good observations through the turbid water in this section. A small fish kill was observed from Calistoga Road bridge and continuing for approximately 2 miles downstream. A total of 45 dead steelhead rainbow trout were observed within this section. The cause of death was believed to be high water temperature and a possible lack of oxygen, since the flow is subsurface at many points along this section. No signs of pollution were observed in this area.

OTHER VERTEBRATES - Cattle, deer and quail were observed.

FISHING INTENSITY - Fishing intensity was believed to be moderate as indicated by the numerous bait containers and discarded hook packs that were observed.

OTHER RECREATIONAL USES - The stream is used for swimming by local residents.

ACCESSIBILITY - Mark West Creek is paralleled by Mark West Springs Road, St. Helena Road and River Road. It is crossed by Calistoga Road, Old Redwood Highway, Highway 101, Fulton Road, Laghlin Road, Slusser Road, Healdsburg-Trenton Road, and by Wohler Road. All these roads provide easy access to the stream by foot.

OWNERSHIP - Most of the stream appears to be privately owned.

POSTED OR OPEN - Most of the land bounding the stream appeared to be posted against trespass, hunting and fishing.

IMPROVEMENTS - No recommendation.

PAST STOCKING - Unknown.

GENERAL ESTIMATE - Mark West Creek is a major tributary to the Russian River, contributing both summer and winter flows. At the time of observation the stream was discharging approx. 4.16 c.f.s. Fair spawning and nursery areas were observed along the upper and mid sections of stream. A total of approximately 2% miles of stream appeared suitable for steelhead spawning.

RECOMMENDED MANAGEMENT - Mark West Creek should be managed as a productive steelhead spawning and nursery stream. The lower and mid sections of stream should be managed for warmwater game fish, such as green sunfish.

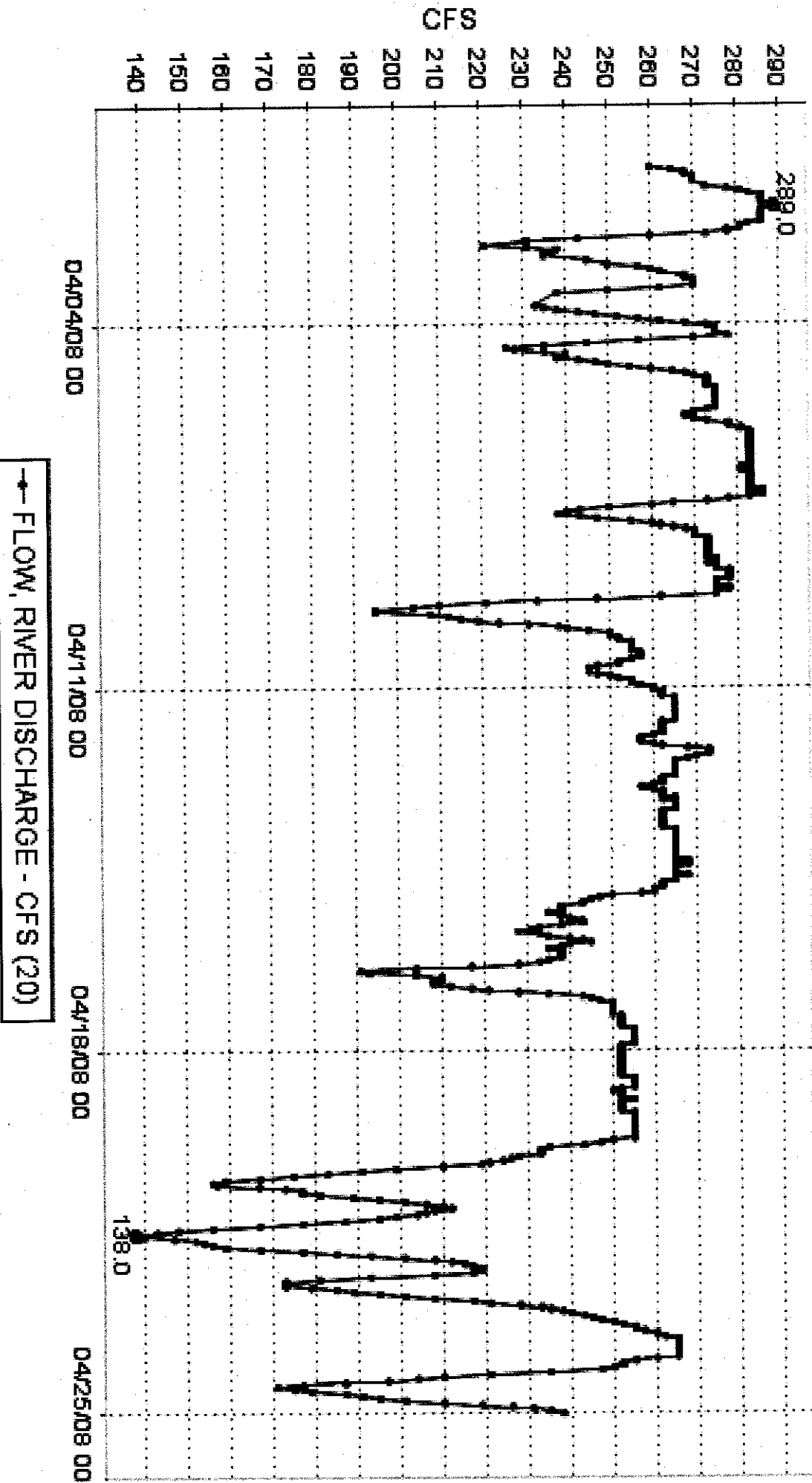
SKETCH MAP - ~~Attached~~ (sic)

REFERENCES AND MAPS - U.S.G.S. Calistoga, Healdsburg, Sebastopol and Santa Rosa Quadrangles 15' and 7½ series.

RUSSIAN RIVER AT CLOVERDALE (CLV)

Date from 04/01/2008 00:00 through 04/25/2008 00:00 Duration : 24 days

Max of period : (04/01/2008 18:00, 289.0) Min of period: (04/21/2008 13:00, 138.0)

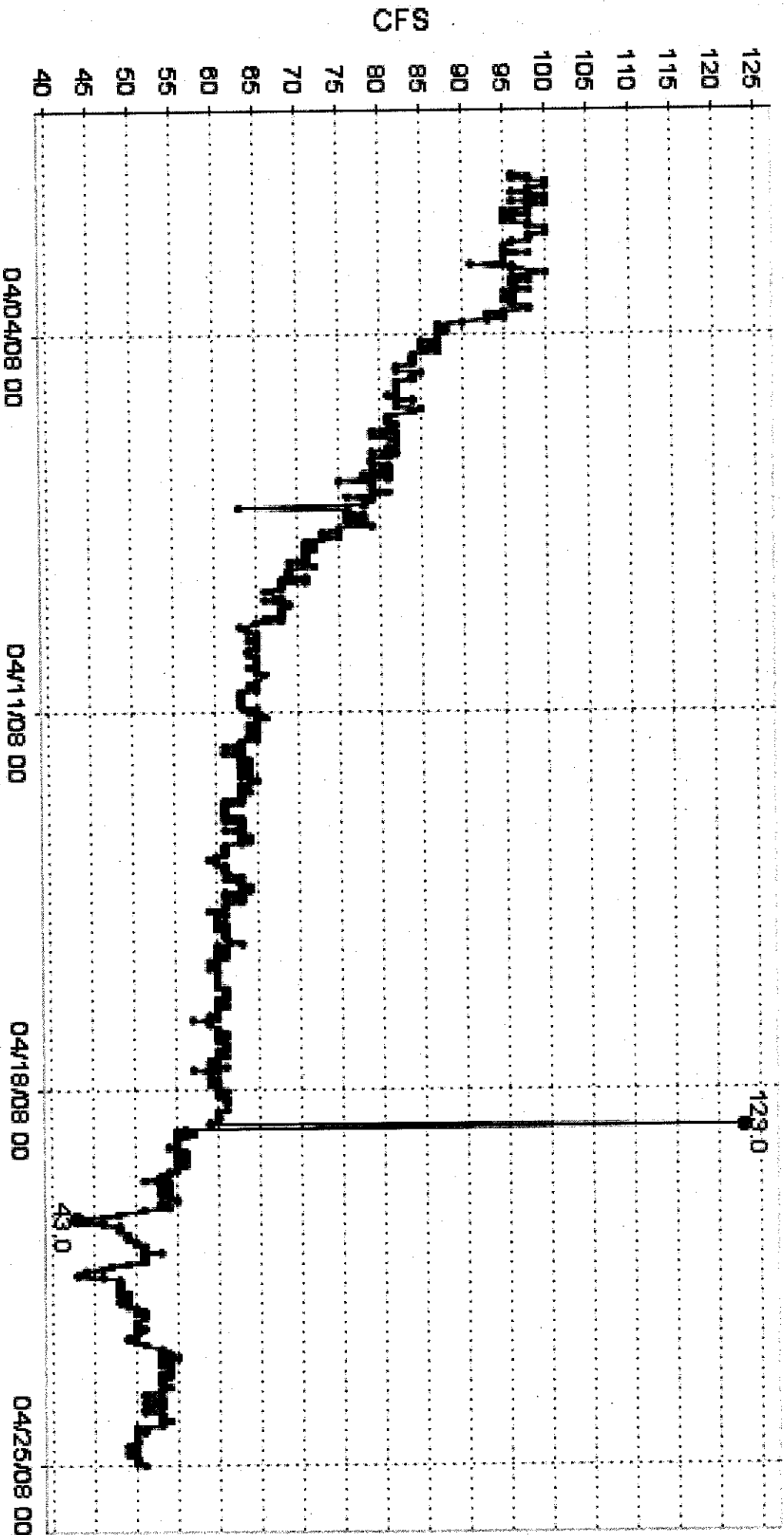


→ FLOW, RIVER DISCHARGE - CFS (20)

DRY CREEK NEAR HEALDSBURG (DRY)

Date from 04/01/2008 00:00 through 04/25/2008 00:00 Duration : 24 days

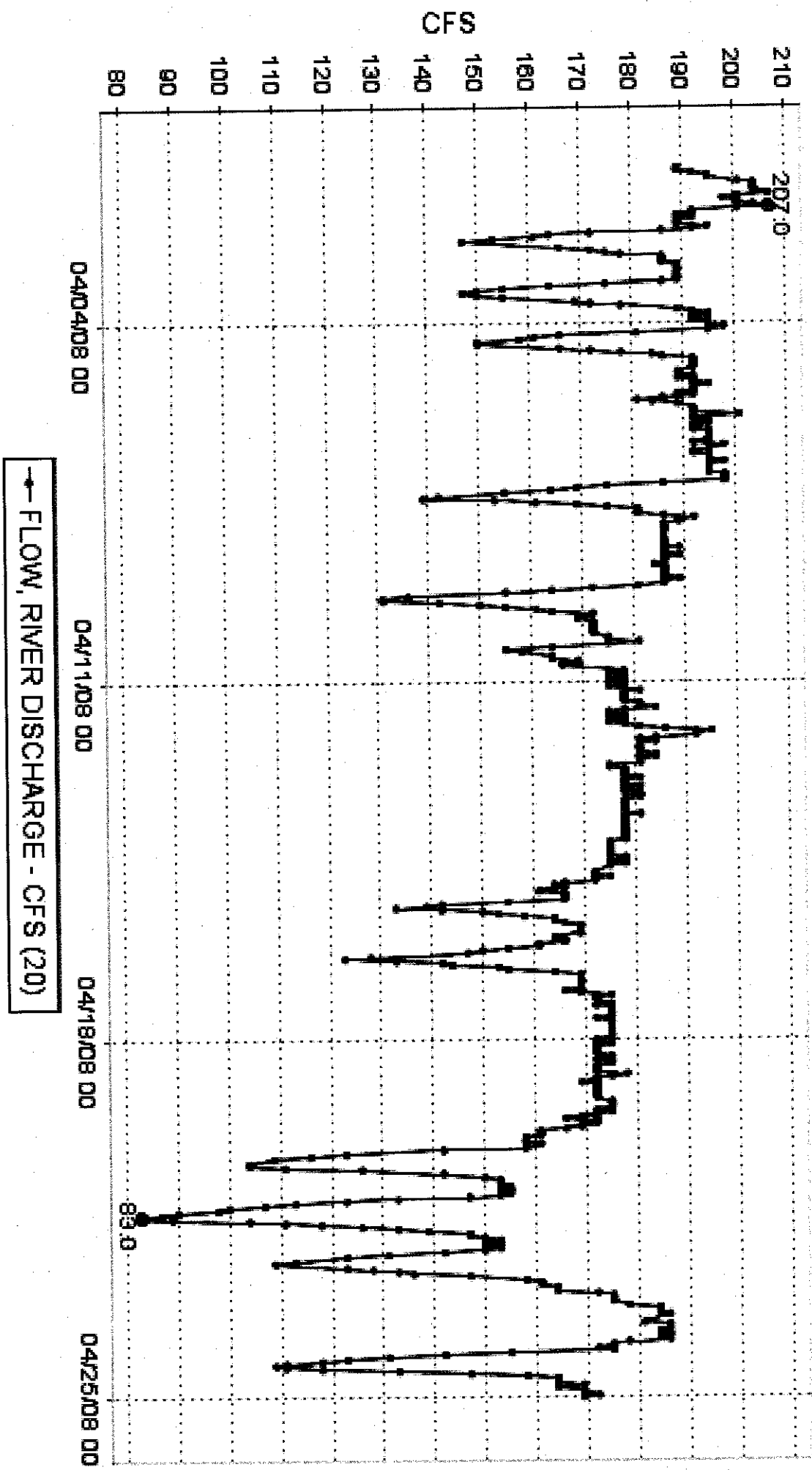
Max of period : (04/18/2008 17:00, 123.0) Min of period: (04/20/2008 10:00, 43.0)



→ FLOW, RIVER DISCHARGE - CFS (20)

RUSSIAN RIVER NEAR HOPLAND (HOP)

Date from 04/01/2008 00:00 through 04/25/2008 00:00 Duration : 24 days
Max of period : (04/01/2008 18:00, 207.0) Min of period: (04/21/2008 11:00, 83.0)



WARM SPRINGS (USACE) (WRS)

Date from 04/01/2008 00:00 through 04/25/2008 00:00 Duration : 24 days

Max of period : (04/02/2008 17:00, 132.0) Min of period: (04/15/2008 17:00, 0.0)

