

RRWPC

Russian River Watershed Protection Committee

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Sonoma County Water Agency

Attn: Jessica Martini-Lamb

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Santa Rosa, CA 95403

February 14, 2011

Dear ESA and Ms. Martini-Lamb:

These comments are submitted on behalf of Russian River Watershed Protection Committee (RRWPC) on the *Russian River Estuary Management Project* and submitted by email before the 5 pm deadline on February 14, 2011.

Introduction:

RRWPC is a nonprofit public benefit organization incorporated in the State of California since 1980. Our supporters number approximately 1200 property and business owners, residents, recreationists, and other concerned citizens in the lower river area from Healdsburg to Jenner. We also have a great deal of support from many others who appreciate our advocacy on behalf of the Russian River.

RRWPC supporters and others utilize the Russian River for recreation and/or tourism, for fishing, swimming, for artistic expression, spiritual well being, for exercise and personal health of themselves, family, friends and pets, and for replenishment of health and energy needed to balance out the stresses of modern day life. Due to its proximity to Bay Area urban centers, the beautiful and peaceful lower Russian River is easy to access and allows a natural refuge from

everyday cares. Many of our supporters own properties in the lower river for their summer enjoyment, but reside and work in the greater Bay Area and beyond. Because of all this, they have a great interest in this proposed project.

We include with these comments an updated version of our scoping comments submitted last June 21, 2010. (ATTACHMENT #1) Since you are not required to respond to scoping comments, we are submitting the revised scoping comments with the request that you respond to the version enclosed.

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Throughout the DEIR, there is a great deal of repetition and contradiction. There are about 23 authors and contributors to this document, but there appeared to be a great deal of inconsistency. The document frequently lacked adequate numeric data and other evidence supporting a wide range of assertions about the impacts (or lack of impacts) that would occur. Annual numeric averages were often inappropriately used where project period averages should have been. In some cases, we had access to the same SCWA data (not available in DEIR) utilized by consultants concerning breaching activities, river flows, and mouth closures. (Breaching information provided in document, but not by date.) The conclusions drawn and statements made did not consistently match our own analysis. Finally, in many sections, references were extremely sparse. We will go into these allegations in more detail as we get to the specific sections covered.

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Return to "natural" flows....

There is frequent reference in the Biological Opinion (BO) to restoring flows to their "natural" state, ostensibly meaning pre-dam flows of approximately 100 years ago. Truth is, when something needs to get fixed, it must be done in the context of the current situation, not one that existed so long ago. What would be the definition of "natural" by today's standards?

In their desire to claim the return to natural conditions, assuming it is a good thing, there is no discussion of the various manmade and other alterations that have occurred over the last 100 years, nor the necessary acclimation of species to those changed conditions. If plant and animal species have acclimated, what impacts might arise for them by turning time backwards with low flow? Have any species been extirpated or decimated over that time as a result of the changes? Have new ones been introduced (Ludwigia for instance)? Please provide a list of other lower river plant and animal species lost in that time, as well as new ones replacing them.

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In its reference to "natural" conditions, the BO avoids the issues of temperature, bacteriological, and nutrient pollution that prevails in much of the lower Russian River watershed (Forestville to Duncans Mills), and becomes greatly exacerbated in low flow circumstances or it refers to those conditions as natural if they are not currently listed on 303(d) and supportive of beneficial uses. In fact, there is really

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no concrete evidence provided that the lower river went down to 25 cfs as they claim, or if it did, when, where, how often this occurred?) Rather we have concrete evidence that appears to prove the opposite.

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cont.

It is likely that before the dams, summer flows in the lower river were lower in places in August and September, but there were large, deep pools (now mostly filled in with sediment) that served as swimming areas. There were also summer dams backing up water for swimming.

Assuming that pre-dam standards are to be partially implemented for flow, can you please provide a description of the environment and recreation on the lower Russian River at the early part of the 20th Century? Why were no local historians consulted about pre-dam flow conditions? What were natural conditions (depths) in the Estuary pre-dams? Is it justified to declare the restoration of so-called, but not scientifically defined "natural" conditions in one place and not another? The term "natural conditions" has been used excessively through out the document wherever a case is being made to not scientifically study a specific condition.

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How much degradation has occurred over the last 100 years? In terms of fish habitat, what has been the impact of the loss of massive amounts of riparian vegetation, the addition of many, many chemical and biological pollutants, the impacts of gravel mining, the filling of deep pools with fine sediments especially by timber harvest activities, the greatly increased river and tributary temperatures, the extensive draw down of tributary flows by agriculture, and on and on and on? How is the restoration of so-called "natural" flows going to work in the face of the loss of these other **natural** habitats?

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Furthermore, the BO asserts that the recommended low flow of 70 cfs only partially meets the "natural" flows of what was formally 35 cfs (or 25 cfs as stated in some places). No compelling evidence was provided indicating that this was the historical condition in all parts of the lower river and which months it occurred. (There is a vast difference between May flows and October flows before the rainy season begins in all years of record.) Why is no differentiation made during various months of the project time period (May 15-Oct.15)? Would Estuary management towards the end of the period be the same as the beginning? How would they differ?

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How does low flow impact degraded conditions between May 15th and October 15th, which is the term of the project, especially considering that flows are usually much higher in the early spring and temperature lower, and there can be a significant difference in impacts? In addition, if the river closes in May and the barrier constructed to maintain a closed mouth all summer, what would happen to the down-migrating juvenile Chinook in May and June? Can you provide information on impacts of low flow on both conventional pollutants and toxic ones (since low flow will be a reality because of TUCP: see next section for

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discussion)? Can you provide average flows at Hacienda for each of the months of concern and correlate to average levels in Jenner at that time over the last 14 years? Can you compare the historical Hacienda flow data to the times when the mouth was open or closed?

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cont.

Furthermore, both the DEIR and BO allude to the river as one uniform entity and fail to acknowledge that different reaches of the river may react differently according to the unique conditions of the various segments. Specifically, the DEIR needs to differentiate low flow's exacerbation of pollution (i.e., bacteriological problems, temperature, dissolved oxygen and nutrients) in the lower river. Can you differentiate conditions between Duncans Mills, Monte Rio, Vacation Beach, Guerneville, Oddfellows, Steelhead Beach, and Hacienda Flow differences exist in the different areas along with varying levels of water quality. Since the closed mouth impacts as far upstream as Vacation Beach, impacts to the lower reach in particular needs to be addressed. (Just recently, Steve Baxman, of the Monte Rio Fire District said that the river at Monte Rio could gain 3-4 feet when the river closes. He also expressed concern that the flow slows and the water stagnates. What would be the impacts on water quality and public safety in that case?)

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RRWPC recently viewed a collection of picture postcards from the first half of the 20th Century belonging to John Schubert of the Russian River Historical Society. He kindly allowed us to copy some and we include a few here. (ATTACHMENT #2) We have access to numerous others if necessary.

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The characterization by the BO that the river pre-dam flowed at about 25 cfs, just doesn't seem to hold true, unless there was a period after summer dams were taken down and before the rains began, in some locations, where flows became quite sparse in October when dams came down and the recreation season ended. But to convey the image that there was no water in the river, simply does not hold up. It is also significant that there were many pictures of boats and canoes, a few quite substantial in size.

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There were 3 summer dams between Oddfellows and just upstream of Monte Rio. All the pictures I saw downstream of Monte Rio had water in them. The river also looked like it may have been broader and more spread out between Forestville and Monte Rio than it is now. Perhaps the flow was 25 cfs in places like Alexander Valley. Maybe the flow was 25 cfs during brief periods after the recreation season in the lower river, before the winter rains, but to imply that the river flowed at 25 cfs all summer, just doesn't seem to be realistic.

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Finally, it is important to note that in the 14 years from 1996 to 2009, the mouth closed for the first time in May only five times. It closed for first time in June, 8 times, July, 2 times, and August, 4 times. It is conceivable, and has happened, that it closes for the first time during the management period in late September

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or early October, which in some years will leave only a few weeks to do the project. The odds of this working juxtaposed against the costs of the program aren't very good here. The effort is huge and the gains may be small. Might there not be some better ways to allocate limited fishery resources?

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cont.

Estuary Project improperly bifurcated from "Fish Habitat Flows and Water Rights Project" (Fish Flow Project)

The purpose of both the Estuary Project and the Fish Flow Project is to fulfill requirements of the Biological Opinion (BO), which has the authority of federal law. The document refers to high flows resulting in water velocities that damage salmonid habitat in the upper river and in Dry Creek (page 243) but noticeably does not mention that high flows in the lower river cause a similar problem. It states (page 243), *"Changes to the D1610 flow minimum requirements will enable alternative flow management scenarios that would increase available rearing habitat in Dry Creek and the upper Russian River, and it would provide a lower, closer to natural inflow to the estuary between late spring and early fall, thereby enhancing the potential for maintaining a seasonal, freshwater lagoon that would likely support increased production of juvenile steelhead and salmon."*

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The BO also states on page 243, *"Relatively high discharge also disrupts the normal processes of lagoon formation in the Russian River estuary, thereby exacerbating the potential for flooding of low-lying properties, and increasing the frequency of mechanical sandbar breaching."* The numbers we have seen on Hacienda flows and river mouth closing do not seem to bare this statement out. Why not provide data correlating actual flows at Hacienda with breaching events?

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It is because of the supposed relationship between "relatively high discharge" (i.e., 125 cfs) and maintenance of the open mouth most summers that the BO calls for reduction of flows at Hacienda from 125 cfs to 70 or 80 cfs. Yet in May through July, flows tend to be much higher than 125 cfs because of runoff, which cannot be controlled. On what basis was it determined that the precise minimum flow of 125 cfs was to blame for the flooding problem?

On page 244 the BO states: *"Artificially high inflows during summer months interfere with normal processes that discharge river flow through or over the barrier beach to the ocean."* And on same page, *"The D1610 minimum requirement of 125 cfs at Guerneville during normal water years is much higher than the unregulated conditions that existed prior to construction of Lake Pillsbury and Lake Mendocino. Because of the dynamics of lagoon formation are dependent on several variables, including freshwater inflow, wave conditions, the quantity and quality of available sediment supply, and underlying geologic structure at the river's mouth, it is not possible to specify any one single inflow requirement that will promote lagoon formation. However, a lower flow requirement would promote long term closure of the lagoon."*

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How would flow promote long-term closure in light of these other factors? How does flow interrelate to each of these other factors? Is this an unsubstantiated conclusion? Why are there no actual numbers correlating Hacienda flow and mouth openings and closures? Why is there no analysis of actual river flows at Hacienda?

These passages above appear to solidify the close association of the changes to D1610 and the Estuary Project in the minds of the authors of the BO. In addition the BO requires that annual appeal be made to the State Board to lower those flows on a temporary basis as discussed in more detail further on. RRWPC believes that the Fish Flow Project (FFP) is inexorably linked to the Estuary Project through the BO and both should be integrated into one combined environmental review. As the BO mandates specific changes to D1610, we cannot assume otherwise for all intentional purposes of this DEIR.

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Alternatively, we believe that the need for proposed changes to D1610 at Hacienda has not been demonstrated and should be dropped altogether. In lieu of that, both projects must be studied together. Also see Mike Lozeau's comments on behalf of RRWPC.

For the following additional reasons, we believe that the two environmental review processes are closely linked and should be reviewed simultaneously:

- The Fish Flow Project's proposed minimum flow changes at Hacienda from 125 cubic feet per second (cfs) to 70 cfs has no other stated purpose (in the BO) than the prevention of flooding in Jenner when the mouth is closed and the lagoon rises to a level of 9' or higher (between May 15 and October 15 of each year). There is no mention of minimum flows in the lower river for the sake of providing fish habitat between Forestville and Duncans Mills and there was very little valid water quality data collected and analyzed in that reach. The DEIR avoids all but very cursory analysis of impacts east of Duncans Mills, even though flows can back up from the Estuary all the way to Vacation Beach, one mile west of Guerneville and about 7 miles upstream of Duncans Mills.
- The DEIR attempts to divorce these two issues, making a case in effect that changes to D1610 for the sake of this project may not be necessary. (Page 3-4 of DEIR states: "...closure events due to barrier beach formation have occurred over a wide range of flow conditions. During the lagoon management period, the outlet channel would be expected to perform over a range of flow conditions that could be experienced from May to October. As such, the Estuary Management Project is not reliant on temporary or permanent changes to D1610 for its implementation. Rather, the Estuary Management Project has been developed to adaptively manage the Estuary under any likely range of flow conditions following barrier beach formation under varying hydrologic year types and conditions." (Emphasis added)

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But then on page 5-11, the DEIR states, “...reduction in summer flows would likely increase the number of closure events occurring during the lagoon management period.” The term “likely” is supposition and needs to be backed up with evidence. Also, do you mean the length of time the river is closed or the number of times that the river is closed?

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The DEIR addresses the Fish Flow Project (FFP), which includes “low flow” in the Cumulative Analysis section of the Estuary Project DEIR (pages 5-7 to 5-14). The DEIR justifies bifurcation on the basis that the Biological Opinion contains a series of actions to be undertaken by SCWA, and (page 5-7) that, “*The Estuary Management Plan Project provides independent utility (i.e., must be implemented to achieve a purpose irrespective of other RRIFR elements) in achieving these goals and necessitates implementation separately from other RRIFR Program elements in order to meet the objectives and schedule in the Russian River Biological Opinion. The Lagoon outlet channel will be designed to increase the extent of freshwater retention in the Estuary under the range of inflow conditions that have been historically recorded.*” Yet BO and DEIR clearly claim connections of the two issues, flooding of Jenner properties and river mouth closure.

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This will only occur with breaching (which would undermine the goal of the project) since historic flows have been recorded as high as 1200 cfs during the project period. The stand-alone nature of this project does not seem feasible with such a wide range of uncontrollable “historic” flow scenarios. (The Temporary Urgency Change Order authorized 70 cfs at Hacienda, but flows averaged about 260 cfs throughout the 2010 summer. As stated, historic flows at Hacienda from May 15th through October 15th have been higher than 1200 cfs on a few occasions.)

In other words, we question whether adjustments to D1610, at least for the lower river, is merely to satisfy requirements in the BO, and not because they are inherently necessary? In fact, the evidence provided in this DEIR appears to challenge the necessity for flow changes at Hacienda.

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The DEIR goes on to state that those observed flow conditions range from 71 cfs to 1200 cfs at the Guerneville Gauge (at Hacienda Bridge). They conclude that the Estuary Management Project is, “D1610 neutral” (page 5-11). While the mouth closed a few weeks later on September 7, 2009, it is notable that even with those extremely low flows in August, the river mouth remained open for over a month. Does the 71 cfs only represent the low flow at the time of closure events? If so, it was characterized in a misleading way since there were much lower flows in 2009 during which the river did not close at all.

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Doesn't use of the number, 71 cfs convey the impression that SCWA operations are staying within the perimeters of the BO minimum flow

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recommendations? RRWPC produced a 2009 Photo Report of all the nutrient pollution that year which is attached to these comments. (ATTACHMENT #3) The water quality problems easily observed in photographs taken over that summer speak for themselves.

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- That the BO requires SCWA to apply to the State Water Board for Temporary Urgency Change Petitions every year, for which there is no environmental review, speaks to the fact that changes to D1610 are de facto occurring anyway, even before this Estuary Project is approved and authorized, and even before permits from multiple agencies are obtained for construction of channel and barrier. Ironically, releases from the dams were lowered last year as required by the BO, but even so, flows at Hacienda remained at an average of 263 cfs for the entire management period in 2010. Along with the lack of closure during some very low flows mentioned above, this indicates that the river is clearly a secondary player affecting Estuary conditions.
- It appears contradictory that NMFS wrote a letter to the State Board on July 22, 2004, in regard to the Temporary Urgency Change Petition for lower flows that year, and stated, *“One fine point we would like to raise is our concern about the frequency of these emergency actions to reduce flows in the Russian River. This would be the second time in three years. Developmental growth in the Russian River watershed places additional pressures on our finite water supply that supports agricultural irrigation, municipal use, recreation, and environmental resources. With the reduction of diversions from the Eel River and increased water consumption, competition for water will only intensify within the Russian River Valley. Flows for the conservation and recovery of salmon and steelhead will continue to be an important factor in decisions regarding water management in this river system.”*
- Furthermore, it is interesting that Dick Butler of NMFS submitted a letter into the Scoping record for this project stating: *“NMFS staff attended recent public CEQA scoping meetings for the Estuary Project. However, in these meetings it was unclear as to what extent the Estuary Project EIR will address the effects of summer stream flow changes that will support the Estuary’s goal of maintaining a close estuary (lagoon) during summer months. We believe that it is reasonable that the EIR for the Estuary Project consider the effects of flow changes associated with interim flow changes (associated with the TUC petitions) and use existing information to address the effects of these interim changes on the environment and resources such as recreational boating.”* This topic is partially addressed in the Cumulative Impacts Section, but in vastly inadequate detail. There is no immediate “urgency” with these petitions that justifies abrogation of environmental review. It’s rather moot in a wet year anyway when flows run much higher than those called for.

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- New breaching permits are currently required from multiple agencies, including the North Coast Regional Water Quality Control Board (Regional Board). We have recently learned that most permits, including from the Regional Board, have been extended for one year to allow the Agency to complete EIR process and have one more season at attempting to do the project. The final EIR should be done in June and they hope to certify document and commence project this summer. Actually, they commenced project last summer, before they did environmental review. On what basis did you justify starting the project before environmental review complete? If litigation should occur on this document, would the project proceed anyway?
- Why is there no NEPA review of this project?

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Hydrology and flooding (4.2)....

This section both tries to prove that low flows aren't necessary to operate the project, which they determine is D1610 "neutral" (page 5-11) "...and not reliant on the implementation of either temporary or permanent changes to D1610." Yet at the same time (and page) they state, "...reduction in summer flows would likely increase the number of closure events occurring during the lagoon management period." Where is the data to prove this?

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As we will point out, potential negative impacts to the lower river not adequately addressed in this DEIR, (put off for the D1610 subsequent DEIR) may have deleterious impacts on water quality in the lower river, which ultimately may harm the very fish they are trying to save. (Please see ATTACHMENT #3: At the same time, this document comes to rather ambiguous and poorly substantiated conclusions on how low flow is not really necessary, but it would probably allow for longer mouth closures than otherwise. Page 4.2-15 says, "...the duration over which the surface target water level will be maintained would likely increase as a result of implementing the Estuary Management Project." The word "likely" indicates a high level of uncertainty. Scientific evaluation would be much preferred.

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This DEIR provides confusing data on flow by averaging "annual daily flow" over a 25-year period as they did in Table 4-2.1. What point is being demonstrated in this chart? Since this DEIR is intended to describe a range of conditions existing between May 15th and October 15th, what is the value of an annual average of daily flows for a 25-year period? It is misleading.

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What would be more valuable would be a thorough discussion of the range of weather scenarios and project period flows, depending on weather conditions of the previous fall, winter, and spring. 2009 and 2010 provide significant contrasts between wet and dry summers and seemingly pertinent to the success of this

project. Combining this information with natural mouth closures would have been especially useful. Why was this not done? G_RRWPC-30
cont.

The Biological Opinion assumes that if flows are lowered at the Hacienda Bridge from 125 cfs to 70 or (80) cfs, there is the likelihood that the mouth of the river will either close sooner or remain closed longer than with the higher flows. Yet why is there no statistical analysis showing the relationship of Hacienda flows at different times in the project period, versus natural historical closings in the past. Does such a relationship exist? We looked at some of the data.

The year 2009 was the third year in a row of sparse rain. It was considered a drought year and extra measures were taken to conserve water and maintain reservoir levels. Luckily we had a cool summer and SCWA was able to maintain adequate levels in the reservoirs for the fall run of Chinook. Urban water users also made significant efforts at saving water at the behest of water wholesalers and retailers.

Even with drought conditions, average daily flows at Hacienda in June, 2009, were 183 cfs, in July were 95 cfs, in August were 63 cfs (with a low of 47 cfs), and in September, 80 cfs. If one took an average for all months, it would come to about 124 cfs and would not reflect that there were **31 days in the four-month period where flows fell below 70 cfs**. How can SCWA operate with a buffer of 80 cfs or even meet the promised 70 cfs when they have no way of controlling all flows?

Even though this DEIR said (page 3-3) *“Review of flow data for the 119 closure events occurring between 1996 and 2009 indicated a median flow at the USGS Guerneville Gage at the time of these closure events of 250 cubic feet per second (cfs), with a minimum flow of 71 cfs and a maximum flow of 1120 cfs. Therefore, closure events due to barrier beach formation have occurred over a wide range of flow conditions. During the lagoon management period, the outlet channel would be expected to perform over the range of flow conditions that could be experienced between May to October.”* Median flows can be very misleading; why was mean flow not provided?

What is missed in the presentation of this data is the fact that when the flows were the lowest at Hacienda, the river mouth remained open. Please explain why closures supposedly occur over a large range of flow conditions, but the Biological Opinion expects that low flows will help sustain the closed estuary? Can you provide more detailed statistical evidence to back up your claims?

We also question the conclusion about September flows averaging 178 cfs over the last 70 years. This is meaningless data because so much has changed in the last 60 years in terms of water use. Averaging the last ten years would be far more meaningful. Also, in the last ten years, natural closures in the study period have been far less numerous. For instance, in the 14 years from 1996 to 2009, there were five natural closings in May 8 in June, and 2 in July (only 15 natural closures in 14 years during the first half of the project period).

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Why not study flow conditions on dates right before closure to get a handle on river conditions before it occurs to determine whether and when low flows are even helping the situation? (This document argues both sides of the case in regards to whether low flow is necessary or unnecessary to this project. Assuming that these early closings are the most important for this project as they allow more time for steelhead to live in fresh water conditions, why was this not considered?)

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What is not known, and not discussed, is the question of how lowering minimum flows at Hacienda would impact (lower) natural flows coming from the tributaries in the spring. There is an assumption that SCWA actually has control over the flows through their releases, but that is not the case at Hacienda. So what is the value of "minimum flows" in May and June when there is still natural water in the system? Also, how does that impact the out-migration of juvenile Chinook in May and June?

Water Quality (4.3)....

Nutrients...

The DEIR draws the conclusion that because the lower river is not listed under the 303(d) section of the Clean Water Act as impaired for nutrients and dissolved oxygen, beneficial uses are supported. Specifically it states on page 4.3-5, *"However, the main stem of the Russian River, including the Estuary, is not listed as impaired for these constituents. Therefore, the background concentrations of these constituents in the Estuary are considered indicators of the current conditions of the Estuary that support the beneficial uses identified in the RWQCB Basin Plan for the Lower Russian River, including aquatic habitat and recreation."*

In the Basin Plan (2001 version) on page 3-3.00 under Basin Plan Objectives: Biostimulatory Substances it states, *"Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses."* In their comments on the Fish Flow Project, Regional Board indicated that biostimulatory substances include nitrogen and phosphorus. (ATTACHMENT #4)

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RRWPC has documented extensive algae blooms in the Vacation Beach, Monte Rio, and Ville Grande areas as well as further upstream. We have submitted this information (mostly pictures) to the State in the form of our request for listing in the 2012 303(d) listing process. (We were not able to watch for nutrients and/or take pictures at the Estuary on a regular basis since we live too far away.) We submit our comments on the 2012 303(d) with some of our 2010 pictures. (ATTACHMENT #5) We also submit our 2009 Photo Report (ATTACHMENT #3)

These are clear instances in the lower Russian River where biostimulatory substances have caused nuisance growth. The situation has been serious enough, even considering serious budgetary constraints, that with the prospect of “low flow” on the horizon, and considering that SCWA 2009 nutrient monitoring was considered unsatisfactory, the Regional Board has established a nutrient monitoring program for this summer (2011) in the lower Russian River. One river location they sampled last year tested positive for toxic blue green algae caused further concern. Conditions currently exist in terms of excessive nutrient pollution to justify such an investigation. During low flow, and with high water and air temperatures, besides heavy nutrients, circumstances for toxic algae growth are prime in the lower river. How might the presence of blue green algae affect this project, especially if low flow exacerbated it? Does blue green algae impact the fish?

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The Regional Water Board’s standard is a narrative one, and compliance may not be easy to accomplish if the problem is allowed to mushroom. How can monitoring be established to assure that no toxic algal blooms occur (rather than waiting until it is widespread)? This is an instance where an ounce of prevention is worth a pound of cure.

In regards to listing nutrients on the 303(d) list, Regional Board Scoping Comments on the Fish Flow Project (D1610) states in November 15, 2010 comment letter, (page 2) “*State Water Board staff have begun assessing available data in order to update the 303(d) List. State Water Board staff’s assessment includes nutrient and algal biomass data collected within the Project area and submitted by interested parties. At a later date, Regional Water Board staff will consider whether the available data demonstrates that the Russian River within the Project area is impaired for nutrients/biostimulatory substances.*” (“Comments on the Notice of Preparation of an EIR for the Fish Habitat Flows and Water Rights Project, SVH No. 2010092087: ATTACHMENT #4)

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If nutrients are listed on the 2012 303(d) List, how will this impact the Estuary Project? What kinds of measures might be implemented if nutrients are more of a problem during closed conditions than open? What kinds of mitigations might be implemented (other than over-riding considerations) to control this problem? How might this interact with nutrient conditions upstream? If low flow is implemented, nutrient pollution gets worse, and higher levels are found in the Estuary, how will this impact the steelhead? Is it possible that such a listing could require cessation of the project and/or changes to D1610?

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In a related issue, the invasive plant: Ludwigia is proliferating in the Russian River, including the lower reach. This is a plant that has proved virtually indestructible in the Laguna de Santa Rosa, major tributary to the Russian River. Millions of dollars have been spent attempting to eradicate it, to no avail. Once removed, it returns with a vengeance. Numerous segments of the Laguna are no

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longer navigable. There is a strong connection between low and slow flows, heat, sunlight, minimal riparian cover, and excessive nutrients that strongly feed this monster plant and is causing great concern. It is also a plant that harbors West Nile Virus and other pathogens which is of great concern for those using the river for recreation.

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Ludwigia occurs up and down the lower river and is especially prevalent during low flows. Up to now river flows have kept it somewhat at bay in the main channel. If flows are lowered, how can it be kept from choking the river?

The DEIR (page 4.3-5) mentions that there are currently no numeric criteria for nutrients in saltwater bodies, only fresh. The USEPA's current desired goal for total nitrogen in fresh water is 0.38 mg/L. There are frequent exceedances at Bridgehaven and Jenner stations (high values of 0.58 mg/L and 0.75 mg/L respectively). These elevated levels occurred during both open and closed conditions of the Estuary. It is confusing that the DEIR states these values only apply to fresh water. Do Bridgehaven and Jenner station locations contain predominantly fresh water or are you just providing the information as a basis for comparison?

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Elevated nitrogen levels were mostly seen to occur when spring flows caused water levels to be higher. What are the water levels at which these various exceedances occurred? If the goal is to maintain an estuary holding more water, how will excessive nutrients be dealt with so as to not cause nuisance conditions?

Of even greater concern was the statement that, "*Total phosphorus concentrations exceeded the USEPA criteria a majority of the time during both open and closed conditions at all stations in the Estuary, including the Monte Rio station.*" USEPA's desired criteria for phosphorus is 0.022 mg/L and samples ranged from 0.021 mg/L and 0.077 mg/L. Phosphorus is considered a limiting nutrient. When it is in large supply, the opportunities for excessive plant growth are increased. Some of the worse algal blooms in 2009 and 2010 were in the Monte Rio and Ville Grande areas. What impact would excessive phosphorus have on the upper and lower estuary? What impact would low, slow moving water have on the transmittal of phosphorus?

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Has anyone considered the contribution of Russian River County Sanitation District (RRCSD) discharges to nitrogen and phosphorus levels? They stop discharging on May 15th, but what is the likelihood that phosphorus gets bound up in the sediments and then re-released into the waterway? We ask this question because we noticed a straight line of Ludwigia growth from about the location of the RRCSD discharge location for a block or so downstream. We wonder if there is a connection here?

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What impact would higher nutrient levels have on steelhead and other species in the Estuary during closed conditions? What is the expectation of nutrient and pathogen levels increasing and accumulating during a long-term closure period?

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Why was no nutrient data presented for 2009? Why were water and air temperatures not mentioned as a factor in algal growth? What were comparative temperatures, and could low temperatures explain a lack of algal blooms in the Estuary?

Chlorophyll a levels were lower in the upper estuary and higher in the lower. The DEIR faults "conditions" in Willow Creek for this problem but does not cite what conditions (p.4.3-6) were to blame. What were those conditions? Why is Chlorophyll a higher in the lower estuary, but not in the upper, even though phosphorus was elevated in both? What is the connection between Chlorophyll a and/or nitrogen and phosphorus?

It is disappointing that there is no data for 2009 because that year stands in high contrast to 2010 and it would have been interesting to compare nutrient results. 2009 was a drought year and flows were low everywhere, even though the mouth didn't close until September 7th when it stayed closed for 30 days. (Flows at Hacienda averaged 63 cfs in August, 2009.) In 2010, flows were much higher in the Russian River all summer due to a wet winter and spring and a cool summer. (Summer of 2009 was cool also, even though much less water was available. That probably saved the day, pollution wise.)

The Regional Board letter on Fish Flow Project states (page 5), *"We believe that the assessment of changes in water quality should involve statistical analysis. Statistical analysis of water quality data for trends often requires an adequate time period to detect a statistical change in constituent concentration. The amount of time required to detect a trend is dependent on the sample variability. Constituents like bacterial indicators have a high ambient variability and therefore require longer monitoring time periods before a trend can be detected."*

To the EIR's credit, Impact 4.3.3 (page 4.3-20) admits: *"The change in barrier beach breaching operations during the lagoon management period could adversely affect the water quality due to increased nutrient or indicator bacteria levels in the Estuary. (Significant and unavoidable)"*

It's highly unlikely that the Regional Board would accept such an assessment as adequate in regards to meeting water quality requirements. Some kind of mitigation would have to take place. It is unacceptable that polluting circumstances be allowed to continue on a permanent basis without any attempt to remediate. What types of remediation might be considered here? How can it help the steelhead to have a closed lagoon with fresh water filled with warm, nutrient rich and bacteriologically degraded water? What if the possibility that the "No Project" alternative might end up the preferred and environmentally superior one also?

Another critical statement about water quality and the Estuary on page 4.3-20 is: *"The Estuary Management Project is proposed in order to provide a more natural set of habitat conditions for juvenile salmonids. However, adverse water quality conditions*

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have occurred as part of the natural physical processes of the Russian River Estuary under existing conditions, and may occur in the future both with, and without, implementation of the Estuary Management Project."

Again, this statement avoids consideration of impacts of the project by alluding to them as natural, without a shred of evidence that this is indeed the case. (Please see Michael Lozeau letter on this.) In truth, this document is bumping up against the consequences of segmenting this project from the Fish Flow Project, which may at some point address a broader range of issues affecting this total water body. In the early pages of our comments we allude to the deterioration of water quality by a whole assortment of human uses causing wide spread degradation of our waterway. Nature is out of balance in the Russian River and the Estuary is the bottom sink for all this abuse.

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cont.

We suggest that either you provide extensive evidence of "natural circumstances" or "existing conditions" or you eliminate those phrases from this document. It is simply a convenient excuse not to provide back up information to substantiate your claim and it's used far too frequently. Furthermore, we suggest that for every unavoidable and significant impact, mitigations be spelled out. It is reprehensible that for such a complex project, where so little is known about most impacts, there is also so little accomplished in the way of spelling out anticipated studies that will be necessary.

Indicator Bacteria....

The statement is made in the DEIR (page 4.3-8) that, "*In 2009, total coliform counts were observed to be higher during open conditions in mid-summer than during closed conditions, including the 29-day extended closure at the end of the management season.*"

In 2010, the reverse was found to be true. They speculate that, "*...higher counts in 2010 may be attributable to increased inputs of flow into the Estuary at the end of September into early October. Indicator bacteria levels were observed to increase at all stations a the end of September and during the repeated closures in early October.*"

At the end of the 2010 summer season, the Army Corps of Engineers determined that there was too much water in the dams for the fall season. The reservoirs needed to be lowered to prepare for the winter rains and for flood prevention in the rest of the watershed. Apparently there was a major release over a one or two week period. Did that situation coincide with increased levels of bacteria in the Estuary? If so, is it possible that the higher flows accumulated coliform on the way downstream and deposited it in the Estuary?

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This section of the DEIR acknowledges that indicator bacteria have many sources. The primary impact on the lower watershed from bacterial contamination is on human use including recreation. Yet fish are affected by bacterial infections and can infect humans if the fish are eaten. Why is no

mention made of this issue? How might changed Estuary conditions exacerbate this problem, if it exists? What conditions in the Estuary might encourage bacteriological growth? What impact on steelhead abundance might be affected by elevated by high bacteria counts? What impact might extended closures have on elevated bacteria levels?

On page 4.3-23 the statement is made that "...there is insufficient information to definitively conclude whether the adaptive management program would result in a increase, decrease, or no substantial adverse effect on nutrient or bacteria levels within the Estuary. However, there is evidence to suggest that water quality conditions in the Estuary could be reduced following late summer or early fall increases in flow inputs into the Estuary, and that residence time within the Estuary would be increased compared to existing conditions experienced."

On the same page, it continues, "The Estuary Management Project is proposed in order to provide a more natural set of habitat conditions for juvenile salmonids. However, adverse water quality conditions have occurred as part of the natural physical processes of the Russian River Estuary under existing conditions, and may occur in the future both with, and without, implementation of the Estuary Management Project."

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cont.

It further concludes that, "...it is anticipated that conditions would remain within the range of those experienced within the Estuary over the past 15 years, although the duration of those conditions during the lagoon management period would likely be increased. Additional monitoring and continual updating of the Adaptive Management Plan with the best information available would be required. Therefore, in the absence of technical certainty, this EIR concludes that the proposed project would have the potential to result in significant and unavoidable impacts to water quality related to bacterial and nutrient levels in the Estuary."

What we have here is another circumstance that assumes that since things have been bad before, it's okay if they stay the same and/or become worse now. If that's not the proper interpretation, please explain what you mean. Why is so little specific data or scientific studies on nutrients and bacteria presented to substantiate these conclusions? After you have concluded that problems would remain with excessive nutrients, bacteria, and other contaminants, how, can you conclude that the project will provide more "natural conditions" for the steelhead? Specifically, what was the range of conditions over the last 15 years? What would be the impacts of increased duration of negative conditions?

Also, since when does CEQA allow future monitoring as mitigation for proposed activities that have unknown consequences?

What kind of monitoring can be anticipated? For instance, where is the discussion of toxics and emerging contaminants? It is likely that in a few years, increased monitoring for many different constituents is likely to make this project infeasible. The Estuary is a sink for all kinds of pollutants, but it appears that only the upper layer of habitat is being valued and more adequately

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considered. Why does this document seem to pretend that toxins don't exist? Why aren't fish tissue samples being studied to determine the condition and viability of the fish? In fact, what specific criteria will be used to determine if this experiment is a success or failure? At what point will this experiment end if the latter situation occurs?

G_RRWPC-43
cont.

Why is there no discussion of heavy metals? Mercury and copper are of particular concern. Was any testing of heavy metals done in the Estuary? Have any fish samples been taken to determine if fish are bioaccumulating these toxins?

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What good is it if the Estuary has more fresh water and a lagoon environment if the water is polluted? Also, if the fresh water is only six to ten feet deep, what's to keep the birds from eating the fish? What mitigations can adjust for this problem?

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Temperature.....

The Russian River is listed as impaired for temperature. We have extensive data on Johnson's Beach and all summer long temperatures average about 23C. (I don't have degree symbol and will write temperature as I have it here, with C for Celsius.) On page 4.5-10 the EIR states that according to Peter Moyle, fisheries expert, temperatures of 24 to 27C, except for very short periods, are lethal for steelhead. So what impact will low flow have on this situation? Are over heated waters upstream causing downstream waters to heat up?

In the Estuary, the cooler waters tend to be the ones with low DO. The surface water in the summer is more likely to be heated up. Graphs on page 3-28 show temperatures during the 2009 mouth-closing event. September 26, 2009, almost three weeks after closure, showed the highest temperatures. (23C range) Temperatures at Johnson's Beach on that date, and a few days before, averaged around 19C. Why would the water temperature at the coast, where it tends to be much cooler, be about four degrees higher than temperature inland?

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We will just comment on the conclusion on page 4.6-22: "...it remains unclear whether the proposed project would result in a highly productive freshwater lagoon system during the lagoon management period, or whether the less productive and potentially adverse conditions characteristic of a partially converted stratified lagoon would predominantly occur."

It goes on, "A partially converted lagoon could potentially impact resident fish species, especially rearing steelhead, due to a reduction of water quality and habitat function, leading to increased stress or mortality as a result of increased water temperatures, reduced dissolved oxygen levels, or reduced foraging potential due to loss of estuarine productivity. A reduction in productivity or habitat function within the Estuary could result in a further potential indirect impact related to increased competition in unaffected"

areas where suitable habitat persists. Additionally, stratification could result in a reduction in the total area of available suitable habitat for a range of fish species due to adverse water quality conditions in the lower water column."

And this is just in the Estuary. Who knows how bad the devastation will be from both low flow and a lagoon that backs up the river for 14 miles adding 725 AF to the river between Austin Creek and Vacation Beach? How can so many negative impacts be identified in an EIR and have the project still move forward? Even more problematic is, how can so little scientific data be available with which to determine potential impacts of a project, and have it still move forward? Finally, how can so little monitoring be proposed for a project that contains so many unknowns?

G_RRWPC-46
cont.

Fisheries (4.5).....

We are a bit confused as to why Chinook have been left out of consideration of this study, and wonder if opportunities for mitigation were missed by that decision? Page 4.5-11 states, "*Fall-run adult salmon migrate from the ocean to spawn in the main channels of rivers and large tributaries in late summer and fall, and die soon after spawning.*" This species is adapted to migrate to avoid warm summer temperatures. The DEIR indicates that upstream migration from the ocean occurs from last week in August through December, but mainly in October and November. Then Chinook smolts are typically most abundant in May or June.

On page 4.5-12, it indicates that optimal temperatures for Chinook are 13-18C. Temperatures between 19-23C are considered sub-lethal and growth is reduced. A Press Democrat article of September 29, 2010 (ATTACHMENT #6) indicated that several Chinook had migrated past SCWA's rubber dam at their Wohler facility in the prior few days. Since the time span of this project begins on May 15th and extends to October 15th, how can project impacts for three weeks of the Chinook migration be ignored? If the river mouth were closed at that time, what would their survival opportunities include in the Estuary? On page 4.5-23, it indicates that the smolt could become more susceptible to predation by birds and seals. How can that be mitigated?

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Furthermore, temperatures at Johnson's Beach around that time averaged 20C, even when flows were averaging about 250 cfs in 2010. (Temperatures were about the same in 2009 at Johnson's when flows were much lower.) This temperature would be considered sub-lethal. Even though it is stated that Chinook like to avoid warm temperatures, they really had no choice. How far must Chinook migrate through the temperature impaired waterway? What impact does this have on their long-term health and reproductive viability? The Russian River is impaired for temperature and warm water is common. (Average temperature at Hacienda for that time of year was also about 20C.)

How was it determined that Chinook could be excluded from the study? What are the impacts to Chinook if the length of their migration is through sub-lethal temperatures? How will low flow impact that situation?

If Chinook were all the way to Forestville on September 28th or before, when would they have entered the Estuary? The Estuary closed on September 21st and remained closed until there was an artificial breach on October 1st. Not being a fisheries expert, I can't go much further with this analysis, but I ask the following questions:

- Since spring juvenile Chinook down-migration and adult up-migration activities clearly occur within the time span of this project, why were impacts to this threatened species not considered?
- How would probable conditions in the Estuary during their late fall migration impact their transit?
- What would be temperature impacts if low flow occurs during that period? (Since flows got down as low as 47cfs in 2009, we cannot be assured they will stay at 70 cfs or higher during hot periods.)
- Is anyone considering the health of these species, their continued viability and reproductive capacity, or only that they are seen swimming around?
- How will adoptive management of the Estuary during May, June, September, and early October affect migration patterns and health and well being of Chinook during those periods? (Page 4.5-23 claims that, "*The confines of the outlet channel may make the smolts more susceptible to predation by birds and seals.*")
- How will possibly excessive temperatures and dissolved oxygen in the Estuary and along the Russian River impact Chinook salmon?
- On page 4.5-23 it is stated that only a few Chinook migrate as early as August, but most migrate in November and December. Where is the data to prove this? While the intention of this project is to create a longer period of a closed environment, up to now this has not worked, and natural closings of the mouth have been limited and sporadic during the project period. There is a lot being left to chance here in terms of the anticipated success of the project and the ability to keep the mouth closed during this critical time. If the project cannot succeed, how will Estuary conditions (potential alternating of stratifications and variable water quality) affect the Chinook juveniles and in-migrating adults?

Furthermore, it assumes that (page 4.5-23), "*Adult salmonids typically immigrate upstream following winter storms outside the proposed management period, when the Estuary would be open due to natural or artificial breaching.*"

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cont.

This avoids addressing the transitional period. If artificial management of the Estuary is going to be a permanent condition, then potential impacts must be addressed, especially in October!

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cont.

How does the BO conclude, as stated here, that Chinook smolt will be able to exit the outlet channel. How would this be possible?

- It states on page 4.5-26 that the Estuary is important habitat for Dungeness crab and other species that utilize the brackish water in the Estuary. The DEIR determines that the impact will be minor because, while a substantial number inhabit the Estuary in summer, their numbers are great in other areas and mitigation is not necessary. If that is the case, why is it often difficult to buy crab at the grocery store? This DEIR made no attempt to quantify the impact. Is this a valid explanation? Doesn't CEQA require mitigation in this case? If not, why not?

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- Page 4.7-1 (Recreation) states that, "*The Estuary is a state marine recreational management area as defined by the Marine Life Protection Act (MLPA), managed by the California Department of Fish and Game (CDFG). Within the Estuary, the take of living marine resources is prohibited except recreational hunting of waterfowl.*" Would this project need a permit under this act if closing the Estuary will involve impacting Dungeness crab habitat? Would there be any permits required for this purpose with other agencies?

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Recreation (4.7)... ..

There will be many recreation people commenting on this section, and since our expertise is limited in this area, we will only make a few points.

First, the authors of this document failed to talk to any of the local Recreational or Public Safety agencies and organizations about this issue. They didn't speak with hotel, motel, restaurant owners or the Chambers of Commerce. They failed to communicate with the Monte Rio or Russian River Recreation and Park Departments. They didn't speak to Burke's Canoes, Johnson's Beach, or Casini Ranch owners or any of the other businesses in the community related to recreation. They basically spoke only with State and County agency officials.

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With this Estuary project, the river will back up as far as Vacation Beach and an extent of beach area diminished. DEIR claims that 63 acres will be affected, but fails to show where those will be and what the impact will be on recreation. I have photos of the Monte Rio beach (east and west) taken one day apart showing before and after breaching. The gain of beach was significant after the breaching (see 2009 RRWPC Photo Report: pages 3-4: Attachment #3) it appears as though about 25% or more of the beach was gained after the mouth was opened. The DEIR makes no attempt to mitigate this significant impact.

We expect the surfers to write extensive comments on the possible loss of their resource at the river mouth.

The other big issue is in regard to the use and transport of equipment from the Goat Rock parking lot to the mouth of the river and its impact on recreation. This project proposes up to 18 times and up to 2 days each time of work on the perched lagoon. That's a potential 36 days of signs, posts, equipment, etc. on the beach over the summer. The seals will leave when the mouth is closed and the best part of the beach (the mouth) will be off limits. People travelling to the beach to visit this incredibly scenic area, possibly having come a long distance, will not know in advance whether they will be able to access it. This particular location is one of the most famous non-commercial scenic attractions in the whole County. The very last thing one would want to see on their visit to this incredible site are bulldozers, with blockades and barriers and signs telling them to keep away. This is bound to make a lot of people very upset. The analysis of the problem here is totally inadequate.

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cont.

Why are no mitigations proposed that serve the needs of the people rather than just the project? In fact, no real mitigations are proposed at all.

Cumulative Analysis.....

Most comments on this section are on pages 4-7 of this document.

Page 5-7: What are the reasons for selection of the project dates of May 15 to Oct. 15?

Page 5-9: Statement is made that the BO calls for reducing flows from 125 to 70 cfs, "....with the understanding that the Water Agency will maintain approximately 85 cfs at the Hacienda gage as practically feasible." This really has no meaning since the 85 cfs is not required, and there are no standards established for when and how this is to be done. It leaves decision totally to the discretion of the operators, the very ones who sell wholesale water to 600,000 people mostly residing in the urban areas. This appears to be a political ploy to assuage the concerns of the people in the lower river. What is the technical basis for the 85 cfs buffer? What is the technical basis for the 70 cfs minimum? Do these numbers have meaning, or did they come out of a hat? Can you provide the monthly daily averages for the period of record? Can you indicate mouth closings and openings in conjunction with flow data?

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Page 5-8: Why are minimum flows not required for Dry Creek? Their flow ends up at the Estuary also. In fact, their extraneous flow is one of the reasons that Hacienda came nowhere near the 70 cfs in 2010. Could it be that because it's upstream of the SCWA facility, they get special consideration? It is ironic, since it is their operation that triggered this process in the first place.

Page 5-11: Categorical exemptions in relation to TUC to protect a resource (steelhead), fail to acknowledge that there are other resource damaging impacts being exacerbated by this project. It's like killing the patient with side effects in the process of trying to make them well.

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Page 5-12: DEIR states that, "Reduced inflows into the Estuary could adversely affect water quality conditions, particularly with respect to bacteria and nutrient levels within the Estuary during freshwater lagoon conditions. Reduced flows may reduce the assimilative dilution capacity of Russian River flows upstream of the Estuary, and assuming inputs within the watershed remain constant, could result in increased concentrations of nutrients and indicator bacteria."

It goes on to state that "Water quality sampling by various entities, including SCWA have not identified bacterial levels that warrant listing the Estuary as impaired, and the 303(d) listing for bacteria is limited to areas upstream of Austin Creek."

At the Jan. 28th meeting of the Regional Board, staff made a presentation on their elaborate plans to begin the listing process for the 2012 303(d) List of bacteria for the entire lower river. (ATTACHMENT #7) How would such a listing impact this project? You say bacteria levels in the Estuary don't merit impairment listing, but on page 4.3-8 it refers to increased coliform levels, which conveyed cause for concern. Here the situation is downplayed. What were the reading levels that were referred to? Why is no data presented to clarify your statement?

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Ultimately, the DEIR admits there is inadequate data to conclude whether the Estuary Project will be impacted by high bacterial levels during any and/or all flow levels and will rely on future monitoring to address this issue. Breaching will be the mitigation for addressing water quality and flooding problems.

Conclusion....

All in all, we found this document extremely lacking in scientific evidence in most sections, limited references, many conclusory statements based on conjecture, and few meaningful mitigations. In many cases, there is reliance on future studies. There is also excessive repetition making it very laborious to read.

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Finally, there are no criteria listed which would allow determination of the success or failure of this project. There is no statement that should certain events occur, the project will be aborted. Neither is there any statement as to how success will be measured. How will anyone know if the project is working? At what point might someone judge that the negative effects are worse than the positive impacts? There needs to be a way to evaluate this project as it proceeds in time.

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Submitted by Brenda Adelman for RRWPC

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February 14, 2011

**Russian River Watershed Protection Committee (RRWPC):
REVISED Scoping comments on SCWA's Russian River
Estuary Project**

By Brenda Adelman

This is a revised version of our Scoping Comments for the Draft Environmental Impact Report DEIR. Since CEQA does not require a response to scoping comments, we are resubmitting a revised version of these comments for the DEIR so as to require a response. We have excluded comments that were appropriate for scoping but not the DEIR. We will submit additional comments on the DEIR separately.

Introduction:

These comments are being filed on behalf of Russian River Watershed Protection Committee (RRWPC). We are a nonprofit public benefit organization incorporated in the State of California since 1980. Our supporters number approximately 1200 property and business owners, recreationists, and other concerned citizens in the lower river area from Healdsburg to Jenner. We also

have a great deal of support from many others who appreciate our advocacy on behalf of the Russian River.

RRWPC supporters and activists utilize the Russian River for recreation and/or tourism, for fishing, swimming, for artistic expression, spiritual well being, for exercise and personal health of ourselves, family, friends and pets, and for replenishment of health and energy needed to balance out the stresses of modern day life. Due to its proximity to Bay Area urban centers, the beautiful and peaceful lower Russian River is easy to access and allows a natural refuge from everyday cares. Many of our supporters own properties in the lower river for their summer enjoyment, but reside and work in the greater Bay Area and beyond. Because of all this, they have a great interest in this proposed project.

Scope of project:

Geographical limit:

The Estuary Project is defined from the mouth of the Russian River to a little upstream of the town of Duncans Mills (Austin Creek), about 7 miles upstream of the Estuary. Last October we took pictures of the river in Monte Rio the day before and the day after the mouth was open (October 5th and 6th). This was part of a photo project we worked on all summer. (Report attached to this document)

The pictures indicate a profound impact on Monte Rio Beach when the mouth is open or closed, the water being more than a foot higher when closed and at least 200 extra feet of beach exposed when open. Furthermore, there was a considerable amount of algae left on the beach when the mouth was opened, indicating amounts present in the water when mouth was closed. (Monte Rio Beach seems to be one of the worst impacted by algae with a great deal of Ludwigia as well). These seem to fit the narrative standards for nutrients in the Basin Plan and need to be addressed. What is the fate of the algae during each of these circumstances? How does it affect the fish and the Estuary? What impact might this have on the availability of pathogens? (Our comments on this subject will go into greater depth since some of this issue was partially addressed in the DEIR.)

The closing of the mouth slows the flow of water and turns the lower river into a lake. To what extent will (and has) this "lake" become a sink for pollutants that bioaccumulate in the biota and sediments to create a harmful environment for people and fish? In fact, we have concerns that the "dead zone" (anoxic zone) in the Estuary harbors many toxic pollutants. Are/will any studies be done to determine the extent of pollution in the Estuary, whether it is being reintroduced

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Attachment 1

into the water column, and whether it is contaminating the fish (Are there any fish samples being studied?)? Also, to what extent does the anoxic bottom affect the macro invertebrate food sources of the fish? Are there any other threatened or endangered species or species of concern in the Estuary? How will they be affected by this project?

Bifurcation of Estuary Project and "Low Flow" Changes to D1610:
We are concerned about the bifurcation of the Estuary Project EIR and changes to D1610 EIR. In Section 15003 (h): Policies, it states that, *"The lead agency must consider the whole of an action, not simply its constituent parts, when determining whether it will have a significant environmental effect."*

This project is based on requirements in the Biological Opinion, which is a legally binding document issued by the National Marine Fisheries Service. Page 241 of the BO presents the Reasonable and Prudent Alternatives (RPA). It states that, *"All eight modifications and additional actions must be implemented as one RPA."*

Item 1 directs SCWA to petition the State Board to change minimum bypass flows in Decision 1610 (D1610), and also calls for SCWA to complete all necessary environmental documentation to promote changes to D1610 minimum flows as per Section X.A.1

Item 2 (page 242) includes the following: *"SCWA will collaborate with NMFS and modify their estuary water level management in order to reduce marine influence...in the estuary during the summer and promote a higher water surface elevation in the estuary for purposes of enhancing the quality of rearing habitat for age 0+ and 1 + steelhead."*

Furthermore, the following statement appeared on page 231 of the BO: *"Proposed project operations will likely have significant effects on the PCE of estuarine critical habitat for each salmonid species because flow management at WSD and CVD will create high inflows to the estuary during the low flow season and the sandbar breaching activities at the mouth will significantly affect water quality in the lowermost segment of the river."*

In fact, the NOP (page 3) states that, *"NMFS' Russian River BO found that artificially elevated inflows to the Russian River Estuary during the low flow season (May through October) and historic artificial breaching practices have significant, adverse effects on the Russian River's estuarine rearing habitat for juvenile salmonids, particularly steelhead...NMFS' Russian River BO concludes that the combination of high inflows and breaching practices impact rearing habitat because they interfere with natural processes that would otherwise*

cause a freshwater lagoon to form behind the barrier beach. According to NMFS, fresh or brackish water lagoons at the mouths of many streams in central and southern California often provide depths and water quality that are highly favorable to the survival of rearing salmon and steelhead."

These statements appear to attest to the fact that there is a direct link between D1610 flow changes and the Estuary Project, thereby making it unacceptable to consider them in separate EIRs. We will address this further in our main body of comments.

Natural flows and breaching the mouth:

In his article appearing in the June 3rd edition of the *Sonoma County Gazette* (attached), Dr. William Hearn, chief author of the Biological Opinion, repeatedly referred to "natural flows" that used to occur in the Russian River more than 100 years ago and prior to the building of three major dams. He goes on to make the case that juvenile Steelhead appear to thrive in fresh water lagoon conditions and would have a much higher rate of survival if low flow conditions could be maintained.

In our comments to SCWA and the State Board on the Petition to permanently change D1610, RRWPC submitted a document entitled: *"Review of the Flow Proposal in the Russian River Draft Biological Assessment"* by Prunuske Chatham and scientific review members, Daniel Malnon, William Murphy, and Bill Trush, all Ph.D's, September 24, 2004. (Since we have already submitted the document to SCWA with our Comments on D1610 flows, we simply reference it now. It was attachment #12 in that packet.)

They ask the critical question (page 17): *"How are the Russian River's salmon and steelhead populations faring under the present D1610?"* Please respond to this question.

Page 21 of the document complains, *"Not only is natural flow missing from the stated objectives (of Biological Assessment), but an increase in salmon and steelhead populations is not a clear objective either. Rather, an "improvement" of existing summer habitat and habitat protection under increased future water demand is the objective. The Draft BA does not assess the contemporary status of salmon and steelhead populations in the Russian River Basin. Are populations improving, still declining, or staying about the same under D1610? Is the goal of "improving" habitat sufficient to stabilize declining populations presently below historic numbers? The Draft BA never provides a quantitative goal for habitat improvement."*

RRWPC believes that this critique also applies to the Biological Opinion and comments made by Dr. William Hearn as to why the Estuary Project and the

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Attachment 1

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cont.

D1610 Petition are necessary. This EIR should address these issues and verify the claims made to justify this project. Can you fully define the relationship between flows, mouth closings, habitat resources, fish abundance and health, including reproductive health?

RRWPC replied to the Bill Hearn article (Sonoma County Gazette, June 3, 2010, page 1) with this about "natural" flows:

In order to promote the recovery of Coho and Steelhead, the article notes that federal officials recommend, "One of these steps (leading back to recovery) involves restoring a more natural flow regime for the Russian River, while being careful to not unduly impact water quality and other resources."

The article refers to possible pre-dam river flows of 30 cubic feet per second (cfs), but is unclear about whether these flows occurred throughout the river system. The article fails to assign impacts from all the changes in land use that has occurred in the last 100 years, nor how going back to original flows, would impact the entire system. In fact, it is stated that Estuary rearing would help the survival of the species, but fail to mention that normal habitat in the tributaries has been decimated by legal and illegal water diversions, careless agricultural processes, timber harvesting, gravel mining, riparian destruction, etc. Now they are left with fewer habitat options, and this current scheme is an experiment and possibly a last ditch effort, to save species that may not have a chance otherwise.

Actually, when Dr Hearn talks about going back to "natural flows", he doesn't explain that they are only recommending flows of 70 cfs for the lower river and not the entire system. Flows north of Healdsburg will only be reduced to 125 cfs (which is our normal flow and with which we could probably be content). By assigning a theoretical historical flow of 30 cfs and then appear generous by saying they will allow us three times that amount, is manipulative and condescending and certainly not at all scientific. If "natural flows" are the goal here and will serve as a justification for permanently changing D1610, then we wonder if it would only be fair to describe all impacts on "natural" flow conditions as well?

For instance, what is the impact on "natural" river flows by draw down of tributary flows due to over-drafting of water supplies by wine growers? Was 30 cfs considered "natural flow" during a wet year? What were natural flows in a wet, or normal year? (2010 was a normal rain year with a wet spring. Even though releases from the two dams were cut back, flows at Hacienda averaged 260 cfs from May into October. Since it had been a cool summer, creeks weren't drawn down and the river flows remained full. Is this "natural"? What are the various scenarios and entire range of possible flows under "natural" conditions? (The DEIR tries to make the case that it's okay to bifurcate the D1610 EIR from the Fish Flow EIR because the Estuary Project doesn't need the low flow and can stand alone. If this is the case, then "low flow", especially at Hacienda should be dropped. I will revisit this issue in our main body of comments.)

G_RRWPC-60

Comment Letter G_RRWPC
Attachment 1

Furthermore, the article states that while normal low flow had been 125 cfs, ACTUAL flows commonly ran 120 to 180 cfs, therefore "low flow" should be 70 to 85 cfs. Where is the scientific data demonstrating how the ideal of 70 cfs was arrived at? In fact, at the June 9th meeting in Guerneville, Dr. Hearn kept moving the goal post by first saying that flows would actually be about 85 cfs, and then he said 90 cfs., and then 100-110 cfs. Since the only formal change in the Petition is 70 cfs., there is no regulatory meaning to the other suggested flows. Where is the scientific justification for 70 cfs? Exactly what is intended to be accomplished by keeping flows at this level?

The phrase, "not daily impact water quality" has not been defined and no specific regulatory standards are offered. It merely states that the Regional Water Quality Control Board provided oversight on water quality monitoring. Yet, nutrient monitoring conducted last year by SCWA incorporated excessive detection limits, which resulted in worthless data. Temperature was extremely high, but no concern expressed even though some steelhead and Chinook may remain in the system in the summer time. Our impression is that the Regional Board was involved in setting up the monitoring program and then afterwards actually paid little attention to the process. Just recently, the Regional Board committed to studying nutrients and bacteria in the lower river because of their concerns about the impact of low flow.

Another aspect to this situation is the link between low flows and Estuary closure. Our attachments submitted to SCWA with the Permanent Change Petition to D1610 comments included a chart of the mouth closures (#7). In looking at the chart, it is clear that the trend in the last ten years or so has been for the mouth to remain open most of the time in July and August no matter what the flow. I believe that there were few closures in 2009 between June and September, although summer flows averaged as low as 63 cfs in August.

For example, 2002 was a low flow year and the mouth was open most of the time until Oct. 1st, but for two very brief closures in May and June. 2003 was open through September. 2004 was open until October, but for three brief openings in April, May, July/August. 2005 was open all year until mid-September. 2006 was open all year until late October. 2007 was open all summer (May through September) until mid-October. 2008 was closed much of May, but had only two closures for about a week each during June through September. These statistics seem to dispute the NOP claim that frequently the mouth closes in the summer time, at least in the last ten years. We wonder if the barrier beach would be constructed if the first mouth opening comes in September?

In any case, Dr. Hearn's comments seem to prove the argument that there is an indisputable symbiotic link between the Estuary Project and decreased flows. Therefore, CEQA and NEPA documents on these two projects (Estuary and D1610) should be merged.

Flooding justifies need for low flows:

**Comment Letter G_RRWPC
Attachment 1**

Another circumstance linking the Estuary Project to the D1610 revision is the estuary flooding which in turn triggers the need to artificially open the mouth when water levels exceed seven feet. This flooding is directly related to Russian River flows and is the central reason for requiring SCWA to petition the State to change D1610 and reduce lower river flows by 45% (125 cfs). To imply that summer flow levels in the lower river are too high and are harming the threatened fish is really misleading, since the true immediate concern is for the flooding of a limited number of properties. (Since more information on this appeared in the DEIR, our full comments will address this situation in detail.)

G_RRWPC-61

A report has been prepared showing about 90 properties that may be subject to inundation at various levels. Further study needs to be conducted because many of the properties listed only flood when water levels go over 10-12'; numerous properties are undeveloped or underdeveloped, and some are abandoned. We suggest that more meaningful research be done sooner rather than later, so we can see if the flow problem can be resolved by simply lifting a few structures out of the flood plain, rather than subjecting a whole river to minimal flows and potentially significant water quality problems. (Dr. Hearn has admitted that flows might be able to remain at 125 cfs if the flood issue could be addressed.)

What is the role of ocean conditions in the Estuary Project?

In response to a question about the Coho Broodstock Program, we recently learned that no Coho returned last year in spite of a great deal of tributary work to improve conditions. The explanation from a key Fish and Game official was that poor ocean conditions probably accounted for the disappointing results. Could these conditions include acidification? Could they include other water quality problems? Will water quality problems in the ocean be addressed as part of this project?

G_RRWPC-62

Ocean conditions also help govern when the mouth opens and closes. Since we noted a possible trend in the mouth remaining open in summer under numerous flow conditions, one would think that conditions may be different in the ocean to explain this. What studies will be conducted to better understand the ocean's role in the opening and closing of the mouth?

Also, there has been a lot mentioned in the media the last several years about global warming and rising sea levels. What role could this be playing in the long term management of this project? Is there a map available showing the level of inundation of our coast?

RRWPC incorporates by reference our entire packet of comments (25 pages) and 32 attachments concerning the Petition for the Permanent Change to D1610 submitted to the State and SCWA on May 13, 2010.

**Comment Letter G_RRWPC
Attachment 1**

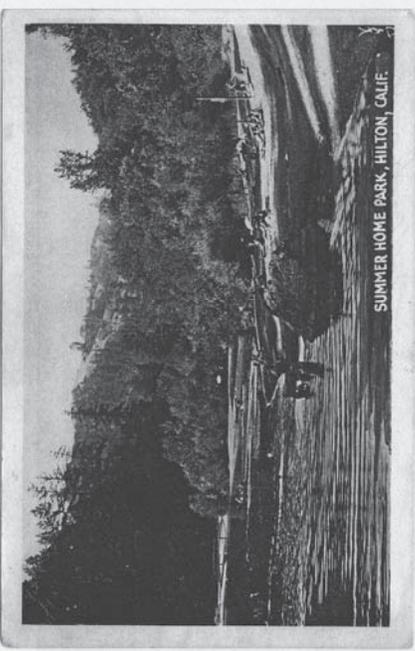
Attachments:

Photographic Report on Water Quality Conditions in Russian River

"Why Change Summer Flows in the Russian River" by Dr William Hearn, Sonoma County Gazette, June 3, 2010

Comment Letter G_RRWPC
Attachment 2

1925



Comment Letter G_RRWPC
Attachment 2

1910

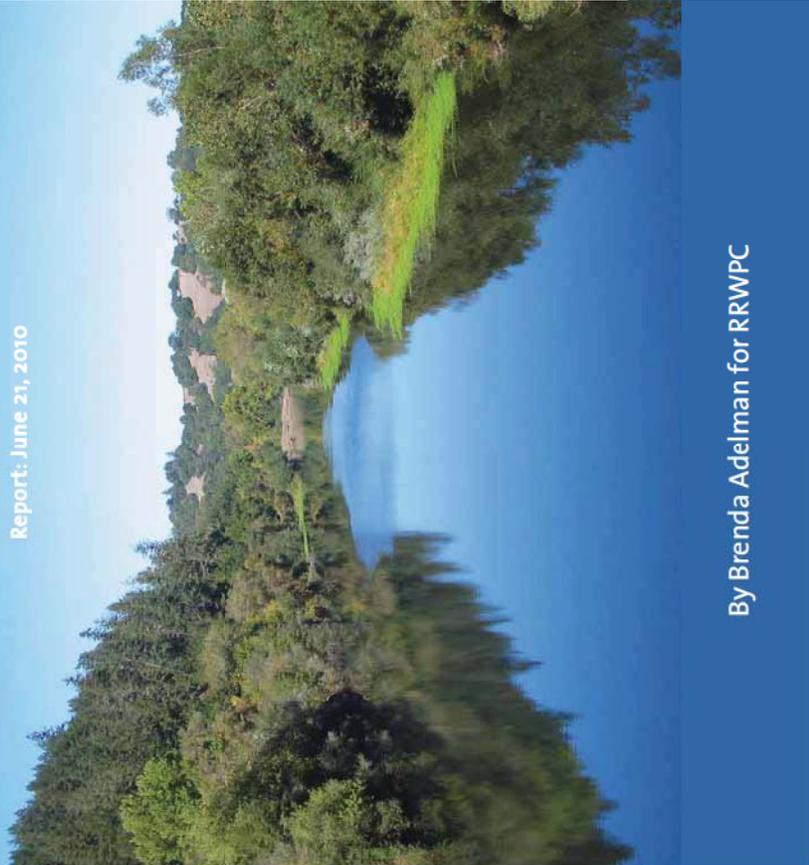


osmo-Hacienda

Russian River Watershed Protection Committee

2009 Photo Project

Report: June 21, 2010



By Brenda Adelman for RRWPC

Photographic Report on 2009 Water Quality Conditions in Lower Russian River: Response to proposed 45% cut in summer flows.

By Brenda Adelman for RRWPC

I. INTRODUCTION

In late May, 2009, in anticipation of very low summer flows as measured at the Hacienda Bridge, I started taking photographs from the Hacienda Bridge, the Guerneville (Old) Bridge, and the Monte Rio Bridge and Beach every week until early October, but for one week. Several other photographers assisted, including Laurie Ross, Larry Hanson, Shula Zuckerman, Kim Pistei, Tom Meldau, Shane McColgin, and Community Clean Water Institute volunteers.

Photographs were taken between the end of May and the end of September between Steelhead Beach and Monte Rio Beach. We also received a few photos from supporters and have included one picture from the Duncans Mills area as well. We ended up with thousands of photos and this report offers just a sample of representative scenes we shot.

Our goal was to photograph water quality problems, mostly in the form of nuisance algae and Ludwigia and also to show the water levels as the summer progressed. The two dams at Guerneville and Vacation Beach kept waters consistently high in that area all summer. The area where flow changes were most visible was the Kid's Beach in Monte Rio, which is east of the bridge. That was also the area with some of the worst algae. Over the course of the summer we saw many different kinds of attached and unattached algae and offer a representative sample in the pictures. We don't know the names of what we found, but hope some more knowledgeable than ourselves will be able to identify them.

We also tracked water quality monitoring reports as well as pathogen exceedances and beach postings. Furthermore, we include flow data as measured at Hacienda. There are no other flow gauges for the lower river that we know about. Unfortunately, the nutrient data for the entire year included inappropriate protocols and is very inadequate for scientifically determining the extent of the problem. Hopefully this will be corrected in 2010.

This report is divided into several sections including algae, Ludwigia, water levels and impact on beaches, both by flow control and opening of mouth. We include two sets of before and after pictures, upstream and downstream of the Monte Rio Bridge showing the impact of opening the mouth of the river. Two of the pictures were taken on October 5th just as the mouth was being opened, and two were taken the very next day. The difference is profound.

After the breaching, when the water went way down, the beaches where the water had been were covered with algae. I talked to Regional Board staff about the algae and was told they would take samples. I was later informed that toxic blue-green algae had been found in the area of the Kids' beach at Monte Rio.

We include Hacienda flow data here, which we obtained from Sonoma County Water Agency. All of the flows through Sept. 30, 2009, had been verified by USGS. The October flows had not yet been verified. Over the course of the summer, of the 130 days total, 57 days the flow was under 85 cfs, and 31 days were under 70 cfs. The lowest flow was 47 cfs on August 17, 2009.

A few of the pictures state "pathogen exceedance". This means that weekly monitoring at Monte Rio Beach for pathogens was out of compliance on that date. The temperature data came from Hacienda or Johnson's Beach monitoring sites and averaged about 20 to 25 Celsius, which is far too high for salmonids. Temperatures diminish considerably in the fall however.

RRWPC requests that the enclosed photographs not be used for any purpose other than as evidence for consideration of changes to Decision 1610, either Temporary or Permanent. They may also be used by North Coast Regional Board staff for scientific evidence of water quality impairment of the lower Russian River. We do not allow these photos to be used for any commercial purpose without written permission. Where no photo credits are given, pictures were taken by Brenda Adelman.

**Comment Letter G_RRWPC
Attachment 3**

II. MOUTH BREACHING & FLOW IMPACTS

Breaching of Mouth: impacts on Monte Rio Beach: looking west....



Photo 0145 was taken from the Monte Rio Bridge in the afternoon on Oct. 5, 2009 around 4 pm. looking west. Notice signs on mid-right of photo, far into the water. On far left notice accentuated plant on cement structure and plants submerged behind it. The water here was much higher than I had seen all summer at this location.
Hacienda flow: 92 cfs (not yet verified by USGS)



Photo 0228 was taken one day later (Oct. 6, 2009) of the same scene (magnification a bit different however). In this picture you can see flat rectangular cement structure with plant behind it and beach all exposed behind.
On the right you can see the sand bar jutting way out with signs that had been far into the water on Oct. 5th, now far back on the sand. The line in the sand behind the signs is where the water had been the day before. Also, you can see sand bar jutting way out beyond bushes in upper right of photo. Although you can't see it in this picture that beach is covered in algae where the water had been.
Hacienda flow: 102 cfs (not verified by USGS)

**Comment Letter G_RRWPC
Attachment 3**

Breaching of Mouth: impacts on Monte Rio Beach: looking east....



Photo 0165: This picture was taken about 4 pm on Oct. 5th. The water line is right behind white wood platform. Bushes along the bank and Ludwigs go far out beyond water line.



Photo 0239: This was taken around 2:30 pm on Oct. 6th after breaching of the mouth. You can see white platform far back on sand and sand bar juts out beyond Ludwigs.

Low flow impacts on Monte Rio Beach:



Photo 5845: This is another comparison of the same beach scene looking east. This picture was taken earlier in the season on July 11, 2009. Water levels are more than October 6th but less than October 5th when the mouth was closed. The mouth was open when this picture was taken.

Hacienda Flow: 112 cfs
Temperature: (Johnson's Beach) 23 Celsius



Photo 7924: This picture contrasts with 5845 in that you can see that the river level is much lower (mouth open in both pictures). This was the most visible bridge location where we can see the impact of flow levels on the river. It was taken on Aug. 15, 2009

Hacienda Flow: 50 cfs
Temperature: (Johnson's Beach) 25 Celsius

III. ALGAE:



Photo 0329: This is essentially a blow up of photo 0228 on page 3 (upper right of photo) and taken Oct. 6, 2009 at Monte Rio Beach looking west. It shows prevalent algae in water and on beach AFTER opening of the mouth of the river. You can also see water line from prior day in bottom right corner.



Photo 0387: taken by Bill Clark behind his Duncans Mills vacation home on July 31, 2009 in the morning.

Hacienda flow: 76 cfs
Monte Rio Pathogen exceedence



Photo 4752: This photo was taken from the Monte Rio Bridge looking west on June 22, 2009. The whole water column seems to be subject to a large algal bloom. In subsequent visits, it was not nearly so iridescent green.

Hacienda flow: 157 cfs
Temperature:

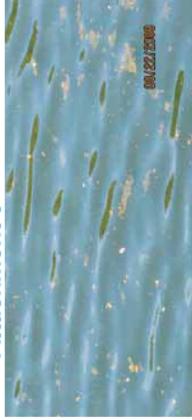


Photo 0407: This was taken at the Monte Rio Kid's Beach while down at the beach, also on Aug. 22nd. I believe that this is a different kind of algae than what was seen in the prior picture.

Hacienda flow: 64 cfs
Temperature: (Johnson's Beach) 23.64 Celsius



Photos 6814 and 7239: These photos were both taken at the Kid's Beach (from the beach) in Monte Rio. 6814 was taken on Aug. 2, 2009 and 7239 was taken on Aug. 8th. They were both from the same area.

Hacienda flow: 71 cfs and 64 cfs
Temperature: (Johnson's Beach) 23.35 Celsius



Photo 0326: This picture was taken on Aug. 22nd from the Monte Rio Bridge looking east towards the Kid's Beach. As I looked down into the water in the middle of the bridge, the floating algae could be seen going by.

Hacienda flow: 64 cfs
Temperature: (Johnson's Beach) 23.63 Celsius



Temperature: (Johnson's Beach) 23 Celsius

Comment Letter G_RRWPC Attachment 3

ALGAE continued

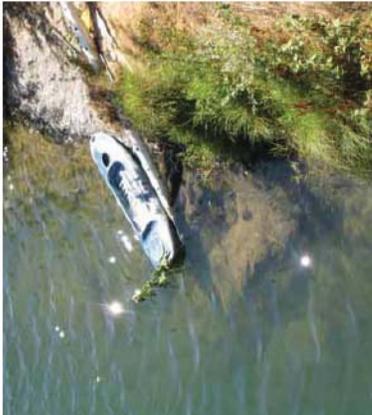


Photo 6980: This picture was taken from Hacienda Bridge on Aug. 2, 2009. Looking west (downstream), the hill on the right is where the pipe is located and the algae is right down below.
Hacienda flow: 71 cfs
Temperature: 22 C



Photo 8100: This picture was taken from the Hacienda Bridge on the North side and looking over to the right. There is a huge outcropping of Ludwigia on this bend and immediately downstream is the large mat of attached algae. This picture was taken on Aug. 16, 2009.
Hacienda flow: 51 cfs
Temperature: 23 C



Johnson's Beach algae photographed by Shula Zuckerman on September 27, 2009. The picture speaks for itself.
Hacienda flow: 69 cfs
Temperature: 21 C



Photo 3542: Picture of floating and submerged algae taken by Laurie Ross in the Steelhead Beach area on August 18, 2009
Hacienda flow: 51 cfs
Temperature: 23 C



Photo 0369: This was taken at the footings of the Vacation Beach Dam (from the road) soon after it was taken down. The picture was taken on Oct. 6, 2009. The algae are very bright green as you can see, but we don't know what it is. Regional Board staff verified that it is not blue-green algae.
Hacienda flow: 102 cfs

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Photo 3552: Steelhead Beach algae taken by Laurie Ross on August 16, 2009
Hacienda flow: 51 cfs
Temperature: 23 C



Photo 3311: taken by Laurie Ross in the Steelhead Beach area. This picture shows both Ludwigia and the attached floating and attached tubular algal plant under the water's surface. July 20, 2009 at west Steelhead Beach area. I found the same kind of growth at Hacienda looking south from the bridge on the right bank. Photo 6327 was taken July 19, 2009.
Hacienda flow: 69 cfs
Temperature: 23 C

IV. LUDWIGIA

This invasive plant has overrun much of the Laguna and is now evident throughout the entire lower Russian River watershed. The Laguna Foundation eradicated it fairly successfully a few years ago in one area (near Story Point west of Cotati), but it rapidly came back full force when not maintained. It now fills the entire channel.

Ludwigia is found in outgrowths from the bank along the whole lower river. We photographed downstream of SCWA facilities, but we know it occurs upstream as well, although not as prevalent as the lower section of the river. We include representative photos here going down the river from Mirabel (Steelhead Beach) to Monte Rio.



Steelhead Beach: Photo 7-31c looking downstream on July 31, 2009. You can see seven outcroppings in this picture along the bank. Hacienda flow on that date was 76 cfs. Picture taken by Tom Meldau and Shane McColgin.

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Sunset Sunset Beach Ludwigia pictures taken by Larry Hanson (Photos 0098, 0024, 0026).



Photos 0024 and 0026 were taken west of the main Sunset Beach on July 25, 2009
Hacienda flow: 71 cfs



Photo 0098 was taken on July 4, 2009 in about the same location
Hacienda flow: 128 cfs

Hacienda Beach:



Photo 8091 was taken on August 16, 2009 (Hacienda flow: 51 cfs) and shows a large outcropping just north of the Hacienda Bridge looking down to the right.



Photo 8384 was taken looking south on the Hacienda Bridge towards the right bank on August 22, 2009.
Hacienda flow: 64 cfs



Photo 6684: Hacienda Bridge looking downstream at the left bank. Picture taken July 26, 2009. This is an outcropping of Ludwigia right next to outcropping of submerged attached algae.
Hacienda flow: 74 cfs.

Comment Letter G_RRWPC Attachment 3



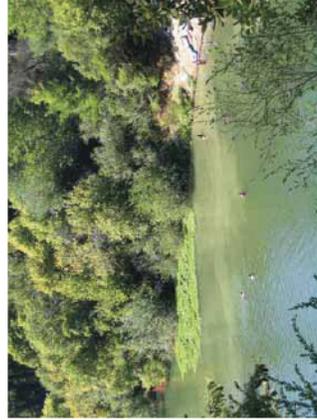
North bank between Russian River County Sanitation District and Monte Rio Beach:
Photo 3200: taken by CCWI volunteer. Not sure of date, but I had noticed area and it had been pretty consistently the same all summer.



Oddfellow's Bridge:
Photo 30002 taken by Kim Pletsy. I believe at the Oddfellow's Bridge. (I was unable to contact her to verify). The picture was taken in late August.



Old Guerneville Bridge: (looking east):
Photo 6246: taken July 18, 2009.
Hacienda Flow: 81 cfs.



Dubrava Beach:
Photo (#8) taken September 5, 2009 by Shula Zuckerman.



Monte Rio Kid's Beach:
Photo 6591 taken July 25, 2009.
Hacienda Flow: 71 cfs

Researched and prepared by volunteers for:
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Linda S. Adams
Secretary for
Environmental Protection

**Comment Letter G_RRWPC
Attachment 4**

**California Regional Water Quality Control Board
North Coast Region**

Geoffrey M. Hales, Chairman

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Arnold
Schwarzenegger
Governor

November 15, 2010

Ms. Jessica Martini-Lamb
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403

Dear Ms. Martini-Lamb:

Subject: Comments on the Notice of Preparation of an Environmental Impact Report for the Fish Habitat Flows and Water Rights Project, SCH No. 2010092087

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of an Environmental Impact Report for the Fish Habitat Flows and Water Rights Project (Fish Flow Project EIR). We appreciate the opportunity to participate early in the environmental review process. The North Coast Regional Water Quality Control Board (Regional Water Board) is a responsible agency for this project, with jurisdiction over the quality of ground and surface waters (including wetlands) and the protection of the beneficial uses of such waters.

The proposed project consists of the management of water supply releases from Lake Mendocino and Lake Sonoma to provide instream flows in the Russian River and Dry Creek. The project proposes to modify the Sonoma County Water Agency's (Water Agency) existing water-right permit to change the minimum instream flow requirements, consistent with the National Marine Fisheries Service's Russian River Biological Opinion dated September 24, 2008.

We have reviewed the NOP for the Fish Flow Project EIR and offer the following recommendations and comments.

General Comments

The mission of the State Water Resources Control Board and Regional Water Boards is to preserve, enhance, and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations. The quality of surface and ground waters in the North Coast Region of California is governed by the *Water Quality Control Plan for the North Coast Region* (Basin Plan) and state-wide Policies. The Basin Plan identifies the existing and potential beneficial uses of water within the North Coast Region and the water quality

California Environmental Protection Agency

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objectives necessary to protect those uses. The relevant existing beneficial uses that apply to the Project area include: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Groundwater Recharge (GWR), Water Contact Recreation (REC1), Non-Contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Estuarine Habitat (EST), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), and Spawning, Reproduction, and/or Early Development (SPWN). The water quality objectives of specific concern to Regional Water Board staff are outlined in the following sections. Together water quality objectives, beneficial uses, the anti-degradation policy, and implementation policies are known as water quality standards. The NOP identifies hydrology and water quality as specific areas of analysis for the EIR, including an analysis of potential cumulative impacts related to the Project. The Fish Flow Project EIR must ensure that the Project complies with the water quality standards within the Project area.

Russian River Water Quality Impairments

Section 303(d) of the federal Clean Water Act and 40 CFR §130.7 require states to identify water bodies that do not meet water quality standards and are not supporting their beneficial uses. These waters are placed on the Section 303(d) List of Water Quality Limited Segments (also known as the list of Impaired Waterbodies). The List identifies the pollutant or stressor causing impairment and establishes a schedule for developing a control plan to address the impairment. On August 4, 2010, the State Water Board adopted the California 2010 303(d) List and the United States Environmental Protection Agency will likely approve or disapprove the 2010 List in November 2010. This 2010 List includes the following three impairments for the Russian River within the Project area: sedimentation/siltation, temperature, and indicator bacteria.

State Water Board staff have begun assessing available data in order to update the 303(d) List. State Water Board staff's assessment includes nutrient and algal biomass data collected within the Project area and submitted by interested parties. At a later date, Regional Water Board staff will consider whether the available data demonstrates that the Russian River within the Project area is impaired for nutrients/bio-stimulatory substances.

Regional Water Board staff is currently developing a pathogen total maximum daily load (TMDL) for the Russian River to address the indicator bacteria impairments and a temperature implementation policy to address the temperature impairment. The sediment impairment in the Russian River watershed is addressed, in part, by the *Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region* (Resolution No. R1-2004-0087).

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Water Quality Objectives of Concern

The following are the water quality objectives that we believe could be violated under the Fish Flows Project, and a brief explanation of why violations of these objectives are a concern.

Bacteria: *The bacteriological quality of waters of the North Coast Region shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the North Coast Region exceed the following: In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml (State Department of Health Services).*

Per the Draft Guidance for Fresh Water Beaches (DHS 2006), freshwater beach posting is recommended when single sample levels exceed the following thresholds: 1) Total coliforms - 10,000 MPN/100mL; 2) E. coli - 235 MPN/100mL; and 3) Enterococcus - 61 MPN/100 mL.

Our working hypothesis, supported in part by preliminary empirical analysis of available data (Attachment 1), is that under a given loading of bacteria from existing sources, reduced flows provides less dilution and may lead to higher bacteria concentrations, potentially causing violation of the bacteria objectives and beach posting thresholds and not supporting REC1 and REC2.

Biostimulatory Substances: *Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.*

Biostimulatory substances include nitrogen and phosphorus. It is generally recognized that flow, along with channel morphology and riparian conditions, is a "risk cofactor" that can affect the biostimulatory response of nutrients in a waterbody (Tetra Tech 2006). Assuming all other factors are constant, a given concentration of nitrogen and phosphorus in a waterbody can lead to greater biostimulation under reduced flows. Biostimulation can result in more aquatic plant productivity under lower flow conditions.

Dissolved Oxygen: *The instantaneous minimum concentration of dissolved oxygen (DO) required is 7.0 mg/L. Half of the monthly mean DO values for the year must be 10.0 mg/L or greater.*

Reduced DO conditions can occur, particularly during pre-dawn and early morning hours, due to respiration of aquatic plants and decomposition of organic

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matter, which can occur under biostimulatory conditions in a water body. As summarized above, biostimulatory conditions may result from reduced flows in the Project area.

Toxicity: *All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Water Board.*

The toxic parameters of concern are blue-green algae toxins. Algal productivity is a biostimulatory response. Algal biomass can include blue-green algae species. Some blue-green algae species produce algal toxins that can be harmful to humans, pets, and wildlife.

Temperature: *The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.*

*At no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temperature.
At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperatures.*

"Natural receiving water temperature" is that temperature regime that would occur in the absence of human alteration of those factors, including flow, which can affect stream temperature. The Fish Flows Project EIR must demonstrate to the satisfaction of the Regional Water Board that the Project does not contribute to violation of the temperature objective. We recommend the use of a water quality model to evaluate temperatures representing baseline, with-project, and natural conditions. The natural condition representation should evaluate temperatures that would be expected to occur without flow augmentation from reservoirs. The model should be capable of predicting hourly temperatures so that the 5°F restriction can be properly evaluated.

Sediment: The Basin Plan contains the following four sediment-related water quality objectives:

Sediment: *The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.*

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Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

Suspended Material: Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Settleable Material: Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.

Flow is a factor that could affect in-stream sediment loads. One potential mechanism for increases in sediment discharges from the Project is a drop in the water table which might lead to loss of riparian vegetation and subsequent bank erosion.

Water Quality Monitoring and Assessment

As stated above, the Fish Flow Project EIR must ensure that the Project complies with the water quality standards within the Project area. This assessment should be based on not only available water quality data, but also new water quality data, the collection of which should be designed specifically to evaluate potential impacts to water quality standards from reduced flows.

The stated objectives of the Russian River Water Quality Monitoring Plan for the Sonoma County Water Agency 2010 Temporary Urgency Change (2010 Monitoring Plan) were, "to provide information to evaluate potential changes to water quality and availability of aquatic habitat for salmonids resulting from the proposed permanent changes to Decision 1610... and provide information to support the development of a CEQA document required for permanent changes to Decision 1610." We support these objectives, and expect the Water Agency to meet them through additional monitoring and assessment efforts in 2011 and beyond. We believe that the assessment of changes in water quality should involve statistical analysis. Statistical analysis of water quality data for trends often requires an adequate time period to detect a statistical change in constituent concentration. The amount of time required to detect a trend is dependent on the sample variability. Constituents like bacterial indicators have a high ambient variability and therefore require longer monitoring time periods before a trend can be detected.

As mentioned previously, Regional Water Board staff are conducting water quality monitoring and assessment in development of an indicator bacteria TMDL for the Russian River within the Project area. In addition, in 2011 Regional Water Board's Surface Water Ambient Monitoring Program will conduct monitoring and assessment of nutrient/biosimulatory conditions within the Project area. Regional Water Board staff will make our data from these projects available to Water Agency staff for your use in

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preparing the Fish Flow Project EIR. In addition, Regional Water Board staff are available to work with Water Agency staff to design additional monitoring to support the preparation of the EIR. Finally, Regional Water Board staff are available to consult Water Agency staff on appropriate statistical analyses to conduct on relevant water quality data in order to meet the stated monitoring and assessment objectives of the 2010 Monitoring Plan.

Impacts to Estuary

The Project has the potential to cause elevated water levels within the Russian River estuary. The Fish Flow Project EIR should evaluate the potential for elevated water levels to inundate residential septic systems located near the estuary shore and cause system failures, which could lead to discharges in violation of the Basin Plan.

Though Regional Water Board staff recognize that this Project NOP does not address breaching of the barrier beach between the ocean and the Russian River estuary, we provide the following comments for your consideration. Past activities to artificially breach the barrier beach between the ocean and Russian River Estuary have been covered by a Clean Water Act Section 401 Certification (certification). The current certification (WDD No. 1B04001WNSO) and its amendment expire on December 31, 2010. On September 24, 2008, the National Marine Fisheries Service issued the Biological Opinion entitled "Water Supply, Flood Control Operations, and Channel Maintenance conducted by the U.S. Army Corps of Engineers, the Sonoma County Water Agency, and the Mendocino County Russian River Flood Control and Water Conservation Improvement District in the Russian River Watershed," (File No. 151422SWR2000SR150).

A new certification will need to be applied for and issued for new methods of creating the outlet channel and breaching the estuary that will be more protective of salmonids and the estuarine habitat by providing deeper, cooler, and less saline water for improved rearing habitat for salmonids within the estuary. Flow will be a critical factor to evaluate and include within the certification application. Information on our certification program may be found on our website at:

http://www.swrcb.ca.gov/northcoast/water_issues/programs/water_quality_certification.shtml.

Concluding Comments

Regional Water Board staff recognize the potential conflicts between compliance with the National Marine Fisheries Service Biological Opinion and the Basin Plan water quality standards that the Fish Flow Project poses. As summarized above, we are concerned that the Project may contribute to violations of some water quality standards that apply to the Project area. Further, Regional Water Board staff expect the Fish Flow Project EIR to include qualitative and quantitative (i.e. statistical) assessment of whether the Project will cause violations of water quality standards and to include appropriate measures, as necessary, to mitigate identified impacts to these water quality standards.

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Regional Water Board staff are available to consult with Water Agency staff in identifying appropriate measures to mitigate potential water quality violations caused by the Project.

Again, we thank you for the opportunity to comment. We look forward to continuing to work with Water Agency staff on this Project in our efforts to protect water quality. If you have any questions regarding these comments, you may contact me or Matt St. John at (707) 570-3762 or MSTJohn@waterboards.ca.gov.

Sincerely,

Original signed

Catherine Kuhlman
Executive Officer

101115_MSJ_FishFlowProject_EIRCommentLetter

cc: Scott Morgan, State Clearinghouse, P.O. Box, 3044, Sacramento, CA 95812
Re: SCH No. 2010092087

Barbara Evoy, Division of Water Rights, State Water Resources Control Board,
P.O. Box 2000, Sacramento, CA 95812

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**Comment Letter G_RRWPC
Attachment 4**

Ms. Martini-Lamb

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November 15, 2010

**Attachment 1
Assessment of Fecal Indicator Bacteria in the Lower Russian River**

Regional Water Board staff assessed fecal indicator bacteria (FIB) samples collected from the Russian River for possible effects from variation in stream flow. FIB data for total coliform, E. coli, and enterococcus were compiled from several sources for the assessment.

SCWA conducted water quality monitoring at fifteen (15) sampling locations along the mainstem of the Russian River from May 28, 2009 through October 1, 2009. Samples were also collected by Regional Water Board staff at these same locations during 2009 for the routine beach assessment program. Regional Water Board staff also assessed historical FIB data (1995-2008) collected at six (6) sample locations within the Project area. Nearly 2,000 FIB data samples were available for this assessment (Table 1).

Table 1. Number of Fecal Indicator Bacteria data samples assessed

Location	Total Coliform		E. coli		Enterococcus	
	1995-2008	2009	1995-2008	2009	1995-2008	2009
Camp Rose	177	27	95	27	41	27
Healdsburg	211	27	103	27	66	27
Memorial Beach	83	27	81	27	30	27
Steelhead Beach	10	27	10	27	10	27
Forestville Beach	166	27	87	27	30	27
Monte Rio Beach	166	14	88	14	30	14

Data Assessment

The purpose of the Water Agency 2009 sampling was to assess whether the ambient FIB concentrations changed due to the reduction in flow resulting from the minimum flow requirement variance. Regional Water Board staff's assessment includes: (1) visual comparison of 2009 FIB concentration data to historical data, (2) linear regression between stream flow and FIB concentration, (3) FIB load durations curves, and (4) trend analysis.

While there is considerable variability in observed FIB concentrations, both spatially and temporally, within the Project area, Regional Water Board staff's assessment detailed below indicates that some of this variability is correlated with flow conditions. Lower flows appear to result in higher FIB concentrations, and violations of bacteria objectives and beach posting thresholds, in some instances.

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Visual Comparisons

Box plots of the FIB data collected in 2009 are visually compared to box plots of all years of historical data collected at each site (Figures 1 – 6). Box plots show data set medians, quartiles, and outliers. The visual comparison suggests that with a few exceptions there is no large apparent difference between FIB concentrations collected in 2009 as compared to past samples collected at each location.

Figure 1. Comparison of the Distribution of FIB Concentrations Measured at Camp Rose.

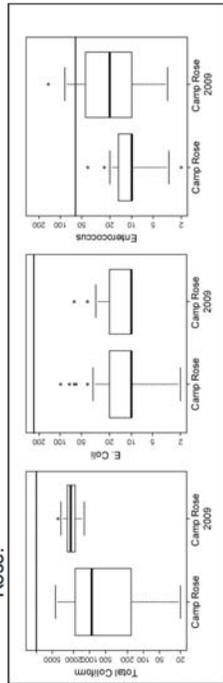


Figure 2. Comparison of the Distribution of FIB Concentrations Measured at Healdsburg Memorial Beach.

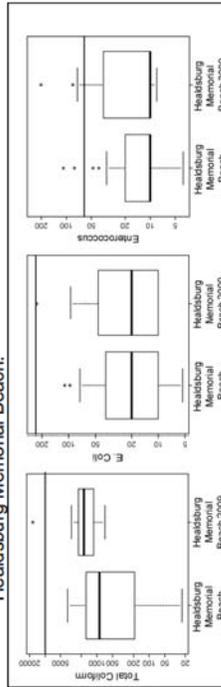


Figure 3. Comparison of the Distribution of FIB Concentrations Measured at Steelhead Beach.

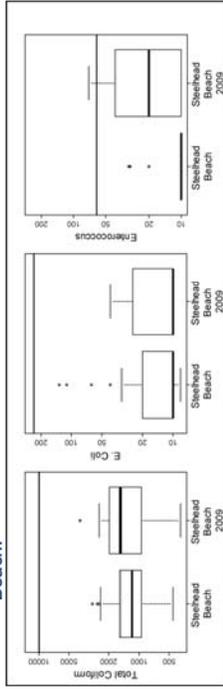


Figure 4. Comparison of the Distribution of FIB Concentrations Measured at Forestville Access Beach.

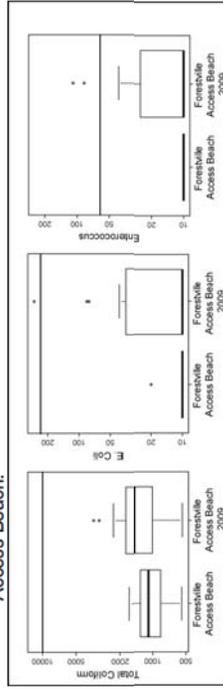


Figure 5. Comparison of the Distribution of FIB Concentrations Measured at Johnson's Beach.

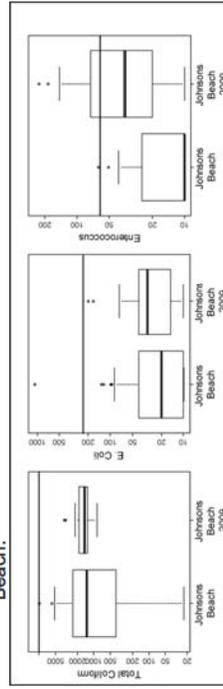
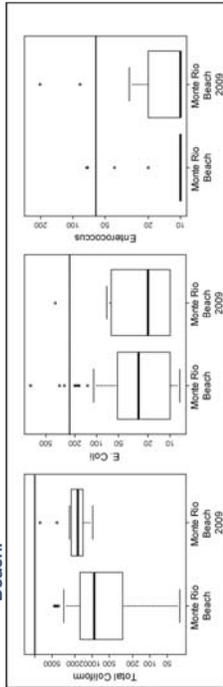


Figure 6. Comparison of the Distribution of FIB Concentrations Measured at Monte Rio Beach.



Linear Regression

The relationship between stream flow and FIB concentrations was assessed using linear regression. Daily stream flow data from the nearby U.S. Geological Survey (USGS) gauging station were matched with each FIB sample. FIB data from Camp Rose and Healdsburg Memorial Beach were compared to daily flows recorded at the USGS gauge near Healdsburg (#11464000). FIB data collected at the other four locations were compared to daily flow recorded at USGS gauge near Guerneville (#11467000).

Data were log-transformed to address the normality distribution requirement of regression analysis. Visual inspection of the frequency distribution histograms show that log-transformation of the FIB data resulted in a distributions more normally distributed (Figures 7-10).

Figure 7. Frequency Distribution of Russian River Stream Flow Measurements at USGS Gauges near Healdsburg and Guerneville.

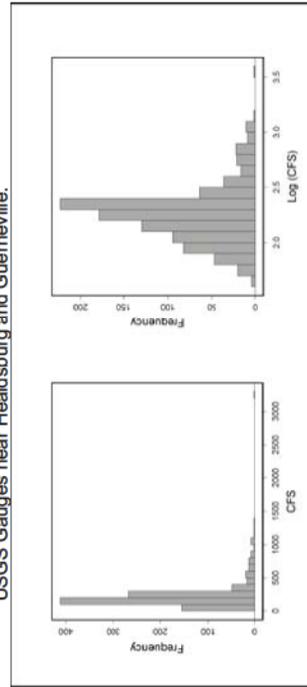


Figure 8. Frequency Distribution of Total Coliform Concentrations at all 6 Sites

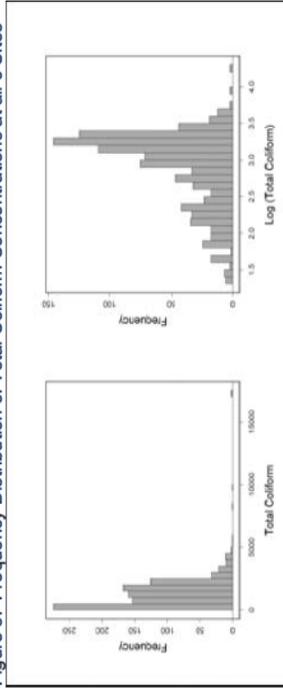


Figure 9. Frequency Distribution of E. coli Concentrations at all 6 Sites

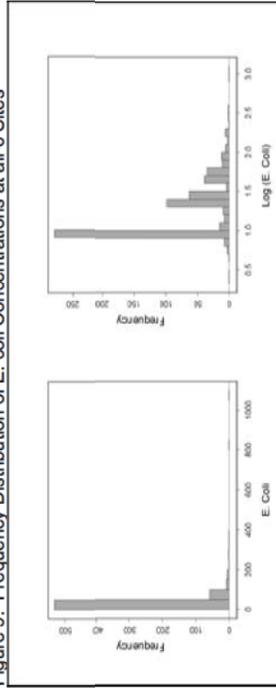
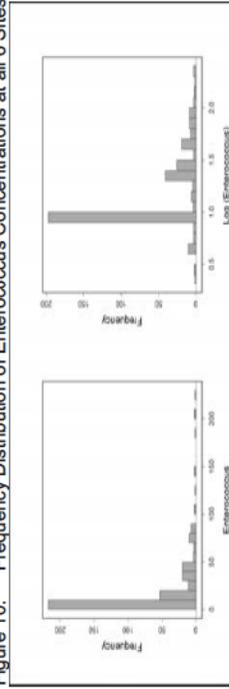


Figure 10. Frequency Distribution of Enterococcus Concentrations at all 6 Sites



Linear regression models were fitted using the Pearson least squares approach with the log-transformed FIB and flow data. Several of the regression analyses show a statistically significant relationship between flow and FIB concentration (Table 2). Most of these significant relationships explain less than 10% of the variance between the variables. However, several locations show a larger influence of flow on FIB concentrations. For example, analysis of enterococcus concentrations collected at Camp Rose show that flow explains nearly half of the variation. The negative slope of the regression line indicates that lower flows result in higher ambient concentrations.

Table 2. Relationship between Stream Flow and Fecal Indicator Bacteria Concentration. **Bold font** indicates a statistically significant regression.

FIB	Site	Explained Variance (%)	Probability	Slope
Total Coliform	Camp Rose	3%	0.02	-0.37
	Forestville Access Beach	27%	0.00	0.52
	Healdsburg Memorial Beach	0%	0.67	0.00
	Johnson's Beach	4%	0.00	-0.42
	Monte Rio Beach	1%	0.17	-0.21
	Steelhead Beach	4%	0.04	0.14
E. coli	Camp Rose	4%	0.02	0.19
	Forestville Access Beach	0%	0.71	0.11
	Healdsburg Memorial Beach	1%	0.21	0.13
	Johnson's Beach	0%	0.86	-0.02
	Monte Rio Beach	2%	0.16	0.24
	Steelhead Beach	0%	0.60	0.04
Enterococcus	Camp Rose	46%	0.00	-1.06
	Forestville Access Beach	1%	0.57	-0.14
	Healdsburg Memorial Beach	6%	0.02	-0.36
	Johnson's Beach	4%	0.13	-0.33
	Monte Rio Beach	0%	0.90	0.03
	Steelhead Beach	15%	0.00	-0.41

Load Duration Curves

Load duration curves are a useful tool identifying pollutant problems over the entire flow regime of a river (USEPA, 2007). A load duration curve provides a visual display of the relationship between flow and pollutants, like FIB. The load duration curve presents the frequency and magnitude of FIB measurements along with the allowable loads derived from water quality standards and stream flow data.

First, flow duration curves were generated for USGS Russian river flow gauging stations, near Healdsburg (#11464000) and near Guerneville (#11467000). The flow duration curves for the two USGS gauges were developed using daily flow measurements recorded from 1939 to present (Figures 11 & 12).

Figure 11. Flow Duration Curve for Russian River near Healdsburg (#11464000)

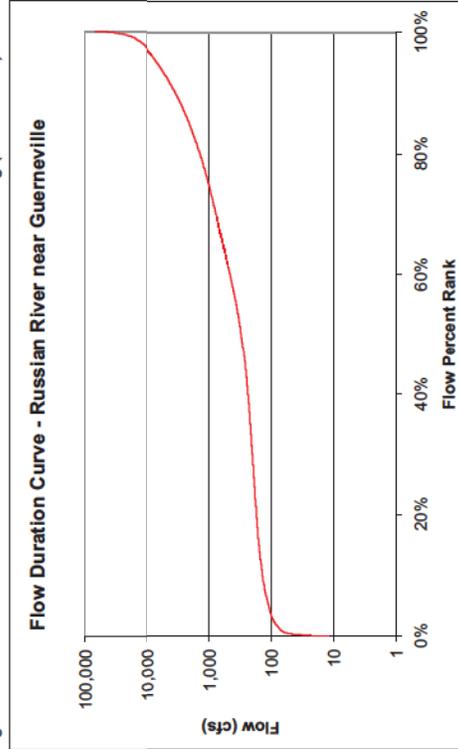
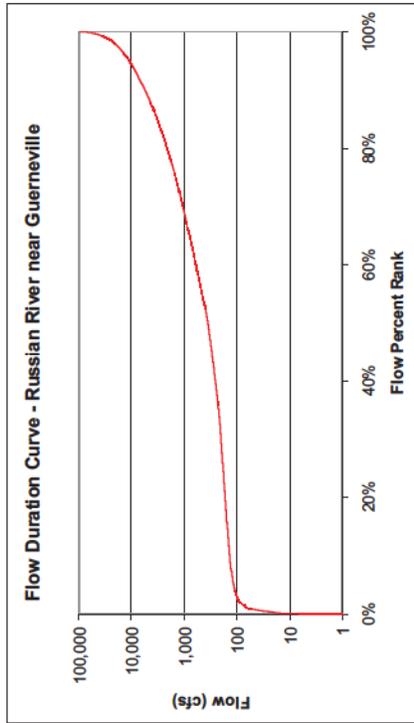


Figure 12. Flow Duration Curve for Russian River near Guerneville (#11467000)



Second, load duration curves were prepared for each sampling locations from the measured FIB data and the daily stream flow (Figures 13 - 18). FIB data from Camp Rose and Healdsburg Memorial Beach were compared to daily flows recorded at the USGS gauge near Healdsburg (#11464000). FIB data collected at the other four locations were compared to daily flow recorded at USGS gauge near Guerneville (#11467000). The allowable loads are shown as the solid curve lines; the allowable loads were derived from the water quality thresholds used for beach posting by Sonoma County Health Services (DHS, 2006): (1) Total coliforms not to exceed 10,000 MPN/100mL, (2) E. coli not to exceed 235 MPN/100mL, and (3) Enterococcus not to exceed 61 MPN/100 mL. The results show that exceedance of allowable loads within the Project area tend to occur during periods of lower flow.

Figure 13. Total Coliform Load Duration Curve for Russian River near Healdsburg

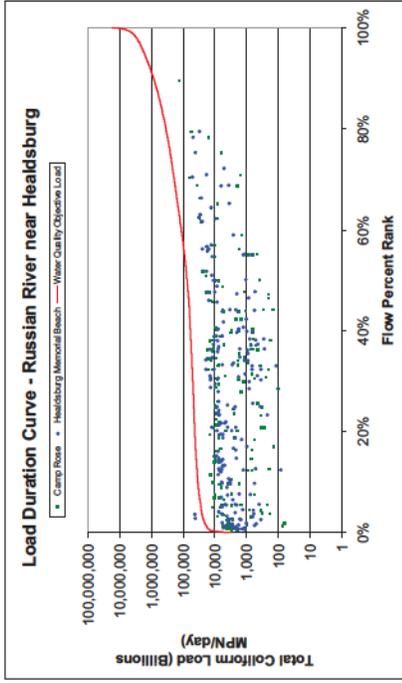


Figure 14. Total Coliform Load Duration Curve for Russian River near Guerneville

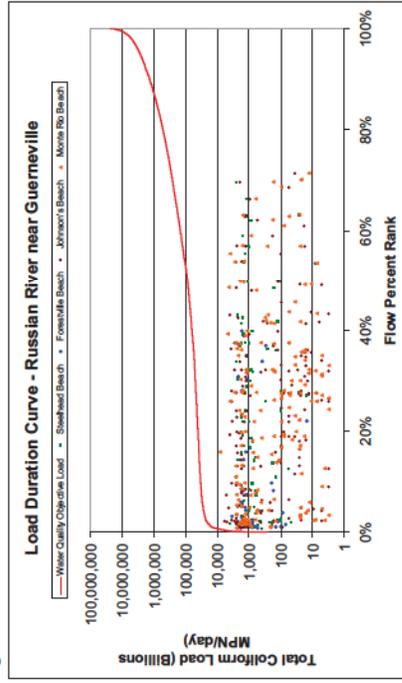


Figure 15. E. coli Load Duration Curve for Russian River near Healdsburg

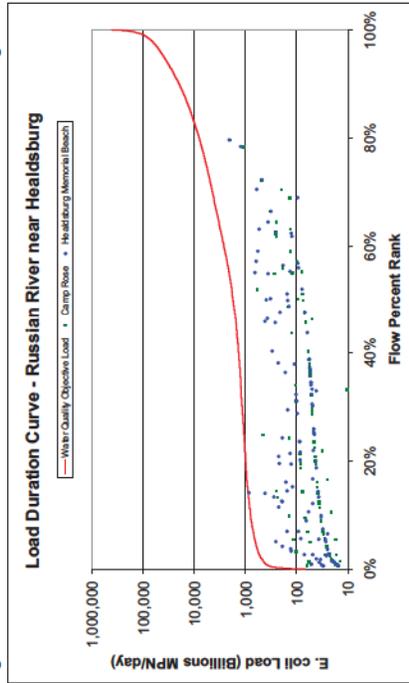


Figure 16. E. coli Load Duration Curve for Russian River near Guerneville

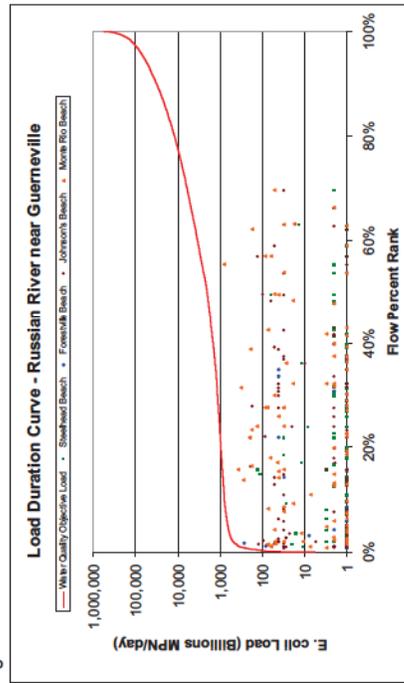


Figure 17. Enterococcus Load Duration Curve for Russian River near Healdsburg

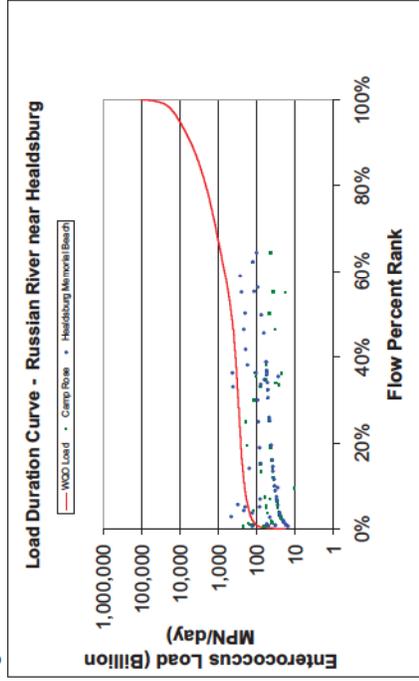
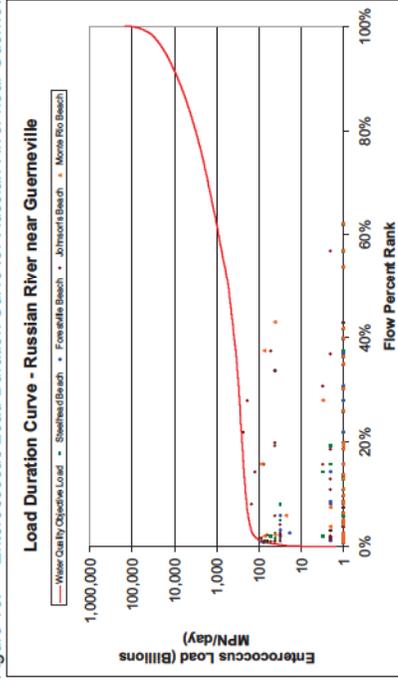


Figure 18. Enterococcus Load Duration Curve for Russian River near Guerneville



Trend Analysis

Trend analysis was conducted for FIB concentrations at each of the six monitoring stations within the Project area using current and historical data. Water quality data possess distributional characteristics that generally require specialized approaches to trend testing. Water quality data sets can contain censored (less than) values, outliers, multiple detection limits, missing values, and serial correlation. These characteristics commonly present problems in the use of conventional parametric statistics based on normally distributed data sets. The presence of censored data, non-negative values, and outliers generally lead to a non-normal data distribution which is common for many data sets. These skewed data sets require use of specific non-parametric statistical procedures for their analysis. Nonparametric statistical tests are more powerful when applied to non-normally distributed data, and almost as powerful as parametric tests when applied to normally distributed data (Helsel and Hirsch, 2002).

The nonparametric Mann-Kendall test for linear trend (Helsel et al. 2006) was used to evaluate whether FIB concentrations have increased or decreased significantly since the base year. The test is non-parametric, rank order based, and insensitive to missing values. Sen's slope estimator (Sen, 1968) was used to estimate the magnitude of change over time when a significant trend was observed. Sen's slope estimator is a non-parametric method that is insensitive to outliers and can be used to infer the magnitude of a trend in the data. Sen's slope estimator is not greatly affected by gross data error or outliers, and it can be computed when data are missing. Sen's slope estimator is closely related to the Mann-Kendall statistic in that all possible slopes are calculated between all possible data pairs and the resulting median slope is the Sen slope. The Sen's slope estimator was used to estimate the slope for the Mann-Kendall test.

The dataset contains FIB concentration measurements with levels below the detection limit of the analytical method. These values were assigned the value of the detection limit. Data sets having large numbers of values below detection limit (BDLs) may create statistical problems for trend analyses. The Mann-Kendall test for trend adjusts variance estimates upward for ties in magnitude. Since BDL values in the raw data set produce such ties, trend analyses of data sets with high percentages of BDLs will be based upon greater variances than those without BDLs. Thus, the power of the trend analyses for the data sets with BDLs are reduced compared to those without detection limits censoring. If the percentage of BDL observations is greater than 50, it is reported there are too many observations below the detection limit to determine the presence or absence of trend.

Trends in FIB concentrations were evaluated for the effect of flow (Table 3). Several of the sites show increasing trend in FIB concentrations. These trends may be due to natural trends in flow due to climate. For example, a trend may be observed if the last

few years in a set of data were collected during drought conditions with lower flows. The effect of the lower flows on the apparent trend can be addressed using the relationship observed between flow and FIB concentration. The regression equation resulting in statistically significant relationship between flow and FIB was applied to the data. The residuals resulting from the difference of the predicted values from the observed value were tested for trend. The results indicate a trend without the influence of flow.

Trends of FIB concentrations were also evaluated by removing the effect of flow from those sampling locations with a statistically significant relationship to flow. The residuals from the significant regression equations derived above were used to assess trend without the influence of flows. Only those locations with a relationship between a FIB and flow could be assessed for flow influence on FIB trend. Accounting for this flow effect did not change the detection of trend in the FIB data for most locations indicating that the flow did not influence observed trends. However, removing the flow effect did result in removing the observed trends for each FIB at Camp Rose.

Table 3. Trends Statistics for Fecal Indicator Bacteria Concentrations

FIB	Site	Probability	Trend Slope	Trend Inclination
Total Coliform	Camp Rose – with flow influence	<0.01	163.3	Increasing
	Camp Rose – without flow influence	<0.01	-0.001	Decreasing
	Forestville Access Beach – with flow influence	0.51	-61.7	None
	Forestville Access Beach – without flow influence	0.70	-38.4	None
	Healdsburg Memorial Beach	<0.01	105.2	Increasing
	Johnsons Beach – with flow influence	<0.01	158.4	Increasing
	Johnsons Beach – without flow influence	<0.01	62.0	Increasing
	Monte Rio Beach	<0.01	128.9	Increasing
	Steelhead Beach – with flow influence	0.56	14.5	None
	Steelhead Beach – without flow influence	0.29	25.4	None
	Camp Rose – with flow influence	0.34	0.0	None
E. coli	Camp Rose – without flow influence	<0.01	-0.001	Decreasing
	Forestville Access Beach	0.49	0.0	None
	Healdsburg Memorial Beach	0.06	0.0	None
	Johnsons Beach	0.59	0.0	None

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FIB	Site	Probability	Trend Slope	Trend Inclination
Enterococcus	Monte Rio Beach	0.04	-0.7	Decreasing
	Steelhead Beach	0.53	0.0	None
	Camp Rose – with flow influence	<0.01	0.6	Increasing
	Camp Rose – without flow influence	0.19	0.00	None
	Forestville Access Beach	0.08	0.0	None
	Healdsburg Memorial Beach – with flow influence	0.18	0.0	None
	Healdsburg Memorial Beach – without flow influence	0.01	0.0	None
	Johnsons Beach	0.01	3.3	Increasing
	Monte Rio Beach	0.95	0.0	None
	Steelhead Beach – with flow influence	<0.01	0.0	None
	Steelhead Beach - without flow influence	0.133	0.0	None

CITATIONS:

California Department of Health Services. 2006. Draft Guidance for Freshwater Beaches. Last Updated May 8, 2006.

Heisel, D.R. and R. M. Hirsch. 2002. *Statistical Methods in Water Resources* Techniques of Water Resources Investigations, Book 4, Chapter A3. U.S. Geological Survey. 522 pages.

Heisel, D.R., Mueller, D.K. and J.R. Slack. 2006. Computer Program for the Kendall Family of Trend Tests. Scientific Investigations Report 2005-5275. U.S. Geological Survey, Reston Virginia.

Sen, P. K. 1968. Estimates of the regression coefficient based on Kendall's tau. Journal of the American Statistical Association 63:1379-1389.

Tetra Tech 2006. Technical Approach to Develop Nutrient Numeric Endpoints for California. Prepared for U.S. EPA and California State Water Resources Control Board – Planning and Standards Implementation Unit. Lafayette, CA. 120 pp.

U.S. Environmental Protection Agency. 2007. An Approach for Using Load Duration Curves in the Development of TMDLs. EPA 841-B-07-006. Washington, DC

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**Comment Letter G_RRWPC
Attachment 5**

Russian River Watershed Protection Committee

P.O. Box 501
Guerneville, CA 95446
(707) 869-0410

rrwpc-1@comcast.net

August 30, 2010

Jeffrey Shu
Environmental Scientist
State Water Resources Control Board
Division of Water Quality
1001 I St., 15th Floor
Sacramento, CA 95814
(916) 323-1308 (phone)
(916) 341-5584 (FAX)
jshu@waterboards.ca.gov

Dear Mr. Shu:

This letter is being submitted on behalf of Russian River Watershed Protection Committee in response to your Agency's request for information on the 2012 303(d) List. We had emailed a partial submission to you on July 15, 2010, with three attachments, but we are resubmitting that information with this packet so it will be a complete submission. Our comments address circumstances in the Laguna de Santa Rosa, a major tributary to the Russian River, and the lower Russian River from the confluence of the Laguna/Mark West Creek into the Russian River and down to the Estuary.

We are concerned citizens who are neither scientists nor lawyers, but it is our intent to submit photographs, testimonies, reports, Regional Board documents, etc. to make the case that the Laguna de Santa Rosa should be listed for the invasive plant, Ludwigia, and that the lower Russian River (Forestville to Duncans Mills) should be listed for nutrients (The Laguna is already listed for nutrients.)

In reviewing the requirements for submitting data for the 303(d) list, we are finding it difficult to document our submission in every detail requested (specific camera settings, etc). Also, as ordinary citizen activists, we are not able to provide scientific data with any authority and so we are relying for the most part on photographic evidence. The photos submitted with this report are representative of hundreds that we have on file. If more pictures become

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necessary later on, we would be happy to provide them (same locations, but different angles, magnifications, etc.) We can also give more information on specific photos as per request.

We would also like to note that RRWPC fully supports the Coast Keeper Alliance submission on the 2010 303(d) process, especially as it relates to listing all water bodies for pollution and pollutants, water flows as they impact water quality, and impacts of global warming on flows and water quality.

RRWPC Standing:

Russian River Watershed Protection Committee (RRWPC) is a nonprofit public benefit corporation with over 1000 supporters on our mailing list and hundreds of other supporters in the community whom we have not identified. We have been in existence for over 30 years and have been tracking water quality issues all that time. We regularly write for the Sonoma County Gazette and over the years have had numerous letters and columns in the Press Democrat and most other local newspapers. We network regularly with other water activists and are active members of the Sonoma County Water Coalition.

We are located in the lower Russian River (Guerneville), an incredibly beautiful recreational area that hosts visitors from all over the world. Besides the river, we are home to ancient redwood forests and beautiful wooded hillsides. We enjoy a watershed environment that is unique to the Northern California area. Unfortunately, the lower river is also the recipient of many water quality problems caused by human-caused degrading land use activities such as gravel mining, excessive and uncontrolled water diversions, timber harvest activities, riparian destruction, wastewater discharges and polluting agricultural practices, etc. The survival of three salmonid fish species has been declared at serious risk.

RRWPC focuses on water quality issues that affect our section of the river. We attend most Regional Board meetings held in our area and have provided extensive testimony over the years to both that Board and the State Water Resources Control Board (Water Board) on water quality and quantity issues. We have especially emphasized the impacts of wastewater discharges from centralized sewage treatment systems. For the last several years, our attention has turned to the water quality impacts of lowered flows.

Decision 1610 recommended flow changes

We are particularly concerned now that the Sonoma County Water Agency, under direction of the National Marine Fisheries Service's 2008 *Biological Opinion*, has and will apply to the State Water Board for both Temporary Urgency Changes (annually until permanent change is issued) and Permanent Changes to Decision 1610, State law that governs Russian River flows. Furthermore, the

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Biological Opinion orders SCWA to petition the State to lower summer flows by as much as 44% as measured at the Hacienda Bridge.

We believe that further permanent water quality degradation has and will result from these changes. (Our concerns have been documented in our comments to the State Board on Petitions for both temporary and permanent changes, Attachments #1 and #2.) The Russian River is already listed under the 303(d) list for temperature, sediments, and pathogens (pathogens listed only between Guerneville and Monte Rio and at Healdsburg). When low flow is added to the mix, you have a recipe for extensive nutrient and pathogen pollution, which is exactly what is happening now. (The Biological Opinion failed to address expected water quality impacts to the lower river resulting from lowered flows as measured at Hacienda, but SCWA as lead agency, will develop an environmental impact report to address permanent changes to Decision 1610.)

Last year's summer flows were extremely low, especially in August, and we took weekly pictures of the lower river from early June through early October to document extensive nutrient pollution. (Minimum summer flow as measured at the Hacienda Bridge is normally 125 cubic feet per second (cfs). The July, 2009 average was 95 cfs, August was 63 cfs and September 80 cfs, according to SCWA data.) We also documented the impact of the opening and closing of the river's mouth on the Monte Rio Beach.

Representative pictures appear in a report we assembled entitled, "*RRWPC 2009 Photo Project*" (Attachment #3). Photos in this report show extensive nutrient pollution in the lower Russian River, including many forms of algae and extensive outcroppings of invasive *Ludwigia*. The Regional Board does not recommend listing the lower river for nutrients, although they are well informed of the problems. This may be more a consideration of funding inadequacies, than water quality need.

The compelling reason for requesting that the river be listed for nutrients, is that both *Ludwigia* and nutrient pollution proliferate in conditions of low flow, high temperatures, inadequate riparian coverage, excessive sediments, and generally degraded conditions, all of which exist in both the Laguna and much of the lower Russian River. By making low flows permanent, as is the intention of the Biological Opinion, these impaired conditions would be greatly exacerbated. They need to be addressed. Summer temperatures in the lower river average 20 to 25 degree Celsius as reported by SCWA's regularly collected data (Example: Attachment #4).

Laguna impacts on Russian River.

The Laguna joins Mark West Creek in a field near River Rd. between Trenton-Healdsburg and Slusser Roads. Windsor Creek joins Mark West near Trenton-Healdsburg Rd. and River Road, a little bit downstream of the Laguna/Mark

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West Creek confluence. Mark West Creek then travels about two miles to where it joins the Russian River right as the river comes down from the north to make its major bend heading west. (near the town of Forestville) These tributary watersheds make up about 21% of the flow in the 110 mile Russian River basin. (I have been looking for a clear map of this confluence and could not locate one. The confluence can be seen on Google Earth at 38N29 122W53.)

This is also close to the location for the Sonoma County Water Agency's diversion and distribution facility that serves eight major, mostly urban contractors who sell water to approximately 600,000 people. The Agency holds water rights at four locations to divert up to 75,000 acre feet a year. (Collection wells take water from about 60-80 feet under ground and are not influenced by surface water flows.) Starting slightly upstream of the SCWA facility and all the way to Healdsburg, about a dozen gravel pits, several of which have been converted to recreational use, are located. (These can be clearly seen on Google Earth also.) There have been several breaches of these pits over the years and one of the pits has been used to store Healdsburg's wastewater for that time. Concern has often been expressed about the loss of the natural gravel aquifer and the potential need to construct an extraordinarily expensive disinfection facility should the aquifer's storage capacity become inadequate. New gravel mining projects are currently being proposed.

The Laguna de Santa Rosa itself has about a dozen tributaries that drain from the urban areas. Other major tributaries are affected mostly by agricultural land use, although the main stem of the Russian travels north through Healdsburg, Cloverdale, Ukiah, etc. All of these tributaries contribute vast amounts of sediments, nutrients, pathogens, and other pollutants that ultimately are transported and get deposited in the lower river, with the Laguna probably the most egregious contributor. This is an especially serious problem coming from storm water runoff, but is currently starting to be addressed through a new MS4 Permit by the Regional Board.

The USGS Hacienda Gauge that measures flow is located about 3-4 miles downstream of the Laguna de Santa Rosa /Mark West Creek /Windsor Creek confluence with the Russian River and about 4-5 miles upstream of the town of Guerneville. Mark West Creek and Windsor Creek drain large areas to the north and northeast and have their own water quality problems, which we will not address here, exacerbating existing water quality degradation in the lower river. (For about 30 years, Santa Rosa was allowed to discharge 5% of river flow as measured at Hacienda, which is about 12 miles downstream of their point of discharge. The 5% was based on flow that included their discharge, which once got as high as 150 million gallons in a single day. It was not uncommon for daily discharges during a storm to reach 50 mgd.)

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The Laguna de Santa Rosa, for many years the prime receptor for huge volumes of Santa Rosa's wastewater discharges (up to four billion gallons a year including wastes generated by Cotati, Sebastopol, and Rohnert Park) is severely degraded and listed on the 303(d) list for nitrogen, phosphorus, temperature, dissolved oxygen, sediments, mercury, and in some locations, pathogens.

In a Regional Board Interoffice Communication to Bob Klant, intended to clarify the impact of Santa Rosa's nutrient contribution to the Laguna while discharging, Cathy Goodwin states on March 10, 1994, "Nutrient concentrations increased at the two Laguna stations down-gradient of the City's Delta Pond discharge. Laguna at River Road and Mark West Creek at Trenton-Healdsburg Road." Also, "In the Russian River, nutrient concentrations increased at the two stations down-gradient of the Laguna's confluence with the Russian River." (Attachment #5)

In the summer, pollutants and nutrients becoming very concentrated in the low-gradient Laguna flow and have resulted in ever expanding and extremely excessive Ludwigia and algal problems. The algae, Ludwigia, excessive nutrients, dissolved oxygen, and excessive temperatures, all work together synergistically to exacerbate problems created separately by individual impairments.

This complexity is described in the following report on pages 9-10 of the Interim Staff Report from the Regional Board on January 27, 1993 (Attachment #6):
"Nutrient cycling in a stream system is complex and tied to the various interrelationships of primary producers (algae and aquatic macrophytes), nutrient inflow from surface and ground water and waste discharges, sediment-water interactions, and nutrient outflow (residence time in the stream). At any given point in time the various nutrient cycling are a result of the actions of all those factors. The primary relationships in particulate matter containing those tied-up nutrients (organic nitrogen and phosphorus), and release of the nutrients via decomposition in the sediments. Phosphate generally tends to bind to particulates if they are available and fall out of the water column. Nitrate is more mobile and tends to dissolve in the water. Both nutrients are most readily available in dissolved form."

The presence of the Ludwigia is a culmination of a long-standing problem and in turn then creates additional ones. It invites mosquitoes that carry West Nile Virus and possibly other pathogens. It chokes waterways and eliminates biodiversity. It is almost impossible to fully remove and it spreads profusely everywhere it goes where conditions are right. It likes the same conditions as algae: low flow, shallow depth, warm water, sunlight, and lots of sediment. And when the vegetation dies off, the biomass remains if not flushed out by fast

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moving flows, only to feed more mass when conditions are ripe again. During summer in the Laguna such conditions commonly occur.

Ludwigia (Laguna de Santa Rosa)

Ludwigia has been rampant in the Southwest part of the Laguna and is rapidly spreading. Numerous experts and agencies have openly acknowledged the extent of the problem.

The Sonoma County Water Agency's May 12 2005 document entitled "Frequently Asked Questions about *Ludwigia* and 'West Nile Virus'" states; "*Ludwigia* has spread very rapidly in our watershed over the past 10 years. In areas where it has taken hold, it has almost completely smothered native wetland plants. Summertime dissolved oxygen levels in *Ludwigia* areas are so low that many fish species cannot survive. Open-water areas favored by waterfowl are choked with this weed, greatly reducing their habitat value. Waterways are obstructed by the accumulated perennial biomass, which may also trap sediment and debris, contributing to ongoing flood-control issues. Biomass doubles in 15-20 days in slow-moving waters, and it is estimated that there is now more than 10,000 tons (20 million pounds) of accumulated *Ludwigia* biomass." (emphasis added) (Attachment #7)

The opening paragraph of the Laguna Foundation's "*Ludwigia* Control Project Final Report" January, 2008, states, "*Ludwigia* sp. is a non-native invasive aquatic plant from South America that has invaded the Laguna de Santa Rosa watershed. The scale of the invasion threatens water quality, biodiversity and channel capacity and hampers efforts to control mosquitoes. The *Ludwigia* Control Project (LCP) was a three-year effort to reduce the extent and density of the *Ludwigia* sp. in two of the worst affected areas of the Laguna de Santa Rosa. Spearheaded by the Laguna de Santa Rosa Foundation, the general approach included application of aquatic herbicide followed by mechanical removal of biomass. The total project area comprised 5.3 miles of channel and 99 acres of floodplain." (Attachment #8)

RRWPC attended meetings of the Task Force established to address this issue and implement and oversee the project. Periodically we took pictures of the most infested area that is easily accessible. There are also several before and after pictures in the *Ludwigia* Control Project Final Report mentioned above. (Stony Point Rd. Bridge over Bellevue Wilfred Channel, just south of the Rohnert Park Expressway: This area can also be viewed at Google Earth: 38N25 and 122W49). (Attachments #15 & #16)

While we could not access the 111 acres of the Laguna Wildlife Area owned by CA Fish and Game, we did track the very visible Laguna as seen from the bridge on Occidental Road which is less than a mile upstream of the DF&G property. (Google Earth at 38N21 and 122W44) At no time before this year did we see significant

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amounts of *Ludwigia* present from the Occidental Road Bridge. Yet this year, after last year's very low flows, the creek has been almost totally covered with the invasive plant. We provide pictures taken just recently in mid-August, 2010. (It seems that where there are these extensive infestations, the only un-infested location is under the bridge itself although algae has been photographed in those areas. This appears to indicate that temperature and light and perhaps water depth are major factors in *Ludwigia*'s spread.) (Attachment #14)

In fact, the Conclusion of the Final *Ludwigia* Report states, "The three-year effort to control *Ludwigia* through herbicide application and mechanical removal has yielded mixed results at considerable cost. The degree and duration of control are closely linked to physical conditions at the site and annual variations in temperature and precipitation. Clearly there continues to be a need to address to the underlying conditions that promote *Ludwigia* growth in the watershed. Long-term *Ludwigia* control will require systemic approaches that address the primary stressors in the Laguna. Reducing inputs of nutrients and sediment is paramount. This process will begin when the Regional Water Quality Control Board completes its TMDL pollution plan, sometime around 2011. Although measurable differences may be more than a decade away, it is a positive step." (Note: as of the end of August, 2010, a great deal of work needs to be accomplished before the TMDL is complete. This work has barely begun, in fact very little work has been done on nutrient pollution, and a completion date of 2015 at this point would probably be optimistic.)

The focus in the shorter term should shift to manipulation of physical conditions as part of larger restoration plans. Perhaps the most effective action will be water level manipulation. This entails creating conditions that promote either deep water or the absence of water during summer months. Methods may include targeted sediment removal, creation of low flow channels, and reduction of summer irrigation runoff. Because accumulated sediment is very likely enriched with nutrients, its removal in key areas will also serve to remove accumulated nutrients from the system. Because sediment removal will create considerable disturbance, it should always be accompanied by restorative actions such as establishment of riparian forest."

Over-irrigation of wastewater causes runoff....

It is important to emphasize the reference to irrigation runoff in the paragraph above. The highly *Ludwigia* infested Wilfred-Bellevue Channel (see pictures: Attachments #13, #15, #16) is immediately west of Rohnert Park. Rohnert Park generously irrigates their public facilities in the summer with wastewater. RRWPC has documented extensive runoff from their irrigation program which was inadequately overseen by Santa Rosa, the entity holding the Reclamation Permit and responsible for the wastewater.

After a complaint was filed, on March 30, 2010, the Regional Board issued a Notice of Violations regarding unauthorized recycled water discharges from Sonoma State University and from Rohnert Park (Attachment #9) The most recent contract between Santa Rosa and Rohnert Park defining terms of RP's

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irrigation requirements was dated 1993, and clearly outdated. Furthermore, it was clear that the requirements in that document were not even being followed, or the runoff would not have occurred. It appears that until the complaint was filed, neither Regional Board nor Santa Rosa staff had been monitoring the requirements in the permit.

It is our understanding that Regional Board staff are imposing much more stringent monitoring and reporting requirements now on Santa Rosa and Rohnert Park and the issue is being addressed. Nevertheless, as irrigation with wastewater in all of the local cities is currently being greatly expanded, due to significant encouragement from the State's new Recycled Water Policy, there will be many future opportunities for this problem to increase throughout the area.

Since 2008, when the Laguna Foundation's report and pictures indicated that the Bellevue Wilfred Channel had been essentially cleared (*at a cost of over \$2 million dollars and the use of a great amount of chemical herbicides*), we have been photographing that area. In 2009 and 2010, the invasive plant returned with a vengeance, is now worse than it ever was, completely filling the Channel where a creek once flowed, as portrayed in the several pictures taken very close to where the final pictures in the Ludwiga Report were taken in August, 2007. (Attachments #13, #15, #16)

While we have not surveyed all (or even most) Laguna streams for Ludwiga infestation, the seriousness of what we have seen, and the probable impacts to the lower Russian River, we are motivated to request a 303(d) listing for Ludwiga in the Laguna. As already noted, there has been a significant new infestation in the area around the Occidental Road Bridge, which is about five miles downstream of the Rohnert Park infestation.

Because the Laguna is already designated as having the multiple impairments that exacerbate the problem, the likely increase of an even greater infestation of Ludwiga is very imminent and deserving of the special attention a separate 303(d) listing would give it.

Development of a Conceptual Model...

In 2007, the Laguna Foundation published a study called, "The Altered Laguna: A Conceptual Model for Watershed Stewardship" (Attachment #10). This model was intended to serve as the organizing and launching document for the Laguna TMDL process.

The Report stated (p.51), "As exotic invasive plants, such as invasive *Ludwigia* sp., increasingly take hold in native plant communities, they threaten native biodiversity by

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changing the native vegetation structural diversity, often completely 'taking over', not only out-competing native plants and establishing an extensive and expanding monoculture, this process so fundamentally changes the original native ecosystem, causing the local extinction of organisms rightly linked to the original community structure and function (National Invasive Species Council 2001)." This report establishes a framework for identifying data gaps, system indicators, monitoring regimes, and restoration targets.

Page 2 states, "In the highly complex Laguna de Santa Rosa watershed system, predictions are only possible by close examination of all system components. Our understanding of the linkages among these components is made tangible through a series of steps that progress from the conceptual model addressed in this report to dynamic modeling simulations in the near future." The report then goes on to define the various steps needed to obtain information that integrates and informs all the possible variables.

Phosphorus study of Santa Rosa's wastewater...

On January 28, 2000, Dan Wickham and Bob Rawson published a report entitled "Phosphate Loading and Eutrophication in the Laguna de Santa Rosa". This study quantified the amount of phosphorus loading into the Laguna from wastewater discharges. The information in this report was primarily responsible (we believe) for the listing of phosphorus on the 2002 303(d) list.

The report makes several critical findings, which are not only important for the existing listing for the Laguna, but the requested listing for the Russian River.

(page 6-7 of report):

1. It is affirmed that limiting phosphorus availability in lakes is the single, most important and necessary step to be taken now in eutrophication control.
3. Because all inputs are additive, and therefore potentially significant, all should be considered for control."
4. Municipal sewage is the major point source. All such discharges to lakes and other susceptible waters should be treated to reduce phosphorus content to realistic target levels.
6. Nutrient budgets should be established....

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8. *Where slow flushing impedes improvement from curtailed phosphorus inputs, accessory steps to inactivate, harvest, or other wise retrieve nutrients from lakes much be considered.*

Wickham and Rawson demonstrated that (p.7), "The average reading of phosphate concentration (measured as P) presented in the Subregional EIR prepared 11996 equals 4.2 mg/L (Appendix I). It should be noted that typical concentrations of phosphate (as P) in most natural water bodies are less than ranges from 0.005-0.1 mg/L (Wetzel, 1983)." The authors went on to estimate that Santa Rosa releases the equivalent of 2,300,000 lbs. of commercial fertilizer into the Laguna per year. (Attachment #11) *(We are just submitting part of this lengthy document, but the full report can be provided if requested.)*

Thankfully, the City sends most of its wastewater to the Geysers now (since 2004), but where did all that phosphorus end up? How much is still bound up in Laguna and Russian River sediments and the accumulated biomass currently sitting in our river bottom, feeding all the algae that proliferates ever more each year? Furthermore, we wonder how much phosphorus other wastewater dischargers are putting in the Russian River? If the Russian were listed for nutrients, this would have to be evaluated and addressed. (This will be addressed further in comments below.)

Photos demonstrating *Ludwigia* problem in Laguna ...

We offer these pictures as examples of the severe *Ludwigia* problem in the Laguna. It is important to note that in every case, one could see water under the bridge; *Ludwigia* did not grow well in the cooler, darker water (perhaps deeper as well. This was visibly noted in the Final Ludwigia Report by the Laguna Foundation in Appendix I. Also, there is a good map of the area on page 3 of the Report. (Attachment #8)

Hinebaugh Creek: Pictures #1219 & 1377 taken on 8-11-10 on Labath St. in Rohnert Park just north of Rohnert Park Expressway. One picture is looking east and one west although I don't recall which is which. In any case, there is no *Ludwigia* in this creek at this location is about 2/3 mile upstream from Stony Point Bridge over the Bellevue-Wilfred Channel. (Attachment #12)

Bellevue-Wilfred Channel at Milbrae Bridge: (between Labath and Langner) in Rohnert Park: This is approximately two miles from the Stony Point location of this same creek. Picture #1229 looks south and #1380 looks north. They were both taken on 8-11-10. (Attachment #13)

Laguna de Santa Rosa from Occidental Bridge: (about eight miles north of Bellevue-Wilfred Channel at Stony Point) Pictures taken on August 8, 2010. Photos #1173/#1331 look south and #1192/#1300 look north. (Attachment #14)

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Bellevue-Wilfred Channel from Rohnert Park Expressway, just east of Stony Point Rd. Pictures taken on 8-11-10. #1211 looks north and #1218 and #1364 both look south. These views are right around the corner from the Stony Point Rd. pictures and have the worst *Ludwigia* infestation. (Attachment #15)

Stony Point Rd. 1/8th block south of Rohnert Park Expressway: Pictures taken on 8-11-10 except for #1004 which was taken 5-2-10. #1359 is a picture of algae right under west side of bridge. Pictures #1004 and #1198 are looking toward the west and taken on the west side of the bridge. Pictures #1206 and #8226 were taken on the east side of the bridge looking towards the east. (Attachment #16)

Finally, we believe that it is extremely important to list Laguna Ludwigia because this invasive plant is rapidly spreading and threatens many miles of waterway. Furthermore, it can seriously impact the flooding situation downstream, as the Laguna serves as a storage area for the Russian River during floods and relieves the lower river area of many inches of flooding under normal conditions. We have not had a major flood since this plant has proliferated and we are very concerned about the damage it can do.

Lower Russian River Algae Problems ...

As mentioned earlier, the Biological Opinion requires that the Sonoma County Water Agency (SCWA) apply annually to the State for Temporary Urgency Change Orders to lower required minimum flows designated in Decision 1610 until a permanent order is issued. The recommended flow that RRWPC is most concerned about is measured at the Hacienda Bridge and calls for a 44% reduction each summer from 125 cfs to 70-80 cfs.

It is particularly interesting this year we had a great deal of rain that then combined with a very cool summer. The reservoirs are full in late August and there could even be a problem with flooding if they don't get the levels down soon. (As I write this on August 28th, Lake Mendocino water supply pool is 86% full and Lake Sonoma is almost 93% full.) Even though the State issued the Order to lower flows in June, it simply has not happened because reservoir levels have been too high and more substantial releases needed to be made. Until about a week ago, flows at the Hacienda Bridge averaged about 170 cfs most of the summer. On August 28th the flow was 99 cfs. In addition, the creeks were generally flowing higher than normal and feeding the river as well.

The Biological Opinion does not concern itself with these complexities, but only with the specific water supply operations of the SCWA working jointly with the Army Corps of Engineers (ACOE). In order to try and save the steelhead, the

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National Marine Fisheries Service (NMFS) wants the mouth of the river closed during the summer months so as to provide fresh water rearing habitat in the Estuary. The plan is to construct a barrier beach during the month's first natural closing, and leave it closed until mid-October. Because properties flood in the town of Jenner when the river gets too high, the plan is to lower flows in the entire river in order to accommodate the project.

This situation motivated us to institute a photo project last summer between June and September so we could visually document the lower river's condition during the low flows. We took weekly pictures at numerous locations and less frequent pictures at other locations between Forestville and Duncaans Mills. What we observed was that the lower the flow, the worse the algae, especially when temperatures were high. The Russian River is already listed for temperature and sediment impairments along with pathogen impairments between Guerneville and Monte Rio. It made sense that beneficial uses would be impacted by severely lowered flows. *(There are two summer dams in Guerneville: one at Johnson's Beach and one at Vacation Beach downstream. These locations have plenty of water for recreation and we haven't noticed much algae except at Vacation Beach. See photos)*

As mentioned before, RRRWPC published our 2009 Photo Project Report in June, 2010. (Attachment #3) That report included pictures of many kinds of algae and Ludwigia showing up in the river. The problem was worse in August, when flows at the Hacienda Bridge averaged 63 cfs. It was the third year of a draught that left reservoirs at about half the normal level. Cities were forced to seriously conserve. Luckily it was a cool summer and no disasters occurred. We can anticipate a real problem however if there are two back-to-back years of low rain and high summer temperatures.

(We are not submitting separate photos for last year because we believe that the Photo Project provides examples of impairments that we saw. We could make additional photographs available, or the original digital versions of the ones in the Report, if requested. Also, we include a packet of testimonials about the condition of the river from our RRRWPC supporters. Attachment #17)

Monte Rio affected by closed river mouth...

Last year we learned that the mouth of the river would be opened on Oct. 6th. We rushed to Monte Rio to get pictures of the water level before that occurred. Then the following day we went back and found water levels down about three to four feet. We have since heard reports from people who have floating docks in the Villa Grande area that the level can go down as much as five feet in places. (The amount of decrease may depend on the width of the channel at that location and depth of river.) The before and after pictures appear in our Photo Report.

On the day after the opening (10-7-09), we saw lines of algae marking the place where the water had been the day before. We reported the situation to the North

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Coast Regional Board. Because we expressed concern about the possible presence of toxic blue green algae, staff told us they would send someone out to take samples. The worst algae we viewed occurred at the Kid's Beach in Monte Rio and by the Vacation Beach Dam (one mile downstream of Guerneville).

On Oct. 20th we got an email from John Short of the North Coast Regional Board stating that, "Our staff went out to the river last Monday in response to your email. Algae was observed and collected at the kiddie swim area in Monte Rio. I. Staff also visited the Vacation Beach site and collected samples there as well. Staff evaluation of the Monte Rio algae sample verified the presence of *Anabaena*, a blue green algae in the neurotoxin family. The Vacation Beach sample was negative for blue green algae. We are contacting Sonoma County Health Department to alert them to these results. The populations of these algae tend to decline significantly in the fall due to lower temperatures and added flows." (Attachment #18) John and other staff later made other statements about this finding that expressed uncertainty about the results. RRRWPC believes that whatever the results, enough uncertainty about the types and amounts of algae exists so that these areas should be tested periodically and perhaps regularly until more is known.

Serious algae problem downstream from Monte Rio Bridge....

Towards the end of July, 2010, we got an email from some physicians telling us about massive algae in their Monte Rio area. They sent pictures of some toxic algae down loaded from Wikipedia and wondered whether that was the same as what they saw near their homes? We did note that these pictures looked very similar to the ones we had put in our Photo Report on page 6: #7239 and page 8: #3311. *(We are attaching email we received with names removed. Attachment #19)*

We were invited to take photos from their ramp and they also sent us some early morning shots that clearly indicated that over half of the water surface was covered in floating algae. The pictures they sent in email were taken from their deck are Attachment #25. One of the physicians states in the email, "The algae bloom this last week in our experience has been the worst we have ever seen. E. found some interesting links and the *lyngbya* in particular which is rampant does release dermatotoxins, that should cause real concern for those who use the waters for recreation. We look to you and your organization as to what can be done and the impact of the low flow decision. Thanks."

We notified Regional Board staff of the problem and were very pleased that they took our report seriously. Along with RRRWPC board member Dermis O'Leary, I met with Matt St. John, Clayton Creager, Steve Butkus of the Regional Board staff and Walter Kruse and Jim Tyler of County Environmental Health Services at the Monte Rio Beach on July 27th. We also visited the private residence in the Monte Cristo area a mile downstream. Samples were taken and tested, but we did not

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see whether they took samples of the algae that looked like the toxic algae in the pictures.

A report later identified the algae as two green algal filamentous species and not blue green algae. Staff's report of our meeting (Attachment #20) claimed, "Based on visual assessment of the percent cover and density of algae at these locations, staff characterize the total algal biomass at these sites as high, but not uncharacteristic for this time of year."

We feel that this statement really minimizes the seriousness and scope of the problem. Everyone we spoke with who live in the area agreed that this season has been the worst. Furthermore, we don't know whether samples were taken representing all types of algae present. Interestingly, water levels were much higher in the Forestville area and most algae we photographed last year were more submerged and less visible to the eye.

At a meeting I attended of Northwood homeowners on August 28th, questions arose about the Russian River County Sanitation District (RRCSDD), immediately upstream of the golf course around which the houses are located. I mentioned that I noted a quarter or half-mile stretch of Ludwigia along the same bank as the outfall downstream. People agreed that this could be a problem and one person told me that they have seen foam coming into the river from that location. It is also fascinating that the line of Ludwigia stops just downstream of the outfall and a little upstream of Northwood. (We clearly remember that Cathy Goodwin stated on several occasions over the last several years that algae are very problematic in that location.)

We have wondered for a long time whether the RRCSDD and/or Northwood may be contributing more nutrient pollution in our area? Furthermore, immediately upstream of the Treatment Plant, and for about one mile where houses have septic and are not hooked up to sewer, we noticed no signs of nutrient pollution. Similarly, closer to the Monte Rio Bridge where non-sewered houses were located, there was also little nutrient pollution on the bank where the houses were located. Conversely, in Guerneville (though upstream of the Treatment Plant), where houses are hooked up to the sewer, there were numerous outcroppings of Ludwigia, although not as bad as in the Monte Rio area.

We believe that a thorough investigation of nutrients discharged by RRCSDD and/or the golf course, and the impact they may be having on the lower river is called for. We also think it would be important to have a study documenting types of nutrient pollution (including Ludwigia), their density, and land use practices nearby. While we realize that as yet, numeric limits do not exist for

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nitrogen and phosphorus, the Basin Plan clearly states: "Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses." We strongly believe that if the lower river is listed for nutrients, the Regional Board will have a much more reasonable basis for imposing strict nutrient constraints on RRCSDD and any other dischargers. All public facilities near the river should be carefully checked as well.

Increased pollution over the years, a long time resident's view....

On August 13th, I visited Gary Getchell, local builder, whose family has lived in the Monte Rio/Monte Cristo area for generations. By that time, the surface algae had retreated due to cooler temperatures and higher winds. It was still possible to see mats of algae below the surface however. We talked about the frequent accusations that failing septic tanks are polluting the lower river. While both of us acknowledged that there may be some failing septic tanks, he made several cogent points about that issue and others that I would like to mention here.

- Septic tanks are better now than before and many along the river have been upgraded. There has been very little new growth in the area and a lot of housing rehabilitation (building permits require septic upgrade). This point can be verified by the fact that dry weather flows to the Russian River County Sanitation District Treatment Plant have remained fairly constant for the twenty-five years of its existence. (Sewer District is "next door" to Monte Rio.)
- In 1985 tougher leach line regulations went into place giving better protection.
- Fifty years ago there was no algae. Urban areas were far less developed and there was much less wastewater and storm drain runoff being discharged. There was less agricultural development. Gary believes that much of the pollution is coming from upstream.
- Many species that used to be abundant on the river are now gone: frogs, pollywogs, tree frogs, fresh water eels, etc. Of course the salmon are almost gone also. Other species are becoming much less prevalent.
- There's been a significant drop in water level (some neighbors disagree on this, but Gary is basing it on his knowledge of where water levels are now compared to permanent features such as logs and trees and where they were before).
- Finally Gary said that the algal mats on the bottom of the river, which are visible, are as much as three to four feet deep and growing worse all the time.

Follow up on 2009 Photographic Report....

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We have taken many pictures in 2010 of the same river areas that appeared in our Photographic Report and new ones as well. These pictures serve as our evidence for the nutrient pollution we have been describing.

Hacienda: (Attachment #21)

West bank looking downstream from Hacienda Bridge: #1274 and #6980. Both were taken on 8-12-2010. River flow at this location was 178 cfs.

East bank looking upstream from Hacienda Bridge. #1449 taken 8-12-10 when flows at that location were 178 cfs. #8092 was taken on 8-16-09. Flows on that date at that location were 51 cfs. These two pictures visibly demonstrate the difference that occurs during much lower flows.

Monte Rio Beach to Vacation Beach: (Attachment #22)

View of South bank: #1297 taken .3 mile from Monte Rio stop sign next to theater (pull off on Hwy. 116) on 8-25-10 (no Ludwigia visible)

View of South bank: #1299, #1300, #1506, #1508 taken 1.2 miles from Monte Rio stop sign on 8-25-10. This area just east of Northwood has a lengthy and solid line of Ludwigia and is immediately downstream of the RRCSD. (3 mile further down the road: 1.8 miles from stop sign, there was a turn out and no Ludwigia was present) This solid patch of Ludwigia is unusual on the river. All of our other pictures indicate outgrowths in patches, not a straight line going for a relatively long distance. We estimate it was maybe one half of a mile or more.

Pictures of same area taken by Larry Hanson while canoeing down river between Monte Rio Beach and just east of Northwood Golf Course and just downstream of RRCSD on August 24, 2010: The 2009 Photo Report shows same location last year on page 10, #3200

- Just downstream of Monte Rio Beach: #P8240035 & #P8240006/ Immediately past beach area, Ludwigia was very sporadic / can see lots of algae in this area/ also low water in this area (Ludwigia mostly on north bank)
- Between Monte Rio Beach and Northwood although location of specific photos is vague /#P8240025, #P8240012, #P8240029 Long line of algae and Ludwigia appears to stop just past Northwood Golf Course and is located on south bank.

Steelhead Beach: (Attachment #23)

Pictures taken on August 12, 2010, between the Boat Ramp and the Kid's Beach. #1248, #1251, #1414, #1431 River flows were around 178 cfs. This is a about 2-3

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miles upstream of the Hacienda Bridge. There was a great deal of Ludwigia but not much algae was visible #7-31c taken by Tom Meldau and Shane McCoigan shows patches of Ludwigia similar to this year. Last year flows were at 51 cfs this time of year. Can't tell if Ludwigia was worse last year in these photos.

Vacation Beach: (Attachment #24)

This is a relatively small beach with a parking lot with a boat ramp about a mile downstream of Cuerneville. There is a road and a summer bridge. It is less than a mile upstream of RRCSD. There was a lot of heavy algae on the beach. I had been there three weeks earlier when water levels were higher and had not seen the algae. All pictures in this group were taken on August 25, 2010. I don't have exact Hacienda flow on this date, but on Aug. 22, 2010, the flow was 123 cfs and going down. Photos: #1316, #1323, #1517, #1520, and #1523. All pictures taken on beach and road just downstream of dam.

Villa Grande: (Attachment #25)

This is a small community one mile downstream of Monte Rio Beach and the location of the worst algae we saw anywhere. We took pictures at a private residence and this was one of the locations where Regional Board took samples and claimed this was ordinary filamentous green algae. Pictures #1144, #1150, and #1156, were all taken by me on July 23, 2010 on the dock of a private residence. The owner of the property provided photos #river5 and #river7 and they were both taken on July 30, 2010.

Conclusion:

This whole issue is a work in process. There is a great deal of information to come forward about water quality in the lower Russian River and we ask you not to close the door on information gathering.

There is going to be an environmental review on changes to Decision 1610 where all of these comments and much more will be submitted about the impacts of lowered flows on the Russian River.

Related to that, the State Board, during review of SCWA's Temporary Urgency Change Petition to lower flows in the Russian River in 2002, 2004, 2007, 2009, and 2010 asked for nutrient monitoring of the Russian River. Regional Board has admitted that nutrient data thus far collected has been inadequate, mainly because detection limits were too low. In 2010, more stringent guidelines for collecting data have been in effect, but we have been unable to attain the information for this paper. We anticipate that more information will become available in the near future.

**Comment Letter G_RRWPC
Attachment 5**

The Regional Board has just begun the process of developing information on a Laguna TMDL. This is critical to addressing the Ludwigia issue, which we believe needs to be addressed in its own right, as we hope we have demonstrated.

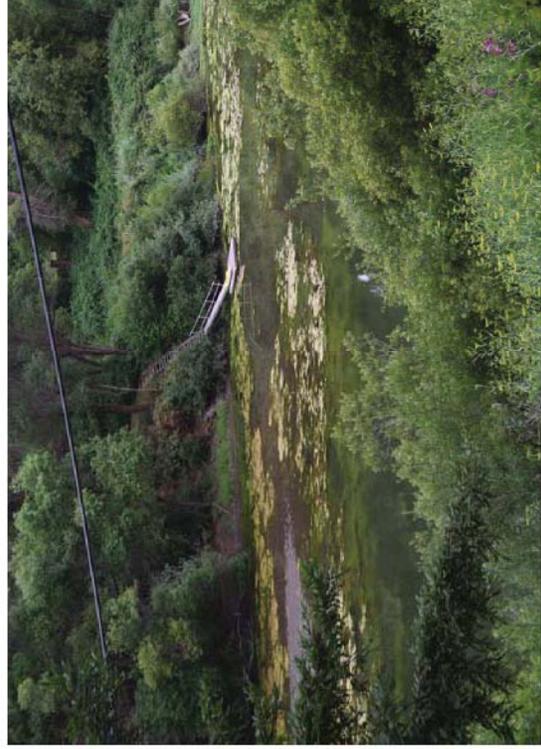
USCS has been studying water quality in the lower river for years now and hopefully in some point in the near future a full report will become available, which we have not seen as yet.

Finally, one last issue we will add here, is that often people rely on major floods to flush out the river of nutrients and all the other toxic garbage that gets thrown in there. We have not had a major flood in a long time. We have been in a drought period most of the last five years. While 2009-10 rain season was a fairly good one, it did not produce a flood. Weather is becoming more and more unpredictable; we may be faced with a deluge next winter.....or not! To count on such events to clean up our river is not a worthy option.

We urge you to seriously consider all we have said in this paper and we look forward to your response.

Sincerely,

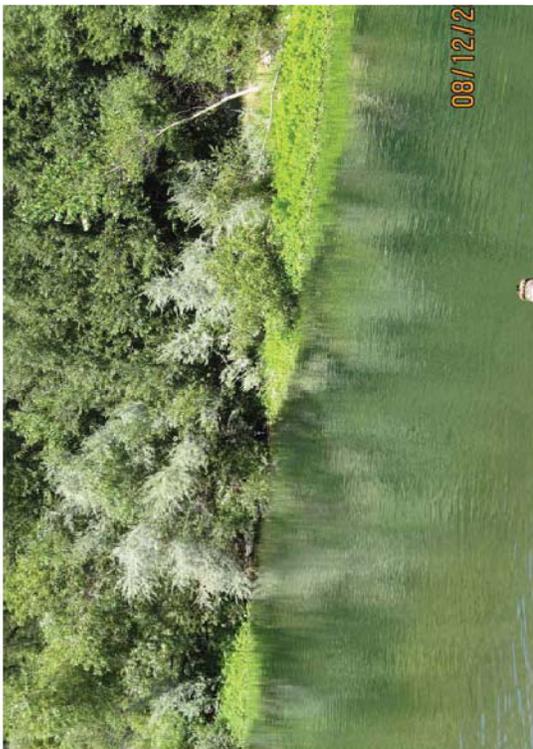
Brenda Adelman: Chair
Russian River Watershed Protection Committee



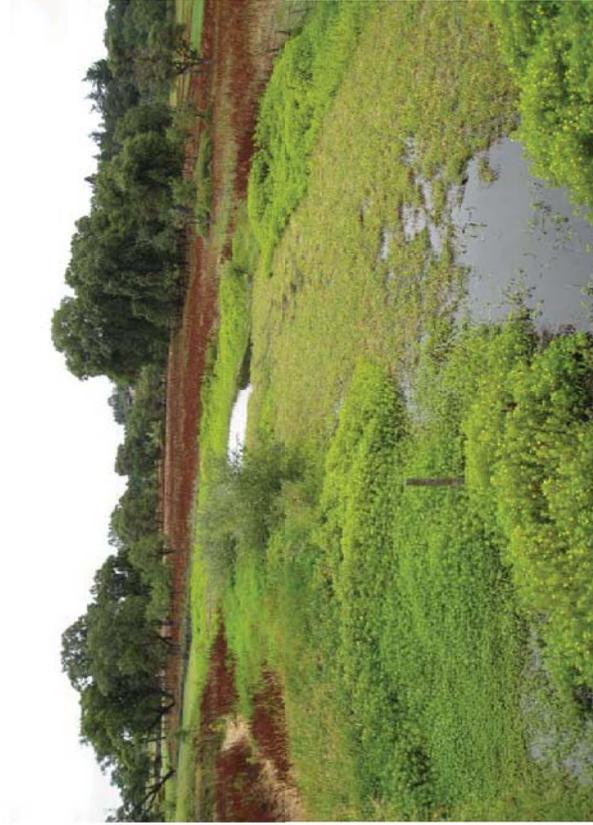
Comment Letter G_RRWPC
Attachment 5



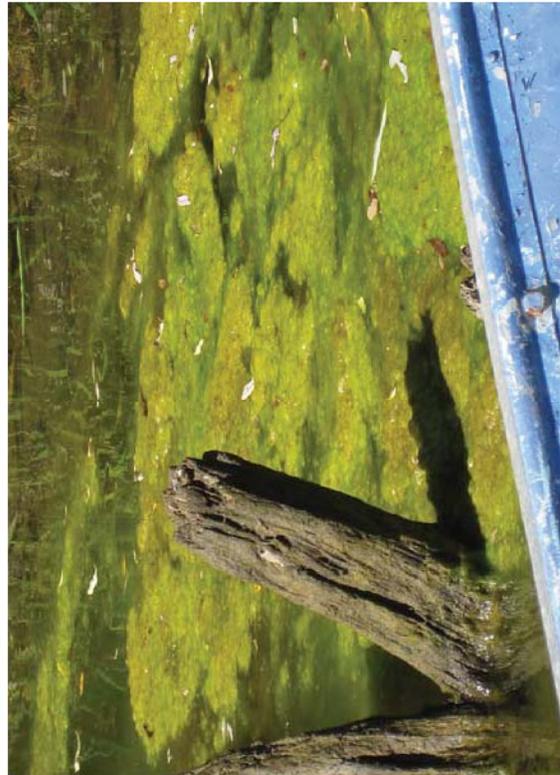
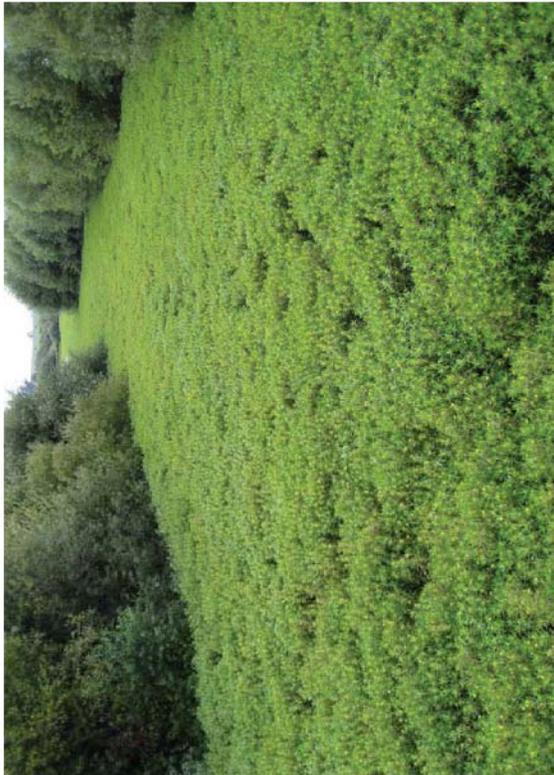
Comment Letter G_RRWPC
Attachment 5



Comment Letter G_RRWPC
Attachment 5



Comment Letter G_RRWPC
Attachment 5





Item 13

Russian River Regulatory & TMDL Efforts

an update to the
North Coast Regional
Water Quality Control Board

January 27, 2011



FORESTVILLE

First Chinook salmon return

Number of spawning fish expected to increase, given favorable ocean conditions

By BOB NORBERG

The first chinook salmon have passed through the Sonoma County Water Agency fish ladder in the Russian River at Forestville, the beginning of a fall spawning run that biologists expect to be the best in five years.

"This year it should be better, I would say in the range of 3,000 by the end of the season, maybe more," said Bill Syde, chairman, president of the Forestville Hatchery for Bio-system Research.

"The conditions that determine their ocean survival in 2008 and 2009 were good, that means their survival should be pretty good."

Chinook, which are listed by the federal government as a threatened species, have been monitored on the Russian River for the past 10 years.

The number of chinook returning to the Sacramento River during the ocean salmon fishing season but before the Russian River return.

The peak number in recent years in the Russian River was 6,103 counted in 2003, and the least number was 1,125 in 2008. Last year, 1,801 were counted.

Syde said chinook return two years after migrating to the ocean as fingerlings, feeding on krill to survive initially and then on such small fish as herring, rockfish, anchovies and squid.

The fish that are returning now would have been in the ocean from 2007 to 2009, when the ocean was cold and feeding conditions favorable.

"We get fish usually the first week of September, but last year we didn't get fish until October, because the estuary was closed," said Dave Manning, a senior environmental specialist with the Water Agency. "We did receive reports from biologists they had seen fish in the estuary in early September, and reports of chinook in the lower river."

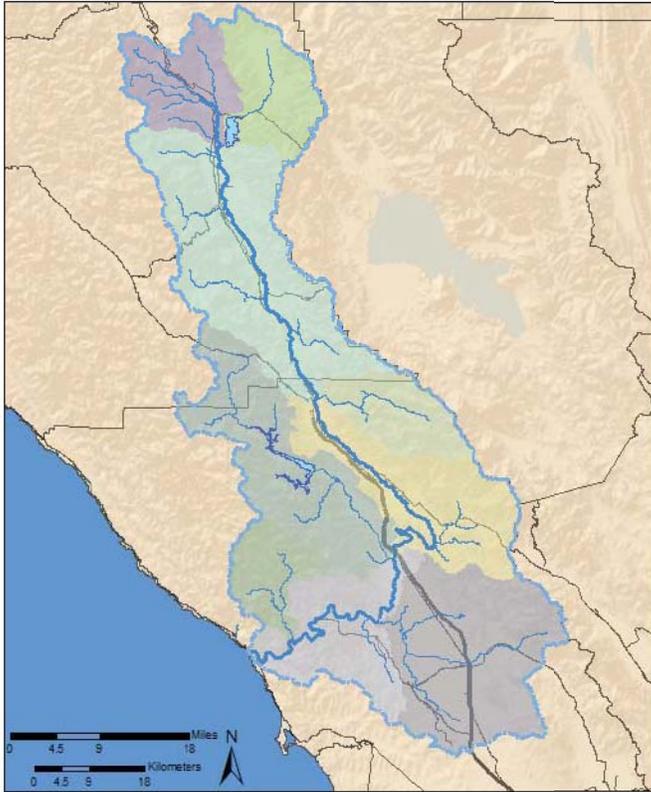
Year	Annual counts of chinook returning to the Russian River
2000	1,445
2001	1,383
2002	5,474
2003	6,103
2004	4,788
2005	2,572
2006	3,410
2007	1,963
2008	1,125
2009	1,801

Source: Sonoma County Water Agency

Chinook are the largest of the salmon and steelhead that return to spawn in the Russian River and its tributaries.

Three fish were photographed at the Water Agency's rubber dam at Forestville as the fish go through the fish ladders.

You can reach Staff Writer Bob Norberg at 321-5206 or bob.norberg@pressdemocrat.com.



Russian River Watershed



Topics

- **Water Quality Concerns & Potential Sources**
- **Current Core Regulatory Efforts**
 - Publicly-Owned Treatment Works
 - Wineries, Food Processors, & Dairies
 - NPDES Storm Water
 - Private Domestic Wastewater Systems
- **TMDL Efforts**
 - Russian River
 - Laguna de Santa Rosa
- **Early Implementation Efforts**

Laguna de Santa Rosa Impairments



Russian River Indicator Bacteria Impairments





Topics

- Water Quality Concerns & Potential Sources
- Current Core Regulatory Efforts
 - Publicly-Owned Treatment Works
 - Wineries, Food Processors, & Dairies
 - NPDES Storm Water
 - Private Domestic Wastewater Systems
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Potential Sources

- Domestic & Municipal
 - Publically Owned Treatment Works
 - Permitted, Non-sewered Systems (e.g., septic, mound systems)
 - Unpermitted, Non-sewered Facilities & Parcels
- Industrial Discharges
- Storm Water Runoff
- Spills
- Homeless
- Migrant Worker Camps
- Recreation
- Dairies
- Grazing
- Horses & Other Animal Rearing Activities
- Wildlife





Municipal Wastewater Treatment Facilities Control of Pollutants

- Biochemical Oxygen Demand
 - Aeration and other oxidative processes
- Total Suspended Solids
- Bacteria
 - Disinfection – Chlorination or Ultraviolet Light
- Nutrients
 - Monitor
 - Evaluate reasonable potential
 - Establish interim and/or final effluent limitations, if needed
 - Evaluate compliance methods
 - Source control and treatment (nitrification/denitrification)
 - Establish schedule to comply with final effluent limitations



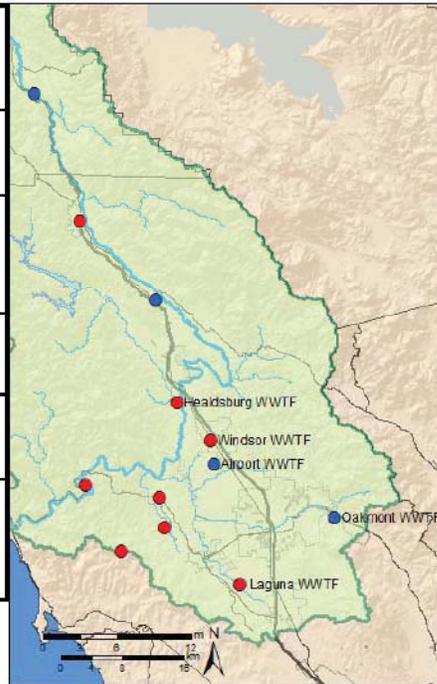
Municipal Wastewater Treatment Facilities

- 14 POTWs
 - 5 WDRs only
 - 9 NPDES/WDRs
- All enrolled in statewide WDRs for collection systems
- WDR Facilities
 - Land discharge only
- NPDES Facilities
 - Five year permit term
 - Seasonal discharges to surface waters (October 1 – May 14)
 - One percent of receiving water flow



Southeastern Wastewater Treatment Facilities

Facility	ADWF/ Treatment	Disposal Method
Healdsburg*	1.4 mgd Tertiary - N,D	Basalt Pond All year
Windsor	2.25 mgd Tertiary - N,D	Mark West Cr Store/reclaim Geysers
Airport	0.9 mgd Second/Tertiary	Store/reclaim
Oakmont	0.065 mgd Secondary	Store/reclaim Laguna Plant
Santa Rosa	21.3 mgd Tertiary - N,D	Laguna Store/reclaim Geysers

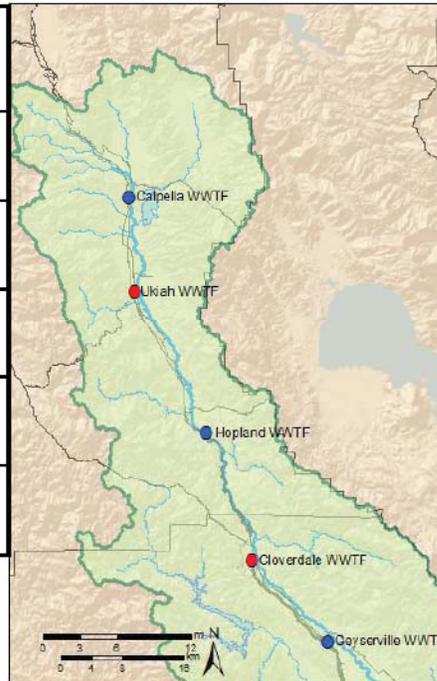


*CDO for compliance with Basin Plan seasonal discharge prohibition

N = nitrification D = denitrification

Northern Wastewater Treatment Facilities

Facility	ADWF/ Treatment	Disposal Method
Calpella	0.04 mgd Secondary	Perc pond All year
Ukiah*	3.01 mgd Second/Tertiary	Perc ponds River
Hopland**	0.09 mgd Secondary	Perc pond All year
Cloverdale*	1.0 mgd Secondary	Perc ponds All year
Geyserville	0.092 mgd Secondary	Perc pond All year



*Permit requires evaluation of compliance with Basin Plan seasonal discharge prohibition

*ACL requires compliance with WDRs
ADWF = Average dry weather design flow



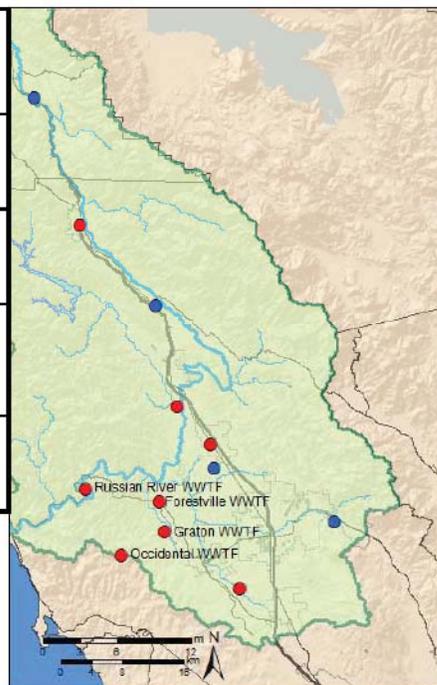
Topics

- Water Quality Concerns & Potential Sources
- Current Core Regulatory Efforts
 - Publicly-Owned Treatment Works
 - Wineries, Food Processors, & Dairies
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- Early Implementation Efforts



Southwestern Wastewater Treatment Facilities

Facility	ADWF/ Treatment	Disposal Methods
Forestville	0.13 mgd Tertiary	Jones Cr Store/reclaim
Graton*	0.14 mgd Secondary*	Atascadero Cr Store/reclaim
Russian River CSD	0.71 mgd Tertiary	Russian River Reclaim/land discharge
Occidental**	0.02 mgd Secondary	Dutch Bill Cr Ag irrigation



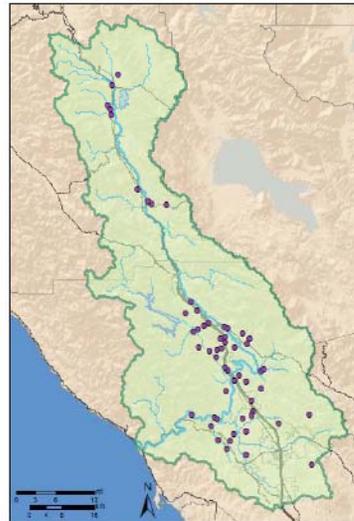
*CDO requires upgrade to tertiary to comply with Basin Plan

**CDO requires compliance with Basin Plan (upgrade to tertiary or zero discharge)



Wineries

- 55 Permitted Facilities
- Regulated Under General Permit
- Land Application Only
- No Nutrient or Bacterial Limits or Monitoring



Russian River Watershed

Food Processors and Producers

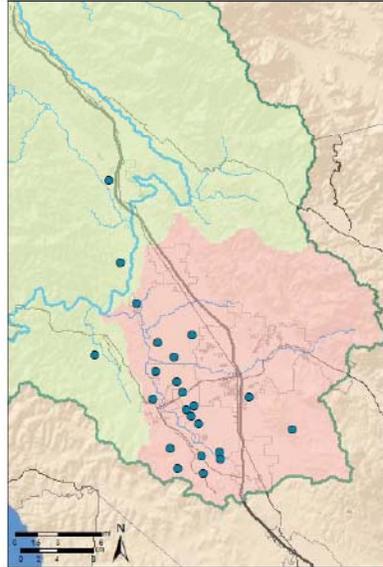
- Waste Streams
 - Liquid
 - Solid
- Waste Characteristics
 - Biochemical Oxygen Demand (BOD)
 - Total Suspended Solids (TSS)
 - Nitrogen
 - Phosphorous
 - Bacteria





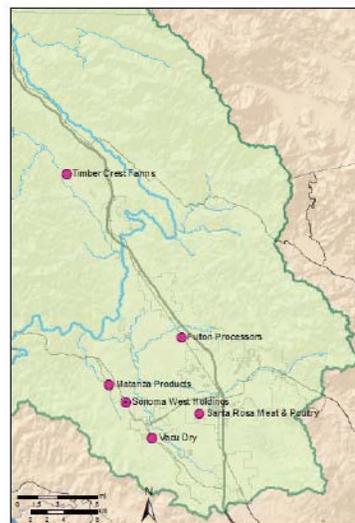
Dairies

- 23 Facilities
- New Dairy Program
- Nutrient Management
- Monitoring



Food Processors

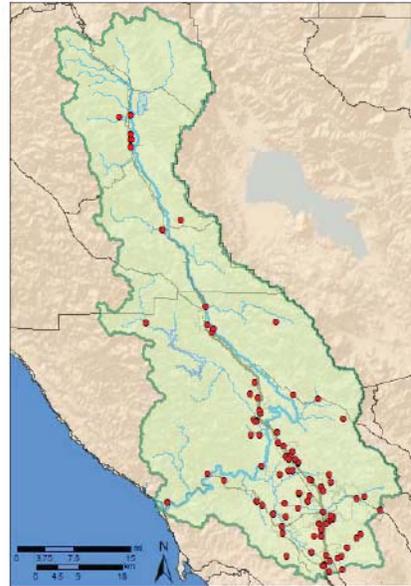
- 6 Facilities in Sonoma
- Regulated Under Individual Permits
- Primarily Land Application
- No Nutrient or Bacterial Limits or Monitoring





Construction Storm Water

- New permit adopted in September 2009
- Effective July 2010
- New electronic application
 - Potentially significant number of non-filers
- Approx. 90 permitted sites in RR watershed
- Projects under 1 acre do not need permit coverage, but must comply with Basin Plan
 - No RB oversight program



Topics

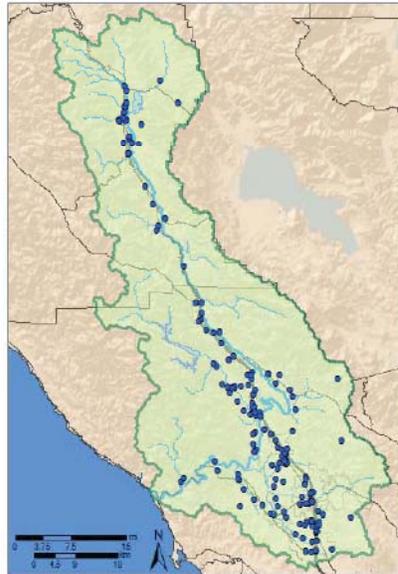
- Water Quality Concerns & Potential Sources
- Current Core Regulatory Efforts
 - Publicly-Owned Treatment Works
 - Wineries, Food Processors, & Dairies
 - NPDES Storm Water
 - Private Domestic Wastewater Systems
- TMDL Efforts
 - Russian River
 - Laguna de Santa Rosa
- Early Implementation Efforts





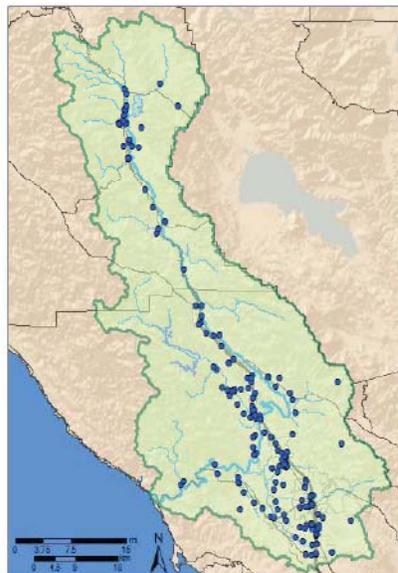
Industrial Storm Water

- Not covered:
 - Kennels, commercial stables, boarding and doggy day-care, vets
 - Nurseries, landscaping stores, winery pomace and some composting operations, farm supply, and home improvement stores



Industrial Storm Water

- Permit adopted in 1997, new permit in development
- 177 permitted sites in RR watershed
- Example industries covered
 - Pulp and wood mills
 - Asphalt and ready mix concrete plants
 - Mining ops, wrecking yards, airports and landfills
 - Wastewater treatment plants





Municipal Storm Water

- Phase 2s have less developed program
- Most of RR watershed not covered
 - Men county adopted county-wide storm water ordinance
 - Son county adopted county-wide grading ordinance
- Future of program
 - Focus on BMPs target pollutants/activities that contribute to impairments
 - Aid in TMDL implementation



Municipal Storm Water

- Control pollutant discharge from storm drains
- 9 permitted municipalities in RR watershed
 - Phase 1: Santa Rosa, part of Sonoma County
 - Phase 2: Rohnert Park, Cotati, Sebastopol, Windsor, Healdsburg, Ukiah, part of Mendocino County





Private Domestic Wastewater Treatment Facilities

- 23 Domestic Systems
- No NPDES Discharges
- Waste Discharges to Land
 - Septic Systems
 - Pond Treatment/Storage Systems
- Individual and General Waste Discharge Requirements



Topics

- Water Quality Concerns & Potential Sources
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Private Domestic Wastewater Treatment Facilities

Unregulated Facilities

- Campgrounds and RV Parks
- Mobilehome Parks
- Summer Camps
- Conference Facilities
- Schools
- Hotels and Lodges
- Restaurants
- Food Production/Processing Facilities



Private Domestic Wastewater Treatment Facilities

- **Large Systems (> 20,000 gpd)**
 - Individual WDRs
 - Bohemian Grove, Vintner's Inn, Mayacamas Golf Course, Luther Burbank Center
- **Small to Medium-Sized Systems (1,500- 20,000 gpd)**
 - Individual and General WDRs
 - Mobilehome Parks, Campgrounds, Salvation Army, Odd Fellows, Farm Worker Housing





Private Domestic Wastewater Treatment Facilities

- **Watershed-wide Parcel Analysis using GIS**
 - Fill data gaps
 - Identify potential problem areas
- **Local Coordination**
 - Sonoma County Permit and Resource Management Department
 - Sonoma County Department of Health Services
 - Sonoma County Assessor's Office
 - Mendocino County Division of Environmental Health
 - Municipalities



Private Domestic Wastewater Treatment Facilities

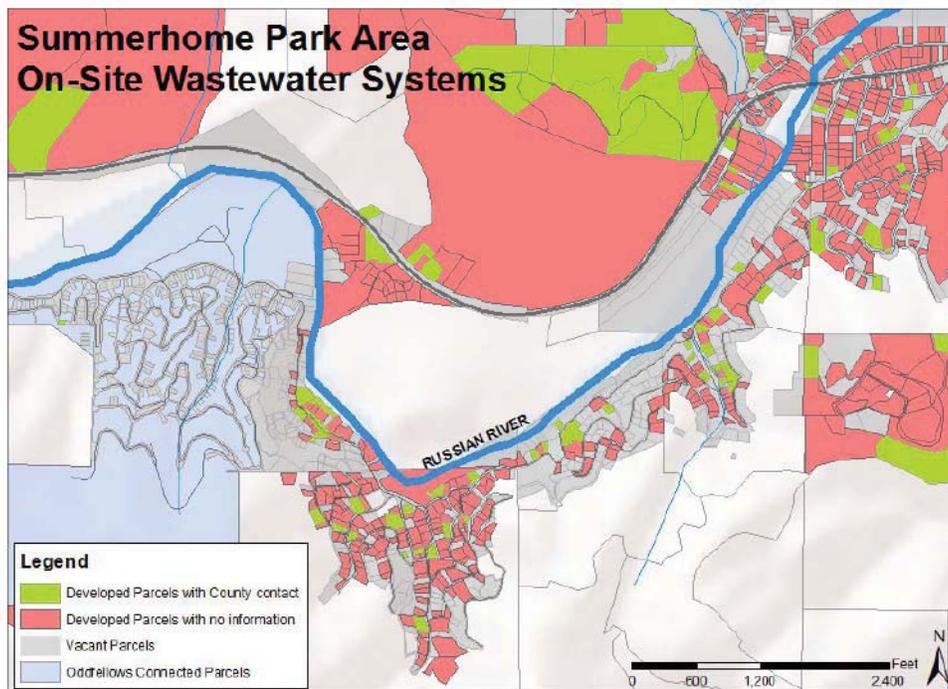
- **Residential Systems (<1,500 gpd)**
 - Regulated by County under Basin Plan Policy
 - Single and Multiple Family residences
 - Vacation Rentals
 - Small Commercial Facilities





Topics

- Water Quality Concerns & Potential Sources
- Current Core Regulatory Efforts
 - Publicly-Owned Treatment Works
 - Wineries, Food Processors, & Dairies
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Russian River Pathogen TMDL UC Davis Pilot Study

Conducted by Aquatic Ecosystems Analysis Laboratory

Preliminary Findings for Indicator Bacteria:

- Thresholds exceeded throughout study area
- Lower levels at semi-rural, less developed sites than at urban sites
- Positive correlation with rainfall
- Human-source bacteria present in significant concentrations in agricultural and urban areas



Russian River Indicator Bacteria Impairments





Russian River Pathogen TMDL UC Davis Pilot Study

Monitoring Recommendations:

- Expand analyses to include *Bacteroides* and Stable Isotope Analysis
- Sample at least weekly during the dry season
- Sample on weekends, including holidays
- Sample a range of flows
- Sample in the tributaries
- Collect at least 3 samples at each site



Russian River Pathogen TMDL UC Davis Pilot Study

Summary Report available at:

http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/russian_river/

California Regional Water Quality Control Board
North Coast Region

**Russian River Pathogen Monitoring Pilot Project
Report Summary**

The North Coast Regional Water Quality Control Board (Regional Water Board) is in the process of meeting pathogen contamination in the Russian River watershed as part of an effort to protect human health and water quality as required by the Federal Clean Water Act.

A comprehensive monitoring program, scheduled to begin in Spring 2011, is needed to identify sources of pollution and inform recommendations for corrective measures.

As part of the planning process, the Regional Water Board commissioned a pilot study of pathogen contamination in the watershed. Over an 18-month period from December 2008 through May 2010, the Aquatic Environment Analysis Laboratory at the University of California, Davis conducted the study, which is summarized in this fact sheet.

The full "Russian River Pathogen TMDL Monitoring Pilot Project: A Summary Report to the North Coast Regional Water Quality Control Board" report is available on the Regional Water Board's website at http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/russian_river/.

Background: Russian River Pathogen Impairments

Levels of pathogenic indicator bacteria in several segments of the Russian River and its tributaries are high enough that these reaches are listed as "impaired" under Section 303(d) of the Federal Clean Water Act. Impairment means that these reaches do not meet water quality for swimming, fishing, and other uses of water consistent with the Federal Clean Water Act. The Federal Clean Water Act requires the Regional Water Board to identify sources of the contamination and adopt a cleanup plan that, when implemented, will reduce these water quality risks for people to use for recreation.

Previous studies have identified bacteria contamination in the following river and stream reaches:

- Russian River from Fife Creek to Guerneville to Dutch Hill Creek to Healds Bluff
- Russian River around Healdsburg Municipal Beach, from the railroad bridge to the Highway 201 bridge
- An unnamed creek near Park Meadows in Healdsburg
- Green Valley Creek and its tributaries
- The Laguna de Santa Rosa and its tributaries, including Santa Rosa Creek and its tributaries

North Coast Regional Water Quality Control Board page 1
January 2011





Russian River Pathogen TMDL Monitoring Plan

Monitoring Analytes

- *E. coli* Bacteria
 - Department of Health regulatory criteria
- *Enterococcus* Bacteria
 - Department of Health regulatory criteria
- *Bacteroides* Bacteria
 - specific to the host animal (human vs. bovine)
- Phylochip®
 - Quantifies over 50,000 different bacteria
including human pathogens
- Stable Isotope Analysis
 - Identifies the source of the surface water



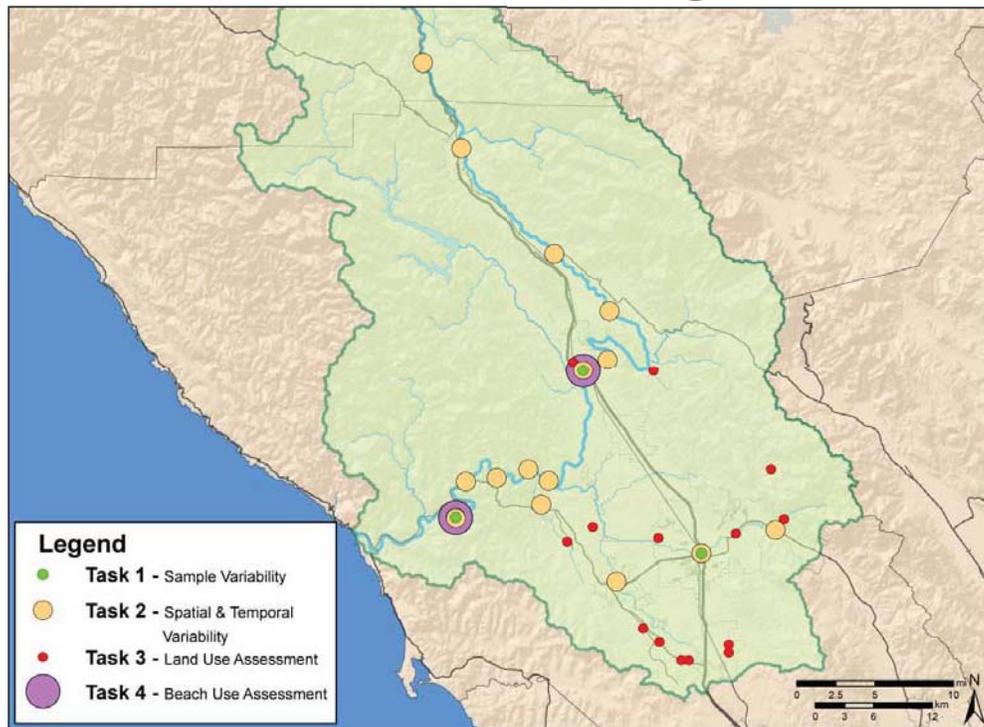
Russian River Pathogen TMDL Monitoring Plan

Management Questions

1. Are Basin Plan Water Quality Objectives being met?
2. What is the variability of indicator bacteria?
3. What are the most significant sources?
4. What are the natural background levels?
5. Do beach areas pose a higher risk to REC-1 than non-beach reaches?



Pathogen TMDL Monitoring Locations



Russian River Pathogen TMDL Monitoring Plan

Monitoring Tasks

- Task 1: Sampling Variability
 - Laboratory, Site and Sample Replication
- Task 2: Spatial and Temporal Variability
 - Wet and Dry Period Monitoring at 18 Locations
- Task 3: Land Use Assessment
 - Wet and Dry Period Monitoring Runoff
 - 5 Land Use Categories:
 - Forest Land, Brush & Scrubland, Agriculture, High Density Residential, Low Density Residential Areas.
- Task 4: Beach Use Assessment
 - Week-long Intensive Monitoring at 2 Listed Beaches:
 - Monte Rio Beach & Healdsburg Memorial Beach.





Russian River Pathogen TMDL Schedule

Activity	Timeframe
Regional Board Lab Certification	April 2011
Sample collection	May – Winter 2012
Monitoring Plan Report	June 2012
Draft TMDL	Early 2013
Regional Board Hearing	2013



Russian River Pathogen TMDL Monitoring Plan

Quality Assurance Project Plan will be available at:

[http://www.waterboards.ca.gov/northcoast/
water_issues/programs/tmdls/russian_river/](http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/russian_river/)



Laguna de Santa Rosa TMDLs

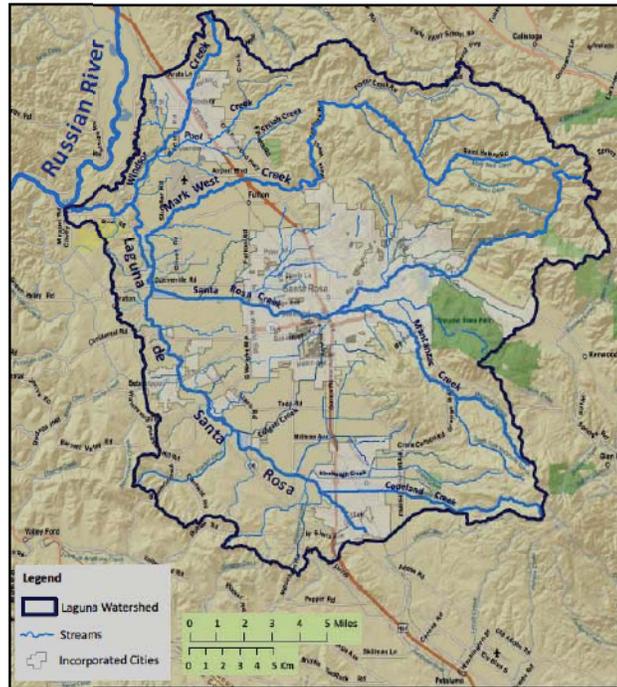
Includes

Waterbodies:

Laguna de Santa Rosa
Windsor Creek
Mark West Creek
Santa Rosa Creek
Blucher Creek
Copeland Creek

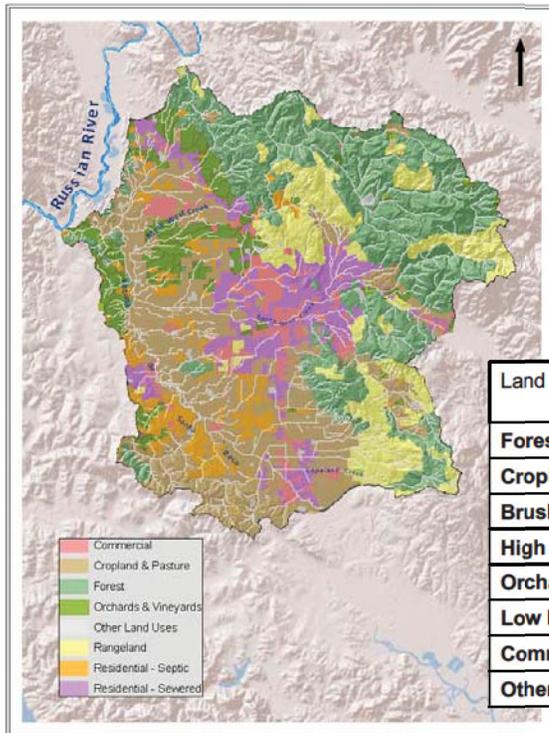
Impairments:

Nitrogen
Phosphorus
Dissolved Oxygen
Temperature
Sediment



Topics

- Water Quality Concerns & Potential Sources
- Current Core Regulatory Efforts
 - Publicly-Owned Treatment Works
 - Wineries, Food Processors, & Dairies
 - NPDES Storm Water
 - Private Domestic Wastewater Systems
- TMDL Efforts
 - Russian River
 - **Laguna de Santa Rosa**
- Early Implementation Efforts



Current Land Cover Areas

Land Cover Category	Wet Year Acreage	Percent of Watershed
Forested Lands	48,315	30%
Cropland & Pasture	44,458	28%
Brush & Scrublands	21,767	13%
High Density Residential	15,348	9%
Orchards & Vineyards	12,825	8%
Low Density Residential	9,857	6%
Commercial Areas	8,577	5%
Other Land Covers	1,461	1%



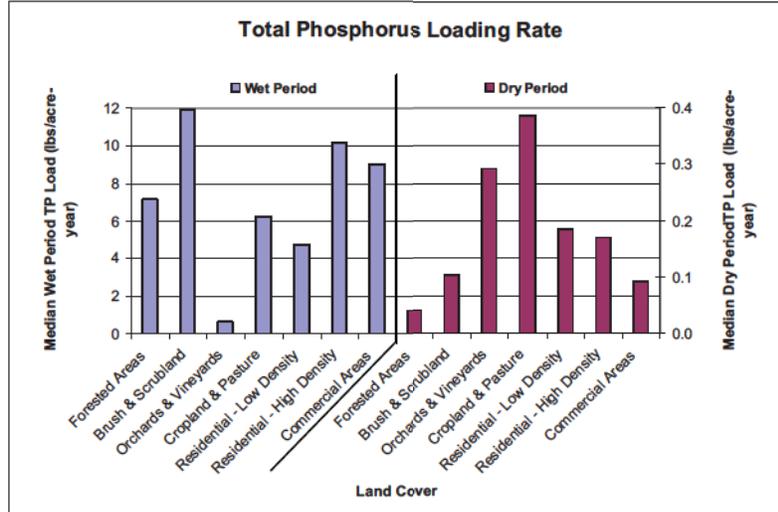
Laguna TMDLs Nutrient Source Analysis

Land Use Categories Sampled in 2009:
Based on 2006 USGS National Land Cover Data

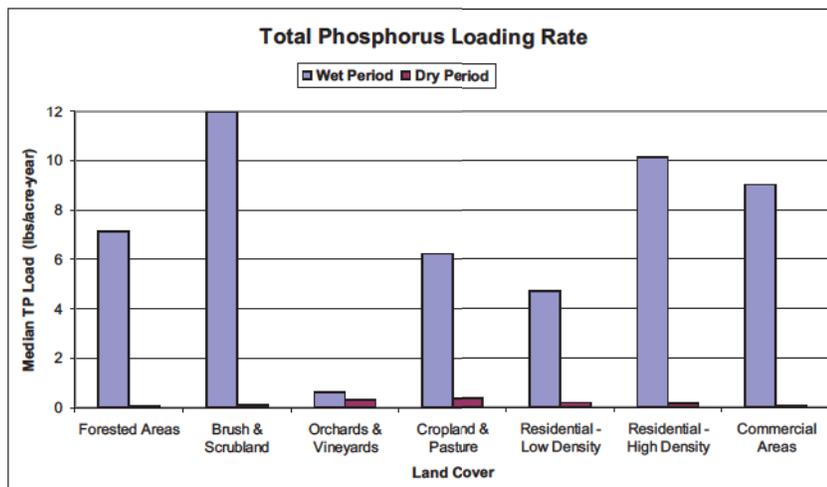
- Residential – High Density, Sewered
- Residential – Low density, Non-sewered
- Commercial and Services
- Cropland and Pasture
- Vineyards, Orchards, and Horticultural Areas
- Brush and Scrubland
- Forested Lands



Laguna TMDLs Nutrient Source Analysis

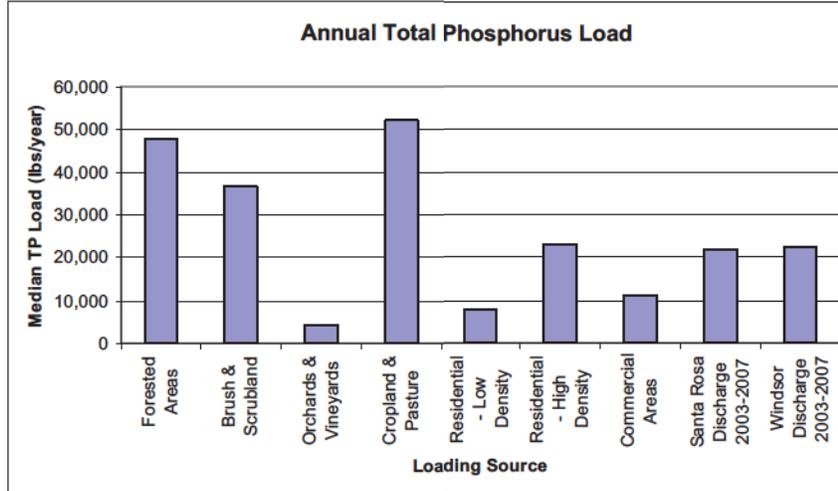


Laguna TMDLs Nutrient Source Analysis

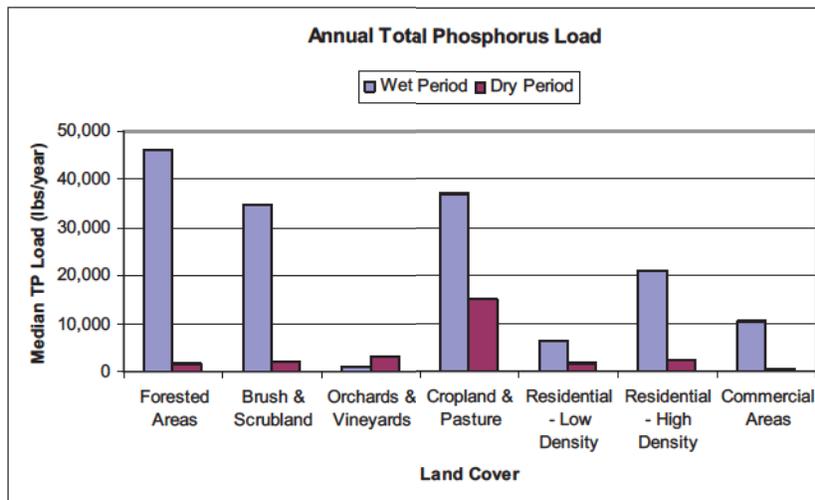




Laguna TMDLs Nutrient Source Analysis

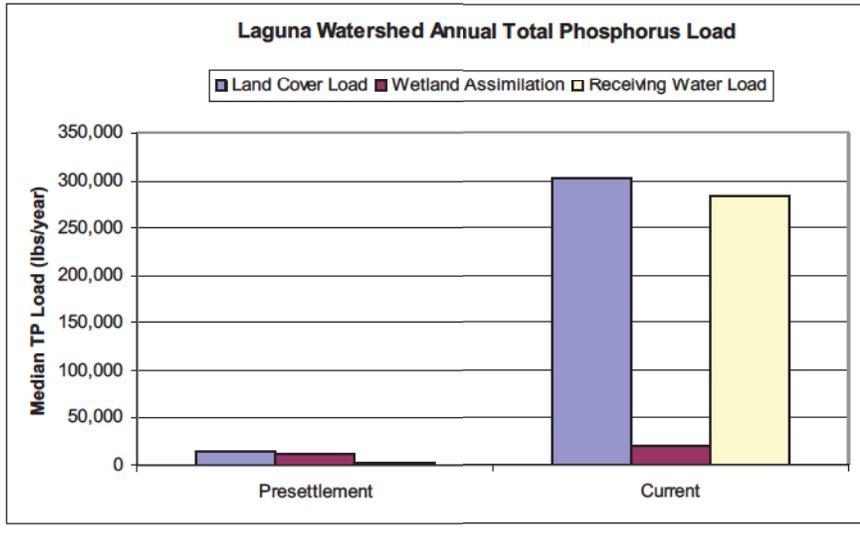


Laguna TMDLs Nutrient Source Analysis

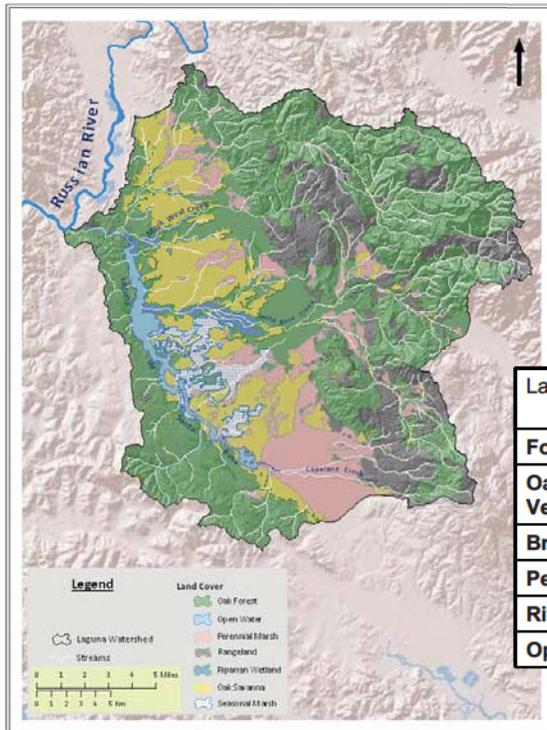




Laguna TMDLs Nutrient Source Analysis



Pre-settlement Land Cover Areas



Land Cover Category	Wet Year Acreage	Percent of Watershed
Forested Lands	84,515	52%
Oak Savanna & Vernal Pools	28,823	18%
Brush & Scrublands	24,292	15%
Perennial Wetlands	16,969	10%
Riverine Wetlands	5,145	3%
Open Water	3,045	2%



Laguna TMDLs Next Steps



Nutrients & Dissolved Oxygen

- Linkage Analysis
- Target Conditions
- Loads & Load Allocations

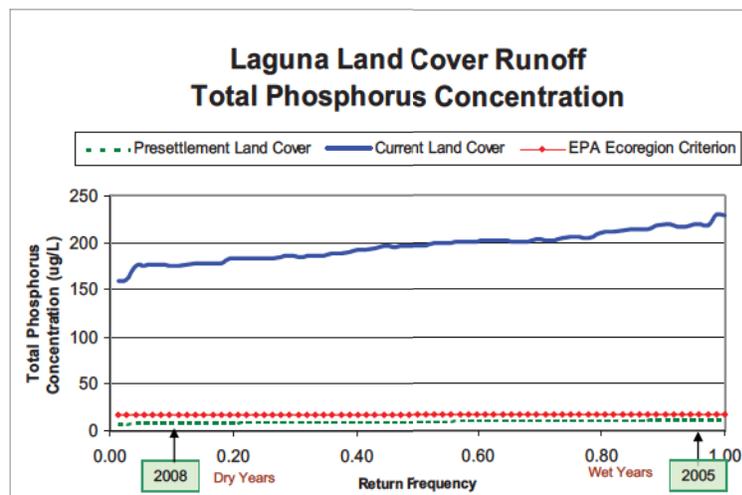
Sediment

Temperature

Implementation



Laguna TMDLs Nutrient Source Analysis





Laguna TMDLs Schedule

Activity	Timeframe
Stakeholder Involvement	Ongoing
Nutrient & Dissolved Oxygen Analyses	Summer 2011
Sediment & Temperature Analyses	Fall 2011
Implementation Plan Development	Fall 2011 to Early 2012
Public Review	Spring 2012
Regional Board Hearing	Fall 2012



Stakeholder Involvement

- Critical for success
- Stakeholder Plan
 - http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/laguna_de_santa_rosa
- Goals
 - Communicate with and inform stakeholders
 - Solicit and receive useful input
 - Community support





Early Implementation Efforts

- Continue regulatory programs
 - Improve municipal storm water program
 - Explore septic system coverage
 - Continue facility inspections
- Portable toilets at recreation beaches
- Engage homeless advocates/community
- Focus on migrant worker camps



Topics

- Water Quality Concerns & Potential Sources
- Current Core Regulatory Efforts
 - Publicly-Owned Treatment Works
 - Wineries, Food Processors, & Dairies
 - NPDES Storm Water
 - Private Domestic Wastewater Systems
- TMDL Efforts
 - Russian River
 - Laguna de Santa Rosa
- Early Implementation Efforts





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Russian River Watershed Protection Committee, Brenda Adelman, February 14, 2011

- G_RRWPC-1 The revised Notice of Preparation scoping comments, submitted as Attachment 1, are incorporated into the record. Individual responses to Attachment 1 are provided in Responses G_RRWPC-56 through G_RRWPC-62.
- G_RRWPC-2 CEQA provides for professional judgment. The level of impact is based on a reasonable assumption predicated upon fact, or expert opinion supported by fact. If there is disagreement among expert opinion supported by facts over the significance of an effect on the environment, the Lead Agency shall treat the effect as significant (CEQA 15064(g)).
- G_RRWPC-3 The Draft EIR examines impacts related to the Estuary Management Project. It does not analyze the Russian River Biological Opinion, or the change from “natural” conditions referenced in the Biological Opinion to current conditions. As such, the Draft EIR is not required to retroactively characterize the historic flora and fauna that may have been affected by past unrelated actions; rather the Draft EIR considers the potential effects of the proposed project on the existing physical environment. For a discussion of the relationship of the Estuary Management Project to the flows under the Fish Habitat Flows and Water Rights Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**. The Draft EIR also cumulatively analyzes, in Draft EIR Chapter 5.0 Cumulative Analysis, the impacts of reducing minimum instream flows proposed by the Biological Opinion under the Fish Habitat Flows and Water Rights Project in conjunction with impacts associated with the Estuary Management Project.
- G_RRWPC-4 The Draft EIR for the Estuary Management Project does not state that flows have been as low as 25 cfs in the lower Russian River. For a discussion of the relevance of flow data to the Estuary Management Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**. For a discussion of the Draft EIR analysis of water quality parameters refer to Draft EIR Section 4.3, Water Quality, specifically Impacts 4.3.2 (temperature) and 4.3.3 (bacteria and nutrients). For additional discussion, refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**.
- G_RRWPC-5 Please refer to response to comment G_RRWPC-3. The analysis in this Draft EIR is based on potential changes from existing baseline conditions, as required by CEQA, not on changes from a pre-dam “natural” condition. As presented in **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**, the Russian River Biological Opinion concludes

that Water Agency operations have potential to jeopardize the continued existence of federally listed steelhead and coho salmon and their critical habitat. The Russian River Biological Opinion includes a requirement to modify practices to avoid jeopardizing these species and their critical habitat and to enhance rearing habitat for juvenile salmonids within the Estuary.

- G_RRWPC-6 Please refer to response to comment G_RRWPC-3. For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**. The Draft EIR is not required to provide a historical account of past degradation over the last 100 years. It is recognized that past activities, including loss of riparian habitat, gravel mining, sedimentation, timber harvest, and agriculture have influenced river water quality, and these factors are captured as part of the environmental baseline used for analysis, as presented in Draft EIR Chapter 3.0, Project Background and Environmental Setting.
- G_RRWPC-7 Please refer to responses to comments G-RRWPC-3 and -6. Estuary management during the Lagoon Management Period may be subject to a variety of weather patterns and subsequent flow conditions. The Estuary Management Project has been developed to adaptively manage the Estuary under the range of observed flow conditions following barrier beach formation under varying hydrologic year types and conditions, as noted in Draft EIR Chapter 3.0, Project Background and Environmental Setting (Figure 3-1).
- G_RRWPC-8 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**.
- G_RRWPC-9 Impact 4.5.2, Habitat Quality, in Draft EIR Section 4.5, Fisheries, included an analysis of the potential effect of Estuary Management Project on outmigrating Chinook and coho smolts. Please refer to discussion beginning on page 4.5-23 of the Draft EIR. It should be noted that a closure event and formation of a barrier beach in May is not caused or proposed by the Project, which would not affect the occurrence or timing of natural closures. Barrier construction to maintain a closed mouth is not proposed as part of the project, As discussed in Draft EIR Chapter 2.0, Project Description, the intent of the project is to modify previous management during the Lagoon Management Period, and create an outlet channel following a natural beach closure such that outflow occurs, but tidal exchange is minimized, to improve rearing habitat for juvenile salmonids.
- G_RRWPC-10 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master**

Responses. Per the commenter's request, the flow data recorded at Hacienda Bridge that was considered in the Draft EIR is provided in **Final EIR Appendix 2**, which shows historical flow data at Hacienda Bridge, Guerneville, relative to mouth closure dates.

G_RRWPC-11 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**. The Draft EIR analyzes the potential water quality effects of the proposed Estuary Management Project. Water quality impacts in the maximum backwater area (the greatest geographic area in which any impacts are projected to occur) are described in Draft EIR Section 4.3, Water Quality. For additional discussion, refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**. Additionally, impacts associated with Fish Habitat Flows and Water Rights Project, are considered in the cumulative analysis in Draft EIR Chapter 5.0, Cumulative Analysis.

G_RRWPC-12 Historical photos provided as an attachment to the comment letter are incorporated into the record.

G_RRWPC-13 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**. The Draft EIR examines impacts related to the Estuary Management Project. It does not analyze the Russian River Biological Opinion, or the effects of flow on summer dams, which are outside the Estuary Study Area and maximum backwater area.

G_RRWPC-14 Draft EIR Chapter 2.0, Project Description, includes information on the timing of closures and subsequent natural and artificial breaching events during the Lagoon Management Period. As noted in **Master Response 2.1, Relationship to Other Biological Opinion Elements**, the Estuary Management Project has been developed to adaptively manage the Estuary under the range of observed flow conditions following barrier beach formation under varying hydrologic year types and conditions. As noted in Draft EIR Chapter 3.0, Project Background and Environmental Setting (page 3-3), River flows typically decline rapidly over the five month lagoon management period. Flows in May averaged 767 cfs for the years 1939 to 2009, and averaged 178 cfs in September for the same time period. Because of decline in river flow during the lagoon management period, the primary factors in barrier beach formation are wave activity and tidal exchange, with river outflow being a secondary factor. Average monthly wave energy changes with the seasons; wave energy is greatest in winter, reduces over spring, and is minimal from July to September. However, late spring storms, early fall storms and Southern Hemisphere storms can occasionally produce waves

exceeding 10 feet in the vicinity of the river mouth during the lagoon management period. Swell waves with periods longer than 10 seconds from either the northwest or south are often the cause of closure during the management period. Large wave events are particularly likely to cause closure when they coincide with the reduced tidal exchange that occurs approximately every two weeks during neap tides. As such, the timing of closures within the lagoon management period will vary, as noted by commentor.

- G_RRWPC-15 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**.
- G_RRWPC-16 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. Please refer to **Final EIR Appendix 2**, which shows historical flow data at Hacienda Bridge, Guerneville, relative to mouth closure dates.
- G_RRWPC-17 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. Please refer to **Final EIR Appendix 2**, which shows historical flow data at Hacienda relative to mouth closure dates.
- G_RRWPC-18 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, and a discussion relevant to the comment's assertion that the change in minimum flows is intended to prevent flooding, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. For a discussion of the geographic extent of the project area analyzed under the Estuary Management Project please refer to **Master Response 2.2, Project Description and Impact Areas**, in **Chapter 2, Master Responses**. With respect to validity and availability of water quality data considered in the Draft EIR, please refer to **Master Response 2.4, Water Quality**, in **Chapter 2, Master Responses**.
- G_RRWPC-19 It is impossible to predict with certainty the future occurrence of barrier beach closures, as closure is dependent upon several factors. As noted in Draft EIR Chapter 3.0, Project Background and Environmental Setting (page 3-3) barrier beach formation and closure of the river mouth is affected by wave activity from the Pacific Ocean, with river flow being a secondary factor. The Estuary Management Project has been developed to adaptively manage the Estuary under the range of observed flow conditions following barrier beach formation under varying hydrologic year types and conditions. As discussed on page 5-11 of the

Draft EIR, changes in Decision 1610 minimum instream flows could increase the number of barrier beach closures in a given year, depending upon the hydrologic year type and wave conditions during summer months. As clarification, the Draft EIR statement referenced by the commentor relates to the number of barrier beach closures in a given year.

G_RRWPC-20 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**. The Estuary Management Project has been developed to adaptively manage the Estuary under the range of observed flow conditions following barrier beach formation under varying hydrologic year types and conditions, as noted in Draft EIR Chapter 3.0, Project Background and Environmental Setting (Figure 3-1).

G_RRWPC-21 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**.

G_RRWPC-22 Comment requests clarification of whether 71 cfs was measured during a closure event. Draft EIR page 2-16 states:

“Review of flow data for the 115 **closure events** occurring between 1996 and 2009 indicated a median flow at the USGS Guerneville Gauge for these events is 250 cubic feet per second (cfs), with a minimum flow of 71 cfs and a maximum flow of 1,120 cfs.”

G_RRWPC-23 2009 was a Temporary Urgency Change year due to a dry spring season. The 71 cfs is within the minimum flow conditions for Hacienda in a dry year and within the order issued by SWRCB to reduce minimum instream flows, as well as within the Russian River Biological Opinion flow change requirements. The 2009 Photo Report included with the comment letter is incorporated into the record.

G_RRWPC-24 This comment does not indicate any deficiency or question about the adequacy of the analysis or mitigation measures contained in the Draft EIR. The TUCPs are not proposed as part of the Estuary Management Project. The TUCPs result from a separate requirement of the Russian River Biological Opinion and have been found by the SWRCB to be exempt from CEQA. The potential for the Estuary Management Project to contribute cumulatively to impacts related to TUCPs are considered in a cumulative analysis (Draft EIR, Chapter 5.0, Cumulative Analysis) and includes information on the CEQA analysis for the TUCP.

G_RRWPC-25 The comment is incorrect in the assertion that the NMFS scoping letter, dated June 22, 2010 argues that the Estuary Management Project should consider flow changes in the same EIR. Instead, the NMFS scoping letter states:

“The Russian River BO directs SCWA to pursue Temporary Urgency Changes (TUC) to D-1610 to reduce summer inflow prior to a final change in D-1610 that will be supported by a separate EIR and water rights regulatory process, which we [NMFS] anticipate will be completed sometime between 2014 and 2016.”

The Russian River Biological Opinion and NMFS’ scoping letter recognize that flow changes would be analyzed in a separate CEQA process. Both changes to flow under Decision 1610 and the TUCs are included in the cumulative analysis in Draft EIR Chapter 5.0. This analysis considers the potential impacts of the Estuary Management Project, in conjunction with the anticipated effects of reducing minimum instream flows. The TUCPs result from a separate requirement of the Biological Opinion and have been found by the SWRCB to be exempt from CEQA.

G_RRWPC-26 As discussed in Draft EIR Chapter 1.0, Introduction, the Water Agency has historically provided management of Estuary water levels through artificial breaching, and will continue to do so. The Water Agency requested and received extensions of existing permits to cover Estuary management activities in 2010 and 2011, including lagoon management actions. The Water Agency is currently in the process of acquiring permits for the Estuary Management Project. The lagoon outlet channel was implemented in July 2010 under the existing permits. The Water Agency intends to implement the Estuary Management Project in 2011 in order to comply with the Russian River Biological Opinion.

G_RRWPC-27 No environmental review under NEPA is required because the project is not proposed, and would not be implemented by, a federal Lead Agency. The Water Agency is the Lead Agency under CEQA. Federal agencies, including USACE, will complete their independent review of the project, and any required NEPA process, as appropriate.

G_RRWPC-28 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. Please also refer to response to comment G_RRWPC-19, above.

G_RRWPC-29 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. For a discussion of water quality impacts and

Draft EIR analysis, refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**. The Draft EIR for the Estuary Management Project includes an analysis of potential secondary effects to fisheries resulting from water quality changes in Impact 4.5.1 in Draft EIR Section 4.5, Fisheries, beginning on page 4.5-19.

G_RRWPC-30 As described in Draft EIR page 4.2-2, Table 4.2-1 is included to provide context information about the existing hydrologic regime regarding flows year-round. In combination with Draft EIR Figure 3-1, this shows what range of flows may be expected during the Lagoon Management Period. Please refer to **Final EIR Appendix 2**, which shows historical flow data at Hacienda relative to mouth closure dates.

G_RRWPC-31 Please refer to **Final EIR Appendix 2**, which shows historical flow data at Hacienda relative to mouth closure dates. Draft EIR Chapter 3.0, Project Background and Environmental Setting, Section 3.5, and Section 4.2, Hydrology and Flooding, for a discussion of water levels during closure events.

With respect to the flow values presented in the Draft EIR, the median flow data is presented, as opposed to the mean, as requested by the commenter, because median values are resistant to outliers, values that are numerically distant from the rest of the data. Both mean and median data are presented in **Final EIR Appendix 2**.

As noted in Draft EIR Chapter 3.0, Project Background and Environmental Setting (page 3-3) barrier beach formation and closure of the river mouth is affected by wave activity from the Pacific Ocean, with river flow being a secondary factor. The Estuary Management Project has been developed to adaptively manage the Estuary under the range of observed flow conditions following barrier beach formation under varying hydrologic year types and conditions. The Russian River Biological Opinion content is not analyzed or disputed in this Draft EIR. For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**.

G_RRWPC-32 For a discussion regarding the Estuary Management Project's potential contribution to nutrients, blue-green algae formation, and required water quality monitoring, refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**. For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses**.

- G_RRWPC-33 This comment is not directed to the environmental analysis of Draft EIR for the Estuary Management Project; therefore no changes in the Final EIR are necessary. Please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, in Chapter 2, Master Responses.**
- G_RRWPC-34 Please refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses,** for a discussion of Section 303(d) List of Impaired Water Bodies and **Master Response 2.3, Project Feasibility.** As noted in these responses, the Estuary Management Project would be implemented using adaptive management. Potential future conditions identified by the commentor would be addressed as part of this process. It should be noted that the project's Adaptive Management Plan includes provisions for breaching in the event of flooding conditions, water quality conditions, or biological conditions warrant, after consultation with NMFS and CDFG.
- G_RRWPC-35 Please refer to the discussion in **Master Response 2.4, Water Quality, in Chapter 2, Master Responses** for a discussion regarding *Ludwigia*.
- G_RRWPC-36 The information regarding standards for nitrogen is provided in the absence of standards for estuaries, which are recognized by SWRCB and RWQCB as unique ecosystems that require specific water quality standards that are in the process of being developed. As such, these standards are only applicable to freshwater. Draft EIR Section 4.3, Water Quality, addresses nutrients and the potential for nuisance conditions that could impact beneficial uses.
- G_RRWPC-37 Draft EIR Section 4.3, Water Quality, Impact 4.3.3 analyzes the potential effect of the Estuary Management Project on phosphorus levels in the Estuary during the lagoon management period. The Estuary Management Project would not contribute to new sources of phosphorus, nor would it lower flow. However, as described in the Draft EIR, there is potential for increased residence time of water moving through the Estuary, and potential for adverse increases in nutrient levels.
- G_RRWPC-38 The Draft EIR for the Estuary Management Project considers the physical environmental effects associated with implementation of the proposed project. With respect to Russian River County Sanitation District, several wastewater treatment plant discharges occur within the watershed, and are considered part of existing water quality conditions. The facility is located outside of the Estuary Study Area and maximum backwater area, and as noted by the commentor, plant discharges would not occur during the lagoon management period. Please refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses,** regarding the potential for secondary biological effects associated with water quality.

G_RRWPC-39 Potential water quality impacts of the Estuary Management Project on fisheries are analyzed in Draft EIR Section 4.5, Fisheries, Impact 4.5.2. Potential water quality impacts, including discussion of nutrient and pathogen levels are analyzed in Draft EIR Section 4.3, Water Quality, Impact 4.3.3.

G_RRWPC-40 The Water Agency does not currently sample water quality in Willow Creek, but rather a location just downstream of the Willow Creek confluence in the mainstem Russian River. Chlorophyll *a* conditions in Willow Creek are identified as a potential source of the higher chlorophyll *a* levels recorded in the mainstem sampling, described in Draft EIR Section 4.3, Water Quality.

The connection between nutrients and algal growth is discussed on page 4.3-5 of the Draft EIR at beginning of the nutrient discussion. Additional information related to algal growth is provided in **Master Response 2.4, Water Quality, in Chapter 2, Master Responses.**

The letter from the Regional Water Quality Control Board, dated November 15, 2011, as referenced in the comment is directed toward the Fish Habitat Flows and Water Rights Project, not the Draft EIR for the Estuary Management Project. This comment is not directed to the Draft EIR for the Estuary Management Project; therefore no changes in the Final EIR are necessary. The Draft EIR does not include an analysis of potential violation of water quality objectives associated with the Fish Habitat Flows and Water Rights Project because this is a separate project. The Draft EIR Chapter 5.0, Cumulative Analysis, evaluates the potential cumulative impacts associated with the Estuary Management Project in combination with the Fish Flow project. For additional discussion, refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses.**

Impact 4.3.3, in the Draft EIR, Section 4.3, Water Quality, identifies provisions for breaching in the event that flooding conditions, water quality conditions, or biological resource conditions warrant it, after consultation with NMFS and CDFG.

For an analysis of potential water quality impacts on fisheries, refer to Draft EIR Section 4.5, Fisheries, Impact 4.5.2.

G_RRWPC-41 Estuary water quality (temperature, salinity, dissolved oxygen) has been extensively monitored during the Lagoon Management Period since 2003 and is described in Draft EIR Chapter 3.0, Project Background and Environmental Setting. The comment cites a statement from Impact 4.3.2 regarding the potential for adverse impacts to salinity, dissolved oxygen, and temperature levels during the Lagoon Management Period. Refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses,** and Draft EIR Chapter 3.0, Project Background and Environmental Setting, for the sources of water quality

information used to substantiate the setting and baseline conditions and discussion of existing water quality conditions in the Estuary.

G_RRWPC-42 Refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**, for a discussion related to the Estuary Management Project impact to bacteria levels. Please see page 4.3-22 of the Draft EIR Section 4.3, Water Quality, for a discussion of observed elevated bacteria levels related to freshwater inflow into the Estuary. The Draft EIR does not speculate on the causes of past increased bacteria levels. Please refer to Draft EIR Section 4.5, Fisheries, for analysis of anticipated habitat conditions associated with project implementation.

G_RRWPC-43 For a discussion regarding monitoring as mitigation under the adaptive management process, refer to **Master Response 2.6, Recreational Impacts, Socioeconomic Impacts, and Mitigation Requirements, in Chapter 2, Master Responses**. Additional discussion related to the specific monitoring programs is provided in Draft EIR Chapter 3.0, Project Background and Environmental Setting, and **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**.

Refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**, for a discussion related to the Estuary Management Project impact to bacteria levels. Under CEQA, baseline conditions are considered the physical conditions at the time of the Notice of Preparation. The Draft EIR concludes that there is a potentially significant and unavoidable impact associated with bacteria levels in the Estuary during the lagoon management period. That Draft EIR is not intended to justify water quality impacts, rather, in accordance with CEQA, it analyzes and discloses the potential change from existing conditions. Potential impacts to fisheries are described in Draft EIR Section 4.5, Fisheries. Draft EIR Chapter 2.0, Project Description, describes the project purpose and objectives, including the Estuary water level management targets identified in the Russian River Biological Opinion.

G_RRWPC-44 Draft EIR Section 4.3, Water Quality reviews potential impacts to water quality associated with implementation of the Estuary Management Project. Please refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**. The Estuary Management Project would not create or control sources of discharges of pollution or pollutant loads into the Russian River system.

G_RRWPC-45 For a discussion regarding water quality relative to pollutant levels and fish health of fish, refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**. Effects of temperature on habitat are discussed in the Draft EIR Chapter 3.0, Project Background and Environmental Setting, on pages 3-23 and Section 4.5, Fisheries on page 4.5-22. With respect to potential increased predations, there is no substantial evidence to indicate that predation would be

significantly altered as a result of the project. The predator/prey relationship is naturally occurring and driven by population dynamics. This condition already occurs, and predation is an ongoing survival cycle. This relationship is not addressed by CEQA criteria; therefore, no mitigation is proposed as part of the Draft EIR. Refer also to response to comment G_NCRW-6.

G_RRWPC-46 For a discussion regarding water quality relative to temperature, refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**. Additional information regarding current temperatures and variability in the Estuary is presented in Draft EIR Chapter 3.0, Project Background and Environmental Setting, and Section 4.3, Water Quality. Effects of temperature on habitat are discussed in the Draft EIR on pages 3-23 and 4.5-22.

G_RRWPC-47 Chinook salmon in the Russian River are considered “fall-run” and are adapted to avoid summer high temperatures (Draft EIR, page 4.5-11). The Russian River Biological Opinion concluded that estuary management is unlikely to jeopardize Chinook salmon or its critical habitat (NMFS, 2008); however, the Draft EIR considered Chinook salmon. Refer to Draft EIR Section 4.5, Fisheries, specifically Impact 4.5.2, Habitat Quality, for information regarding Chinook salmon adult and smolt migration timing, relationship to the Lagoon Management Period, and a discussion of the potential project impacts to habitat parameters, including water temperature, that could affect salmonids, including Chinook.

The following changes to the Draft EIR have been made to include a reference regarding the timing of Chinook salmon adult migration in the Draft EIR on page 4.5-23:

“Chinook salmon can begin immigrating as early as August (a few individuals), but peak migration into the Estuary is typically in November and December (Chase et al. 2005; Chase et al. 2007), after the proposed management period.”

The following references have been added to the Draft EIR, Section 4.5, Fisheries, reference section:

Chase, S., R. Benkert, D. Manning, and S. White. 2005. Sonoma County Water Agency’s Mirable Rubber Dam/Wohler Pool Fish Sampling Program: Year 5 results 2004. December 31, 2005.

Chase, S.D., D.J. Manning, D.G. Cook, and S.K. White. 2007. Historic accounts, recent abundance, and current distribution of threatened Chinook salmon in the Russian River, California. California Fish and Game 93(3): 130-148.”

- G_RRWPC-48 Dungeness crab are considered in the Draft EIR in Section 4.5, Fisheries. Impact 4.5.3 discloses the potential impact to Dungeness crab in the Estuary, including that the Estuary represents a minimal portion of the population and habitat compared to inshore coastal waters and the San Francisco Bay. The impact is less than significant.
- G_RRWPC-49 The impact to Dungeness crab habitat would be less than significant as described in Impact 4.5.3 in the Draft EIR. The project would not affect and harvesting opportunities; therefore it does not require a permit under the Marine Life Protection Act from CDFG or other regulatory agency for this purpose.
- G_RRWPC-50 Refer to **Master Response 2.6, Recreational Impacts, Socioeconomic Impacts, and Mitigation Requirements, in Chapter 2, Master Responses.** Impacts to interior river beach and localized Goat Rock State Beach access are disclosed in Draft EIR Section 4.7, Recreation, Impact 4.7.1. Impacts to interior beaches are mapped in Draft EIR Chapter 3.0, Project Background and Environmental Setting, Figures 3-4A through 3-4E and Section 4.4, Biological Resources, Figures 4.4-1 and 4.4-5. With respect to impacts to scenic areas, refer to Draft EIR Section 4.14, Aesthetics, for an analysis of temporary and short-term impacts to scenic resources at Goat Rock State Beach that would result from outlet channel creation and maintenance.

As part of the NOP public scoping and Draft EIR review process, notifications were mailed to stakeholders listed in the comment letter, including Casini Ranch operators, Burke's Canoe River Trips, Russian River Parks and Recreation District, Monte Rio Parks and Recreation District, Russian River Chamber of Commerce, Healdsburg Chamber of Commerce, Monte Rio Chamber of Commerce, Santa Rosa Chamber of Commerce, and Sonoma Valley Chamber of Commerce, among others, to solicit input on the scope of analysis presented in the NOP and comment on the Draft EIR.¹ Please refer to Draft EIR, **Appendix 1**, Notice of Preparation, Scoping Report and Scoping Comments, for the NOP and comments received during the scoping process. This Final EIR includes and responds to all comments received on the Draft EIR. Refer to Section 1.2 of this Final EIR for a summary of the Draft EIR public review process.

- G_RRWPC-51 The Lagoon Management Period from May 15 to October 15 is consistent with the timing established in the Russian River Biological Opinion to target salmonid rearing periods. The minimum flows presented in Draft EIR Chapter 5.0, Cumulative Analysis, were not developed as part of the Estuary Management Project and are presented for informational purposes relative to the cumulative analysis of the proposed project impacts considered in conjunction with

¹ Direct mailing of hard copies of the NOP were mailed to these entities, with the following exception: Healdsburg Chamber of Commerce, Santa Rosa Chamber of Commerce, and Sonoma Valley Chamber of Commerce received postcard notifications of the availability of the NOP. All entities received subsequent postcard notifications of the availability of the Draft EIR.

reasonably foreseeable future actions. For additional information, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**.

- G_RRWPC-52 Refer to responses to comments G-RRWPC-24 and G_RRWPC-25 for a discussion of the relationship of Temporary Urgency Changes to the proposed Estuary Management Project. For additional information, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**.
- G_RRWPC-53 The Draft EIR provides a discussion of existing conditions in Chapter 3.0, Project Background and Environmental Setting based on best available data and supports conclusions in the analysis in Section 4.3, Water Quality. The discussion regarding bacteria in the Estuary relies on 2009 and 2010 sampling data. For additional discussion of water quality impacts, refer to **Master Response 2.4, Water Quality**, in **Chapter 2, Master Responses**. The Draft EIR does not speculate on the potential listing of the lower Russian River for 303(d) listing for bacteria. Potential cumulatively considerable impacts to bacteria levels associated with concurrent implementation of the Estuary Management Project in conjunction with other projects is determined in Draft EIR Chapter 5.0, Cumulative Analysis to be cumulatively significant.
- G_RRWPC-54 Please refer to **Master Response 2.7, Adequacy of EIR Analysis**, in **Chapter 2, Master Responses**, for a discussion of adequacy of the analysis based on best available data.
- G_RRWPC-55 Please refer to **Master Response 2.3, Project Feasibility**, in **Chapter 2, Master Responses**, for a discussion of the adaptive management process as it relates to success criteria. Draft EIR Chapter 2.0, Project Description, describes the project purpose and objectives, including the Estuary water level management targets identified in the Russian River Biological Opinion.
- G_RRWPC-56 Please refer to **Master Response 2.2, Project Description, Impact Areas and Scope of Analysis**, and **Master Response 2.4, Water Quality**, in **Chapter 2, Master Responses**.
- G_RRWPC-57 Please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**.
- G_RRWPC-58 Please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. Please also refer to the Russian River Biological Opinion, issued in 2008, which provides discussion of salmon and steelhead population conditions.

- G_RRWPC-59 Please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. For a discussion relative to historic flow data and correlation to barrier beach closure, habitat resources and fisheries, refer to Draft EIR Chapter 3.0, Project Background and Environmental Setting. Please also refer to the Russian River Biological Opinion, issued in 2008, which provides discussion of salmon and steelhead population conditions.
- G_RRWPC-60 Please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**.
- G_RRWPC-61 Please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**, for a discussion regarding flows. Draft EIR Chapter 6.0, Alternatives Analysis, (Section 6.4.6) includes the Alternative Flood Control Alternative. Draft EIR Mitigation Measure 4.2.2 requires the Water Agency to coordinate with NMFS and work with the property owners to identify measures that would, if necessary, substantially minimize or avoid any damages to existing structures that would occur as a result of implementing the project (i.e., increased flooding durations at the 7 and 9 foot elevation). As appropriate, the Water Agency shall survey properties within the 9 foot elevation in greater detail to more accurately and precisely determine the elevation of the structures potentially at risk; this information shall be kept on record at the Water Agency and a copy shall be provided to each of the property owners.
- G_RRWPC-62 As stated in Draft EIR Chapter 3.0, Project Background and Environmental Setting, barrier beach closure is influenced by a number of factors, but is primarily influenced during the Lagoon Management Period (May 15 to October 15) by Pacific Ocean wave events. Project implementation would not affect Pacific Ocean water quality or wave occurrence. Please refer to Draft EIR Chapter 5.0, Cumulative, subsection 5.2.3, Climate Change and Sea Level Rise for a discussion of climate change, and potential for sea level rise to affect the implementation of the Estuary Management Project. It should be noted that implementation of the proposed project would not affect or alter the occurrence or timing of climate change or sea level rise; rather, this discussion reviews potential future scenarios, and potential effects on the successful implementation of the Estuary Management Plan Project. Please refer to **Master Response 2.3, Project Feasibility**, in **Chapter 2, Master Responses**, for a discussion related to the adaptive management strategy that is designed to allow the Water Agency to adjust management to respond to external factors that affect project implementation. Impact 5.2.4 (Draft EIR page 5-35) specifically addresses how climate change and sea level rise could affect project implementation, including discussion regarding beach morphology, outlet channel morphology, seepage through the barrier beach, and property flooding. Within the context of adaptive

management, the Water Agency and regulatory agencies will continue to review issues related to climate change.



Sonoma County Water Coalition

55A Ridgway Avenue, Santa Rosa CA 95401
707-494-5769

Sonoma County Water Agency
Attn: Jessica Martini-Lamb
404 Aviation Blvd.
Santa Rosa, CA 95403

BY EMAIL

February 8, 2011

Dear Ms. Martini-Lamb,

The Estuary Management Project DEIR Comment

The Sonoma County Water Coalition (SCWC) includes 32 organizations representing more than 24,000 concerned citizens. SCWC strongly supports a safe, economical and reliable water supply for all living beings, including Sonoma County citizens, visitors, pets, fish, and wildlife. We support watershed protection and restoration, and careful oversight of surface and groundwater quality and groundwater resources.

SCWC requests that you address the following issues arising from the "Russian River Estuary Management Project: Draft Environmental Impact Report" released by your Agency on December 15, 2010.

As we have not yet had the opportunity to fully study this extensive DEIR on the Estuary Project, we will confine these comments to a central issue of concern: the bifurcation of the Estuary Project DEIR from the Fish Habitat Flows and Water Rights Project (Fish Flow Project). It is our view that the environmental impacts of the two projects should be reviewed in one document. In lieu of that, lower river impacts from Dry Creek downstream should be fully explored and analyzed in the Estuary Project DEIR.

G_SCWC-1

SCWC objects to bifurcation of the Estuary Project from the "Fish Habitat Flows and Water Rights Project" (Fish Flow Project).

The purpose of both projects is to fulfill requirements of the Biological Opinion (BO), which in part demands that river flows be managed to allow construction and maintenance of an estuary lagoon that will provide improved habitat for threatened fish (mainly steelhead) without flooding a few low-lying Jenner properties.

Fish Flow Project (FFP) is inexorably linked to the Estuary Project through the BO and should therefore be addressed in one environmental review. Furthermore, proposed

G_SCWC-2

Members: * Atascadero/Green Valley Watershed Council * Russian River Watershed Protection Committee * Community Clean Water Institute * Northern California River Watch * O.W.L. Foundation * Sonoma Coast Surfrider * Sonoma County Conservation Action * SWiG (Sebastopol Water information Group) * Valley of the Moon Alliance * Supporting Organizations: Bellevue Township * Blucher Creek Watershed Council * Coalition for a Better Sonoma County * Coast Action Group * Community Alliance with Family Farmers (N.Coast Chapter) * Forest Unlimited * Forestville Citizens for Sensible Growth * Friends of the Eel River * Friends of the Gualala River * Graton Community Projects * Laguna Lovers * Madrone Audubon Society * Mark West Watershed Alliance * Occidental Arts and Ecology Center Water Institute * Petaluma River Council * Russian River Chamber of Commerce * Sierra Club (Sonoma County Group) * Town Hall Coalition * Western Sonoma County Rural Alliance *

Comment Letter G_SCWC

changes of minimum flows at Hacienda from 125 cubic feet per second (cfs) to 70 cfs has had no other stated purpose than the prevention of flooding two buildings in Jenner when the mouth is closed and the lagoon rises to a level of 9' or higher. (The preferred project maintains estuary levels at 8'. No buildings would be flooded at this level, making the necessity for low flow highly questionable.) Also, there is no serious proposal to lift and/or move these buildings out of the floodway. (See Mitigation Measure on page 4.2-20)

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G_SCWC-2
cont.

The stated purposes of both projects is to fulfill requirements of the Biological Opinion (BO), which assumes that river flows must be managed to allow formation of an estuary lagoon to provide habitat for threatened fish.

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G_SCWC-3

Please address the following issues:

- In our view, CEQA requires that the entire project be considered in one environmental document. "Low flow" as called for in the lower river is inexorably linked to the Estuary Project through the BO. It is wrong to bifurcate the process. Water quality studies and environmental analysis should be required, at a minimum, for the entire lower river from the Dry Creek convergence on down. Impacts on recreation should also be examined.
- The Estuary Project only analyzes impacts up to Duncans Mills, whereas it is stated in the DEIR that impacts from closed mouth and flow alteration affects the river as far upstream as Vacation Beach.
- SCWA can't control flows at Hacienda during wet years as evidenced in 2010 when dam releases were reduced and flows averaged 260 cfs from June through September. This project is only viable during drought years when water quality impacts would be greatest. This should be analyzed in light of BO requirements.
- When flows are lowered in dry years, the river mouth usually stays open anyway as evidenced in August, 2009 when flows averaged 63 cfs all month.
- The preferred project maintains estuary levels at 8'. No buildings would be flooded at this level, making low flow unnecessary for this purpose.
- The Regional Board has determined that some water quality monitoring studies in 2009 were inadequate, and that data for 2010 has not been made available to the Water Quality Control Board or the public. We have been told that the outcome of water quality studies will not be available until the EIR on "low flow project" is released in 1.5 years. This is unacceptable.
- The lower river experiences serious nutrient and bacteria problems at times. These appear to be exacerbated during low flows. The DEIR states that there is concern about bacteria in the Estuary during the period of the closed lagoon. This relationship should be fully examined.

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G_SCWC-4

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G_SCWC-5

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G_SCWC-6

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G_SCWC-7

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G_SCWC-8

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G_SCWC-9

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G_SCWC-10

Comment Letter G_SCWC

- Problems with toxic blue green algae are receiving more and more attention in the “water quality world” lately. The risks can become a problem in the lower river and the closed estuary and should be addressed.

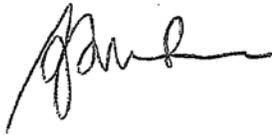
G_SCWC-11

SCWC does not believe that these issues have been adequately addressed either in the Biological Opinion, nor the Estuary Project DEIR. The current environmental document is a result of segmented projects all attempting a uniform goal: saving two threatened and endangered fish species. (Chinook are listed as threatened, but for various reasons are not being considered in this DEIR.)

G_SCWC-12

Thank you for the opportunity to ask these questions and raise these issues. We request that you fully respond to these issues in depth, and look forward to your response.

Sincerely,



Stephen Fuller-Rowell
Sonoma County Water Coalition

Sonoma County Water Coalition, Stephen Fuller-Rowell, February 8, 2011

- G_SCWC-1 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. For a discussion of the extent of the geographic project area analyzed under the Estuary Management Project please refer to **Master Response 2.2, Project Description and Impact Areas**, in **Chapter 2, Master Responses**.
- G_SCWC-2 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, and a discussion relevant to the comment's assertion that the change in minimum flows is intended to prevent flooding, please refer to **Master Responses 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. Refer to response to comment G_RRWPC-18 for a discussion of the objectives of the Estuary Management Project and the Fish Habitat Flows and Water Rights Project. Commenter is expressing preference for the Reduced Project Alternative. The Estuary Management Project proposes a target elevation of 7 feet with a 9 foot maximum; the Reduced Project Alternative includes an 8 foot maximum. Under the Reduced Project Alternative (8 foot maximum water level), structures would still be affected. As determined in the Draft EIR (Chapter 6.0, Alternatives Analysis, Section 6.7), the Reduced Project Alternative is identified as the environmentally superior alternative compared to the proposed project. It is not necessarily the "preferred alternative". Similarly, an Alternative Flood Control Alternative is presented and evaluated in Draft EIR Chapter 6.0, Alternatives Analysis. For additional discussion, refer to **Master Response 2.5, Alternative Analysis**, in **Chapter 2, Master Responses**.
- G_SCWC-3 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**, including discussion of project objectives. As discussed in the Draft EIR Chapter 2.0, Project Description, in order to comply with the requirements of the Russian River Biological Opinion, the Water Agency will implement adaptive management of the Estuary with the primary objectives of enhancing rearing habitat for juvenile salmonids, particularly steelhead, and managing Estuary water levels to minimize flood hazard.
- G_SCWC-4 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. Please refer to Draft EIR Section 4.7, Recreation, for discussion of potential impacts to recreation.

- G_SCWC-5 For a discussion of the geographic extent of the project area analyzed under the Estuary Management Project, please refer to **Master Response 2.2, Project Description and Impact Areas, in Chapter 2, Master Responses.**
- G_SCWC-6 As discussed in Draft EIR Chapter 2.0, Project Background, and Section 4.2, Hydrology and Flooding, in the Draft EIR, the Estuary Management Project and associated lagoon outlet channel are intended to function over a range of flow conditions, not just during low flow during drought years. Therefore, a conclusion that water quality impacts would be greatest if the Estuary Management Project is implemented is not substantiated. Refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, and Master Response 2.4, Water Quality, in Chapter 2, Master Responses,** for further explanation.
- G_SCWC-7 As noted in Draft EIR Chapter 3.0, Project Background and Environmental Setting (page 3-3) barrier beach formation and closure of the river mouth is affected by wave activity from the Pacific Ocean, with river flow being a secondary factor. The Estuary Management Project has been developed to adaptively manage the Estuary under the range of observed flow conditions following barrier beach formation under varying hydrologic year types and conditions.
- G_SCWC-8 Refer to response to comment G_SCWC-2, above.
- G_SCWC-9 For a discussion water quality, please refer response to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses.**
- G_SCWC-10 Please refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses,** for a discussion regarding the Draft EIR analysis of bacteria and nutrients, and the Draft EIR's characterization of existing conditions in the Estuary.
- G_SCWC-11 Please refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses,** for discussion of potential effects to water quality and secondary effects related to algae blooms.
- G_SCWC-12 Refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements, and Master Response 2.4, Water Quality, in Chapter 2, Master Responses.** Please refer to Section 4.5, Fisheries for a discussion of Chinook salmon; throughout the document, this species are included under the term "salmonids". Refer to Draft EIR Section 4.5, Fisheries, specifically Impact 4.5.2, Habitat Quality, for information regarding Chinook salmon adult and smolt migration timing, relationship to the Lagoon Management Period, and a discussion of the potential project impacts to habitat parameters, including water temperature, that could affect salmonids, including Chinook.

The Draft EIR examines impacts related to the Estuary Management Project. It does not analyze the Russian River Biological Opinion.

February 14, 2011

Jessica Martini-Lamb
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403

Re: Estuary Project DEIR

Dear Ms. Martini-Lamb:

Mine is a heavy responsibility: I have a constituency to speak for. They are the harbor seals presently in possession of a strip of sandy beach at the mouth of the Russian River. They come each year as winter storms wane to rest, socialize, birth their young and teach them the ancient Way of The Seal. Later, they shed their winter-weary coats and court and mate in the salty, buoyant waters of the estuary. In time the mothers and young leave and are replaced by solitary males who in turn leave in late fall as the winter rains prepare to fall.

These seals at the mouth of the Russian river are the largest haulout on the coast north of Point Reyes. The census in Marin County found a maximum of 2,353 adults and immatures onshore during the breeding season of 2009 – **the lowest number recorded in the past ten years.** (National Park Service, San Francisco Bay Area Inventory & Monitoring Program, December 2009). As more sandy haulouts are lost to development – and this change in estuary management must be called development – harbor seals will have a more difficult time finding places where they can rest and restore themselves.

G_Seal-1

Harbor seals were identified as a marine mammal species most likely to benefit from the establishment of marine protected areas (MPAs), an indication of the importance of habitat to these animals – what actions are being taken to ensure that these seals will not be driven from their haulout by this proposal? While I know that monitoring has been put into place and construction will cease if flushing occurs and that construction is limited to times infants are not on site, I can see no way the seals will be able to remain at their haulout. I am not alone in this conclusion: Norma Jellison has expressed it well: “I do think it is likely we will lose the colony from the ongoing disruption and harassment from equipment and more people attracted to walk on the longer beach. Monitoring will not mitigate this.”

G_Seal-2

The estuary is being dismantled and reconstructed so that endangered salmonids will have a better chance of reproductive success. In times of abundance – before Warm Springs Dam and the subsequent growth in Sonoma County – seals and salmon co-existed in great numbers. Warm Springs Dam allowed enormous population growth in Sonoma County and the resulting inputs from agriculture, forestry, gravel mining and residential and commercial development impacted the salmonid runs. Native American gathering lands fell to the dam’s construction, receiving mitigations as a sop to the loss of a sustainable way of life. WSD had a huge impact on the native fishery, essentially destroying it and replacing it with a mechanistic model.

G_Seal-3

Comment Letter G_Seal

Agencies involved here also have a great responsibility. It is shameful that this country's focus on growth drives conservation. Sonoma County was built on the backs of native Americans who had their ancestral lands taken from them by force, on blacks and Asians exploited for their labor and segregated for the color of their skins, then on the growth of population made possible by the construction of Warm Springs dam. Federal, state and county agencies are being tasked to find an engineering solution to a problem caused by the very governance that now demands solutions. It is this mindset I object to. And I have a small but warm hope that some agency people agree.

G_Seal-4

A holistic perspective would consider the human impact on our planet's natural systems of primary concern. It would be impossible for such a perspective to be willing to overlook the totality of the ecology found at the mouth of the Russian: the harbor seal haulout, a resting and foraging site for migratory birds and a fishery that includes Dungeness crabs, amongst other species in order to protect three endangered salmonid runs. It is time, past time, that agencies responsible for conservation of natural resource policy decision make them on a holistic understanding of ecosystems. I do not understand this apparently willful failure of agencies to carry forward an ecological perspective as called for, one would assume, in the enabling language for the Endangered Species Act. If such a vision is not part of the ESA, I submit that we need a Department of the Ecology, capable of seeing the ocean AND the river, the forest AND the trees, the seals AND the salmon.

G_Seal-5

It was John Muir who said "When we try to pick anything out by itself, we find it hitched to everything else in the universe." Natural resource decision makers – this is the obligation you are under! Try to be worthy of it.

Dian Hardy
Founder, Sealwatch Program

Sealwatch Program, Dian Hardy, February 14, 2011

- G_Seal-1 The Draft EIR discusses harbor seal use of the beach and interior river haulouts, and potential significant and unavoidable impact to use of these haulouts associated with the Estuary Management Project in Draft EIR Section 4.4, Biological Resources. For this assessment, please refer to Impact 4.4.8, Protected Marine Mammals, on page 4.4-79. This comment does not indicate any deficiency or question about the adequacy of the analysis or mitigation measures contained in the Draft EIR.
- G_Seal-2 The Draft EIR Section 4.4, Biological Resources, discusses the potential impact of the short-term impacts associated with creation and maintenance of the lagoon outlet channel on protected marine mammal species in Impact 4.4.1. Water Agency artificial breaching activities have followed the conditions and monitoring measures established in the NMFS IHA to avoid and minimize impacts on pinnipeds at the Jenner haulout. These measures are listed on pages 4.4-69 through 4.4-71 in Impact 4.4.1. The Draft EIR further analyzes long-term adaptive management of the Estuary as a lagoon on protected marine mammal species in Impact 4.4.8. Mitigation Measure 4.4.8 details an adaptive monitoring plan that will be implemented in compliance with the NMFS IHA. Conditions are established in the IHA to avoid and minimize effects to harbor seals and their haulout, and all activities associated with Estuary management are subject to these conditions. The Draft EIR considered the IHA, drafted by government scientists and regulators with the responsibility of species protection, represents a reasonable approach for mitigating impacts and its provisions were consequently adopted. Under this adaptive monitoring plan, seal counts will continue to be conducted at the Jenner haulout and nearby coastal and river haulouts. If monitoring indicates decreases in overall use at the Jenner haulout are correlated with increases in use at the three closest haulouts, the Sonoma County Water Agency will consult with NMFS and CDFG to alter the Estuary Management Plan such that the haulout site is maintained as a resource. The IHA does not allow long-term harassment or alteration of habitat conditions that would contribute to abandonment of the Jenner haulout.
- G_Seal-3 As provided in **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**, Water Agency operations have potential to jeopardize the continued existence of federally listed steelhead and coho salmon and their critical habitat. The Russian River Biological Opinion includes measures, including the Estuary Management Project, to modify practices to avoid jeopardizing these species and their critical habitat and to enhance rearing habitat for juvenile salmonids within the Estuary.
- G_Seal-4 This comment does not indicate any deficiency or question about the adequacy of the analysis or mitigation measures contained in the Draft EIR.

G_Seal-5 The Draft EIR recognizes a variety of aquatic and terrestrial species rely on estuarine habitat for some or all of their life phases. Draft EIR Section 4.5, Fisheries, includes analysis of other non-Endangered Species Act-protected aquatic species, including Dungeness crab.

Megan Steer

From: Sonoma Coast Chapter of Surfrider Foundation [sonomacoastsurfrider@comcast.net]
Sent: Sunday, February 13, 2011 11:25 AM
To: estuaryproject
Cc: Jessica.Martini.Lamb@scwa.ca.gov
Subject: Surfrider Estuary DEIR COMMENTS.doc



The Surfrider Foundation is a non-profit grassroots organization dedicated to the protection and enjoyment of our world's oceans, waves and beaches. The Surfrider Foundation now maintains over 70,000 members and 90 chapters worldwide.

Comments and Concerns for the Draft Environmental Impact Report on the Russian River Estuary Management Project:



Surfrider wishes to express our continued concern on the impact to surfing at the River Mouth as well as surfing areas south of the river including North Side Goat Rock, South Goat, Blind Beach, and the Far Cove that will be the result of the Estuary Management Project. These premier Sonoma County surf recreation areas depend greatly on the influx of new sand and gravel. The combination of modifying breaching practices and lower flows will remove the possibility of surfing these areas. Surfrider has determined that the mouth of the Russian River is a high quality surfing location and legally protected under the California Coastal Act.

G_Surf-1

Section 30213 of the Act states:

“Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.”

Surfing locations are a prime example of low cost visitor and recreational opportunities.

The overview of the California Coastal Commission enforcement program states:

“The mission of the Commission’s enforcement program is to protect coastal resources by: assuring that proposed development projects are consistent with the Coastal Act, which is accomplished via the permit review process required by the Coastal Act; that required coastal development permits (CDPs) are obtained for all development in the Coastal Zone; that all terms and conditions of CDPs are complied with; to generally deter and address violations of the Coastal Act; and to work with local governments to assist them in enforcing coastal protection policies.”

G_Surf-2

The California Coastal Act Section 30220 further states:

“Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.”

G_Surf-3

Surfing in Sonoma County can only be practiced in the ocean and never at inland areas. The Surfrider organization and supporters are particularly protective of surfing locations on the Sonoma Coast, especially the high quality ones, as they are available to the public in very limited supply. Sonoma County has only 9 surfing areas. As of today, out of those 9 areas, 3 are totally closed to public access, one is partially closed (Bodega Head) and access to Salmon Creek is greatly reduced (the Dunes & Bean Avenue Parking lot closures). There are also fees for ½ of these areas. Access to surfing is already limited to Sonoma County residents. The loss of surfing at the River Mouth for half of the year due to the inlet channel and its construction efforts will now eliminate surfing at one of the only free surfing areas on the entire Sonoma Coast. In addition-the more northern surf areas and Bodega Head are less frequently used due to level of experience required or travel time, therefore, only 2 possible areas remain for surfing –primarily-Salmon Creek & the River Mouth. The Estuary Management project therefore reduces the potential surf areas by ½ in Sonoma County during the months proposed.

G_Surf-3 cont.

Except for extreme drought years, the mouth has usually been open during the summer over the last 100 years. The SCWA Estuary Management events from 1996-2010 have averaged about 3 breachings during the May 15th-Oct. 15th time period. Therefore the mouth is open almost all of the 150 days of that period and allows for formation of sandbars which combined with swell create surf for residents to enjoy. Closing the mouth of the river and preventing the movement of sand and gravel will result in the loss of surf at the River Mouth as well as surfing at Goat Rock State Beach which also depends on this influx. The loss of over 5 months of surf at two locations which are free and accessible to the residents of Sonoma County IS a significant impact to recreation for Sonoma County residents. This is inconsistent with the Coastal Act as identified in the DEIR.

G_Surf-4

To quote SCWA’s DEIR Impact 4.7.2: Eliminate or Modify an Existing Recreational Resource:

“The proposed project would likely reduce the occurrence of open channel tidal conditions conducive to surfing activities.” It goes on to say *“This potential impact may be inconsistent with the California Coastal Act...”* and no feasible mitigation measures are identified.

Possible mitigation measures should include opening and improving access to other surf areas in Sonoma County or possible construction of an artificial reef at the River Mouth. Surfrider Foundation’s position on artificial reefs is that all effort should principally be directed towards protecting natural waves, and that structures should only be pursued in cases of mitigation for lost or damaged surfing resources. Projects of this nature have had some success in creating waves in other areas however the nuances of wave formation are complex. Please enjoy the following link.

G_Surf-5

<http://www.youtube.com/watch?v=mGYuj-Ow1rk>

Once the Estuary management project fails, as it is destined to do, the alternative cost of removal of the existing jetty could be greatly reduced if the rocks did not have to be removed but instead used to create an artificial reef.

The potential failure of the Estuary Management Project is acknowledged in the DEIR Conclusion on page 4.6-22

“It remains unclear whether the proposed project would result in a highly productive freshwater lagoon system during the lagoon management period, or whether the less productive and potentially adverse conditions characteristic of a partially converted stratified lagoon would predominantly occur.”

G_Surf-6

It goes on:

“A partially converted lagoon could potentially impact resident fish species, especially rearing steelhead, due to a reduction of water quality and habitat function, leading to increased stress or mortality as a result of increased water temperatures, reduced dissolved oxygen levels, or reduced foraging potential due to loss of estuarine productivity. A reduction in productivity or habitat function within the Estuary could result in a further potential indirect impact related to increased competition in unaffected areas where suitable habitat persists. Additionally, stratification could result in a reduction in the total area of available suitable habitat for a range of fish species due to adverse water quality conditions in the lower water column.”

G_Surf-6
cont.

The Russian River Mouth is revered by surfers and others who enjoy ocean recreation. Salmon populations are too at risk to afford a “trial and error” approach. The potential impact is far greater than any benefit listed in this DEIR and actually reduces the likelihood of that benefit to occur.

The increased presence of machinery on the beach (from an average of three days historically to the requested eighteen) is both harmful to marine mammals who haul out at this location and disruptive to those who previously enjoyed the serenity.

G_Surf-7

The Surfing Community of Sonoma County requests that the impact on the wave and water quality in the ocean environment be considered in the Environmental Impact Report on the Russian River Estuary Management Project. The Surfrider Foundation promotes responsible acts to preserve, restore, and protect the salmon population.

G_Surf-8

**Please direct any inquiries on this matter to
Sonoma Coast Chapter of Surfrider
sonomacoastsurfrider@comcast.net**

Sonoma Coast Chapter of Surfrider Foundation, February 13, 2011

- G_Surf-1 Draft EIR Section 4.7, Recreation, analyzes the potential elimination of availability of surfing wave conditions, and consistency with the California Coastal Act, during the Lagoon Management Period and concludes that there would be a significant and unavoidable impact. There is no substantial evidence to demonstrate the other surfing areas south of the river, including North Side Goat Rock, South Goat, Blind Beach, and the Far Cove, would be affected by the Estuary Management Project.
- G_Surf-2 This comment is a statement about the California Coastal Act and not directed to the environmental impacts of Draft EIR for the Estuary Management Project; therefore no changes in the Final EIR are necessary.
- G_Surf-3 This comment is a statement about other surfing locations and access issues in Sonoma County and not directed to the environmental impacts of Draft EIR for the Estuary Management Project; therefore no changes in the Final EIR are necessary. Impact 4.7.2 in the Draft EIR, page 4.7-10, discloses a potential significant and unavoidable impact related to the existing surfing resource.
- G_Surf-4 Comment asserts that the river mouth is open 150 days during Lagoon Management Period, and breached an average of three times. These assumptions are not supported in the comment, and differ from the information presented in Draft EIR Chapter 2.0, Project Description. Based on data in Table 2-1, the average number of breach events during the Lagoon Management Period is 5 events. The information in Chapter 2.0 also indicates that barrier beach closure can last between 5 and 14 days. Therefore, under existing conditions, assuming an average of 5 artificial breaching events, the mouth of the Russian River is closed between 25 and 70 days of Lagoon Management Period. This closed condition will continue to naturally occur, for shorter or longer durations depending upon year type, irrespective of the proposed project. Therefore, these conditions are currently experienced by the local surf community.
- As presented in the Draft EIR, implementation of the Estuary Management Project would increase the number of days of closed mouth conditions compared to the number currently experienced, on average. It should be noted that open Estuary conditions may continue to occur periodically during the Lagoon Management Period, depending upon outlet channel performance. However, as noted in the Draft EIR, the reduction in the occurrence of open channel conditions and resultant impact on the recreation resource associated with surfing is considered significant and unavoidable.

- G_Surf-5 Refer to **Master Response 2.6, Recreational Impacts, Socioeconomic Impacts, and Mitigation Requirements, in Chapter 2, Master Responses**, for a discussion of recreational impacts, consistency with the California Coastal Act, and mitigation considerations. The analysis provided in Draft EIR Section 4.7, Recreation, recognizes the California Coastal Commission has jurisdiction at the project site and would be responsible for making a consistency determination of the project with Coastal Act policies. It is anticipated that issuance of permits from the California Coastal Commission would be considered based on Commission review of competing beneficial resources, and contingent upon permit conditions, restrictions, and mitigation requirements.
- G_Surf-6 Refer to **Master Response 2.3 Project Feasibility, in Chapter 2, Master Responses** for a discussion of adaptive management as a process and as required by the Russian River Biological Opinion.
- G_Surf-7 Draft EIR Section 4.4, Biological Resources, discusses the potential short-term impacts associated with creation and maintenance of the lagoon outlet channel on protected marine mammal species in Impact 4.4.1.
- G_Surf-8 Draft EIR Section 4.7, Recreation, analyzes the potential elimination of availability of surfing wave conditions during the Lagoon Management Period and concludes that there would be a significant and unavoidable impact. With respect to the potential project effect on ocean water quality, the Draft EIR Section 4.2, Hydrology and Flooding, and Section 4.3, Water Quality, discuss potential short term effects to water quality, including sedimentation to the surf zone, associated with outlet channel creation. Draft EIR Section 4.3, Water Quality, focuses on water quality conditions within the Estuary associated with perched lagoon conditions within the Estuary. Ocean water quality conditions within the surf zone and near-shore environment are not anticipated to be adversely affected by implementation of the Estuary Management Project, as conditions are under the influence of dynamic near-shore processes. Russian River outflow is reduced by barrier beach formation periodically during summer months under existing conditions without demonstrable changes in ocean water quality. It should be noted that Goat Rock State Beach is on the County's list of ocean beaches for bacteria sampling for protection of public health. Results posted since 2005 did not show any exceedances (Sonoma County Environmental Health Division, 2011).
- As discussed in Draft EIR Chapter 3.0, Project Background and Environmental Setting, the Water Agency monitors water quality in multiple locations within the Estuary (refer to Draft EIR Chapter 3, Project Background and Environmental Setting, and Section 4.3, Water Quality, for information regarding water quality monitoring), including a station at the mouth of the

Russian River. Trends in water quality at the mouth of the river would inform adaptive management actions during the lagoon management period.

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February 12, 2011

To: Sonoma County Water Agency
Attn: Jessica Martini-Lamb
404 Aviation Blvd., Santa Rosa, CA, 95403

From: Jane Nielson, Sebastopol Water Information Group (SWiG)

Subject: SWiG Comments on SCWA Russian River Estuary Management Project Draft Environmental Impact Report

The Sebastopol Water Information Group (SWiG) is an alliance of west County well owners and Sebastopol residents, providing Sonoma County citizens with accurate scientific information on water supplies and water quality. Knowing that human life support depends on the preservation of functioning river systems and wetlands, SWiG supports policies that protect the rivers and riparian areas that are critical life support for native species.

SWiG members are concerned about the rapid decline of anadromous fish populations in the Russian River system, and would support effective measures for reversing the decline. We understand that the Estuary Project is one of the projects proposed in NMFS' 2008 Biological Opinion for lessening destructive impacts from the Sonoma County Water Agency's Russian River system operations.

The Estuary Management project is proposed to provide a nurturing environment for young steelhead. But developing the required freshwater conditions depends on how the river functions throughout its lower reaches, on the effects of myriad regulated and unregulated land uses, and on the effects of other projects, especially the potential for addition of water from Lake Sonoma through Dry Creek, and the "Fish Flow Project" that would lower flows from Lake Mendocino, as proposed in the 2008 Biological Opinion.

A major concern is the separation of the Estuary Management project from the "Fish Flow" and Dry Creek Restoration projects in writing this environmental document. Writing a separate DEIR for each project, as though they would not affect each other is unrealistic. Rivers are very complex systems, which continuously adjust to water inputs and withdrawals, sediment loads, and sediment withdrawals. Intensive land uses from urbanization, forest removal, gravel mining, and agricultural practices in the Russian River have severely impacted the lower reaches. Many of these impacts continue to expand.

G_SWIG-1

Sediment, released by all these human activities, has filled in the lower river's formerly deep gravel-based pools with finer sediment, eliminating most of the sites where steelhead and coho salmon hatchlings once were nurtured during low summertime river flows. The Estuary Management project is proposed as an attempt to re-create a reliable nursery for young fish. The question is, will this work as intended?

G_SWIG-2

To evaluate the Estuary Management project's potential for nurturing steelhead requires evaluation of the impacts on the lower river from the change to lower summertime flows (under a changed Decision 1610) and changed flows from Dry Creek. All these changes will have to mesh well with changed Estuary Management to have the anticipated beneficial effects. Unfortunately, this DEIR evaluates only the Estuary Management project in isolation. This is a severe defect.

G_SWIG-3

To understand whether the Estuary Management project can function as hoped requires understanding how the Estuary will respond to closure and lower flows, over a wide range of weather and oceanic conditions. But there is only one extended (29-day) study of the closed Estuary (which did become nicely stratified as hoped) and only a few locations have been consistently sampled for water quality, and most data were collected only over the past decade. As a result, only sparse data are available for evaluating year to year water quality and other conditions in the lower Russian River as far upstream as Vacation Beach under current operating conditions. This means that predictions of water quality conditions under the proposed lower river flows (Fish Flow) and closed lagoon conditions are entirely speculative.

G_SWIG-4

The DEIR explains that “the Estuary Management Project proposes implementation of an Adaptive Management Plan that would, by definition, monitor and react to conditions that are observed in the Estuary during the course of its implementation,” and “it may not be possible to precisely predict the effects of the proposed Estuary Management Project to the degree typically provided for under CEQA ...Within this context, the Water Agency recognizes that the precise response of the Estuary cannot be predicted with certainty.”

G_SWIG-5

The DEIR writers then fall into the trap of assuming that project “conditions” “will remain within the range of those experienced within the Estuary over the past 15 years.” The DEIR thus bases its projections of how the closed Estuary will function on sparse data from the years 1996 to 2009, along with the performance of other coastal estuarine lagoons.¹ In a time of rapid climate warming, this outlook is unrealistically optimistic. Even without climate warming, the length of record keeping does not begin to reveal all the possible oceanic and riverine conditions that could arise over the life of the project.

This brings up the issue that the DEIR does not state what the life of the project is contemplated to be. If, in spite of Adaptive Management strategies, the project fails to support increased populations of anadromous fish, we can expect it to end when the fish are all gone. (We have to note that so far no US programs have succeeded at reversing anadromous fish population collapse). If monitoring programs show the project succeeding, is there a mechanism for extending it indefinitely in a financially sustainable format?

G_SWIG-6

To counteract its current tone of unrealistic optimism, the DEIR needs to explore a number of foreseeable “bad case” (if not “worst case”) scenarios. These include effects of climate change, such as:

- rising ocean levels, due to rapid climate warming, which are likely to narrow and eventually eliminate the barrier beach and over the long term may drown the estuary². Over the next decade, the advancing ocean could increase or lower the number of yearly natural estuary closures. Conditions that increase the number of closures would not materially change the DEIR analysis, but lowered numbers of closures would require rethinking the project. The DEIR should discuss appropriate responses to a string of years with no natural closures.

G_SWIG-7

- US Geological Survey climate change projections forecast the potential for decade-long droughts, which show up in the geologic record over the most recent 30,000 years. In spite of the recent 3-year drought (winter 2006 to winter 2009), the DEIR does not discuss the response to even a 2-year drought,

G_SWIG-8

¹ “It is anticipated that conditions would remain within the naturally occurring range of water quality parameters observed within the Estuary, based upon monitoring conducted by the Water Agency and others, and that conditions would be consistent with those observed in other estuary systems. Additionally, alterations in water quality are not anticipated to conflict with parameters established in the RWQCB Basin Plan to be protective of beneficial uses.”

² The geologic literature documents many drowned coastlines. One example of a non-glaciated drowned coast is the eastern United States’ offshore continental shelf.

yielding a span of years when reservoir levels might not sustain even the proposed lower Fish Flow water releases.
The DEIR should be amended to discuss the effects of elongated drought periods, and possible mitigations.

↑ G_SWIG-8
cont.

In addition, the Project’s water quality monitoring program is primarily aimed at examining the estuary conditions, and there is no mitigation proposed for the possibility that ground water wells will become increasingly saline over a 5-month closure. But the Fish Flows project is intended to lower river flows into the estuary, and well owners in the lower river and Estuary need at least a consistent monitoring program to track well salinity levels. Such a program needs to be added to the project and discussed in the DEIR.

↑ G_SWIG-9

The Fish Flows project also requires that SCWA monitor the river upstream from the Estuary, to gauge the total impacts of projects pursued for Biological Opinion compliance, including changes in beach widths and morphologies, and river water quality parameters. These monitoring programs must be designed to sample the same sites consistently, analyze for the same set of pollutants every year, and provide data sets and analyses for public review in a timely fashion.

↑ G_SWIG-10

Finally, SWiG does not agree that a reduced project is an Environmentally Superior Alternative. We believe that the Habitat Restoration Alternative should be revised to become the extension of the Estuary Management Project, thus creating a truly Environmentally Superior Alternative.

↑ G_SWIG-11

Focusing all efforts on the Russian River estuary makes sense only for the short term. If the aim is truly to re-establish fish populations, the Estuary Management Project fails by putting all the hatched fish eggs into one basket. Other deep pool sites, in Austin Creek, Freezeout Creek, and other tributaries, also need to be restored for rearing habitats. The Estuary Management Project should be only the first step toward a broader program of tributary restoration, in partnership with local landowners. And the next step is to address all the unpermitted withdrawals that tend to de-water Russian River tributaries, stranding fish hatchlings before they can ever reach the river mouth estuary.

↑ G_SWIG-12

Sincerely,

Jane Nielson

Jane Nielson, Ph.D. (Geologist)
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3727 Burnside Road
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cc:
Jessica Martini-Lamb, SCWA
Grant Davis, SCWA
Catherine Kuhlman, NCRWQCB

Sebastopol Water Information Group, Jane Nielson, February 12, 2011

- G_SWIG-1 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project and the Dry Creek Restoration Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. The Draft EIR provides analysis and disclosure of potential environmental impacts associated with the proposed project. Analysis of other issues within the Russian River watershed, including those listed by the commenter, is beyond the scope of analysis for this EIR. The Water Agency does not have decision-making authority over logging, gravel mining, vineyard conversion, or chemical pollutant discharge.
- G_SWIG-2 Please refer to **Master Response 2.4, Water Quality** for a discussion of sediment. Please refer to **Master Response 2.3, Project Feasibility**, in **Chapter 2, Master Responses**.
- G_SWIG-3 For a discussion of the relationship of the Estuary Management Project to the Fish Habitat Flows and Water Rights Project, refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**. The Draft EIR, Chapter 5.0, Cumulative Analysis, discloses to potential cumulative impacts of the Estuary Management Project in consideration with the Fish Habitat Flows and Water Rights Project.
- G_SWIG-4 Please refer to **Master Response 2.4, Water Quality**, in **Chapter 2, Master Responses**, and **Master Response 2.7, CEQA Statutes: Adequacy of EIR Analysis**, in **Chapter 2, Master Responses** for a discussion of availability of water quality data and analysis under CEQA.
- G_SWIG-5 Please refer to and **Master Response 2.7, CEQA Statutes: Adequacy of EIR Analysis**, in **Chapter 2, Master Responses**. Please refer to Chapter 5.0, Cumulative, subsection 5.2.3, Climate Change and Sea Level Rise, beginning on page 5-2, for a discussion of climate change, and potential for sea level rise to affect the implementation of the Estuary Management Plan.
- G_SWIG-6 Please refer to **Master Response 2.3, Project Feasibility**, in **Chapter 2, Master Responses**. The Russian River Biological Opinion requires implementation actions within specific timeframes and re-evaluation of the project over the period covered in the Biological Opinion, through 2023. Extension of the project would be reviewed as part of the adaptive management plan and regulatory process.
- G_SWIG-7 Please refer to Draft EIR Chapter 5.0, Cumulative Analysis, subsection 5.2.3, Climate Change and Sea Level Rise, for a discussion of climate change, and potential for sea level rise to affect the implementation of the Estuary

Management Project. It should be noted that implementation of the proposed project would not affect or alter the occurrence or timing of climate change or sea level rise; rather, this discussion reviews potential future scenarios, and their potential effect on the successful implementation of the Estuary Management Plan Project.

Please refer to **Master Response 2.3, Project Feasibility, in Chapter 2, Master Responses**, for a discussion related to the adaptive management strategy that is designed to allow the Water Agency to adjust management to respond to external factors that affect project implementation. Impact 5.2.4 (Draft EIR page 5-35) specifically addresses how climate change and sea level rise, could affect project implementation, including discussion regarding beach morphology, outlet channel morphology, seepage through the barrier beach, and property flooding. Within the context of adaptive management, the Water Agency and regulatory agencies will continue to review issues related to climate change.

- G_SWIG-8 For a discussion of the relationship of the Estuary Management Project to the river flows, please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, and **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**. Minimum flows in a dry year are 70-85 cfs at Hacienda Bridge, and 35 cfs in a critically dry year. These flows, which could occur under drought conditions, are considered in the range of flows that could potentially be experienced (Draft EIR, Section 3.3, page 3-3). The Estuary Management Project has been developed to adaptively manage the Estuary under any likely range of flow conditions following barrier beach formation under varying hydrologic year types and conditions. See response to comment G_SWIG-7, above, for a discussion of adaptive management to adjust management to respond to external factors that affect project implementation.
- G_SWIG-9 As discussed in Impact 4.3.4 in Draft EIR Section 4.3, Water Quality, the change in the barrier beach breaching operations during the Lagoon Management Period could change the duration and/or geographic extent of saline conditions in the Estuary. This could extend the period of time groundwater wells experience brackish water intrusion and is considered a significant and unavoidable impact.
- G_SWIG-10 The Water Agency will continue its current Estuary water quality monitoring program, and will modify that program to gather appropriate water quality information, in consultation with regulatory agencies, as needed. For a discussion related to water quality and subsequent monitoring requirements, refer to **Master Response 2.4, Water Quality, in Chapter 2, Master Responses**. The Water Agency will consult with the SWRCB and NCRWQCB to determine the parameters, water quality standards, and monitoring locations.
- G_SWIG-11 For a discussion of the selection, range, and evaluation of alternatives, refer to **Master Response 2.5, Alternatives Analysis, in Chapter 2 Master Responses**.

Final project approval will be made by the Water Agency Board of Supervisors based on full review of environmental considerations.

G_SWIG-12 Please refer to **Master Response 2.1, Relationship to Other Biological Opinion Elements**, in **Chapter 2, Master Responses**.



Redwood Empire Trout Unlimited
P.O. Box 3237
Santa Rosa, CA 95402-3237

February 14, 2011

Sonoma County Water Agency

Attn: Jessica Martini-Lamb, Principal Environmental Specialist
404 Aviation Boulevard
Santa Rosa, CA 95403

**RE: Draft Environmental Impact Report for the Russian River Estuary
Management Project (Estuary Project)**

This letter is to add further comments to our previous comment letter of June 17, 2010, which is also attached. This letter incorporates new comments based on information disclosed about the Estuary in this document and at hearings such as the one held in Jenner on January 18, 2011.

G_TU-1

We were very disappointed to learn on January 18 the actual nature of the 9 structures that reportedly “flood” in the Russian River Estuary. These structures have been used to justify artificial breaching which results in a TAKE of endangered Coho salmon and threatened Steelhead. The Redwood Empire Chapter of Trout Unlimited has been objecting to artificial breaching since the early 1990s as evidenced by articles in our Chapter’s newsletter from that time.

Imagine our reaction to learn after almost 20 years of protests that of these 9 structures, 7 ARE DOCKS and 1 IS A BOATHOUSE. Thousands of juvenile salmonids attempting to rear in the Russian River Estuary have been killed by the Sonoma County Water Agency by artificially breaching the estuary over the last 20 years. And it has been done for 7 DOCKS and 1 BOATHOUSE and the State Parks Visitors Center.

G_TU-2

The Sonoma County Water Agency stubbornly insists on continuing this program that is subsidizing by Sonoma County’s property taxpayers only to benefit 9 private property owners. At a time of fiscal crisis at the County of Sonoma this unusual subsidy is very troubling.

Sonoma County Water Agency

February 14, 2011

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We would have the following addition comments:

Juvenile Coho salmon, which have been raised in the Captive Coho Brood Stock Program, are being killed by artificial estuary breaching that can send them out to the ocean before they mature enough to survive. Recently 2,000 Coho juveniles from the brood stock program out migrated from Austin Creek into the Estuary. The estuary was breached by the SCWA and these Coho were presumably lost at great cost.

G_TU-2
cont.

This is another ecological and fiscal calamity that SCWA insists on perpetuating by artificially breaching the Russian River mouth with heavy equipment rather than waiting for it to occur naturally when conditions are right. This is normally shortly after the SCWA breaches the Estuary artificially.

G_TU-3

The DEIR is not adequate because it assumes the artificial breaching is the baseline condition and the "no project alternative". Logically, NO BREACHING should be the no project alternative. It would also be recognized as the environmentally preferred alternative in an adequate DEIR document, which in spite of its overwhelming length at 631 pages this document is not.

G_TU-4

We were glad to see the Estuary study area extended to Austin Creek but it has become clear that it should be extended to Monte Rio as the River backs up to this point creating continuous habitat for threatened and endangered salmonids from the mouth to Monte Rio. An Estuary Management Plan should be produced that extends to Monte Rio.

G_TU-5

The SCWA is violating the ESA by not implementing the Reasonably Prudent Alternative (RPA) specified by National Marine Fisheries under their jeopardy opinion. This means the Sonoma County Water Agency is in violation of the Endangered Species Act and is TAKING threatened and endangered salmonids when they artificially breach the estuary in any manner not prescribed by National Marine Fisheries.

G_TU-6

Our recommend Estuary Plan would include:

- 1) Elevate the 9 properties that "flood" immediately and end breaching.
- 2) Remove the jetty that has been identified in numerous comments as a major obstacle to natural estuary functioning.
- 3) Use rock materials from the jetty removal to build habitat structures in the estuary to benefit juvenile salmonids and reduce predation.
- 4) Develop an Estuary Management Plan that extends to Monte Rio and include restoration of high value back flooded habitat along the estuary shore particularly on new Open Space Lands.

G_TU-7

Sonoma County Water Agency

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Thank you for the opportunity to comment and we look forward to working with you to restore the Russian River's extremely important freshwater estuary habitat that will be home to thousands of rearing juvenile Steelhead and Coho Salmon as are other properly managed estuaries on the North Coast of California.

Sincerely,

REDWOOD EMPIRE CHAPTER

TROUT UNLIMITED

R. Brian Hines

Board of Directors

**Comment Letter G_TU
Attachment**



Redwood Empire Trout Unlimited
P.O. Box 3257
Santa Rosa, CA 95402-3257

June 17, 2010

Sonoma County Water Agency
Attn: Jessica Martini-Lamb, Principal Environmental Specialist
404 Aviation Boulevard
Santa Rosa, CA 95403

RE: Draft Environmental Impact Report for the Russian River Estuary Management Project (Estuary Project)

We are writing to you to express our support for the Sonoma County Water Agencies 2010 Estuary Project. If successful, the proposed project has the potential to increase estuarine habitat for ESA listed Coho salmon and Steelhead.

While conducting the project, Redwood Empire Trout Unlimited would like the Sonoma County Water Agency to take into consideration the following comments for various aspects of its Estuary Project.

- Extend the Upper Estuary monitoring to include the Austin Creek confluence to the Hwy 116 Bridge. Review of the SCWA's *Russian River Fish and Macro-Invertebrate Study, 2003-2005* illustrates that a large portion of the salmonid and steelhead sample distribution is found within the Upper Estuary/Cassini reach. Past in-stream habitat improvements of lower Austin Creek have created rearing and migration opportunities which the Estuary Adaptive Management Plan may enhance. Expanded and continual monitoring of this area is vital in verifying Salmomid and Steelhead within this reach.
- Re-prioritize the removal of the jetty located at the mouth of the estuary. Use the rock and other appropriate demolition debris to create additional habitat structures within the Estuary.
- Restore the Open Space District properties in the Middle Reach/Bridgehaven area and similar low lying areas to create flooded/backchannel habitat. Monitor and consider additional adaptive management options to promote sustainable Benthic and Macro invertebrate habitat consistent with periodic inundated estuarine habitat.

G_TU-8

G_TU-9

G_TU-10

**Comment Letter G_TU
Attachment**

- Re-prioritize the elevation, re-location or removal of the private properties located in Jenner between the 8'-8.5' flood levels. If the adaptive management plan results are found to be positive while maintaining a proposed 7' flood level; consideration should be given to maintaining a higher estuarine water level to increase and sustain suitable estuary rearing habitat. Proposed water flow decrease from upriver could have the potential to increase estuary water temperatures. Additional water depth may be needed to ensure that water temperatures remain below potential lethal levels. The end goal of the plan should be to cease mouth breaching operations entirely which we consider to be TAKE under the ESA. G_TU-11
- Re-introduce historic native estuary vegetation to the lower reach to further support and provide salmonid rearing and Benthic and Macro invertebrate habitat. G_TU-12
- We would also be interested in seeing an accounting of the cost to breach the estuary as it seems to be an unusual subsidy in these lean Sonoma County budget times. The subsidy benefits only a few property owners that have chosen to build in the recognized flood plain. Funding is available for the elevation of structures on the Russian River as has been done in many locations upstream. The Redwood Empire Chapter of Trout Unlimited has been advocating the elevation of these structures since at least 1992. G_TU-13

We appreciate the opportunity to present to you our thoughts regarding the Draft Environmental Impact Report for the Russian River Estuary Management Project. Feel free to contact us if you have any questions or would like to discuss these items in depth.

Sincerely,
REDWOOD EMPIRE CHAPTER
TROUT UNLIMITED

Rick Baker, Past-President
Board of Directors

Redwood Empire Trout Unlimited, Brian Hines, February 14, 2011

- G_TU-1 The previously submitted scoping letter, re-submitted as an attachment, is incorporated into the record. Comments were considered in the Draft EIR. Individual responses to Attachment 1 are provided in Responses G_TU-8 through G_TU-13.
- G_TU-2 Please refer to **Master Response 2.3, Project Feasibility**, for a discussion of the Estuary Management Project objectives to modify current management practices to enhance rearing habitat for juvenile salmonids within the Estuary. Draft EIR Chapter 5.0, Cumulative Analysis, discusses the Estuary Management Project relative to the Coho Broodstock Program.
- G_TU-3 Draft EIR Chapter 2.0, Project Description, Section 2.2, includes a discussion of current Estuary management activities.
- G_TU-4 Refer to **Master Response 2.7, CEQA Statutes: Adequacy of EIR Analysis**, in **Chapter 2, Master Responses** for a discussion related to CEQA requirements regarding definition of baseline conditions. Refer to **Master Response 2.5, Alternatives Analysis**, in **Chapter 2, Master Responses**, and Section 6.3.1 in Draft EIR Chapter 6.0, Alternatives Analysis, for additional information on alternatives selection.
- G_TU-5 For a discussion of the geographic extent of the project area analyzed under the Estuary Management Project please refer to **Master Response 2.2, Project Description, Impact Areas, and Scope of Analysis**, in **Chapter 2, Master Responses**.
- G_TU-6 The Water Agency is not violating the Endangered Species Act; the Estuary Management Project is responding to specific directives in the Russian River Biological Opinion to avoid jeopardizing listed steelhead and coho salmon and their critical habitat. The Estuary Management Project is consistent with requirements by the Biological Opinion and with the Incidental Take Statement provided in the Biological Opinion for estuary management activities. Please refer to **Master Response 2.3, Project Feasibility**, in **Chapter 2, Master Responses**, for a discussion of the Estuary Management Project objectives relative to the Biological Opinion's requirements.
- G_TU-7 Refer to **Master Response 2.5, Alternatives Analysis**, in **Chapter 2, Master Responses**, in **Chapter 2, Master Responses**, for a discussion of the alternatives screening and selection process, reasonable range of alternatives and environmental analysis.

- G_TU-8 Pursuant to scoping comments received on the Notice of Preparation for the Estuary Management Project, the geographic scope of analysis was expanded to include areas upstream of Austin Creek, as discussed in the Draft EIR project Description, and in **Master Response 2.2, Project Description and Impact Analysis**, in **Chapter 2, Master Responses**. The Water Agency will continue its current Estuary water quality monitoring program, and will modify that program to gather appropriate water quality information required under the Russian River Biological Opinion, in consultation with regulatory agencies, as appropriate. For a discussion related to water quality and subsequent monitoring requirements, refer to **Master Response 2.4, Water Quality**, in **Chapter 2, Master Responses**.
- G_TU-9 The study of jetty modification is included as an alternative to the Estuary Management Project in Draft EIR Chapter 6.0, Alternatives Analysis. For a discussion of the selection, range, and evaluation of alternatives, refer to **Master Response 2.5, Alternatives Analysis**, in **Chapter 2 Master Responses**.
- G_TU-10 A Habitat Restoration Alternative is included as an alternative to the Estuary Management Project in Draft EIR Chapter 6.0, Alternatives Analysis. For a discussion of the selection, range, and evaluation of alternatives, refer to **Master Response 2.5, Alternatives Analysis**, in **Chapter 2 Master Responses**. Final project approval will be made by the Water Agency Board of Supervisors based on full review of environmental considerations.
- G_TU-11 An Alternative Flood Control Alternative is included as an alternative to the Estuary Management Project in Draft EIR Chapter 6.0, Alternatives Analysis. For a discussion of the selection, range, and evaluation of alternatives, refer to **Master Response 2.5, Alternatives Analysis**, in **Chapter 2 Master Responses**. Final project approval will be made by the Water Agency Board of Supervisors based on full review of environmental considerations. The Biological Opinion analyzed the impacts of the Water Agency's water supply, flood channel maintenance, and Estuary management activities on listed salmonid species, and the incidental take statement in the Biological Opinion covers all such activities. The specific project objectives of the Estuary Management Project are established in Draft EIR Chapter 1.0, Introduction, and include providing enhanced rearing habitat for juvenile salmonids within the Russian River Estuary and while minimizing flood hazard.
- G_TU-12 A Habitat Restoration Alternative is included as an alternative to the Estuary Management Project in Draft EIR Chapter 6.0, Alternatives Analysis.
- G_TU-13 CEQA does not require a cost benefit analysis of existing conditions.