
North Coast Regional Water Quality Control Board

**CAL EMA Spill Notification #13-2165
and Complaint Inspection Report
Steven Kistler Property
Kistler Vineyards
Sonoma County
WDID No. 1B13125CNSO**

Date: May 22, 2013

To: Laura Drabandt – Staff Counsel 1, Office of Enforcement
Diana Henriouille - Enforcement Coordinator
David Leland - Watershed Protection Division Chief

From: Stormer Feiler, Environmental Scientist

Subject: April 11, 15, 18, and 29, 2013 Inspection and follow up of Salmon
Creek incident

Landowner: Steven Kistler
Physical Site: 14701 Bodega Hwy, Valley Ford
APN: 026-120-006

Mailing Address: Steven Kistler
4707 Vine Hill Road, Sebastopol, 95472

Phone: (707) 322-1328

Watershed: Salmon Creek

Violations: Basin Plan Prohibitions, and Objectives, federal Clean Water Act
section 301, Porter Cologne Water Quality Control Act section 13260,
13264, and 13376

Inspection Attendance

April 11, 2013

Stormer Feiler- North Coast Regional Water Quality Control Board (NCRWQCB)
Steven Kistler- Landowner

April 15, 2013

Stormer Feiler- (NCRWQCB)
Nicholas Call- National Oceanic Atmospheric Administration (NOAA) National Marine
Fisheries Service (NMFS) Special Agent

April 18, 2013

Stormer Feiler- (NCRWQCB)
Nicholas Call- Special Agent NOAA NMFS
Ruben Molinar-Vineyard Manager

April 29, 2013

Stormer Feiler-(NCRWQCB)
Angie Montalvo- California Department of Fish and Wildlife (DFW)
Ryan Watanabe- DFW
Mathew Erickson- DFW

Introduction

I participated in the inspections described within this report in response to a California Emergency Management Agency Spill Notification (#13-2165) and citizen complaints received on April 10, 2013. The spill notification and citizen complaints reported the discharge of a milky liquid into Salmon Creek, near the town of Bodega, apparently originating from the tributary stream entering Salmon Creek adjacent to Watson School located at 14550 Bodega Highway in Sonoma County. Representatives from several agencies participated in the investigation; some of the information cited in this report was a result of the investigations and analysis conducted by these agencies.

Background Complaint Information

On April 10, 2013, the North Coast Regional Water Quality Control Board received a CAL EMA spill notification at 1126 hours reporting an unknown white substance in Salmon Creek. The anonymous Reporting Party believed the substance to be from one of the dairies upstream from the site of observation. I referred the complaint to DFW wardens and tracked their progress over the course of the day in responding to and identifying the source of the substance. DFW warden Tiffany Stinson and Gina Peterson with Sonoma County Fire investigated the complaint. On April 11, 2013, Tiffany Stinson reported that they had discovered the source of the discharge and that it was a pond apparently being pumped out into the tributary stream that flows adjacent to Watson School. The source property was identified as 14701 Bodega Highway, owned by Mr. Steven Kistler. Ms. Stinson and Ms. Peterson encountered the pond at around 1800 hours on April 10; at that time, the pond was not being drained. Photographs taken by Ms. Stinson at that time show the pond almost completely empty.

On April 10, 2013, at approximately 1130 hours I received a call from Michael Fawcett, a consultant in the Salmon Creek watershed with 30 years of environmental experience. Mr.

Fawcett reported that he observed very high turbidity in Salmon Creek. I asked Mr. Fawcett if he could take samples, keep them cold and deliver them to me as soon as possible. Mr. Fawcett took grab samples from Salmon Creek above the confluence of the tributary by Watson School discharge point, from the tributary stream adjacent to Watson School, and from Salmon Creek approximately 100 feet below the confluence with the tributary stream. Mr. Fawcett delivered these samples to me on April 10, 2013, at 1450 hours. The samples were cold to the touch when I received them. I filled out a chain of custody form, packaged the samples in ice, and submitted the package containing the three samples to Federal Express at 1552 hours for overnight delivery to Cel Analytical. I specified that the lab should run the samples for Biochemical Oxygen Demand (BOD), pH, Total Suspended Solids (TSS), and Turbidity. On April 11, 2013, I called Mr. Fawcett and asked if he would be willing to testify as to his experience, observations, and the samples he collected on April 10, 2013; Mr. Fawcett indicated that he would be willing to make such testimony.

On April 10, 2013, I also received a call from Sierra Cantor, an ecologist working for the Gold Ridge Resource Conservation District (GRRCD) in the Salmon Creek watershed. Ms. Cantor reported high turbidity, informed me that GRRCD had a datasonde and they had gone out and measured the turbidity, pH, and several other parameters. I requested that she email me her results and, if she sampled again, to submit those results to me as well. I received emails from GRRCD with results on April 11, 12, and 15, 2013. Table 2 in this report displays those results.

On April 11, 2013, at 0945 hours, I contacted Mr. Steven Kistler, the owner of the property where Ms. Stinson and Ms. Peterson observed the pond believed to be the source of the milky liquid observed and reported in Salmon Creek and the Watson School tributary. I requested and obtained Mr. Kistler's consent to inspect the property, and scheduled an inspection for 1245 hours on April 11, 2013. Mr. Kistler and I agreed to meet at the barn at 14701 Bodega Hwy at 1245 hours. I discuss this inspection and the sampling conducted under the Inspection observations heading in this report.

On April 12, 2013, I received an email from Andrew Parsons with the Sonoma County Fire Department, which included a forwarded email from Emmet O'Grady, an employee of Bodega Bay Public Utility District (PUD). Mr. O'Grady stated that the PUD had shut down its intake on Salmon Creek on April 10, 2013, as a precaution, and had observed no visible impairment on April 11, 2013. Mr. O'Grady's email included photographs taken of Salmon Creek on April 12, 2013, showing highly turbid conditions.

On April 15, 2013, I received an email from Mr. O'Grady, which included photographs of Salmon Creek taken on April 15, 2013; water appeared less turbid than it had appeared in the pictures taken April 12.

During this time, we received additional public complaints reporting the turbid conditions described above.

Watershed and Beneficial Use Information

The affected portion of the Salmon Creek watershed is located within the Cal Water watersheds 1115.100001, 1115.100002, 1115.100003, and 1115.100004 (Cal water version 2.2) or the Salmon Creek Hydrologic Unit Code (HUC) 12 watershed 180101090201. Salmon Creek is a coastal tributary watershed with an approximately 35

square mile drainage area located within the Central California Coast Evolutionarily Significant Unit (ESU) designated by the National Oceanic and Atmospheric and National Marine Fisheries Service. In 2005, the Coho salmon within this ESU were listed as threatened in accordance with Section 9 of the US Endangered Species Act (US ESA). The watershed is known to support anadromous salmonid species such as Coho salmon, and steelhead trout. In 2008, the California Department of Fish and Wildlife targeted Salmon Creek for adult Coho salmon re-introductions to develop a spawning population and restore the fishery.

In addition to fish species, the Salmon Creek watershed supports the California Freshwater Shrimp, which is listed as an Endangered species under both the California Endangered Species Act and US Endangered Species Act. In addition to these endangered species, the Salmon Creek watershed supports numerous existing and potential designated beneficial uses of water, which the North Coast Regional Water Quality Control Board is required to protect, restore and enhance. These beneficial uses include Municipal, Agriculture, Industrial Process and Service Supply, Groundwater Recharge, Navigation, Water Contact and Non Water Contact Recreation, Commercial and Sport Fishing, Cold Water, Wildlife, Rare and Endangered Species, Spawning and Rearing Habitat, Shellfish, Estuarine, and Aquaculture.

The Salmon Creek watershed is geologically dominated by highly erodible soils commonly referred to as the Goldridge Series¹, which is a very deep to moderately deep fine sandy loam formed in weathered weakly consolidated sandstone found at slopes ranging from 5-45%. The Goldridge series soils are known for their erodible nature, and the production of Pinot grapes within the Russian River and coastal Sonoma County watersheds. The pond on the Kistler Property was constructed in Goldridge soils. The erodible nature of these soils in the pond, and in stream reaches downstream of the pond was noted during the inspections.

Inspection Observations

April 11, 2013 Inspection

Prior to meeting with Mr. Kistler, I drove to the town of Bodega and viewed Salmon Creek from the Salmon Creek Bridge on Bodega Highway. The water was highly turbid and off color, exhibiting a brownish cast with a milky tinge to the water. I could not see fish in the stream, nor was I able to see bottom deposits of sediment or woody debris. The entire visual realm of flow was diminished by turbid water to only surface observations. Water flow in Salmon Creek was slow and constant under the bridge. I looked for surfacing fish off both sides of the bridge and did not see any present. After viewing Salmon Creek from the Bodega Highway bridge, I drove to the store in Bodega and purchased ice for my sample ice chest.

¹ https://soilseries.sc.egov.usda.gov/OSD_Docs/G/GOLDRIDGE.html

At 1245 hours, I met with Mr. Steven Kistler at the driveway leading to 14701 Bodega Hwy, as arranged. Following introductions, I followed Mr. Kistler in my car uphill to the pond believed to be the source of the turbid stream flows, based on the investigation by Ms. Stinson and Ms. Peterson on April 10. I observed both a large pond and a small pond. The smaller pond drains into a spillway that discharges to the tributary stream that flows by Watson School. Upon arriving at the ponds, I interviewed Mr. Kistler and obtained his permission to collect samples from both the large pond and the smaller pond. Based on my observations, it appears that the primary source of turbid water seen in the watercourses below was the large pond, which Mr. Kistler advised me had been pumped out into the smaller pond, where water had then flowed out the spillway culvert and entered the unnamed tributary, which enters Salmon Creek adjacent to Watson School on Bodega Highway.

During the interview, Mr. Kistler provided the following information:

After obtaining permission from Mr. Kistler to sample the ponds, I inquired as to when the pond had been constructed and why the pond was being drained. Mr. Kistler stated the large pond was built last season in the late summer of 2012, and with winter rainfall, the pond reached the water level visible as a bathtub ring around the pond free of erosion and vegetative growth. Mr. Kistler said that he needed to drain the pond because he had not finished pond construction; outstanding work included installation of a concrete spillway and additional compaction of side slopes to limit erosion. Mr. Kistler stated that he had directed his vineyard foreman, Ruben Molinar, to pump out the pond into the lower pond, and he stated that he was accepting full responsibility for the discharge to Salmon Creek that occurred due to the draining of the pond.

Mr. Kistler stated they began pumping out the pond on Tuesday, April 9, 2013, in the afternoon, and stopped on Wednesday April 10, 2013 about mid-day. Mr. Kistler stated that the lower pond, which he characterized as an existing stock pond, had been pretty much empty when they started pumping. Mr. Kistler stated that his plan had been to pump off part of the water into the smaller pond and to leave the bottom water to pump out into the fields. Mr. Kistler stated that he knew that water in the smaller pond was overtopping or about to overtop when he left the site on April 9, 2013.

Mr. Kistler stated that he directed his foreman to rent a pump to drain the pond. Mr. Kistler thought the pump could pump about 500 gallons per minute, but was not sure, and referred to Ruben Molinar, his vineyard foreman as the person who rented the pump. Mr. Kistler stated that they started pumping off the surface water of the pond by floating the pipe out on the pond surface.

Following this discussion, I walked down to the small pond and then downslope further to the unnamed creek and took photographs of the creek and small pond. I observed evidence that flows in the small creek had recently appeared to be running at a peak flow level, as was apparent from the observable flow line, which corresponded to the high water mark on the creeks banks. Water was still flowing in the stream, but flows were minimal and were visible as slightly turbid water in the stream channel. I observed many sediment deposits in the stream, some of which appeared to be more recent than others. The sediments in the stream channel were all very fine grained, and similar to what I observed on the stream bank and what was visible on the edges of the large pond.

After walking back up to the small pond, I collected samples from the smaller pond and then from the larger pond. I used 750 ml glass sample bottles, and I triple-rinsed each container prior to collecting a sample. I then sealed the sample bottles and labeled them with the sample number, date, time, and collection location, and placed the bottles on ice. While sampling the larger pond, I noted a very thick layer of mud on the bottom, and I observed that it was very easy to suspend the pond sediments in the water column. I waded into the pond carefully to collect samples, in order to avoid disturbing the water where I was sampling due to these conditions. While trying to get back out of the large pond, I noted that there was an approximately 6 inch layer of very fine sediments stored on the bottom of the pond, as my feet in when wading out, and that these materials were hard to get back out of. Visibility into the water of both the large and small ponds was extremely low due to suspended fine material; I was only able to make surface observations. In terms of water clarity, I could not see the bottom of either pond even along the shoreline. This observation was consistent with the conditions I observed in Salmon Creek earlier during the day.

Mr. Kistler advised me that he still needed to empty the pond in order to complete pond construction. I stated he would likely need a permit from the Regional Water Board for the discharge, and might also need permits from California Department of Fish and Wildlife. I provided Mr. Kistler my business card, and requested that he not pump out the remaining turbid water until consulting with various agencies. I asked Mr. Kistler if he thought the water would evaporate and allow him to complete the work he needed to do. Mr. Kistler did not think the pond would dry out fast enough, and stated he wanted to get the work done as soon as he could. I informed Mr. Kistler that the discharge of turbid water appeared to be a violation of the Porter Cologne Water Quality Control Act and federal Clean Water Act. I also informed him that I expected an investigation to occur that would include many agencies with different respective authorities related to the discharge and impacts to Salmon Creek.

Following the interview and review of the ponds and outlet stream, I left Mr. Kistler's property and drove to Watson School located on Bodega Highway downstream of the ponds on Mr. Kistler's property. The unnamed tributary below the small pond on the Kistler Property flows into Salmon Creek adjacent to and on the south side of the Watson School historical building located on Bodega Highway. I walked down to Salmon Creek by crossing the fence at the Watson School and proceeded to take photographs and collect samples from the unnamed tributary and from Salmon Creek, both upstream and downstream of the confluence with the tributary stream. I then drove to the Salmon Creek Road bridge in the town of Bodega and collected a sample from Salmon Creek under the bridge. I put the samples in an ice chest packed with ice immediately after collection. I shipped the 6 samples to Cel Analytical on the same day upon my return to the office.

While sampling Salmon Creek adjacent to Watson School, I observed that in Salmon Creek upstream of the discharge point there were numerous Steelhead young of the year. I was unable to see into the water in the unnamed tributary or in Salmon Creek below the confluence with the unnamed tributary due to the highly turbid conditions. When sampling Salmon Creek under the Salmon Creek Road bridge, I was again unable to see into the water due to highly turbid conditions. The distance between the Watson School and the bridge over Salmon Creek on Salmon Creek Road is approximately 2.2 miles.

Results of grab samples collected on April 11, 2013, and received from the public on April 10, 2013 are displayed in Table 2 of this report.

April 15, 2013 Inspection

On April 15, 2013, I followed up on the April 11, 2013 inspection by returning to Watson School and photographing the unnamed tributary discharge point and Salmon Creek upstream and downstream of the discharge point, and at the bridge on Salmon Creek Road in the town of Bodega.

I observed that water clarity had improved overall since my April 11 inspection, but that the water in the unnamed tributary stream remained visually turbid in comparison with the water in Salmon Creek, both up and downstream of the confluence with the unnamed tributary. During this inspection, I observed, photographed, and filmed a small steelhead trout in the unnamed tributary below the Bodega Highway culvert crossing, in a large pool. The trout appeared to be behaving erratically; the fish was holding in the middle of the pool away from available cover and would erratically move from one direction to another in short bursts of swimming, occasionally rising to leaf litter floating on the surface of the pool. I observed this fish for approximately 3-5 minutes, until the fish moved out farther into the turbid water, and I was no longer able to see the small trout. I observed that this pool in the unnamed tributary had accumulated a 3-inch layer of fine sediment deposition on the bottom around the edge of the pool; where the water had receded, the sediment deposits were visible. Photographs are in the inspection photographs section of this report. The effects of turbidity on aquatic life are discussed in the "Sample Results" section of this report.

I also observed Salmon Creek under the Salmon Creek Road bridge and noted the water clarity was similar to that I had observed upstream at the Watson School location.

On April 15, 2013, after observing Salmon Creek at Watson School and downstream at the Salmon Creek Road bridge, I met with Emmet O'Grady of the Bodega Bay PUD and observed the location he had previously sent me photos of, which was the location of the PUD's intake adjacent to Salmon Creek that Emmet O'Grady had shut down on April 10, 2013 to avoid potential impacts. Mr. O'Grady and I also reviewed the estuary of Salmon Creek where it meets the Ocean. The estuary was visibly turbid under the Highway 1 bridge over Salmon Creek and as far as I could see upstream. The stream near the PUD intake was relatively clear in comparison to the water in the estuary.

April 18, 2013 Inspection Observations

On April 18 2013, I met with Nick Call of NOAA NMFS, and Ruben Molinar, Mr. Kistler's vineyard manager, at approximately 0800 hours at the barn at 14701 Bodega Highway. The inspection consisted of interviewing Mr. Molinar, then looking again at the ponds, and further discussing how Mr. Molinar had drained the large pond.

Ruben Molinar Interview

Mr. Molinar has worked for Mr. Kistler for 16-17 years as Vineyard Manager; his duties include maintenance, oversight of the work in the vineyards, and doing whatever Mr. Kistler wants done. The pond was built last year in June or July. Mr. Molinar stated that the work was taking too long and the contractors did not finish constructing the pond completely before winter. The pond construction was not Mr. Molinar's project, so he is not sure of the exact dates when the pond was constructed. At the end of the summer last year the pond

was empty. On Monday April 9, 2013, Mr. Kistler called and told Mr. Molinar that they needed to empty the pond. At this point in the interview, Mr. Molinar said he had been previously interviewed by DFW staff and referred to what he had already told DFW during the conversation. Mr. Molinar said that on Monday, Mr. Kistler said to empty the big pond into the small pond below.

Mr. Molinar first rented a small 2-inch pump, but it was too small, and was not draining the pond fast enough. He took the 2-inch pump back and rented the 6-inch pump from Cresco in Santa Rosa on Todd Road. Mr. Molinar said he wanted a pump that could pump 300 gallons per minute, but they did not have one so he rented the larger one. Mr. Molinar said Mr. Kistler has the receipt for the pump rental.

On Monday, Mr. Molinar said he started the 6-inch self-priming pump and started pumping out the large pond into the small pond. Mr. Molinar set the pump intake in a wooden grape box and floated it out into the pond to pump off the surface waters first. After about 2-4 hours of pumping, Mr. Kistler showed up and they started checking the water. Mr. Kistler checked the water when he showed up and said that it was good water and that Mr. Molinar should continue pumping. Mr. Molinar stated that they used a small cup to check the water (See image 21, and 22). Mr. Molinar said that Mr. Kistler told him that as long as the water did not have any sediment on the bottom of the cup, Mr. Molinar should to continue pumping out the pond. Mr. Molinar said that Mr. Kistler said: "I want it like this." Mr. Molinar showed us the cup, which was about a quarter full. The water was milky, but with no sediment on the bottom of the cup. Mr. Call and I asked if Mr. Molinar had any training in sediment handling or analysis. Mr. Molinar stated he has no training in sediment analysis or what is allowed. Mr. Molinar said that after Mr. Kistler checked the water they moved the pump intake into the intake pipe in the large pond, which I understand is intended for pumping off water from the pond. Mr. Molinar said the grape box did not work as well as using the intake designed for pumping from the pond. (Observation: The intake is constructed internally on the pond bottom and is a screened pipe approximately 10-12 inches in diameter with the intake about 2– 2.5 feet above the sediments on the bottom of the pond). Mr. Molinar said he ran the pump, and for the first 2 hours, no water was flowing out of the small pond, as it was not full when he started pumping. Once the small pond was full, the milky water began flowing out of the small pond.

Mr. Molinar reported that on the next day he came back and proceeded to pump out the rest of the large pond. When the water level got below the screened intake for the pond, he used the grape box again to float the pump intake out onto the large pond and take off the surface water. Mr. Molinar showed us the culvert outlet/spillway for the small pond, and identified it as the point where water flowed out on April 9 and 10.

Mr. Molinar said he stopped pumping when Mr. Kistler told him the water was not good to pump out anymore. When he finished pumping out the pond Mr. Kistler had him install hay bales in front of the small pond outlet pipe to keep the water from flowing out to the creek below. Mr. Kistler told him that they would pump out the rest of the water onto the fields around the pond. Mr. Molinar showed us the hay bales, which were visible as a plug in front of the small pond outflow pipe.

As mentioned, Mr. Molinar showed us the cup he had used to tell if the water was too muddy to pump out and there was still water in the cup. Mr. Molinar said the water in the

cup was from the last time he checked it and had decided it was too milky. Mr. Molinar said he stopped pumping about an hour or half hour before Mr. Kistler showed up. Upon questioning, Mr. Molinar estimated that he ran the pump for around 14-15 hours total. We photographed the cup, and Mr. Call took the water in a jar back to his office. We compared the cup with a sample from the lower pond during this inspection; we took photographs to document this comparison. The amount of water in the cup did not appear to be sufficient to send to a lab.

As the reader may note, Mr. Molinar's account contradicts itself as to when he stopped pumping. At one point during the interview, he indicated that he stopped pumping at Mr. Kistler's direction, while at another point he stated that he stopped of his own accord based on his observations of the milkiness of the water in the cup he and Mr. Kistler used as a sampling device, prior to Mr. Kistler returning to the scene..

Observations

The water in both ponds was still very turbid; water clarity remained poor as observed on April 11, 2013, and I was unable to see the bottom of either pond.

The unnamed tributary was visibly turbid in the pool below Bodega Highway, and in the reach of stream leading to Salmon Creek. Stream flows in the unnamed tributary appeared to be receding from a higher flow stage. Salmon Creek was visibly clear above the confluence with the unnamed tributary, and Salmon Creek downstream of the unnamed tributary was clearer in comparison to observations I had made on previous days.

I observed steelhead young of the year in Salmon Creek both upstream and downstream of the unnamed tributaries confluence.

I did not observe any sediment deposits in Salmon Creek that I could attribute to the water drained from the ponds on the Kistler Property.

April 29, 2013 Inspection

On April 29, 2013, I met Angie Montalvo, Ryan Watanabe, and Mathew Erickson, all staff of the California Department of Fish and Wildlife (DFW), at Watson School on Bodega Highway. Ms. Montalvo is a macro-invertebrate specialist, and attended the inspection to determine whether the sediment discharge had been significant enough to change the macro-invertebrate community through mortality. Mr. Watanabe is a fisheries biologist, and Mr. Erickson is an Environmental Scientist who attended to assess in-stream conditions and the presence or absence of fish.

During the course of the inspection, we observed multiple species of macro-invertebrates, steelhead trout, stickle back minnows and freshwater shrimp. Mr. Watanabe identified freshwater shrimp in Salmon Creek upstream of the unnamed tributary and in the pool below Bodega Highway in the unnamed tributary. Mr. Watanabe also observed fish in the unnamed tributary upstream of the Bodega Highway culvert, which he was unable to identify. It is likely the fish were resident steelhead trout. Prior to the inspection I had received consent to access the unnamed tributary from the landowner, Pamela Engleman, who also informed me that there used to be trout in the creek, and that her grandfather used to take her fishing for them.

During the course of the inspection, I did not observe any bottom deposits I could attribute to the water drained from the ponds on the Kistler property. Salmon Creek was clear and I could see the bottom clearly; the turbidity evident on previous inspections appeared to have cleared up, with Salmon Creek representing what I am considering ambient water quality conditions. I observed fish surfacing and feeding throughout the reaches of Salmon Creek that we visited.

Following the instream inspection, I drove to Cresco rentals near Todd Road at 245 Cresco Court, Santa Rosa and spoke with the sales person who provided me a printout showing the three 6 inch pumps they rent out and the specifications of each pump. According to CRESCO rentals Mr. Molinar rented the Wacker PT6LT on April 9, 2013. The Wacker PT6LT pump has a stated maximum flow capacity of 1,300 gallons per minute. The pumps types are as follows:

	Pump 1	Pump 2	Pump 3
Model	MQ MQ600TD80	Wacker PT6LT	49 HP 6 inch trash Pump
Max Flow	1,600 GPM	1,300GPM	1,300 GPM
Max Lift	25'	25'	
Max Head	150'	100'	

I have used the information provided for the Wacker PT6LT in this report to compare the discharge potential with the reported discharge volume in the Summary section of this report.

Site Overview and Sampling Locations

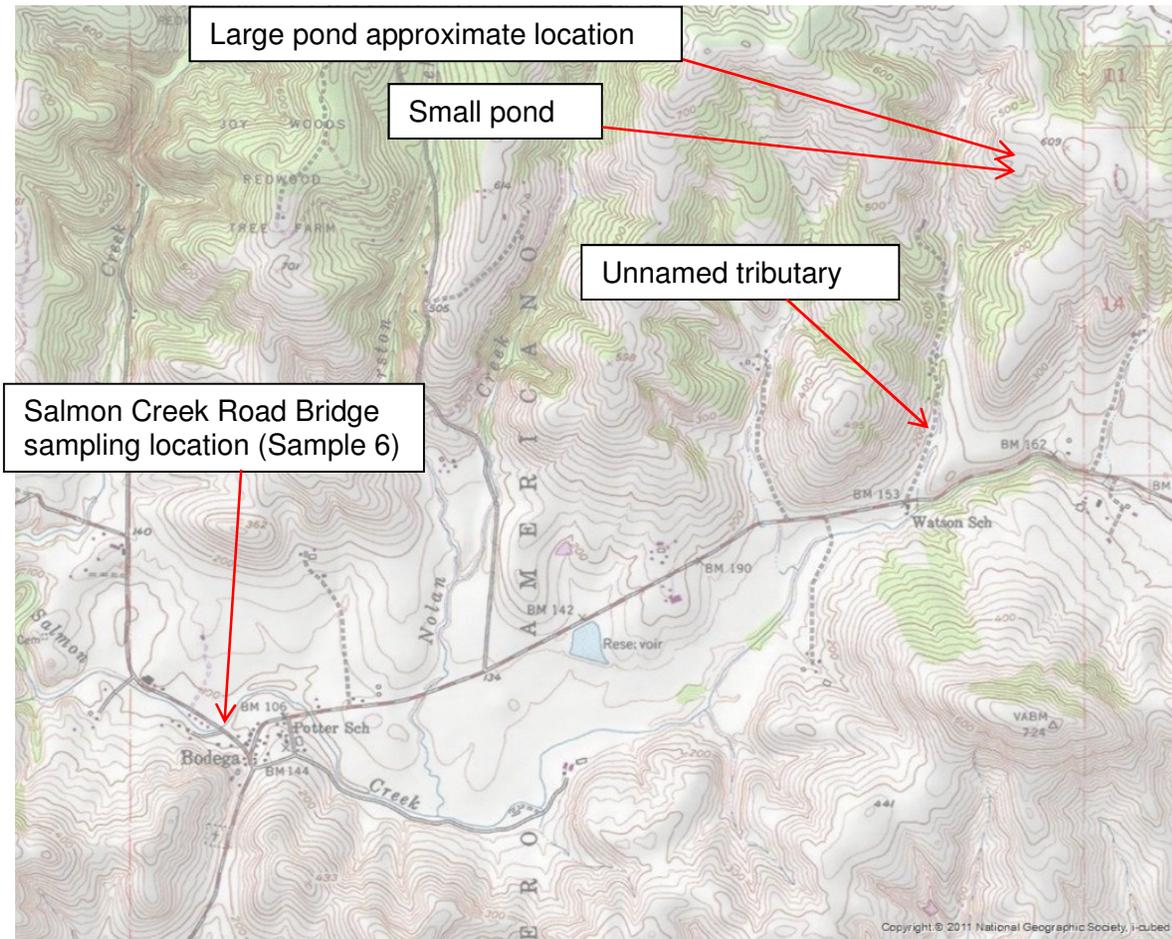


Image 1- Topographic map showing general locations for orientation.

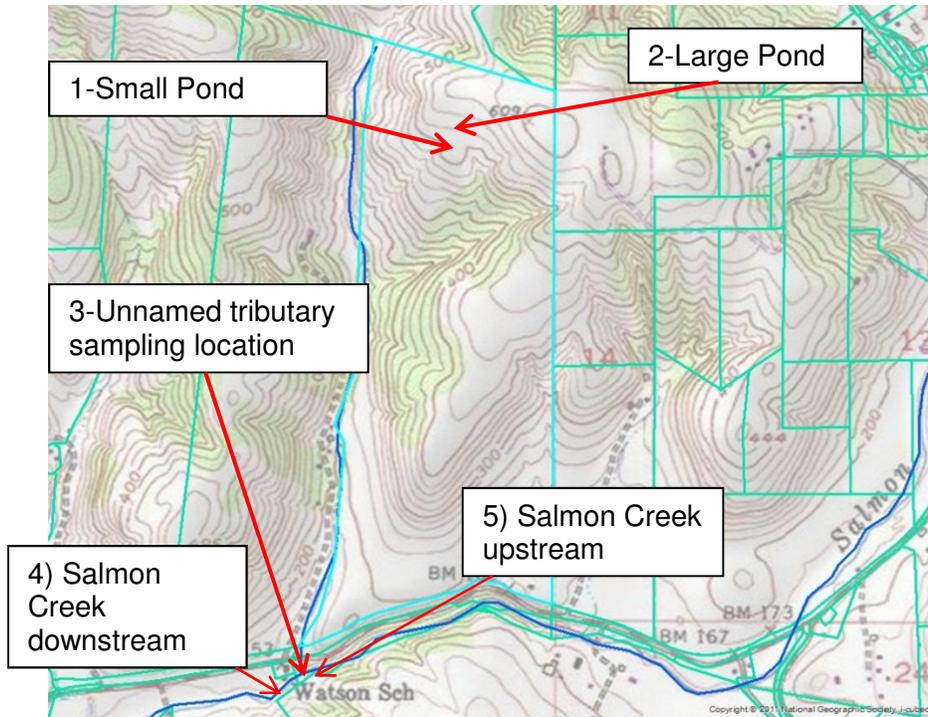


Image 2- Sonoma County APN 026-120-006, owned by Steve Kistler, highlighted in light blue above. Approximate sampling locations for samples taken on April 11, 2013, are identified by sample number and location.



Image 3- 2012 National Aerial Imagery Program air photo- the parcel in blue above is the Kistler parcel. The small pond is visible in the image, the large pond has not yet been constructed.

Inspection Photographs

I have arranged the photographs in this section by date of inspection. Note that the time update feature on my camera is turned off, so the times shown on each image is not the actual time that the photo was taken. Where I report times, such as those for the samples I collected, I used my cell phone to determine and document the correct time.

April 11, 2013 inspection photos

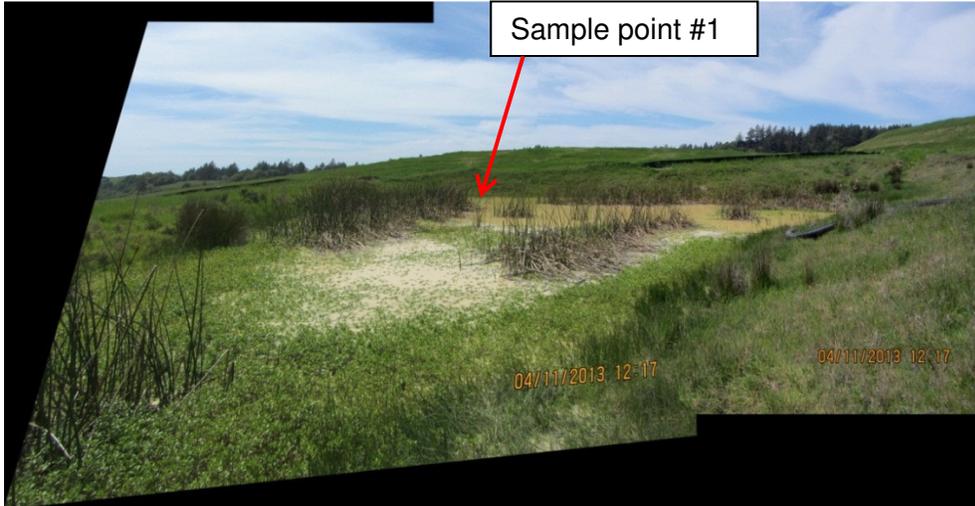


Image 5- Sampling point #1 small pond on the Kistler property



Image 6- Small pond spillway plugged with haybales



Image 7-, Stitched image of the large pond on the Kistler Property (Note the pond elevation prior to draining is visible as the pond bank without surface erosion or vegetation encroachment).



Image 8- Large pond- Sampling point #2 access and egress point shown by my footprints.



Image 9- Salmon Creek at the confluence with the unnamed tributary adjacent to Watson School



Image 10- Unnamed tributary stream adjacent to Watson School at the location where I collected Sample #3.



Image 11- Salmon Creek 90 feet downstream from unnamed tributary confluence with Salmon Creek, Sample location #4



Image 12- Salmon Creek upstream of unnamed tributary confluence, sample location #5

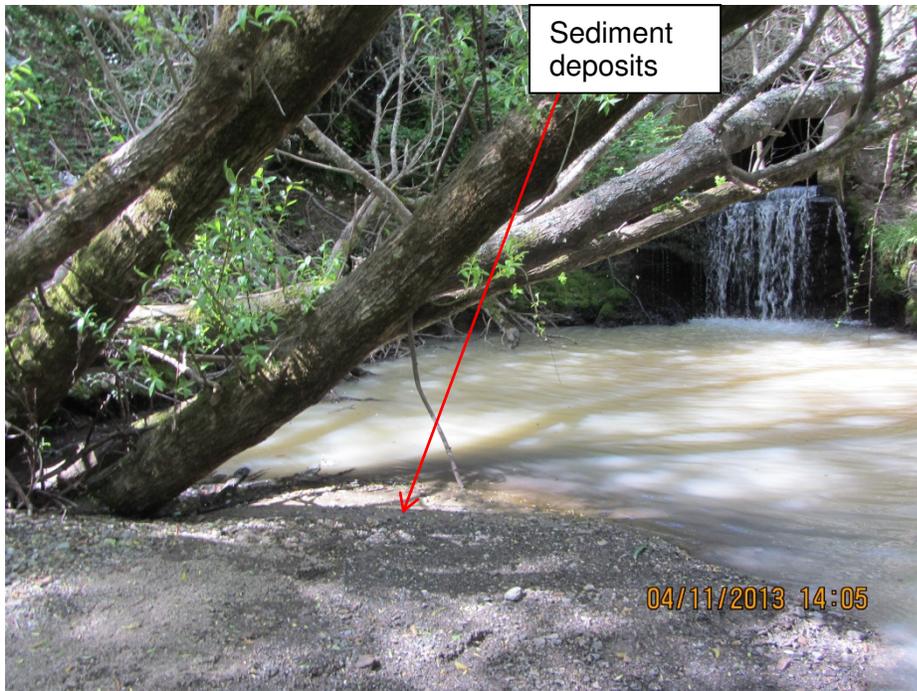


Image 13- Unnamed tributary to Salmon Creek below Bodega Hwy culvert crossing.



Image 14- Same location, a sediment deposit close up. At the time I took the photo, I observed that the water appeared to be receding from a higher flow level.



Image 15- Salmon Creek downstream of confluence with the unnamed tributary note the steelhead trout in the photo, and compare this photo with image 16.



Image 16- Salmon Creek upstream of the unnamed tributary

April 15, 2013 Inspection photos



Image 17- Unnamed tributary below Bodega Highway culvert crossing (note when compared with images 13 and 14 above, the water level appears to have receded further, and the water is still turbid as compared with background).



Image 18- Salmon Creek at Salmon Creek Road bridge- water in Salmon Creek has noticeably cleared up in comparison to the water shown in image 15.



Image 19- Salmon Creek at Bodega Bay PUD intake location. Attachment B includes photos provided by Emmet O'Grady showing this location was very turbid on April 12, 2013.



Image 20- Salmon Creek estuary at Highway 1 bridge, the turbid water is noticeable, and the duration may be tidally influenced in this location.

April 18, 2013 Photos



Image 21- Cup used by Mr. Molinar and Mr. Kistler to check the water to see if it was OK.



Image 22- Residual water in cup reportedly left after the last test collected by Mr. Molinar and Mr. Kistler on April 10, 2013.

April 29, 2013 Photos



Image 23- Wacker PT6LT 6 inch pump on Cresco lot.

Sample Results

In the following tables, Table 1 presents the Cel Analytical results for the samples provided by Mr. Michael Fawcett, and the samples that I collected on April 11, 2013, and Table 2 presents the sampling results provided by Gold Ridge Resource Conservation District. Jim Harrington of DFW evaluated the Cel Analytic sample results, and NOAA NMFS staff Dan Wilson and Rick Rogers evaluated the turbidity results provided by Gold Ridge RCD. My discussion below includes comments and conclusions provided by Mr. Harrington, Mr. Wilson, and Mr. Rogers, as well as my own evaluation and conclusions.

Table 1-Grab Sample Results

**Unnamed tributary to Salmon Creek

*Sample taken by Michael Fawcett and sent to Cel Analytical by Stormer Feiler

Sample #	Date	Location	BOD	TSS (mg/l)	Turbidity (ntu)	PH
*3213-01	4/10/13	Salmon Creek upstream	3	6	6.25	6.8
*3213-02	4/10/13	**Unnamed tributary	10	540	2140	7.04
*3213-03	4/10/13	Salmon Creek downstream	5	90	197	7.03
3223-01	4/11/13	Kistler small pond	ND	260	1,256	6.38
3223-02	4/11/13	Kistler large pond	ND	460	1,506	6.36
3223-03	4/11/13	Unnamed tributary	17	24	111	6.40
3223-04	4/11/13	Salmon Creek downstream	5	12	20.8	6.77
3223-05	4/11/13	Salmon Creek upstream	5	7	6.5	7.06
3223-06	4/11/13	Salmon Creek Rd. Bridge Salmon creek	ND	20	57.3	7.24

Samples taken on 4/11/2013 were taken and shipped by Stormer Feiler

Table 2-Gold Ridge Resource Conservation District data collection results

Date/time	Location	Temperature	Specific Conductivity	DO%	DO Mg/L	pH	Turbidity NTU
4/10/2013 12:10	Salmon Creek Upstream	13.58 C	261	113.4	11.74	8.13	4.96
4/10/2013 12:20	Watson School Unnamed tributary	12.72 C	78	103.7	10.98	7.48	>1000
4/10/2013 12:30	Salmon Creek Downstream	13.14	209	107.3	11.26	7.6	>1000
4/10/2013 12:12	Watson School Unnamed tributary	n/m	n/m	n/m	n/m	n/m	117
4/11/2013 12:30	Salmon Creek Bodega Hwy Bridge	13.21C	244	104	10.88	8.28	52.8
4/12/2013 12:00	Watson School Unnamed Tributary	n/m	n/m	n/m	n/m	n/m	32.6
4/12/2013 12:13	Salmon Creek Bodega Hwy	n/m	n/m	n/m	n/m	n/m	8.6

	Bridge						
4/12/2013 12:30	Estuary Bean Road Salmon Creek	n/m	n/m	n/m	n/m	n/m	7.84

California Department of Fish and Wildlife Findings

As mentioned above, DFW Staff Environmental Scientist, James Harrington, analyzed the BOD and turbidity results displayed in Table 1 in a Biological Significance report². Mr. Harrington’s analysis determined the following: 1) The BOD levels in the Table 1 samples 3213-02, 3223-02 are high enough to deplete dissolved oxygen, and 3213-03, 3223-04 and 3223-05 are of concern, and in his opinion the samples should be considered deleterious to aquatic life. 2) The turbidity levels of all samples, with the exception of 3213-01 and 3223-05, are in excess of 20% above background, and as such, exceed the 20% above background objective of the North Coast Regional Water Quality Control Board, Water Quality Control Plan for the North Coast Region (Basin Plan), and in his opinion the turbidity levels are not protective of aquatic life. 3) The suspended solid levels of samples 3223-01, 3223-02, and 3213-02 exceed the safe level of 100 mg/l set by the American Fisheries Society and, in his opinion, the suspended solid concentration of these samples should be considered deleterious to organisms living in waters of the State.

National Oceanic Atmospheric Administration National Marine Fisheries Service Findings

On April 11, 2013, NOAA NMFS staff reported seeing young of the year steelhead that were rearing in the turbid conditions exhibiting lethargic and disoriented behavior. NOAA NMFS staff analyzed the data provided by GRRCD, and along with consideration of observations made in Salmon Creek on April 11, 2013, developed a staff report³. Through modeling using the GRRCD monitoring data, NOAA NMFS staff estimate that up to 20% of the juvenile salmonid population within the reach of Salmon Creek affected by the discharge perished due to the highly turbid conditions caused by the draining of the Kistler pond. NOAA NMFS staff conclude that “the sediment discharge that occurred within the Salmon Creek watershed on April 9, 2013, severely degraded water quality and instream habitat conditions and likely harmed or killed juvenile steelhead and coho salmon residing within the affected tributary and the mainstem reaches. Affected fish were exposed to harmful turbidity levels for at least three days.”

North Coast Regional Water Board Findings

The Water Quality Control Plan for the North Coast Region (Basin Plan) defines beneficial uses, and establishes water quality standards (objectives and prohibitions) to ensure protection of these uses for all waters of the State and United States within the North Coast Region. Of particular interest in this case are the Basin Plan objectives related to turbidity, color, suspended material, sediment, and turbidity. These objectives are provided below for discussion purposes.

² James M. Harrington, Biological Significance, May 2013, California Department of Fish and Wildlife

³ Memorandum June 11, 2013 From Dan Wilson and Rick Rogers, Fishery Biologists, NOAA’s National Marine fisheries Service, Protected Resources Divison. Subject: Steelhead and Coho Presence in Salmon Creek and events associated with discharge of sediment on April 9, 2013

Color

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

Suspended Material

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

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

Turbidity

Turbidity shall not be increased more than 20% 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 waivers thereof.

Mr. Kistler does not have a discharge permit or waiver thereof providing him with an allowable zone of dilution for turbidity associated with any specific discharges of waste to Salmon Creek. In addition, the Basin Plan prohibits new point source discharges to coastal streams and natural drainageways that flow directly to the ocean (other than the Mad, Eel, and Russian, with some conditions), so such a discharge could not be permitted.

On April 11, 15, and 18, I observed conditions in surface waters in Salmon Creek that appeared to exceed the Basin Plan objectives for color, suspended material, sediment and turbidity. On April 18, these conditions only extended to the Kistler Ponds, and the unnamed tributary to Salmon Creek (See Image 1). Based upon observations, reports, and interviews, these conditions are a result of a point source discharge caused by the draining of the pond on the Kistler property into the smaller existing pond and then the unnamed tributary described herein that flows to Salmon Creek.

Analytical data for BOD, TSS, and turbidity confirm measurable adverse impacts to water quality. As stated above in NMFS and DFW findings, these values exceed what is supportive of beneficial uses, as determined through application of scientific research and modeling to the sampling results displayed in Table 1 and 2 above. In addition, these samples provide evidence demonstrating violations of Basin Plan water quality objectives described herein. The cumulative effect of the discharge is a combination of many factors and likely lead to a disruption and difficulties for salmonids in terms of feeding efficiency, respiration, predator avoidance strategies, and increased mortality through predation, potentially stranding, and increased physiological stress. The rapid rise and fall of Salmon Creek under these highly turbid conditions may also have led to an increase in stranding of salmonid juveniles and subsequently mortality as water levels dropped quickly.

The turbidity levels in the sample results 3213-02, 3213-03, 3223-01 3223-02, 3223-04, and 3223-06 are 20% higher than the background turbidity levels for those sampling days. The background turbidity level for those sampling days is expressed by samples 3213-01 and 3223-05. High turbidities can result in multiple effects to fish including but not limited to gill damage, loss of feeding efficiency, decreased ability to avoid predation, and disorientation.

I observed and filmed erratic and confused behavior on April 15, 2013, in a young of the year steelhead in the unnamed tributary to Salmon Creek that appeared to indicate disorientation and a loss of feeding efficiency as the small trout erratically moved around in a small area from direction to another. I also observed visibly turbid water in the Salmon Creek estuary on April 15. April 15 represents 6 days of potential elevated turbidity levels within reaches of the Salmon Creek watershed downstream of the discharge point on the Kistler property. To put this into perspective, a small trout or salmon when confronted with a sudden significant increase in ambient conditions may decide to run ahead (downstream movement) of the change in ambient conditions, run upstream to escape (move through the discharge), or hold in place (endure the event). If the fish were to run ahead of the change in conditions it may find a confluence to move up representing better conditions, or if confused enough the fish may stay to the forefront of the change in ambient conditions moving ahead of the event until conditions overtake the fish, as the whole stream becomes the affected area. If the fish were to run ahead of ambient conditions, in the circumstances described within this report, a fish would be potentially subjected to 6 days of disturbance in its normal feeding and behaviors. If a fish were to have held in place during the change in conditions, then the potential time frame is approximately 24-72 hours.

Discharge Analysis

Using information provided by Mr. Kistler and Mr. Molinar, as well as pump capacity information provided by Cresco for the Wacker pump reportedly rented by Mr. Molinar, I have calculated a range of values for the volume that may have been pumped from the pond on the Kistler property and that subsequently drained into the unnamed tributary. For reference, 1 acre-foot of water is 325,851⁴ gallons of water

Based on information provided by Mr. Kistler in email correspondence sent to Demetri Esquivel, a DFW Fish and Wildlife Officer (Attachment A), the volume of water in the large pond prior to draining was about 4 acre-feet of water. Using Mr. Kistler's estimate of the volume of water in the pond, and estimating that the pond retained about 6-10 inches of water following the draining event, I calculate the discharge volume as 3.75 X 325,851.429=**1,221,942.86 gallons of discharge**

An April 15, 2013 email that I received from Mr. Kistler (Attachment B) indicates that the pump used to drain the pond was a 6-inch 49 horsepower diesel water pump with a 1000 GPM capacity. However, as noted above, on April 29, Cresco provided me information indicating that Kistler Vineyards had rented the Wacker PT6LT pump, which pumps up to 1300 gallons per minute.

During our April 18, 2013 interview, Mr. Molinar estimated that he had run the pump about 14-15 hours. Assuming this is the case, the potential maximum volume of water pumped

⁴ <http://en.wikipedia.org/wiki/Acre-foot>

using the Wacker PT6LT pump would range from (1300 gpm X 60 minutes per hour X 14 hours=) **1,092,000 gallons** to (1300 X 60 X 15=) **1,170,000 gallons**.

As Mr. Molinar indicated in his interview, he moved the position of the pump intake a few times, so the pump likely did not run constantly over the 14-15 hour period. Further taking into consideration the residual volume in the pond following the event indicating that a full 4 acre-feet was not released, in my opinion the **discharge likely exceeded 1,000,000 gallons but did not exceed 1,221,942 gallons**.

Considering that the pump likely did not run the full time, as it may have been necessary to change the intake location, as described by Mr. Molinar in his interview. Further taking in consideration the residual volume in the pond following the event indicating that a full 4 acre-feet was likely not released, in my opinion the **discharge likely exceeded 1,000,000 gallons but did not exceed 1,221,942 gallons**.

The pumps used to drain the pond were started and stopped multiple times as is established by the interview with Mr. Molinar. On April 9, 2013, Mr. Molinar started using a small pump, which did not work, so he stopped and took it back, returning with a larger pump. The second pump was started on April 9, 2013 and again on April 10, 2013. Mr. Molinar indicated that he stopped the pump to reset the intake on wooden grape boxes to keep out of the mud and started the pump again. The pumps used to drain the pond were started up a minimum of three times and likely four or more.

Summary of Water Quality Violations

In summary, I observed significant violations of Basin Plan water quality objectives caused by an unpermitted release of over 1,000,000 gallons of highly turbid water into the Salmon Creek watershed. The release originated from a point source location and contributed waste to a water of the State and United States for a period of approximately 6 days. The release likely affected the beneficial uses of water over this time period affecting behavior and potentially increasing mortality in the young of the year salmonids and freshwater shrimp observed in the stream through exposure to very high turbidities, and suspended sediment levels for approximately 48-72 hours in the affected stream reaches. This discharge represents violations of the following laws and regulations.

Basin Plan Prohibitions

The Basin Plan prohibits the discharge and/or the placement or disposal of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into or where it can enter into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses. In addition, the Basin Plan prohibits new point source discharges to coastal streams and natural drainage ways that flow directly to the ocean (other than the Mad, Eel, and Russian, with some conditions), and the Basin Plan prohibits point source discharges to all surface freshwater impoundments and their tributaries within the North Coast Basin. Region 1 consists of all streams draining to the Pacific Ocean starting with the Estero De Americana and ending at the Oregon border. The North Coast Region is broken up into two distinct basins the Klamath Basin and the North Coast Basin. Salmon Creek resides within the North Coast Basin.

As described and shown above, I observed settled and suspended sediment entrained in a pond under construction. Pumping out the pond to continue construction entrained the sediment and resulted in its discharge to a stream in quantities deleterious to multiple beneficial uses. The highly turbid water overflowing from the pond into the unnamed tributary stream represented a point source discharge of waste into a coastal stream.

Water Code

The discharge and/or placement of waste into or near waters of the State and/or U.S. without filing a report of waste discharge violates California Water Code (CWC) sections 13260, 13264, 13376; a person violating these code sections may be liable both civilly and criminally, pursuant to sections 13385 and 13387, respectively. The discharge of waste is a privilege not a right, CWC section 13263 (g).

In regard to the diversion and use of water, the California Water Code section 1052 defines the use or diversion of water as a trespass and prohibits said trespass unless authorized through a permit, license, certification, or registration issued by the State Water Resources Control Board Division of Water Rights. Construction and use of the large pond on the Kistler property may represent a trespass.

Clean Water Act violations

Clean Water Act (CWA) section 301 [33 U.S.C. 1311] Effluent Limitations

- (a) Except, as in compliance with this section and sections 302, 306, 307, 318, 402, and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.

The CWA section 301 prohibits the unpermitted discharge of pollutants to waters of the U.S. The April 9, and 10, 2013 discharges of pollutants caused by the draining of the pond on the Kistler Property occurred without permits, thereby violating the federal Clean Water Act.

The April 9 and 10 pollutant discharges associated with draining the pond occurred without permits, thereby violating the Clean Water Act. Given the observed and measured impacts to receiving waters, such a discharge could not have been permitted in the manner that it occurred and, further, given that the discharge occurred in a coastal tributary of the North Coast Region, subject to point source discharge prohibitions, this project could not have been permitted in any case.

Conclusion

In conclusion, inspection observations, investigation results, and water quality samples confirm that the April 9 and 10 discharges associated with draining the pond on the Kistler property resulted in violations of Basin Plan water quality objectives and Basin Plan prohibitions, causing significant, demonstrable deleterious impacts to multiple beneficial uses. It appears that at least 1,000,000 gallons of water was released during those two days. Mr. Kistler and Mr. Molinar both confirmed that they were aware that water was overflowing from the small pond into the unnamed tributary, and that they continued to pump water into the small pond after it began overflowing. Once discharged, the pond water and entrained sediments were not susceptible to cleanup, and impacts associated with this release may have lasted up to 6 days, affecting behavior and potentially increasing mortality in salmonids for at least 48-72 hours in the affected reaches of the Salmon Creek watershed.

This incident was neither the result of an emergency or an accident, and could have been avoided altogether by pumping or transporting water to nearby fields or other appropriate land-based disposal areas, or by waiting until later in the season to allow a sufficient portion of the pond water to evaporate to expose those areas of the pond that required additional construction work. Instead, the Dischargers chose a time, method, and manner to drain the pond that resulted in violations and impacts reported and documented herein, and made no effort to stop or mitigate the discharge once it began.

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