Water Quality Monitoring Data Report
for
San Juan Creek, San Mateo Creek and Cristianitos Creek

April 2009 to February 2010

Prepared by

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March 31, 2010

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Executive Summary

In 2006 Orange County Coastkeeper (OCCK) and Inland Empire Waterkeeper began researching the water quality of streams in the Cleveland National Forest to determine baseline water quality in light of the several major development projects proposed for the forest. After examining the data available, it became apparent that this data was insufficient to determine the baseline water quality in most of the streams. To fill this data gap, OCCK developed a proposal to monitor water quality of the forest streams to document baseline conditions.

In 2007, the Inland Empire Canyons Baseline Monitoring Project was funded for one year. The San Mateo Creek and Cristianitos Creek monitoring project was added as a sub project due to the proposed development of the Foothill South Tollroad and the lack of data for these creeks. After the completion of the project in August 2008 the water monitoring in Orange County was funded for another year beginning in April 2009 to expand the data on San Mateo and Christianitos Creeks and to develop data on San Juan Creek which would also be affected by the development of the 241 south tollroad.

OCCK developed our 2009 monitoring project based on the monitoring plan, Quality Assurance Project Plan (QAPP) and recommendations of the Technical Advisory Committee (TAC) from the 2007 project. That TAC was made up of water quality experts from the Elsinore Valley Water District, the U.S. Forest Service, and the University of California Riverside. The development of the QAPP is to insure that the data collected was of sufficient quality to be used by the Regional Water Quality Control Boards and other entities for planning and permitting purposes.

The next step for the San Juan/San Mateo/ Cristianitos Creek project was to re-establish the monitoring sites at Cristianitos and San Mateo Creeks within San Onofre State Park and to identify two sampling sites on San Juan Creek. Eventually six sampling sites were identified, with two each on San Juan, San Mateo, and Cristianitos Creeks.

Dry weather water samples were collected as available from all six sites during the one year duration of the project (wet weather samples were not collected due to hazardous conditions) and analyzed for standard water quality parameters such as pH, temperature, conductivity, and dissolved oxygen. Additional analyses were run for nutrients and indicator bacteria. All of these tests were run in the field (standard parameters) or in the OCCK lab (nutrients and bacteria) using state accepted methods. We also analyzed a subset of the samples for total suspended solids, hardness, metals and hydrocarbons. These tests were run by a contract lab, also using state approved methods. Sample collection began in April 2009 and was completed in February 2010.

After the samples were analyzed, the data generated was entered into an Access® database. Each sample and the overall mean results were compared to the objectives for inland surface waters detailed in the San Diego Regional Board's Basin Plan. The Basin Plan objectives cover bacteria, ammonia, nitrate, phosphorus, dissolved oxygen and pH. The data for metals was compared to the California Toxics Rule criteria developed by the

US EPA for California.

The results of the data analyses are mixed; all of the samples have exceedences of some standards but the sites with nearby development are beginning to show the impact of the land uses around them. All three creeks do not meet the basin plan objectives for ammonia and phosphate. All six sample sites exceeded the ammonia and phosphate objectives almost every time they were sampled. The exceedence for phosphate can explained by the fact that phosphate naturally occurs at high levels in Orange County waters. However, we do not have an explanation for the ammonia exceedence other than the fact that the ammonia objective in the San Diego Basin Plan is quite low.

The bacteria data suggests that development is impacting one of the sites; Cristianitos 2 below the Talega housing development with 80% of the samples exceeding the single sample Enterococcus standard. Two other sites, San Mateo1 and San Mateo2, just above and below the I-5 freeway respectively, both had a higher number of exceedences; 71% and 33% of samples respectively exceeded the single sample Enterococcus standard, reaching a level higher than most other sites. All three of these sites also had higher average bacteria concentrations than the other three sites where Enterococcus single sample standard exceedences ranged from 0% to 25%.

The metals analysis shows noncompliance with the CTR acute or chronic criteria, depending on the sample location. Cadmium concentrations exceeded the acute CTR criteria in one of two samples from the Cristianitos site. The San Juan 1 site exceeded the chronic CTR criteria for copper, and the San Juan 2 site had one exceedance of the acute CTR criteria for copper. The San Mateo 1 site also exceeded the CTR chronic criteria for lead and selenium in one of two samples. That the acute CTR exceedences occurred at sites consisting of urban runoff is not surprising, as urban runoff is a common source of metals. All four of the tests run for total recoverable hydrocarbons all came back with non-detects, which indicates that the creeks are not currently affected by hydrocarbons.

Background

San Juan Creek is a 29-mile stream with a 133.9 square mile watershed originating in the Santa Ana Mountains of the Cleveland National Forest. The creek runs parallel to Ortega Highway past several campgrounds, picnic areas and rural residential areas as it flows west and south through San Juan Canyon. At the mouth of the canyon the creek enters Rancho Mission Viejo where the creek bed and surrounding areas are used for ranching, agricultural and mining operations before it enters the urban area of the City of San Juan Capistrano. Along the way it is joined by numerous small tributaries, including Trabuco and Oso Creeks before flowing into the ocean at Doheny Beach in Dana Point. While there are large undeveloped areas in the San Juan Creek watershed, the area around the creek is modified in a number of places and provides numerous access and recreation opportunities.

The San Mateo Creek watershed covers approximately 20 square miles of Orange and San Diego Counties, beginning in the Santa Ana Mountains and terminating at San Onofre State Beach just south of the city of San Clemente. Its headwaters are in the San Mateo Wilderness of Cleveland National Forest, where it is a perennial stream. From there its course leads through the Camp Pendleton Marine Corps Base, where it becomes intermittent. The creek then springs back to the surface and becomes perennial just above the I-5 freeway, and forms an estuary at San Onofre Beach State Park. The upper reach of the stream is undisturbed wilderness and is critical habitat for wildlife, including steelhead trout. The lower section of the stream runs through an area of Camp Pendleton that has seen some disturbance from military operations and farming, but is largely undeveloped with the riparian habitat intact. This area is critical habitat to endangered species, including the pacific pocket mouse, arroyo toad, coastal California gnatcatcher, and least Bell's vireo. The area below the I-5 freeway is estuarine, and the creek is blocked from discharge to the ocean by a sand berm that is only broken during major storm events. The creek breached this berm in January 2010 for the first time in many years. This area is critical habitat for the tidewater goby and many migratory waterfowl. Overall, the creek is part of one of the last largely undeveloped coastal watersheds in Southern California and is a critical component of a complex ecosystem.

Cristianitos Creek is the major tributary to San Mateo Creek. It begins in Orange County just south of Ortega Highway on Rancho Mission Viejo land, and continues through the Donna O'Neal Land Conservancy to Camp Pendleton. Here the creek forms the southern boundary of San Onofre State Park before it merges with San Mateo Creek near Cristianitos Road. The creek is intermittent in its lower reach. The Cristianitos Creek watershed has experienced some disturbance from cattle grazing, farming, military activities and urban runoff from nearby development. However, the watershed remains undeveloped and overall the ecosystem and riparian area is intact. This watershed is critical habitat to a wide range of wildlife and provides recreational opportunities to visitors.

Project Description

In 2006 Orange County Coastkeeper (OCCK) and Inland Empire Waterkeeper began researching the water quality of streams in the Cleveland National Forest to determine baseline water quality in light of the several major development projects proposed for the forest. After examining the data available, it became apparent that this data was insufficient to determine the baseline water quality in most of the streams. To fill this data gap, Inland Empire Waterkeeper developed a proposal to monitor water quality of the forest streams to document baseline conditions. In 2007, the Inland Empire Canyons Baseline Monitoring Project was funded for one year. The San Mateo Creek and Cristianitos Creek monitoring project was added as a sub project due to the proposed development of the Foothill South Tollroad and the lack of data for these creeks. After completion of the project in August 2008, the water monitoring in Orange County was funded for another year beginning in April 2009 to expand the data on San Mateo and Christianitos Creeks and to develop data on San Juan Creek which would also be affected by the development of the 241 south tollroad.

Quality Control

Quality Control for the data developed by the project was maintained by adhering to a Quality Assurance Project Plan (QAPP) developed for the project. The QAPP was based on the QAPP from the 2007 project that was created with the assistance of a Technical Advisory Committee (TAC), which included water quality experts from the Elsinore Valley Water District, the U.S. Forest Service, and the University of California Riverside. The QAPP was developed to insure that the data collected was of sufficient quality to be used by the Regional Water Quality Control Boards and other entities for planning and permitting purposes.

Site Selection

The next step for the San Juan/San Mateo/ Cristianitos Creek project was to re establish four of our monitoring sites at San Mateo and Christianitos Creeks within the confines of San Onofre State Park (which affords the only public access to Cristianitos Creek and the lower reach of San Mateo Creek) and to identify two sampling sites on San Juan Creek. Sites were chosen on the basis that they were representative of surrounding conditions on the stream and could provide information on water quality both before and after any potential tollroad construction.

During our reconnaissance, perennial flow was identified at three of the selected sites:

- Cristianitos 2: located at Cristianitos creek near the end of Avenida Pico (exists due to a steady flow of urban runoff from the Talega housing development)
- San Mateo 2: located at San Mateo Creek below the I-5 Freeway bridge, where the San Mateo estuary forms

- San Juan 2: located at San Juan Creek on the northeast corner of the San Juan Creek horse trail at the end of Siega street off Ortega Highway

Sites with intermittent flow included:

- Cristianitos1: located on Cristianitos Creek aproximately 200 yards above Cristianitos creek.
- San Mateo 1: located on San Mateo Creek just above the I-5 freeway bridge where San Mateo creek reforms from spring flow
- San Juan 1: located on San Juan Creek along Ortega Highway across the street from the San Juan Fire Station

Site Name	Latitude	Longitude
Cristianitos 1	33^{o} 27.357’	117^{o} 34.172’
Cristianitos 2	33^{o} 27.248’	117^{o} 34.228’
San Mateo 1	33^{o} 23.572’	117^{o} 35.418’
San Mateo 2	33^{o} 23.90’	117^{o} 35.508’
San Juan 1	33˚35’30	117˚30’40
San Juan 2	33˚30’55	117˚31’43
All coordinates are WGS 84		

Physical and Chemical Analysis

The parameters selected for the monitoring of San Juan, San Mateo, and Cristianitos creeks include nutrients and bacteria, and standard physical parameters including pH, conductivity, dissolved oxygen, temperature and a visual observation of flow. Additionally, we selected TRPH (total recoverable petroleum hydrocarbons) and dissolved metals, pollutants commonly associated with developed areas and roads.

Testing began at San Juan San Mateo and Cristianitos creeks in April 2009 and continued on a monthly basis, concluding in January 2010. All sites were monitored when water was both present and not present.

Analysis Methods

Temperature, pH, dissolved oxygen, and conductivity were measured in the field using pre calibrated Oakton meters. Bacteria samples were run at the OCCK office using the IDEXX method using Colilert-18 reagent for total coliform and *E.coli,* and Enterolert reagent for Enterococci. Nutrient analysis was run at the coastkeeper lab with a Hach colorimeter using methods meeting the Inland Empire Canyons Baseline Monitoring Project QAPP requirements. Nitrate-nitrogen samples were filtered through a .45µm filter and then tested using a variation of the cadmium reduction method detailed in Standard Method 4500-NO_3 E. This test has a range of 0.5-30 mg/l, a detection limit of 0.5mg/l and a standard deviation of 0.3 mg/l. The Ammonia-nitrogen samples were tested using a salicylate method adapted from Clin.Chim. 14 403 (1966). This test has a

range of 0.02-0.5mg/l, a detection limit of 0.02 and a standard deviation of 0.02. The orthophosphate test was done using a procedure equivalent to USEPA method 365.2 and Standard Method 4500-PE. This test has a range of 0.05-2.5 mg/l, a detection limit of 0.05mg/l and a standard deviation of 0.05 mg/l.

Testing for metals, hardness (as $CaCO_3$), total suspended solids, and total recoverable petroleum hydrocarbons was done by Test America Labs using EPA method 6020 for metals, SM 2340B for hardness, and SM 2540D for TSS. Testing for TRPH was done using EPA method 418.1.

Data Results Discussion:

Below is a brief discussion of each of the parameters followed by a detailed site by site description of the data. All data results are in a project database available from Orange County Coastkeeper on request.

Individual Parameters

- Water Temperature – The temperature of water affects aquatic life because most species can only thrive within a certain temperature range. Other factors, such as dissolved oxygen, can be affected by the temperature which in turn affects the rate of photosynthesis in aquatic plants. As temperatures increase, the quantity of dissolved oxygen in a water body will increase accordingly. Human intervention can affect temperature by removing canopy cover and building or removing water diversions along or in the streams, causing a rise in water temperature. The temperature where changes in uses from cold water to warm water in the San Diego region occur is at occur is 21°C. Only San Mateo 2 and San Juan 2 had temperatures in excess of 21°C.

- Dissolved Oxygen –Dissolved oxygen is necessary to sustain aquatic life. Dissolved oxygen shall not be less than 5.0 mg/L in inland surface waters, as stated in the San Diego Regional Water Quality Control Board's (SWRCB) Basin Plan. The Cristianitos 1, San Juan 1, San Juan 2, and both the San Mateo sites all had some samples with levels of dissolved oxygen below basin plan standards, with San Mateo 1 having the most. The low dissolved oxygen levels are not surprising at this site as it is a spring and groundwater typically has low levels of dissolved oxygen.

- Conductivity– An estimate of the amount of dissolved solids in the water can be made by measuring conductivity. Dissolved solids include acids, minerals, salts and metals. Conductivity varies for many reasons but high conductivity may be an indicator of bigger problems. Conductivity over 1.0 ms/cm for fresh water can be a sign of problems. All of the sites tested except San Juan 1 exceeded the basin plan standard of 750 uS/cm for conductivity.

- pH – pH is a measure of hydrogen ions that control the acidity and the alkalinity of the water. Most aquatic life can only survive within a narrow range of pH, thus

it is important to monitor. The acceptable level for pH in the San Diego Basin Plan is between 6.5 and 8.6. All of the monitoring and sites had pH levels within the acceptable levels during the project period.

- Orthophosphate – Orange County soils have naturally high levels of phosphate, phosphates also commonly enter water bodies through lawn and garden fertilizer with run-off or soil erosion. Increased phosphate concentrations can lead to increased growth of algae and plants, which then deplete dissolved oxygen in the water. The San Diego Basin Plan states that phosphates should not exceed 0.1mg/L in order to prevent plant nuisances in streams and other flowing waters. Phosphate levels exceeded the recommended standard at all six sites.

- Nitrate-Nitrogen – Similar to phosphate, nitrate is a plant nutrient that usually enters water bodies through overuse of fertilizer. Excessive Nitrate promotes algal blooms and aquatic plant growth that can suffocate other life. The San Diego Basin Plan states that nitrate levels should not exceed phosphate levels by more than a ten to one ratio. None of the samples exceeded the standard.

- Ammonia-Nitrogen – Ammonia is another plant nutrient, the primary urban runoff sources are fertilizer and animal waste. Ammonia is an important chemical to monitor because it can accumulate to toxic levels and affect the metabolism of fish and other aquatic organisms. This toxin can also affect organisms at higher levels in the food chain. According to the San Diego Basin Plan, the discharge of wastes shall not cause concentrations of ammonia to exceed 0.025 mg/L in inland surface waters, enclosed bays and estuaries and coastal lagoons. All six monitoring sites exceeded the ammonia standard the majority of the time.

- Turbidity/Total Suspended Solids (TSS) – Turbidity is attributable to suspended and colloidal matter, the effect of which is to disturb water clarity and diminish the penetration of light. High turbidity levels indicate a large amount of suspended particles in the water. Total Suspended Solids is the measurement of the amount of solid material in a sample. Particles can block sunlight and impede respiration and adversely affect photosynthesis, having a major effect on organisms. Additionally, high levels of turbidity create concern since suspended particles often carry pollutants. Natural turbidity varies from site to site but is generally below 100 NTU. If turbidity is above average, this may indicate erosion, nutrient loading, or excessive algae growth. Turbidity levels exceeding 100 FAU or TSS above 100mg/L fresh water would be considered abnormal and would be a level of concern. None of the sampled sites exceeded the limit for turbidity or TSS.

- Bacteria (*E. coli*, and Enterococcus,) – High levels of these indicator bacteria imply a high probability of pathogens harmful to humans in the water. The presence of *E.coli* is an indicator of fecal contamination from warm-blooded

animals and in some cases can cause severe illness. The single sample water quality objective for *E.coli* in the San Diego Basin Plan for moderately or lightly used areas is (recommended by the U.S. EPA) is 406 mpn/100mL. All monitored sites had some exceedences of the *E.coli* standards. The highest was San Juan 2 with 4020 mpn/100 ml. Both the San Juan 1 and Cristianitos 1 had no exceedences of *E.coli*. Enterococcus standards are at low levels, because the correlation between it and human pathogens is high. The single sample standard in the San Diego Basin Plan for moderately or lightly used areas (recommended by the U.S. EPA) is 108 mpn/100mL. Cristianitos 2 and San Mateo 1 had the highest concentration at 2419.2 mpn/100ml. Both the San Juan 1 and Cristianitos 1 had no exceedences of enterococcus.

- Total and Dissolved Metals/Hardness are due to elements that also have a variety of uses in many of the products that we use in a daily basis. Hardness is the measurement of calcium carbonate in water and is used to estimate the naturally occurring levels of metals in water. Elevated levels of metals (above natural concentrations) such as copper and zinc are often found in urban runoff and are harmful to aquatic life. The criteria used for metals were developed for California by the USEPA and are detailed in the California Toxics Rule (CTR). There are two types of exceedences acute and chronic. Acute exceedences are toxic to organisms on the short term (less than three days) while chronic exceedences have toxic effects in the long term (over ten days). These criteria run on a sliding scale in relation to the hardness of the water. Cristianitos 2 San Juan 1 and 2 and San Mateo 1 had exceedences of the CTR acute or chronic criteria for metals.

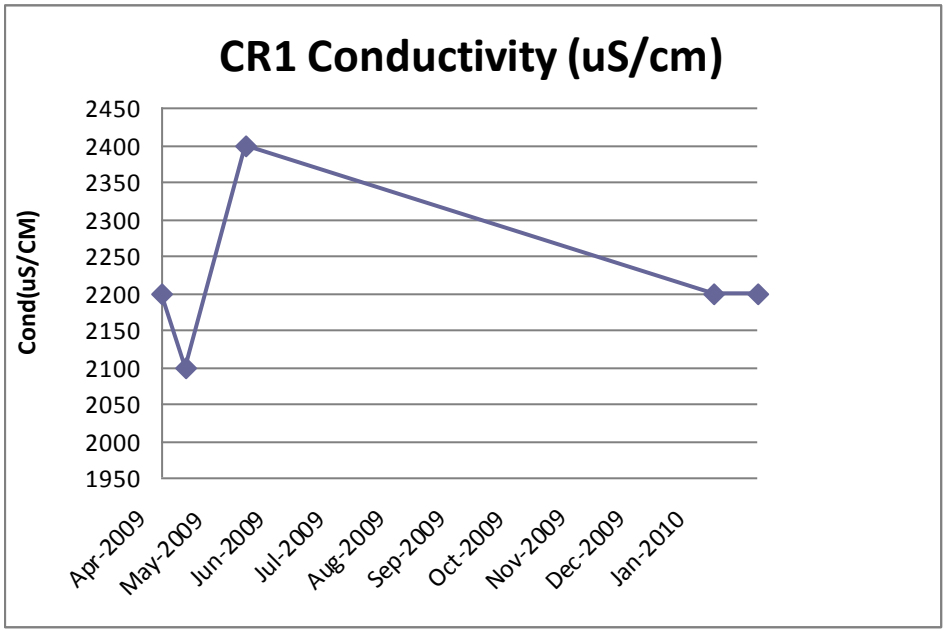
- Total Recoverable Hydrocarbons-Total recoverable petroleum hydrocarbons (TRPH) is used to identify the level of all hydrocarbons, including oil and grease, gasoline, asphalt residue and other compounds that are indicative of developed areas and automobile use. This measurement is a good indicator of the impact of development on a waterway. No sites had detectable amounts of hydrocarbons.

Detailed Site by site Description

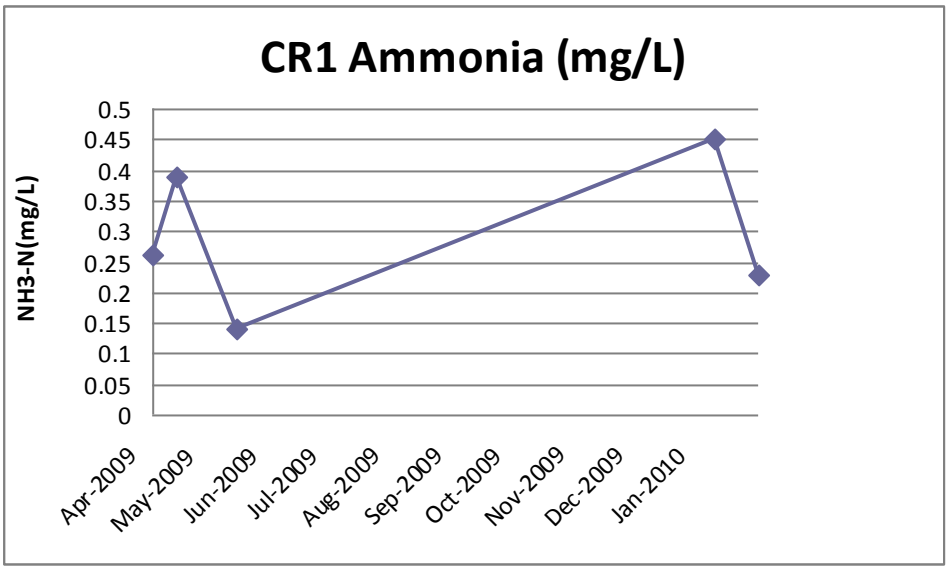
Cristianitos 1: This site is located on Cristianitos Creek near the end of Avenida Pico upstream of the county detention basin. The site consists of fresh water during the wet season. From April 2009 through June 2009, the site was pond-like and the water flow was very slow. Eventually the site dried up during the summer. After rainy days and storm events in January the creek filled with running water that extended the creek's banks and the flow was relative steady. A total of five samples were collected at this site over the project period. Water at this site met the basin plan objectives for nitrate and pH. It also met the CTR objectives for metals and had no exceedecnces of the *E. coli* and Enterococcus standards. Dissolved oxygen met the standard in 80% of the samples. Conductivity and ammonia exceeded the standard on all samples and 80 % of

all samples at this site exceeded the phosphate standard.

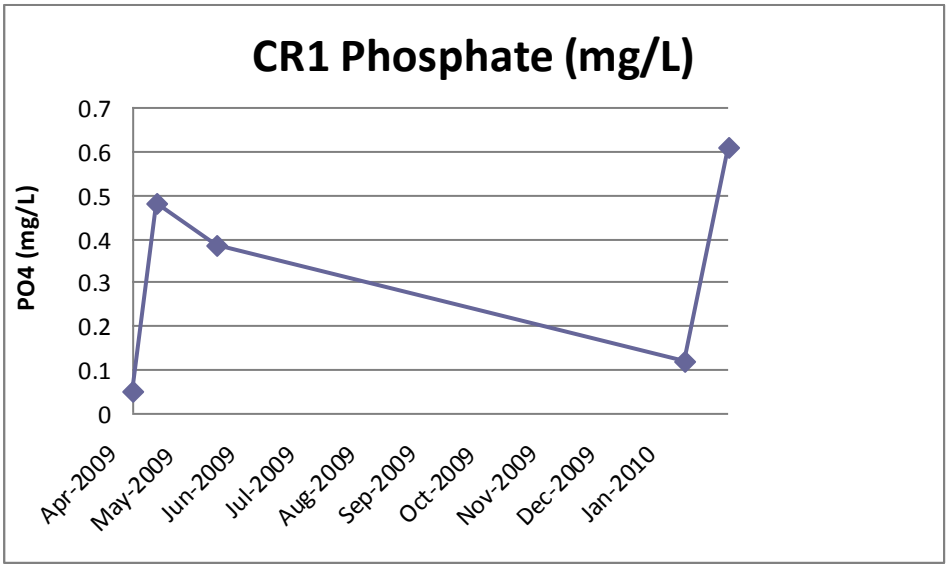
The conductivity average was 2220 uS/cm, the standard is less than 750uS/cm.



The ammonia average was 0.294 mg/L, the standard is less than 0.025 mg/L.



The phosphate average was 0.329 mg/L, the standard is less than 0.05mg/L.

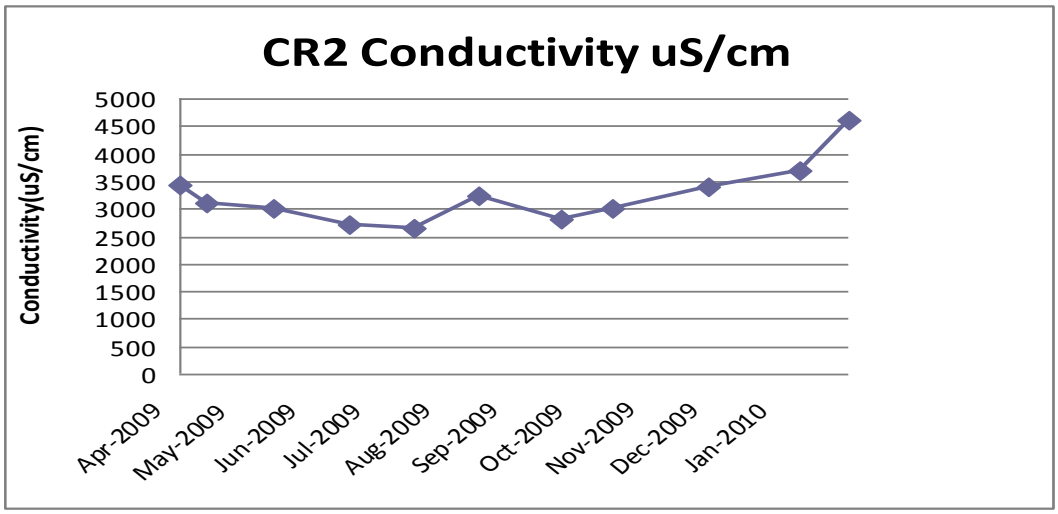


Cristianitos 2: This site is located on Cristianitos Creek near the end of Avenida Pico downstream from the county detention basin. The site's major source of water is urban runoff which comes from the Talega housing neighborhood. This site has running water year round with steady flow. Eleven samples were collected at this site over the project period.

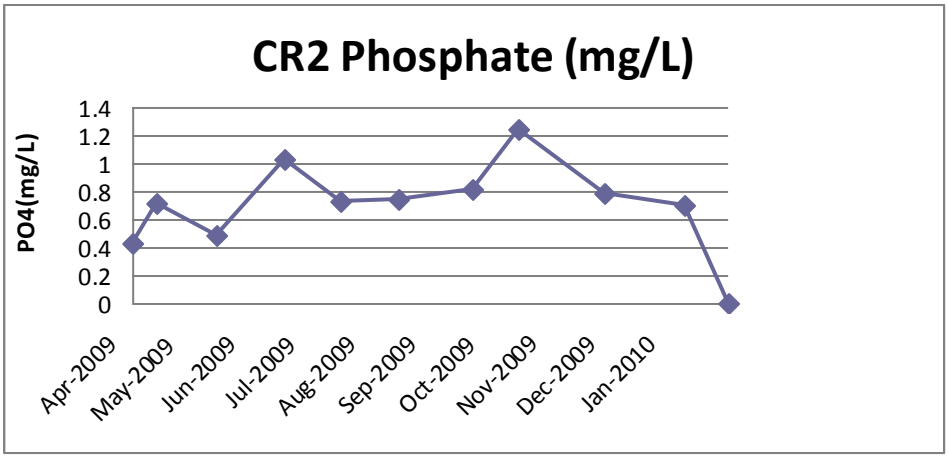
The basin plan objectives for nitrate, pH and dissolved oxygen were met in 100% of the samples. Cadmium and selenium exceeded both the acute and chronic CTR criteria in 50% of the two samples. The bacteria levels exceeded the basin plan objectives as follows: Enterococcus exceeded the standard in 80 % of the samples. *E. coli* exceeded the standard in 27% of the samples.

Urban runoff impacted water quality dramatically at this site. Conductivity, phosphate and ammonia exceeded the standard 100%, 91% and 82% respectively, all much higher average results than at the CR1 site.

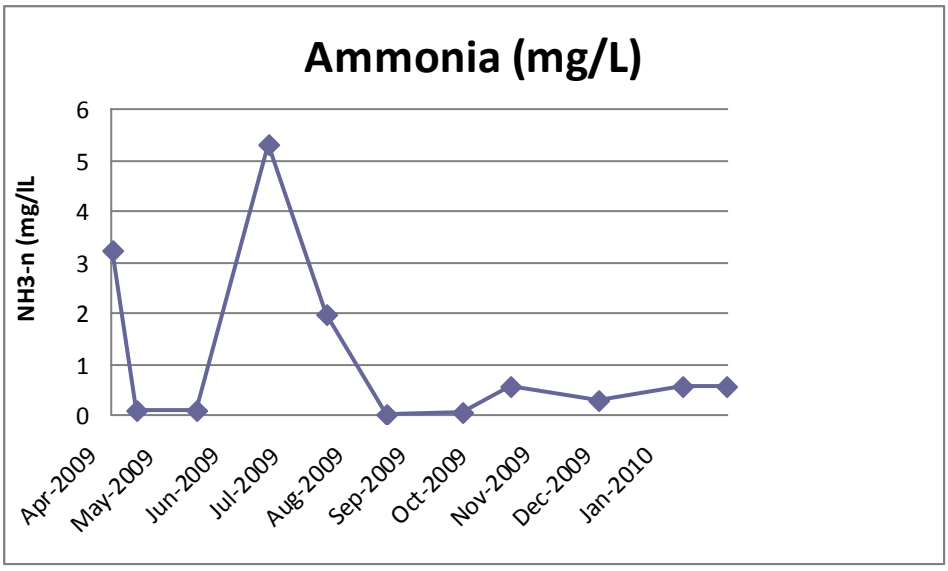
The average conductivity result was 3236 uS/cm, the standard is less than 750 uS/cm.



The average phosphate result was 0.7 mg/L, the standard is less than 0.05 mg/L. Notably, this average is almost twice as high as the phosphate average at the CR1 site.



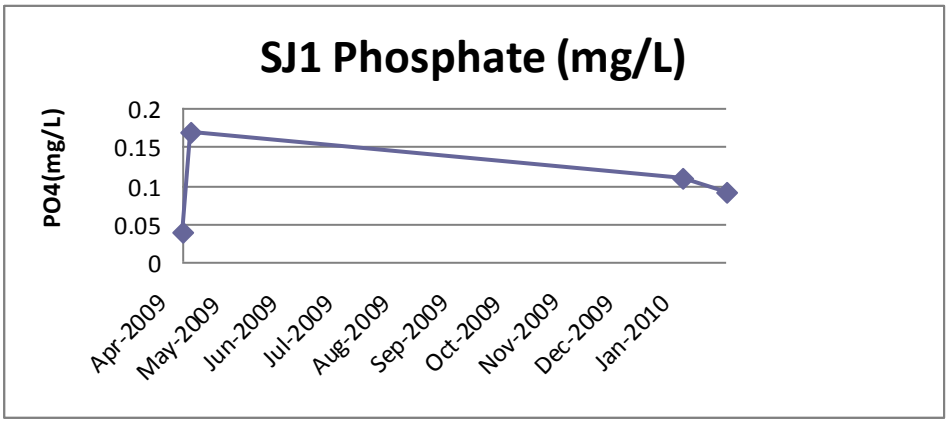
The ammonia average was 1.14 mg/L; the standard is less than 0.025 mg/L. The results were much higher than the CR1 site which averaged 0.294 mg/L.



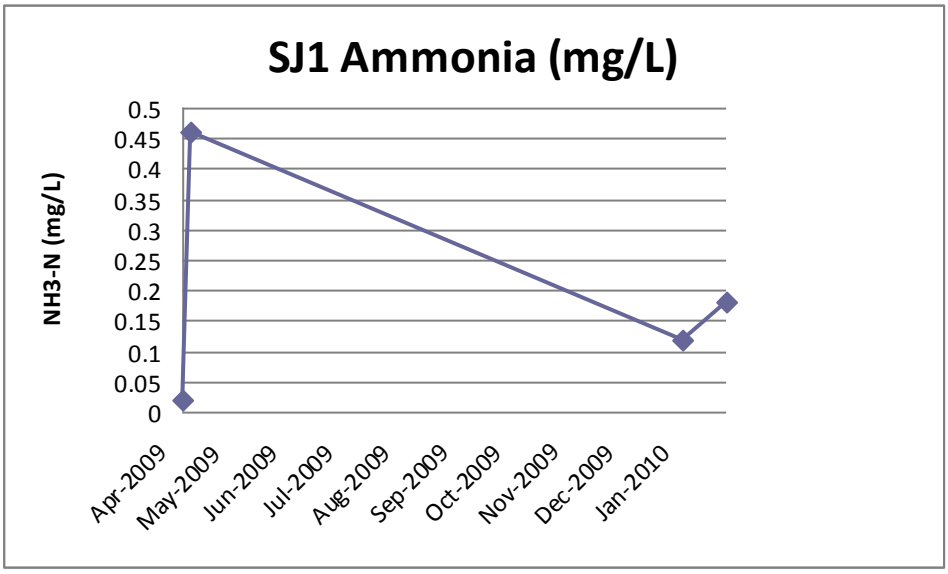
San Juan 1: This site is located five miles north of Casper Wilderness Park. Just across from the San Juan Fire Station. The access road is on the right side of the Ortega highway (through a narrow trail) across a parking lot in "Hot Spring Canyon" road, parallel to Ortega Highway. This site has water only during the wet season. After rains the creek filled up with running water and the flow was fairly steady. Four samples were collected at this site over the project period.

This site has no exceedence of the E. Coli standard. Enterococcus exceeded the standard in 25% of the samples. There were no exceedences for Nitrate, however the Copper level exceeded the CTR chronic criteria in the one metals sample collected here. Ammonia and Phosphate both exceeded the standard in 75 % of the samples. Dissolved- Oxygen did not meet the standard in 25% of the samples.

The phosphate average was 0.10 mg/L, the standard is less than 0.05mg/L.



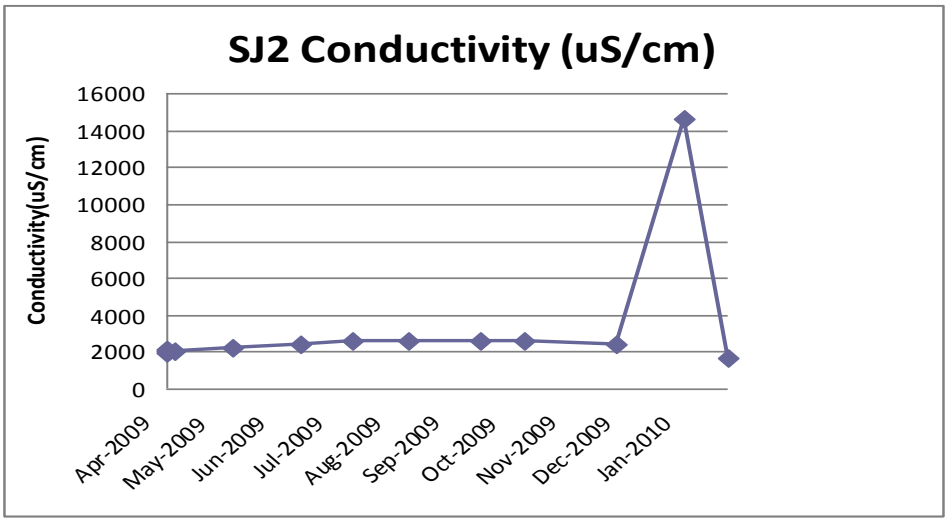
The ammonia average was 0.2 mg/L, the standard is less than 0.025mg/L.



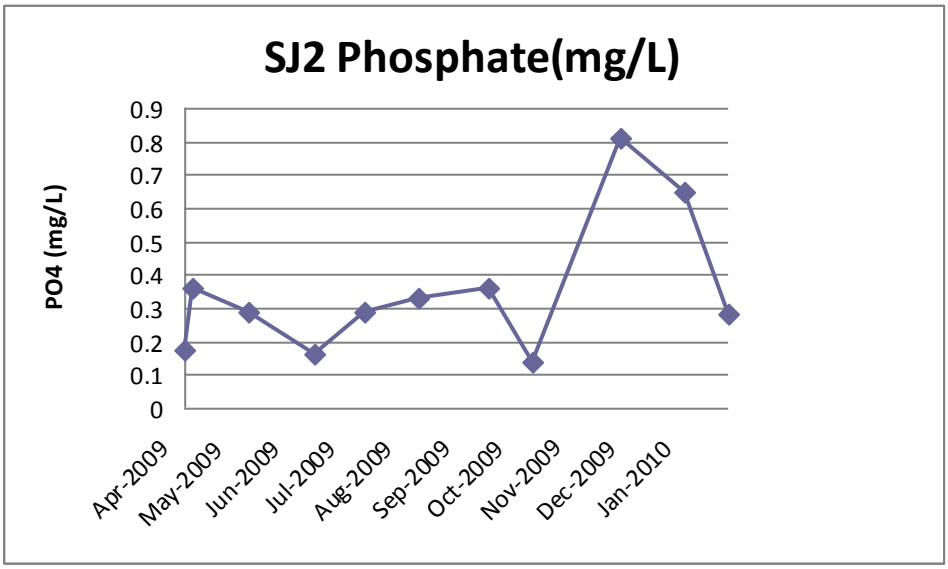
San Juan 2: Located on the northeast corner of the San Juan Creek horse trail at the end of Siega Street off Ortega Highway). The main water source for this site is urban runoff which provides constant flow all year round. During wet season though, the flow rate was higher and the river banks were wider than during the dry season. Eleven samples were collected here during the project period.

There were no exceedences for nitrate or pH. However, *E. coli* exceeded in 9% of the samples and Enterococcus exceeded in 18% of the samples. Copper exceeded the CTR acute criteria in 50% of the two metals samples. The dissolved oxygen did not meet the standard in 45% of the samples.

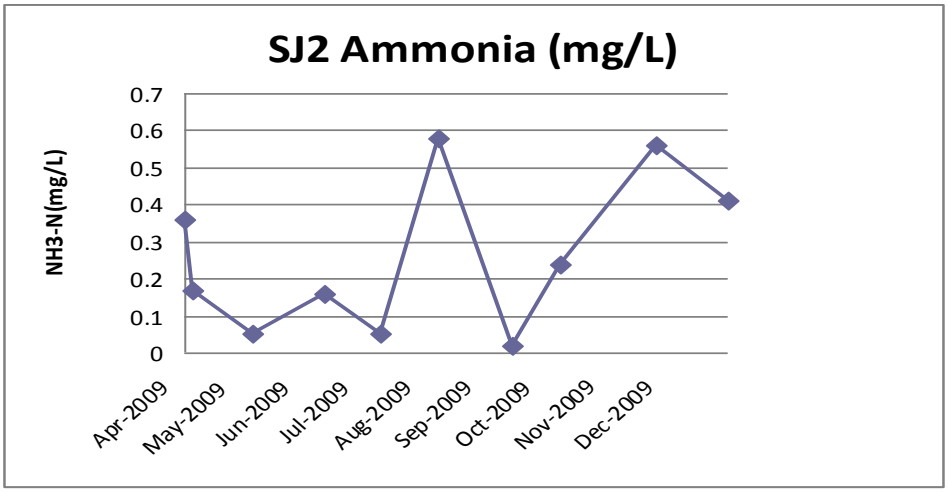
Conductivity exceeded in all samples with average of 3102 uS/cm, the standard is less than 750 uS/cm.



Phosphate also exceeded in 100% of the samples with an average of 0.35 mg/L, the standard is less than 0.05 mg/L.



Ammonia exceeded in 91% of the samples with an average of 0.26 mg/L, the standard is less than.025 mg/L.

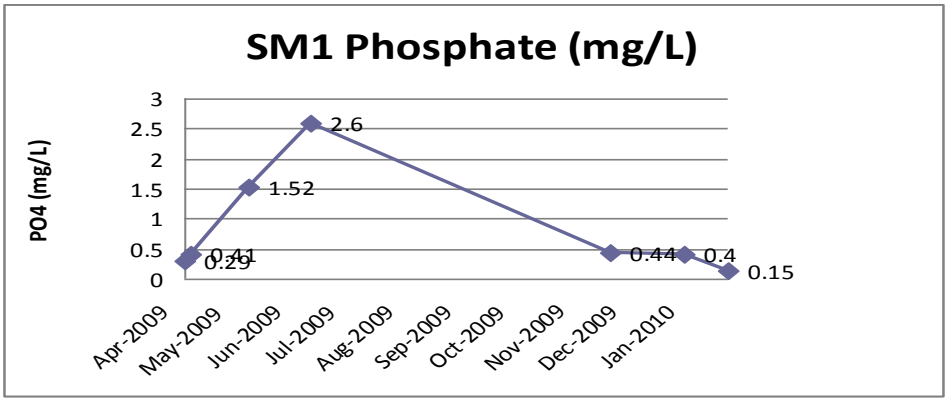


San Mateo 1: This site is located on San Mateo Creek just upstream of the I-5 freeway bridge. This is the most upstream point where the creek springs back to the surface before flowing downstream to form the estuary. From April 2009 through July 2009 the site was pond-like with accumulated sediment as time progressed and the water flow was very slow. From August 2009 until November 2009 the site was dry. After rainy days and storm events on December 2009 the creek filled out with running water. The stream was braided with relatively wide riverbanks and the main flow rate was pretty

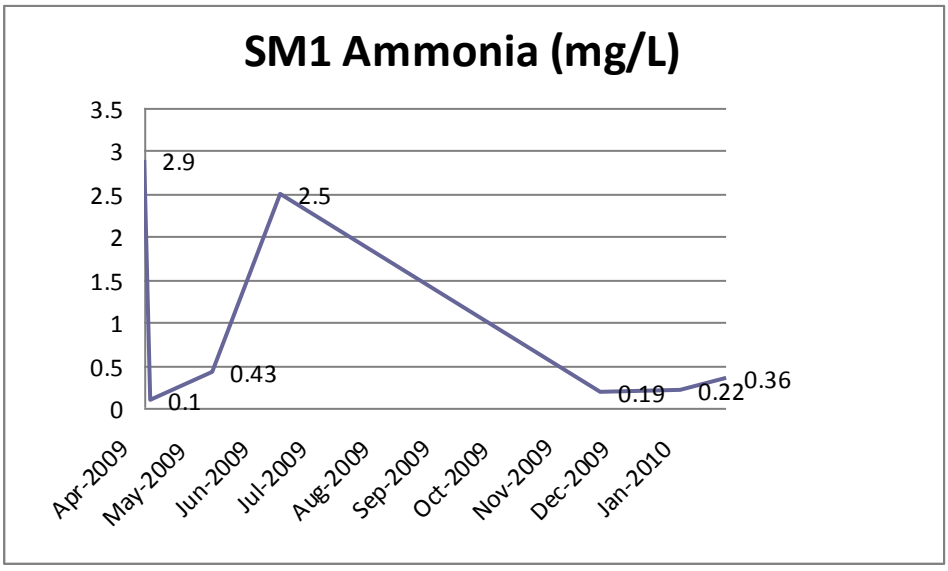
high. A total of six samples were collected here during the project period.

There were no exceedences for Nitrate and pH. *E. coli* exceeded in 29% of the samples however the exceedence on July 2009 was significantly high with 9208 MPN/100ml. Enterococcus exceeded the standard in 71% of the samples. As for metals, Lead and Selenium exceeded the chronic CTR criteria in 50% the two samples collected. The Dissolved-Oxygen did not meet basin plan standards in 57% of the samples and the conductivity exceeded the standards in 71% of the samples. Ammonia and Phosphate exceeded standards in 100% of the samples.

The average results for phosphate was 0.83 mg/L, the standard is < 0.05mg/L.



The average results for ammonia was 0.96 mg/L, the standard is < 0.025 mg/L.

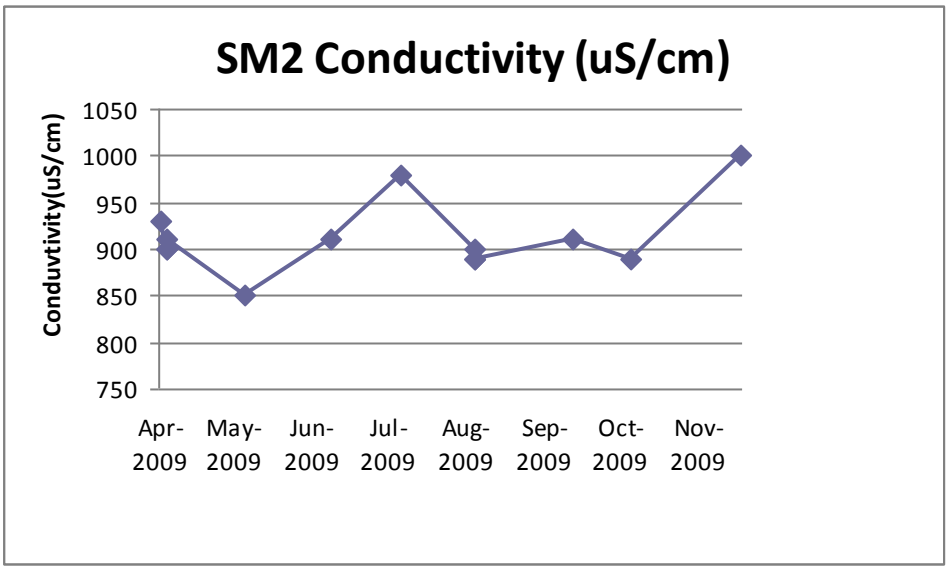


San Mateo 2: This site is located at the upstream end of San Mateo estuary, where the creek begins to pond up behind the beach sand berm. This is a wetland area with many

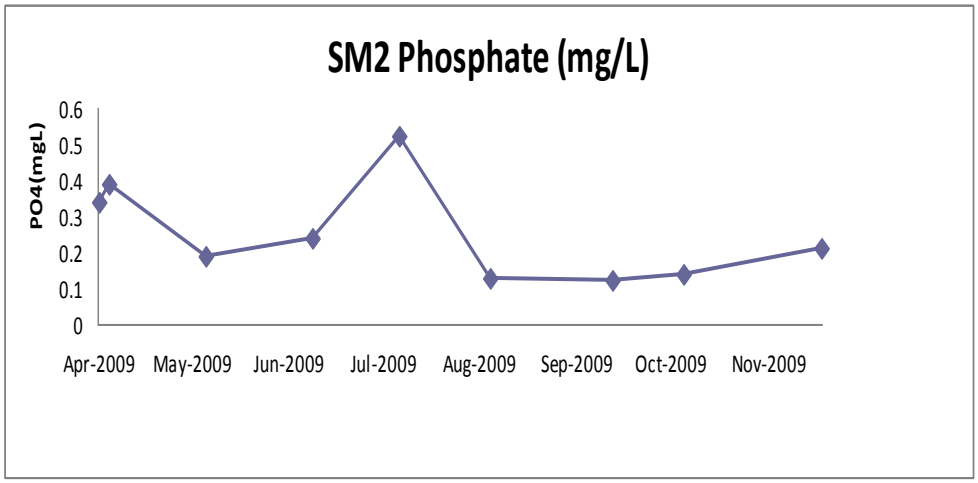
waterfowl. There is water all year round. After heavy rain, the access to the site was impossible due to high water and soft damp soil. Ten samples were collected here during the project period.

There were no exceedences for nitrate, pH or metals. Dissolved oxygen did not meet the standard in 25 % of the samples. Enterococcus exceeded the basin plan objective in 38% of the samples, *E. coli* exceeded in 33%. Conductivity, phosphate and ammonia exceeded the water quality standard in 100% of the samples.

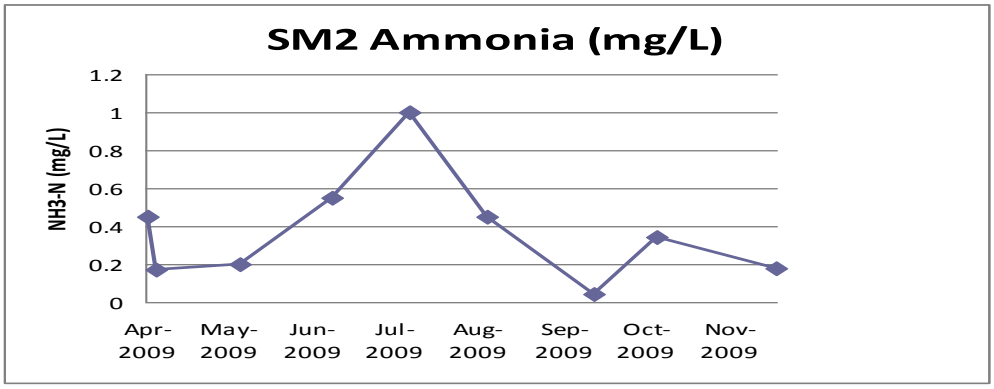
The conductivity average was 912 uS/cm, the standard is less than 750 uS/cm.



The phosphate average was 0.25mg/L and the standard is less than 0.05 mg/L.



The ammonia average was 0.28mg/L and the standard is less than 0.025mg/L.



Conclusion

Over the last year, OCCK has collected a sufficient amount of data from the six selected sites on San Juan, Cristianitos, and San Mateo Creeks to determine the dry weather water quality of these waterbodies. Overall, the water quality and flow regimes of San Mateo creek and the upstream San Juan and Cristianitos Creeks are acceptable. Metals and bacteria are issues of concern at all but the upper San Juan and Christianitos sites, but there is no evidence of hydrocarbons, and their flow regimes are intact in the undeveloped areas. All three creeks exceed the ammonia and phosphate objectives in the San Diego Basin Plan, most likely due to natural sources considering the consistently high number of exceedences at all sites. Nitrate levels are not currently at levels that are impacting the streams. While all three streams are able to maintain their integrity for the majority of their length with the current stresses on their systems, it is clear from our monitoring that their current equilibrium could be easily overwhelmed by excessive volumes of water or pollutants from development in their watersheds.