

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
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PUBLIC COMMENTS AND STAFF RESPONSE

Water Board staff received public comments from the Santa Clara/San Benito County Farm Bureaus and the Central Coast Agricultural Water Quality Coalition, the Santa Cruz County Resource Conservation District, and the County of Santa Cruz. Staff organized the comments and responses for each agency into key issues. These are presented below.

Comments and Responses-Santa Clara/San Benito Count Farm Bureaus and Central Coast Agricultural Water Quality Coalition

The following are staff's responses to comments made in a joint letter submitted by the Santa Clara/San Benito Count Farm Bureaus and Central Coast Agricultural Water Quality Coalition, dated October 19, 2005.

Comment-1: Targets for improvement: We appreciate your recognition that this is a complex watershed with numerous anthropogenic and natural sources. We agree that it will take many years to remediate damage from past activities, control all controllable sources and identify the baseline from uncontrollable sources before we begin to see steady improvements in the water quality, which makes targets much more realistic than numeric limits. We will be working with you to evaluate success as this process progresses.

Staff response: Comment Noted.

Comment-2: Implementing the plan for Nitrates alone: Nutrient impairment is a complex issue, not an exact science. Key data is missing and there are multiple factors, many unmeasured, that contribute to algal productivity. We appreciate that you are starting with one element, Nitrites [sic]. That will allow time to focus on methods to control this major component before expending a lot of resources on a less defined target. We urge you to continue studies to determine other sources of nutrients, especially air deposition and natural background levels of nutrients so that everyone can spend an appropriate level of resources necessary to control the problem but not waste resources that could be used resolving other issues by being over-protective.

Staff response: Comment Noted.

Comment-3: Monitoring: As much as possible, we would prefer to use the existing cooperative monitoring program(s) rather than building a competing bureaucracy. This

will maximize the sharing of data and analysis of trends while minimizing overhead costs. Additionally, it is imperative that the monitoring results be fed back to the problem area as quickly as possible so that the problem can be identified and steps taken to resolve it. Even preliminary results provide valuable feedback as to the effectiveness of management practices and quick feedback is more likely to result in recognition of the cause of the exceedence and permanent resolution of the problem. Additionally, many growers expressed a desire to have a more simplified method to access the data so that they could measure progress on a regular timely basis.

Staff response: Staff supports use of existing monitoring program(s) if feasible. However, this TMDL implementation plan allows each responsible discharge to decide whether or not they want to fulfill their monitoring obligations by joining a cooperative monitoring program or conducting monitoring independently.

Comment-4: Identification of sources: We appreciate that you have identified a broad spectrum of likely sources of nitrates. However, we are concerned that only Agriculture was given a reduction requirement even though residential use of nutrients is known to be several times higher per acre than agricultural use. We do appreciate, though, your agreement that no regulations beyond the current Ag Waiver program be put into effect until there is time to evaluate the success of that program. Additionally, other listed sources are either currently unregulated (rangeland/grazing, rural residential, streambank erosion, unpaved roads, etc.) or are severely underfunded (City/County MS4 Non-Point Source programs, State/County Park systems, etc.). We question whether there is funding in place now or in the near future to do the education and outreach necessary to make this program effective. We urge that sufficient funding be identified to develop capacity and build and deliver effective local outreach and education. That has proven to be much more effective than enforcement alone in reducing problematic behavior and the resultant pollution. Also, funding to implement best management practices is not sufficient if it is not accompanied with funding for education, outreach and one-on-one assessment and follow-up. Finally, we think that rural residential sources, especially those with livestock, should be considered further as progress is evaluated.

Staff response: Staff added language to the Project Report, Source Analysis (pg. 20), to clarify the rationale for assigning agriculture a reduction requirement, while allowing other sources to maintain their existing loads. Existing data and study results do not indicate that nitrate loading from urban areas or from rangeland are contributing to increases in in-stream nitrate concentrations. Additionally, staff observed higher receiving water nitrate concentrations in areas with irrigated agriculture. Staff observed lower in-stream nitrate concentrations in urban and rangeland areas. Staff acknowledges the importance of funding, outreach, and education in a successful nonpoint source pollution control program. In general, staff targets funding for projects that will reduce pollution loading (which may include education and outreach). The tracking and evaluation methods over a twenty-year timeframe will allow reevaluation of sources and implementation strategies if data and information suggest that other sources are also contributing nitrates.

Comment-5: the Cost of Implementation: The analysis of the cost of implementation should be increased to include the value of the time spent by the growers on education, developing an individual Farm Plan, assessing the monitoring results and, as appropriate, implementing additional management measures, and the value of the loss of the use of the land set aside for buffer strips and other management measures.

Staff Response: TMDL implementation will rely upon the existing conditional waiver of waste discharger requirements for irrigated agriculture and associated monitoring. The Central Coast Water Board considered costs of compliance and other economic considerations when it adopted the waiver. Since the TMDL does not impose additional compliance costs or establish a new agricultural water quality control program (see CWC §13141), an additional cost analysis is not required. Similarly, the implementation plans for urban lands and South County Regional Wastewater Authority are all existing programs.

Comment-6: The Effective Date of the new regs: The effective date timeline for implementation of the new regulations cannot be met effectively without active outreach to the targeted sectors. We urge that you develop a plan for outreach that includes the various stakeholder groups and that outreach begin earlier rather than later. Also, based on our experience in assisting growers to meet the initial effective date for the Irrigated Ag Waivers, we strongly urge that your initial date be in the middle of the year – **not** December or another such holiday period.

Staff response: The effective date of the TMDL is unknown at this time, as it depends on the date the final TMDL is approved by the California Office of Administrative Law. Since the TMDL requires compliance with the conditional waiver of waste discharge requirements for irrigated agriculture (waiver), the Water Board already has an outreach program in place. The waiver also has already established compliance dates for individuals. Staff noted the suggestion for compliance dates to be in the middle of the year, but that will have to be considered in the context of the waiver requirements and dates.

Comment-7: We urge that you develop model formats for the reporting, particularly for the timelines and implementation plans. We would be very happy to work with Board staff to test the formats for clarity and usability before they are officially adopted.

Staff response: This TMDL does not require any new reporting. Water Board staff will rely on existing reporting for compliance with the waiver to evaluate implementation of nitrate reduction from croplands.

Santa Cruz County Resource Conservation District

The following are staff's responses to comments made in a letter submitted by the Santa Cruz County Resource Conservation District, dated October 24, 2005. These comments are in general agreement with the proposed TMDL.

Comment-8: Staff Report Page 1: "Staff determined that the primary source of nitrates is cropland." In reviewing Figure 1-2 on page 3 of Project Report, we note that there are several creeks with nutrient impairment, that are not dominated by irrigated crop land, including: Corralitos Creek, San Benito River, Tres Pinos Creek, Quien Sabe Creek, and Arroyo Dos Picachos. In consideration of the primary land use in each of these subwatersheds, please clarify the primary source of nutrient impairment to these creeks.

Staff response: Figure 1-2 on page 3 of the Project Report does not depict Corralitos Creek, San Benito River, Tres Pinos Creek, Quien Sabe Creek, and Arroyo Dos Picachos as nutrient-impaired. These are streams that have been included in the figure to emphasize characteristics of the stream network. Figure 1-2 on page 3 of the Project Report accurately depicts Pajaro River and Llagas Creek as the 303(d)-listed waterbodies (e.g. impaired waters).

Comment-9: Page 19, Section 3.5 Data Summary: Staff states that "While algae and corresponding low dissolved oxygen are likely exacerbated by nutrient loading..." However, this statement directly contradicts all previously quoted studies, including the 1994 SJSU study referred to on page 10 which states "Nitrate-N was never an important variable...as having the potential to regulate the amount of algae in the Pajaro River and Llagas Creek." Throughout the document, studies indicate that there is no clear relationship between nutrients and algae growth. Has the Regional Board looked into a sediment correlation?

Staff response: Staff has edited Section 3.5 of the Project Report to clarify these inconsistencies and explain that while nitrate has not been documented to predict algal growth, other nutrient forms may be driving biostimulation. Water Board staff and previous studies have not fully evaluated sediment and algal growth correlations in the Pajaro River watershed, however these factors will be considered in monitoring plan development.

Comment-10: Page 20 Section 4. "Based on the UCSC study, nitrate exfiltration is believed to occur along a segment of Llagas Creek where high concentrations have been observed. Please specify which section of Llagas Creek, and specifically which monitoring site(s).

Staff response: Section 4 of the Project Report has been modified to include this information.

Comment-11: Page 20, Section 4.1 Method.

- How was the L_{PU} (pollutant loading rate for land use type u, lbs/acre/year) developed for the agricultural and urban land uses? How were the Nitrate export coefficient values developed?
- Is this methodology (the determination of polluted loading rates and export coefficients) scientifically substantiated as an accurate measure of *actual* pollutant load rate by universities here on the Central Coast and in the Pajaro Watershed?
- Please reference and summarize the scientific data and studies that support the use of and *accuracy* of both *the formula* and the *values used in the formula* (values you have used for L_p , L_{pu} , and A_{uj}). In accordance with the science, what is the expected *accuracy* and *standard deviation* of the formula?

Page 25, Section 6.2 – Additional Monitoring

- Please provide a cost estimate for the proposed monitoring studies and who will pay for them.

Will additional monitoring identify actual sources of impairment and methodologies for remediating the problems?

Staff response: The pollutant loading rates for agriculture and urban land uses were determined using a geographic information system (GIS) along with export coefficient values that were developed by the Southern California Coastal Water Research Project (SCCWRP), the San Francisco Estuary Institute, and Moss Landing Marine Laboratories as described in Section 4.1 of the Project Report. The export coefficient values are for the Central Coast Region of California.

Researchers used methodology that included an assessment of stormwater runoff data collected throughout the central coast region, including sites within the Pajaro River watershed. The methodology is described in detail in the following document: Southern California Coastal Water Research Project (SCCWRP), 2000. *Pollutant Mass Emissions to the Coastal Ocean of California: Initial Estimates and Recommendations to Improve Stormwater Emission Estimates*, Appendix A. November 10, 2000. Section 4.1 of the Project Report has been edited to include this information.

The export coefficient method uses a pollutant loading equation that is accepted by the U.S. Environmental Protection Agency (US EPA), as contained in PLOAD Version 3.0, An ArcView GIS Tool to Calculate Nonpoint Sources of Pollution in Watersheds and Stormwater Projects, User Manual, US EPA 2001. Section 4.1 of the Project Report has been edited to include this information and the reference has been added to Section 8, Cited References.

It is important to note that while the analysis does provide an estimate of nitrate loading, it does not predict the instream nitrate levels, which are ultimately used to evaluate attainment of water quality objectives. As such, the loading estimates were only used to

identify the potential nonpoint sources of nitrates and illustrate their relative magnitudes. The estimates will be helpful in prioritizing control efforts and focusing source reductions, but because they do not provide a direct link to the instream conditions, they are not used in calculating the TMDL.

Monitoring for nitrate by landowners is required according to the Monitoring and Reporting Program set forth in the conditional waivers. It is up to each responsible discharge to decide whether or not they want to operate as part of a cooperative monitoring program or independently.

Within three years of TMDL adoption, Water Board staff will augment monitoring plans (e.g. CCAMP and irrigated agriculture waiver monitoring) for data collection to assess causes of excessive algae and low dissolved oxygen conditions that may be causing impairments. Costs may be incurred by dischargers along with agencies.

The main objective of additional monitoring discussed in the Project Report will be to assess causes of excessive algae and low dissolved oxygen conditions and to evaluate instream nitrate conditions and their relationship to implementation per reporting and implementation tracking. However, this monitoring may identify additional nitrate sources or implementation strategies. If we discover that other sources are contributing at a higher rate than estimated, staff will reevaluate the TMDL and implementation plan.

Comment-12: Regarding data in general, we did not see discussion on the seasonality of the data. Please provide a clarification of what seasons the various studies were conducted.

Staff response: Seasonality is discussed in Section 5, Nitrate TMDL (page 25).

Comment -13: Future Assessment of Compliance:

It is noted that Regional Board will use the Agricultural Cooperative Monitoring Program to assess compliance with the TMDL. Given that the numeric target is a concentration of 10 mg/l, the numeric target will greatly be affected by the amount of water in the stream where the sample is taken. For example, if there is little water, the concentration may be higher, however, the actual discharge from the agricultural sources may still be at 10 mg/l. How will the Regional Board take this into account in assessing success of the TMDL program?

Staff response: Load allocations of 10 mg/l nitrate-N are assigned to each source, independent of instream flow conditions and dilution effects. Water Board staff will evaluate instream nitrate concentrations to determine if water quality objectives are met.

County of Santa Cruz

The following are staff's responses to comments made in a letter submitted by the Santa Cruz County, Environmental Health Services, dated October 24, 2005. These comments are in general agreement with the proposed TMDL.

Comment -14: The proposed monitoring program should be designed to accommodate and overcome many of the confounding factors. The assessment of past data may be confounded by the fact, that excessive algae may remove dissolved nitrate from the system, resulting in lower nitrate levels and a lack of correlation between nitrate concentration and amount of algae. Periods of high algae growth will also result in wildly fluctuating DO, again limiting the statistical correlation. Additionally, depressed DO may result from algae die-off, also confounding the relationship between amount of algae and DO. It will be important to design the monitoring program to include frequent enough sampling to show how conditions transition and change in the River. For example, high nitrate upstream last week may lead to excessive algae this week and depressed DO downstream next week (time periods are only included for illustrative purposes and may not reflect the actual timing of such events).

Staff response: This comment concurs with staff's conclusions that the relationships between nitrate and other factors remains unclear and discusses some important considerations for additional monitoring. Staff will consider these comments in designing additional monitoring and will contact the County of Santa Cruz for input and assistance when designing the monitoring program.