



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

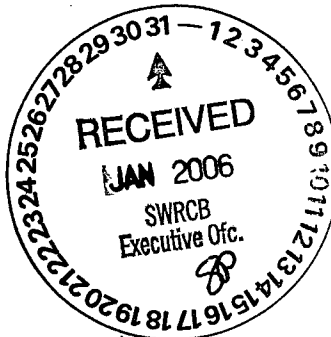
REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

303 (d) Deadline:
1/31/06

JAN 27 2006

Tam Doduc
Chair
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100



Dear Chairwoman Doduc:

Thank you for the opportunity to comment on California's draft 2004-2006 Clean Water Act Section 303d list. We carefully reviewed the draft listing decisions and supporting documentation and have concluded the vast majority of the State's assessment determinations are consistent with federal listing requirements. We urge the State to promptly complete its final list revisions and submit the final list by the April 1, 2006 due date or shortly thereafter. This letter summarizes our remaining concerns about several assessment determinations; individual water body concerns are summarized in the table in enclosure 1. Enclosure 2 provides an analysis supporting continued nutrient listings for Laguna de Santa Rosa in Region 1.

EPA commends the State for its considerable effort to assemble and evaluate available water quality-related data and information. We were pleased to provide staff and contractor assistance to compile data and information.

We would like to highlight our support for several individual assessment determinations that are new or presented difficult analytical challenges:

- listing selenium in Colorado River,
- listing several Central Valley and North Coast waters due to invasive species,
- listing several Central Valley waters due to temperature,
- listing waters throughout the State based on sediment and/or fish tissue data analysis,
- delisting waters for which prior listings were found to be invalid or unsupported by available data and information,

I. Concerns

The State applied its new 303(d) listing policy to develop the 2004-2006 Section 303d list. During the development of the listing policy, EPA expressed concern that several aspects of the policy may be at odds with federal listing requirements and state water quality standards:

- listing thresholds used to apply numeric water quality standards for toxic and some conventional pollutants,
- minimum sample size requirements, and
- interpretation of narrative water quality standards (e.g., for nutrients).

inconsistent with applicable water quality objectives and federal listing guidance. Several waters, including Mission Bay near San Diego, appear to meet listing requirements.

III. Application of Narrative Water Quality Standards

The State declined to assess some waters due to the perceived lack of reliable assessment criteria or the existence of only a single line of evidence. As a result, some waters are not proposed for listing in cases where the available data and information appear to support an impairment determination. The State's assessment of narrative standards attainment should be guided by the principles that (1) narrative standards must be applied in the assessment process (40 CFR 130.7(b)(3)), all existing and readily available water quality-related data and information should be used to assess water quality (40 CFR 130.7(b)(5)), and (2) assessment criteria can and should be developed to assess all types of available data and information (EPA, 2002).

A. Nutrient Effects Assessments

For many waters, the State declined to apply narrative biostimulation objectives to assess waters for nutrient-related impairments due to an apparent concern that available assessment criteria are not fully reliable. The State is required to evaluate potential violations of the narrative objectives (40 CFR 130.7(b)(3)). Several alternative assessment criteria are available for consideration including:

- numeric nutrient standards adopted by other Regional Boards or States,
- numeric targets developed for nutrient TMDLs developed for other waters,
- draft nutrient endpoints developed for California (Tetra Tech, 2005),
- nutrient thresholds proposed in academic literature, and
- EPA's national ecoregion-based nutrient criteria recommendations (EPA, 2000).

We recognize the State has not yet identified discriminating nutrient criteria values for all California waters. To evaluate whether a water should be listed, it is not necessary to know the exact nutrient thresholds beyond which adverse biostimulation effects will occur. Instead, it is sufficient in a weight of evidence framework to observe that actual water column nutrient values are far higher than the range of potential assessment criteria or that a very high percentage of observed values exceed potential assessment criteria. As discussed in enclosure 2, our review of available data for Laguna de Santa Rosa clearly supports the continued listing for nitrogen and phosphorus. We would like to work with State Board staff to evaluate the Laguna and other waters for which available data appear to indicate adverse biostimulation problems.

B. Assessment of Total Metals Data

For some waters, it appears the State did not consider total metals data as the CTR standards are expressed in terms of dissolved metals. The CTR identifies three options for translating dissolved metal results to total recoverable levels, or vice versa. We encourage the State to apply one of these options to evaluate readily available total metals data. This data review will likely support several additional listings (e.g., San Jose Creek in Los Angeles).

C. Lower Lost River Temperature Assessment

The State proposes to retain the existing listing of Lower Lost River (LLR) for temperature. This listing was originally made by EPA in 1992 and it appears the listing has been retained in each subsequent State listing decision based on EPA's initial listing determination. In support of our ongoing work with the North Coast Regional Board to develop Lost River and Klamath River TMDLs, we reviewed the data and information that supported the 1992 listing decisions. We determined that there was no data to support the temperature listing for LLR. EPA's temperature listings for North Coast rivers in 1992 were based on evidence of salmonid habitat degradation due to elevated temperature conditions that does not specifically reference LLR impairments. As LLR does not support salmonid habitat and the 1992 listing record does not support a finding of temperature impairment, this listing was in error. Our review of the very limited recent temperature data for the LLR indicates there is insufficient evidence of temperature impairment to support this listing; therefore, we recommend removal of LLR for temperature. We understand staff at the North Coast RWQCB support this recommendation. Based on our nutrient problem assessment, however, we recommend retention of nutrient-related listings for the Lost River.

D. DDT in Sediments

The State did not evaluate sediment DDT data in cases where this was the sole type of available data due to its apparent concern that available sediment DDT assessment criteria may be unreliable. We recommend the State evaluate available sediment DDT data. It is possible to derive an acceptable screening criterion by using DDT-specific sediment-water ratios to convert CTR saltwater criteria for DDT into the corresponding sediment value for assessment purposes (see EPA, 1994). This analysis will support listing of some areas in the Los Angeles Harbor.

E. Sediment Chemistry Assessment

The State did not assess waters in situations where only sediment chemistry data. While we support the general practice of evaluating multiple lines of evidence to evaluate potential sediment contamination, the State should evaluate available sediment chemistry data even if it is the sole type of available data. We note the State assessed several waters based solely on fish tissue data—a practice EPA supports. The assessment of sediment chemistry data should consider the frequency and magnitude of excursions above the screening criteria along with other information such as occurrence of related impairments in upstream or downstream segments. Review of sediment chemistry data in this manner supports additional listings in several waters including Los Angeles Harbor.

IV. Listing of Tribal Waters

The State proposed listing the Lower Klamath River for sediments. This assessment appears to be based, at least in part, on data collected in Tribal waters. Federal regulations provide that State jurisdiction to make Section 303(d) listing decisions does not extend to waters within Indian Country, as defined in 18 U.S.C. Section 1151. EPA requests clarification that the proposed listing does not address portions of the Klamath River that are within Indian Country.

V. New Data and Information Submissions

We expect some commenters will provide additional data or information with their written comments on the draft 303d list. The State should evaluate whether it needs to consider newly submitted data and information on a case-by-case basis. If the submitted data and information are found to be "existing and readily available", federal regulations require consideration of the new data and information in the listing assessment (40 CFR 130.7(b)). Factors the State should consider in evaluating whether data and information are "existing and readily available" include:


- data and information age,
- the form in which the data and information were submitted,
- they type of data, and
- whether evaluation of the data and information would support changes in listing determinations.

EPA would like to work with your staff to evaluate data and information received from the public to determine whether it should be considered in the 2004-2006 listing cycle. We would like to balance the obligation to consider available data and information with our shared objective to promptly complete this listing cycle.

At some future time, we would like to discuss the proposed long-term TMDL schedules with the State and Regional Boards in an effort to narrow the broad spectrum of proposed completion schedules.

In conclusion, we believe the State produced a sound framework for assessing the condition of its waters and commend your substantial effort on the listing update. We would like to work with your staff to resolve the outstanding concerns discussed in this letter and move toward submittal of a fully approvable Section 303(d) list. If it would help expedite completion of the listing process, we would be happy to provide additional contractor assistance to assist the State in reviewing any additional data and information that need to be considered. If you have any questions concerning our comments, please call me at (415) 972-3572 or David Smith at (415) 972-3416.

Sincerely yours,

 27 Jan. 2006
Alexis Strauss
Director, Water Division

enclosures

Enclosure 1: Detailed Comments on Draft 2004-2006 California Section 303(d) List

RB	Draft assessment	Waterbody name	Pollutant	Comment & Recommendation
1	List	(Lower) Klamath Glen	Sediment	Please clarify geographical extent of proposed listing to ensure listing does not include waters in Indian Country. State lacks Clean Water Act jurisdiction to list waters in Indian Country.
1	List	Lower Lost River	Temperature	EPA reviewed the 1992 listing record and more recent data, concluding the original EPA listing was in error and new data are insufficient to support an impairment determination. Recommend delisting.
1	Delist	Laguna de Santa Rosa	N & P	Basis for assessment decision unclear. Fact Sheet suggests numeric guideline is not available; this is an insufficient rationale for delisting. Data indicates nitrogen and phosphorus levels are far above available assessment guidelines. See enclosure 2. State should list N and P for exceedences of narrative WQOs.
2	Do Not list	Peyton Slough	Cd Cu Zn	Fact Sheets show 4/5 sediment toxicity excursions and sediment exceedences for Cd (3/6 samples), Cu (4/6 samples) and Zn (5/6 samples). Fact Sheets provide insufficient evidence that existing Cleanup and Abatement Order will be sufficient to attain applicable standards (see EPA 2006 Guidance on 4b listings, pp. 54 – 56). Recommend listing for Cd, Cu, and Zn.
2	Delist	San Leandro Bay	DDT Se	Fact Sheets show sediment toxicity observed and provide sediment results for DDT and Se. Not having a DDT or Se guideline is insufficient rationale for delisting. Segment appears to violate narrative WQOs. State should provide additional analysis to support delisting or retain pollutant(s) on 303d list for this segment.
3	Delist	Chumash Ck	DO	Available data indicate Basin Plan WQO for DO is violated in 40/245 samples. Listing should be retained.
4	Delist	Ballona Ck	Pb Se Zn	Available data indicate CTR standards are violated for Pb (6/90 samples), Se (6/176 samples), and Zn (9/154 samples). Listing should be retained
4	Delist	Coyote Ck	Se Zn	Available data indicate CTR standards are violated for Se (5/12 samples) and Zn (5/64 samples). Listing should be retained

RB	Draft assessment	Waterbody name	Pollutant	Comment & Recommendation
4	Delist	DominguezChannel estuary	Cr	Available data indicate 1/6 sediment toxicity excursions and sediment exceedences for Cr in 4/93 samples. State should provide good cause for delisting or retain pollutant(s) on 303d list for this segment.
4	Delist	DominguezChannel estuary	DDT	Assessment record is incomplete as it does not include all lines of evidence. Fact Sheet should include available fish tissue (>6000ppb) and sediment (>1 ppm) results, which provide sufficient evidence of impairment based on narrative WQOs. State should list this segment.
4	Delist	DominguezChannel estuary	Dieldrin	Fact Sheet states the original listing based on tissue MTRL values and sediment EDL values however no comparison was made to OEHHA values or sediment guidelines. State should retain this segment on list or provide good cause for delisting.
4	Do Not List	LA Harbor—Fish Harbor	Cu Pb Zn	Assessment record is inaccurate. Fact Sheet shows 1/6 sediment toxicity excursions and sediment exceedences for Pb(8/10 samples), Cu (10/10 samples), and Zn (10/10 samples), which is sufficient evidence of impairment based on narrative WQOs. State should include pollutants on list for this segment.
4	Delist	LA River Reach 1	Cd	Available data indicate CTR standards violations for Cd (3/42 samples). Listing should be retained.
4	Delist	LA River estuary	DDT	Fact Sheets show sediment toxicity observed and provide sediment results for DDT. State declined to apply a DDT sediment guideline to assess- an insufficient rationale for delisting. Segment appears to violate narrative WQOs. State should provide good cause for delisting or retain pollutant(s) on 303d list for this segment.
4	Delist	Ormond Beach	Coliform bacteria	Fact Sheet indicate WQOs violated in more than 10% of samples (33/279 samples). State should retain on list based on exceedences of numeric WQS.
4	Delist	San Buenaventura Beach	Coliform bacteria	Fact Sheet indicate WQOs violated in more than 10% of samples (44/401 samples). State should retain on list based on exceedences of numeric WQS.
4	Delist	San Gabriel River-Reach 2	Pb Zn	Available data indicate CTR violations for Pb (4/63 samples) and Zn (7/89 samples). State should provide good cause for delisting

RB	Draft assessment	Waterbody name	Pollutant	Comment & Recommendation
				or retain pollutants on 303d list for this segment.
4	No Fact Sheets included	San Gabriel River-Estuary	Cu Pb Zn	Fact Sheets for these pollutants in this segment should be generated. EPA's review of available water data for total recoverable metals indicates exceedances for Cu (5/61 samples), Pb (2/60 samples) and Zn (2/60 samples (see data files submitted by LA RWQCB for this segment.) State should list pollutants for exceedances of numeric WQOs.
4	No Fact Sheets included	San Jose Creek – Reach 1	Cu Pb Se	Fact Sheets for these pollutants in this segment should be generated. EPA's review of available water data for total recoverable metals indicates exceedances for Cu (2/95 samples), Pb (3/95 samples) and Se (10/78 samples (see data files submitted by LA RWQCB for this segment.) State should list pollutants for exceedances of numeric WQOs.
4	Do Not Delist	Santa Monica Bay	Chlordane	Assessment record supports delisting. Fact Sheet shows Chlordane exceeded marine sediment guideline in 0/24 samples, which is sufficient evidence of non-impairment using weight of evidence approach. More recent data of fish tissue and sediment results show narrative WQS are being attained. (see data files submitted by LA RWQCB for this segment.) State should delist pollutant for this segment.
5	Do Not List	Feather River - (Oroville to Sacramento River)	Cu	Available data indicate CTR standards are violated for Cu (10/124 samples). State should list pollutant for this segment
5	Delist	Sacramento River-(Knights Landing to Delta)	Diazinon	Available data indicate WQO violations for diazinon (12 / 1109 acute violations; 14 chronic violations). State should provide good cause for delisting or retain pollutant on 303d list for this segment.
5	Do Not List	Several Waters	Temperature	State decided not to list several other Central Valley waters based on evaluation of annual mean temperature data that are insensitive to short term elevations in temperature conditions that may adversely affect fish habitat. We recommend the State reevaluate its temperature assessments and disaggregate data if necessary to evaluate short term conditions.
5	Do Not List	Several Waters	Invasive	Fact sheets for several additional Central Valley waters appear to

RB	Draft assessment	Waterbody name	Pollutant	Comment & Recommendation
			Species	support (and actually recommend) listing due to invasive species; yet the State does not actually include these additional waters among new listings. Please clarify the invasive species assessments of these waters in the fact sheets and, if warranted, revise the listing decisions accordingly.
7	Do Not List	New River (Imperial)	Cu	Available data indicate CTR exceedances for Cu (10/24 samples). State should list pollutant for this segment.
8	Do Not List	Anaheim Bay	Dieldrin	Assessment record is incomplete since it does not include all lines of evidence. EPA added this to 2002 list based on exceedances of fish tissue values. Fact Sheet shows only sediment results (0/58). State should provide good cause for delisting or retain pollutant on 303d list for this segment.
8	Do Not List	Huntington Harbor	Dieldrin	Assessment record is incomplete since it does not include all lines of evidence. EPA added this to 2002 list based on exceedances of fish tissue values. Fact Sheet shows only sediment results (0/66). State should provide good cause for delisting or retain pollutant on 303d list for this segment.
9	Delist	Loveland Reservoir	pH	Available data indicate exceedances of Basin Plan numeric WQO for pH in 31/194 samples. State must provide good cause for delisting or retain pollutant on 303d list for this segment.
9	Delist	Murray Reservoir	DO	Available data indicate exceedances of Basin Plan WQO for DO in 9/70 samples. State should t provide good cause for delisting or retain pollutant on 303d list for this segment.
9	Delist	Mission Bay shoreline	Pathogens	Available data indicate exceedances of Basin Plan Bacteria WQOs in 2016 of 17,847 samples. State should retain on list based on exceedances of numeric WQOs.
9	Do Not List	San Diego Bay- Shoreline Park	Pathogens	Available data indicate 3 of 17 geometric mean and 20 of 166 single samples exceed Basin Plan bacteria WQOs, which is sufficient evidence of impairment. State should retain on list based on exceedances of numeric WQOs.

Enclosure 2: Basis for Recommendation to Retain Nitrogen and Phosphorus Listings for Laguna de Santa Rosa

Introduction

After the State of California listed Laguna de Santa Rosa (LSR) for nitrogen in the 2002 Section 303(d) list; EPA added phosphorus as an additional pollutant impairing LSR in the final listing decision. The State proposes to delist both nitrogen and phosphorus in the 2004-2006 listing decisions based on its concern that it has not identified appropriate screening thresholds for use in evaluating the ample nutrient data available for LSR and its tributaries. EPA reviewed available data for LSR and its tributaries and concludes that the nutrient and phosphorus listings should be retained because:

- the majority of nitrogen samples and vast majority of phosphorus measurements collected in LSR and its tributaries over the past several years are far higher than the range of potentially applicable nutrient screening thresholds identified in several independent sources,
- beneficial uses of LSR are impaired due to the presence of serious algae and aquatic vegetation growths and low dissolved oxygen levels of which high nutrient levels are very likely a contributing cause, and
- the Regional Board has determined that the existing TMDLs for LSR for ammonia and dissolved oxygen adopted in 1995 have not been effective in remedying the long-standing impairments associated with nutrient levels in the water body.

Evidence of beneficial use impairment has been submitted to the State Board by other commenters in support of the retention of the nitrogen and phosphorus listings and is not repeated here. It is important to retain both the nitrogen and phosphorus listings because available data do not indicate that controlling one type of nutrient would be sufficient to address beneficial use impairment. Excessive plant growth and associated DO depressions are probably associated both with extremely high N and P levels (see Gerritson, 2003). We also note that listing LSR solely for dissolved oxygen (DO) would not be consistent with federal listing requirements because, as discussed below, the data support separate N and P listings. Moreover, DO serves as an imperfect surrogate indicator of the beneficial use impairments that exist in LSR associated with excessive algal and plant growth. Developing TMDLs and control actions solely designed to increase DO levels may not be sufficient to address these other use impairments associated with elevated nutrient levels.

Potential Nutrient Screening Thresholds

The State declined to apply numeric interpretations of narrative biostimulation objectives to assess LSR waters for nutrient-related impairments due to an apparent concern that available nitrogen and phosphorus assessment criteria are not fully reliable.

We recognize the State has not adopted numeric criteria or identified discriminating nutrient criteria values for all California waters. However, federal regulations at 40 CFR 130.7(b) require States to evaluate available data as part of the assessment process. EPA's 2006 listing guidance stresses that data should be used unless a specific technical rationale

can be provided to justify not using the data. The State has not provided such a rationale. We note that the State identified screening thresholds that were used successfully in the list assessment process to evaluate other types of data and other narrative water quality objectives. We believe it is feasible for the State to consider nutrient data in a similar manner; therefore, the challenge is to determine what potential assessment thresholds would be appropriate to evaluate LSR data.

To evaluate whether a water should be listed, it is not necessary to know the exact nutrient thresholds beyond which adverse biostimulation effects will occur. Instead, it may be sufficient in a weight of evidence framework to observe that actual water column nutrient values are significantly higher than the range of potential assessment criteria or that a very high percentage of observed values exceed potential assessment criteria. Although there are many potential indicators of nutrient effects on streams, this document focuses upon total nitrogen and total phosphorus because these are integrating indicators commonly used to evaluate nutrient issues. The table below presents nitrogen and phosphorus assessment thresholds used or recommended by other researchers or regulatory organizations.

Source	Total Nitrogen (mg/l)	Total Phosphorus (mg/l)
EPA National Ecoregion Nutrient Criteria for Ecoregion III.6 (the area in which LSR is located) (EPA, 2000)	0.22-0.90	0.010-0.055
Dodds & Welch (2000)	1.5	0.075
San Diego Regional Basin Plan	1.0	0.1
Malibu Creek and Rainbow Creek, CA TMDLs	1.0	0.1
NOAA/EPA Strategic Assessment of Near Coastal Waters (1998)	<1.0	<0.1
Little Colorado River, AZ WQS (annual mean)	0.7	0.2

These thresholds are reasonably close to each other and together provide a reasonably robust range of potential screening thresholds that may appropriately be used to evaluate nutrient data from LSR. We note that the EPA Ecoregion Nutrient Criteria recommendations are based on data collected from rivers and streams in the specific ecoregion and sub-ecoregion area in which LSR is located and are therefore appropriate for screening-level comparison. The Dodds and Welch recommendations are based on a survey of nutrient thresholds from rivers and streams around the world. It is appropriate to consider these values as the source data are based on a wide range of stream and climatic conditions. It is also appropriate to consider the nutrient objectives in the San Diego Basin Plan as they are State-adopted numeric objectives applicable for a coastal California region. The same target levels were used for nutrient TMDLs completed for Malibu Creek and Rainbow Creek. The Malibu Creek TMDL explains the targets were selected based on several factors including consideration of recommendations from several literature sources as well as reference conditions in good quality streams in Southern California coastal areas.

Threshold Comparison With LSR Data

The North Coast RWQCB staff provided EPA with LSR data presented in two sources (Whickham and Rawson, 2000; Scoles, 2006). Total phosphorus data were presented in both sources. Figure 1 below illustrates that the majority of phosphorus levels are far higher than the range of assessment thresholds discussed above.¹ EPA assessment guidance recommends identifying a water as impaired if more than 10% of conventional pollutant samples exceed the standard or screening threshold (EPA, 2002). Approximately 95% of phosphorus samples exceed the least conservative screening threshold. Approximately 20% of samples exceed the 0.1 mg/l threshold by at least 10 times, illustrating the magnitude of the exceedances.

The nitrogen data were reported by Wickham and Rawson in terms of individual nitrogen components (e.g., nitrate, nitrite, etc.), not as total nitrogen.² Figure 2 below illustrates that the majority of nitrogen levels are significantly higher than the range of assessment thresholds discussed above. EPA assessment guidance recommends identifying a water as impaired if more than 10% of conventional pollutant samples exceed the standard or screening threshold (EPA, 2002). Approximately 30% of total nitrogen samples exceed the commonly used 1.0 mg/l screening threshold. At least 18 samples exceed the 1.0 mg/l threshold by at least 10 times, illustrating the magnitude of the exceedances.

The nitrogen data reported by Scoles also were expressed in terms of individual nitrogen components. We compared the screening thresholds discussed above with the estimated total nitrogen levels presented by Scoles.³ We found that 43% of these samples exceeded the 1.0 mg/l screening threshold and about 10% of samples exceeded this threshold by at least a factor of 4.

Conclusion

The data analysis supports the finding that LSR is likely co-limited by extremely high levels of both total nitrogen and total phosphorus. There is no sound basis for delisting these pollutants; these listings should be retained on the 2004-2006 Section 303(d) list.

¹ An excel spreadsheet containing the data used to prepare the tables referenced in this section will be provided to staff under separate cover.

² The total nitrogen levels were estimated for the Whickham and Rawson data by summing nitrate, nitrite, and TKN, then subtracting ammonia (because ammonia is already accounted for in TKN measures). This is a conservative surrogate estimate as all TN components were not measured during all sample events. In Figure 2, a few extremely high values were censored to make the figure clearer. We also removed a few reported negative values from the data set.

³ To estimate TN levels based on the Scoles data, total inorganic nitrogen values were summed with ammonia values.

References

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EPA/NOAA, 1998. *Strategic Assessment of Near Coastal Waters, Chapter 3*. U.S.. Environmental Protection Agency and National Oceanic and Atmospheric Administration, 1998.

Gerritsen, 2003. *Does N or P limit algal biomass in streams?* Report to EPA Region 9 by Dr. Jeroen Gerritsen, Tetra Tech, Inc., July, 2003.

Scoles, 2006. Letter from Greg Scoles, City of Santa Rosa, to Tam Doduc, SWRCB, January 5, 2006, with enclosures.

Tetra Tech, 2005. *Technical Approach to Develop Nutrient Numeric Endpoints for California*. Tetra Tech, Inc., December, 2005.

Whickham, Daniel E. and R.W. Rawson. 2000. *Phosphate Loading and Eutrophication in the Laguna de Santa Rosa*. Report to Russian River Watershed Protection Committee and City of Santa Rosa. IOS Corporation, Santa Rosa, CA. January 28, 2000.

**Figure 1: Laguna de Santa Rosa & Tributaries:
Total Phosphorus Levels Compared to Potential Screening Thresholds**
(Source: Whickham and Rawson, 2000; Scoles, 2006)

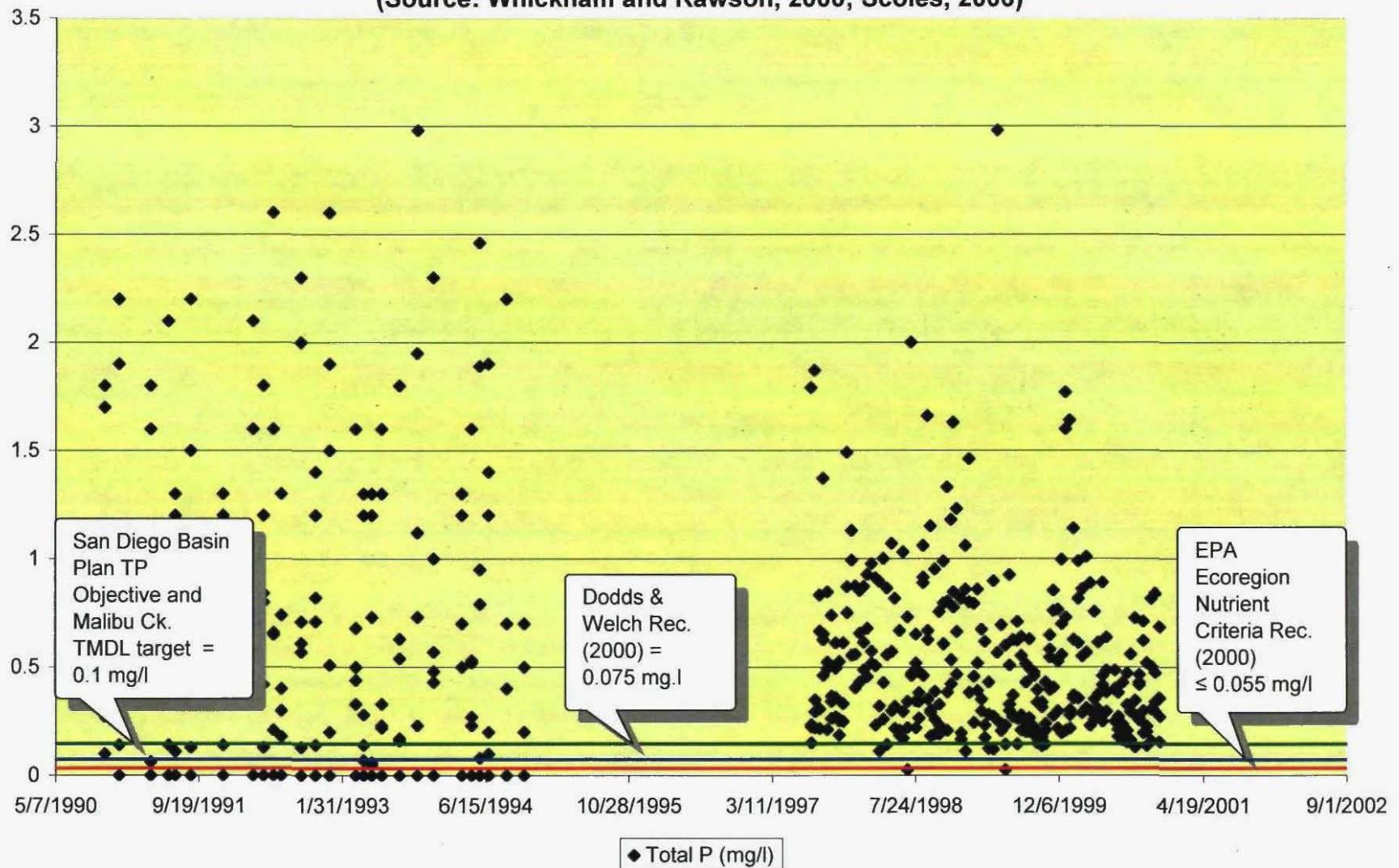
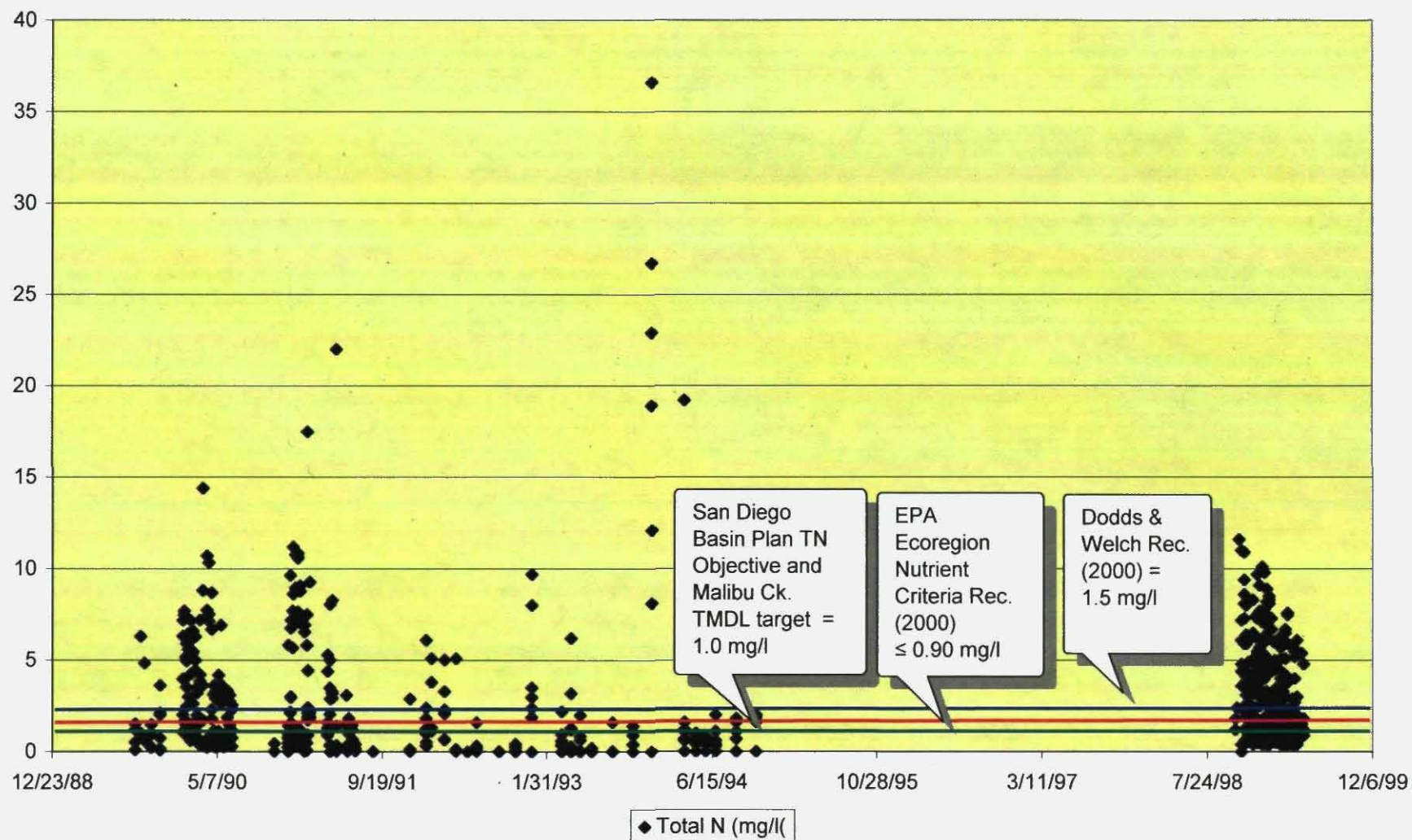


Figure 2: Laguna de Santa Rosa & Tributaries
Total Nitrogen Levels Compared to Potential Screening Thresholds
 (Source: Whickham and Rawson, 2000)



Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Laguna de Santa Rosa @ Stony Point Road	10/17/1989		0.070	0.00	0.93	0.03	0.906
Laguna de Santa Rosa @ Stony Point Road	11/14/1989		0.030	0.01	0.80	0.07	0.738
Laguna de Santa Rosa @ Stony Point Road	1/22/1990		1.4	0.14	1.50	0.56	1.08
Laguna de Santa Rosa @ Stony Point Road	1/26/1990		1.3	0.23	1.50	0.08	1.65
Laguna de Santa Rosa @ Stony Point Road	1/31/1990		0.94	0.22	1.70	0.25	1.67
Laguna de Santa Rosa @ Stony Point Road	2/2/1990		1.6	0.59	2.50	0.64	2.45
Laguna de Santa Rosa @ Stony Point Road	2/7/1990		0.69	0.09	1.20	0.18	1.11
Laguna de Santa Rosa @ Stony Point Road	2/14/1990		1.4	0.32	2.50	1.40	1.42
Laguna de Santa Rosa @ Stony Point Road	2/20/1990		0.7	0.08	1.30	0.58	0.797
Laguna de Santa Rosa @ Stony Point Road	2/21/1990		0.65	0.06	1.10	0.22	0.938
Laguna de Santa Rosa @ Stony Point Road	2/28/1990		0.58	0.22	1.00	0.08	1.14
Laguna de Santa Rosa @ Stony Point Road	3/6/1990		0.6	0.10	4.30	2.40	2
Laguna de Santa Rosa @ Stony Point Road	3/14/1990		0.43	0.04	0.81	0.24	0.61
Laguna de Santa Rosa @ Stony Point Road	3/23/1990		0.15	0.07	1.70	0.06	1.714
Laguna de Santa Rosa @ Stony Point Road	4/4/1990		0.1	0.01	0.60	0.38	0.227
Laguna de Santa Rosa @ Stony Point Road	4/10/1990		0.62	0.01	0.90	0.12	0.787
Laguna de Santa Rosa @ Stony Point Road	4/18/1990		0.1	0.01	1.80	0.03	1.785
Laguna de Santa Rosa @ Stony Point Road	4/25/1990		0.05	0.00	1.20	0.06	1.141
Laguna de Santa Rosa @ Stony Point Road	5/1/1990		0.11	0.00	1.10	0.12	0.981
Laguna de Santa Rosa @ Stony Point Road	5/9/1990		0.12	0.00	0.90	0.03	0.876
Laguna de Santa Rosa @ Stony Point Road	5/16/1990		0.07	0.00	1.00	0.03	0.976
Laguna de Santa Rosa @ Stony Point Road	5/24/1990		0.14	0.04	0.24	0.03	0.259
Laguna de Santa Rosa @ Stony Point Road	6/5/1990		0.05	0.03	1.10	0.03	1.095
Laguna de Santa Rosa @ Stony Point Road	6/12/1990		0.05	0.00	1.00	0.03	0.971
Laguna de Santa Rosa @ Stony Point Road	6/19/1990		0.03	0.00	1.20	0.03	1.171
Laguna de Santa Rosa @ Stony Point Road	10/24/1990	0.39	0.03			0.05	0.03
Laguna de Santa Rosa @ Stony Point Road	12/4/1990		0.13	0.05	0.10	0.03	0.253
Laguna de Santa Rosa @ Stony Point Road	12/6/1990		0.12	0.04	0.30	0.03	0.438
Laguna de Santa Rosa @ Stony Point Road	12/11/1990		1.20	0.32	1.20	0.59	2.13
Laguna de Santa Rosa @ Stony Point Road	12/13/1990		0.80	0.23	0.20	0.10	1.13
Laguna de Santa Rosa @ Stony Point Road	12/14/1990	0.43	0.43			0.20	0.43
Laguna de Santa Rosa @ Stony Point Road	12/18/1990		4.80	0.23	0.81	0.16	5.68
Laguna de Santa Rosa @ Stony Point Road	12/20/1990		0.86	0.09	0.29	0.11	1.132
Laguna de Santa Rosa @ Stony Point Road	12/27/1990		0.30	0.04	0.24	0.03	0.555
Laguna de Santa Rosa @ Stony Point Road	1/3/1991		0.29	0.03	0.05	0.03	0.34
Laguna de Santa Rosa @ Stony Point Road	1/10/1991		0.41	0.24	0.15	0.03	0.775
Laguna de Santa Rosa @ Stony Point Road	1/15/1991		0.08	0.02	0.15	0.03	0.225
Laguna de Santa Rosa @ Stony Point Road	1/23/1991		0.04	0.00	0.12	0.03	0.136
Laguna de Santa Rosa @ Stony Point Road	1/30/1991		0.04	0.00	0.05	0.03	0.066
Laguna de Santa Rosa @ Stony Point Road	2/2/1991		2.20	0.20	0.38	0.35	2.43
Laguna de Santa Rosa @ Stony Point Road	2/8/1991		1.40	0.36	1.10	0.92	1.94
Laguna de Santa Rosa @ Stony Point Road	4/3/1991	0.4	0.89			0.05	0.89
Laguna de Santa Rosa @ Stony Point Road	4/12/1991		0.33			0.14	0.33
Laguna de Santa Rosa @ Stony Point Road	4/12/1991		0.37	0.03	1.00	0.03	1.379
Laguna de Santa Rosa @ Stony Point Road	4/17/1991		0.41	0.07	0.80	0.03	1.255
Laguna de Santa Rosa @ Stony Point Road	4/30/1991		0.05			0.05	0.045
Laguna de Santa Rosa @ Stony Point Road	6/3/1991	0.67	0.030*			0.05	0.03
Laguna de Santa Rosa @ Stony Point Road	6/7/1991		0.02	0.00	1.00	0.03	0.996
Laguna de Santa Rosa @ Stony Point Road	6/27/1991	0.68	0.04			0.22	0.42
Laguna de Santa Rosa @ Stony Point Road	8/20/1991	0.83	0.030*			0.06	0.03
Laguna de Santa Rosa @ Stony Point Road	12/11/1991	0.4	0.09			0.05	0.087

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Laguna de Santa Rosa @ Stony Point Road	1/29/1992				1.10	0.10	1
Laguna de Santa Rosa @ Stony Point Road	3/25/1992	0.59	0.70			0.19	
Laguna de Santa Rosa @ Stony Point Road	4/29/1992	0.42	0.06			0.06	0.7
Laguna de Santa Rosa @ Stony Point Road	6/3/1992	0.66					0.06
Laguna de Santa Rosa @ Stony Point Road	7/1/1992	0.74	0.18			0.40	0.18
Laguna de Santa Rosa @ Stony Point Road	9/8/1992	0.71	0.030*			0.08	0.03
Laguna de Santa Rosa @ Stony Point Road	10/28/1992	0.82	0.43			0.37	0.43
Laguna de Santa Rosa @ Stony Point Road	12/16/1992	0.51	2.40			0.36	2.4
Laguna de Santa Rosa @ Stony Point Road	3/17/1993	0.68	0.61			0.30	0.61
Laguna de Santa Rosa @ Stony Point Road	4/14/1993	0.28	1.20			0.25	1.2
Laguna de Santa Rosa @ Stony Point Road	5/12/1993	0.73	0.03			0.05	0.03
Laguna de Santa Rosa @ Stony Point Road	6/16/1993	0.33	0.030*			0.05	0.03
Laguna de Santa Rosa @ Stony Point Road	8/18/1993	0.54	0.02			0.05	0.02
Laguna de Santa Rosa @ Stony Point Road	10/19/1993	1.12	0.90			0.20	0.9
Laguna de Santa Rosa @ Stony Point Road	12/14/1993	1	26.70			0.30	26.7
Laguna de Santa Rosa @ Stony Point Road	3/22/1994	0.5	0.70			0.10	0.7
Laguna de Santa Rosa @ Stony Point Road	4/25/1994	0.52	0.40			0.10	0.4
Laguna de Santa Rosa @ Stony Point Road	5/24/1994	0.95	0.40			0.10	0.4
Laguna de Santa Rosa @ Stony Point Road	6/23/1994	1.2	1.10			0.10*	1.1
Laguna de Santa Rosa @ Stony Point Road	8/25/1994	0.7	1.80			0.10*	1.8
Laguna de Santa Rosa @ Stony Point Road	10/25/1994	0.5	2.00			0.10*	2
Laguna de Santa Rosa @ Todd Road	11/14/1989		0.55	0.08	2.30	0.83	2.096
Laguna de Santa Rosa @ Todd Road	1/22/1990		6.20	0.88	9.50	9.40	7.18
Laguna de Santa Rosa @ Todd Road	1/26/1990		5.50	0.98	11.00	10.00	7.48
Laguna de Santa Rosa @ Todd Road	1/31/1990		3.30	0.70	9.70	8.50	5.2
Laguna de Santa Rosa @ Todd Road	2/2/1990		2.20	0.41	5.30	2.00	5.91
Laguna de Santa Rosa @ Todd Road	2/7/1990		3.70	0.89	13.00	12.00	5.59
Laguna de Santa Rosa @ Todd Road	2/14/1990		5.20	0.97	11.00	10.00	7.17
Laguna de Santa Rosa @ Todd Road	2/20/1990		2.50	1.30	8.50	6.80	5.5
Laguna de Santa Rosa @ Todd Road	2/21/1990		5.60	1.00	11.00	11.00	6.6
Laguna de Santa Rosa @ Todd Road	2/28/1990		2.70	4.30	12.00	14.00	5
Laguna de Santa Rosa @ Todd Road	3/6/1990		2.00	1.30	7.90	7.80	3.4
Laguna de Santa Rosa @ Todd Road	3/14/1990		5.60	2.60	12.00	13.00	7.2
Laguna de Santa Rosa @ Todd Road	3/23/1990		7.40	3.00	19.00	15.00	14.4
Laguna de Santa Rosa @ Todd Road	4/4/1990		5.30	2.00	13.00	9.60	10.7
Laguna de Santa Rosa @ Todd Road	4/10/1990		0.67	0.47	17.00	11.00	7.14
Laguna de Santa Rosa @ Todd Road	4/18/1990		0.27	0.33	7.30	5.60	2.3
Laguna de Santa Rosa @ Todd Road	4/25/1990		0.25	0.50	6.90	4.50	3.15
Laguna de Santa Rosa @ Todd Road	5/1/1990		0.20	0.12	3.20	2.60	0.92
Laguna de Santa Rosa @ Todd Road	5/9/1990		0.17	0.02	16.00	12.00	4.19
Laguna de Santa Rosa @ Todd Road	5/16/1990		0.24	0.67	15.00	9.00	6.91
Laguna de Santa Rosa @ Todd Road	5/24/1990		0.16	0.06	0.38	0.17	0.431
Laguna de Santa Rosa @ Todd Road	6/5/1990		0.20	0.34	4.80	2.00	3.34
Laguna de Santa Rosa @ Todd Road	6/12/1990		0.08	0.00	2.70	0.03	2.756
Laguna de Santa Rosa @ Todd Road	6/19/1990		0.07	0.00	2.50	0.03	2.546
Laguna de Santa Rosa @ Todd Road	10/24/1990	1.7	0.030*			0.62	0.03
Laguna de Santa Rosa @ Todd Road	12/4/1990		0.22	0.07	0.5	0.025	0.765
Laguna de Santa Rosa @ Todd Road	12/6/1990		6.2	0.29	1	0.66	5.83
Laguna de Santa Rosa @ Todd Road	12/11/1990		8.9	0.33	1	0.59	9.64
Laguna de Santa Rosa @ Todd Road	12/13/1990		6.3	0.22	0.6	0.36	6.76
Laguna de Santa Rosa @ Todd Road	12/14/1990	4.1	7.2			0.56	7.2
Laguna de Santa Rosa @ Todd Road	12/18/1990		6.3	0.31	0.65	0.39	6.87
Laguna de Santa Rosa @ Todd Road	12/20/1990		10	0.4	1.2	0.42	11.18
Laguna de Santa Rosa @ Todd Road	12/27/1990		9.6	0.47	1.1	0.4	10.77
Laguna de Santa Rosa @ Todd Road	1/3/1991		10	0.4	0.71	0.27	10.84
Laguna de Santa Rosa @ Todd Road	1/10/1991		0.81	0.14	0.46	0.21	1.2
Laguna de Santa Rosa @ Todd Road	1/15/1991		0.08	0.02	0.3	0.025	0.375
Laguna de Santa Rosa @ Todd Road	1/23/1991		0.06	0.001	0.3	0.025	0.336
Laguna de Santa Rosa @ Todd Road	1/30/1991		0.06	0.001	0.05	0.025	0.086
Laguna de Santa Rosa @ Todd Road	2/2/1991		1.6	0.4	0.22	0.32	1.9
Laguna de Santa Rosa @ Todd Road	2/8/1991		1.6	0.4	1.1	0.96	2.14
Laguna de Santa Rosa @ Todd Road	4/3/1991	1.8	5.3			0.22	5.3
Laguna de Santa Rosa @ Todd Road	4/10/1991		1.1	0.36	2	1.4	2.06
Laguna de Santa Rosa @ Todd Road	4/17/1991		0.36	0.2	2.4	0.025	2.935
Laguna de Santa Rosa @ Todd Road	4/30/1991		1.4			2.2	1.4
Laguna de Santa Rosa @ Todd Road	6/3/1991	2.2	0.21			2.4	0.21
Laguna de Santa Rosa @ Todd Road	6/27/1991	1.4	0.042			0.050*	0.042
Laguna de Santa Rosa @ Todd Road	8/20/1991	2.7	0.030*			0.050*	0.03
Laguna de Santa Rosa @ Todd Road	12/11/1991	0.71	0.030*			0.050*	0.03
Laguna de Santa Rosa @ Todd Road	1/29/1992		0		4.6	2.2	2.4
Laguna de Santa Rosa @ Todd Road	3/25/1992	2.3	5.4			0.38	5.02
Laguna de Santa Rosa @ Todd Road	4/29/1992	1.9	5.2			0.1	5.1

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN	
Laguna de Santa Rosa @ Todd Road	6/3/1992	1.4						0
Laguna de Santa Rosa @ Todd Road	7/1/1992	1.2	0.07			0.54	0.07	
Laguna de Santa Rosa @ Todd Road	9/8/1992	1.8	0.030*			0.08	0.03	
Laguna de Santa Rosa @ Todd Road	10/28/1992	2	0.030*			0.07	0.03	
Laguna de Santa Rosa @ Todd Road	12/16/1992	2	9.7			2.5	9.7	
Laguna de Santa Rosa @ Todd Road	3/17/1993	0.9	0.95			0.41	0.95	
Laguna de Santa Rosa @ Todd Road	4/14/1993	1.9	6.2			1.4	6.2	
Laguna de Santa Rosa @ Todd Road	5/12/1993	1	0.85			2.4	0.85	
Laguna de Santa Rosa @ Todd Road	6/16/1993	1.1	0.21			0.11	0.21	
Laguna de Santa Rosa @ Todd Road	8/18/1993	1.1	0.028			0.064	0.028	
Laguna de Santa Rosa @ Todd Road	10/19/1993	1.51	0.9			1	0.9	
Laguna de Santa Rosa @ Todd Road	12/14/1993	1.50	22.9			0.7	22.9	
Laguna de Santa Rosa @ Todd Road	3/22/1994	1.4	1.6			2.4	1.6	
Laguna de Santa Rosa @ Todd Road	4/25/1994	0.51	0.9			0.2	0.9	
Laguna de Santa Rosa @ Todd Road	5/24/1994	0.58	0.4			0.10*	0.4	
Laguna de Santa Rosa @ Todd Road	6/23/1994	1.1	0.6			0.10*	0.6	
Laguna de Santa Rosa @ Todd Road	8/25/1994	0.6	1.6			0.10*	1.6	
Laguna de Santa Rosa @ Todd Road	10/25/1994	1.2	2			0.10*	2	
Laguna de Santa Rosa @ HWY 12	10/24/1990							
Laguna de Santa Rosa @ HWY 12	12/14/1990							
Laguna de Santa Rosa @ HWY 12	4/3/1991							
Laguna de Santa Rosa @ HWY 12	4/30/1991		0.15			0.059	0.15	
Laguna de Santa Rosa @ HWY 12	6/3/1991							
Laguna de Santa Rosa @ HWY 12	6/27/1991							
Laguna de Santa Rosa @ HWY 12	8/20/1991							
Laguna de Santa Rosa @ HWY 12	12/11/1991							
Laguna de Santa Rosa @ HWY 12	1/29/1992				5.9	3.5	2.4	
Laguna de Santa Rosa @ HWY 12	2/14/1992				9.3	4.2	5.1	
Laguna de Santa Rosa @ HWY 12	3/25/1992	1.8	2.2			0.24	2.2	
Laguna de Santa Rosa @ HWY 12	7/1/1992	1.9	1.6			0.21	1.6	
Laguna de Santa Rosa @ HWY 12	9/8/1992						0	
Laguna de Santa Rosa @ HWY 12	10/28/1992						0	
Laguna de Santa Rosa @ HWY 12	4/14/1993						0	
Laguna de Santa Rosa @ HWY 12	5/12/1993						0	
Laguna de Santa Rosa @ HWY 12	6/16/1993						0	
Laguna de Santa Rosa @ HWY 12	8/18/1993						0	
Laguna de Santa Rosa @ HWY 12	10/19/1993						0	
Laguna de Santa Rosa @ HWY 12	12/14/1993						0	
Laguna de Santa Rosa @ HWY 12	3/22/1994						0	
Laguna de Santa Rosa @ HWY 12	4/25/1994						0	
Laguna de Santa Rosa @ HWY 12	5/24/1994						0	
Laguna de Santa Rosa @ HWY 12	6/23/1994						0	
Laguna de Santa Rosa @ HWY 12	8/25/1994						0	
Laguna de Santa Rosa @ HWY 12	10/25/1994						0	
Laguna de Santa Rosa @ Occidental Road	9/27/1989		0.57	0.07	4.3	0.1	4.84	
Laguna de Santa Rosa @ Occidental Road	11/14/1989		0.43	0.016	3.2	0.025	3.621	
Laguna de Santa Rosa @ Occidental Road	1/22/1990		5.6	0.31	5.6	5.2	6.31	
Laguna de Santa Rosa @ Occidental Road	1/26/1990		6.5	0.2	6	5	7.7	
Laguna de Santa Rosa @ Occidental Road	1/31/1990		5.6	0.48	4.6	4.4	6.28	
Laguna de Santa Rosa @ Occidental Road	2/2/1990		3.1	0.36	4	2.5	4.96	
Laguna de Santa Rosa @ Occidental Road	2/7/1990		3.4	0.26	4.6	1.8	6.46	
Laguna de Santa Rosa @ Occidental Road	2/14/1990		4.9	0.49	6.3	5.6	6.09	
Laguna de Santa Rosa @ Occidental Road	2/20/1990		3	0.2	2.2	0.025	5.375	
Laguna de Santa Rosa @ Occidental Road	2/21/1990		3.1	0.18	4.8	2.6	5.48	
Laguna de Santa Rosa @ Occidental Road	2/28/1990		4.7	0.59	5.9	4.9	6.29	
Laguna de Santa Rosa @ Occidental Road	3/6/1990		2.2	0.22	3.9	2.8	3.52	
Laguna de Santa Rosa @ Occidental Road	3/14/1990		3.3	0.44	3.5	3.4	3.84	
Laguna de Santa Rosa @ Occidental Road	3/23/1990		3.8	0.72	8.5	4.2	8.82	
Laguna de Santa Rosa @ Occidental Road	4/10/1990		7.6	1.03	4.2	2.5	10.33	
Laguna de Santa Rosa @ Occidental Road	4/18/1990		4.7	0.71	3.8	0.53	6.68	
Laguna de Santa Rosa @ Occidental Road	4/25/1990		1.9	0.48	1.3	0.06	3.62	
Laguna de Santa Rosa @ Occidental Road	5/1/1990		0.75	0.28	2.1	0.23	2.9	
Laguna de Santa Rosa @ Occidental Road	5/9/1990		0.11	0.014	1.1	0.1	1.124	
Laguna de Santa Rosa @ Occidental Road	5/16/1990		0.08	0.048	3.7	0.15	3.678	
Laguna de Santa Rosa @ Occidental Road	5/24/1990		0.34	0.12	0.9	0.68	0.68	
Laguna de Santa Rosa @ Occidental Road	6/5/1990		0.11	0.076	3	0.03	3.156	
Laguna de Santa Rosa @ Occidental Road	6/12/1990		0.08	0.001	1.4	0.03	1.451	
Laguna de Santa Rosa @ Occidental Road	6/19/1990		0.09	0.001	2.5	0.03	2.561	
Laguna de Santa Rosa @ Occidental Road	10/24/1990	1.8	0.03			0.088	0.03	
Laguna de Santa Rosa @ Occidental Road	12/4/1990		0.005	0.001	0.5	0.025	0.481	
Laguna de Santa Rosa @ Occidental Road	12/6/1990		0.005	0.001	0.3	0.025	0.281	
Laguna de Santa Rosa @ Occidental Road	12/11/1990		1.5	0.078	2	1.4	2.178	

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Laguna de Santa Rosa @ Occidental Road	12/13/1990		2.4	0.082	1.4	0.91	2.972
Laguna de Santa Rosa @ Occidental Road	12/14/1990	1.9	1.6			1.1	1.6
Laguna de Santa Rosa @ Occidental Road	12/18/1990		6	0.33	1.4	0.49	7.24
Laguna de Santa Rosa @ Occidental Road	12/20/1990		7.3	0.46	1.4	0.55	8.61
Laguna de Santa Rosa @ Occidental Road	12/27/1990		8.1	0.35	1.6	1.1	8.95
Laguna de Santa Rosa @ Occidental Road	1/3/1991		9.7	0.39	0.68	0.14	10.63
Laguna de Santa Rosa @ Occidental Road	1/10/1991		8.3	0.27	0.59	0.39	8.77
Laguna de Santa Rosa @ Occidental Road	1/15/1991		6.3	0.32	2.7	1.9	7.42
Laguna de Santa Rosa @ Occidental Road	1/23/1991		6.3	0.43	1.8	1.6	6.93
Laguna de Santa Rosa @ Occidental Road	1/30/1991		5.5	0.23	0.56	0.47	5.82
Laguna de Santa Rosa @ Occidental Road	2/2/1991		4.2	0.16	0.25	0.17	4.44
Laguna de Santa Rosa @ Occidental Road	2/8/1991		1.4	0.32	0.63	0.42	1.93
Laguna de Santa Rosa @ Occidental Road	4/3/1991	1.8	4.4			0.050*	4.4
Laguna de Santa Rosa @ Occidental Road	4/10/1991		3.9	0.14	0.99	0.025	5.005
Laguna de Santa Rosa @ Occidental Road	4/11/1991						0
Laguna de Santa Rosa @ Occidental Road	4/17/1991		1.8	0.2	2.1	0.9	3.2
Laguna de Santa Rosa @ Occidental Road	4/30/1991		0.030*			0.050*	0.03
Laguna de Santa Rosa @ Occidental Road	6/3/1991	2.1	0.030*			0.050*	0.03
Laguna de Santa Rosa @ Occidental Road	6/27/1991	1.3	0.051			0.071	0.051
Laguna de Santa Rosa @ Occidental Road	8/20/1991	2.2	0.030*			0.14	0.03
Laguna de Santa Rosa @ Occidental Road	12/11/1991	1.3	0.030*			0.063	0.03
Laguna de Santa Rosa @ Occidental Road	1/29/1992				2.1	0.27	1.83
Laguna de Santa Rosa @ Occidental Road	3/25/1992	2.1	2.4			0.32	2.08
Laguna de Santa Rosa @ Occidental Road	4/29/1992	1.8	0.030*			0.1	0.03
Laguna de Santa Rosa @ Occidental Road	6/3/1992	1.6					0
Laguna de Santa Rosa @ Occidental Road	7/1/1992	1.3	0.030*			0.14	0.03
Laguna de Santa Rosa @ Occidental Road	9/8/1992	2.3	0.030*			0.050*	0.03
Laguna de Santa Rosa @ Occidental Road	10/28/1992	1.4	0.42			0.41	0.42
Laguna de Santa Rosa @ Occidental Road	12/16/1992	2.6	8			2	8
Laguna de Santa Rosa @ Occidental Road	3/17/1993	1.6	2.2			0.73	2.2
Laguna de Santa Rosa @ Occidental Road	4/14/1993	1.3	3.2			0.13	3.2
Laguna de Santa Rosa @ Occidental Road	5/12/1993	1.2	2			0.2	2
Laguna de Santa Rosa @ Occidental Road	6/16/1993	1.3	0.05			0.26	0.05
Laguna de Santa Rosa @ Occidental Road	8/18/1993	1.8	0.023			0.13	0.023
Laguna de Santa Rosa @ Occidental Road	10/19/1993	1.95	1.1			0.5	1.1
Laguna de Santa Rosa @ Occidental Road	12/14/1993	2.3	36.6			1.2	36.6
Laguna de Santa Rosa @ Occidental Road	3/22/1994	1.3	1.6			0.2	1.6
Laguna de Santa Rosa @ Occidental Road	4/25/1994	1.6	0.5			0.10*	0.5
Laguna de Santa Rosa @ Occidental Road	5/24/1994	1.89	0.4			0.10*	0.4
Laguna de Santa Rosa @ Occidental Road	6/23/1994	1.9	0.4			0.2	0.4
Laguna de Santa Rosa Upstream of Santa Rosa Creek	8/30/1989		0.8	0.007	0.9	0.5	1.207
Laguna de Santa Rosa Upstream of Santa Rosa Creek	10/18/1989		0.74	0.027	1.2	0.49	1.477
Laguna de Santa Rosa Upstream of Santa Rosa Creek	11/14/1989		0.4	0.022	1.6	0.025	1.997
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/22/1990		2.8	0.18	4.4	3.4	3.98
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/26/1990		3.4	0.15	4.4	4	3.95
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/31/1990		4.7	0.33	3.3	3.2	5.13
Laguna de Santa Rosa Upstream of Santa Rosa Creek	2/2/1990		2.4	0.43	3.3	2.6	3.53
Laguna de Santa Rosa Upstream of Santa Rosa Creek	2/7/1990		1.4	0.19	3.4	2	2.99
Laguna de Santa Rosa Upstream of Santa Rosa Creek	2/14/1990		2.7	0.34	5.6	4.4	4.24
Laguna de Santa Rosa Upstream of Santa Rosa Creek	2/21/1990		1.7	0.08	0.88	0.03	2.63
Laguna de Santa Rosa Upstream of Santa Rosa Creek	2/28/1990		3.9	0.46	2.9	2.8	4.46
Laguna de Santa Rosa Upstream of Santa Rosa Creek	3/6/1990		2.9	0.41	3.5	3.6	3.21
Laguna de Santa Rosa Upstream of Santa Rosa Creek	3/14/1990		3.3	0.42	4.1	3.6	4.22
Laguna de Santa Rosa Upstream of Santa Rosa Creek	3/23/1990		3.2	0.43	6.6	6.6	3.63
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/10/1990		4.3	0.59	3.1	0.46	7.53
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/18/1990		2.9	0.31	3.5	0.025	6.685
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/25/1990		1.2	0.15	1.9	0.14	3.11
Laguna de Santa Rosa Upstream of Santa Rosa Creek	5/1/1990		0.45	0.17	2.8	0.1	3.32
Laguna de Santa Rosa Upstream of Santa Rosa Creek	5/9/1990		0.15	0.02	2.7	0.003	2.867
Laguna de Santa Rosa Upstream of Santa Rosa Creek	5/16/1990		0.59	1	1.3	0.25	2.64
Laguna de Santa Rosa Upstream of Santa Rosa Creek	5/24/1990		0.35	0.104	0.8	0.7	0.554
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/5/1990		0.18	0.003	3.1	0.03	3.253
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/12/1990		0.29	0.051	2.8	0.03	3.111
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/19/1990		0.14	0.033	2.3	0.16	2.313
Laguna de Santa Rosa Upstream of Santa Rosa Creek	10/24/1990	0.64	0.45			0.39	0.45
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/4/1990		1.2	0.05	0.2	0.44	1.01
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/6/1990		1.3	0.034	0.2	0.12	1.414
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/11/1990		0.56	0.056	0.4	0.29	0.726
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/13/1990		2.3	0.1	1.5	0.88	3.02
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/14/1990	2.2	1.6			0.98	1.6
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/18/1990		6.1	0.32	1.6	0.32	7.7
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/20/1990		6.1	0.41	1.1	0.36	7.23

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/27/1990		8	0.33	1.4	0.8	8.93
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/3/1991		9.8	0.38	0.52	0.13	10.57
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/10/1991		8.4	0.35	0.64	0.32	9.07
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/15/1991		6.5	0.35	1.6	1.5	6.95
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/23/1991		5.7	0.45	1.5	1.1	6.55
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/30/1991		7.2	0.24	0.23	0.18	7.49
Laguna de Santa Rosa Upstream of Santa Rosa Creek	2/8/1991		1.1	0.45	0.75	0.45	1.85
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/3/1991	1.6	1.6			0.11	1.6
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/10/1991		2.5	0.13	0.98	0.12	3.49
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/17/1991		1.4	0.16	1.8	0.1	3.26
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/30/1991		0.11			0.05*	0.11
Laguna de Santa Rosa Upstream of Santa Rosa Creek	5/31/1991		0.22	0.1	2.8	0.025	3.095
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/3/1991	1.1	0.25			0.088	0.162
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/7/1991		0.05	0.001	1.8	0.025	1.826
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/17/1991		0.11	0.04	1.1	0.025*	1.225
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/27/1991	1.2	0.18			0.31	0.18
Laguna de Santa Rosa Upstream of Santa Rosa Creek	8/20/1991	1.5	0.08			0.073	0.004
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/11/1991	1.2	0.19			0.14	0.05
Laguna de Santa Rosa Upstream of Santa Rosa Creek	1/29/1992				1.6	0.33	1.27
Laguna de Santa Rosa Upstream of Santa Rosa Creek	3/25/1992	1.6	3.50			0.2	3.3
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/29/1992	1.2	0.06			0.17	0.06
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/3/1992	2.6					0
Laguna de Santa Rosa Upstream of Santa Rosa Creek	7/1/1992	0.18	0.18			0.07	0.11
Laguna de Santa Rosa Upstream of Santa Rosa Creek	9/8/1992	2	0.03*			0.05*	0.03
Laguna de Santa Rosa Upstream of Santa Rosa Creek	10/28/1992	1.2	0.28			0.4	0.28
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/16/1992	1.9	3.9			0.92	2.98
Laguna de Santa Rosa Upstream of Santa Rosa Creek	3/17/1993	0.33	0.46			0.1	0.36
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/14/1993	1.2	1.3			0.05*	1.3
Laguna de Santa Rosa Upstream of Santa Rosa Creek	5/12/1993	1.3	0.66			0.05*	0.66
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/16/1993	1.6	0.2			0.14	0.2
Laguna de Santa Rosa Upstream of Santa Rosa Creek	8/18/1993	0.63	0.016			0.05*	0.016
Laguna de Santa Rosa Upstream of Santa Rosa Creek	10/19/1993	2.98	0.4			0.05*	0.4
Laguna de Santa Rosa Upstream of Santa Rosa Creek	12/14/1993	0.48	12.1			0.1	12.1
Laguna de Santa Rosa Upstream of Santa Rosa Creek	3/22/1994	1.2	1.1			0.10*	1.1
Laguna de Santa Rosa Upstream of Santa Rosa Creek	4/25/1994	0.23	1			0.10*	1
Laguna de Santa Rosa Upstream of Santa Rosa Creek	5/24/1994	2.46	0.5			0.1	0.5
Laguna de Santa Rosa Upstream of Santa Rosa Creek	6/23/1994	1.4	0.3			0.10*	0.3
Laguna de Santa Rosa Upstream of Santa Rosa Creek	8/25/1994	2.2	0.7			0.10*	0.7
Laguna de Santa Rosa Upstream of Santa Rosa Creek	10/25/1994	0.7	1.6			0.1	1.6
Laguna de Santa Rosa @ River Road	6/5/1990		0.1	0.001	1.8	0.03	1.871
Laguna de Santa Rosa @ River Road	6/12/1990		0.13	0.03	1	0.03	1.13
Laguna de Santa Rosa @ River Road	6/19/1990		0.05	0.044	0.7	0.03	0.764
Laguna de Santa Rosa @ River Road	10/24/1990	0.27	0.047			0.05*	0.047
Laguna de Santa Rosa @ River Road	12/14/1990	0.81	1			0.047	1
Laguna de Santa Rosa @ River Road	4/3/1991	0.91	1.3			0.1	1.3
Laguna de Santa Rosa @ River Road	4/11/1991		2.9			0.057	2.9
Laguna de Santa Rosa @ River Road	4/30/1991		22			0.09	22
Laguna de Santa Rosa @ River Road	6/3/1991	0.61	0.066			0.14	0.066
Laguna de Santa Rosa @ River Road	6/27/1991	0.58	0.1			0.17	0.1
Laguna de Santa Rosa @ River Road	8/20/1991	0.5	0.03*			0.11	0.03
Laguna de Santa Rosa @ River Road	12/11/1991	1.3	2.9			0.099	2.9
Laguna de Santa Rosa @ River Road	3/25/1992	1	2.3			0.06	2.3
Laguna de Santa Rosa @ River Road	4/29/1992	0.84	0.1			0.13	0.1
Laguna de Santa Rosa @ River Road	6/3/1992	0.65					
Laguna de Santa Rosa @ River Road	7/1/1992	0.4	0.28			0.15	0.28
Laguna de Santa Rosa @ River Road	9/8/1992	0.57	0.03*			0.05*	0.03
Laguna de Santa Rosa @ River Road	10/28/1992						0
Laguna de Santa Rosa @ River Road	12/16/1992						0
Laguna de Santa Rosa @ River Road	3/17/1993						0
Laguna de Santa Rosa @ River Road	4/14/1993						0
Laguna de Santa Rosa @ River Road	5/12/1993						0
Laguna de Santa Rosa @ River Road	6/16/1993						0
Laguna de Santa Rosa @ River Road	8/18/1993						0
Laguna de Santa Rosa @ River Road	10/19/1993						0
Laguna de Santa Rosa @ River Road	12/14/1993						0
Laguna de Santa Rosa @ River Road	3/22/1994						0
Laguna de Santa Rosa @ River Road	4/25/1994	0.53	0.6			0.10*	0.6
Laguna de Santa Rosa @ River Road	5/24/1994	0.79	0.8			0.10*	0.8
Laguna de Santa Rosa @ River Road	6/23/1994	0.2	2			0.3	2
Laguna de Santa Rosa @ River Road	8/25/1994	0.4	8.7			0.2	8.7
Laguna de Santa Rosa @ River Road	10/25/1994	0.2	1.7			0.3	1.7
Laguna de Santa Rosa @ Trenton-Healdsburg Road	10/24/1990						

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Laguna de Santa Rosa @ Trenton-Healdsburg Road	12/14/1990						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	4/3/1991						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	4/30/1991		0.2			0.095	0.2
Laguna de Santa Rosa @ Trenton-Healdsburg Road	6/3/1991						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	6/27/1991						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	8/20/1991						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	12/11/1991						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	3/25/1992						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	4/29/1992	0.8	0.14			0.11	0.14
Laguna de Santa Rosa @ Trenton-Healdsburg Road	6/3/1992						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	4/25/1994						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	5/24/1994						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	6/23/1994						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	8/25/1994						
Laguna de Santa Rosa @ Trenton-Healdsburg Road	10/25/1994						
Santa Rosa Creek @ Willowside Road	8/30/1989		0.04	0.003	0.1	0.05	0.093
Santa Rosa Creek @ Willowside Road	9/16/1989		0.89	0.05	5.8	0.44	6.3
Santa Rosa Creek @ Willowside Road	9/16/1989		0.05	0.002	1.2	0.25	1.002
Santa Rosa Creek @ Willowside Road	9/27/1989		0.05	0.002	0.58	0.025	0.607
Santa Rosa Creek @ Willowside Road	10/18/1989		0.04	0.003	0.3	0.12	0.223
Santa Rosa Creek @ Willowside Road	11/14/1989		0.04	0.003	0.05	0.025	0.068
Santa Rosa Creek @ Willowside Road	1/22/1990		1.60	0.022	0.42	0.025	2.017
Santa Rosa Creek @ Willowside Road	1/26/1990		0.80	0.02	0.27	0.07	1.02
Santa Rosa Creek @ Willowside Road	1/29/1990		0.83	0.014	0.29	0.025	1.109
Santa Rosa Creek @ Willowside Road	1/30/1990		0.89	0.06	0.29	0.025	1.215
Santa Rosa Creek @ Willowside Road	1/30/1990		0.74	0.052	0.17	0.025	0.937
Santa Rosa Creek @ Willowside Road	1/31/1990		0.86	0.03	0.58	0.025	1.445
Santa Rosa Creek @ Willowside Road	2/2/1990		0.84	0.06	0.7	0.025	1.575
Santa Rosa Creek @ Willowside Road	2/7/1990		0.93	0.02	0.48	0.03	1.4
Santa Rosa Creek @ Willowside Road	2/14/1990		0.55	0.016	0.05	0.025	0.591
Santa Rosa Creek @ Willowside Road	2/20/1990		0.91	0.022	0.69	0.26	1.362
Santa Rosa Creek @ Willowside Road	2/21/1990		0.97	0.022	0.55	0.025	1.517
Santa Rosa Creek @ Willowside Road	2/28/1990		0.63	0.02	0.29	0.025	0.915
Santa Rosa Creek @ Willowside Road	3/6/1990		0.79	0.03	0.87	0.26	1.43
Santa Rosa Creek @ Willowside Road	3/14/1990		0.26	0.01	0.24	0.16	0.35
Santa Rosa Creek @ Willowside Road	3/23/1990		0.07	0.02	0.53	0.16	0.46
Santa Rosa Creek @ Willowside Road	4/4/1990		0.64	0.04	7.2	0.15	7.73
Santa Rosa Creek @ Willowside Road	4/10/1990		0.35	0.041	0.3	0.025	0.666
Santa Rosa Creek @ Willowside Road	4/18/1990		0.28	0.02	1.2	0.57	0.93
Santa Rosa Creek @ Willowside Road	4/25/1990		0.07	0.012	0.4	0.13	0.352
Santa Rosa Creek @ Willowside Road	5/1/1990		0.015	0.001	0.3	0.07	0.246
Santa Rosa Creek @ Willowside Road	5/9/1990		0.04	0.001	0.3	0.025	0.316
Santa Rosa Creek @ Willowside Road	5/16/1990		0.05	0.001	0.7	0.025	0.726
Santa Rosa Creek @ Willowside Road	5/24/1990		0.54	0.033	0.11	0.025	0.658
Santa Rosa Creek @ Willowside Road	6/5/1990		0.17	0.015	0.6	0.03	0.755
Santa Rosa Creek @ Willowside Road	6/12/1990		0.01	0.001	0.4	0.03	0.381
Santa Rosa Creek @ Willowside Road	6/19/1990		0.03	0.001	0.3	0.03	0.301
Santa Rosa Creek @ Willowside Road	10/24/1990	0.1	0.035			0.05*	0.035
Santa Rosa Creek @ Willowside Road	12/4/1990		0.005	0.001	0.05	0.025	0.031
Santa Rosa Creek @ Willowside Road	12/6/1990		0.005	0.001	0.05	0.025	0.031
Santa Rosa Creek @ Willowside Road	12/11/1990		0.66	0.23	0.3	0.17	1.02
Santa Rosa Creek @ Willowside Road	12/13/1990		0.17	0.013	0.05	0.025	0.208
Santa Rosa Creek @ Willowside Road	12/14/1990	0.14	0.29			0.05*	0.29
Santa Rosa Creek @ Willowside Road	12/18/1990		1.1	0.041	0.33	0.025	1.446
Santa Rosa Creek @ Willowside Road	12/20/1990		0.25	0.01	0.16	0.025	0.395
Santa Rosa Creek @ Willowside Road	12/27/1990		0.25	0.015	0.05	0.025	0.29
Santa Rosa Creek @ Willowside Road	1/3/1991		7.2	0.28	0.69	0.52	7.65
Santa Rosa Creek @ Willowside Road	1/10/1991		6.7	0.22	0.6	0.46	7.06
Santa Rosa Creek @ Willowside Road	1/15/1991		6.6	0.19	0.88	0.68	6.99
Santa Rosa Creek @ Willowside Road	1/23/1991		0.005	0.001	0.05	0.025	0.031
Santa Rosa Creek @ Willowside Road	1/30/1991		0.44	0.03	0.05	0.025	0.495
Santa Rosa Creek @ Willowside Road	2/2/1991		2	0.11	0.1	0.1	2.11
Santa Rosa Creek @ Willowside Road	2/2/1991		1.5	0.1	0.15	0.025	1.725
Santa Rosa Creek @ Willowside Road	2/2/1991		1.6	0.09	16	0.2	17.49
Santa Rosa Creek @ Willowside Road	2/8/1991		8.8	0.25	0.68	0.46	9.27
Santa Rosa Creek @ Willowside Road	4/3/1991	0.062	1			0.099	1
Santa Rosa Creek @ Willowside Road	4/10/1991		7.5	0.15	0.69	0.29	8.05
Santa Rosa Creek @ Willowside Road	4/11/1991						0
Santa Rosa Creek @ Willowside Road	4/17/1991		7.5	0.18	0.7	0.1	8.28
Santa Rosa Creek @ Willowside Road	4/30/1991		0.35			0.056	0.35
Santa Rosa Creek @ Willowside Road	5/31/1991		0.04	0.011	1.4	0.025	1.426
Santa Rosa Creek @ Willowside Road	6/3/1991	0.14	0.030*			0.058	0.03

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Santa Rosa Creek @ Willowside Road	6/7/1991		0.05	0.001	0.42	0.025	0.446
Santa Rosa Creek @ Willowside Road	6/17/1991		0.005	0.001	1.6	0.16	1.446
Santa Rosa Creek @ Willowside Road	6/27/1991	0.11	0.042			0.048	0.042
Santa Rosa Creek @ Willowside Road	8/20/1991	0.13	0.030*			0.057	0.03
Santa Rosa Creek @ Willowside Road	12/11/1991	0.14	0.14			0.054	0.14
Santa Rosa Creek @ Willowside Road	1/30/1992				0.83	0.31	0.52
Santa Rosa Creek @ Willowside Road	2/14/1992				1.3	0.17	1.13
Santa Rosa Creek @ Willowside Road	3/25/1992	0.47	0.66			1.4	0.66
Santa Rosa Creek @ Willowside Road	4/29/1992	0.13	0.04			0.05*	0.04
Santa Rosa Creek @ Willowside Road	6/3/1992	0.21					
Santa Rosa Creek @ Willowside Road	7/1/1992	0.18	0.26			0.11	0.26
Santa Rosa Creek @ Willowside Road	9/8/1992	0.13	0.030*			0.05*	0.03
Santa Rosa Creek @ Willowside Road	10/28/1992	0.14	0.09			0.05*	0.09
Santa Rosa Creek @ Willowside Road	12/16/1992	0.2	1.9			0.16	1.9
Santa Rosa Creek @ Willowside Road	3/17/1993	0.5	0.41			0.11	0.41
Santa Rosa Creek @ Willowside Road	4/14/1993	0.07	0.3			0.05*	0.3
Santa Rosa Creek @ Willowside Road	5/12/1993	0.05	0.03*			0.05*	0.03
Santa Rosa Creek @ Willowside Road	6/16/1993	0.23	0.03*			0.05*	0.03
Santa Rosa Creek @ Willowside Road	8/18/1993	0.16	0.012			0.05*	0.012
Santa Rosa Creek @ Willowside Road	10/19/1993	0.73	1.4			0.05*	1.4
Santa Rosa Creek @ Willowside Road	12/14/1993	0.43	18.9			0.1	18.9
Santa Rosa Creek @ Willowside Road	3/22/1994	0.10*	1.2			0.10*	1.2
Santa Rosa Creek @ Willowside Road	4/25/1994	0.27	0.9			0.10*	0.9
Santa Rosa Creek @ Willowside Road	5/24/1994	0.08	0.4			0.7	0.4
Santa Rosa Creek @ Willowside Road	6/23/1994	0.1	0.3			0.10*	0.3
Santa Rosa Creek @ Willowside Road	8/25/1994	0.4	1.1			0.10*	1.1
Santa Rosa Creek @ Willowside Road	10/25/1994	0.2	1.9			0.10*	1.9
Mark West Creek @ Slusser Road	8/30/1989		1.4	0.012	0.2	0.1	1.512
Mark West Creek @ Slusser Road	10/17/1989		0.06	0.001	0.24	0.025	0.276
Mark West Creek @ Slusser Road	11/14/1989		0.005	0.003	0.1	0.025	0.083
Mark West Creek @ Slusser Road	4/10/1991		0.24	0.006	0.15	0.025	0.371
Mark West Creek @ Slusser Road	4/17/1991		0.13	0.001	0.2	0.025	0.306
Mark West Creek @ Slusser Road	5/30/1991		0.04	0.001	0.21	0.025	0.226
Mark West Creek @ Slusser Road	6/18/1991		0	0.001	0.7	0.025	0.676
Mark West Creek @ Slusser Road	1/30/1992				0.35	0.025	0.325
Mark West Creek @ Slusser Road	2/14/1992				1.4	0.06	1.34
Mark West Creek @ Slusser Road	7/1/1992	0.3	0.33			0.16	0.33
Mark West Creek @ Slusser Road	9/8/1992	0.61	0.030*			0.07	0.03
Mark West Creek @ Slusser Road	10/28/1992	0.71	0.25			0.1	0.25
Mark West Creek @ Slusser Road	12/16/1992	1.5	3.5			0.61	3.5
Mark West Creek @ Slusser Road	3/17/1993	0.44	0.6			0.14	0.6
Mark West Creek @ Slusser Road	4/14/1993	0.14	0.15			0.05*	0.15
Mark West Creek @ Slusser Road	5/12/1993	0.06	0.07			0.05*	0.07
Mark West Creek @ Slusser Road	6/16/1993	0.22	0.030*			0.18	0.03
Mark West Creek @ Slusser Road	8/18/1993	0.17	1.6			0.05*	1.6
Mark West Creek @ Slusser Road	10/19/1993	0.23	0.4			0.05*	0.4
Mark West Creek @ Slusser Road	12/14/1993	0.57	8.1			0.1*	8.1
Mark West Creek @ Slusser Road	3/22/1994	0.7	0.6			0.1*	0.6
Laguna de Santa Rosa @ Llano Road	1/29/1992				14	7.9	6.1
Laguna de Santa Rosa @ Llano Road	2/14/1992				8.81	5	3.81
Santa Rosa Creek @ Melita Road	8/30/1989		0.5	0.006	0.05	0.05	0.506
Santa Rosa Creek @ Melita Road	10/17/1989		0.24	0.001	0.28	0.3	0.221
Santa Rosa Creek @ Melita Road	11/14/1989		0.03	0.12	0.05	0.05	0.15
Santa Rosa Creek @ Melita Road	2/2/1991		0.81	0.001	0.13	0.025	0.916
Santa Rosa Creek @ Melita Road	1/30/1992				0.4	0.055	0.345
Delta Pond Discharge	3/22/1994		19.2			1.4	19.2
	7/23/1997	0.15					
	8/5/1997	0.22					
	8/21/1997	0.307					
	9/2/1997	0.462					
	9/17/1997	0.493					
	10/1/1997	0.262					
	10/15/1997	0.494					
	10/28/1997	0.252					
	11/10/1997	0.331					
	6/25/1998	0.025					
	7/9/1998	0.46					
	7/24/1998	0.218					
	8/4/1998	0.264					

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
	8/19/1998	0.461					
	9/4/1998	0.351					
	9/14/1998	0.181					
	9/29/1998	0.19					
	10/14/1998	0.23					
	10/29/1998	0.988					
	11/12/1998	1.33					
	6/3/1999	0.025					
	6/17/1999	0.298					
	6/29/1999	0.27					
	7/14/1999	0.144					
	7/27/1999	0.209					
	8/12/1999	0.2					
	8/24/1999	0.201					
	9/9/1999	0.186					
	9/21/1999	0.149					
	10/7/1999	0.136					
	10/19/1999	0.144					
	11/3/1999	0.581					
	11/16/1999	0.854					
	12/1/1999	0.218					
	12/14/1999	0.699					
	12/29/1999	1.6					
	1/12/2000	0.279					
	1/24/2000	0.356					
	2/9/2000	0.817					
	4/5/2000	0.352					
	4/18/2000	0.285					
	5/3/2000	0.461					
	5/17/2000	0.486					
	6/15/2000	0.4					
	6/27/2000	0.212					
	7/12/2000	0.162					
	7/27/2000	0.153					
	8/8/2000	0.163					
	8/24/2000	0.131					
	9/7/2000	0.254					
	9/21/2000	0.711					
	10/3/2000	0.137					
	10/19/2000	0.502					
	11/1/2000	0.475					
	11/16/2000	0.272					
	7/23/1997	1.79					
	8/5/1997	1.87					
	8/21/1997	0.832					
	9/2/1997	1.37					
	9/17/1997	0.847					
	10/1/1997	0.739					
	10/15/1997	0.612					
	10/28/1997	0.525					
	11/10/1997	0.611					
	11/24/1997	1.49					
	12/10/1997	1.13					
	12/23/1997	0.874					
	1/7/1998	0.852					
	1/21/1998	0.872					
	2/3/1998	0.927					
	2/18/1998	0.976					
	3/4/1998	0.911					
	3/18/1998	0.894					
	4/1/1998	1					

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
	4/13/1998	0.863					
	4/30/1998	1.07					
	5/11/1998	0.817					
	5/28/1998	0.668					
	6/9/1998	1.03					
	6/25/1998	0.73					
	7/9/1998	2					
	7/24/1998	0.651					
	8/4/1998	0.478					
	8/19/1998	0.888					
	9/4/1998	1.66					
	9/14/1998	1.15					
	9/29/1998	0.951					
	10/14/1998	0.755					
	10/29/1998	0.795					
	11/12/1998	0.206					
	11/25/1998	1.18					
	12/3/1998	1.63					
	12/15/1998	1.23					
	12/30/1998	0.815					
	1/14/1999	1.06					
	1/27/1999	1.46					
	2/12/1999	0.792					
	2/25/1999	0.858					
	3/11/1999	0.674					
	3/23/1999	0.617					
	4/5/1999	0.431					
	4/22/1999	0.897					
	5/5/1999	0.566					
	5/20/1999	0.694					
	6/3/1999	0.599					
	6/17/1999	0.926					
	6/29/1999	0.274					
	7/14/1999	0.623					
	7/27/1999	0.64					
	8/12/1999	0.429					
	8/24/1999	0.495					
	9/9/1999	0.476					
	9/21/1999	0.337					
	10/7/1999	0.338					
	10/19/1999	0.43					
	11/3/1999	0.545					
	11/16/1999	0.76					
	12/1/1999	0.766					
	12/14/1999	0.997					
	12/29/1999	1.77					
	1/12/2000	1.64					
	1/24/2000	1.14					
	2/9/2000	0.989					
	2/23/2000	0.861					
	3/8/2000	1.01					
	3/21/2000	0.888					
	4/5/2000	0.756					
	4/18/2000	0.615					
	5/3/2000	0.891					
	5/17/2000	0.638					
	6/15/2000	0.394					
	6/27/2000	0.383					
	7/12/2000	0.429					
	7/27/2000	0.473					
	8/8/2000	0.56					

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
	8/24/2000	0.727					
	9/7/2000	0.429					
	9/21/2000	0.622					
	10/3/2000	0.519					
	10/19/2000	0.817					
	11/1/2000	0.841					
	11/16/2000	0.686					
	9/7/2000	0.419					
	10/19/2000	0.157					
	7/23/1997	0.234					
	8/5/1997	0.349					
	8/21/1997	0.665					
	9/2/1997	0.626					
	9/17/1997	0.523					
	10/1/1997	0.366					
	10/15/1997	0.27					
	10/28/1997	0.186					
	11/10/1997	0.248					
	11/24/1997	0.751					
	12/10/1997	0.554					
	12/23/1997	0.404					
	1/7/1998	0.656					
	1/21/1998	0.487					
	2/3/1998	0.679					
	2/18/1998	0.518					
	3/4/1998	0.232					
	3/18/1998	0.113					
	4/1/1998	0.428					
	4/13/1998	0.556					
	4/30/1998	0.297					
	5/11/1998	0.216					
	5/28/1998	0.208					
	6/9/1998	0.17					
	6/25/1998	0.22					
	7/9/1998	0.46					
	7/24/1998	0.518					
	8/4/1998	0.381					
	8/19/1998	1.06					
	9/4/1998	0.668					
	9/14/1998	0.29					
	9/29/1998	0.257					
	10/14/1998	0.189					
	10/29/1998	0.608					
	11/12/1998	0.384					
	11/25/1998	0.533					
	12/3/1998	0.847					
	12/15/1998	0.466					
	12/30/1998	0.196					
	1/14/1999	0.111					
	1/27/1999	0.383					
	2/12/1999	0.243					
	2/25/1999	0.518					
	3/11/1999	0.297					
	3/23/1999	0.231					
	4/5/1999	0.123					
	4/22/1999	0.12					
	5/5/1999	2.98					
	5/20/1999	0.205					
	6/3/1999	0.143					
	6/17/1999	0.508					
	6/29/1999	0.626					

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
	7/14/1999	0.71					
	7/27/1999	0.553					
	8/12/1999	0.514					
	8/24/1999	0.629					
	9/9/1999	0.461					
	9/21/1999	0.395					
	10/7/1999	0.315					
	10/19/1999	0.239					
	11/3/1999	0.648					
	11/16/1999	0.407					
	12/1/1999	0.526					
	12/14/1999	0.196					
	12/29/1999	0.207					
	1/12/2000	0.302					
	1/24/2000	0.627					
	2/9/2000	0.356					
	2/23/2000	0.55					
	3/8/2000	0.568					
	3/21/2000	0.23					
	4/5/2000	0.258					
	4/18/2000	0.375					
	5/3/2000	0.249					
	5/17/2000	0.295					
	6/15/2000	0.249					
	6/27/2000	0.18					
	7/12/2000	0.21					
	7/27/2000	0.206					
	8/8/2000	0.326					
	8/24/2000	0.346					
	9/7/2000	0.465					
	9/21/2000	0.195					
	10/3/2000	0.201					
	10/19/2000	0.304					
	11/1/2000	0.296					
	11/16/2000	0.155					
	7/23/1997	0.224					
	8/5/1997	0.294					
	8/21/1997	0.216					
	9/2/1997	0.652					
	9/17/1997	0.211					
	10/1/1997	0.342					
	10/15/1997	0.359					
	10/28/1997	0.259					
	11/10/1997	0.25					
	11/24/1997	0.87					
	12/10/1997	0.993					
	12/23/1997	0.559					
	1/7/1998	0.43					
	1/21/1998	0.614					
	2/3/1998	0.456					
	2/18/1998	0.573					
	3/4/1998	0.506					
	3/18/1998	0.32					
	4/1/1998	0.259					
	4/13/1998	0.142					
	4/30/1998	0.571					
	5/11/1998	0.318					
	5/28/1998	0.184					
	6/9/1998	0.294					
	6/25/1998	0.34					
	7/9/1998	0.47					

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
	7/24/1998	0.343					
	8/4/1998	0.341					
	8/19/1998	0.914					
	9/4/1998	0.626					
	9/14/1998	0.301					
	9/29/1998	0.387					
	10/14/1998	0.327					
	10/29/1998	0.606					
	11/12/1998	0.803					
	11/25/1998	0.422					
	12/3/1998	0.776					
	12/15/1998	0.663					
	12/30/1998	0.167					
	1/14/1999	0.859					
	1/27/1999	0.8					
	2/12/1999	0.457					
	2/25/1999	0.391					
	3/11/1999	0.351					
	3/23/1999	0.174					
	4/5/1999	0.28					
	4/22/1999	0.272					
	5/5/1999	0.253					
	5/20/1999	0.237					
	6/3/1999	0.23					
	6/17/1999	0.327					
	6/29/1999	0.371					
	7/14/1999	0.263					
	7/27/1999	0.278					
	8/12/1999	0.248					
	8/24/1999	0.265					
	9/9/1999	0.223					
	9/21/1999	0.195					
	10/7/1999	0.178					
	10/19/1999	0.209					
	11/3/1999	0.396					
	11/16/1999	0.276					
	12/1/1999	0.297					
	12/14/1999	0.558					
	12/29/1999	0.73					
	1/12/2000	0.217					
	1/24/2000	0.371					
	2/9/2000	0.611					
	2/23/2000	0.289					
	3/8/2000	0.312					
	3/21/2000	0.299					
	4/5/2000	0.295					
	4/18/2000	0.306					
	5/3/2000	0.419					
	5/17/2000	0.385					
	6/15/2000	0.486					
	6/27/2000	0.272					
	7/12/2000	0.235					
	7/27/2000	0.326					
	8/8/2000	0.294					
	8/24/2000	0.278					
	9/7/2000	0.262					
	9/21/2000	0.298					
	10/3/2000	0.227					
	10/19/2000	0.157					
	11/1/2000	0.338					
	11/16/2000	0.358					

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Delta Pond @ 36" discharge	10/28/98		11.60				11.6
Kelly Pond	10/16/98		1.80				1.8
Kelly Pond	10/21/98		2.40				2.4
Upstream Kelly Pond/Duer Crk.	10/16/98		1.20			0.30	1.2
Upstream Kelly Pond/Duer Crk.	10/21/98		-0.40			-0.10	
Laguna @ Trenton Healdsburg	10/22/1998		-0.40			-0.10	
Russian River @ Wohler Bridge	10/7/1998		-0.40			0.20	
Russian River @ Wohler Bridge	10/14/1998		-0.40			-0.10	
Russian River @ Wohler Bridge	10/21/1998		-0.40			-0.10	
Russian River @ Wohler Bridge	10/28/1998		0.30			-0.10	
Delta Pond @ 36" discharge	11/13/1998		3.50				3.5
Delta Pond @ 36" discharge	11/18/1998		3.10				3.1
Delta Pond @ 36" discharge	11/24/1998		4.90				4.9
Kelly Pond	11/4/1998		6.10				6.1
Kelly Pond	11/12/1998		7.30				7.3
Kelly Pond	11/18/1998		6.40				6.4
Kelly Pond	11/24/1998		3.40				3.4
Delta Pond 24" pipe	11/4/1998		11.00				11
Delta Pond 24" pipe	11/12/1998		10.90				10.9
Delta Pond 24" pipe	11/18/1998		8.00				8
Delta Pond 24" pipe	11/24/1998		6.30				6.3
Laguna Wetlands	11/4/1998		7.20				7.2
Laguna Wetlands	11/12/1998		9.40				9.4
Laguna Wetlands	11/18/1998		8.20				8.2
Laguna Wetlands	11/24/1998		6.30				6.3
100 yd. Upstream Llano Rd. Brdg.	11/4/1998		5.50			0.60	0
100 yd. Upstream Llano Rd. Brdg.	11/12/1998		8.60			0.50	8.6
100 yd. Upstream Llano Rd. Brdg.	11/18/1998		4.10			0.60	4.1
100 yd. Upstream Llano Rd. Brdg.	11/24/1998		1.00			-0.10	1
Upstream D-Pond Incline Pump	11/4/1998		3.60			1.00	3.6
Upstream D-Pond Incline Pump	11/12/1998		2.20			0.30	2.2
Upstream D-Pond Incline Pump	11/18/1998		1.30			0.50	1.3
Upstream D-Pond Incline Pump	11/24/1998		1.20			-0.10	1.2
Upstream D-Pond 36" discharge	11/13/1998		1.90			0.20	1.9
Upstream D-Pond 36" discharge	11/18/1998		1.80			0.50	1.8
Upstream D-Pond 36" discharge	11/24/1998		0.90			-0.10	0.9
Upstream Colgan Crk. @ Laguna	11/13/1998		0.60			0.40	0.6
Upstream Colgan Crk. @ Laguna	11/18/1998		0.70			0.70	0.7
Upstream Colgan Crk. @ Laguna	11/24/1998		1.40			0.10	1.4
Laguna @ Todd Rd.	11/13/1998		2.30			0.40	2.3
Laguna @ Todd Rd.	11/18/1998		2.60			0.80	2.6
Laguna @ Todd Rd.	11/24/1998		2.30			0.20	2.3
Upstream S.R. Crk @ Delta	11/12/1998		0.50			0.20	0.5
Upstream S.R. Crk @ Delta	11/24/1998		1.70			-0.10	1.7
Downstream S.R. Crk. @ Delta	11/4/1998		4.80			0.40	4.8
Downstream S.R. Crk. @ Delta	11/12/1998		8.10			0.40	8.1
Downstream S.R. Crk. @ Delta	11/18/1998		4.40			0.60	4.4
Downstream S.R. Crk. @ Delta	11/24/1998		3.70			-0.10	3.7
Upstream Duer Crk @ Kelly	11/4/1998		0.40			0.60	0.4
Upstream Duer Crk @ Kelly	11/12/1998		0.50			0.20	0.5
Upstream Duer Crk @ Kelly	11/18/1998		0.50			0.40	0.5
Downstream Duer Crk @ Kelly	11/4/1998		4.40			0.50	4.4
Downstream Duer Crk @ Kelly	11/12/1998		5.90			0.30	5.9
Downstream Duer Crk @ Kelly	11/18/1998		5.90			0.30	5.9
Downstream Duer Crk @ Kelly	11/24/1998		2.70			-0.10	2.7
Russian River @ Wohler Brdg.	11/24/1998		0.60			-0.10	0.6
Russian River @ Mirabel	11/24/1998		0.80			-0.10	0.8

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Delta Pond @ 36" discharge	12/1/1998		6.30			0.90	6.3
Delta Pond @ 36" discharge	12/9/1998		6.50			0.50	6.5
Delta Pond @ 36" discharge	12/16/1998		7.40			0.50	7.4
Delta Pond @ 36" discharge	12/22/1998		7.30			0.30	7.3
Delta Pond @ 36" discharge	12/29/1998		7.40			0.20	7.4
Brown Pond	12/9/1998		5.00			0.30	5
Brown Pond	12/16/1998		4.80			0.60	4.8
Kelly Pond	12/1/1998		3.80			0.40	3.8
Kelly Pond	12/9/1998		4.90			0.20	4.9
Kelly Pond	12/16/1998		5.20			0.40	5.2
Kelly Pond	12/22/1998		6.20			0.20	6.2
Kelly Pond	12/29/1998		7.70			0.10	7.7
Laguna Wetlands	12/1/1998		6.20			1.20	6.2
Laguna Wetlands	12/9/1998		8.30			0.90	8.3
Laguna Wetlands	12/16/1998		7.40			0.50	7.4
Laguna Wetlands	12/22/1998		9.70			0.40	9.7
Laguna Wetlands	12/29/1998		9.10			0.80	9.1
100 yd. Upstream Llano Rd. Brdg.	12/1/1998		3.10			0.80	3.1
100 yd. Upstream Llano Rd. Brdg.	12/9/1998		3.20			0.20	3.2
100 yd. Upstream Llano Rd. Brdg.	12/16/1998		4.00			1.00	4
100 yd. Upstream Llano Rd. Brdg.	12/22/1998		1.50			0.40	1.5
100 yd. Upstream Llano Rd. Brdg.	12/29/1998		1.30			0.30	1.3
Upstream, D-pond Incline pump	12/1/1998		3.20			0.80	3.2
Upstream, D-pond Incline pump	12/9/1998		4.00			0.20	4
Upstream, D-pond Incline pump	12/16/1998		2.40			0.70	2.4
Upstream, D-pond Incline pump	12/22/1998		5.40			0.40	5.4
Upstream, D-pond Incline pump	12/29/1998		5.70			0.40	5.7
Upstream D-Pond 36" discharge	12/1/1998		3.10			0.90	3.1
Upstream D-Pond 36" discharge	12/9/1998		2.30			0.30	2.3
Upstream D-Pond 36" discharge	12/16/1998		3.80			0.50	3.8
Upstream D-Pond 36" discharge	12/22/1998		4.50			0.40	4.5
Upstream D-Pond 36" discharge	12/29/1998		5.20			0.30	5.2
Colgan Ck Upstream of Laguna	12/1/1998		1.90			2.20	1.9
Colgan Ck Upstream of Laguna	12/9/1998		1.80			1.40	1.8
Colgan Ck Upstream of Laguna	12/16/1998		1.90			2.20	1.9
Colgan Ck Upstream of Laguna	12/22/1998		3.10			11.80	3.1
Colgan Ck Upstream of Laguna	12/29/1998		2.50			11.90	2.5
Laguna @ Todd Rd.	12/1/1998		4.00			0.90	4
Laguna @ Todd Rd.	12/9/1998		5.00			-0.10	5
Laguna @ Todd Rd.	12/16/1998		4.80			0.50	4.8
Laguna @ Todd Rd.	12/22/1998		4.20			1.00	4.2
Laguna @ Todd Rd.	12/29/1998		5.00			1.40	5
Laguna @ Hwy 12	12/9/1998		3.60			0.40	3.6
Laguna @ Hwy 12	12/16/1998		3.50			0.50	3.5
Upstream Duer Crk @ Kelly	12/9/1998		1.10			0.50	1.1
Upstream Duer Crk @ Kelly	12/16/1998		0.80			-0.10	0.8
Upstream Duer Crk @ Kelly	12/22/1998		0.90			0.50	0.9
Upstream Duer Crk @ Kelly	12/29/1998		1.40			0.20	1.4
Downstream Duer Crk @ Kelly	12/1/1998		1.90			0.60	1.9
Downstream Duer Crk @ Kelly	12/9/1998		3.40			0.20	3.4
Downstream Duer Crk @ Kelly	12/16/1998		4.00			0.50	4
Downstream Duer Crk @ Kelly	12/22/1998		5.50			0.30	5.5
Downstream Duer Crk @ Kelly	12/29/1998		3.90			0.30	3.9
Laguna @ La Franchi	12/2/1998		1.30			0.50	1.3
Laguna @ La Franchi	12/9/1998		2.00			0.30	2
Laguna Upstream @ Delta	12/2/1998		1.40			0.50	1.4
Laguna Upstream @ Delta	12/9/1998		3.20			0.80	3.2
Downstream Santa Rosa Creek @ Delta	12/2/1998		1.50			0.40	1.5
Downstream Santa Rosa Creek @ Delta	12/9/1998		1.30			-0.10	1.3
Russian River @ Wohler Brdg.	12/9/1998		0.40			0.30	0.4
Russian River @ Wohler Brdg.	12/16/1998		0.50			0.20	0.5
Russian River @ Wohler Brdg.	12/22/1998		0.50			0.50	0.5
Russian River @ Wohler Brdg.	12/29/1998		0.50			0.30	0.5
Russian River @ Mirabel	12/9/1998		0.70			0.50	0.7
Russian River @ Mirabel	12/16/1998		0.90			0.30	0.9
Russian River @ Mirabel	12/22/1998		0.70			0.40	0.7
Russian River @ Mirabel	12/29/1998		0.60			0.30	0.6

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Brown Pond	1/13/1999		7.80			0.40	7.8
Brown Pond	1/20/1999		7.10			1.30	7.1
Brown Pond	1/27/1999		6.80			1.20	6.8
Delta Pond @ 36" discharge	1/13/1999		7.50			0.50	7.5
Delta Pond @ 36" discharge	1/20/1999		8.20			0.70	8.2
Delta Pond @ 36" discharge	1/27/1999		8.30			0.80	8.3
Kelly Pond	1/6/1999		3.30			0.30	3.3
Kelly Pond	1/13/1999		7.60			0.20	7.6
Kelly Pond	1/20/1999		6.30			0.30	6.3
Kelly Pond	1/27/1999		8.10			0.30	8.1
Laguna Wetlands	1/6/1999		4.20			0.60	4.2
Laguna Wetlands	1/13/1999		9.80			0.70	9.8
Laguna Wetlands	1/20/1999		8.90			1.40	8.9
Laguna Wetlands	1/27/1999		8.50			0.30	8.5
Delta Pond 48" Discharge	1/13/1999		4.00			0.60	4
Delta Pond 48" Discharge	1/20/1999		3.30			0.70	3.3
Delta Pond 48" Discharge	1/27/1999		6.60			0.30	6.6
100 yd. Upstream Llano Rd. Bldg.	1/6/1999		1.00			0.10	1
100 yd. Upstream Llano Rd. Bldg.	1/20/1999		1.80			0.90	1.8
100 yd. Upstream Llano Rd. Bldg.	1/27/1999		2.00			0.90	2
Colgan Ck Upstream	1/13/1999		2.80			3.20	2.8
Colgan Ck Upstream	1/20/1999		1.60			2.40	1.6
Colgan Ck Upstream	1/27/1999		1.40			1.80	1.4
Upstream D-Pond Incline Pump	1/6/1999		0.40			0.30	0.4
Upstream D-Pond Incline Pump	1/13/1999		6.30			0.60	6.3
Upstream D-Pond Incline Pump	1/20/1999		2.00			1.10	2
Upstream D-Pond Incline Pump	1/27/1999		2.50			0.80	2.5
Upstream D-Pond 36" discharge	1/13/1999		4.90			0.50	4.9
Upstream D-Pond 36" discharge	1/20/1999		1.80			0.90	1.8
Upstream D-Pond 36" discharge	1/27/1999		2.50			0.40	2.5
Laguna @ Todd Rd.	1/13/1999		6.00			0.50	6
Laguna @ Todd Rd.	1/20/1999		3.00			1.10	3
Laguna @ Todd Rd.	1/27/1999		5.00			0.70	5
Laguna @ Hwy 12	1/13/1999		5.30			0.40	5.3
Laguna @ Hwy 12	1/20/1999		2.00			0.70	2
Laguna @ Hwy 12	1/27/1999		4.40			0.30	4.4
Upstream Duer Crk @ Kelly	1/6/1999		7.10			0.30	7.1
Upstream Duer Crk @ Kelly	1/13/1999		0.70			0.20	0.7
Upstream Duer Crk @ Kelly	1/20/1999		1.00			0.40	1
Upstream Duer Crk @ Kelly	1/27/1999		0.90			0.30	0.9
Downstream Duer Crk @ Kelly	1/6/1999		10.10			0.60	10.1
Downstream Duer Crk @ Kelly	1/13/1999		6.30			0.40	6.3
Downstream Duer Crk @ Kelly	1/20/1999		1.10			0.30	1.1
Downstream Duer Crk @ Kelly	1/27/1999		4.60			0.20	4.6
Laguna @ La Franchi	1/13/1999		1.60			0.20	1.6
Laguna @ La Franchi	1/20/1999		0.70			0.50	0.7
Laguna @ La Franchi	1/27/1999		2.10			0.60	2.1
Laguna Upstream @ Delta	1/13/1999		1.80			0.50	1.8
Laguna Upstream @ Delta	1/27/1999		2.50			0.60	2.5
Downstream Santa Rosa Creek @ Delta	1/20/1999		1.20			-0.10	1.2
Downstream Santa Rosa Creek @ Delta	1/27/1999		1.10			0.20	1.1
Russian River @ Wohler Bridge	1/20/1999		0.40			-0.10	0.4
Russian River @ Wohler Bridge	1/27/1999		0.40			0.20	0.4
Russian River @ Mirabel	1/20/1999		0.60			0.30	0.6
Russian River @ Mirabel	1/27/1999		0.90			0.30	0.9

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Alpha Pond	2/12/1999		5.00			2.80	5
Alpha Pond	2/17/1999		4.70			4.10	4.7
Delta Pond @ 36" discharge	2/3/1999		7.30			1.60	7.3
Delta Pond @ 36" discharge	2/10/1999		6.00			2.30	6
Delta Pond @ 36" discharge	2/17/1999		NA			2.80	
Kelly Pond	2/3/1999		6.70			0.20	6.7
Kelly Pond	2/10/1999		4.80			0.40	4.8
Kelly Pond	2/18/1999		3.50			0.80	3.5
Laguna Wetlands	2/3/1999		NA			1.60	
Laguna Wetlands	2/10/1999		2.20			1.60	2.2
Laguna Wetlands	2/17/1999		1.20			0.70	1.2
100 yd. Upstream Llano Rd. Bldg.	2/3/1999		2.00			0.30	2
100 yd. Upstream Llano Rd. Bldg.	2/10/1999		1.30			0.40	1.3
100 yd. Upstream Llano Rd. Bldg.	2/17/1999		0.70			0.20	0.7
Colgan Ck Upstream	2/3/1999		2.70			2.50	2.7
Colgan Ck Upstream	2/10/1999		1.20			0.70	1.2
Colgan Ck Upstream	2/17/1999		0.80			0.80	0.8
Upstream D-Pond Incline Pump	2/3/1999		2.60			0.60	2.6
Upstream D-Pond Incline Pump	2/10/1999		1.30			0.60	1.3
Upstream D-Pond Incline Pump	2/17/1999		0.80			0.60	0.8
Upstream D-Pond 36" discharge	2/3/1999		2.40			0.30	2.4
Upstream D-Pond 36" discharge	2/10/1999		1.20			0.40	1.2
Upstream D-Pond 36" discharge	2/17/1999		0.70			0.60	0.7
Laguna @ Todd Rd.	2/3/1999		4.40			1.40	4.4
Laguna @ Todd Rd.	2/10/1999		2.20			0.90	2.2
Laguna @ Todd Rd.	2/17/1999		0.90				0.9
Upstream Roseland Ck. @ Llano	2/12/1999		3.10			0.30	3.1
Upstream Roseland Ck. @ Llano	2/17/1999		1.00			0.10	1
Downstream Roseland/Summer	2/12/1999		4.50			2.10	4.5
Downstream Roseland/Summer	2/17/1999		2.40			1.80	2.4
Upstream Duer Crk @ Kelly	2/3/1999		1.00			0.10	1
Upstream Duer Crk @ Kelly	2/10/1999		0.70			-0.10	0.7
Upstream Duer Crk @ Kelly	2/17/1999		0.50			0.20	0.5
Downstream Duer Crk @ Kelly	2/3/1999		4.60			0.20	4.6
Downstream Duer Crk @ Kelly	2/10/1999		1.70			0.40	1.7
Downstream Duer Crk @ Kelly	2/17/1999		3.30			0.70	3.3
Russian River @ Wohler Bldg.	2/3/1999		0.50			-0.10	0.5
Russian River @ Mirabel	2/3/1999		0.90			-0.10	0.9
Russian River @ Mirabel	2/10/1999		0.60			0.30	0.6

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Alpha Pond	3/3/1999		5.70			2.10	5.7
Alpha Pond	3/10/1999		4.30			5.40	4.3
Alpha Pond	3/17/1999		6.50			1.50	6.5
Alpha Pond	3/24/1999		7.50			1.00	7.5
Delta Pond @ 36" discharge	3/3/1999		5.10			1.60	5.1
Delta Pond @ 36" discharge	3/10/1999		1.20			2.50	1.2
Delta Pond @ 36" discharge	3/17/1999		6.50			1.50	6.5
Delta Pond @ 36" discharge	3/24/1999		5.90			1.00	5.9
Kelly Pond	3/3/1999		2.80			-0.10	2.8
Kelly Pond	3/10/1999		3.70			-0.10	3.7
Kelly Pond	3/17/1999		4.20			-0.10	4.2
Kelly Pond	3/24/1999		3.80			0.10	3.8
Laguna Wetlands	3/3/1999		6.30			1.90	6.3
Laguna Wetlands	3/10/1999		4.00			4.50	4
Laguna Wetlands	3/17/1999		6.70			-0.10	6.7
Laguna Wetlands	3/24/1999		7.60			0.90	7.6
Delta Pond 24" pipe	3/3/1999		2.30			0.80	2.3
Delta Pond 24" pipe	3/10/1999		0.80			-0.10	0.8
Delta Pond 24" pipe	3/16/1999		0.80			-0.10	0.8
100 yd. Upstream Llano Rd. Brdg.	3/3/1999		1.30			0.10	1.3
100 yd. Upstream Llano Rd. Brdg.	3/10/1999		0.80			0.30	0.8
100 yd. Upstream Llano Rd. Brdg.	3/17/1999		1.00			0.50	1
100 yd. Upstream Llano Rd. Brdg.	3/24/1999		0.80			0.10	0.8
Colgan Ck Upstream	3/3/1999		1.40			0.50	1.4
Colgan Ck Upstream	3/10/1999		1.30			0.50	1.3
Colgan Ck Upstream	3/17/1999		2.30			0.20	2.3
Colgan Ck Upstream	3/24/1999		1.60			2.90	1.6
Upstream Roseland Ck. @ Llano	3/3/1999		1.30			-0.10	1.3
Upstream Roseland Ck. @ Llano	3/10/1999		1.70			0.30	1.7
Upstream Roseland Ck. @ Llano	3/17/1999		1.80			-0.10	1.8
Upstream Roseland Ck. @ Llano	3/24/1999		1.30			0.80	1.3
Downstream Roseland Ck. @ Llano	3/3/1999		4.00			1.20	4
Downstream Roseland Ck. @ Llano	3/10/1999		3.30			2.70	3.3
Downstream Roseland Ck. @ Llano	3/17/1999		5.10			0.30	5.1
Downstream Roseland Ck. @ Llano	3/24/1999		5.90			0.20	5.9
Laguna Upstream Incline Pump	3/3/1999		1.40			0.30	1.4
Laguna Upstream Incline Pump	3/10/1999		1.00			0.50	1
Laguna Upstream Incline Pump	3/17/1999		1.50			0.50	1.5
Laguna Upstream Incline Pump	3/24/1999		1.30			-0.10	1.3
Laguna Upstream 36" Discharge	3/3/1999		1.40			0.30	1.4
Laguna Upstream 36" Discharge	3/10/1999		1.00			-0.10	1
Laguna Upstream 36" Discharge	3/17/1999		1.50			0.90	1.5
Laguna Upstream 36" Discharge	3/24/1999		1.30			0.40	1.3
Laguna @ Todd Rd.	3/3/1999		2.10			0.50	2.1
Laguna @ Todd Rd.	3/10/1999		1.80			1.00	1.8
Laguna @ Todd Rd.	3/17/1999		1.90			0.90	1.9
Laguna @ Todd Rd.	3/24/1999		1.60			0.60	1.6
Upstream Duer Ck. @ Kelly	3/3/1999		0.40			-0.10	0.4
Upstream Duer Ck. @ Kelly	3/10/1999		0.40			-0.10	0.4
Upstream Duer Ck. @ Kelly	3/17/1999		0.50			-0.10	0.5
Upstream Duer Ck. @ Kelly	3/24/1999		0.50			0.40	0.5
Downstream Duer Ck. @ Kelly	3/3/1999		1.60			-0.10	1.6
Downstream Duer Ck. @ Kelly	3/10/1999		1.60			0.30	1.6
Downstream Duer Ck. @ Kelly	3/17/1999		3.00			0.20	3
Downstream Duer Ck. @ Kelly	3/24/1999		2.20			-0.10	2.2
Upstream Santa Rosa Creek @ Delta	3/3/1999		0.90			-0.10	0.9
Upstream Santa Rosa Creek @ Delta	3/10/1999		0.70			-0.10	0.7
Upstream Santa Rosa Creek @ Delta	3/17/1999		0.50			-0.10	0.5
Downstream Santa Rosa Creek @ Delta	3/3/1999		0.70			-0.10	0.7
Downstream Santa Rosa Creek @ Delta	3/10/1999		0.90			-0.10	0.9
Downstream Santa Rosa Creek @ Delta	3/17/1999		0.70			-0.10	0.7
Russian River @ Wohler	3/3/1999		0.40			-0.10	0.4
Russian River @ Wohler	3/10/1999		0.40			-0.10	0.4
Russian River @ Wohler	3/17/1999		0.40			0.20	0.4
Russian River @ Wohler	3/24/1999		0.40			0.20	0.4
Russian River @ Mirabel	3/3/1999		0.60			-0.10	0.6
Russian River @ Mirabel	3/10/1999		0.70			-0.10	0.7
Russian River @ Mirabel	3/17/1999		0.50			-0.10	0.5
Russian River @ Mirabel	3/24/1999		0.40			-0.10	0.4

Site	Date	Total P (mg/l)	Nitrate-N (mg/l)	Nitrite-N (mg/l)	TKN (mg/l)	total NH3-N (mg/l)	Estimated TN
Delta Pond @ 36" discharge	4/7/1999		5.70			0.90	5.7
Delta Pond @ 36" discharge	4/14/1999		5.50			1.20	5.5
Delta Pond @ 36" discharge	4/21/1999		5.50			1.20	5.5
Kelly Pond	4/7/1999		2.90			0.40	2.9
Kelly Pond	4/14/1999		2.70			-0.10	2.7
Kelly Pond	4/21/1999		1.90			-0.10	1.9
Laguna Wetlands	4/7/1999		5.80			4.20	5.8
Laguna Wetlands	4/14/1999		5.20			2.10	5.2
Laguna Wetlands	4/21/1999		6.10			2.00	6.1
100 yd. Upstream Llano Rd. Brdg.	4/7/1999		0.80			0.70	0.8
100 yd. Upstream Llano Rd. Brdg.	4/14/1999		0.90			-0.10	0.9
100 yd. Upstream Llano Rd. Brdg.	4/21/1999		0.60			0.20	0.6
Colgan Ck Upstream	4/7/1999		2.10			0.90	2.1
Colgan Ck Upstream	4/14/1999		2.00			2.10	2
Colgan Ck Upstream	4/21/1999		2.00			0.30	2
Laguna Upstream Incline Pump	4/7/1999		1.50			1.10	1.5
Laguna Upstream Incline Pump	4/14/1999		1.30			0.30	1.3
Laguna Upstream Incline Pump	4/21/1999		1.70			0.50	1.7
Laguna Upstream 36" Discharge	4/7/1999		1.30			0.80	1.3
Laguna Upstream 36" Discharge	4/14/1999		1.30			-0.10	1.3
Laguna Upstream 36" Discharge	4/21/1999		1.40			2.00	1.4
Laguna @ Todd Rd.	4/7/1999		2.50			0.70	2.5
Laguna @ Todd Rd.	4/14/1999		4.00			1.00	4
Laguna @ Todd Rd.	4/21/1999		3.00			0.40	3
Upstream Duer Crk @ Kelly	4/14/1999		0.50			-0.10	0.5
Upstream Duer Crk @ Kelly	4/21/1999		0.40			-0.10	0.4
Downstream Duer Crk @ Kelly	4/7/1999		2.10			0.60	2.1
Downstream Duer Crk @ Kelly	4/14/1999		1.90			-0.10	1.9
Downstream Duer Crk @ Kelly	4/21/1999		1.50			0.20	1.5
Russian River @ Wohler	4/7/1999		0.40			0.10	0.4
Russian River @ Wohler	4/21/1999		0.50			-0.10	0.5
Russian River @ Mirabel	4/7/1999		0.50			0.30	0.5
Russian River @ Mirabel	4/14/1999		0.40			0.10	0.4
Russian River @ Mirabel	4/21/1999		0.50			-0.10	0.5
Kelly Pond	5/5/1999		1.50			0.20	1.5
Kelly Pond	5/11/1999		1.20			-0.10	1.2
Laguna Wetlands	5/5/1999		5.40			1.40	5.4
Laguna Wetlands	5/11/1999		4.80			0.90	4.8
Upstream D-Pond Incline Pump	5/5/1999		1.70			0.30	1.7
Upstream D-Pond Incline Pump	5/11/1999		1.80			0.10	1.8
Downstream Duer Crk @ Kelly	5/5/1999		1.20			0.20	1.2
Downstream Duer Crk @ Kelly	5/11/1999		0.90			0.10	0.9

Table 1. Chlordane results from sediment samples in Santa Monica Bay

Santa Monica Bay Sediment Data										
Data Source	Number of Samples	Number of Non-Detects	Minimum (ug/kg)	Maximum (ug/kg)	Mean (ug/kg)	Number of Stations	Period of Record	Number Above Screening Value	Percent Above Screening Value	Notes
LACSD: Palos Verdes Shelf data	90	87	1.40	40.30	3.86	44	1998, 2000, 2002, 2004	3	3.3%	1
LACSD: Summary of Santa Monica Bay Bight 98 Data	23	21	1.00	1.21	1.01	23	1998	0	0.0%	2
Hyperion WWTP: Santa Monica Bay data	194	192	0.30	31.00	1.08	65	1998-2004	1	0.5%	3

Notes:

- Four analytes were used to calculate total chlordane: cis-chlordane, trans-chlordane, oxychlordane, and trans-nonachlor. Total chlordane results were also provided, but were recalculated to replace the "ND" results with values as per the SCCWRP protocol. Data with MDLs > Screening Value were excluded from the analyses.
- Total Chlordane data provided by LACSD were recalculated to follow the SCCWRP/NOAA summation procedures. Totals are based on chlordane-a and chlordane-g.
- Number of analytes used for analyses varied (5, 7, or total provided in dataset).

Table 2. Chlordane results from tissue samples in Santa Monica Bay

Santa Monica Bay Tissue Data											
Data Source		Number of Samples	Number of Non-Detects	Minimum (ug/kg)	Maximum (ug/kg)	Mean (ug/kg)	Number of Stations	Period of Record	Number Above Screening Value	Percent Above Screening Value	Notes
OEHHA/CFCP: Santa Monica Bay data		9	5	2.00	7.66	2.66	3	1999	0	0.0%	1, 2
Hyperion WWTP: Santa Monica Bay data	Fillet	219	208	0.09	3.63	1.10	7	2000-2004	0	0.0%	3
	Whole Fish	206	148	0.09	19.72	1.47	2	2000-2004	0	0.0%	3
	Total	425	356	0.09	19.72	1.28	7	2000-2004	0	0.0%	3

Notes:

- Total chlordane is the sum of five analytes.
- Stations include Santa Monica Pier (4110), Venice Pier (4120), and Party Boat to Malibu Kelp Beds (4140).
- Total chlordane is the sum of five analytes or the total chlordane measurement provided in dataset.

Santa Monica Bay								
Parameter		Number of Samples	Number of Non-Detects	Minimum	Maximum	Mean	Screening Value	Screening Value Source
Whole Fish & Fillets								
Organics	Chlordane	425	356	0.09	19.72	1.28	30.00	OEHHA
	Total DDT (ug/kg)	453	2	0.50	4947.40	175.78	100.00	OEHHA
	Total PCBs (ug/kg)	453	274	15.00	970.00	72.24	20.00	OEHHA
Fillets								
Organics	Chlordane	219	208	0.09	3.63	1.10	30.00	OEHHA
	Total DDT (ug/kg)	220	2	0.50	1227.10	93.56	100.00	OEHHA
	Total PCBs (ug/kg)	220	167	15.00	362.00	38.83	20.00	OEHHA
Whole Fish								
Organics	Chlordane	206	148	0.09	19.72	1.47	30.00	OEHHA
	Total DDT (ug/kg)	233	0	9.45	4947.40	253.42	100.00	OEHHA
	Total PCBs (ug/kg)	233	107	15.00	970.00	100.73	20.00	OEHHA

Santa Monica Bay								
Parameter		Number of Samples	Number of Non-Detects	Minimum	Maximum	Mean	Screening Value	Screening Value Source
Whole Fish & Fillets								
Organics	Chlordane	425	356	0.09	19.72	1.28	30.00	OEHHA
	Total DDT (ug/kg)	453	2	0.50	4947.40	175.78	100.00	OEHHA
	Total PCBs (ug/kg)	453	274	15.00	970.00	72.24	20.00	OEHHA
Fillets								
Organics	Chlordane	219	208	0.09	3.63	1.10	30.00	OEHHA
	Total DDT (ug/kg)	220	2	0.50	1227.10	93.56	100.00	OEHHA
	Total PCBs (ug/kg)	220	167	15.00	362.00	38.83	20.00	OEHHA
Whole Fish								
Organics	Chlordane	206	148	0.09	19.72	1.47	30.00	OEHHA
	Total DDT (ug/kg)	233	0	9.45	4947.40	253.42	100.00	OEHHA
	Total PCBs (ug/kg)	233	107	15.00	970.00	100.73	20.00	OEHHA

Number Above Screening Value	Percent Above Screening Value	Comments
0	0.0%	Total chlordane is the sum of five analytes or the total chlordane measurement provided in dataset (see chlordane-tissue sheet for details).
201	44.4%	
178	39.3%	All totals are the sum of arochlor 1248, 1254, & 1260. Results with MDLs > SV were excluded from the analyses (see PBCs-tissue sheet for details).
0	0.0%	Total chlordane is the sum of five analytes or the total chlordane measurement provided in dataset (see chlordane-tissue sheet for details).
62	28.2%	
53	24.1%	All totals are the sum of arochlor 1248, 1254, & 1260. Results with MDLs > SV were excluded from the analyses (see PBCs-tissue sheet for details).
0	0.0%	Total chlordane is the sum of five analytes or the total chlordane measurement provided in dataset (see chlordane-tissue sheet for details).
139	59.7%	
125	53.6%	All totals are the sum of arochlor 1248, 1254, & 1260. Results with MDLs > SV were excluded from the analyses (see PBCs-tissue sheet for details).

Santa Monica Bay									
Parameter		Number of Samples	Number of Non-Detects	Minimum	Maximum	Mean	Screening Value	Screening Value Source	Number Above Screening Value
Organics	Chlordane (ug/kg)	9	5	2.00	7.66	2.66	30.00	OEHHA	0
	Total DDT (ug/kg)	9	0	5.88	189.05	52.87	100.00	OEHHA	2
	Total PCBs (ug/kg)	9	2	25.00	131.30	56.90	20.00	OEHHA	7

Percent Above Screening Value	Comments
0.0%	Total chlordane is the sum of five analytes.
22.2%	
77.8%	All totals are the sum of arochlor 1248, 1254, & 1260. Two samples are below the detection limit; however, the MDL is greater than the OEHHHA SV. These data were included in the overall number of samples, but excluded from the analyses.

Santa Monica Bay – Bight 98 Data (Summarized by the LACSD)							
Parameter	Number of Samples	Minimum	Maximum	Mean	Screening Value	Screening Value Source	Number Above Screening Value
Arsenic (mg/kg)	0	0.00	0.00	#DIV/0!	70.00	Calif 303(d) Policy	0
Cadmium (mg/kg)	0	0.00	0.00	#DIV/0!	4.20	Calif 303(d) Policy	0
Chromium (mg/kg)	0	0.00	0.00	#DIV/0!	370.00	Calif 303(d) Policy	0
Copper (mg/kg)	0	0.00	0.00	#DIV/0!	270.00	Calif 303(d) Policy	0
Lead (mg/kg)	0	0.00	0.00	#DIV/0!	112.00	Calif 303(d) Policy	0
Mercury (mg/kg)	0	0.00	0.00	#DIV/0!	0.71	Salt ERM	0
Nickel (mg/kg)	0	0.00	0.00	#DIV/0!			
Selenium (mg/kg)	0	0.00	0.00	#DIV/0!			
Silver (mg/kg)	0	0.00	0.00	#DIV/0!	1.77	Calif 303(d) Policy	0
Zinc (mg/kg)	0	0.00	0.00	#DIV/0!	410.00	Calif 303(d) Policy	0
Chlordane (ug/kg)	23	1.00	1.21	1.01	6.00	Calif 303(d) Policy	0
Total DDT (ug/kg)	0	0.00	0.00	#DIV/0!	51.70	Salt PEL	0
Total PAHs (ug/kg)	23	3.18	240.97	66.72	1800000a	Calif 303(d) Policy	0
Total PCBs (ug/kg)	0	0.00	0.00	#DIV/0!	400.00	Calif 303(d) Policy	0

^a Organic Carbon normalized

Percent Above Screening Value	Notes
#DIV/0!	
#DIV/0!	
#DIV/0!	
#DIV/0!	
#DIV/0!	
#DIV/0!	
#DIV/0!	
#DIV/0!	
0.0%	1
#DIV/0!	
0.0%	2
#DIV/0!	

Palos Verdes Shelf

Parameter	Number of Samples	Number of Non-Detects	Minimum	Maximum	Mean	Screening Value	Screening Value Source
Entire Period of Record (1998-2004)				Entire Period of Record (1998-2004)			
Chlordane	90	87	1.40	40.30	3.86	6.00	Calif 303(d) Policy

Number Above Screening Value	Percent Above Screening Value	Comments
3	3.3%	<p>Four analytes were used to calculate total chlordane: cis-chlordane, trans-chlordane, oxychlordane, and trans-nonachlor. Total chlordane results were also provided, but were recalculated to replace the "ND" results with values as per the SCCWRP protocol. Data with MDLs > SV were excluded from the analyses (see sed_chlordane_crosstab sheet for details).</p>

Assessment of Chlordane Data in Santa Monica Bay

Recent chlordane data for Santa Monica Bay were compiled and subsequently compared against screening values to determine the magnitude and frequency of exceedances. To ensure comparability between datasets, identical summation procedures were used to calculate total chlordane for each dataset. These procedures were consistent with approaches described by NOAA (NOAA CPRD Standardized Sums) and SCCWRP (Chemistry Datasets Imputation Summation Procedures). Specifically, detected values were summed or the highest non-detect value was used if all values were undetected. In addition, if the highest non-detect value was greater than the sum of detected results, the non-detect value was included as the sum. If total chlordane was provided in the dataset along with the raw data, the totals were recalculated using this methodology, where possible, to ensure consistency between datasets.

Tables 1 and 2 summarize the assessment results for sediment and tissue data, respectively. The sediment data had very few total chlordane values above the California 303(d) Policy screening value of 6.0 micrograms per kilogram (ug/kg). Specifically, the data from Palos Verdes Shelf showed an exceedance frequency of 3.3%, while two other datasets with data in Santa Monica Bay had exceedance frequencies of 0.0% and 0.5% (Table 1). Combining these three datasets results in 4 out of 307 samples exceeded the screening value, or 1.3%. Two datasets with tissue data were also evaluated. Neither of these datasets showed total chlordane tissue results greater than the California Office of Environmental Health Hazard Assessment (OEHHA) screening value of 30.00 ug/kg (Table 2).

All data used in this evaluation were collected between 1998 and 2004, and are the most recent chlordane data readily available for Santa Monica Bay. Detailed evaluation of these data indicates attainment of narrative water quality objectives for both the sediment and tissue lines of evidence.

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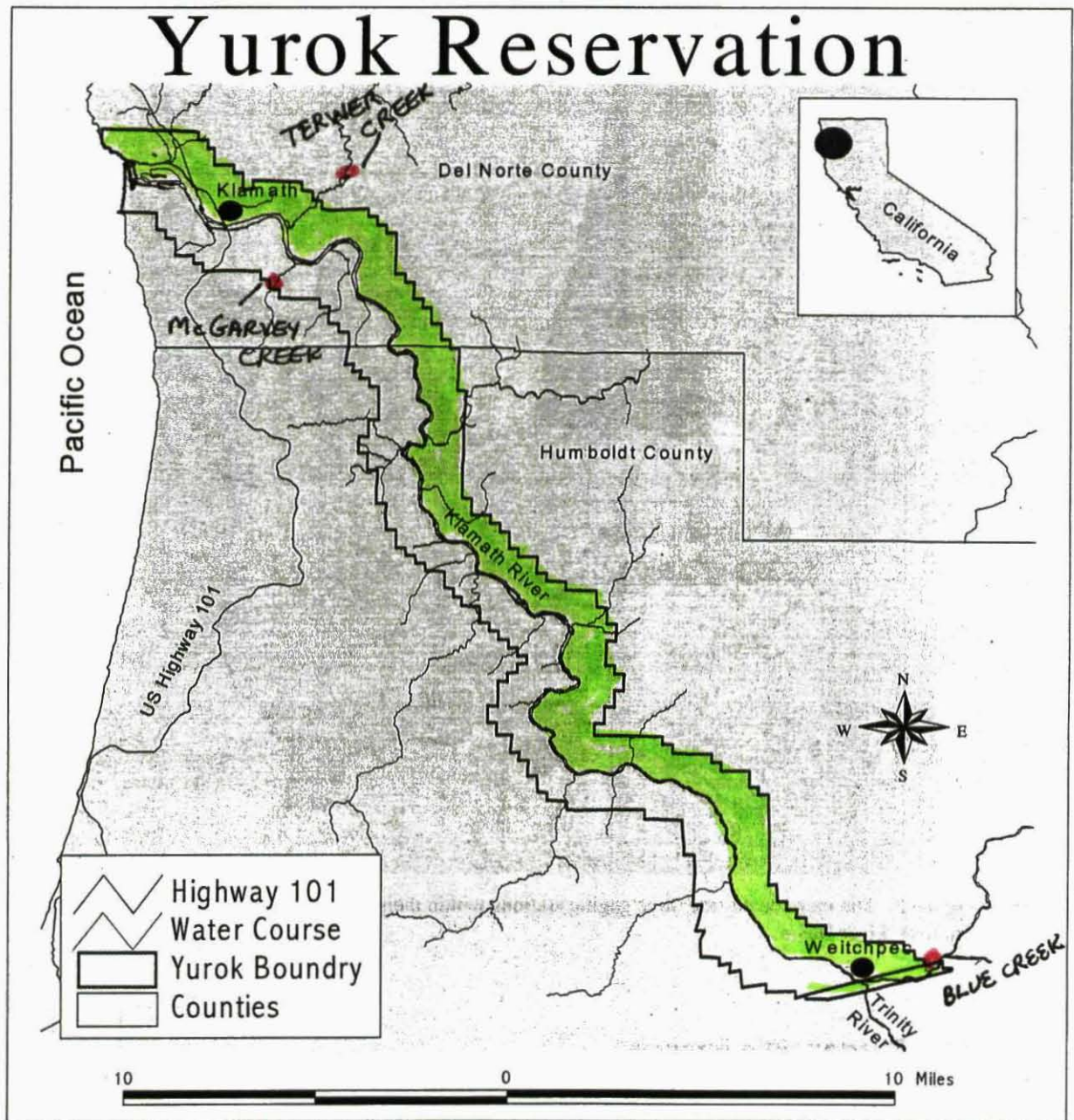


Figure1. Location of the Yurok Indian Reservation.

18 U.S.C. SECTION 1151

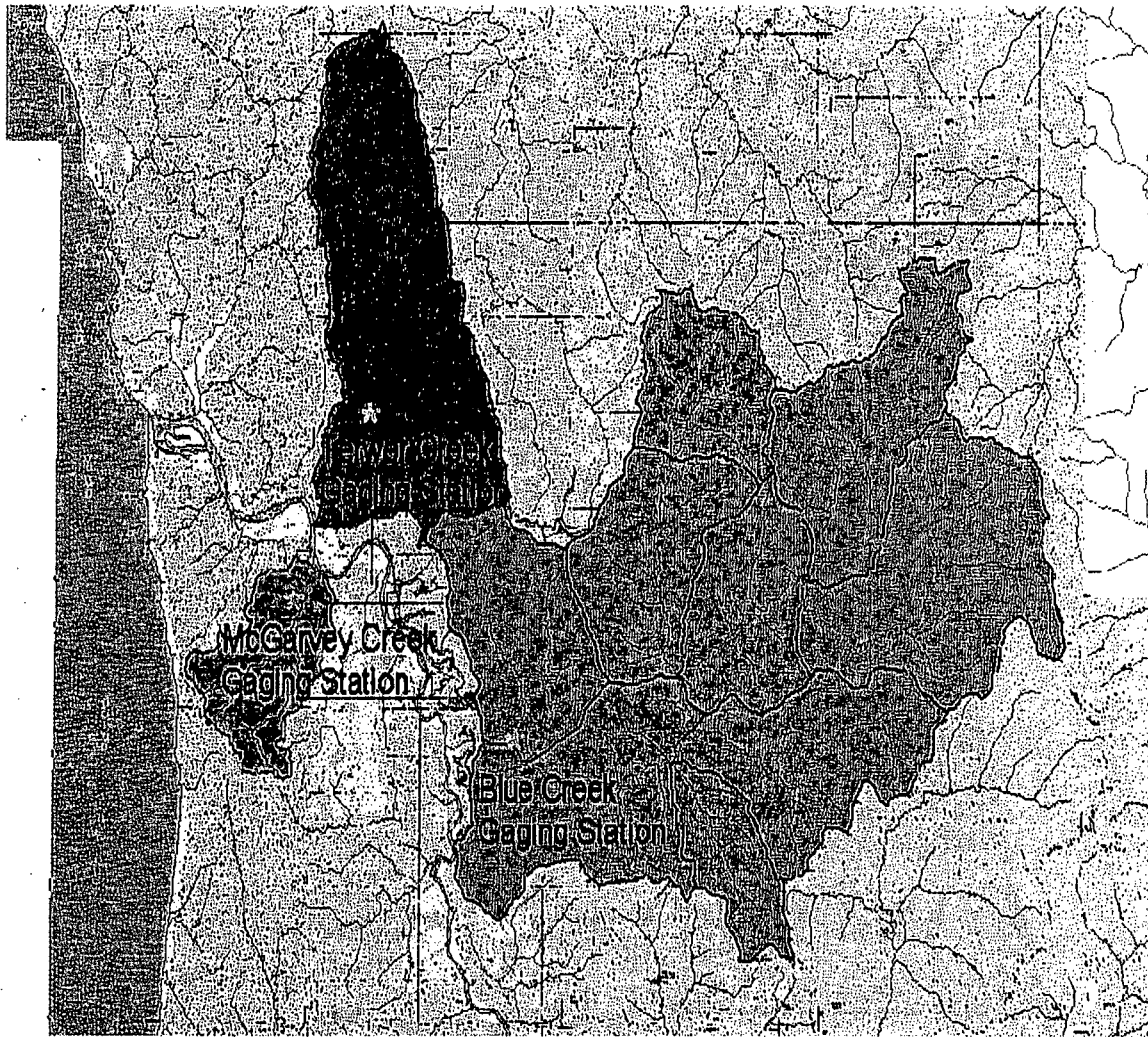


Figure 2. The map locates the three gaging stations within their respective watersheds within the Lower Klamath River Basin.

1.3 Responsible Agency

Yurok Tribe Environmental Program (YTEP).