

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

**STAFF REPORT FOR REGULAR MEETING OF SEPTEMBER 9, 2005
Prepared on July 29, 2005**

ITEM NUMBER: 22

**SUBJECT: Agricultural Discharge Regulation Update: Report on
Implementing the New Conditional Waiver of Waste
Discharge Requirements for Discharges from Irrigated Lands**

SUMMARY

This item provides an update on the implementation of agricultural discharge regulation including the status of enrollment, water quality monitoring and reporting, outreach and education efforts, grant funding, and data management.

On July 9, 2004, the Central Coast Regional Water Quality Control Board adopted a new conditional waiver of waste discharge requirements for irrigated lands (waiver) throughout the Central Coast Region. The adoption of the waiver was the culmination of a unique process during which agricultural and environmental interests from across the Region came together to work on appropriate conditions for the waiver.

The enrollment deadline for the conditional waiver was January 1, 2005. As of June 1, 2005, farmers representing approximately 334,000 acres throughout the Region had applied for coverage. This represents slightly more than 75% of the estimated 434,000 irrigated acres in the Region and far exceeds our target of 50% initial enrollment. This high enrollment level is a major accomplishment because it is a large step toward full compliance with the Water Board's irrigated agriculture requirements.

The first water quality data delivery from the Cooperative Monitoring Program (the region wide group monitoring program allowed under the waiver) was received as required by June 30, 2005. This delivery included the 2005 first

quarter monitoring results, and included three rounds of monthly water quality data from numerous parameters and two wet weather toxicity sampling events. Initial review of data confirms that water quality in the sampled areas is consistent with previous Central Coast Ambient Monitoring Program data.

The waiver program includes many related yet distinct requirements and components: enrollment, education, farm water quality plans, water quality monitoring, outreach, technical assistance, and grant funding support, all with the aim of increasing management practice implementation and improving water quality. Making effective use of these components to effect change is a challenge for all of us.

We will continue to work toward full enrollment, through continued outreach, notices to non-filers and enforcement actions as necessary. We are also working on the longer-term effort of ensuring full compliance with all waiver conditions.

DISCUSSION

Enrollment

The Central Coast Region has an estimated 434,000 acres of irrigated agriculture. We originally set a target of 50% enrollment by the January 1, 2005, enrollment deadline. An initial rough count from hard copy submittals conducted in March indicated that in excess of 236,000 acres (approximately 54%) had enrolled; however, this figure did not include more than 200 on-line enrollments. In

addition, enrollments have continued to come in even after the deadline, as more growers find out about the new requirements through the sustained outreach efforts of the agricultural industry, technical assistance providers, and Water Board staff.

Since most Notice of Intent enrollments were submitted in hard copy format, we have been going through the time-consuming task of entering all the submittals into the electronic database. We are now able to generate more accurate figures and estimate that approximately 75% of the Region's irrigated acres are enrolled. Some uncertainty in the data remains due to lack of precise information on the total irrigated acres in counties that span more than one Regional Board jurisdiction, as well as duplicate entries and other errors. We will continue to work on refining the acreage and enrollment numbers. Enrollment forms are still being received and we will continue with outreach efforts to meet, or hopefully exceed, the goal of 80% enrollment by the end of the first year (January 1, 2006). The ultimate goal is, of course, full enrollment of all irrigated acreage, waiver compliance with all irrigated agriculture requirements, and improvement in water quality for impacted water bodies.

The success of the enrollment effort exceeded our expectations. Much of that success is due to the outstanding outreach efforts of the agricultural industry, the partnership and communication networks that have been developed over many years, and the efforts of Water Board staff to respond promptly to inquiries and to make presentations at as many venues as possible.

Water Quality Monitoring

Waiver Order R3-2004-0117 (Order) identified cooperative monitoring as an option for meeting the mandated monitoring requirement of all conditional waivers and established monitoring requirements for a cooperative monitoring program.

Developing an agricultural industry-led cooperative monitoring program from the ground up is a monumental task, and the

industry has faced some very ambitious timelines laid out in the waiver order. As required by the order, an Agricultural Committee was formed, with representatives from all the counties in the Region. The role of the Agricultural Committee is to develop a cost allocation formula that can be used to generate sufficient funds to conduct the cooperative monitoring program in the future and to provide input to the monitoring program. A non-profit entity, Central Coast Water Quality Preservation, Inc. (CCWQP), has been established for the purpose of conducting the agricultural water quality monitoring, administering grants, and collecting funds from cooperative monitoring program members.

Monitoring began in January 2005, as required by the Order, and has continued monthly since then. Monitoring for Phase I (2005) continues in the lower Salinas and Santa Maria watersheds, both areas with intensive irrigated agriculture and identified water quality problems. During Phase I, twenty-five sites are being monitored, fifteen in the lower Salinas and ten in Santa Maria (Table 1). Phase II, which will begin January 2006, will add an additional 25 sites in other agricultural areas. We are holding discussions with the Agricultural Committee's monitoring subcommittee about where to begin follow-up monitoring projects associated with Phase I which comprise an important component of the monitoring strategy.

We received the first data delivery from the CCWQP on June 30, 2005, as required by the Order. This delivery included the first quarter's monitoring results, and included three rounds of monthly conventional water quality data and two wet weather toxicity sampling events. Data findings are consistent for the most part with findings from the Central Coast Ambient Monitoring Program (CCAMP) in past sampling, although several sampling site locations are new. Additionally, there is more toxicity data available than we have been able to collect in the past. Initial findings can be misleading because the sample count is still low, and more information will give us a better sense of the overall water

quality issues in agricultural areas for these two watersheds.

As expected, nitrate concentrations are high at many of the sites, in many cases considerably over the drinking water standard (Figure 1). Site averages range from undetected to over 60 mg/L as N (nitrogen). Sixty percent of the sites had at least one exceedance of the drinking water standard (10 mg/L as N).

Orthophosphate does not currently have a numeric standard, though guidance from EPA Region 9 in the past has suggested listing waters as impaired based on a guideline value of 0.1 mg/L as P (phosphorus). Most of the sites sampled exceeded this value on average (Figure 2).

Several other conventional parameters are also being measured, including pH, dissolved oxygen, temperature, ammonia, turbidity, conductivity, and total dissolved solids. We have not yet evaluated this data but believe it will be more meaningful in the context of additional data collected by the program during the irrigation season.

Toxicity testing was conducted on three different species during two wet weather events. *Ceriodaphnia dubia* is a water flea, known to be especially sensitive to organophosphate pesticides such as chlorpyrifos and diazinon. Pyrethroid pesticides tend to be particularly toxic to fish, such as *Pimephales*. *Selenastrum*, an alga, is used to test for toxicity to aquatic plants. *Selenastrum* can also be used to test for "biostimulation" from nutrients, although it should be noted that presence of both herbicides and nutrients can potentially have a confounding effect on growth.

Previous studies conducted by the University of California have shown a significant amount of toxicity to *Ceriodaphnia* in both the lower Salinas and Santa Maria watersheds. These findings are confirmed by the first two rounds of data from the Cooperative Monitoring Program. Tests indicate a significant amount of toxicity to *Ceriodaphnia* in both watersheds. A number of the samples were

100% toxic, often within 24 hours of the start of the test.

Pimephales tests were less frequently toxic. Sites that showed *Pimephales* toxicity did not necessarily also show toxicity for *Ceriodaphnia*, implying that different toxins may have been involved.

Four sites showed toxicity to *Selenastrum*; many more sites had a significant positive response relative to the control, indicating that nutrients are probably having a biostimulatory effect at these locations.

Figures 3, 4, and 5 show relative percent difference in survival between the test organisms and the control for the three test species for all tests. A negative percentage represents a potentially toxic effect. Only tests which are statistically different from the control are shown as toxic (by hatch marks). A positive percentage implies that more "test" organisms survived than did "control" organisms.

In general, preliminary review of the data confirms water quality conditions identified by CCAMP, including high nutrient levels at many sites and evidence of toxicity in some areas. The Cooperative Monitoring Program requires that 25% of the budget be devoted to follow-up monitoring where problems are identified. CCWQP will develop a list of priority areas for follow-up and a study plan describing the approach to be taken to address problems, including additional monitoring, outreach to growers, and adjustment of management practices. We will be working closely with CCWQP on the follow-up component of the program. We plan to provide a complete discussion of Phase I data, findings, and follow-up activities to the Board following the end of the sampling year.

Fees and Staffing

The legislature has authorized twenty-two positions statewide to implement agricultural waiver programs. These positions are to be supported by fees assessed to all waiver holders. In March 2005, staff from the State Board met with us, representatives of the

Agricultural Advisory Panel, members of the cooperative monitoring program and other interested parties to explain the proposed fee schedule. The State Water Resources Control Board adopted the fee schedule at a State Board hearing on June 16, 2005. The schedule has a tiered structure that allows for both individual and group payment of fees. CCWQP has decided to enroll in the group tier of the proposed fee schedule, in order to lower costs for all growers in the cooperative monitoring program. Those growers not participating in the cooperative monitoring program will be responsible for paying fees as individuals at a higher rate.

The Central Coast Region was allocated two staff positions out of the twenty-two to implement the conditional waiver program in this region. One of these positions is currently filled by a new hire (Jill Wilson) with the other position recently vacated through a staff departure.

Education and Outreach

We have had the Notice of Intent and management practice checklist translated into Spanish. These documents are being made available to our outreach partners for use in classes and workshops. A waiver brochure that is being developed to explain the program will be in both English and Spanish.

University of California Cooperative Extension is continuing to offer their 15-hour farm water quality planning short courses to agricultural producers throughout the Region. The courses are tailored for specific crops and production systems, such as nurseries, orchards, vineyards, vegetables and strawberries. As of September 2005, more than thirty-five courses have been offered throughout the Region, providing education to approximately 1300 growers. We have made presentations at all courses. Another thirty classes are planned over the next eighteen months.

Grant Funding

An important and related component of the long-term strategy for agricultural water quality protection is devotion of grant funds to

management practice implementation, technical support, and water quality monitoring. The statewide Agricultural Water Quality Grants Program recently funded eleven projects in this Region, for a combined total of more than seven million dollars. These funds will be leveraged with nearly two million dollars in matching funds. In addition, both Guadalupe and PG&E settlement funds are already providing technical support and helping growers implement management practices in the southern and northern parts of the Region, respectively.

Data Management

The size of the waiver program makes an efficient system for managing data crucial. Because no statewide data management system was capable of meeting our needs, we solicited assistance from USEPA to help us develop an on-line enrollment system and data management tool to allow growers to enroll through our web-site. More than 200 enrollees used the on-line system, which was consistent with our expectations. The system is already providing a valuable tool for managing and analyzing large amounts of data.

A full time staff person was hired to manage program data. Tasks include developing on-going modifications to the enrollment database, building reporting functions, initiating geographic information system (GIS) capability, and facilitating the capture and evaluation of analytical data from the cooperative monitoring program. Currently we are cleaning up the database, removing duplicates, generating confirmation letters, developing a list of potential non-filers, and providing summary information to staff, growers, the Board and the public. However, our database staff person is leaving and finding a replacement with these commensurate specialized skills may prove difficult. As a result, we anticipate some delay in generating letters to potential non-filers. We will continue to make that task a priority, however, and anticipate mailing letters sometime in September.

A list of all enrollees who elected the cooperative monitoring option on their

enrollment will be provided to the Cooperative Monitoring Program in August, so that they will have a complete mailing list of all cooperative monitoring program members. We are also mapping the areas that have enrolled under the waiver and mapping management practice implementation as reported on the checklists. Combined with water quality data, this information will be valuable in analyzing the relationship between practice implementation and water quality changes. This will help us better evaluate the long-term effectiveness and benefits of the program.

Other longer-term tasks include improving the on-line enrollment information management system and making modifications that will allow enrollees to access and update their information, and submit required annual reports and biannual management practice checklists electronically. State Board Nonpoint Source Program staff recently viewed the capabilities of our management practice tracking tools and have expressed interest in assisting us with further development of our data management system. We developed a scope of work to upgrade our system and submitted it to State Board.

CONCLUSION

We are continuing to move forward toward full enrollment through a series of actions planned for the next few months. We sent incomplete notices to all enrollees who were missing information. In spite of some errors in our database, we received a good response and are bringing our records up to date. We will send follow-up letters to all those who responded, confirming their enrollment, their tier, the due date of their annual report or management practice checklist update, and their selected monitoring option. Notices to potential non-filers will be sent out by late September. We anticipate that additional follow-up with some potential non-filers and enforcement actions directed at non-filing parties will likely occur late this year.

We will continue to inform growers of the new requirements by making presentations at farm water quality short courses and grower

meetings. We will also be making site visits throughout the region as part of our on-going effort to work with growers on implementation and improvement of management practices to protect water quality and to ensure full compliance with the conditions of the waiver. We will be reviewing water quality data and working with the cooperative monitoring program on follow-up activities where problems are identified, based on monitoring and enrollment information.

The waiver program is comprised of many related yet distinct components: enrollment, education, farm water quality plans, water quality monitoring, outreach, technical assistance, and grant funding support, all with the aim of increasing management practice implementation. The final component is skillfully using information provided by water quality monitoring and management practice reporting to draw a coherent picture and allow us to reach accurate conclusions. To be successful, the program must use all of these components to achieve the goal of better water quality.

The conditional waiver program far exceeds any other Central Coast Water Board program in terms of number of participants as well as area encompassed. We will continue working to meet our goal of 80% enrollment by the end of 2005. Successfully implementing a new program of this size with limited staff requires considerable creativity and teamwork on the part of people within the agricultural regulation and non-point source programs.

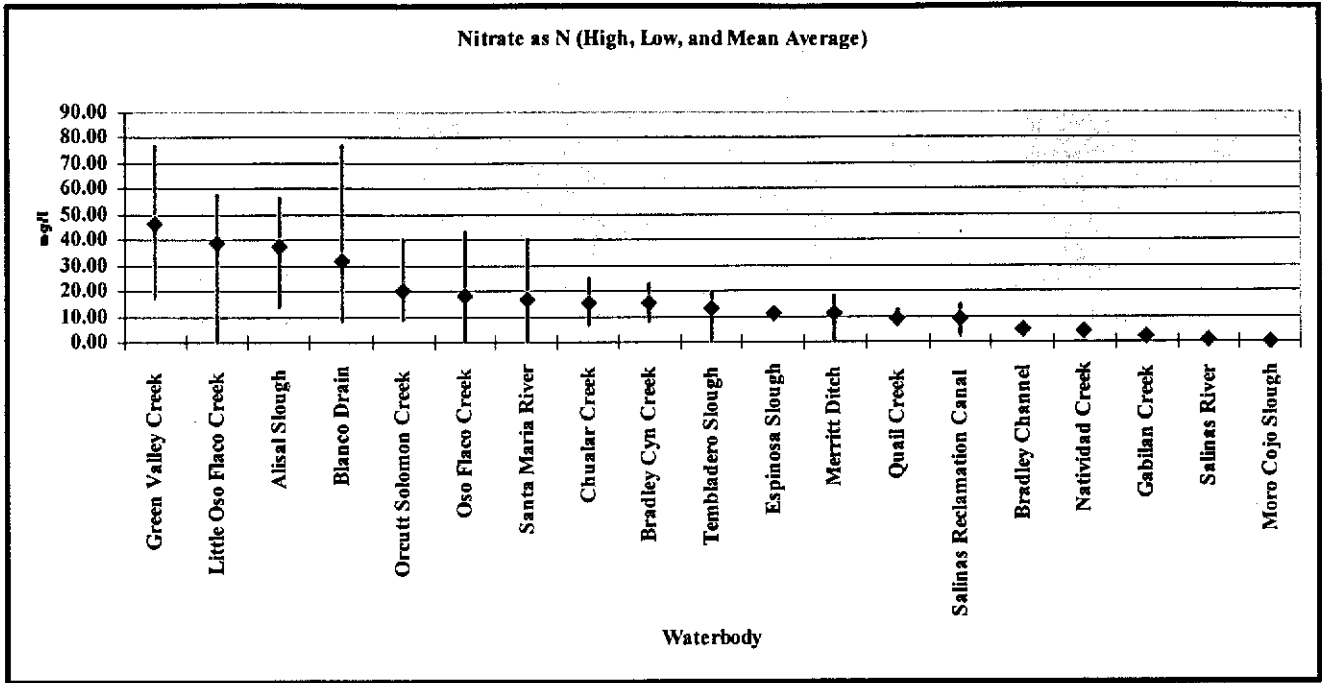


Figure 1. Average and range of nitrate concentrations (as N) in water bodies sampled by the Cooperative Monitoring Program

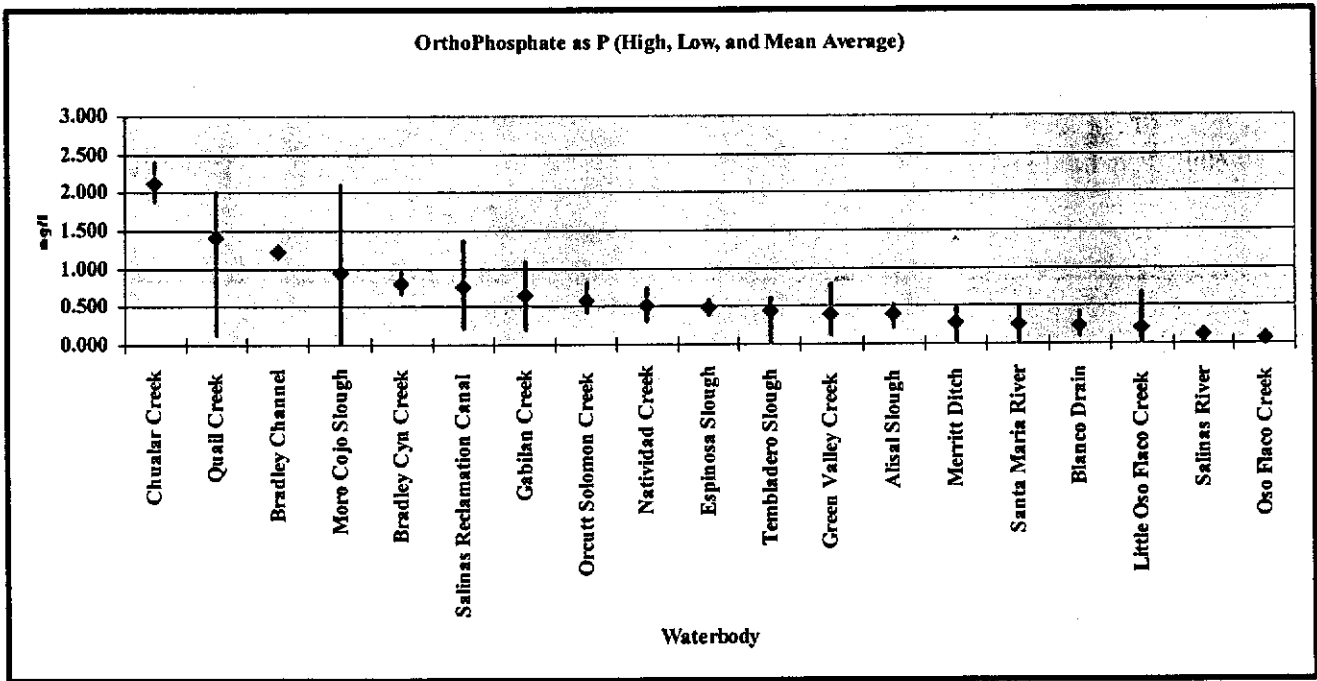


Figure 2. Average and range of Ortho-phosphate concentrations (as P) in water bodies sampled by the Cooperative Monitoring Program.

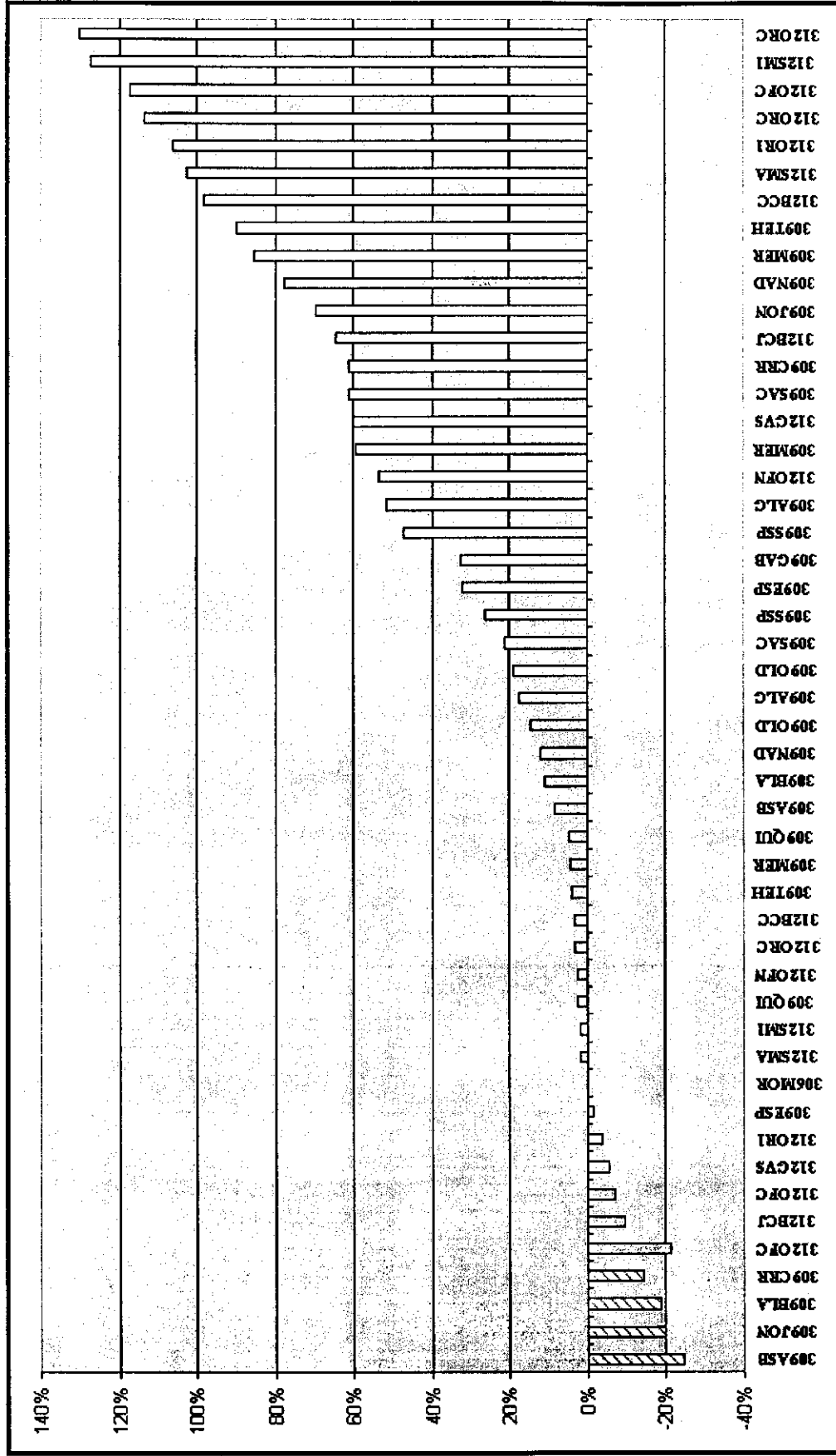


Figure 5. Preliminary *Selenastrum* test results, expressed as relative percent difference from control. Bars with a "hatched" background indicate tests that are statistically significant for toxic effects.

Table 1. Site tags and locations for the Cooperative Monitoring Program

Study Area	Site Tag	Site Name
CMPnorth	306MOR	Moro Cojo Slough at Highway 1
CMPnorth	309ALG	Salinas Reclamation Canal at La Guardia
CMPnorth	309ASB	Alisal Slough at White Barn
CMPnorth	309BLA	Blanco Drain Below Pump
CMPnorth	309CRR	Chualar Creek at Chualar River Road
CMPnorth	309ESP	Espinosa Slough u/s Alisal Slough
CMPnorth	309GAB	Gabilan Creek at Boronda Road
CMPnorth	309JON	Salinas Reclamation Canal at San Jon Road
CMPnorth	309MER	Merritt Ditch u/s Highway 18x
CMPnorth	309NAD	Natividad Creek u/s Salinas Reclamation Canal
CMPnorth	309OLD	Old Salinas River at Monterey Dunes Way
CMPnorth	309QUI	Quail Creek at Highway 101
CMPnorth	309SAC	Salinas River at Chualar Bridge on River Road
CMPnorth	309SSP	Salinas River at Spreckels Gauge
CMPnorth	309TEH	Tembladero Slough at Haro
CMPsouth	312BCC	Bradley Canyon at Culvert
CMPsouth	312BCJ	Bradley Channel at Jones Street
CMPsouth	312GVS	Green Valley at Simas
CMPsouth	312MSD	Main Street Canal u/s Ray Road at Highway 166
CMPsouth	312OFC	Oso Flaco Creek at Oso Flaco Lake Road
CMPsouth	312OFN	Little Oso Flaco Creek
CMPsouth	312OR1	Orcutt Solomon Creek at Highway 1
CMPsouth	312ORC	Orcutt Solomon Creek u/s Santa Maria River
CMPsouth	312SM1	Santa Maria River at Highway 1
CMPsouth	312SMA	Santa Maria River at Estuary