



The Otter Project

www.otterproject.org

Public Comment
Agricultural Expert Panel
Deadline: 5/14/14 by 12:00 noon

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May 13, 2014

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814
Via email: commentletters@waterboards.ca.gov



Re: Agricultural Expert Panel Comments

Dear Expert Panel Members, Water Board Staff and Board Members:

Thank you for the opportunity to comment on the development of expert panel recommendations to the State Water Board (Board) to control agricultural nutrient discharges to surface and ground waters. And, thank you for your service to California.

The following comments are made on behalf of The Otter Project and our water quality program, Monterey Coastkeeper (an affiliate of the international Waterkeeper Alliance), our 3000 members and our 150 active volunteers.

The recommendations of this panel are meant to inform the State Board on actions that can be taken to control agricultural pollution. It must be noted that there have been a multitude of studies with recommendations that have come before: Nutrient pollution is not new and there are a number of California specific and international research papers that offer solutions; the Central Coast Regional Board engaged a number of experts to help craft the February 1, 2010 Preliminary Draft Central Coast Agricultural Order¹; in August 2010 an Inter-Agency Nitrates Task Force was created to study and offer recommendations²; the UC Davis Harter Report released March 13, 2012, has two appendices dedicated to solutions to the pollution problem³; and the Governor's Office convened a stakeholder group to offer recommendations⁴. There are countless studies, a multitude of recommendations, but little action.

Growers fear 'government' regulation of fertilizer applications. Treatment is expensive and state law suggests that the growers could be culpable. The lack of action is less about a paucity of solutions and more about the lack of political will to regulate agricultural pollution.

These comments are informed by conditions on the Central Coast. Our surface and ground water is in terrible shape. There are plenty of data: From 2005 through today, 50 surface water monitoring sites have been monitored by the Central Coast Water Board on a monthly basis and toxicity has been

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http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/ag_order.shtml#feb1

2 http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/

3 <http://groundwaternitrate.ucdavis.edu/> and <http://groundwaternitrate.ucdavis.edu/files/139103.pdf>
and <http://groundwaternitrate.ucdavis.edu/files/139112.pdf>

4 http://www.swrcb.ca.gov/water_issues/programs/groundwater/drinkingwater_stakeholders.shtml

monitored quarterly⁵. Monitoring data was compiled into a “Conditions Report” that informed the Central Coast Ag Order deliberations.⁶ Surface water findings of note include:

- “Our analysis of nitrate data indicates that a number of the sites that are in very poor condition in terms of nitrate concentrations are getting worse, not better. Most of these sites are located in the lower Salinas and Santa Maria areas...”
- “Of the 250 sites evaluated for the CCAMP and CMP monitoring programs, fully 30 percent have nitrate-N concentrations that exceed the drinking water standard on average. Several sites have average nitrate concentrations that exceed the standard by five-fold or more. The top twenty worst sites from the standpoint of nitrate contamination have mean concentrations that range from 32.6 to 93.7 mg/L.”

Ground water findings of note include:

- “Analyses contained within subsequent sections of this report clearly indicate that fertilizer is by far the largest source of nitrogen input within the Region and that it is the largest source of nitrate loading to groundwater within areas subject to intensive irrigated agricultural land use.”
- “A large body of data collected by the USGS indicates nitrate in groundwater is the most significant water quality problem in the nation and that commercial fertilizer is the primary source of loading, particularly in areas of intensive agriculture.”
- “Focusing on the Salinas Valley groundwater basin (excluding the Paso Robles subbasin) the number of public supply wells containing nitrate in excess of the drinking water standard increases to 18 percent and the number of wells under the influence of human sources of nitrate increases to 37 percent.” [Note: Public supply wells do not reflect “all” domestic wells as, in theory, these wells are tested, monitored and required to meet drinking water standards.]

The Harter Report summarizes the impacts to human populations for a narrow slice of California (only the Salinas Valley and Tulare Lake Basin):

- **“Public health concerns for those exposed to nitrate contamination in drinking water.** In California’s Tulare Lake Basin and Salinas Valley, roughly 254,000 people are currently at risk for nitrate contamination of their drinking water. Of these, 220,000 are connected to community public (>14 connections) or state small water systems (5–14 connections), and 34,000 are served by private domestic wells or other systems smaller than the threshold for state or county regulation and which are largely unmonitored.”
- **“Financial costs of nitrate contamination** include additional drinking water treatment, new wells, monitoring, or other safe drinking water actions; over 1.3 million people are financially susceptible because nitrate in raw source water exceeds the MCL, requiring actions by drinking water systems.”

⁵ www.ccamp.org (Note: At the time of this writing the site only includes data through 2010 as CCAMP (Central Coast Ambient Monitoring Program) is in the process of upgrading the site.)

⁶ Report on Water Quality Conditions,

http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/docs/12_09_2010_staffrpt/AgOrder_AppG.pdf

While it is important to acknowledge that the impacts to human populations should be our highest priority, we also note the impacts to the environment and endangered species are also severe. Recent findings include:

- “Ocean discharge of freshwater microcystins was confirmed for three **nutrient-impaired rivers** flowing into the Monterey Bay National Marine Sanctuary... Deaths of 21 southern sea otters, a federally listed threatened species, were linked to microcystin intoxication.⁷”
- “We have seen a 30- to 100-fold increase in domoic acid (an algal toxin) in water samples in the last decade or so,” said Clarissa Anderson, a biological oceanographer at UC Santa Cruz who recently won a California Sea Grant Focus Award to study the blooms. “We think that the toxicity of these blooms is related to agricultural runoff,” Anderson said. “We are especially interested in “first-flush” storms in the beginning of the rainy season in fall.⁸”

Nitrate pollution is a serious and threatening world-wide problem: The May 2013 issue of National Geographic included a feature article entitled “A mixed blessing; could agriculture destroy our planet?”⁹

From the 30,000-foot level there are only two possible actions: 1) Source control and 2) Treatment.

Source control includes applying less nitrogen and managing that nutrient once in the soil.

Testimony provided to the Panel suggested that growers apply only the right amount of nutrients and any groundwater pollution was a “legacy” issue. We believe research has shown otherwise and there are many documented cases of over application. Indeed, an entire new industry of GIS guided fertilizer and water management is premised on the fact that growers over-apply. Nitrogen “aging studies” of groundwater also indicate that the nitrates in ground water are of a relatively new age and originating from agriculture.¹⁰

Managing nutrients, once on the ground, is closely tied to irrigation practices and keeping nutrients in close proximity to the roots and available to the plant. The Panel should not overlook the obvious: Preventing backflow of fertigation and chemigation systems, resulting in the literal injection of nutrient-spiked water into the aquifer, is critical. While backflow devices have been required by law for years, major growers and their consultants testified before the State Board that the installation of such devices would cost hundreds of thousands of dollars, we must conclude that these systems have not already been installed.¹¹ Expert Panelists apparently have firsthand knowledge of this issue as one Panel member testified before the State Board in opposition to the backflow device requirement. Practices such as rotating between shallow and deep rooted crops, and winter cover cropping can also be helpful.

On the central coast there is essentially no difference between ground and surface water. Clean water falls from the sky as winter rain and is captured by Nacimiento and San Antonio reservoirs. Through the

⁷ Miller MA, Kudela RM, Mekebr A, Crane D, Oates SC, et al. (2010) Evidence for a Novel Marine Harmful Algal Bloom: Cyanotoxin (Microcystin) Transfer from Land to Sea Otters. PLoS ONE 5(9): e12576. doi:10.1371/journal.pone.0012576

⁸ Sea Grant News, <http://caseagrantsnews.org/2013/04/01/forecasting-harmful-algal-blooms-in-monterey-bay/>

⁹ <http://ngm.nationalgeographic.com/2013/05/fertilized-world/charles-text>

¹⁰ Harter Report Technical Report 2, Nitrate Sources and Loading to Groundwater, <http://groundwaternitrate.ucdavis.edu/files/139110.pdf>

¹¹ http://www.waterboards.ca.gov/public_notices/comments/rb3/cmnt082712/theresa_dunham.pdf

summer months, the reservoirs discharge their waters to percolate to groundwater. Ground water is pumped and used by agriculture and municipalities; 90-percent of all water pumped is used by agriculture.¹² Unused irrigation water either runs off as tail-water or percolates again to ground water; water can repeatedly cycle between surface and ground water. Agricultural pumping of groundwater is both a curse and an opportunity: When water is used by agriculture it sometimes becomes polluted, but at the same time, when the water is on the surface it is an opportunity for treatment.

Treatment can run the spectrum from black boxes that remove contaminants through reverse osmosis or other means, through things like wood chip bioreactors and engineered wetlands that mimic natural wetland and riparian processes. Again, we trust the Panel will include the obvious: We need to value and protect our riparian buffers and wetlands as they offer critical treatment opportunities.

Knowing the numbers is critical to understanding the balance between nitrogen applied and crop need; we believe there should be a requirement to balance. To find balance, we need to know the nitrogen already available in the irrigation water, nitrogen available in the soil, and how much nitrogen is added as additional fertilizer. Associated with these numbers we also need know the crop type and soil type. Ideally, we would like to know yield or some estimate of nitrogen removed as crop.

At the very least having the nitrogen numbers will provide a huge amount of knowledge about what it takes to grow a variety of crops in a variety of conditions. Some growers and consultants have said that crop nitrogen requirements are not available in the published literature. While this may be true, there is no question that successful growers know exactly how much fertilizer their crop will need. Having growers simply and easily report this information will be more efficient and real-world accurate than academic research could ever provide. By knowing the numbers we will learn what is normal and what is an outlier; crop advisors and regulators will then be able to focus their education and outreach efforts on those inconsistent situations. In addition, knowing these numbers will also help us properly choose and size treatment options. Without these numbers we are literally blind – or worse, turning a blind eye.

Knowing – and not the fear of knowing – should drive regulatory policy in this State. Detailed research should be conducted to determine the actual amount of nitrogen leaching to groundwater for a variety of crops and conditions. Lysimeters and test wells are known and readily available technologies to gain this knowledge. It is very likely true that areas of shallow groundwater – the same areas offering greatest profit – are higher threats to contamination.

The primary regulatory tool for source control available to the State Board is a discharge permit (WDRs or a Conditional Waiver). State law requires that monitoring and reporting is rigorous enough to show the efficacy of regulation and management practices within the five-year term of any permit or waiver. Cataloguing and reporting management practices is an indirect and insufficient measure of water quality improvement and protection; actual discharge monitoring is essential to a discharge permit. Surface water discharges occur when wastewater flows from the farm as tail-water and ground water discharges may occur when tail-water collection ponds leach to ground water – these potential contamination

¹² MCWRA Ground water Extraction Survey, http://www.mcwra.co.monterey.ca.us/Agency_data/GEMS_Reports/2012%20Summary%20Report.pdf

sources must be monitored and reported (in the Salinas Valley, water from tail-water ponds is seldom reused).

The Expert Panel has the ability to add to the list of questions posited by the Water Board; the Expert Panel is best suited to provide the Board with a recommendation on the scientific design and sample size required to meet the requirements of the law.

Monitoring results must be publicly reported, again it's the law. We believe coalitions can reduce costs, provide education, and can exert peer pressure; but coalitions can also – and do -- hide monitoring discharge monitoring results from regulators and the public by providing only “aggregated results.” It has been suggested that the public will misinterpret discharge data; there is no evidence to support this claim. It has also been suggested that disclosing monitoring results will dissuade growers from using the most polluted waters (pump and treat); but we believe the regulators and the public are sufficiently enlightened to encourage and reward those growers tackling the most serious problems.

We've heard many people say regulation is bad, voluntary partnerships are more effective and preferable. California's Porter Cologne Water Quality Control Act was passed in 1969 and required all dischargers to come under regulation. At the time, many dischargers such as agriculture and timber harvesting, said they needed time to get ready for regulation. They argued exactly what you heard during oral testimony: they could more effectively clean up their water quality problems themselves, without regulation. From 1969 until today, 45 years have elapsed and as documented for the Central Coast, conditions are deteriorating, not improving.

Regulation provides the backstop to catalyze action. It is our hope that the hammer of enforcement and punitive fines never occurs, but it is regulation that encourages compliance.

This will take time. Although some have spread the fear, there is no requirement for immediate compliance to water quality objectives. We need to see progress. The Otter Project/Monterey Coastkeeper believes in incremental steps. But we also believe the steps must be bold enough to both make progress and achieve objectives within a reasonable amount of time. Until water quality objectives are met, people, sea otters, steelhead, and the environment are paying a dire price in terms of health and dollars.

The impairments on the Central Coast are severe and getting worse. I urge you to suggest big bold steps.

Sincerely,

A handwritten signature in blue ink, appearing to be 'A. L. L.', written in a cursive style.

Executive Director