Zellmer, Ashley@Waterboards

From: Kirk Schmidt <kschmidt@ccwqp.org>
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To: Zellmer, Ashley@Waterboards
Subject: Expert Panel Questions 3, 4 & 11
Attachments: Response on Qs 3_4_11_SGLfinal.pdf

Ashley Zellmer

Please find attached comments by Central Coast Water Quality Preservation, Inc. to Expert Panel questions 3, 4 and 11. Please contact me if you have any questions. Thank you.

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Dear Members of the Agricultural Expert Panel,

Thank you for the opportunity to comment on panel questions 3, 4 and 11 relating to surface water quality. Central Coast Water Quality Preservation, Inc. (Preservation, Inc.) has managed the Cooperative Monitoring Program (CMP) since 2005 to assess surface water quality in agricultural watersheds of the Central Coast for the ILRP. The CMP involves monthly monitoring of about 50 ambient ("bottom of the watershed") sites for roughly 20 parameters, including several that can be directly related to fertilizers, pest control products, and eroded soils in agricultural discharges. In addition to the suite of core sites and parameters, the CMP has also performed monitoring for specific toxicants of concern (e.g. organophosphate and pyrethroid pesticides, several herbicides, and heavy metals) and has also performed focused monitoring of mid- and upper-watershed sites to provide better resolution and information about source areas for issues identified at core bottom-of-the-watershed sites. Key points in our responses are highlighted and underlined in the paragraphs below.

Question #3 posed to the Panel was, "How can risk to or vulnerability of surface water best be determined in the context of a regulatory program such as the ILRP?"

There are several obvious academic approaches to estimating the "risk" that an individual operation may pose to surface water, including calculations based on farm size, high-nitrogen-requirement crops, proximity to impaired water bodies, etc. The problem with these approaches is that any conclusions drawn must be based on assumptions about the fate and transport of farm inputs and soils, which often prove to be inaccurate especially given the highly varied topography, geology and crop mixes on the Central Coast. The most important factors in risk to surface water impairment are:

1) Presence/absence of discharges (irrigation runoff and/or storm runoff);
2) Hydrologic connectivity between the farm and water body in question; and
3) Hydrology of the water body in question, in particular presence/absence of baseflow and the quality of baseflow waters upstream of agricultural contributions.

A large farm growing high-nitrate-need crops may pose no surface water threat at all if it does not produce irrigation runoff and has little or no storm runoff. Similarly, a very small farm that uses no nitrogen fertilizers but has a high-nitrate well and generates irrigation runoff can disproportionately affect water quality in an adjacent water body, particularly if farm discharges are the primary source of water to the stream channel. Agricultural discharges to large water bodies consisting mainly of reservoir-released water do not create impairments at the same scale as in water bodies with no baseflow whose primary water source is the discharges themselves. There is some logic to using a limited set of criteria to rule *out* operations that are clearly *not* contributing to water quality issues, as fewer assumptions are needed for that approach.

In general it will be most protective of water quality to consider direct pathways for water movement as the primary risk factor, as opposed to farm characteristics that may or may not affect nearby water bodies. The source and quality of any baseflow in the water bodies is also a key consideration, as are CMP results which clearly identify existing water quality impairments.

Question #4 posed to the Panel was, "Evaluate and develop recommendations for the current approaches taken to assessing risk to or vulnerability of surface water," including proximity to impaired water bodies, usage of particular inputs, operation size, and High Vulnerability Areas Methodology.

Since 2005 the work of Preservation, Inc. has included a combination of ambient-level monitoring as well as one-on-one outreach with individual growers. We have thus developed a familiarity with the role that farm-level discharges play in ambient-level water quality impairments, and our general sense is that the approaches listed in Question 4 to assessing risk/vulnerability (i.e. focusing on characteristics such as farm size, address, and input names) do not accurately focus resources to best protect water quality.

A boots-on-the-ground approach based on technical familiarity with each watershed is more to the point and eliminates the need for assumptions that result in the misallocation of resources and delay improvements. Instead of deliberating over the best way to guess at which farms most impact water quality, every single watershed in the region could have been addressed by now if available resources were focused in depth on 1-2 watersheds per year. By analogy, 10 years are being spent waiting to rent a bulldozer for a job that could have already been completed by a small crew with shovels, if only the decision had been made to start digging.

The CMP data clearly define the extent of impairment in each agricultural watershed of the Central Coast. This information should be reviewed for a basic understanding of water quality issues in each locality, and for prioritization if there is a desire to address more severely impaired water bodies first. Water quality data alone cannot be the only consideration, however. It is also important to understand two basic hydrologic factors – the flow regime and sources for the water body itself (i.e. reservoir releases vs. surface discharges vs. perched aquifer, etc.) and the relative contributions of agricultural discharges (i.e. surface vs. tile drain; small discharges diluted by the stream vs. high-volume discharges that are the primary drivers of in-stream flow). The latter piece of information need not require extensive, reported discharge monitoring by growers. Brief field trips to "learn" the watershed and dialogue with contributing operations would require minimal staff resources and would provide better insight into the issues at hand.

Question #11 posed to the Panel was, "Evaluate the relative merits, and make recommendations regarding the usage of surface water measurement systems derived from either receiving water or a discharge monitoring approach to identify problem discharges."

The Central Coast Water Board built a strong foundation for its agricultural regulatory program in creating a surface water monitoring program that would comprehensively identify ag water quality issues and detect trends over time. Because the program was created in cooperation with growers and the monitoring is conducted by a grower-directed third party, there is a high level of buy-in to the results. During the first few years of the initial Ag Waiver program, thousands of work hours were devoted to communicating monitoring results and their meaning to growers. Countless meetings were held to discuss the fact that these results indicated agricultural water quality impairments. That fact is now accepted, and attention has turned to addressing the impairments.

As an ambient monitoring program, the CMP is not designed or intended to provide source-level data to the regulatory body or to dischargers. Over the years source identification has been a topic of debate, frequently focusing on the public's desire for individual accountability, or the Water Board's goal to identify enforcement targets. In order to improve water quality, *growers* need information about their discharges so as to understand their own operation's contribution to downstream water quality and to identify changes needed on the farm. A grower's need for information should not be conflated with public accountability or regulatory enforcement; and indeed, the growers' incentive to critically evaluate their own discharges is inversely related to publicity of the results.

One unfortunate artifact of conflating accountability and enforcement with grower information needs is unnecessary cost and complication. A grower can check water quality as a *management practice* in under 30 minutes, at a cost of about $2 per sample. Replication in space and time are simple and in fact desirable in this context. The need for high-level quality assurance, expensive laboratory analysis, professional assistance with sample collection, and complicated reporting all stem from objectives other than ensuring that growers have the information they need to improve water quality. And even with higher levels of quality assurance, it is relatively difficult to sample farm discharges in a way that is rigorously representative of any kind of "typical" condition.

Cooperative Monitoring results to date indicate that water quality issues in ag watersheds of the Central Coast are consistent (i.e. exceedances are fairly constant, not sporadic) and widespread (i.e. exist in multiple watersheds).

It is already possible to identify and follow up with small groups of dischargers who may be contributing to water quality issues at specific CMP sites, and existing data and resources are being underutilized for this purpose. In 2008 the CMP performed a follow-up monitoring project ("Upstream Monitoring") which demonstrated that strategic monitoring at finer spatial scales can identify source areas for water quality constituents of concern. The advantage of this approach is that it results in an intimate understanding of each watershed and the corresponding set of discharges. It becomes clear which discharges can be readily addressed and which can only be addressed on a longer timeline. Most importantly, *it becomes clear how the water body should be expected to respond*.

The importance of this latter point cannot be overstated. For example, eliminating a high-volume, moderate-nitrate discharge can ironically result in elevated nitrate concentrations downstream if remaining low-volume discharges are high in nitrate. Each watershed's downstream water quality impairments are created by a unique set of environmental and discharge factors. Rather than guess at a set of farm characteristics that may or may not correctly prioritize efforts, why not pursue a better understanding of each watershed? A regional water quality control board has the advantage of working within a manageable geographic unit, as opposed to the entire state.

Thank you for considering these comments. Please do not hesitate to contact Preservation, Inc. if we can answer any questions about Cooperative Monitoring or program results.

Sincerely,

Sarah G. Lopez

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Technical Program Manager
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