Project Title: Analysis and Improvement of the Agricultural Conditional Waiver Program in Ventura County

Proposers

**Dustin Pearce**
Master's Candidate | Class of 2015
Bren School of Environmental Science & Management
dpearce@bren.ucsb.edu | 559.631.3053

**Graham Wesolowski**
Master's Candidate | Class of 2015
Bren School of Environmental Science & Management
gwesolowski@bren.ucsb.edu | 415.994.3140

Client

**Farm Bureau of Ventura County**
John Krist and/or Dale Zurawski
Chief Executive Officer/ Water Quality Program Manager | 5156 McGrath St., Suite 102, Ventura, CA 93003
dale@farmbureauvc.com | 805.289.0155

Bren Faculty Sponsor

**Arturo Keller**

Objectives

The objectives of this project is to find ways to make the conditional waiver program more appealing and affordable to farmers. We will analyze the Best Management Practices (BMPs), and the structure of the monitoring programs currently in place to identify and highlight cost saving measures.

Additionally the project will aim to find a simple and effective way to model the behavior of priority pollutants and BMPs in Ventura County's irrigated lands. Through this exercise we can examine BMP survey data and create a more accurate system of performance measures for farmers operating under the Conditional Waiver.

Another objective we hope to accomplish is the development of more cost-effective monitoring and BMP programs that target monitoring locations, timing, and cropping patterns that act to inform farmers and regulators, using the model(s) developed.

We will synthesize the elements of the project in order to create an analytical framework that is transferable to the other regional water boards that have adopted the Conditional Waiver.

Project Significance

The Ventura County Agriculture Irrigated Lands Group (VCAILG) monitors water quality for 1,213 individual farmers across 79,033 acres in Ventura County at a price of ~1.3 million dollars annually. VCAILG directs monitoring for 86% of the irrigated lands in Ventura County and 74% of the landowners, with agricultural sales of 1.9 billion dollars in 2012. The economic benefits of agriculture in the region and the cost of monitoring are at the forefront of creating a cost effective program for irrigated lands in the county. All of the watersheds that VCAILG monitors including the Calleguas, Santa Clara, and Ventura River watersheds have tributaries or reaches listed on the federal 303(d) list of impaired water bodies. Looking just at the Calleguas watershed there are known to be concentrations of nitrogen compounds, trash, organochlorine pesticides, PCB’s, sediments, metals, selenium, and salts above benchmark levels. When taking into account wildlife and human uses of the watersheds, the existence of these compounds can cause many societal problems. With that in mind, reducing pollutant loads through BMPs is a high priority for VCAILG and the Los Angeles Regional Water Quality Control Board (LARWQCB).

Implementation of the monitoring program and the various BMPs has been occurring since the original waivers for Ventura County were drawn up in 2005. Understanding how those BMPs are affecting water quality on the impaired water bodies is of great importance to maintain beneficial uses in those areas. This project is uniquely situated in time to possibly change the outcome of the new Conditional Waiver to be enacted in 2015. Removing BMPs that are ineffective and bolstering BMPs that are effective, while constructing a stronger strategic monitoring program are the lasting goals that this project seeks to solve. Accomplishing this is important not only from an environmental perspective but also for...
the public in their use of those water bodies, for farmers and regulators through better understanding of the effective measures, and through reduced costs.

This project will provide insight for regulators and farmers across the state, fostering new forms of interaction between parties while creating a framework for evaluating water quality monitoring programs currently in place. California has many water bodies that are impacted through runoff, with legacy effects from persistent pollutants still arising; efforts that work to control those in a cost effective manner are of increasing importance to environmental managers faced with limited resources.

**Background**

This group project will be based in Ventura County, south of Santa Barbara, throughout the irrigated agricultural lands monitored by VCAILG. The lands are divided up by watershed and coastal plain, covering 79,033 acres of land out of the 91,000 acres currently in irrigated agriculture throughout Ventura County.

Water quality monitoring for irrigated agriculture started for VCAILG in Ventura County after the initial *Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region* (Order No. R4-2005-0080) was adopted on November 3rd, 2005. This allowed for the landowners and growers in Ventura County to establish a working group in 2006 that came to be known as VCAILG. Through VCAILG monitoring programs, BMP implementation, and educational workshops were started. A larger movement forced a push within the state to monitor irrigated lands; four out of the nine regional water quality control boards currently have programs like the one instituted for the greater Los Angeles area by the LARWQCB. The LARWQCB is the control board that regulates VCAILG and issues new Conditional Waivers every five years. The waivers are in place to promote farmers to meet benchmark levels for nutrients, pesticides, sediments, salts, and other pollutants within the control board’s region. This is done to help improve the health of groundwater reserves and surface water bodies impacted by human activities. Currently statewide there are 9,493 miles of streams and 513,130 acres of lakes/reservoirs listed as impaired water bodies by the federal government.

In 2015, Ventura County farmers will face the renewal of their 5-year Conditional Waiver. This project has the opportunity to help foster the exchange of information between the LARWQCB and VCAILG, resulting in a waiver that will be beneficial for all discharging parties in the region, with a framework to help guide actions now and into the future.

**Available Data**

There is a wealth of available data for this project. Our group will have access to water quality data collected by Farm Bureau of Ventura County members since 2007. This includes data for both irrigation and storm water runoff. There are several priority watersheds in the county that can provide more additional data sets from Total Maximum Daily Load (TMDL) measurements that can help in this analysis.

The Farm Bureau of Ventura County has been performing surveys on the adoption and utilization of recommended BMPs. These surveys have been given to farmers and landowners to correspond with each iteration of the Conditional Waiver (2005 & 2010) with between 80 and 90 percent of farmers participating in the survey.

**Possible Approaches**

Our group will consider the use of several modeling and spatial data systems. One possible approach will be watershed scale water quality models such as SWAT or WARMF. Group members will calibrate these models using existing water quality data, and will incorporate dynamics of priority pollutants and water balances in the area of interest. Additionally, Arturo Keller has developed a watershed model for the Santa Clara River in Ventura, which may be applicable for this group project. From these more complex models, a simpler response model may be developed to assist farmer and regulator understanding of the potential performance of different BMPs.

We will also consider using cost-benefit and cost-effectiveness analyses in formulating recommendations for improving the conditional waiver process. We will make this determination based on which of these two methods of analysis provide the most equitable cost reduction methods for all growers.
Deliverables
An important deliverable of this project is to generate a simple way to model priority TMDLs and their BMPs. This model and the subsequent monitoring improvements will be packaged as a framework or tool kit that can be transferred to the various regions that are currently administering the Conditional Waiver.

Based on the success of this process, our group will perform outreach at conferences and to growers directly in order to build support for the new system and form useful and lasting alliances.

Internships
The Farm Bureau of Ventura County is willing to sponsor one intern for the summer at a reasonable hourly rate not to exceed $5000 total, or provide some sort of summer internship stipend.

Citations
http://ucanr.edu/sites/UCNFAnews/Feature_Stories/_New__Ag_Waivers_from_two_regional_water_quality_control_boards/


Budget and Justification
Project activities will not require additional funding greater than the $1,300 already provided by Bren.

Client Letter of Support
Please see attachment for letter of support.

Map of Project Area and Ventura County Watersheds
January 23, 2014

Group Project Committee
Bren School of Environmental Science & Management
University of California, Santa Barbara
Santa Barbara, CA 93106


Dear Group Project Committee,

Farm Bureau of Ventura County supports the Bren School group project proposal to analyze and improve the agricultural conditional waiver program in Ventura County. We agree to fund a summer intern position for the summer of 2014 for this purpose.

We understand that this project will focus on the analysis of the water quality data and survey results provided by the Ventura County Agricultural Irrigated Lands Group (VCAILG). This data has been reported to the Los Angeles Regional Water Quality Control Board and is therefore in the public domain. However, any information about individual VCAILG members that is shared with the Bren project team shall remain confidential.

Sincerely,

John Krist
Chief Executive Officer