

2015 SUMMARY ANNUAL REPORT



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Year in Review

New Reporting Responsibilities with Waste Discharge Requirements

2015 is ending in uncertainty about where next the Water Boards are taking regulation of irrigated agriculture in the Central Valley. At presstime, the State Water Resources Control Board was about to release revisions of the Waste Discharge Requirements for ESJWQC. Stay tuned as these changes are expected to impact all irrigated agriculture in California.

On the positive side, results from the second year of collecting farm evaluation surveys from members shows that many farming operation are using practices that are protective of surface and groundwater (see pages 6-8)

In early 2015, members received their first Nitrogen Management Plan (NMP) template for planning and tracking nitrogen (N) applications. That NMP serves two purposes: 1) a planning tool for estimating your anticipated crop need for N based on a yield projection, and 2) a recording of the actual amount of nitrogen applied via commercial fertilizer or manure/composts (filled out after harvest is complete). If there are nitrates in your groundwater, the NMP can also serve as a place to estimate how much nitrogen was applied to your crops via irrigation.

In early 2016, members who farm in high vulnerability areas for groundwater will be asked to provide ESJWQC with two numbers from the completed NMP (in addition to name, parcel location and crop information); total nitrogen applied and a number called "A over Y" or "A/Y." This number is derived by dividing the N applied (A) by the total crop yield (Y). The answer will be an "index" by which like crops will be compared to each other.

Once returned to the ESJWQC, coalition analysts will compare the A/Y reported values to calculators that will estimate the "N Removed" by the crop. On a crop by crop basis, members will be sent back a report that estimates the amount of nitrogen removed and compares the A/Y value for their farm to other growers located in the same township with similar soils and practices. Any nitrogen not used by the crop has the potential to leach into groundwater.

The paragraph above describes a monumental undertaking for ESJWQC and some uncertainty as to whether we have enough staff to handle the new workload. ESJWQC has increased its full and parttime staff size to accommodate the anticipated questions from members. Wayne Zipser has become the Coalition's full time Grower Relations Manager and is joined by Caitie Campodonico, who assists with membership management. Part time interns also assist ESJWQC staff in answering member questions. To help with the nitrogen reporting requirement that begins in 2016, we have scheduled numerous workshops and staff will be reachable by phone to assist members in preparing the reports. We are looking to our members to do the best they can to compile and report this information in a timely fashion.

We are ever mindful of the costs for operating the Coalition. Member dues remained the same for 2016 at \$3.75 per acre, with 75 cents per acre going to the State Water Board to pay for the bureaucrats who run the program. Already the State is warning of an acreage fee increase to \$1.10 per acre in 2017. Late in 2016, the ESJWQC Board of Directors will review the annual program costs and carryover to decide if acreage dues need to be increased in 2017. See page 18 for a review of the 2015 financial activity.

The ESJWQC Board of Directors appreciates the effort of our members and understands the frustration caused by the continued addition of new reporting requirements. It's important to understand we work closely with the other water quality coalitions in the Central Valley to ensure that member requirements and reports are minimized to the greatest extent possible.

We also greatly appreciate the continued involvement of the Farm Bureaus in Stanislaus, Merced and Madera counties. The Farm Bureaus provide meeting facilities, assist with staffing needs and are there to answers members questions. Their managers also commit the time to participate on the Board of Directors.

Thank you for your continued support of the East San Joaquin Water Quality Coalition.

Parry Klassen Executive Director 209-846-6112 or pklassen@unwiredbb.com

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Documenting Practices Replaces Individual Monitoring

Farm Management Practice Reporting

When agricultural groups were negotiating in 2010-11 the groundwater components of the new Waste Discharge Requirements (WDR), we argued against requiring growers to sample each irrigation well for water quality. Groundwater under an individual farm rarely represents what is happening on the surface since groundwater is constantly moving, albeit slowly, in directions that are not always clearly understood. The Regional Water Board agreed but said that in lieu of sampling every well, growers would need to report the practices they use on the land to protect groundwater quality. After two years of analyzing management practices used by growers through the Farm Evaluation surveys, the ESJWQC is beginning to paint a picture of just how much growers are doing to protect groundwater quality. Now in year three of collecting this information, the Coalition is developing the rationale for decreasing the frequency of when farmers need to complete this questionnaire. The reason; things don't change that often on the farm, especially where perennial crops are grown. And even when annual crops are planted, from year to year similar management practices are often used. How frequently members will need to complete future Farm Evaluation surveys is going to be a key point of discussion with the Regional Water Board in 2016. Current deadlines for reporting are shown in the chart below.

Farm Evaluation surveys don't only focus on groundwater management practices; information is also gathered on irrigation, pesticide, and sediment management. The annual deadline to return Farm Evaluation surveys for growers in a surface or groundwater high vulnerability area is March 1. Growers in low vulnerability areas must return a survey every 5 years. Results are analyzed and compiled by Coalition staff then submitted to the Regional Water Board on May 1 of each year. When the Coalition sees that additional management practices might be helpful in reducing the leaching of nitrate to groundwater, the Coalition encourages its members to adopt those practices particularly in areas designated as high vulnerability to surface or groundwater.

While completing a Farm Evaluation survey, it is a requirement to be an ESJWQC member in good standing. Some members have not completed the survey as indicated by the following statistics:

Coalition Membership: 3,579 Those who completed Farm Evaluation surveys by March 1, 2015: 2,750 Membership acreage: 696,156 Acreage covered by completed Farm Evaluation surveys: 550,869

Those who have not completed the survey can expect to be contacted by the Regional Water Board in coming months. Failure to complete the survey can result in expulsion from ESJWQC and the need to obtain individual regulatory coverage through the Regional Water Board.

The ESJWQC is successfully using management practice information collected since 2008 to reduce surface water monitoring requirements. This information gathering effort was triggered by Management Plan requirements for numerous waterways where sampling found two or more exceedances of a water quality standard. Management plans are currently in place for multiple waterways as a result of exceedances of standards for certain pesticides, nutrients, E. coli, physical parameters (e.g. dissolved oxygen) and toxicity to indicator species. Members who farm along the effected waterways must complete focused outreach surveys gathered through one-on-one visits by Coalition representatives. If no exceedances of water quality standards occur for three years, ESJWQC petitions the Regional Water Board to remove the management plan requirements. Due to water quality improvements, 50 management plans have been completed and eliminated. In 2015, 29 management plans were petitioned to the Regional Water Board for completion and pending approval.

Documents required by
the Waste Discharge
Requirements
(WDR; amended April 17, 2015).

"Certification required. ¹ High Vulnerability- either surface or groundwater ² High Vulnerability- groundwater only. ³ Last due on March 1, 2015.

Upcoming	Member Derwinsmont	WDR	Small Farmin (<60 a	g Operations acres)	All Other (≥60 :	Members acres)	Cubarity of Ta
Due Date	Member Requirement	Reference	Low Vulnerability	High Vulnerability	Low Vulnerability	High Vulnerability	Submitted to
As Needed	Notice of Confirmation	Pg 23		Onc	e		ESJWQC
March 1, 2016	Farm Evaluation Plan ¹	Pg 24		Annually		Annually	ESJWQC
March 1, 2016	Nitrogen Management Plan (NMP) ²	Pg 26				Annually*	Kept on Farm
January 22, 2016	Sediment and Erosion Control Plan	Pg 25				Required*	Kept on Farm
March 1, 2016	NMP Summary Report ²	Pg 26				Annually	ESJWQC
July 23, 2016	Sediment and Erosion Control Plan	Pg 23		Required*			Kept on Farm
March 1, 2017	Farm Evaluation Plan	Pg 24	Every 5 yrs				ESJWQC
March 1, 2017	Nitrogen Management Plan ²	Pg 26	Annually	Annually*	Annually		Kept on Farm
March 1, 2018	NMP Summary Report ²	Pg 26		Annually			ESJWQC
March 1, 2020 ³	Farm Evaluation Plan	Pg 24			Every 5 yrs		ESJWQC



Farm Management Practices Information and Documentation

Summary of Management Practice Documentation.

What growers need to know:		
 Nitrogen Management Plan (NMP) NMP for upcoming crop year kept on Farm NMP Summary due from members on March 1 annually for groundwater high vulnerability areas NMP summaries reported by Coalition on May 1 annually Needs to be approved by Certified Crop Advisor or qualified agronomist - groundwater high vulnerability areas only 	 Farm Evaluation Survey Due from members March 1 annually in high vulnerability areas. Coalition reports summary information annually on May 1 Records farm wide practices including irrigation, pesticide and well protection practices 	 <u>Sediment Discharge and</u> <u>Erosion Control Plan</u> Kept on farm in areas of high erosion vulnerability Needs to be prepared and certified by someone from the approved list of professionals¹
What to keep on farm:		
Certified Nitrogen Management Plan	Nothing	Certified Sediment Discharge and Erosion Control Plan
What to return to the Coalition:		·
 NMP Summary Report (2015 Crop Year by March 1, 2016) – groundwater high vulnerability areas only 	 Farm Evaluation Survey by March 1st - surface or groundwater high vulnerability areas annually 	Nothing

¹See a list of CA registered professionals to assist in preparing and certifying the plan

Collecting Nitrogen Use Information

Now begins the challenge of gathering information on nitrogen fertilizers used on member farmland. In February, members will receive a Nitrogen Management Plan Summary Report where members will consolidate information recorded in their Nitrogen Management Plans (NMPs). This information will come from nitrogen application data recorded on the NMP during the 2015 crop year and includes commercial nitrogen fertilizers, compost, manures and nitrogen in irrigation water. This reporting is required for growers in groundwater high vulnerability areas who have 60 acres or more enrolled (see adjacent chart for details). While the NMP itself is for your on-farm records, the NMP Summary Report must be mailed to the Coalition. Workshops are scheduled for coming months to assist members in completing the NMP Summary Report. The Coalition is required to submit an NMP Summary Report in May 2016 that aggregates nitrogen applied information by crop and at a township level.

Starting in the 2016 crop year, NMPs must be reviewed and approved by a Certified Crop Advisor (CCA) or similarly qualified agronomist for parcels in high vulnerability areas. Growers can obtain their own certification through a program developed by the California Department of Food and Agriculture and University of California nutrient specialists. Certification programs are scheduled for this coming Spring in the ESJWQC region although growers can attend any CDFA-sanctioned NMP certification program in the Central Valley to obtain this certification.

Groundwater Trend Monitoring Network

In 2016, the Coalition will begin identifying wells to include in the Groundwater Trend Monitoring Network. Sampling will likely begin in late 2016 and continue annually into the future. The network of wells will include a combination of municipal drinking water wells, dedicated monitoring wells already in existence and, where needed, domestic or



irrigation wells belonging to members. A key component for a well to be used in the network is having well construction information. The Coalition WDR requires that the trend monitoring network track water quality in the upper aquifer so any well used must be drawing water from that level. Well construction information provides the depth of screening intervals on the well casing. Well construction information for thousands of wells in the ESJWQC region is being analyzed to identify wells that will be best suited for the trend monitoring network. Members will be contacted should they have a well that meets the criteria for being included in the network. There will be no individual charges for the sampling or analysis.

Sediment Discharge and Erosion Control Plan

The Coalition identified areas susceptible to erosion and discharge of sediment that could impact waterways in the region. Growers in these areas are required to complete Sediment and Erosion Control Plans (SECPs) that document practices implemented to control soil erosion and sediment discharges. The SECP must be certified and kept on farm. Members located in areas with high potential for erosion are required to complete and implement a SECP by January 22, 2016 for farm

operations that are 60 acres or more and by July 23, 2016 for small farm operations less than 60 acres.

The SECP must adhere to site-specific recommendations provided by a Regional Water Board approved agency (NRCS, UC Cooperative Extension, Resource Conservation District or County Ordinance applicable to sediment and erosion). Otherwise, the SECP can be certified by a qualified professional possessing the required registrations or certifications and appropriate experience with erosion issues on irrigated agricultural lands. Qualified professionals include: Professional Civil Engineer, Professional Geologist, Professional Engineering Geologist, Professional Landscape Architect, Professional Hydrologist, Certified Soil Scientist, Certified Professional in Erosion and Sediment Control, Certified Professional in Storm Water Quality, or Professional in Erosion and Sediment Control (see table below). In addition, the ESJWQC will continue to compile a list of other qualified professionals available to assist growers with their SECP. This list will be updated regularly and can be found on the ESJWQC website (http://www.esjcoalition. org/home.asp).

Name	Company	Qualification	Phone Number	Email
Robb Hertz	HERTZ Environmental, Inc	CPSWQ, QSD	209-676-0123	rhertz@ymail.com
Donald Ikemiya	Provost & Pritchard	P.E.	559-636-1166	dikemiya@ppeng.com
Micheline Doyle Kipf John Kramer Ron Skaggs	Condor Earth Technologies, Inc.	P.E., G.E., P.G., CHG, QSD/QSP	209-938-1050	mkipf@condorearth.com
Brad Koehn	Koehn Engineering and Design, Inc.	PE, PLS, QSD	209-585-7193	bkoehn@koehn-eng.net
John Mensonides Brian Jones Tony De Melo	NorthStar Engineering Group, Inc.	L.S., P.E., QSD/QSP	209-524-3525	jr@nseng.net; Brianj@nseng.net; tdemelo@nseng.net
John M. Teravskis	WGR Southwest, Inc.	QISP, ToR, CPESC, QSD/QSP	209-334-5363 ext. 110, 209-649-0877 (cell)	jteravskis@wgr-sw.com
Scott Thorne	Scott Thorne Environmental Consulting Inc.	QSD,CPESC,ToR	(916) 223-4751	scott@thorneonyourside.com
Chad Tienken	Tienken Engineering	LS, P.E., QSD	209-872-1214	Chad@tienkenfamily.com
Bret Smith	Compliance First, LLC	CPESC, CESSWI, ToR	209-642-0180, 209-642-0181 (cell)	bsmith.compliancefirst@gmail.com
Manny Sousa	Sousa Engineering	P.E., QSD/QSP	209-238-3151	manny@sousaeng.com
Earl Stephens	Applied Engineering and Geology, Inc. (AEG)	P.E., QSD/QSP	916-645-6014	earl@aegengineers.com; aeg@ aegengineers.com
Ray Kablanow II, Ph.D. Gregory Stahl	Ground Zero	P.G.	209-522-4119	gza@groundzeroanalysis.com

List of certified professionals for the SECP.



Percent acreage associated with members who have irrigation wells and percent acreage associated with members implementing wellhead protection practices.



20-1/5 SIN M.M. (2:8:4) - 2/N.N. (2:8:6) - 2/N. (1) - 2/N -



Acreage of cultural practices implemented to manage sediment and erosion.



Acreage associated with nitrogen management methods.





Percent acreage associated with different types of professionals qualified to develop crop fertility plans.





Status of Management Plan Constituents for all Monitoring sites.

Management Plan Constituent	Total Removed 2012	Total Removed 2013	Total Removed 2014	Petitioned to Remove 2015 (approval pending)
		Field Parameters		
Dissolved Oxygen	2	0	2	0
pH	1	0	0	5
Specific Conductance	4	0	0	1
		Metals		
Arsenic	0	0	0	0
Copper	2	1	1	3
Lead	1	1	2	6
Molybdenum	0	0	0	0
	F	hysical Parameters		
Ammonia	1	0	0	0
E. coli	2	0	0	0
Nitrate	0	0	0	0
Total Dissolved Solids	2	0	0	0
		Pesticides		
Chlorpyrifos	7	2	2	7
DDE	0	0	0	0
Diazinon	1	1	0	0
Dimethoate	0	0	0	0
Diuron	3	0	0	1
Simazine	1	0	0	0
1		Toxicity		
Invertebrate toxicity	1	1	3	2
Fish toxicity	0	0	0	1
Algae toxicity	2	2	0	2
Sediment toxicity	0	0	2	1
TOTAL	30	8	12	29



10 year Compliance Deadlines for Management Plan Constituents (Next 3 Years).

10yr Compliance Deadline	Site	Focused Outreach Years	Constituent	Petitioned to Remove in 2015
2016	Dry Creek @ Wellsford Rd	2008-2010, 2016-2018	Chlorpyrifos	
2010	Duck Slough @ Gurr Rd	2010-2012, 2016-2018	Sediment toxicity	
	Berenda Slough along Ave 18 1/2	2011-2013	Chlorpyrifos	Х
	Black Rascal Creek @ Yosemite Rd	2012-2014	Chlorpyrifos	х
	Deadman Creek @ Gurr Rd	2012-2014	Chlorpyrifos	
	Deadman Creek @ Hwy 59	2012-2014	Chlorpyrifos	Х
2017	Duck Slough @ Gurr Rd	2010-2012, 2016-2018	Water Flea toxicity	
	Highline Canal @ Lombardy Rd	2013-2015	Algae toxicity	
	Prairie Flower Drain @ Crows Landing Rd	2008-2010, 2016-2018	Sediment toxicity	
	Prairie Flower Drain @ Crows Landing Rd	2008-2010, 2016-2018	Fish toxicity	х
	Black Rascal Creek @ Yosemite Rd	2012-2014	Water Flea toxicity	Х
	Deadman Creek @ Gurr Rd	2012-2014	Fish toxicity	
	Hatch Drain @ Tuolumne Rd	2013-2015	Sediment toxicity	
	Hilmar Drain @ Central Ave	2012-2014	Diuron	Х
2018	Hilmar Drain @ Central Ave	2012-2014	Algae toxicity	
	Livingston Drain @ Robin Ave	2011-2013	Chlorpyrifos	Х
	Miles Creek @ Reilly Rd	2013-2015	Chlorpyrifos	Х
	Prairie Flower Drain @ Crows Landing Rd	2008-2010, 2016-2018	Water Flea toxicity	
	Westport Drain @ Vivian Rd	2014-2016	Chlorpyrifos	



Groundwater Program

Progress Made with New Groundwater Program

The WDRs for all Central Valley Coalitions require the following documents to be developed to address groundwater quality: Groundwater Assessment Report (GAR), the Management Practice Evaluation Program (MPEP), the Groundwater Quality Management Plans (GQMP) and the Groundwater Quality Trend Monitoring Workplan (GQTM Workplan).

The Coalition was required to submit to the Regional Water Board a Groundwater Assessment Report (GAR) for the Coalition region. The GAR accumulated the water quality results from the thousands of wells that have been tested over the last few decades. The GAR also included information from soil surveys and other existing groundwater data in the region. All of the information was used to designate areas within the Coalition region that are at risk for leaching of nitrate to groundwater (high vulnerability) and areas with a low risk of nitrate leaching (low vulnerability). The vulnerability areas were defined based on three primary factors; soil type, depth to groundwater, and existing concentration of nitrates in the groundwater. High vulnerability areas are generally found in permeable soils with shallow groundwater. Any location where the concentration of nitrate exceeds the drinking water standard is automatically in high vulnerability. More than 70% of the ESJWQC region has been designated high vulnerability for groundwater.

Groundwater Quality Trend Monitoring Workplan

Another significant component of the WDR is the requirement to develop a Groundwater Quality Trend Monitoring (GQTM) Workplan. This Workplan proposes the location of wells to be sampled over the next 10-plus years to track trends in groundwater quality. Sampling is not expected to occur more than once annually, or even less frequently, and will likely focus on the shallowest wells that are used for drinking water. The first phase of the workplan was submitted to the Regional Water Board on June 4, 2015. Phase I of the GQTM Workplan outlines the rationale and approach to the trend monitoring program and describes the analyses and reporting that will occur as part of the GQTM. Phase I of the Workplan also includes identification and ranking of existing candidate wells to be considered for incorporation as part of the GQTM network. Because of the considerable time required to investigate the suitability of existing wells for inclusion in the GQTM network, including locating the well, confirming well construction details, and coordinating with the well owner or monitoring entity, a second phase of the Workplan (Phase II) will be conducted to complete the monitoring network design. Based on Regional Water Board comments, edits to Phase I that include additional justification of why 100 feet is considered representative of shallow groundwater and a revision to the proposed monitoring program will be included in Phase II due January 29, 2016.

Management Practice Evaluation Program (MPEP)

A key question being asked by the Regional Water Board of all Central Valley agriculture is 'are current farming practices for applying nitrogen fertilizers protective of groundwater quality?' The ESJWQC has combined efforts with four other coalitions (Sacramento Valley, Westside, San Joaquin County & Delta, and Westlands Coalitions) to create an MPEP Group to fulfill the MPEP requirements.

The five coalitions formed an MPEP Group to direct the development, preparation, and implementation of the Group Workplan and subsequent reports. The MPEP Group is part of the MPEP Group Coordinating Committee (MPEP GCC). This committee includes the Executive Directors of each Coalition, a member of each Coalition's Board of Directors, and an alternate for each board member. Parry Klassen, Executive Director for the ESJWQC, is chair of the committee.

The Committee is focused on meeting the objectives outlined in each Coalition's WDR:

- Identify if site-specific and/or commodity-specific management practices are protective of groundwater quality within high vulnerability groundwater areas;
- Determine if newly implemented management practices are improving groundwater quality;
- Develop an estimate of the effect of member's discharges of constituents of concern on groundwater quality in high vulnerability areas. A mass balance and conceptual model of the transport, storage, and degradation/chemical transformation mechanisms for the constituents of concern, or equivalent method must be approved by the Executive Officer;
- Utilize the results of evaluated management practices to determine if current practices implemented on member farms (i.e., those not specifically evaluated, but having similar site conditions), need to be improved.

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The MPEP GCC formed an Advisory Group of technical experts and stakeholders to assist in developing a conceptual study outline to be utilized to develop the specific MPEP Workplan for the crop studies. These technical experts and stakeholders come from the University of California Agriculture and Natural Resources, California Department of Food and Agriculture, the International Plant Nutrition Institute and commodity groups. The MPEP Workplan will guide crop technical experts as they develop and implement crop specific studies. The Coalition for Urban Rural Environmental Stewardship (CURES) serves as the MPEP Program Administrator. The CURES manages funding development, creates scope of work documents, oversees work with contractors to develop budgets, and tracks the progress of field studies. On July 31, 2015, the MPEP GCC submitted the MPEP Conceptual Study Outline to the Regional Water Board. The MPEP Group met with Regional Water Board staff to discuss the MPEP Conceptual Study Outline and what will be included in the MPEP Workplan. The MPEP GCC is developing a MPEP Draft Workplan based on the outline and Regional Water Board comments. The MPEP GCC will submit the MPEP Draft Workplan on March 1, 2016; the final Workplan is due June 4, 2016.

Drafting the Groundwater Quality Management Plans

Another component of the WDR is development of Groundwater Quality Management Plans (GQMP). These plans will guide Coalition outreach efforts in areas with high nitrates in groundwater. The ESJWQC submitted the GQMP on February 23, 2015; approval pending.

The Coalition will initiate outreach about practices that can be implemented immediately and, through the MPEP, conduct studies that will provide crop-specific information on nitrogen management practices. In the short term, the Coalition will initiate outreach on management practices that the Coalition knows can reduce the movement of nitrates and pesticides to groundwater through wells. The Coalition is currently communicating practices about wellhead protection and general practices to manage nitrogen applications to its members through outreach meetings. In the longer term, the emphasis in the Coalition's outreach will be expanded to include the outcome of the MPEP studies which will provide information that is specific to crops, soils, and climatic regions within the Coalition region.







Northern Groundwater Vulnerability Area

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Approved Groundwater High Vulnerability Area for the East San Joaquin Water Quality Coalition with Additional Extensions for Well Nitrate Exceedances.



Central Groundwater Vulnerability Area

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Approved Groundwater High Vulnerability Area for the East San Joaquin Water Quality Coalition with Additional Extensions for Well Nitrate Exceedances.



Southern Groundwater Vulnerability Area

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Approved Groundwater High Vulnerability Area for the East San Joaquin Water Quality Coalition with Additional Extensions for Well Nitrate Exceedances.

Coalition Overview

Membership

As of January 2016:

- 3,579 landowner/operators
- 696,156 irrigated acres

Boundaries

The Coalition includes Madera County and portions of Stanislaus, Merced, Tuolumne, Mariposa, and Calaveras counties. Coalition borders are the crest of the Sierra Nevada on the east, the San Joaquin River on the west and south, and the Stanislaus River on the north. There are four major tributaries in the watershed: Chowchilla River, Merced River, Tuolumne River and Stanislaus River.

Structure

The Coalition was formed in 2003 in compliance with the Irrigated Lands Regulatory Program (ILRP) adopted by the Central Valley Regional Water Quality Control Board. A volunteer board of Directors oversees this organization, which is structured as a public benefit, non-profit entity to perform tasks required under the ILRP. In November 2005, the Coalition was granted non-profit status as a 501c5 organization by the Internal Revenue Service. The Coalition is managed by a Board of Directors and administered by an Executive Director. Water quality monitoring, membership management, and outreach are performed by entities contracted to ESJWQC.

Board Officers

- Alan Reynolds, (Chairman) Gallo Vineyards, Inc.
- Breanne Ramos, (Secretary) Merced County Farm Bureau
- Bill McKinney, (Treasurer); almond grower

Board Members

- Bill Bush, B&B Consulting, grower
- Mike Niemi, Turlock Irrigation District
- Christina Beckstead, Madera County Farm Bureau
- Al Rossini, Albertoni Land Co Ltd., grape grower
- Lonnie Slaton, Simplot Soil Builders
- Tom Roduner, Roduner Farm/WP Roduner Cattle & Farming

Non-voting Board Members

- Milton O'Haire, Stanislaus County Agricultural Commissioner
- Diana Waller, District Conservationist, USDA-NRCS Modesto Field Office

- David Robinson, Merced County Agricultural Commissioner
- Stephanie McNeil, Madera County Agricultural Commissioner

Coalition Staff

- Parry Klassen (Executive Director); also Executive Director for Urban/Rural Environmental Stewardship (CURES)
- Wayne Zipser, Grower Relations Manager
- Caitie Campodonico, Grower Relations
- Jennifer Sanchez, Membership Manager

Member Outreach and Best Management Practices

The Coalition is continuing its efforts to work with landowners in watersheds where surface water monitoring indicates problems. Central to this effort will be promoting Best Management Practices (BMPs) with the best potential for solving the problem. When a problem is identified, the Coalition will:

- Contact landowners upstream of the monitoring site and inform them of the constituent(s) identified.
- Distribute BMP information through mailings and individual visits and local grower and crop advisor meetings.
- Give educational presentations on monitoring results and potential BMPs at commodity and farm group meetings in the Coalition region.

Monitoring Program Objectives

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- Characterize discharge from irrigated agriculture in the Coalition region
- Identify locations where water quality objectives are not being met (exceedances)
- Identify potential source(s) of the exceedances
- Promote to landowners the implementation of management practices to eliminate water quality problems

Fees Assessed by the State Water Resources Control Board

In 2014, the Coalition paid the 75 cents per acre fee for its members to cover State Water Resources Control Board cost for implementing the ILRP, primarily for Regional Board staff. All members of agricultural coalitions throughout the state pay this annual fee. The per acre fee is included as part of Coalition membership dues. Michael L. Johnson LLC, Davis, CA Staff: Mike Johnson — President Francisca Johnson — Vice President Melissa Turner — Vice President

Luhdorff & Scalmanini Consulting Engineers, Woodland, CA Groundwater consulting firm

Analytical Laboratories

- AQUA-Science, Davis, CA (water column toxicity)
- APPL Inc., Fresno, CA (pesticide analysis)
- North Coast Laboratories Ltd., Arcata, CA (glyphosate and paraquat analysis)
- Caltest Analytical Laboratory, Napa, CA (sediment chemistry analysis, physical parameters, metals and nutrient analysis)
- Nautilus Environmental, San Diego, CA (sediment toxicity)

Questions, Comments, Changes in Membership

Members are welcome to contact the Coalition Board of Directors or management with questions or to update membership information. The most efficient way to contact us is through the Coalition's website www.esjcoalition.org. Go to "Contact Us."

Outreach meeting dates and locations will be posted on the Coalition website and periodic announcements will be mailed to members.

Changes to membership information can be submitted to: ESJWQC 1201 L Street Modesto, CA 95354

Call: 209-846-6112 or Email: contactesj@esjcoalition.org

Be sure to use your membership ID number in any correspondence

ESJWQC Goals

- To operate an efficient, economical program that enables members to comply with the Irrigated Lands Regulatory Program
- File required reports with the Central Valley Regional Water Quality Control Board to maintain ILRP coverage for Coalition members.
- Implement an economical and scientifically valid water monitoring program for rivers and agricultural drains (as required by the ILRP).
- Spread costs equitably among owners/operators who are Coalition members.
- Communicate to landowners where water monitoring indicates problems and work to solve those issues.

Financial Overview

Financial Overview

Reported below is a financial overview comparing the ESJWQC 2015 budget with the actual 2015 expenditures. As shown in Net Income, the coalition ended 2015 with net income and adequate reserves, enabling the annual dues to remain at \$3.75 per acre for 2016. As indicated in the footnote "*Balance Available," there was approximately \$2.7 million in ESJWQC banking accounts which reflects carryover from 2013 and a portion of 2015 member dues collected in 2014. Invoices are mailed in November each year for the following year dues. The overview also records income from sales to several Central Valley coalitions of the Membership Data Base developed for the ESJWQC. The sales offset the ESJWQC's investment in developing the data base. A complete financial review of 2015 expenditures is available upon request. In 2015, the ESJWQC contracted the services of Grimbleby Coleman Certified Public Accountants, Inc., Modesto to perform an audit of our financial statement for calendar year 2014. The firm reported that the ESJWQC financial statements are "fairly presented in conformity with U.S. general accepted accounting principles." Several additional invoice review procedures were recommended by the auditor and initiated by the Board of Directors in 2015. The full text of the audit report is available on the "Members Only" section of website: www. esjcoalition.org/member/ ESJLogin.asp

All funds collected as membership dues go to pay for the cost of administering the Irrigated Lands Regulatory Program for the ESJWQC region.

Statement of Financial Activities - January 1, 2015 thru December 31, 2015 vs. Budget

	Actual* 2015 \$K, (Thousands)	Budget 2015 \$K, (Thousands)	Description
INCOME	•		
Total Income	3,045	2,895	Membership dues plus sales of membership software, interest on bank accounts in 2015.
EXPENSES	•		
Organizational **	488	882	Executive director, legal, accounting, State Ag Waiver fees, management of membership records and related communications, and miscellaneous business costs.
Program ***	1,922	1,985	Program manager, site monitoring/special studies, quality control/assurance, data management, BMP assessment, communications with Coalition members regarding monitoring results, and reports to RWQCB.
Travel & Meeting	15	15	Expenses for executive director, program manager and contractors doing work for the Coalition.
Total Expenses	2,425	2,881	
		- -	
Net Income	625	14	Difference between Total Income and Total Expenses.

 * At the end of December balances in the checking and savings accounts totaled \$2,771 K.

** Includes anticipated State Water Board Waiver fees attributed to 2014 acreage.

*** Difference due to lower than anticipated costs for surface water program (approx. \$100K) and ground water program (approx. \$250k)

Surface Water Program

ESJWQC October 2014 through September 2015 Monitoring Sites (Core, Represented, and Management Plan Monitoring).

ESJWQC 2015 WY Monitoring Sites Zone Boundaries & Urban Land Influence

ESJWQC_2015_rpt

ESJWOC

Coalition Monitoring Sites

(2004 – September 2015). 'X' indicates sampling occurred during the years specified.

Monitoring Site	County	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ²	2014 WY ³	2015 WY ³
Ash Slough @ Ave 21	Madera		Х	Х	Х	Х	Х	Х				Х	Х
Bear Creek @ Kibby Rd	Merced		Х	Х	Х	Х		Х	Х	Х	Х	Х	
Berenda Slough along Ave 18 1/2	Madera			Х	Х	Х			Х	Х	Х	Х	Х
Black Rascal Creek @ Yosemite Rd	Merced			Х	Х						Х	Х	Х
Canal Creek @ West Bellevue Rd	Merced									1		Х	Х
Cottonwood Creek @ Rd 20	Madera		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
Deadman Creek @ Gurr Rd	Merced	Х		Х	Х	Х	Х	Х		Х	Х	Х	Х
Deadman Creek @ Hwy 59	Merced			Х	Х	Х			Х	Х	Х	Х	Х
Dry Creek @ Rd 18	Madera		Х	Х	Х	Х			Х	Х	Х	Х	Х
Dry Creek @ Wellsford Rd	Stanislaus		Х	Х	X	Х	Х	Х	Х	Х	Х	Х	Х
Duck Slough @ Gurr Rd	Merced	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
Duck Slough @ Hwy 99	Merced		Х	Х	Х	Х	Х	Х	Х	Х			
Hatch Drain @ Tuolumne Rd	Stanislaus				Х	Х					Х	Х	Х
Highline Canal @ Hwy 99	Merced		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
Highline Canal @ Lombardy Rd	Merced		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
Hilmar Drain @ Central Ave	Merced		Х	Х	Х	Х	Х			Х	Х	Х	Х
Howard Lateral @ Hwy 140	Merced						Х	Х	Х		Х	Х	Х
Lateral 2 ½ near Keyes Rd	Stanislaus					Х	Х	Х	Х		Х	Х	Х
Lateral 5 ½ @ South Blaker Rd	Stanislaus											Х	Х
Lateral 7 and 7 @ Central Ave	Stanislaus											Х	Х
Levee Drain @ Carpenter Rd	Stanislaus									Х	Х	Х	Х
Livingston Drain @ Robin Ave	Merced				Х	Х			Х	Х	Х	Х	Х
Lower Stevenson @ Faith Home Rd	Stanislaus											Х	Х
McCoy Lateral @ Hwy 140	Merced								Х	Х	Х		
Merced River @ Santa Fe Rd	Merced	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
Miles Creek @ Reilly Rd	Merced				Х	Х	Х	Х			Х	Х	Х
Mootz Drain ¹	Stanislaus						Х	Х			Х	Х	Х
Mustang Creek @ East Ave	Merced			Х	Х	Х	Х	Х			Х	Х	Х
Prairie Flower Drain @ Crows Landing Rd	Stanislaus		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
Silva Drain @ Meadow Drive	Merced			Х	Х	Х							Х
Unnamed Drain @ Hogin Rd	Stanislaus											Х	Х
Unnamed Drain @ Hwy 140	Merced										Х	Х	Х
Westport Drain @ Vivian Rd	Stanislaus				Х	Х						Х	Х

Years associated with monitoring combine sampling years for both Mootz Drain @ Langworth Rd and Mootz Drain downstream of Langworth Pond locations.
 ² Monitoring during 2013 was from January through September 2013.
 ³ Monitoring during the Water Year (WY) is from October through September.

tt D0 ⁺ pH SC Ammonia Nitrate + E. coli v	SC Ammonia Nitrate E. coli Nitrate	Armonia Nitrate + E. coli Nitrite	ia Nitrate + E. coli Nitrite	+ E. coli		Arsenic	Copper	Molybdenum	Chlorpyrifos	Dimethoate	Malathion	Water Flea	Algae	Sediment	Discharge
<u>×</u> × 5 or 7 <6.5 or 700 1.5 mg/L 10 mg/L >8.5 µmhos/cm (variable) 10	or 700 1.5 mg/L 10 humhos/cm (variable)	m (variable) 10	e) 10) mg/L	235 MPA 1100 ml	4 10 µg/L	µg/L (variable)	10 µg/L	0.015 µg/L	1 µg/L	>0 µg/L	Toxicity T	oxicity	Toxicity	Cubic Feet Per Second
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-	-	+			+							T	T		Dry
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REIPORT

	Discharge Cubic Feet er Second	Drv ²	Drv	Drv ²	Drv	Dry	Drv	Drv	Drv	Drv	Drv	Drv	Drv	Drv	, c	0*	Drv	Drv	*0	NINA CED	NIVI-SEU	0 *0	Dav	Druc	Dry	Drv	0 70	0.70	•0	*	MM	0*	0	4.70	2.60	7.19	15.53	7.57	0.69	0.0	***	5 (Dry	λιη γ	3.09	Dry
Sediment	Toxicity																																											T		+
Algae	Toxicity																																													
Water Flea	Toxicity																																											Towio	IUXIC	
Malathion	>0 µg/L																																											c	7	
Dimethoate	1 µg/L																					07.0																								
Chlorpyrifos	0.015 µg/L																																													
Molybdenum	10 µg/L																																													
Copper	µg/L (variable)																																													
Arsenic	10 µg/L																																													
E. coli	235 MPN /100 ml																										LUL	171		110.6	0'0T4 >7419.6		435.2	648.8			344.8	365.4			20105	0°67472				
Nitrate + Nitrite	10 mg/L																																													
Ammonia	1.5 mg/L (variable)																																												T.2	
SC	700 µmhos/cm			913																																								CUL	/03	241
Hd	≪6.5 or >8.5																			0 74	T/'0																							0.75	01.0	
DO [†]	5 or 7 mg/L																										5 20	0.50	1.03 2 64	40.0	6.86	5 24	2.79	5.56	5.14	4.44	5 00	6.00				T		T	T	
Constituent	Water Quality Goal Sample Date	12/3/2014	1/13/2015	2/10/2015	3/10/2015	4/14/2015	5/12/2015	6/9/2015	7/14/2015	8/11/2015	6/8/2015	4/14/2015	8/11/2015	9/8/2015	10/14/2014	11/12/2014	12 13 12014	1/13/2015	3/10/2015	2/10/2012	CTU2/01/C	102/51/5	CT02/21/C	CTUZ/CIO	2/11/2015	0/0/1015	CT02/0/6	10/14/2014	11/12/2014	4102/c1/1	2/10/2015	3/10/2015	4/14/2015	5/12/2015	6/9/2015	7/14/2015	8/11/2015	9/8/2015	10/14/2014	1102/11/01	4107/21/11	4T07/c/7T	1/13/2015	2/10/2012	ctoz/ot/s	4/14/2015 5/12/2015
	Monitoring Location	@ Gurr Rd		1			1						Deadman Creek	@ Hwy 59			1		1	-	DIY LIEEK	OT NU 20		1	1	1					1	- Dry Creek	@ Wellsford Rd							1	1		Duck Slough	ה פחוו גח	1	

2015
September
through
2014
October
Results
Monitoring
Coalition

	scharge bic Feet r Second	*0	0	*0	Dry	NM	0	IM-SED	NM	NM	0.28	NM	Dry	0.89	Dry	Dry ¹	0	Dry	Dry	31.60	44.91	45.03	79.57	56.86	18.36	*0	0	*0	MN	64.72	78.69	14.61	42.24	0		0.04	3 79	5.74	47.C	0	MM	0.50		Drv	*0
ediment	oxicity Per				-	-		4																					1				╎						-	+			+	+	
Algae S	oxicity 1	Toxic			-									-									Toxic		┫				1	1			OXIC	t					┢	1	OXIC		+	1	Η
Water Flea	oxicity T	Toxic	Toxic																						1	T				Ť		T	T	t		T		T	t				+	T	Π
Malathion	>0 µg/L T																								1				T			T	t						T	T			+	T	
Dimethoate	1 µg/L																																T							T	1		-		
Chlorpyrifos	0.015 µg/L		0.19														0.07															T	T						T	T	1				
Molybdenum (10 µg/L														<u></u>						* *																				1				
Copper	µg/L (variable)																														o e 14 ort	(/8.1) C.7											5 70 (1 57)	110-1101-0	
Arsenic	10 µg/L			35																					1				T			T	T						T	T			T		
E. coli	235 MPN /100 ml	>2419.6																																											
Nitrate + Nitrite	10 mg/L																															T													
Ammonia	1.5 mg/L (variable)																																												
sc	700 µmhos/cm	875		984		1306	1137	1035	1135	825	939	1105					750									1280		778					1356	DC 2T	1 E E D	CCCT	51/2	800	1075	1055	1161				838
Ηd	<6.5 or >8.5																8.60				8.88		5.76	8.66	9.73					8.8/		100	0.07												
DO [†]	5 or 7 mg/L	6.49	6.49					1.70	3.53	5.57	4.99	1.24		4.76												100 TOP	2.87	6.25				T	6 77	11.0	7.04		1 02	1 50	4.04	4.91	5.50		0.80		
Constituent	Water Quality Goal Sample Date	6/9/2015	7/14/2015	8/11/2015	9/8/2015	1/13/2015	2/10/2015	3/10/2015	4/14/2015	5/12/2015	7/14/2015	8/11/2015	9/8/2015	10/14/2014	11/12/2014	12/3/2014	1/13/2015	2/10/2015	3/10/2015	4/14/2015	5/12/2015	6/9/2015	7/14/2015	8/11/2015	9/8/2015	1/13/2015	2/10/2015	3/10/2015	4/14/2015	5/12/2015	6/9/2015	CTU2/11/8	1/12/2015	1107/01/1	CT02/01/2	CT02/01/c	4/14/2015	7144/2015	144 /2010	211/2015	9/8/2015	10/14/2014	1/15/2015	4/14/2015	5/12/2015
	Monitoring Location								Hatch Drain	@ Tuolumne Rd									Highline Canal	@ Hwy 99									Highline Canal	@ Lombardy Kd		1					@ Central Ave)					Howard Lateral	@ Hwy 140	<u> </u>

(0:115) SLUYMIM (a}R:Y a:N/N.U{a}L REIP(0:R:5)

5		<u>ischarge</u> Jbic Feet r Second	0	0	•0	Dry ¹	NM	0.99	Dry ¹	4.31	11.38	5.46	MM	WN	0.61	*0	Dry	5.71	MN	44.16	12.08	NM	13.33	6.84	3.84	0.97	MM	11.12	16.86	0	NM-SED	-0	NIM CED	0	0.04	NM	VM-SED	0.99	Drv	Drv	Drv	Drv	Drv	Drv	*0	Drv
c	Sediment	Toxicity Pe								+		+																			-						-							+	╞	+
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)	Dimethoate	1 µg/L																																												Ī
5	Chlorpyrifos	0.015 µg/L																																												
	Molybdenum	10 µg/L																													<u> </u>															
	Copper	µg/L (variable)																													¢							4 80 (2 07)	1.0100							
	Arsenic	10 µg/L											T																																	T
	E. coli	235 MPN /100 mL																																												
	Nitrate + Nitrite	10 mg/L																																												
	Ammonia	1.5 mg/L (variable)											T																																	
	SC	700 µmhosícm												1122		724	1041	721	818		2981		1251	1583		666			1105	807	882	13/5	1991	2190	1855	734	1849									
)	Hd	≪6.5 or >8.5						8.61		T				8.56		10.37	8.74							100000	8.56	8.84																				Ī
	DO⁺	5 or 7 mg/L	4.47	6.77	3.00												- 1000 M	4.84													60.9	26.6		6.61	4	7 87									C A 7	- (†) D
5	Constituent	<u>Water</u> Quality Goal Sample Date	6/9/2015	7/14/2015	8/11/2015	2/10/2015	3/10/2015	4/14/2015	5/12/2015	6/9/2015	//14/2015	8/11/2015	9/8/2015	10/14/2014	12/3/2014	1/13/2015	2/10/2015	3/10/2015	5/12/2015	7/14/2015	8/11/2015	9/8/2015	12/3/2014	1/13/2015	2/10/2015	3/10/2015	4/14/2015	6/9/2015	7/14/2015	8/11/2015	9/8/2015	7/40/2014	2/10/2015	6/9/2015	7/14/2015	8/11/2015	9/8/2015	12/3/2014	1/13/2015	2/10/2015	3/10/2015	4/14/2015	5/12/2015	5102/21/6	CTUZICIO	8/11/2015
c		Monitoring Location							Lateral 2 1/2	near Keyes Rd						-	Lateral 5.17	@ South Blaker Rd								Interal 6 and 7	@ Central Ave							Levee Drain	@ Carpenter Rd							Livingston Drain	@ Robin Ave			

	Constituent	DO [†]	Hd	sc	Ammonia	Nitrate + Nitrite	E. coli	Arsenic	Copper	Molybdenum	Chlorpyrifos	Dimethoate	Malathion	Water Flea	Algae	Sediment	
ng Location	<u>Water</u> Quality Goal Sample	5 or 7 mg/L	<6.5 or >8.5	700 µmhos <i>i</i> cm	1.5 mg/L (variable)	10 mg/L	235 MPN /100 ml	10 µg/L	µg/L (variable)	10 µg/L	0.015 µg/L	1 µg/L	>0 µg/L	Toxicity 1	Foxicity	Toxicity	<u>Discharge</u> Cubic Feet Per Second
	Date																
	1/13/2015	5.34		2747		29	488			27							1.16
	2/10/2015	1.1		834	5.6		>2419.6								Toxic		7.12
	3/10/2015	5.65		2657		25	236			16	4.200			Toxic		Toxic	0.68
	4/14/2015	6.87		2944		27				25	0.200			Toxic			0.12
	5/12/2015			2806		15				23	0.200			Toxic	Toxic		0
	6/9/2015	3.43		2782		14	866			22	0.061			Toxic	Toxic		0
	7/14/2015	1.65		2439		24				15	0.044			Toxic	Toxic		0
	8/11/2015	2.55		2202	4.7	20				13	0.017				Toxic		0
	9/8/2015	2.55		2662		29				18							0.36
	2/10/2015	3.47		1274									2				0
	3/10/2015	4.38		2681								8.4					0
d Drain	7/14/2015	4.80		1827													NM
NU	8/11/2015	5.81		1813													0
	9/8/2015	2.16		1854													NM-SED
d Drain 40	2/10/2015																Dry
	1/13/2015																0
	2/10/2015	4.17															NM
	3/10/2015		8.71	860													0
t Drain	4/14/2015																Dry
1 Rd	5/12/2015			8190													NM
	7/14/2015	5.06															0
	8/11/2015	3.55															0
	9/8/2015	2.93															NM-SED
Total E	exceedances	69	19	64	4	6	14	1	4	6	∞	1	1	00	18	1	
e viculimilari are	nd will under an s	additional re	wiew prior	to heing fina	lized										l		

a

vAII data are premiminary and with under go duditional review prior to be use intensed. DO1- The WQTL for DO is <5 mg/L for Ash Slough @ Ave 21, Berenda Slough @ Ave 21/2, Cottonwood Creek @ Rd 20, and Dry Creek @ Rd 18.

0*-Discharge recorded as zero due to non-contiguous waterbody.

Dry-No water at site; no samples collected. Dry¹-Water too shallow to sample: no samples collected. Dry¹-Water too shallow too sample: no samples collected. Dry²-No samples collected; however, if the parameters were recorded. NM-No measurement: Too deep to measure flow or water column toxicity monitoring only. NM-Sed-No measurement: Discharge not measured due to sediment monitoring only.

Monitoring Constituents Definitions

UMMARY a-NNUAL REP

Dissolved Oxygen (DO): DO criterion is protective of aquatic life: (min. of 7 mg/1). DO levels are affected by water temperature, photosynthesis & respiration. Added nutrients can stimulate algae production which dies and breaks down by microbial activity. The activity requires oxygen, depleting DO and resulting in an inability to support aquatic communities.

pH: Power of Hydrogen (pH) measures acidic or basic levels in a solution. Acceptable range = 6.5-8.5. Water temperature, photosynthesis & respiration can affect levels. Fertilizers & pesticides can affect pH of water/ soil.

Specific Conductance (SC): A measure of salt and is measured in µS/cm. SC is an indirect measure of the presence of ions such as chloride, nitrate, sulfate, phosphate, sodium, magnesium, calcium and iron. The SC standard (700 µS/cm) is protective of sensitive agricultural crops such as beans.

Ammonia: Total ammonia consists of the unionized (NH3) form plus the ionized (NH4+) form also called ammonium. Ammonium can enter a water body through direct discharge from agricultural fertilizers or animal waste, discharges from waste water treatment plants, or from the breakdown of organic matter in the stream. In soils, ammonium from fertilizers is typically converted to nitrite and then to nitrate over a short period of time. Exceedances of the ammonia standard are based on water temperature and pH which affect the level at which ammonia is toxic to aquatic life. Regardless of the water temperature or pH, all ammonia concentrations above 1.5 mg/L are exceedances of the drinking water standard.

Nitrate + Nitrite: Potential sources include runoff of fertilizers or organic matter from irrigated pasture, leaking septic systems, waste water treatment plant effluent and animal waste. Nitrate and nitrite are very soluble and can enter surface or groundwater with irrigation and/or storm water. Animal waste can be converted to nitrate by nitrifying bacteria. Sources of animal waste include dairies, poultry, pasture and/or wildlife.

E. coli: Common bacterium in intestinal tracts and voided in fecal matter. E. coli in water is compared to the water quality standard protective of recreational activities (235 MPN/100mL). E. coli may persist in presence of oxygen for periods of time after being voided. Any feces voiding species of vertebrate can contribute E. coli to surface waters. Potential sources: leaky septic systems or sewer lines, waste water treatment plant discharge, application of biosolids to ag land, defecation in or near waterbodies, dairies, manure or poultry operations.

Arsenic: Arsenic is found in sodium cacodylate which is applied by agriculture for broadleaf weed control and as a cotton defoliant. California Department of Pesticide Regulation records indicate no agricultural use of sodium cacodylate across the Coalition region between 1998 and 2010. Exceedances of the Arsenic WQTL can be attributed to legacy pesticide use.

Copper: Dissolved or sediment bound in water. Measurement of dissolved copper=dissolved form only measurement of total copper= both dissolved & bound. Dissolved copper is adjusted for the hardness (CaCO3) in water to determine concentrations that would be toxic to aquatic species. Total copper is also evaluated based on the criteria protective of the drinking water beneficial use.

Molybdenum: Products containing molybdenum are rarely if ever used in the Coalition area. Molybdenum can be a byproduct in copper and tungsten mining and is used in alloys due to its ability to withstand high temperatures, resistance to corrosion, and weldability. The westside region is naturally elevated in molybdenum and tends to be flushed into surface waters during periods of high rainfall. Drains such as Prairie Flower Drain which were constructed to drain shallow ground water and allow agriculture can develop elevated concentrations of molybdenum when the ground water is driven into the channel. In living organisms, molybdenum acts as a metal heteroatom and is present in various enzymes including aldehyde oxidase, sulfite oxidase and xanthine oxidase. Molybdenum can also be found in green beans, eggs, sunflower seeds, wheat flour, lentils and cereal grains. In animal studies chronic ingestion of 10 mg/kg of molybdenum can cause diarrhea, growth retardation, sterility, low birth weight, and gout.

Chlorpyrifos: An organophosphate insecticide used in alfalfa, grapes & orchards (among other crops). Trademarked names include: Govern™, Lock-On™, Lorsban™, NuPhos™, etc. Chlorpyrifos can bind to sediment or remain in water column. The 0.015 µg/L objective is protective of aquatic life.

Dimethoate: Dimethoate is an organophosphate insecticide that is used in California predominantly on alfalfa, tomatoes, oranges, and corn. Dimethoate is an acetylcholinesterase inhibitor, and in water, is not expected to adsorb to sediments or suspended particles. Like chlorpytifos, dimethoate is known to be toxic to birds, fish such as P. promelas, and aquatic invertebrates such as C. dubia. The WQTL to protect aquatic life is 1.0 µg/L.

Malathion: Malathion is an organophosphate insecticide applied to over 100 crops in the United States including alfalfa, rice, cotton, sorghum, wheat, and walnuts. It is also used for structural pest control (mosquito and fruit fly eradication, and home settings). Malathion is easily mixed with water and can be found in both urban and agricultural runoff. Malathion is a prohibited discharge pesticide except under the Rice Coalition Management Plan and any detection of the constituent is considered an exceedance. Malathion is known to be toxic to C. dubia (LC50 = 3.35 µg/L).

Algae toxicity: algae (aquatic plants) are sensitive to herbicides and fungicides. Algae toxicity is measured as percent growth in the sample water compared to the growth in a control treatment.

Fathead minnow toxicity: fathead minnows (fish) are sensitive to ammonia toxicity. At high concentrations pesticides and metals can also cause fish mortality. Fathead minnow toxicity is measured as percent survival within the sample water compared to survival in a control treatment.

Water flea toxicity: water fleas (invertebrates) are especially sensitive to water soluble pesticides such as chlorpyrifos & diazinon. Toxicity is measured as % survival in sample compared to survival in control treatment.

Sediment Toxicity: One species (Hyalella azteca — amphipod) is used in sediment analysis to determine toxicity that may occur to pelagic organisms. Amphipods are sensitive to pyrethroids and other pesticides that are not highly water soluble including some herbicides, fungicides and insecticides. Amphipod toxicity is measured as percent survival within the sediment sample as compared to the survival in a control treatment.

LIST OF UNITS	
mg/L	milligrams per liter
MPN/100 mL	Most Probable Number per 100 milliliters (measure of bacteria)
µg/L	micrograms per liter (same as parts per billion or ppb)
µS/cm	microsiemens per centimeter (measure of conductivity)

Companies Providing Services to Test Wells for Nitrates

The information below is a compilation provided by ESJWQC. The list of companies is not exhaustive and will be updated periodically. The companies offer water analysis services in the Central Valley. Types of companies who provide this service:

- Specialize in agricultural consulting and nitrogen budgeting; plant tissue testing and soil nutrient management
- Specialize in geology or engineering; also offer groundwater mapping services
- Specialize in water quality analysis (laboratory only)

ab	g Specialist	ampling	Lab Name	Street	City	Tin	Phone	Wabsita
x	⊲ X	S	A & L Western Agricultural	1311 Woodland Ave., Ste. 1	Modesto	95351	(209) 529-4080	al-labs-west.com
x		x	Laboratories, Inc. Apex Envirotech, Inc.	11244 Pyrites Way	Gold River	95670	(559) 275-2175	
x			APPL	N. Temperance Ave.	Clovis	93611	(559) 275-2175	applinc.com
x			Argon Analytical Services, Inc., DBA Argon Laboratories	2905 Railroad Ave.	Ceres	95307	(209) 581-9280	argonlabs.com
x		x	Blaine Tech Services Inc.	4731 Pell Dr., Ste. 5	Sacramento	95838	(916) 925-2913	blainetech.com
x		x	BSK Associates	550 W. Locust Ave.	Fresno	93650	(559) 497-2880	bskassociates.com
x	x	x	California AgQuest Consulting, Inc.	4545 N. Brawley Ave., Ste.	Fresno	93722	(559) 275-8095	calagquest.com
х	x		California Growers Laboratory, Inc.	4630 W. Jennifer, Ste. 104	Fresno	93722	(559) 275-3377	cagrowlab.com
x	x	x	California Laboratory Rancho Services	3249 Fitzgerald Rd.	Cordova	95742	(916) 638-7301	californialab.com
х	x		Denele Analytical, Inc.	1232 South Ave	Turlock	95380	(209) 634-9055	Denelelabs.com
X	x	X	Dellavalle Laboratory, Inc.	1910 W. McKinley Ave., Ste. 110	Fresno	93728	(559) 351-2741	dellavallelab.com
х		х	Dudek	980 9th Street, Ste. 1750	Sacramento	95814	(760) 479-4127	dudek.com
х	x		Fruit Grower Laboratory	853 Corporation St.	Santa Paula	93060	(805) 392-2032	fglinc.com
x		х	Geoanalytical Laboratories, Inc.	2300 Maryann Dr.	Turlock	95380	(209) 669-0100	
х			IEH-JL Analytical Services	217 Primo Way	Modesto	95358	(209) 538-8111	iehinc.com
x	x	x	JM Lord, Inc.	267 N. Fulton St.	Fresno	93701	(559) 268-9755	jmlordinc.com
		x	MLJ-LLC	1480 Drew Ave., Ste. 130	Davis	95618	(530) 756-5200	mlj-llc.com
X	x	x	Pacific Agronomics	3402 W. Holland Ave., Ste. 101	Fresno	93722	(559) 276-0401	pacificagronomics.com
	x	x	Perry Laboratory	424 Airport Blvd.	Watsonville	95076	(831) 722-7606	perrylaboratory.com
x		x	Precision Enviro-Tech	3935 Coronado Ave.	Stockton	95204	(209) 477-8105	
x	x	x	Soil and Plant Laboratory	1101 S. Winchester Blvd. Ste. G-173	San Jose	95128	(408) 727-0330	soilandplantlaboratory.com
x	x		Soil Control Laboratory	42 Hangar Way	Watsonville	95076	(831) 724-5422	biocharlab.com
x			VPN Laboratory	3402 W. Holland Ave., Ste. 101	Fresno	93711	(559) 276-0403	pacificagronomics.com

ADDITIONAL RESOURCES:

California Department of Health – Certified Laboratories: http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Nitrate.aspx

NMP Management Unit: ___

1. Crop Year (Harvested):	4. APN(s):	5. Field(s) ID	Acres
2. Member ID#			
3. Name:			

CROP NITROGEN MANAGEN	MENT PLANNING	N APPLICATIONS/CREDITS	15. Recommended/ Planned N	16. Actual N
6. Crop		<u>17. Nitrogen Fertilizers</u>		
7. Production Unit		18. Dry/Liquid N (lbs/ac)		
8. Projected Yield (Units/Acre)		19. Foliar N (lbs/ac)		
9. N Recommended (lbs/ac)		20. Organic Material N		
10. Total Irrigated Acres		21 Available N in Manure/Compost		
Post Production	Actuals	(lbs/ac estimate)		
11. Actual Yield (Units/Acre)		22. Total Available N Applied (Ibs per acre)		
12. Total N Applied (Ibs/ac)		23. Nitrogen Credits (est)		
13. ** N Removed (lbs N/ac)		24. Available N carryover in soil; (annualized lbs/acre)		
14. Notes:		25. N in Irrigation water		
		(annualized, lbs/ac)		
		26. Total N Credits (Ibs per acre)		
		27. Total N Applied & Available		
		PLAN CERTIFICATION		
28. CERTIFIED	BY:	29. CERTIFICATION ME	THOD	
		30. Low Vulnerability Area, No Certification	n Needed	
DATE		31. Self-Certified, approved training progra	am attended	
DATE:		32. Self-Certified, UC or NRCS site recom	mendation	
1		55. Millogen Management Flan Specialist		

**Your Coalition will provide the method to be used to estimate N Removed. Approved by the Central Valley Water Board 23 December 2014.

NMP Summary Report – 2015 Crop Year

Refer to your Nitrogen Management Plan for information to complete this form*

Year Crop Harvested (Box 1):		_ Subm	ittal Date:		
Member ID (Box 2):		Mer	mber Name (Box 3)		
Site Location Information ¹	Сгор	Total Acres	Total Available N Applied pounds per acre	A/Y Total Available N / Actual Yield ²	Production Unit
Management Unit	Box 6	Box 10	Box 22 + Box 25	(Box 22+25)/Box 11	Box 7

¹ Site location information refers to information to be used to link a parcel enrolled in a coalition to the reported information; this may be the Assessor Parcel Number (APN).

² For No Yield, fill in NY. For Non Bearing, fill in NB.

*Box number refers to the 4-page nitrogen management plan distributed by ESJWQC (copy for 2016 enclosed).

