WELCOME 2016 WATER WORKSHOP

Irrigated Lands & GRAP Update

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Upper Feather River Watershed Group

"Agricultural Stakeholders Advancing Water Stewardship"

Agricultural Water Quality Management
in the
Upper Feather River Watershed

State Water Resource Control Board
(9 regions)

Region 5 - Central Valley Water Quality Control Board
(14 Third Party Agriculture and Water District Coalitions)

Sacramento Valley Water Quality Coalition
(13 Subwatershed Groups; size range: 30 members to 2000 members)

Upper Feather River Watershed Group
101 Members
34,000 irrigated acres

Agricultural Water Quality Management
in the
Upper Feather River Watershed

Regulatory Structure:

- Irrigated Lands Regulatory Program
  - Agriculture Waivers
  - Waste Discharge Requirements
- Surface Water & Groundwater
  - Irrigation & Nitrogen Plan
  - Sediment & Erosion Control Plan
  - Nitrogen Management Effectiveness Studies
  - Very little focus allocated for pasture studies
  - UFRW is 93% pasture based on FE surveys

Research, Education & Implementation Partners:

- UC Davis Rangeland Watershed Laboratory
- UC Cooperative Extension Resource and Livestock Advisors
- Natural Resource Conservation Service
- RCDs and local Farm Bureaus
- Commodity Crop Advisors
- Agriculture Producers and Growers

UPPER FEATHER RIVER WATERSHED GROUP

A SUBWATERSHED OF

SACRAMENTO VALLEY WATER QUALITY COALITION

3rd Party Coalition Requirements:

- **Irrigator Enrollment & Reporting** -coalitions
- **Annual Monitoring Reports** -LWA
- **Farm Evaluation Plan Reporting**
  - tracking & reporting - MLJ Associates
- **Nitrogen Management Plans & Studies**
- - tracking & reporting - consultants
- **Sediment & Erosion Assessment Report**
  - AEG Engineering
- **Crop Nitrogen Knowledge Gap Plan**
  - coalitions & consultants
- **Nitrogen Management Effectiveness Studies**
  -numerous consultants
- **Groundwater Quality Assessment & Monitoring** -CH2MHill

Member Requirements:

1. **Notice of Confirmation**
2. **Farm Evaluation Plan**
3. **Nitrogen Management Plan**
4. **Sediment & Erosion Control Plan**
5. **Management Implementation**
6. **Program Dues & Fees**

3. Nitrogen Management Plan

NITROGEN MANAGEMENT PLAN WORKSHEET

NMP Management Unit: _____

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

CROP NITROGEN MANAGEMENT PLANNING		N APPLICATIONS/CREDITS	15. Recommended/ Planned N	16. Actual N
6. Crop		17. Nitrogen Fertilizers		
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. Acres		21. Available N in Manure/Compost (lbs/ac estimate)		
Post Production Actuals				
11. Actual Yield (Units/Acre)		22. Total Available N Applied (lbs per acre)		
12. Total N Applied (lbs/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 (lbs per acre)		
		27. Total N Applied & Available		

PLAN CERTIFICATION		
28. CERTIFIED BY:	29. CERTIFICATION METHOD	
	30. Low Vulnerability Area, No Certification Needed	
	31. Self-Certified, Approved training program attended	
DATE:	32. Self-Certified, UC or NRCS site recommendation	
	33. Nitrogen Management Plan Specialist	

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

Instruction numbering in this document differs slightly from the NMP template approved by the Water Board to accommodate this publication design.

Central Valley Regional Water Quality Control Board

Nitrogen Management Plan WORKSHEET

Template for the Nitrogen Management Plan *Summary of Regulatory Requirements*

This publication contains the template for the Nitrogen Management Plan (NMP) approved on December 23, 2014 by the Executive Officer of Central Valley Regional Water Quality Control Board (Regional Board). Each member of a third party entity (coalition) must prepare and implement an NMP for every crop "management unit" covered by the membership. "Management unit" is a term used to describe a group of parcels that are managed in the same way in regards to nitrogen applications.

Each member must use the NMP template described in this publication as the basis for planning their crop production activities. Summary information from this NMP that covers the previous crop year must be submitted as the coalition on request (specific summary information that must be submitted has yet to be determined). A template for this summary information will be provided to the member by each coalition based on the entity's deadline for compiling and reporting the NMP information.

The NMP and NMP Summary Report (yet to be developed) for all fields/parcels shall be maintained at the member's farming operations headquarters or primary place of business. The member must provide the NMP and Summary Report to board staff, if requested or, should board staff or an authorized representative conduct an inspection of the member's irrigated agricultural operation. In addition, members shall comply with the following requirements where applicable:

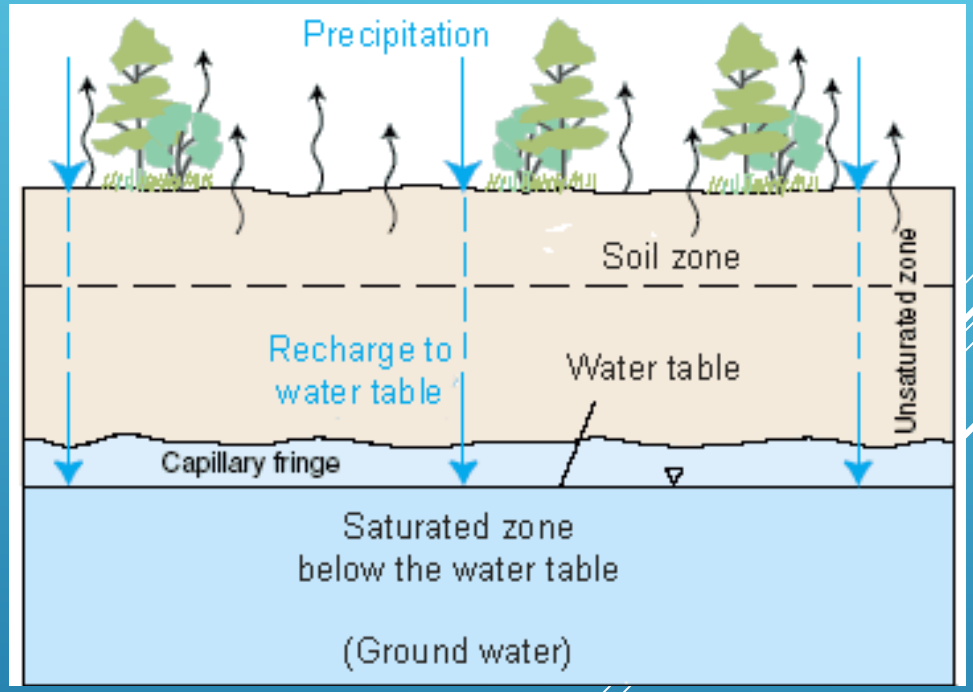
Members within a High Vulnerability Groundwater Area
For members in a high vulnerability groundwater area, for which nitrate is identified as a constituent of concern, the member must prepare and implement a certified NMP. Starting in 2015 (some coalition deadlines differ), the plan must be certified in one of the following ways:

- Self-certified by the member who attends a California Department of Food and Agriculture or other Executive Officer approved training program for nitrogen plan certification. The member must retain written documentation of their attendance in the training program; or
- Self-certified by the member that the plan adheres to a site-specific recommendation from the Natural Resources Conservation Service (NRCS) or the University of California Cooperative Extension. The member must retain written documentation of the recommendation provided; or
- Certified by a nitrogen management plan specialist as defined in each coalition's General Order. Such specialists include Professional Soil Scientists, Professional Agronomists, Crop Advisors, certified by the American Society of Agronomy, or Technical Service Providers certified in nutrient management in California by the NRCS; or
- Certified in an alternative manner approved by the Executive Officer. Such approval will be provided based on the Executive Officer's determination that the alternative method for preparing the NMP meets the objectives and requirements of the General Order.

Members within a Low Vulnerability Groundwater Area
All members within low vulnerability areas shall prepare and update annually an NMP. The member must use the NMP described in this publication or equivalent. Certification of the NMP and submittal of an NMP Summary Report are not required.

Why is N Fertilizer a concern?

- Nitrate in drinking water causes “blue baby syndrome” (methemoglobinemia)
- Agriculture uses a lot of N fertilizer
- Excess irrigation water moves NO_3 below root zone into groundwater
- Agricultural nitrates end up in drinking water wells
- Goal is to better budget Nitrogen application



Slide credit: Wendy Rash, District Conservationist
USDA-NRCS Vacaville, CA
Wendy.Rash@ca.usda.gov

Is My Property Near a Nitrate-Impacted Water Well?

Over 95% of Californians receive safe drinking water from their public water system.

This interactive tool is intended for private domestic well owners to evaluate if their well is near a nitrate-impacted well.

If your location is not within 2,000 feet of a nitrate-impacted well, the State Water Board still recommends that you test your domestic well annually by a certified drinking water laboratory.

Since the availability of groundwater data is limited, and domestic wells are not regulated, domestic well water quality is largely unknown.

SWB Website: http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/nitrate_tool/

Interactive Map

Enter zip code or address to see local tested wells

o Tested well

o Nitrate-impacted well

4. SEDIMENT & EROSION CONTROL PLANS

Identifying Sediment Delivery Sources

1. Agriculture practices and activities
2. Non-agriculture contributors
   - Climate
   - Geology
   - Soil Conditions
   - Historical Land Use
   - Catastrophic Events - fire, flood

4. SEDIMENT & EROSION CONTROL PLANS

1. Erosion Assessment Study and Watershed Vulnerability Ranking by Applied Engineering and Geology, Inc.

2. The Revised Universal Soil Loss Equation (RUSLE) was used as the basis for assessing the potential for sediment erosion.

3. This approach assumes bare ground conditions exist year round and no soil protection measures have been implemented.

4. Resulted in most foothill and mountain watersheds being classed as “highly vulnerable” without consideration for permanent crop types and cropping practices.

5. SVWQC has submitted a request for modification/exemption for permanent crop areas like pasture, hay, vineyards, orchards, etc.

6. CV Regional Water Board is currently reviewing the request.

7. A Sediment and Erosion Control Plan template is drafted. Irrigators in “highly vulnerable” areas must complete the and have it certified by a qualified professional.

4. SEDIMENT & EROSION CONTROL PLANS

Erosion Creates Many Natural Wonders of the World !

Agriculture Water Quality Partners

Range Land Watershed Laboratory UC Davis Department of Plant Sciences

Website: http://rangelandwatersheds.ucdavis.edu/index.htm

Sediment Source Survey
By David Lewis, Ken Tate, John Harper Julie Price

Identified sediment delivery sites based on ranch managers knowledge and survey results.

1. Where are the 10 sediment delivery sites of highest concern on your ranch?

   - Roadways and poor culvert design -71%
   - Riparian zones – 53%
   - Hillslopes – 90%
   - Livestock concentration areas, trailing and waterway access – 2%

A similar survey for Upper Feather River Watershed could be useful to local land managers to address expanding regulations and guide BMP implementation.

To protect water quality, many ranchers on California's North Coast are required to evaluate and mitigate the potential for delivery of sediment to streams on their property. Sheep graze on an oak woodland slope in the Russian River watershed.

Survey identifies sediment sources in North Coast rangelands

David J. Lewis ◻ Kenneth W. Tate ◻ John M. Harper ◻ Julie Price

We conducted a sediment source survey to gain insight into soil erosion on Northern California rangeland watersheds and to provide information to facilitate informed land-use management, conservation prioritization and water-quality regulation decisions. The results indicate that by focusing on erosion associated with natural and historical influences, inventory and assessment efforts on these watersheds can characterize the majority of sediment deliverable to streams. While this volume of sediment does not require mitigation under current water-quality regulations, it nonetheless prohibits the ability of in-stream sediment monitoring to detect water-quality changes. Water-quality regulations require managers to create inventories for all sources with 10 cubic yards or more of potentially deliverable sediment. If a monitoring threshold of 100 cubic yards was used, more than 99% of the deliverable sediment identified in this survey would be inventoried. This would require developing inventories for only 82 of the 117 sites in this study. Overall, we determined that rangeland managers can achieve the greatest reductions in sediment generation by focusing on erosion from roads.

Total maximum daily loads (TMDLs) for sediment are being established for Northern California watersheds. These water-quality standards will require agricultural landowners to inventory, monitor and control management-caused erosion on their properties (EPA 1998; SWRCB 2001).

Twenty-four Northern California rivers are on the federal Clean Water Act (CWA) Section 303(d) list of impaired water bodies because of excessive sediment from erosion, which results in impacts for salmon habitat. Land-use management, including silviculture, development and agriculture, has been identified as a source of sediment in these watersheds

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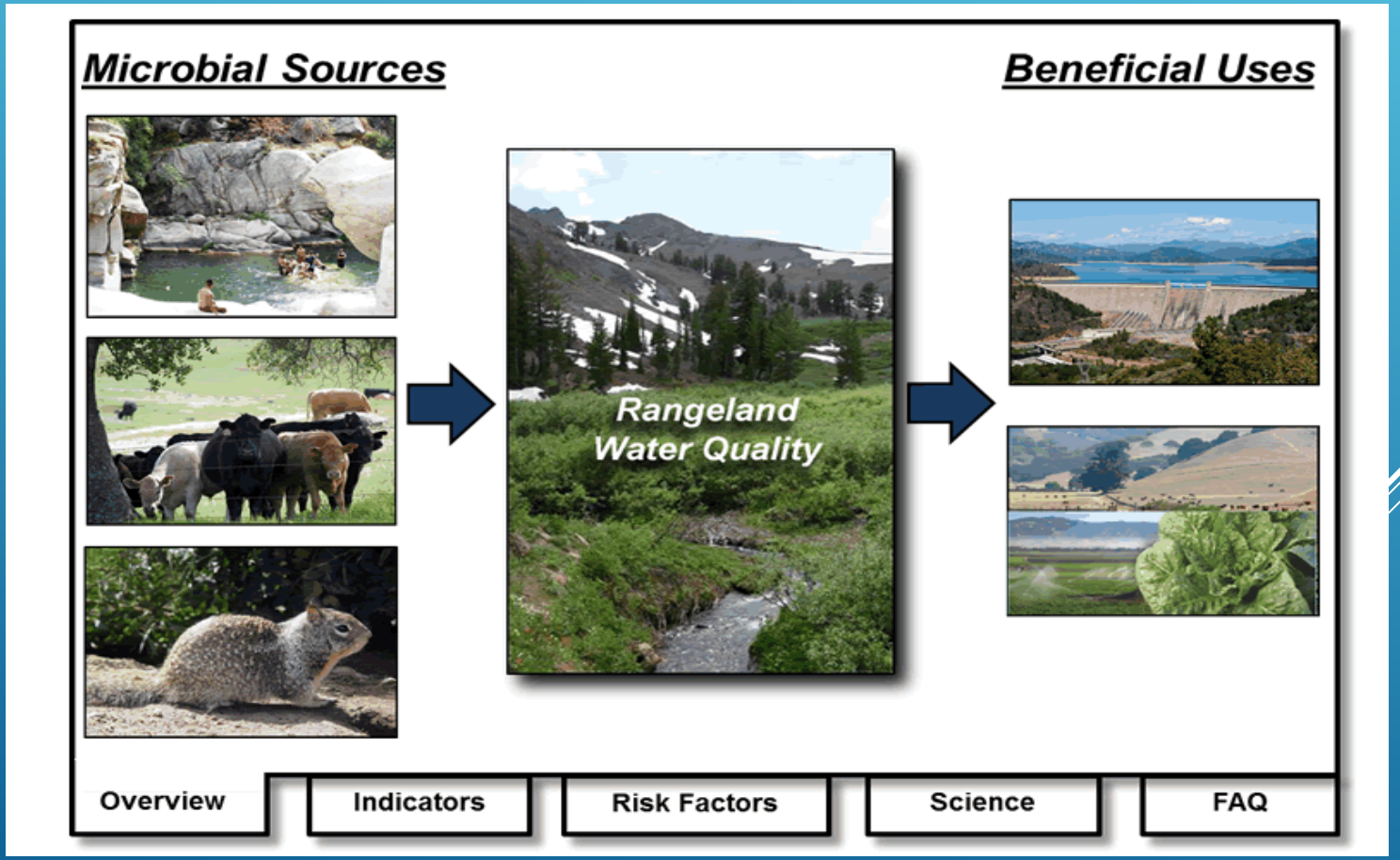
Website: http://rangelandwatersheds.ucdavis.edu/index.htm

Excellent resource for Range Lands and Pasture Water Quality Information



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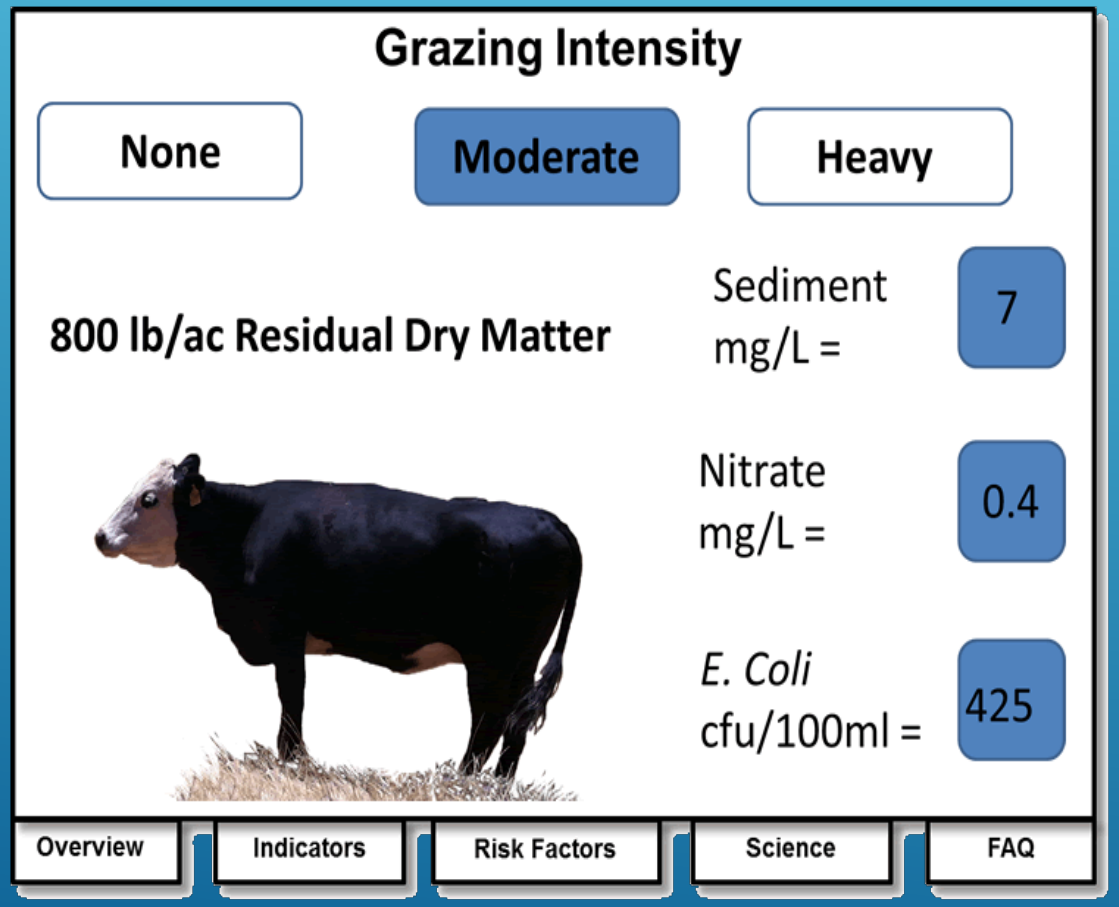

High Stocking Rates?

The intensity of grazing or stocking rate affects the amount of fecal loading, the odds of fecal loading in water, near water, and in high runoff areas. As grazing intensity increases, we know that the soil's ability to infiltrate surface runoff and thus trap pollutants in that runoff can decrease. … Runoff with rainfall will increase as the reduced vegetation will be unable to slow flow and trap sediments and pathogens. More>>

ILRP
Questions ?

GRAP UPDATE

GRAZING REGULATORY ACTION PROGRAM

Is it necessary to regulate dryland ranges & pastures?
Can a non-regulatory educational and implementation approach be successful?

GRAP UPDATE
GRAZING REGULATORY ACTION PROGRAM

State Water Control Board Resolution:

- **DISCONTINUATION OF DISCUSSIONS REGARDING A STATEWIDE APPROACH TO ADDRESSING WATER QUALITY IMPACTS FROM LIVESTOCK GRAZING**
- **Acknowledged merits of "best available science" as presented at UC Davis at the March 2015 Rustici Rangeland Science Symposium.**
- **Acknowledged regional differences in hydrology, topography, climate and land use.**
- **Directed Regional Water Boards to work with individual property owners, livestock grazing operators and stakeholders to determine which actions, regulatory and non-regulatory BMP implementation, are best suited to protect water quality.**
- **Directed industry to update best management practices (BMPs) based on most current information and evaluation for effectiveness.**

GRAP UPDATE:

1. Regulatory Program

2. Non-regulatory Alternative

Ranch Water Quality Management Plan Short Course

Success Depends on a High Participation Rate by Individual Producers

GRAP UPDATE
GRAZING REGULATORY ACTION PROGRAM

Agriculture Advisory Workgroup

Next Steps:

- Draft a non-regulatory strategy and begin outreach at local levels.
- California Grazing Water Quality Partnership (led by agriculture) to identify and draft a non-regulatory option.
- UC Davis Rangeland Laboratory to update the 1997 Ranch Water Quality Management Planning Short Course.
- UC Davis is reviewing 303d impaired waterbody areas to assist in strategy development and prioritization.
- CCA, CFBF, local Cattlemen & Farm Bureau organizations will assist in outreach to achieve high participation levels.
- To achieve non-regulatory option success will require a very high percentage of individual producer participation.

GRAP Questions ?