

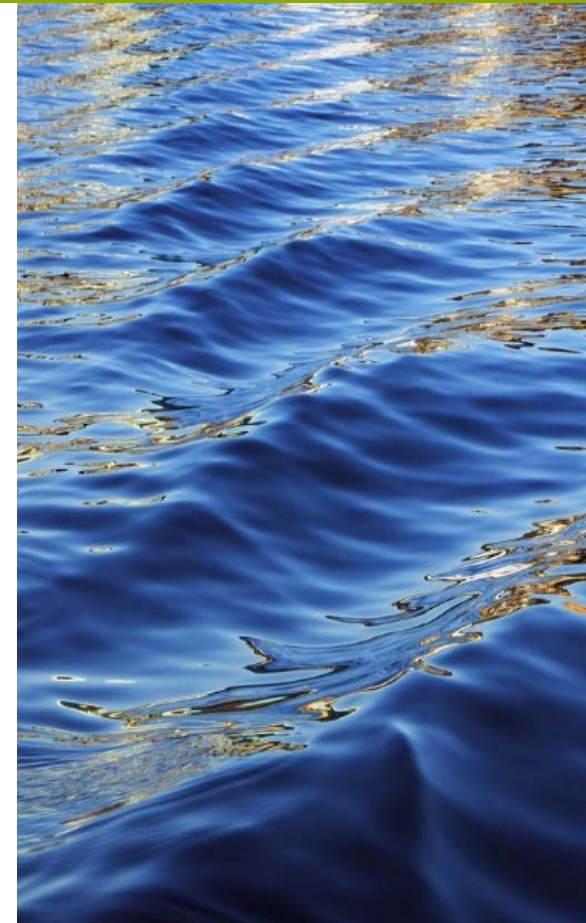
NITROGEN TRACKING AND REPORTING TASK FORCE

A Summary

Agricultural Expert Panel
Public Meeting #1

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CALIFORNIA DEPARTMENT OF
FOOD & AGRICULTURE



CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

PRESENTATION OUTLINE

1. BACKGROUND
2. PROCESS FROM A TO Z
3. RECOMMENDATIONS

FINAL REPORT

http://www.cdffa.ca.gov/environmentalstewardship/supp-info_NTRSTF.html

The screenshot shows the website for the California Department of Food and Agriculture. The header includes the CA.GOV logo, the department name, and a search bar. A navigation menu contains links for Home, Divisions, Customer Service, Meetings, News, Jobs, Laws/Regs, Statistics, and Publications. Below the menu, there are links for Find Subject, Programs & Services, Public Meetings, Site Map, FAQs, Contact Us, About CDFA, and Español. The breadcrumb trail reads: CDFA Home > Environmental Stewardship > Supplemental Information for the NTRSTF. The main content area features the title "SUPPLEMENTAL INFORMATION FOR THE NITROGEN TRACKING AND REPORTING TASKFORCE" and a paragraph describing the task force's composition and mission. A sidebar on the right lists "INITIATIVES" such as Nutrient Management, Nutrient Management Plan Coalition Effort, Training and Certification on Nutrient Management Plans, and CDFA Fertilizer Research and Education Program (FREP) Database Project.

1. BACKGROUND

- Legislative budget act request to address Nitrates in Drinking Water (1987)
- 1989 Nitrate Working Group Report - CDFA FREP
- Legislative directive SBX2 1 Nitrate in Drinking Water (2008)
- UC Davis Nitrate Report (2012)
Recommendations to the State Water Board
- State Water Board Report (2013)
Recommendations to the legislature
- Results of 2012 UC Davis study report
 - Agriculture is large contributor of nitrates in groundwater
 - Proposed several promising options for addressing nitrates in groundwater

1. BACKGROUND

15 Recommendations in four major categories:

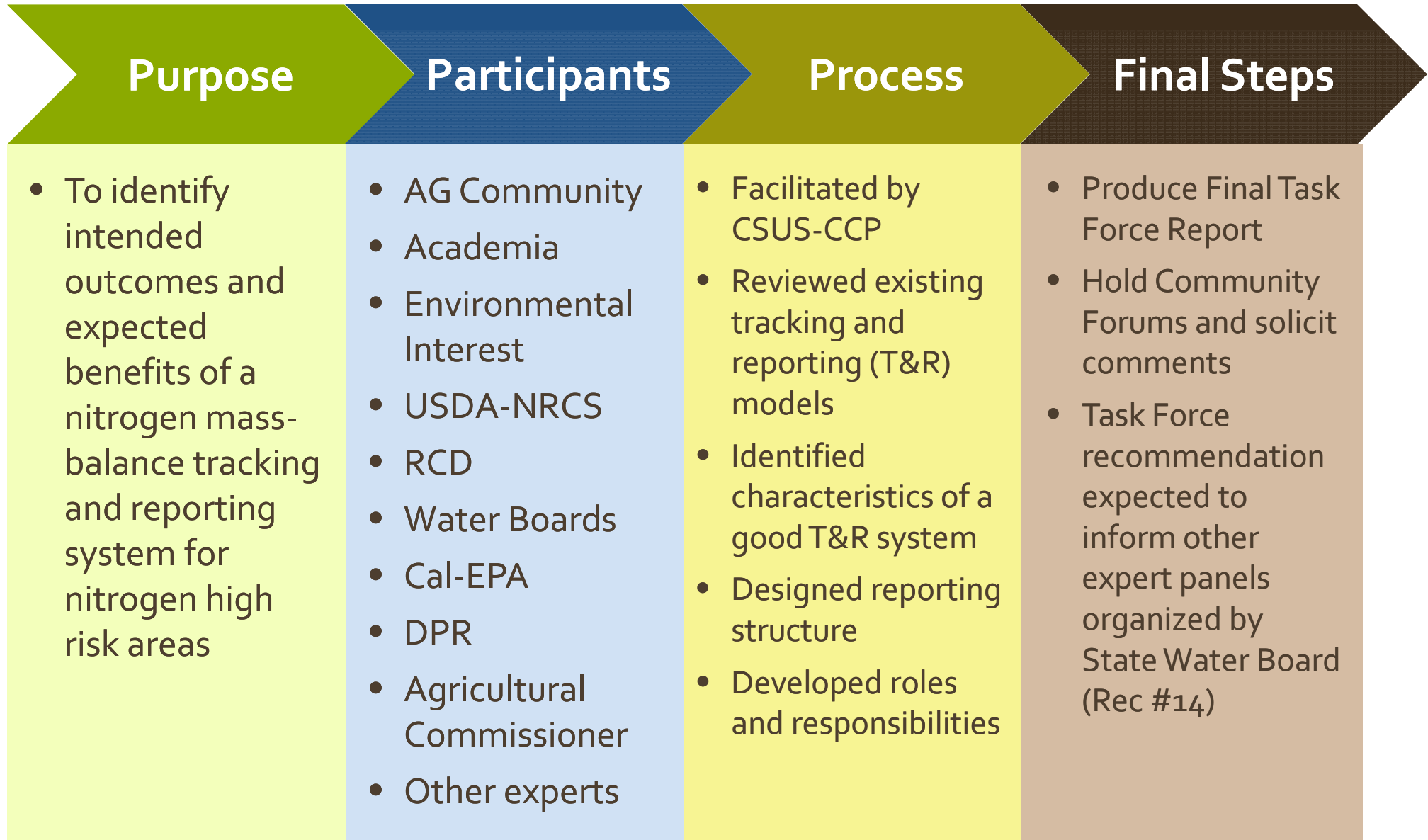
1. Providing safe drinking water – creating a reliable and stable funding source
2. Monitoring, assessment, and notification – defining nitrate high-risk areas in order to prioritize regulatory oversight and assistance efforts (rec 6)
3. Nitrogen tracking and reporting – develop and implement nitrogen mass-balance tracking and reporting system (rec 11)
4. Protecting groundwater – nitrogen management training, research, nitrate control, evaluating the effectiveness (rec 14)

2. PROCESS OF CDFA TASK FORCE

- Recommendation 11 of State Water Board (February 2013 report)

"CDFA, in coordination with the Water Boards, should convene a Task Force to identify intended outcomes and expected benefits of a nitrogen mass balance tracking system in nitrate high-risk areas. The Task Force should identify appropriate nitrogen tracking and reporting systems, and potential alternatives, that would provide meaningful and high quality data to help better protect groundwater quality."

OVERVIEW



2. PROCESS OF CDFA TASK FORCE

- **Charge:** Identify the intended outcomes and benefits of a nitrogen mass balance tracking system in high risk nitrate areas
- **Membership:** Comprised of experts from academia; agricultural, environmental and environmental justice communities; regulators; conservation agencies, and resource experts (page 23: Appendix A)

Darrin Polhemus
Dr. Joel Kimmelshue
Parry Klassen
Dr. Robert Mikkelsen

1. Allan Fulton, MSc., University of California Cooperative Extension
2. Danny Merkley, California Farm Bureau Federation
3. Darrin Polhemus, State Water Resources Control Board
4. Dave Duncan, California Department of Pesticide Regulation
5. Dave Orth, Kings River Conservation District
6. David Zoldoske, EdD., California State University, Fresno
7. Deanne Meyer, PhD, University of California, Davis
8. Donna Meyers, Santa Cruz Resource Conservation District
9. Gordon Burns, California Environmental Protection Agency
10. Hank Giclas, Western Growers Association
11. Jeanette Pantoja, California Rural Legal Assistance Inc.
12. J.P. Cativiela, Dairy CARES
13. Jennifer Clary, Clean Water Action
14. Joel Kimmelshue, PhD, Land IQ
15. Karen Ross, California Department of Food and Agriculture
16. Ken Harris, Central Coast Regional Water Quality Control Board
17. Luana Kiger, MSc, Natural Resources Conservation Service
18. Marc Los Huertos, PhD, California State University, Monterey Bay
19. Pamela Creedon, Central Valley Regional Water Quality Control Board
20. Parry Klassen, East San Joaquin Water Quality Coalition
21. Phoebe Seaton, California Leadership Council for Justice and Accountability
22. Rob Mikkelsen, PhD, International Plant Nutrition Institute
23. Sandra Schubert, California Department of Food and Agriculture
24. Sonja Brodt, PhD, University of California, Davis
25. Stacey Carlsen, California County Agricultural Commissioners and Sealers Association
26. Tess Dunham, Somach Simmons and Dunn
27. Thomas Harter, PhD / Minghua Zhang PhD, University of California, Davis
28. Tim Hartz, PhD, University of California, Davis

CDFRA wishes to thank the Nitrogen Tracking and Reporting Task Force Members for their time commitment, collective expertise, due diligence, thoughtful input and respect of divergent opinions. Their collective investment to seek general agreement to develop useful recommendations to help improve groundwater quality in the long-term has been instrumental in

2. PROCESS OF CDFA TASK FORCE

- Four meetings – between July 29th & Sept 12th
- Identified ideal characteristics of system and key data elements
- Review tracking and reporting models and decision support tools and evaluate relevance to Task Force charge
- Identify intended outcome of tracking and reporting system
- Recommend tracking and reporting system structure and benefits of this approach

■ **Presentations and Systems Considered (Appendix B of final report – please note the presentation below are not listed in any particular order including order of importance)**

1. Doug Patteson, Central Valley Regional Water Quality Control Board
– *Dairy Nutrient Planning*
2. Parry Klassen, East San Joaquin Water Quality Coalition
– *Nitrogen Management Approach*
3. Angela Schroeter, Central Coast Regional Water Quality Control Board
– *Data Management and Reporting*
4. Larry Wilhoit PhD, California Department of Pesticide Regulation
– *Pesticide Use Reporting System*
5. Amadou Ba PhD, CDFA
– *Fertilizing Materials Tonnage Reporting*
6. Krijn Poppe MSc, LEI Wageningen UR
– *Dutch Mineral Accounting System Minus*
7. Thomas Harter PhD, University of California, Davis
– *N Tracking Analysis to Estimate Groundwater Loading*
8. Doug Parker PhD, University of California Institute for Water Resources
– *Nutrient Reporting In Maryland*
9. Edward J. Hard, CDFA / Richard Ferguson PhD, University of Nebraska, Lincoln
– *Nebraska's Central Platte Valley Groundwater Management Program*
10. David Zoldoske EdD, California State University, Fresno
– *Wateright Online Irrigation Scheduling*
11. Joel Kimmelshue PhD, Land IQ
– *Consideration of a Nitrate Hazard Index for Reporting and Tracking*
12. Tim Hartz PhD, University of California, Davis
– *CropManage Software for Irrigation and Nitrogen Management*
13. Hank Gidas, Western Growers Association
– *Performance Metrics for Specialty Crops: A Common Yardstick*

3. RECOMMENDATION

- Page 13 through 22 of final report
- Eight sub-sections
 1. System Structure (page 14)
 2. Data elements (page 16)
 3. Roles, Responsibilities and Data Accessibility (page 18)
 4. Benefits for Participants of Suggested System (page 20)
 5. Verifiability (page 20)
 6. Societal Benefits of Suggested System (page 21)
 7. Limitations (page 21)
 8. System Phase-in (page 22)

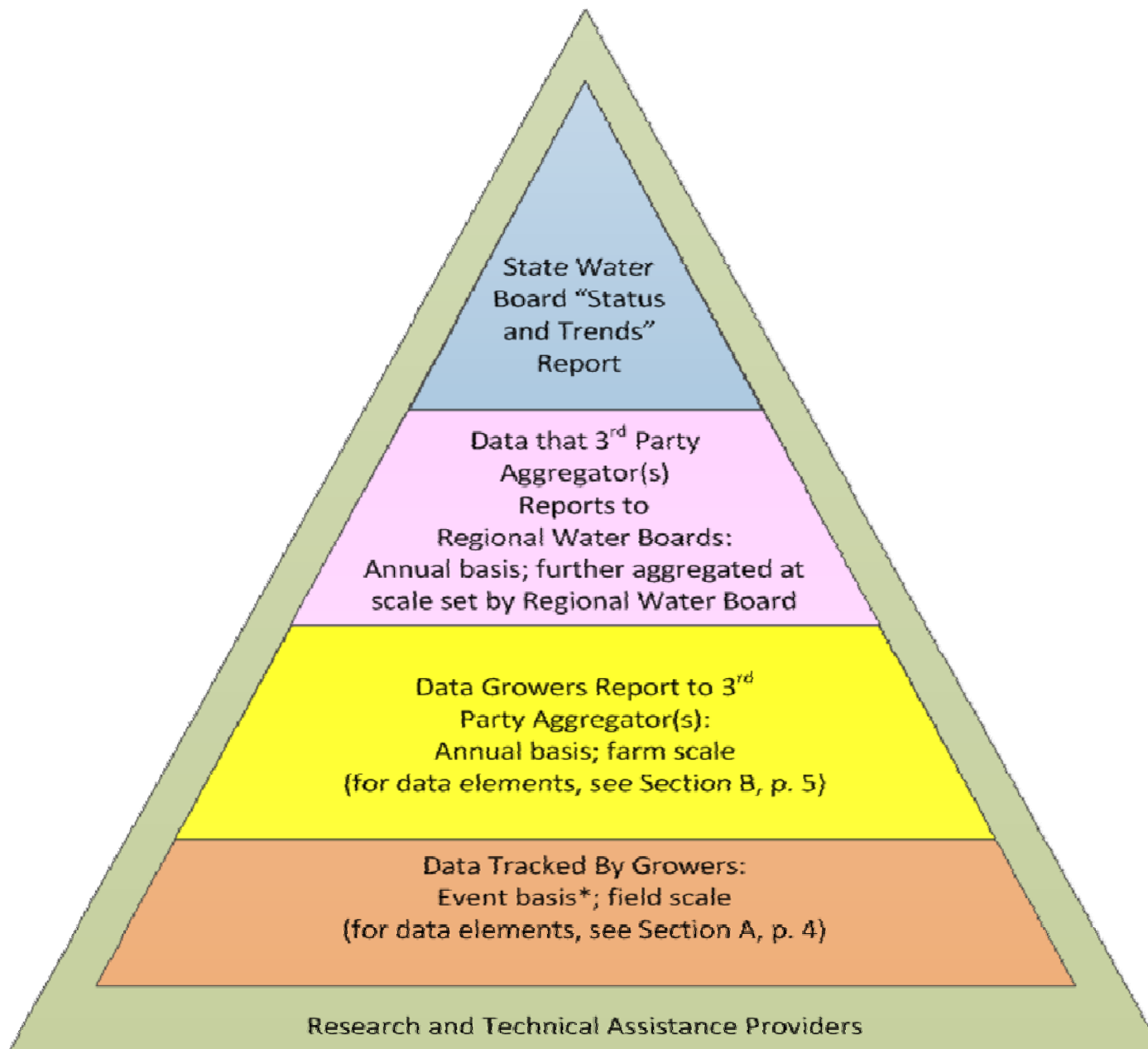
3. RECOMMENDATION

- Several important points
 - Focused on high risk areas "The Task Force affirmed the importance of nitrogen tracking and reporting in high nitrate areas to contribute to improved groundwater quality" (page 13).
 - High risk areas designation was assigned to the State Water board.
 - Builds on existing efforts "The Task Force recognized that many of the data elements proposed are listed in templates under development as part of the CVRWB LTILP" (page 17)

3. RECOMMENDATION

1. Data Tracked by Growers (Event Basis at Field Scale)
2. Data Reported by Growers to 3rd Party Aggregators (Annual Basis at Farm Scale)
3. Data Reported by 3rd Party Aggregators to Regional Water Boards (Annual Basis at Defined Scale by Regional Water Boards)
4. Data Represented in Status and Trends Report (Annually to the State Water Board)

3. RECOMMENDATION



3. RECOMMENDATION

1. Data Tracked by Growers (Event Basis at Field Scale)

Section A on page 17

- Name of owner/manager
- Assessor Parcel Number (APN)
- Field identification number
- Crop type
- Crop age
- Total acres per crop
- Expected yield
- Actual yield
- Nitrogen needed by crop
- Nitrogen removed
- Total nitrogen applied to field
- Residual soil nitrogen credits
- Irrigation method

3. RECOMMENDATION

2. Data Reported by Grower to Data Aggregator (Annual Basis at Farm Scale) Section B on page 17

- Management unit
- Crop year
- Grower identification number
- Crop type
- Crop age
- Total acres per crop
- Nitrogen removed
- Residual soil nitrogen credits
- Annual nitrogen ratio

3. RECOMMENDATION

3. Data Reported by Third Party Aggregator(s) to Regional Water Board

Section C on page 18

- Annual Basis
- Further aggregated at scale set by Regional Water Boards
- Aggregated grower data at the appropriate reporting unit
- Aggregation of data performed by qualified professionals

4. Data Reported by Regional Water Board to State Water Board

Section D on page 18

- Status and trends of nitrogen applied and harvested in nitrate high-risk areas within pertinent regions
- Status and trends of nitrogen loading to groundwater in various cropping systems, soil types and management practice conditions

3. RECOMMENDATION

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Questions for the Panel

Vulnerability and Risk Assessment

Regulatory programs are most effective when they are able to focus attention and requirements on those discharges or dischargers (i.e. growers) that pose the highest risk or threat because of the characteristics of their discharge or the environment into which the discharge occurs. The various Irrigated Lands Regulatory Program (ILRP) orders issued throughout the state by the Regional Water Boards have taken different approaches in their prioritization schemas, some using specific criteria or methodologies, others utilizing measurements of previous known impacts.

1. How can risk to or vulnerability of groundwater best be determined in the context of a regulatory program such as the ILRP?
2. Evaluate and develop recommendations for the current approaches taken to assessing risk to or vulnerability of groundwater:
 - a. Nitrate Hazard Index (as developed by the University of California Center for Water Resources, 1995),
 - b. Nitrate Loading Risk Factor (as developed by the Central Coast Regional Water Quality Control Board in Order R3-2012-0011),
 - c. Nitrogen Consumption Ratio,
 - d. Size of the farming operation,

Application of Management Practices

7. Evaluate and make recommendations regarding the usage of the following management practices:
 - a. Nitrogen mass balance calculations and tracking of nitrogen applied to fields. This should include consideration of measuring and tracking Nitrogen:
 - i. Applied to crops or fields.
 - ii. In soil.
 - iii. In irrigation water.
 - iv. Removed from field.
 - v. Estimation of losses.
 - b. Templates for determining nitrogen balance.
 - c. The usage of nitrogen balance ratios.
 - d. Nutrient management plans.
8. Evaluate and make recommendations regarding the most effective methods for ensuring growers have the knowledge required for effectively implementing recommended management practices. Consider the following:
 - a. Required training.
 - b. Required certifications.
 - c. Workshops sponsored by third parties such as: CDFA, County Agricultural Commissioners, Farm Bureau, UC Cooperative Extension.
 - d. Usage of paid consultants – e.g., CCAs/PCAs.
 - e. UC Cooperative Extension specialists.

Reporting

The ILRP orders issued by the Regional Water Boards require reporting to both determine compliance and inform overall management of the discharges associated with agriculture. Also, specifically in regards to nitrogen, the California Department of Food and Agriculture convened the Nitrogen Tracking and Reporting System Task Force, called for by Recommendation 11 of the State Water Board's report to the Legislature, which makes recommendations on a potential reporting system.

12. Evaluate and make recommendation on how best to integrate the results of the Nitrogen Tracking and Reporting System Task Force with any above recommendation regarding management practices and verification measures.
13. Evaluate and make recommendations on the reporting requirements to report budgeting and recording of nitrogen application on a management block basis versus reporting aggregated numbers on a nitrate loading risk unit level. (Definitions of "management block" and "nitrate loading risk unit" are contained in State Water Board Order WQ 2013-0101.)



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Thank you for this opportunity

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