

# **Agriculture's Response to March Draft of Order No. R3-2011-0006**

Central Coast Water Board Hearing

March 17, 2011

Watsonville, California



# Overview of Presentation

Review of Economic Analysis

Review of Technical Basis for Order

Review of Legal & Policy Issues

Third Party Group Alternative



# Ag Waiver Economic Analysis

Impacts on agricultural producers,  
consumers, and the regional economy

J. Bradley Barbeau, Ph.D.  
CSU Monterey Bay School of Business



# Economic Framework

- The Order addresses issues of *externalities*
  - In economics, externalities are unintended consequences of the production of goods that are not reflected in the prices of those goods
  - Externalities impose costs and distort markets
    - Prices do not reflect actual social costs
    - This leads to over- or under-consumption of commodities whose production or consumption has externalities

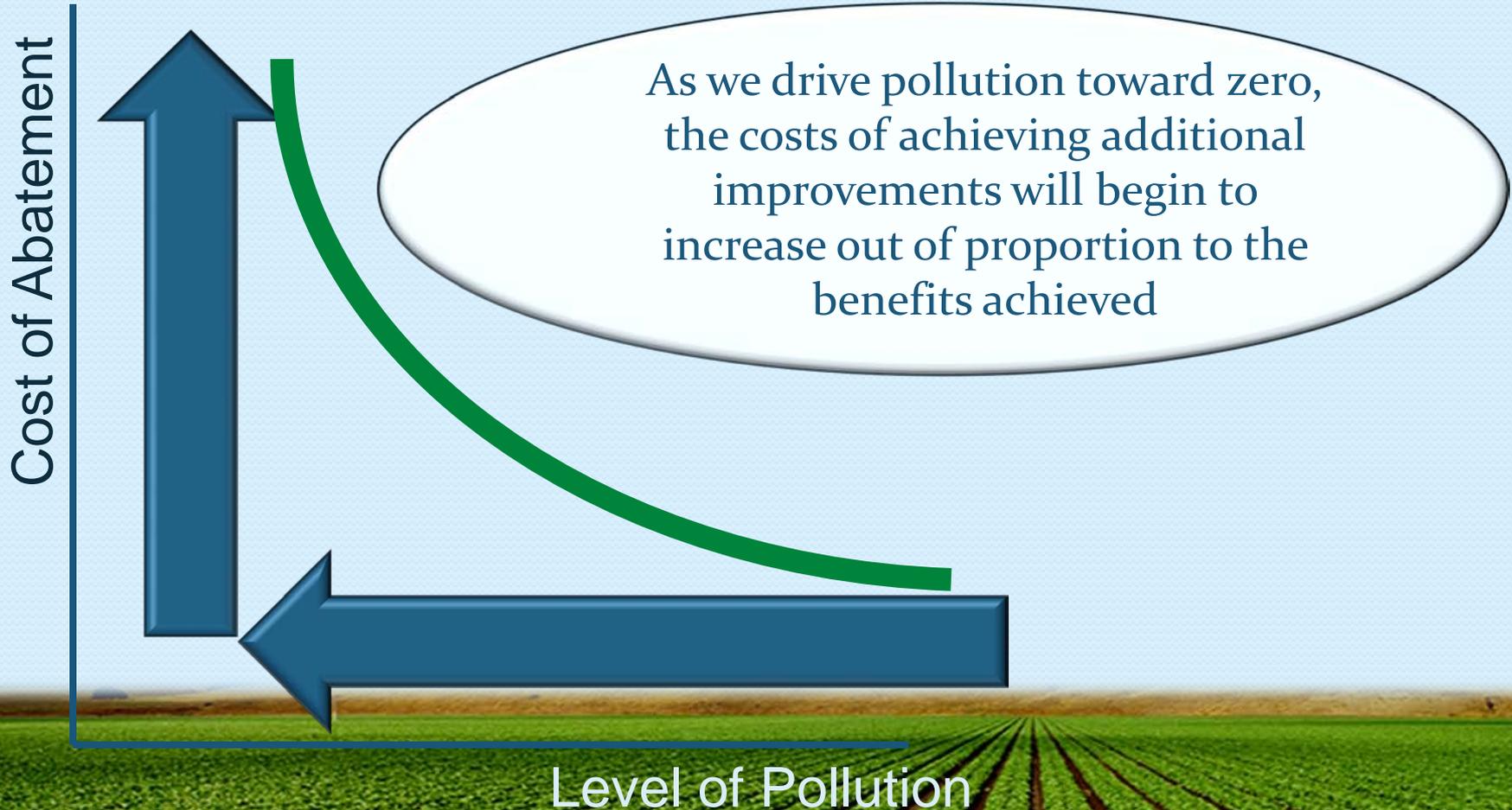


# Restoring Social Efficiency

- The economic goal should be to minimize the distortion, i.e., to restore the socially efficient level of production and consumption
- Most often, policies designed to address externalities will have costs that also need to be taken into account
  - Monitoring costs
  - Enforcement costs



# Increasing Abatement Costs



# Social Efficiency

- So the socially optimal level of pollution is unlikely to be zero
- Nor is it at the current levels
- As we proceed, we need to consider the tradeoffs inherent in reducing pollution
  - The costs of reducing the pollution vs. the costs of pollution
  - The economic goal is to achieve the level of pollution abatement where the next dollar spent on pollution abatement just equals a dollar of increased benefits from the reduction in pollution

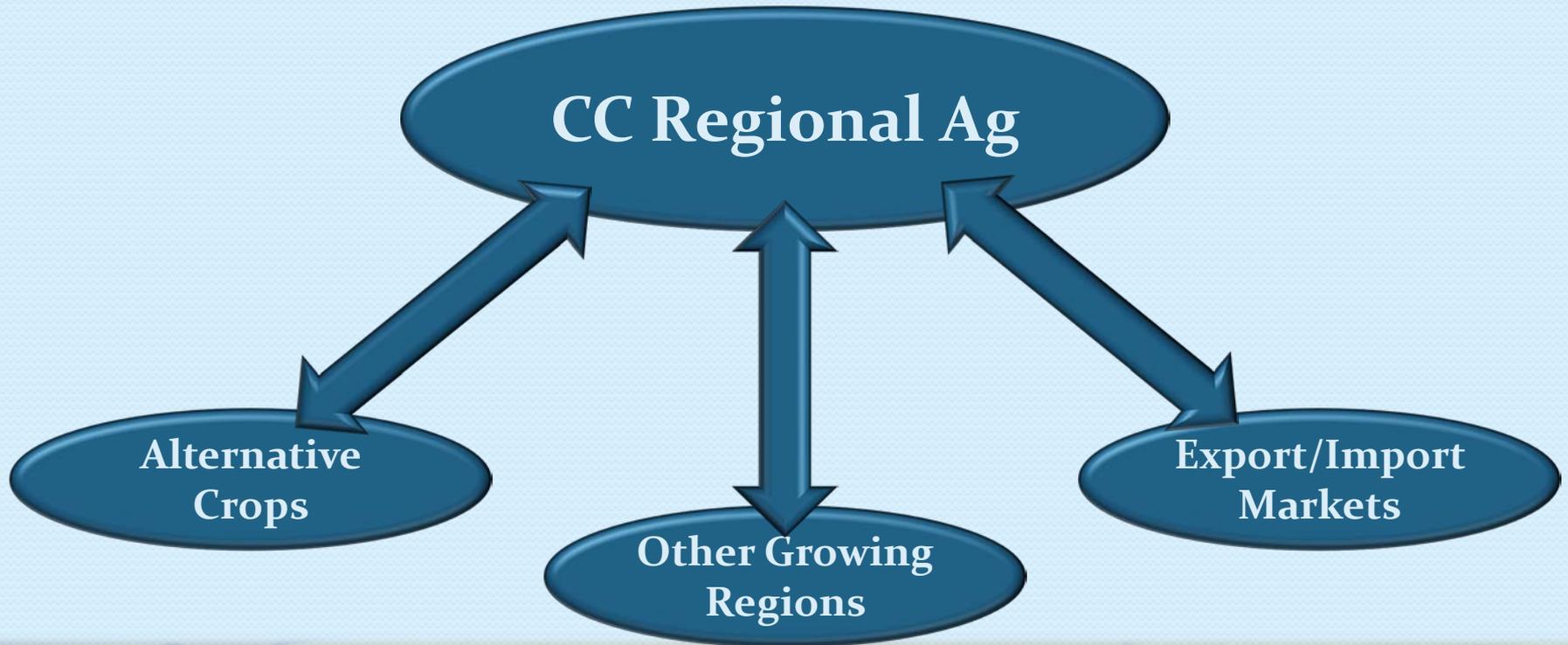


# Regional Ag Economic System: Interlocking Relationships

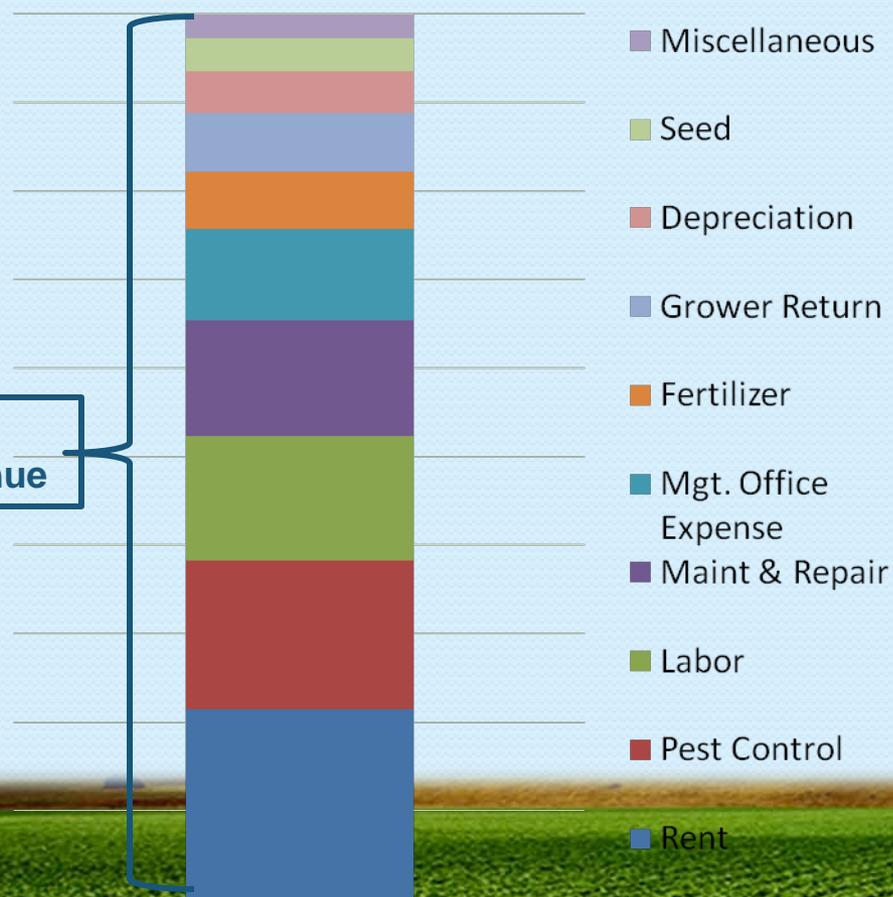


# Our Regional Ag Economic System Competes With Others

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# Grower Revenue Feeds the Region's Economic System



- Total revenue tells us total income to all sources, including labor, suppliers, etc.
- Grower profit needs to pay income to the grower, plus the cost of equity capital
- Reduction of returns below the cost of equity capital is not sustainable



# Industry Impacts vs. Individual Grower Impacts

- The economics of the system look very different depending upon the level of analysis
  - Policy makers tend to see market or industry level impacts
  - Growers see individual-level impacts

**Policies intended to address industry-level or regional-level issues are felt at the individual grower level**



# Individual Farm Impacts

- Growers feel the direct impact of the added costs to their operation
- Individual growers are price-takers
- So for a grower, the added costs appear as a dollar-for-dollar reduction in profitability – an individual grower cannot “pass on” individual costs



# Differential Impacts on Small Growers

- There is high potential for small growers to be adversely affected relative to large growers
  - Small growers lack economies of scale to drive monitoring, reporting and implementation costs down
  - This may be offset to some degree by smaller growers ending up in lower tiers
  - But smaller growers can end up in the higher tiers, not always as a consequence of their own decisions.



# Land Value and Land Use

- The value of an acre of land is determined by its highest valued use
- To the extent that we lower the value of the land to agriculture, we raise the relative value of the land for other uses
  - Such as development
- The Order will shift relative land values in the region



# Monterey County Buffer Impacts

“The GIS analysis indicates that in these three Monterey County watersheds [Pajaro River Watershed (within Monterey County only), Alisal and Elkhorn Sloughs, and the Salinas River Watershed], **between 5,663 acres (30 foot buffer) and 9,438 acres (50 foot buffer)** of farmland could be taken out of production. This analysis raises serious questions about the CCRWQCB’s perplexing assertion that only seven growers will be affected by the requirements, and that on those farms a cumulative total of **56-154 acres** will be taken out of production.”

“Loss of Gross Crop Production Value of between \$100-167 million per year, for 30-50 foot buffers.”

\*From Monterey County Agricultural Commissioner’s letter dated 3/16/11 to be submitted to you today.



# Strawberries and Methyl Bromide

- The discussion of the methyl bromide ban bears little on this Order
  - Methyl bromide faces an outright ban, not regulation
  - The ban is worldwide, not local, so does not create localized market distortions in the same way as the Order
  - There are no monitoring and reporting issues or costs
  - Methyl bromide is a single input to strawberry production; the water quality regulation will impact multiple inputs in production



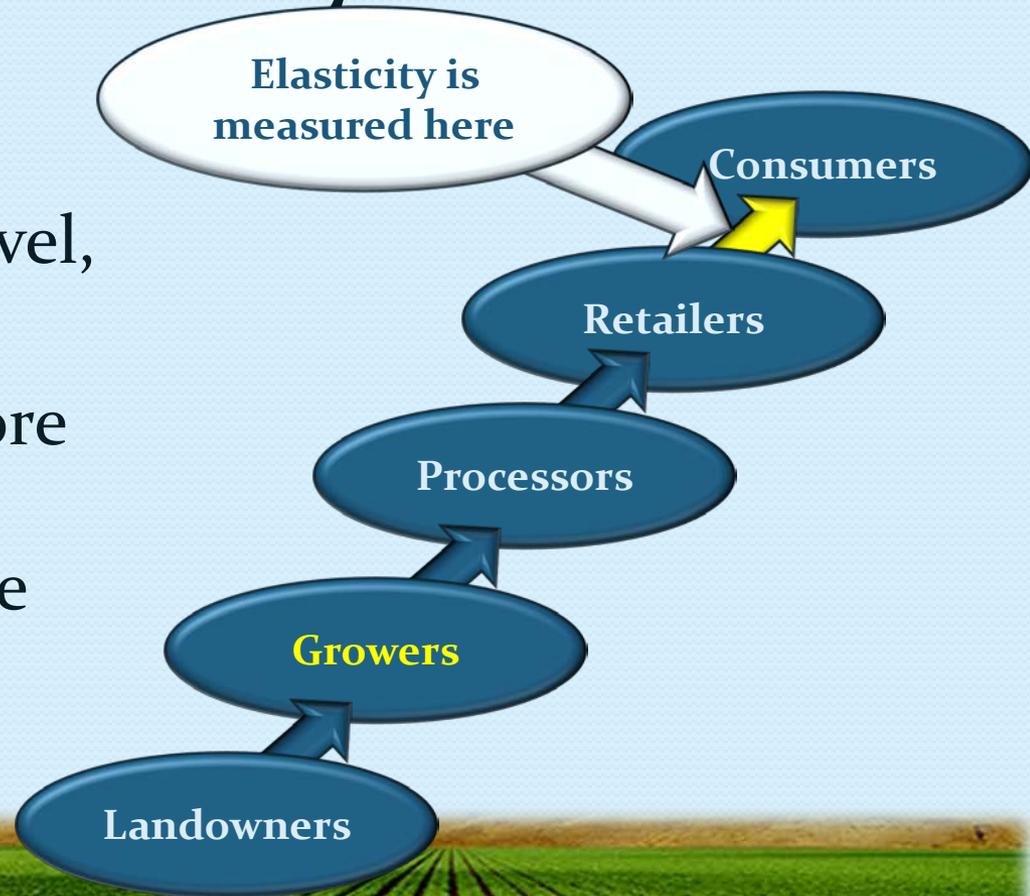
# Elasticities

- The Appendix contains a fairly extensive discussion of price elasticities
  - The discussion contains some important errors in reported elasticities and the use of those numbers
- To argue that price increases will mitigate the impact of cost increases on the growers
  - We should not be cavalier about raising consumer food costs
  - Individual growers do not face the market demand elasticities



# Grower Elasticity vs. Retail Elasticity

- Measuring demand elasticity tells us what happens at the **retail** level, not the grower level
- Retailers have much more buying power than consumers – they will be much more resistant to price increases



# Grower Elasticity vs. Commodity Elasticity

- Price elasticity is VERY different for a commodity than for an individual grower's crop
- The price elasticity faced by an individual grower will be VERY HIGH
- So if the cost impacts vary by grower, the ability of heavily impacted growers to adjust their prices will be strictly limited

So when we hear farmers state concerns about the impact of cost increases, it is because they face these high individual elasticities, not the lower market elasticities

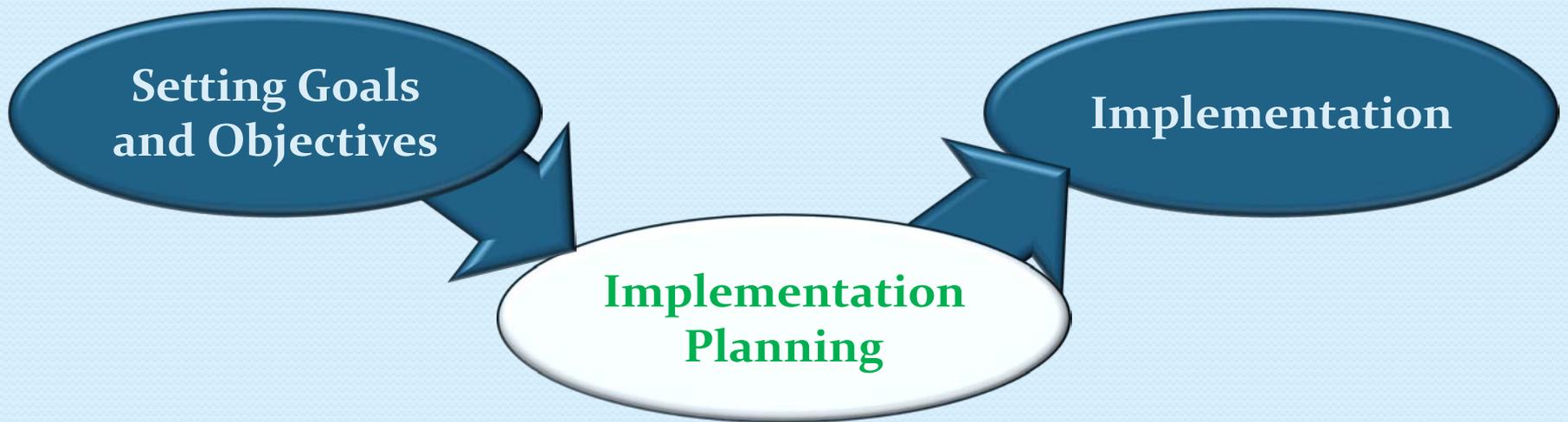
# Conclusion

- The cost to the growers of implementing the Order is not yet known
- The economic impact on the agricultural industry in the region is not yet known
- The staff's cost analysis and economic analysis both lack the power to answer these questions



# Recommendation: Planning for Implementation

- Time and resources are needed for growers to effectively and efficiently implement the Order



# Recommendations

- Complete the cost analysis
- Place the cost analysis in a coherent economic framework and complete an economic impact assessment
- Develop an integrated economic and ecological model for achieving the water quality objectives listed in your proposal
- Engage the ag community and researchers in further development of best practices to achieve the desired water quality



# Technical Analysis

John Letey, Jr., PhD Soil Physics

- Distinguished Professor of Soil Science, Emeritus
- Former Director U.C. Center for Water Resources
- Member, Nutrient Technical Advisory Committee 1994

Mr. Robert Dolezal, Experienced Publisher of Scientific and Technical Information



**Humans can write anything into law and regulations. However, if some of the components are not consistent with basic physical-chemical-biological laws, the expected results will not be achieved.**



# Development of the Nitrate Hazard Index (HI)

- TAC recommended the establishment of a Nitrate Leaching Hazard Index as the core to developing a program to protect groundwater.
- The crop, soil, and irrigation systems were to be the three major components to the HI. The committee recommendations could not be implemented because information was lacking to quantify the HI.
- The U.C. Center for Water Resources invested the resources to classify the major crops and soils in California, Arizona, and Nevada to be used in the HI.
- All of this information is presently available at <http://ucanr.org/sites/wrc>. A recently added link to a UC Davis soil mapping site allows the soil series name to be determined for a soil at any location.



# Draft Order's Adaptation of HI

- The present three tier approach is consistent with the TAC recommendation; however, details of implementation differ.
- Appendix B2 - Table 4 contains the proposed “Nitrate Loading Risk Factor Criteria” that is related to the tier assignment. The U.C. HI has been completely gutted in this report.
- The soil factor is completely eliminated.
- Nitrogen in the irrigation water is added.
- The impact of using sprinklers for pre-irrigation or germination is incorrectly evaluated.



# Nitrate Concentration and Nitrate Load

- The nitrate concentration in the soil below the root zone is not correlated to the load of nitrate. Nor is it correlated to the quality of the fertilizer-irrigation management.
  - Nitrate concentration is not synonymous with nitrate load.
  - Nitrate load refers to the quantity of nitrates moving below the root zone in a given time.
  - Nitrate load is equal to a combination of nitrate concentration and water flow.
  - Measuring nitrate load is not economically feasible.
- Therefore, dictating the investment of megabucks to measure a value that cannot be interpreted for the intended purpose represents economic folly.



# Dr. Letey's Recommendation

- I taught environmental science courses for more than 3 decades. I understand the importance of monitoring for environmental quality. The question is not whether to monitor or not to monitor, it is question of what to monitor.
- There is a relationship between fertilizer-irrigation management and the nitrate load discharged to groundwater.
- Therefore, effort should be focused on monitoring management practices.



# Dr. Letey's Conclusion

There are some major shortcomings in the scientific and economic content of the Draft Order that must be fixed if the expected goals are to be achieved.



# REGION 3 STAFF REPORT UNDER SCRUTINY

## *Inconsistencies & Anomalies*

The Need for Sound Scientific Basis in Forming Public Policy

### *Farmers for* **WATER QUALITY** ALONG THE CENTRAL COAST



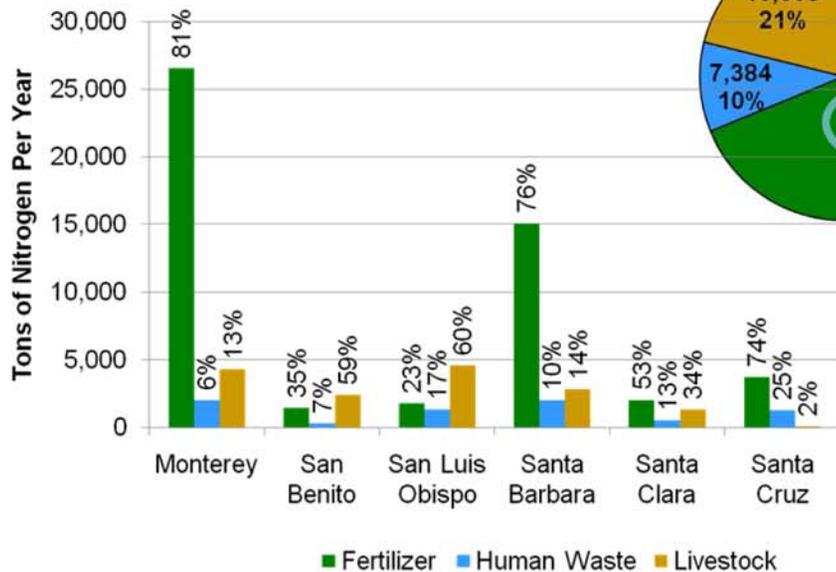
# COMPARISONS TO AUTHORITATIVE SOURCES

- University of California
- California State Universities
- US Geological Survey
- Lawrence Berkeley & Lawrence Livermore National Labs
- Independent Studies for Association of Monterey Bay Area Governments (AMBAG)
- State Water Board GAMA & CCAMP Database

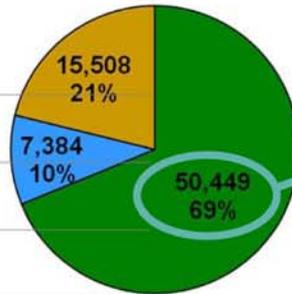
# ERRORS IN STAFF PRESENTATION

## Relative Gross Available Nitrogen for the Three Largest Sources

### By County

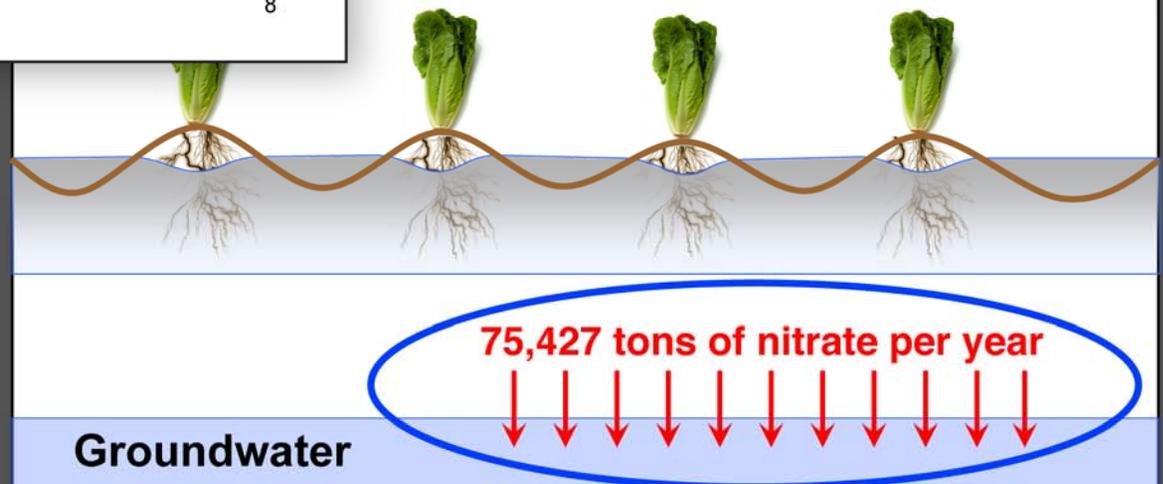


### Entire Region (tons/year)



**50,449**  
Tons Per Year

## Fertilizer Nitrate Loading to Groundwater



Region 3 Staff Presentation, May 2010

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Region 3 Staff Presentation, May 2010

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# WHERE DOES IT COME FROM?

## FINDINGS

### Salinas Valley

- For the Salinas Valley, the maximum potential net contribution of nitrate (as N) to groundwater was calculated as follows (in tons/year):

Cropland*	8,500
Feedlots	1,687
Dairies	78
Municipal/Industrial	
Percolation Ponds	68
Septic Tanks	61
Others	26

\*After subtracting nitrate in groundwater pumped for irrigation

These values are maxima as they assume no loss of nitrogen once water has passed below the root zone. While some de-nitrification undoubtedly occurs during flow to the groundwater, it is unlikely that this mechanism accounts for appreciable nitrogen loss on a valley-wide basis.

8,500  
Tons Per Year

1978 Ambag Clean Water Management Plan

37,655  
Tons Per Year

## Estimated Loading of Nitrate to Groundwater in the Salinas Valley

Source	1978 AMBAG Study		Current Estimate	
	tons/year	% Contribution	tons/year	% Contribution
Cropland	37,665	78.4	39,702	81.5
Feedlots	7,473	15.6	4,626	9.5
WWTP	2,157	4.5	3,041	6.2
Dairies	346	0.7	121	0.2
Septic Tanks	270	0.6	1,264	2.6
Others	115	0.2	--	--

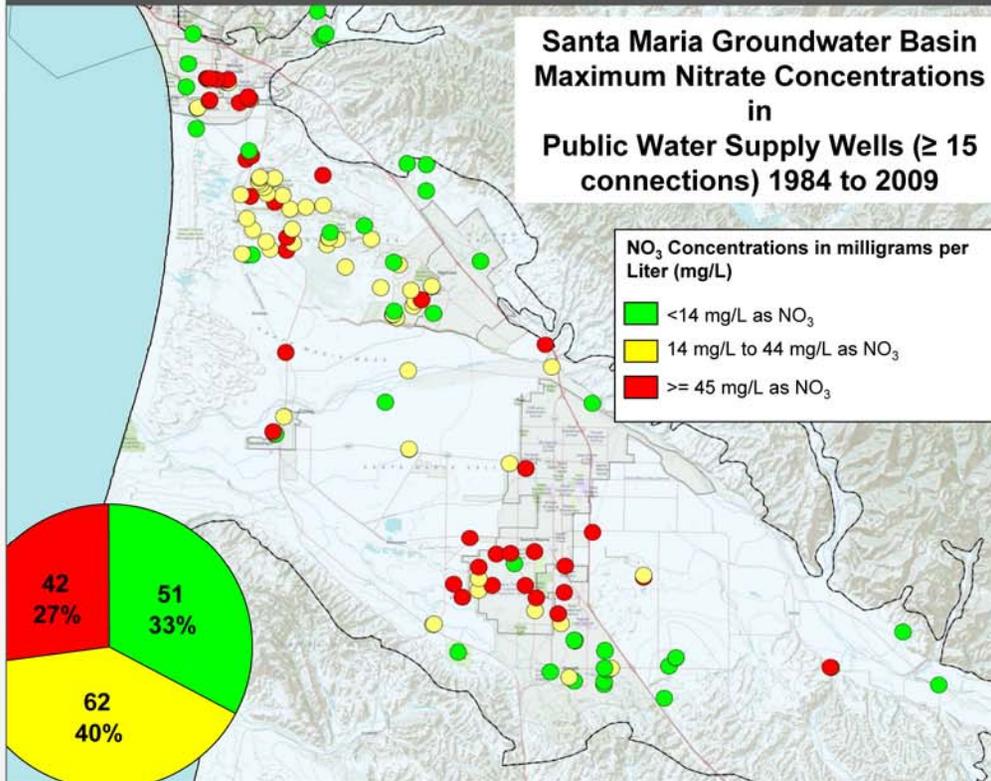
May 12, 2010

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# MISREPRESENTED DATA

## Santa Maria Area

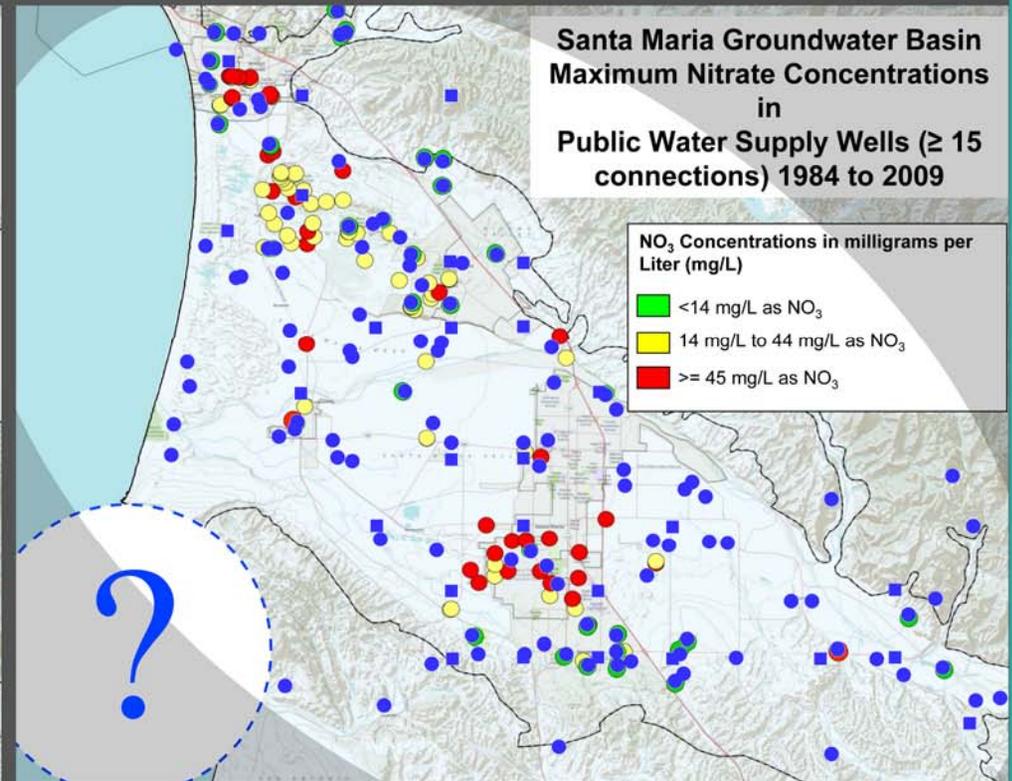
Staff Map



Source: Region 3 Staff Report

Staff Map = 155 Wells

Staff Map with GAMA Overlay



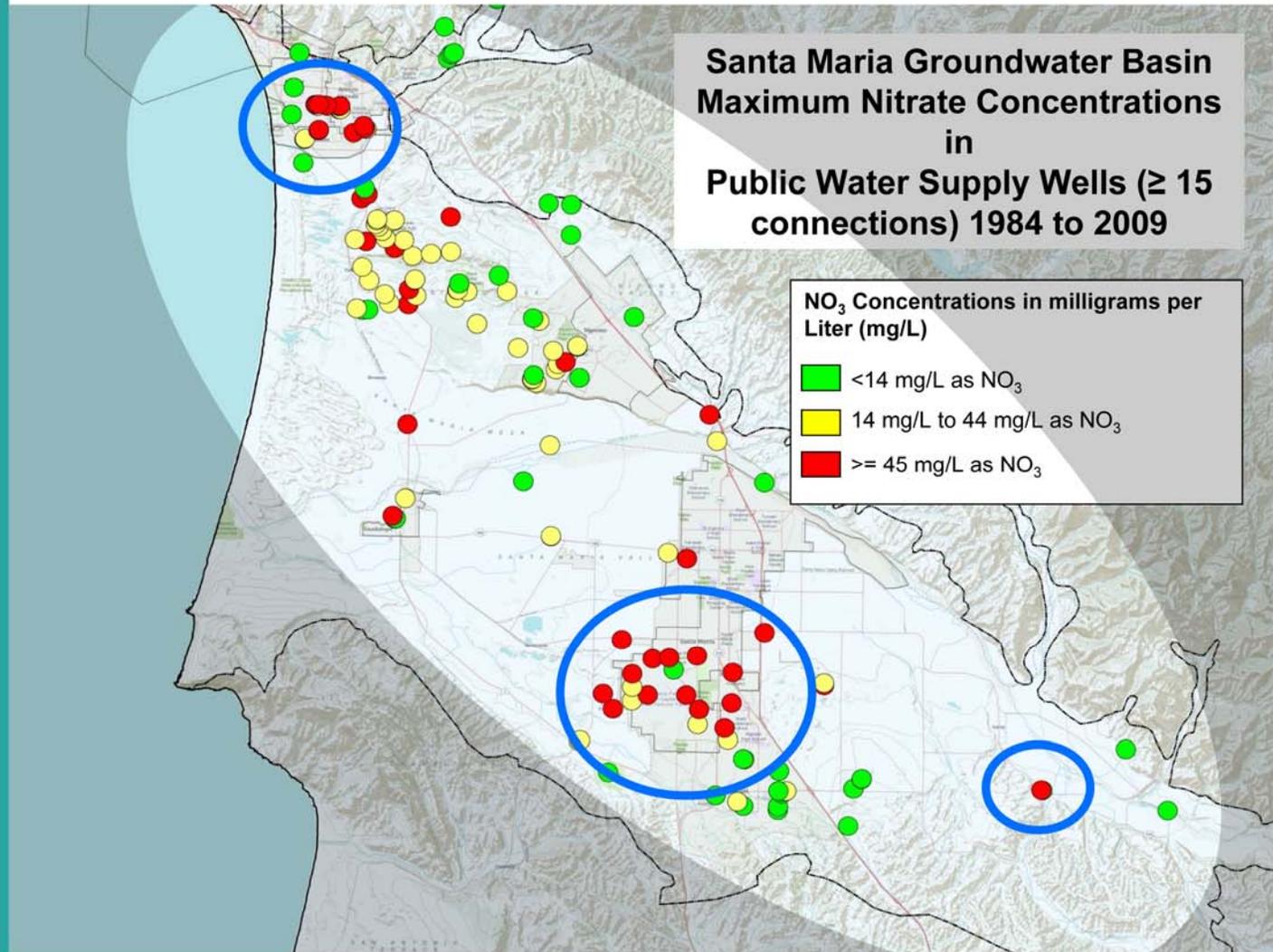
Source: State Water Board  
GeoTracker/GAMA Database

GAMA Well Count = 266 Wells

# LET'S TAKE A CLOSER LOOK

We have taken a closer look at three areas in this map of the Santa Maria Groundwater Basin:

- Arroyo Grande
- Sisquoc
- Southern Santa Maria

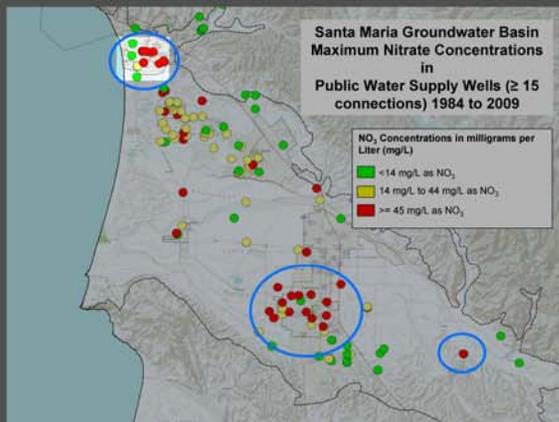
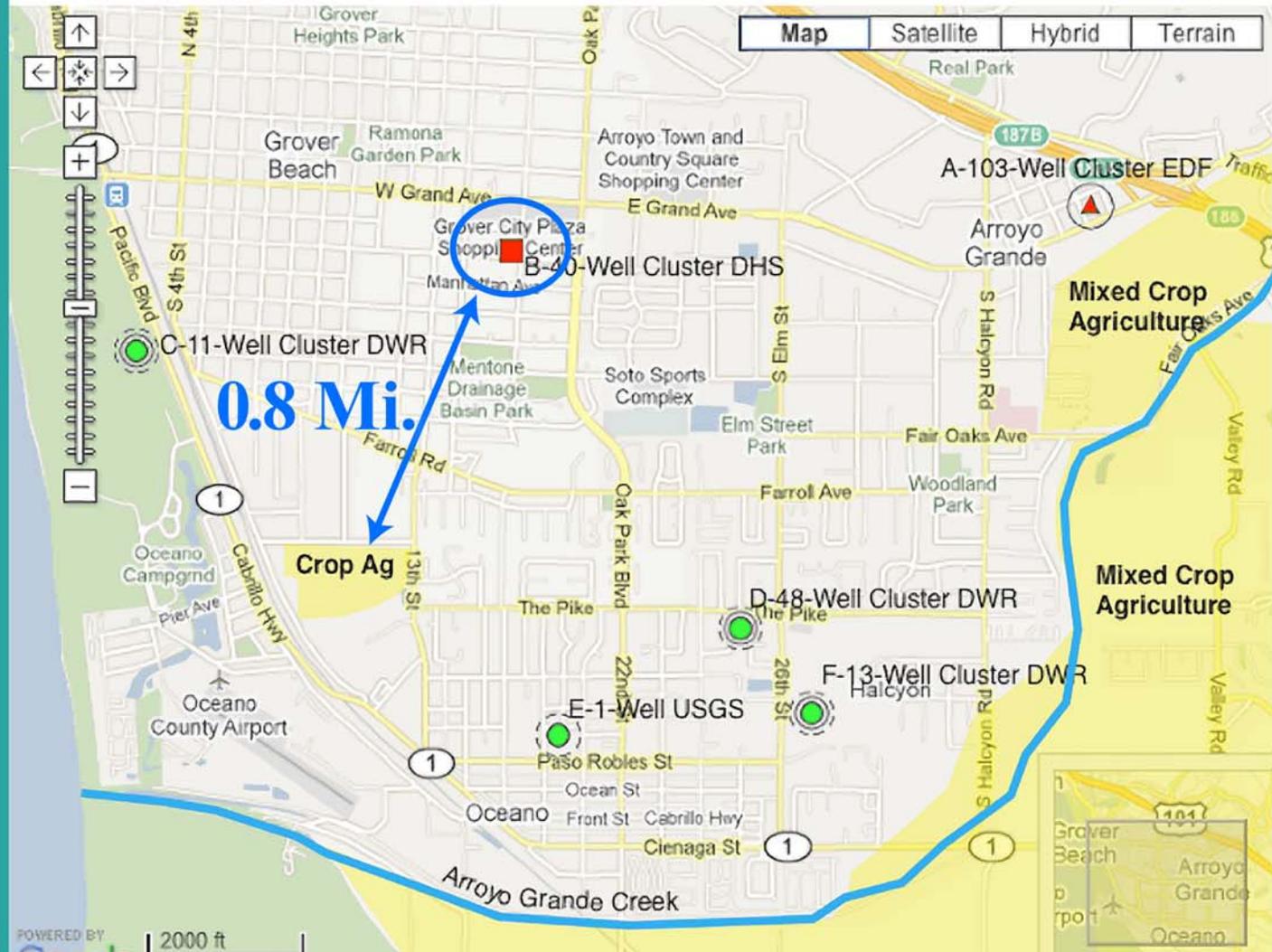


Source: Region 3 Staff Report

# ARROYO GRANDE – URBAN SOURCES

All but one exceedence well are located in this cluster deep in city limits – almost a mile from the closest ag land.

The wells are adjacent to a regional shopping mall.



- Supply Wells - CDPH
- Supply Wells - Other
- ▲ Monitoring Wells - Regulated Sites

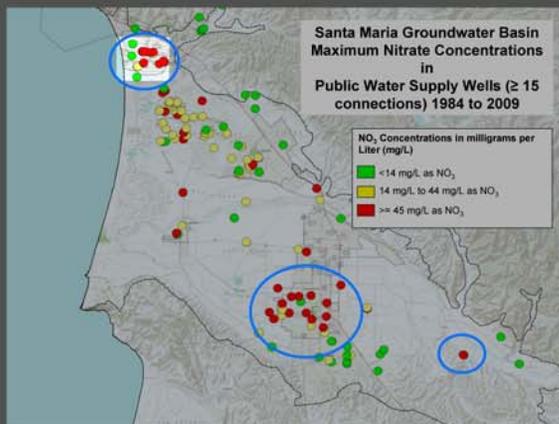
Source: GeoTracker/GAMA

# ARROYO GRANDE – OTHER POSSIBLE CAUSES

The nearby EPA urban monitoring well is located near:

- a cemetery
- leaking underground tanks
- a landscape supply yard
- Highway 101
- a schoolyard

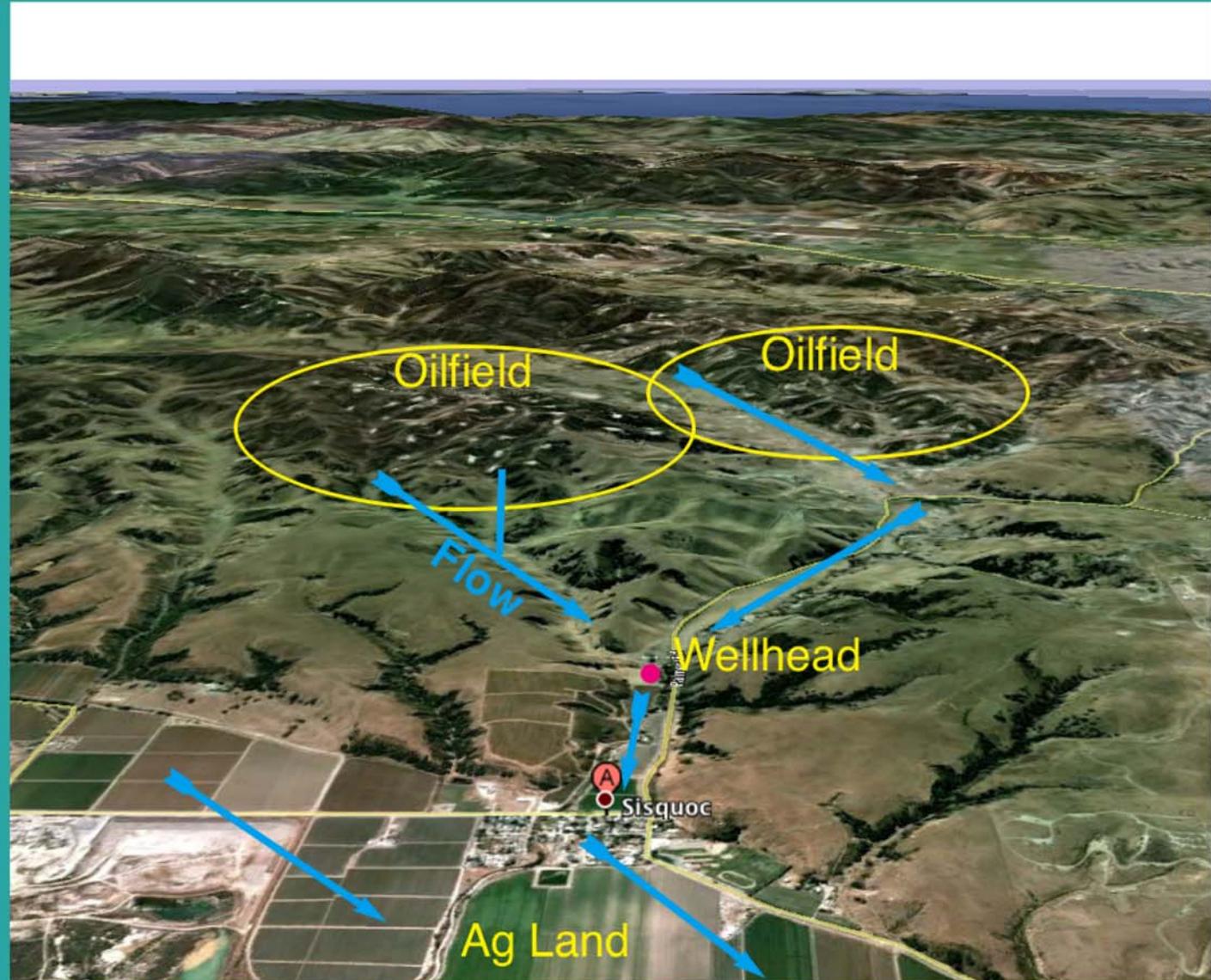
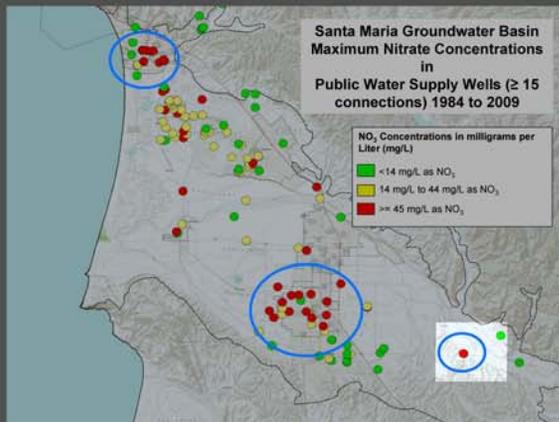
All possible sources.



Source: GeoTracker/GAMA, Dolezal Consulting

# SISQUOC – MORE CAUSES

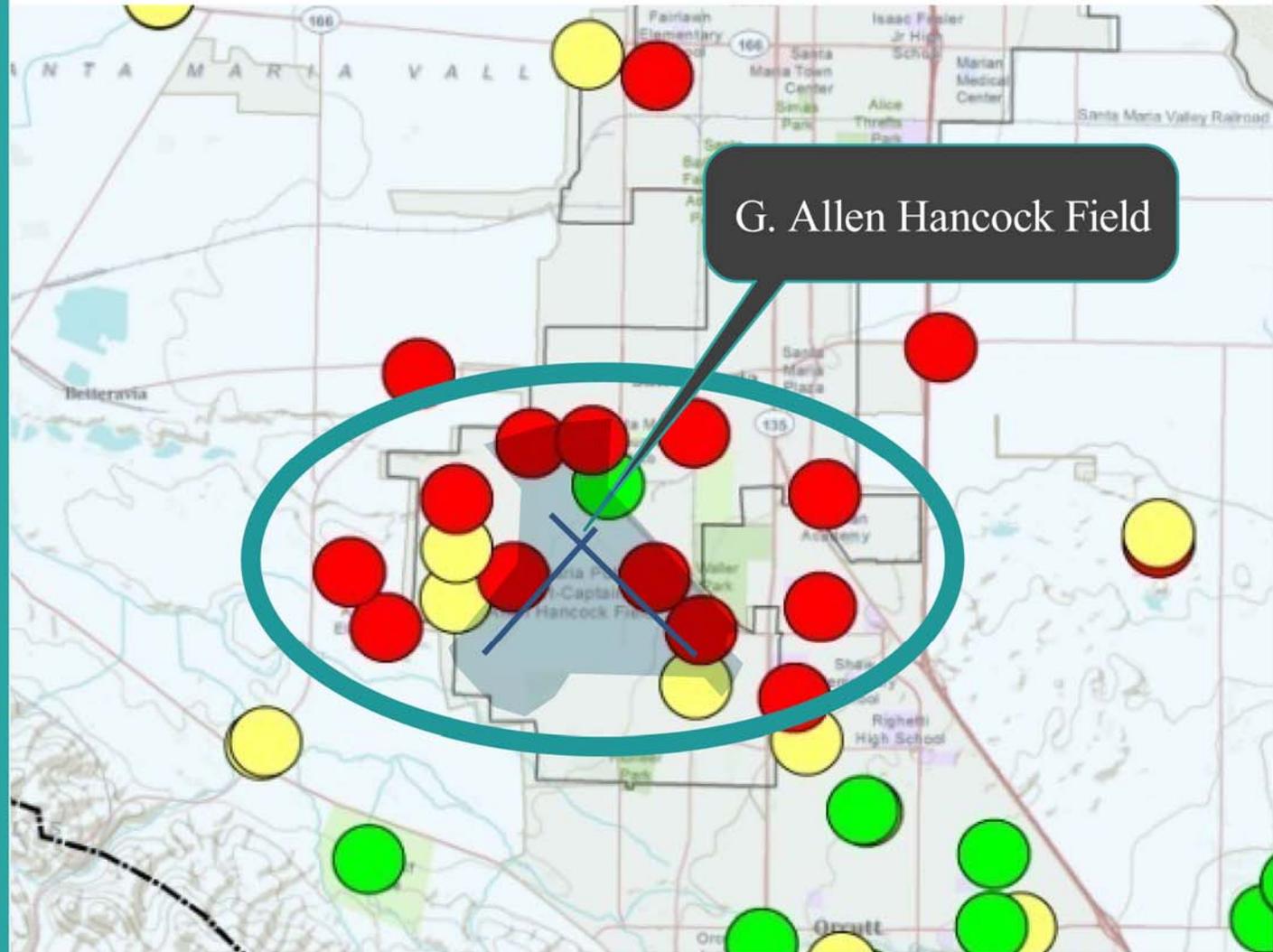
At the south end of the basin, the tiny hamlet of Sisquoc has just one exceedence cluster. It is located directly downstream from a oil production site, and upstream from ag land.



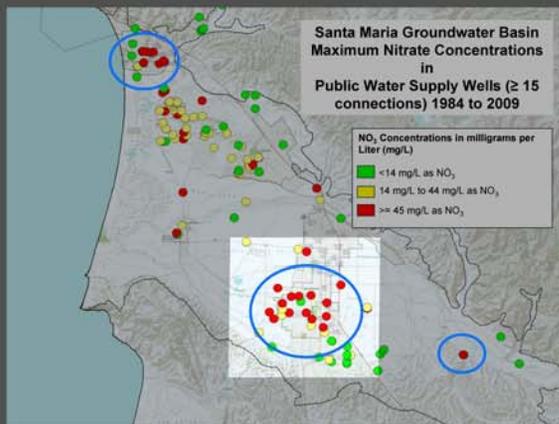
Source: Dolezal Consulting

# SANTA MARIA – HISTORIC CAUSES

In Santa Maria, a former WWII Army airfield lies directly in the center of the red dot array from the Region 3 Staff-created map. Yet there is no indication from them about possible alternate causation.



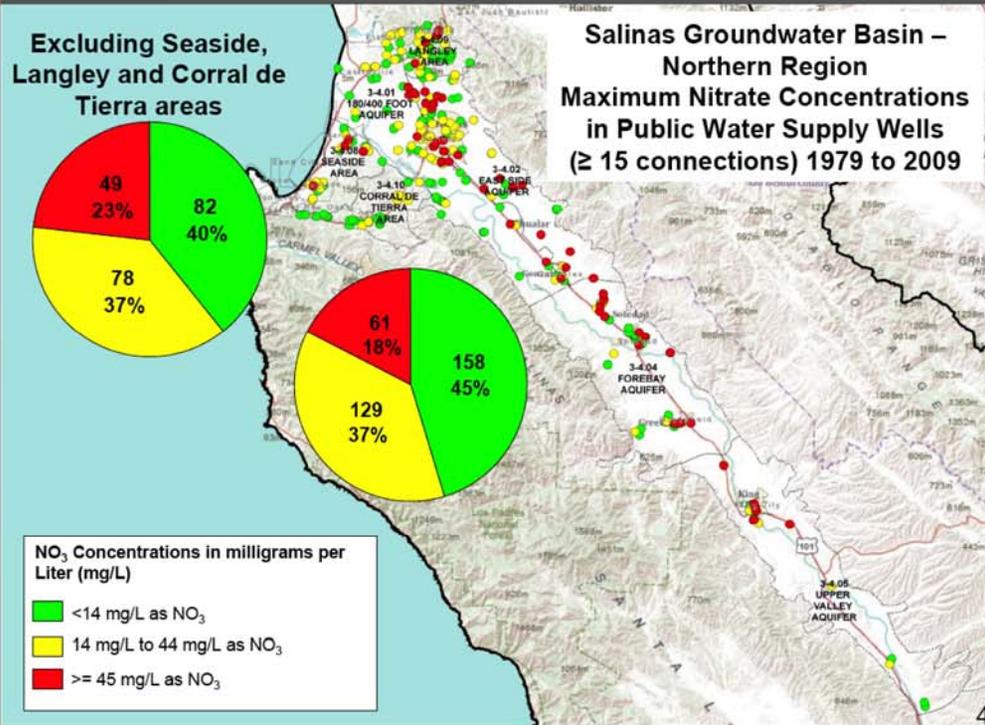
Source: Region 3 Staff Report, Google Maps



# MISREPRESENTED DATA

## Salinas Valley Groundwater Basin

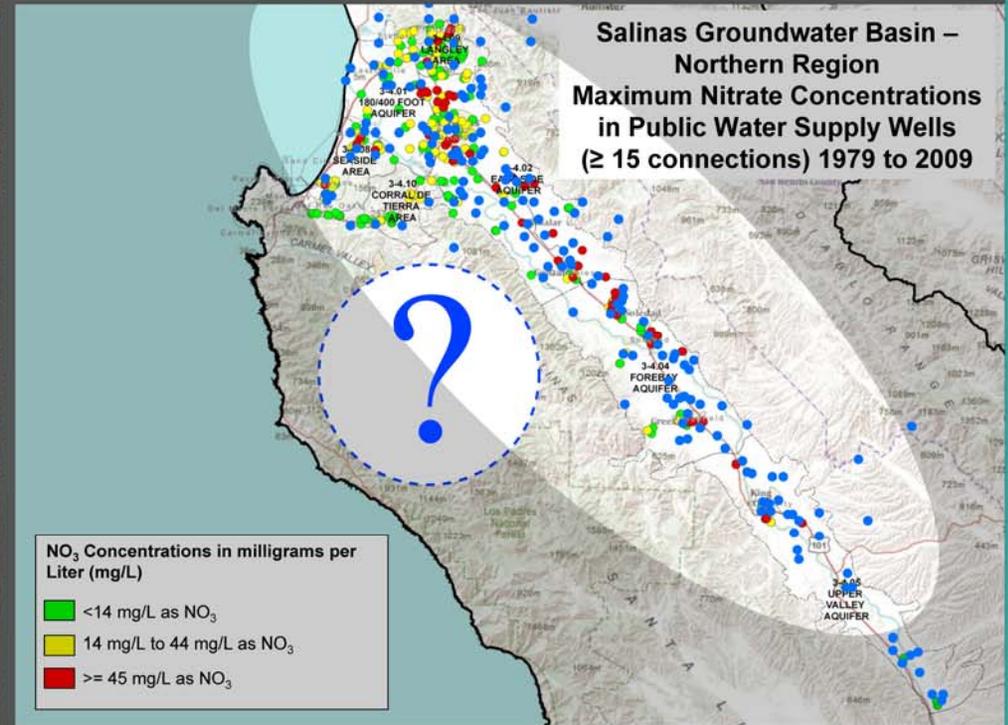
Staff Map



Source: Region 3 Staff Report

Staff Map = 348 Wells

Staff Map with GAMA Overlay



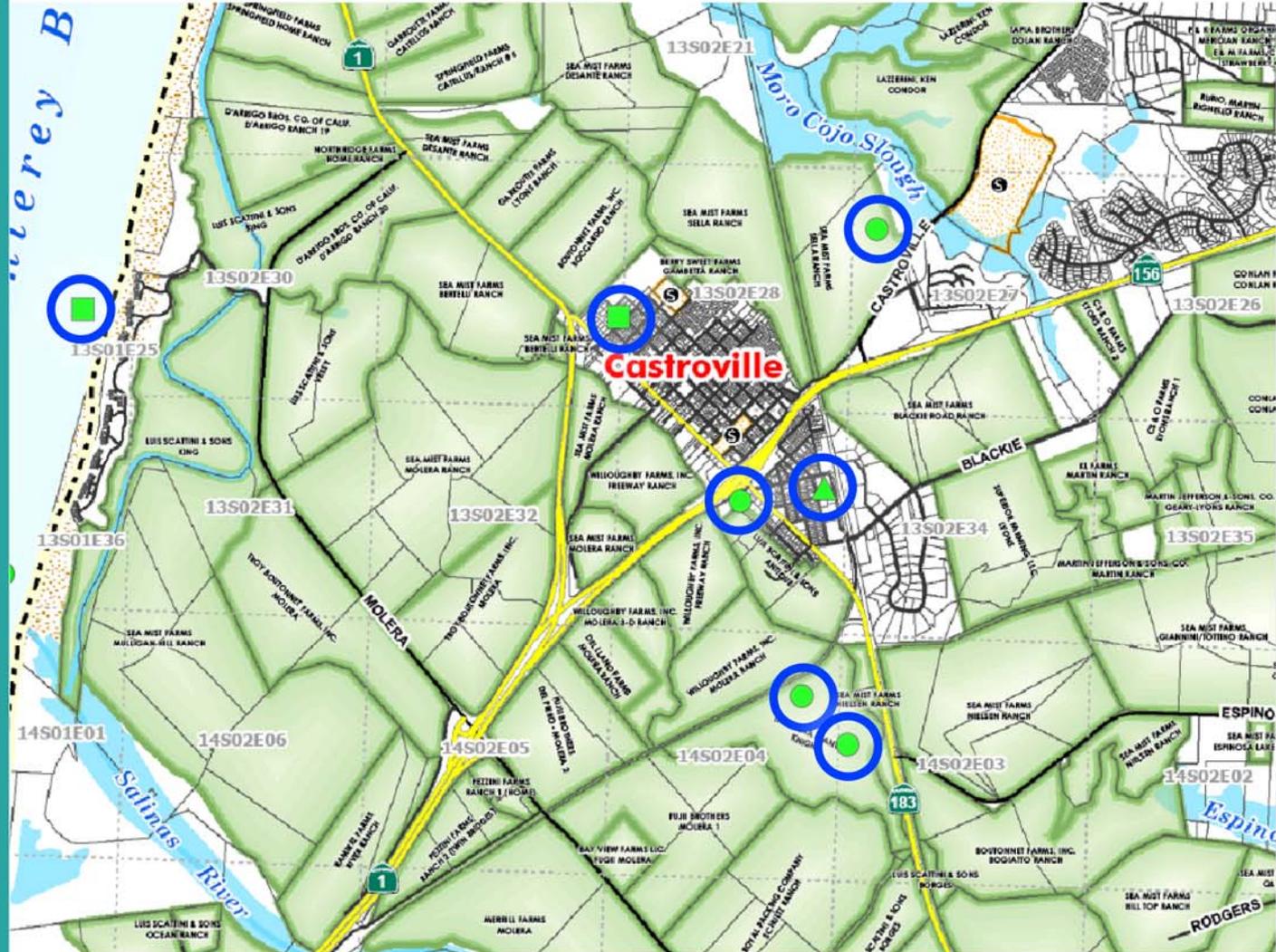
Source: GeoTracker/GAMA

● = GeoTracker/GAMA Well Locations

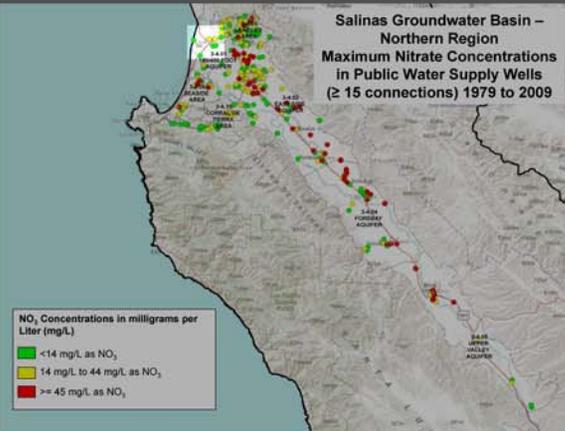
GAMA Well Count = 953 Wells

# CASTROVILLE – ALL CLEAR

Castroville lies at the terminus of Salinas Valley watersheds and aquifers. It is totally surrounded by farm land. Yet there are no GAMA exceedence wells in the area.



- Supply Wells - CDPH
- Supply Wells - Other
- ▲ Monitoring Wells - Regulated Sites



Source: GeoTracker/GAMA, Monterey County Agricultural Commissioner

# DISGUIISING OLD DATA

## 1978

"Agricultural land use activities contribute the largest quantity of nitrogen...in both valleys (Pajaro/Salinas)" " **...other land use... may have a more severe impact...**"

Original Source – 1978 AMBAG Nonpoint Study

Agricultural land use activities contribute the largest total quantity of nitrogen and dissolved solids waste loads in both valleys. Unit per acre emissions of these constituents, however, are significantly higher for animal husbandry operations, municipal wastewater disposal systems, and septic tank disposal systems. Therefore, although agriculture is the most widespread nonpoint source of groundwater pollution other land use activities may have a more severe impact on local groundwater quality in the study areas.

Nonpoint Sources of Groundwater Pollution in Santa Cruz & Monterey Counties, California, pgs. 10, 5-19 (H. Eismali & Assoc., October, 1978)

AMBAG Report

## 1990

"...In the Salinas Valley...agricultural operations represent the greatest potential source of nitrate contamination..."

– Reference from 1978 AMBAG Nonpoint Study

### 3.1 Agricultural Activities

It is generally recognized that agricultural operations represent the greatest potential source of nitrate contamination. In the Salinas Valley, 83% of the total nitrogen load is from this source (AMBAG, 1978a), and efforts to reduce nitrate loading from this category should receive the highest priority. This is the area that has also received the least attention since release of the Water Quality Plan in 1978.

Report of the Ad Hoc Salinas Valley Nitrate Advisory Committee, pg. 3-1 (Nov. 1990)

Ad Hoc Report

## Staff 2011

"...throughout the Central Coast Region... irrigated agriculture is the largest primary source of nitrate pollution ..."

Footnoted Source – 1990 Ad Hoc Report

6. Nitrate pollution of drinking water supplies is a critical problem throughout the Central Coast Region. Studies indicate that fertilizer from irrigated agriculture is the largest primary source of nitrate pollution in drinking water wells and that significant loading of nitrate continues as a result of agricultural fertilizer practices<sup>1</sup>. Researchers estimate that tens of millions of pounds of nitrate leach into groundwater in the Salinas Valley alone each year. Studies indicate that irrigated agriculture contributes approximately 78 percent of the nitrate loading to groundwater in agricultural areas<sup>2</sup>. Hundreds of drinking water wells serving thousands of people throughout the region have nitrate levels exceeding the drinking water standard<sup>3</sup>. This presents a significant threat to human health as pollution gets substantially worse each year, and the actual numbers of polluted wells and people

<sup>1</sup> Cade, S.F., H.K. Esser, J.E. Moran. High Resolution Simulation of Basin Scale Nitrate Transport Considering Aquifer System Heterogeneity. Geosphere, June 2006, v.2, no. 4, pg. 190-209.

<sup>2</sup> Monterey County Flood Control and Water Conservation District. "Report of the Ad Hoc Salinas Valley Nitrate Advisory Committee." Zidar, Snow, and Mills, November 1990.

<sup>3</sup> California Department of Public Health Data obtained using GeoTracker GAMA (Groundwater Ambient Monitoring and Assessment) online database, <http://geotracker.waterboards.ca.gov/gama/>.

DRAFT ORDER NO. R3-2011-0006: CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS, pg. 2 (March, 2011)

Draft Order

1978

33 Years

2011

# THE MESSAGE MORPHS

**1978**

**2011**

Nitrogen Source



Nitrate Groundwater  
Pollution

Pajaro & Salinas



Region 3

Other Causes



Ag Only Cause

Ag “Contributes”



Ag “Primary Source”

# CONCLUSIONS

Based on the data sampled:

- Draft Order's Findings Not Supported by Staff's Evidence and Information
- Evidence and Data Cited In the Draft Order Should Receive Further Independent Review
- Board Should Obtain Independent Review of ALL Findings and Information Supporting the Findings

# Legal & Policy Concerns

Mr. William Thomas

- Best, Best & Krieger

Ms. Kari Fisher

- California Farm Bureau Federation



# General Concerns

- Concerns with Nitrate Loading Risk
- Problems with Tiers
  - Arbitrary Criteria
  - Prescriptive Requirements for Tiers 2 & 3
  - New Requirement for location near “public water system” well
- Tile Drains are Important
- Unlawfulness of Buffer and Nitrate Requirements



# Significant New Requirements of Concern

- Transforms Notice of Intent to Report of Waste Discharge
  - Potential Fee Implications
  - No Explanation or Reason Provided
- Expands Executive Officer Discretion to Make Changes Without Board Approval
  - Updates to Tiering Criteria
  - Additional Monitoring and Reporting Requirements
- New Stormwater Requirements
- New Riparian Vegetation Requirements



# Examples of Additional Concerns

- CEQA Compliance for March 2011 Draft
- May require lining of retention ponds
- Groundwater and Individual Discharge Monitoring Requirements
- Unreasonable Compliance Schedules & Milestones



# False Impression of Phased Approach

- Conditions apply immediately, including immediate compliance with water quality standards
- Growers may be subject to immediate enforcement for failure to comply
- Draft Order response – Water Board withhold enforcement



# Third Party Group Alternative

- Ms. Tess Dunham
  - Somach Simmons & Dunn
  - Representing newly formed Farmers for Water Quality
- Ms. Abby Taylor-Silva
  - Vice President, Grower-Shipper Association of Central California
  - President, newly formed Farmers for Water Quality



# Third Party Group Alternative

“Dischargers may comply with this Order by participating in third-party groups (e.g., watershed group or water quality coalition).”

(Draft Order March 2011, paragraph 10, page 12.)



# Setting Up the Alternative

## Example of New Proposed Order Provision

**Within 90 days** of adoption of this Order, or as otherwise allowed by this Order, Dischargers may indicate their intent to join in a third party group that meets the requirements specified in **Attachment B**. If a Discharger elects to join a third-party group that meets the requirements of **Attachment B** of this Order, then the additional conditions identified in Parts \_\_ and \_\_ below and other conditions specified for application to Tier 2 and/or Tier 3 Dischargers are no longer applicable. The general conditions that apply to all dischargers, Tier 1, tier 2 and Tier 3 as expressed in Parts --, -- and – would continue to apply.



# Proposed Attachment B

- Logical Outgrowth of December Ag Proposal
- Implements Draft Order Finding
- Revised to fit within Draft Order Format
- Simplifies some Requirements, Clarifies Others
- Clarifies Accountability



# Third Party Group Terms & Conditions

## For the Participants:

- Identify risks of operation for four categories: toxicity in irrigation runoff, toxicity & sediment in stormwater, nutrients in irrigation runoff, nitrate leaching to groundwater
- Implement Management Practices to achieve BPTC for those areas with medium & high risk determinations
- Be subject to audit evaluation of enhanced Farm Plan & Management Practices being implemented
- Amend Farm Plan and implement management practices based on result of audit
- Be subject to termination if fail to amend Farm Plan and fail to implement management practices



# Enhanced Farm Plans

- Irrigation Management Practices
- Pesticide Management Practices
- Sediment Management Practices
- Nutrient Management Practices



# Third Party Group Terms & Conditions

For the Third Party Group:

- Submit Notice of Intent To Be Recognized Third Party Group
- Notice of Applicability (NOA) must be issued by Executive Officer
- Within 6 months of receipt of NOA submit General Report outlining process & priorities for audits
- Audit **all participants** within term of Order
- Submit Annual Reports to RWQCB
- Terminate and Report Terminations to RWQCB for Participants not implementing management practices in good faith



# Other Third Party Group Functions

- Work with Participants to provide technical services
- Assist Participants in updating Farm Plans and implementing appropriate management practices
- Encourage and provide assistance for implementing Collective Treatment Systems
- Conduct educational workshops for Participants
- Collaborate with the research community.



# Annual Report Elements

- Names of Participants in good standing
- Number of operations audited in that 12-month period
- Identification of watersheds and/or sub-watersheds where audits were conducted
- Aggregated summary of audit results (e.g., % of operations implementing appropriate management practices)
- General summary of assistance provided to Participants.
- Summary of any educational workshops conducted, and provide list of Participants in attendance
- Summary of any other activities conducted by third party group towards the improvement of water quality (e.g., development of collective treatment systems)



# Complies with Porter-Cologne

- Includes conditions on Participants & 3<sup>rd</sup> Party Groups
- Includes monitoring of Management Practice Implementation
- Maintains Surface Water Monitoring Program
- Includes Reporting Requirements for 3<sup>rd</sup> Party
- Works towards compliance with Water Quality Standards through implementation of management practices
- Requires implementation of management practices, with assistance to operators



# Includes Accountability

- Third Party group(s) must be approved
- Third Party must submit General Report for approval
- Third Party must submit Annual Reports
- Third Party must terminate participants not implementing practices in good faith
- Third Party may be terminated for failing to meet requirements
- Third Party must audit all participants.



# Why Better Than Draft Order...

- 1) Provides for actual review of all Participating operations v. random RWQCB inspections
- 2) Requires implementation of management practices to be in 3<sup>rd</sup> Party Group v. paper reporting to RWQCB
- 3) Provides assistance & resources to operations that need assistance v. immediate enforcement action
- 4) 3<sup>rd</sup> Party Group likely to have more credibility with Participants v. RWQCB as the regulator
- 5) Outcome is water quality improvement v. prescriptive regulatory program



# Agriculture's Position

- Supports clean water in Region 3.
- Does not accept or endorse staff's March 2011 draft order.
- Supports the third-party alternative.

