



RWQCB Workshop on Updated Agricultural Order

Monterey County Water Resources Agency

July 8, 2010

Watsonville, CA



Recommendation

- Long-Term Strategy – Improve Water Quality
- Determine Best Method for Success
 - Shared vision for attainable metrics
- 2030 Horizon
 - Five year increments with attainable milestones and methods



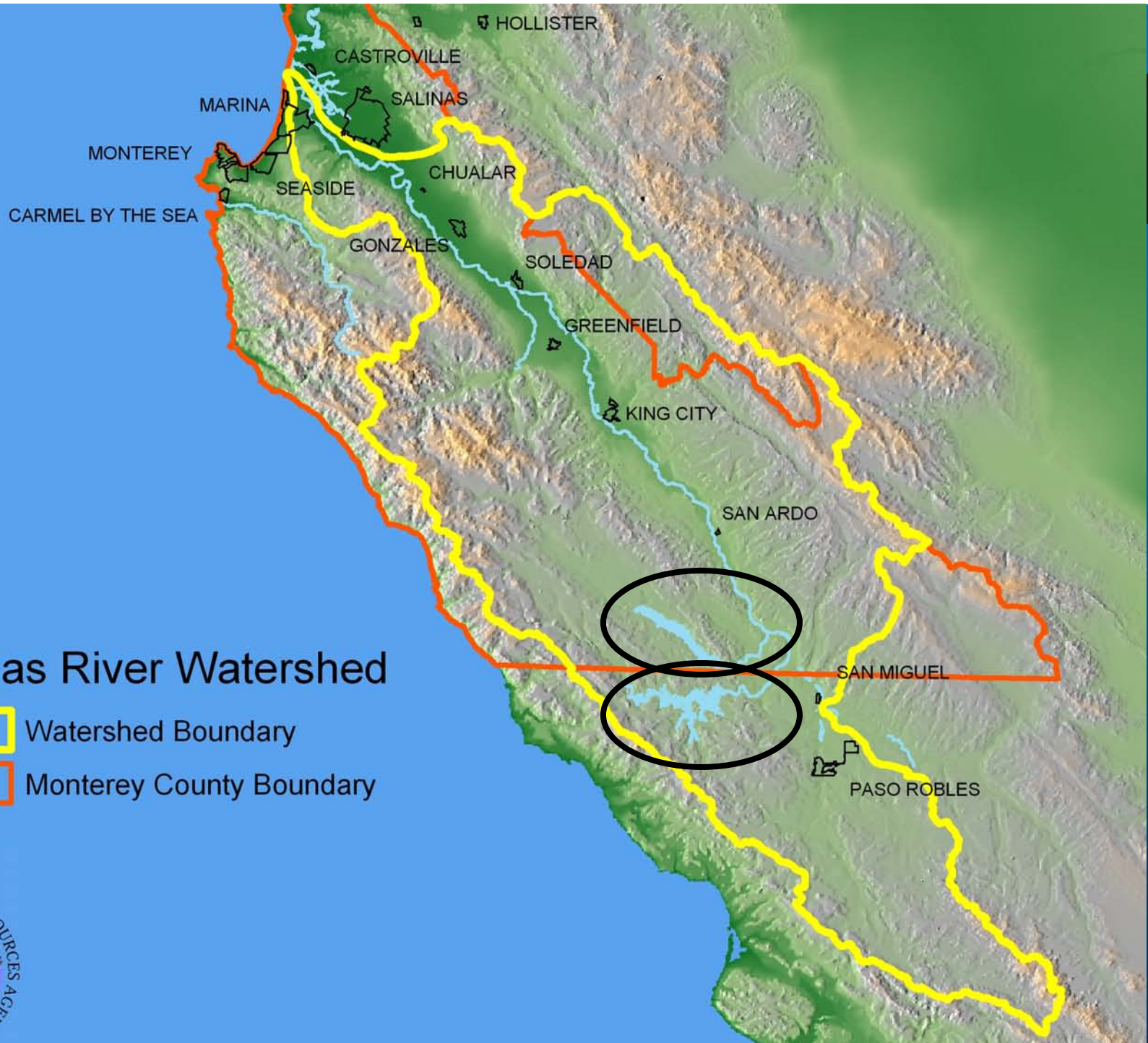
MCWRA Recommendation Basis

- Agency Success with Past Partnerships
 - Salinas Valley
 - SWRCB & RWQCB
- Importance of Successful Future Partnerships





Projects & Programs

- **Nacimiento and San Antonio Dams**
- **Monterey County Recycling Projects**
- **Salinas Valley Water Project**
- **50+ years of working together to solve problems**
- **Nitrate Management**
- **Groundwater monitoring**



Salinas River Watershed

-  Watershed Boundary
-  Monterey County Boundary



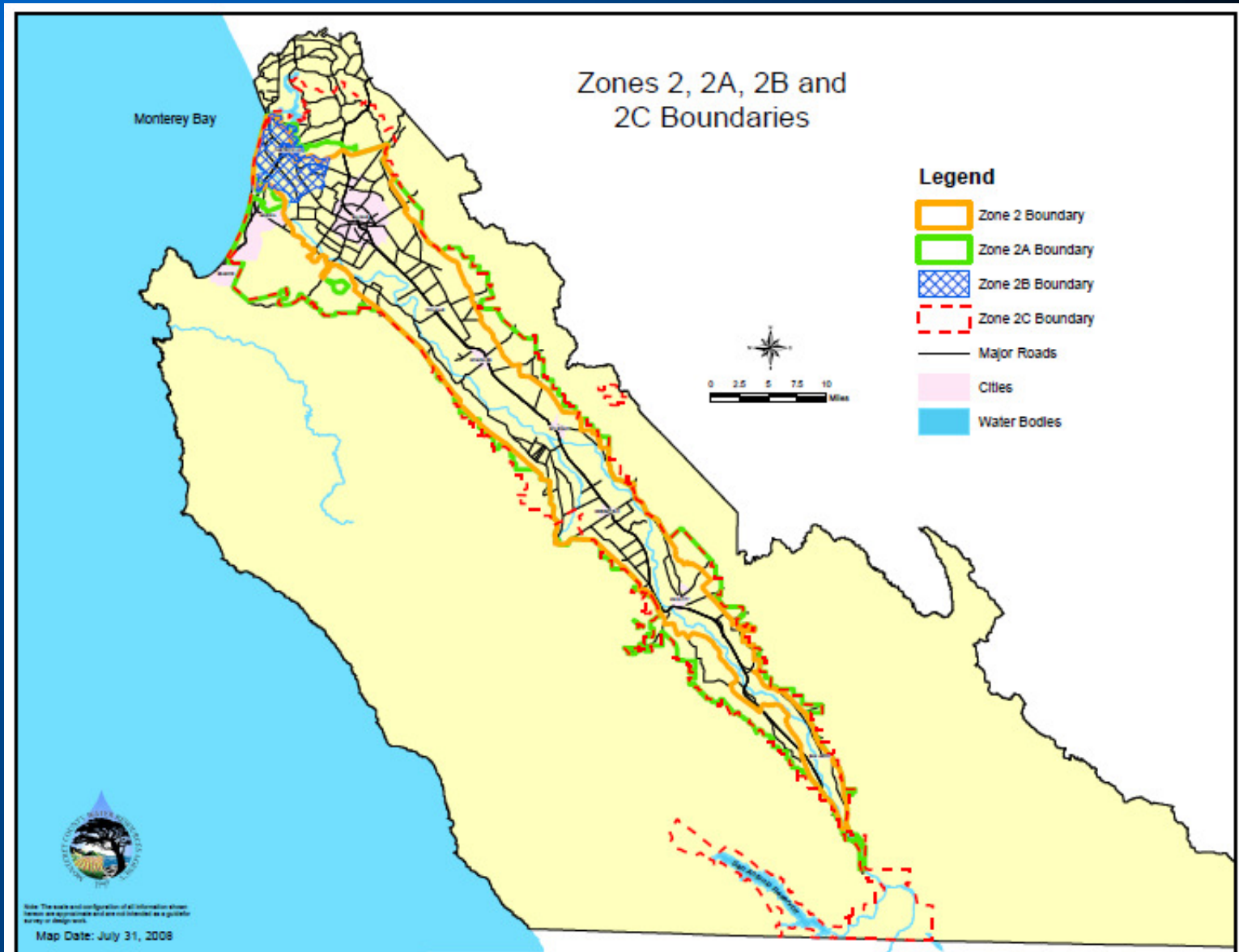


Salinas Valley MCWRA Zone Boundaries

>200,000
irrigated
acres

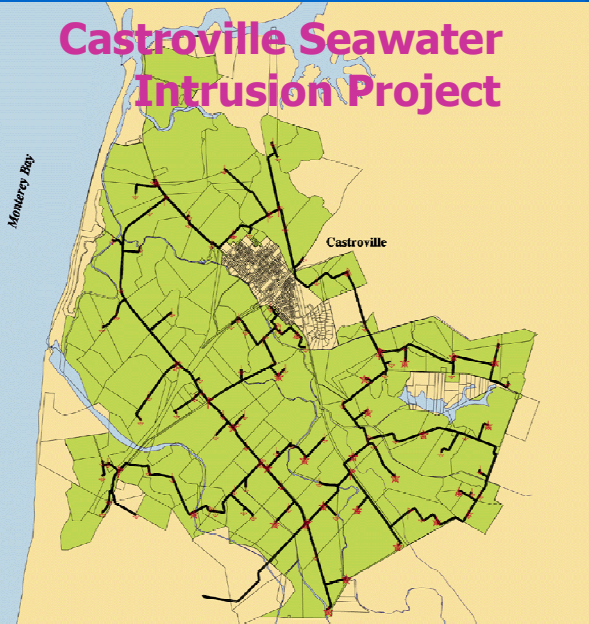
Water source
98% ground
water

Four major
hydrologic
subareas

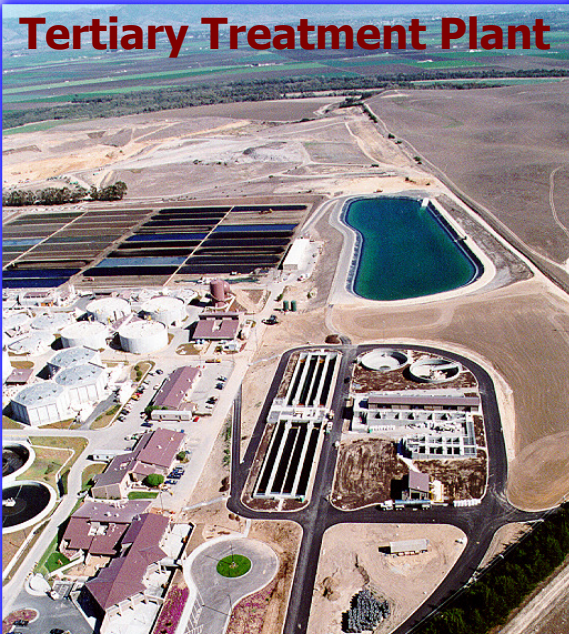


Monterey County Recycling Projects

Castroville Seawater Intrusion Project



Tertiary Treatment Plant



Dams

Nacimiento Dam



San Antonio Dam

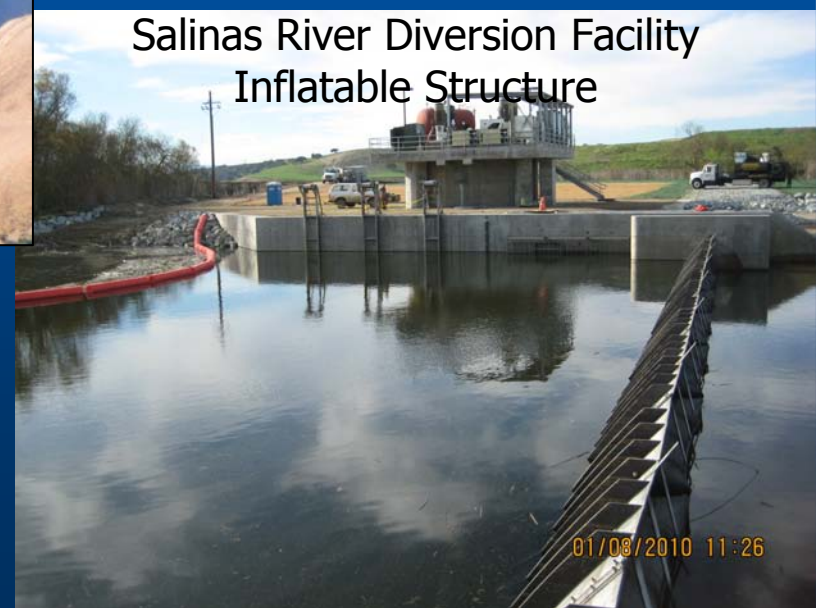


Salinas Valley Water Project

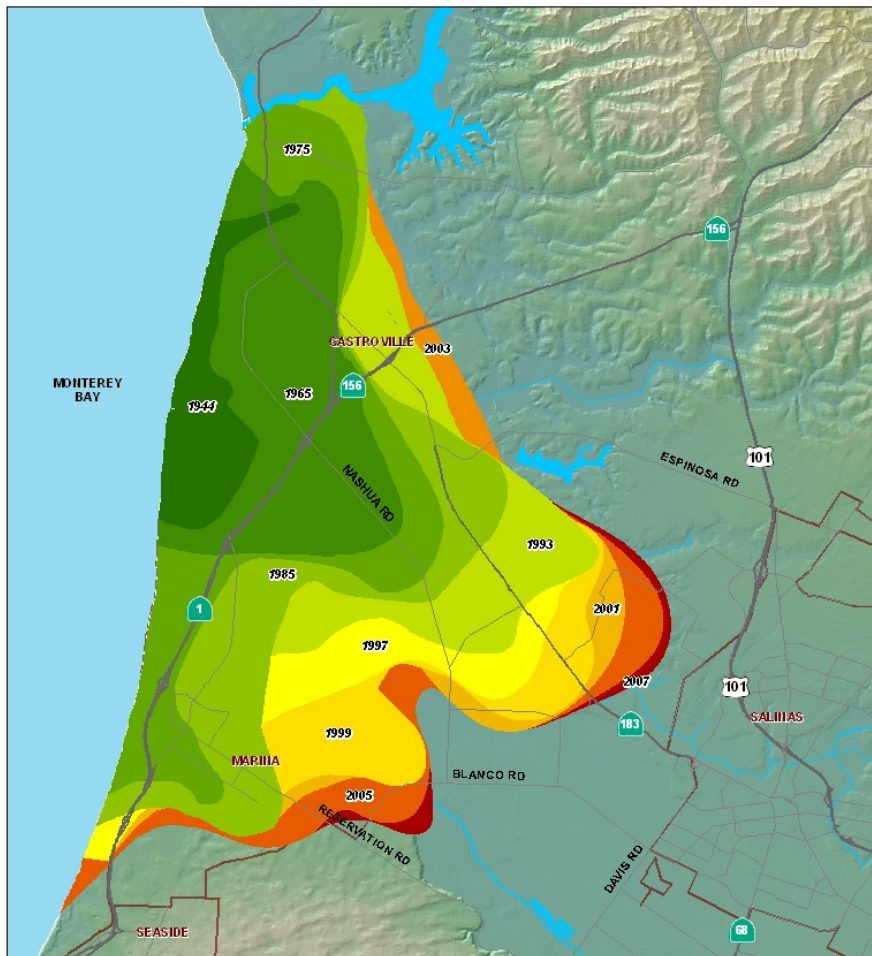
Spillway Modification Flood Storage Dam Protection



Salinas River Diversion Facility Inflatable Structure



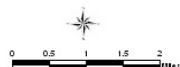
Halting Seawater Intrusion



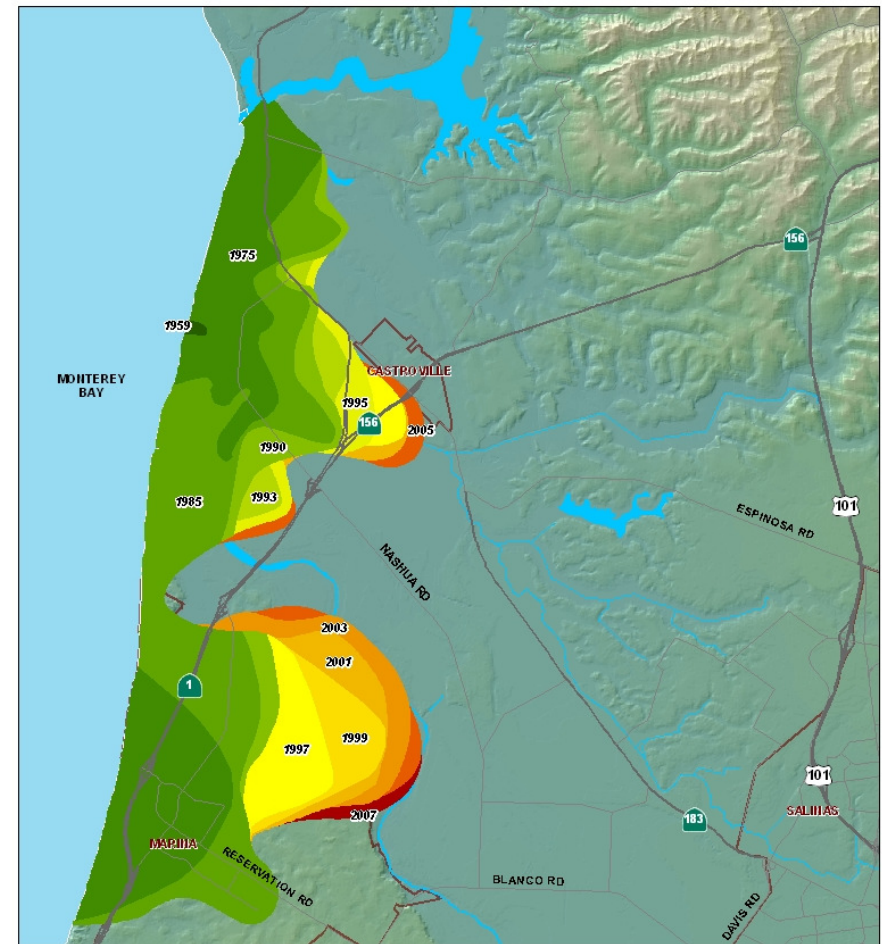
Historic Seawater Intrusion Map
Pressure 180-Foot Aquifer - 500 mg/L Chloride Areas

Legend

Seawater Intruded Areas By Year




Note: The colored boundaries of all administrative areas are approximate and are not intended to guide the reader in design work.
 Map Date: August 26, 2009



Historic Seawater Intrusion Map
Pressure 400-Foot Aquifer - 500 mg/L Chloride Areas

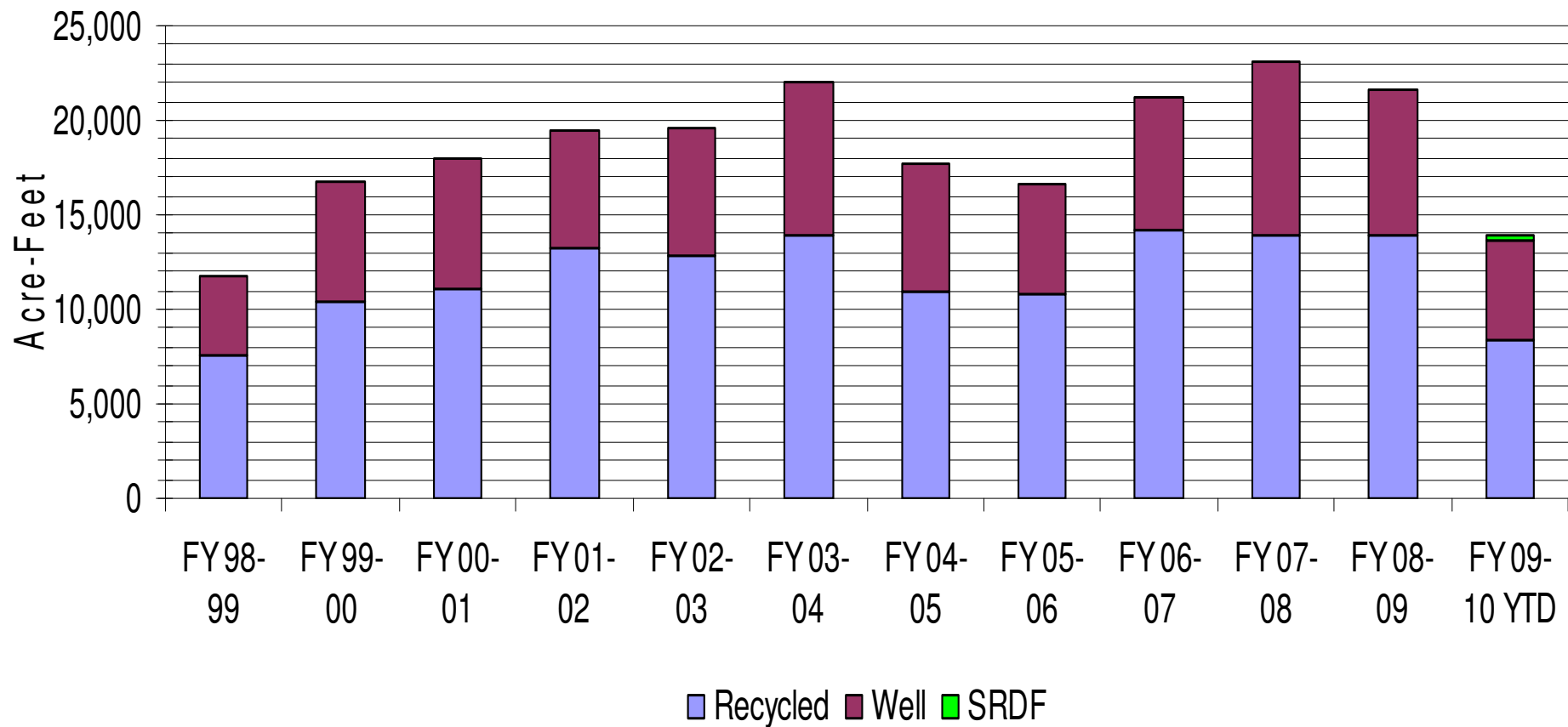
Legend

Seawater Intruded Areas By Year




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Water Deliveries – Monterey County Water Recycling Projects & Diversion Facility



Reduce Coastal Pumping = Halt Seawater Intrusion



Programs

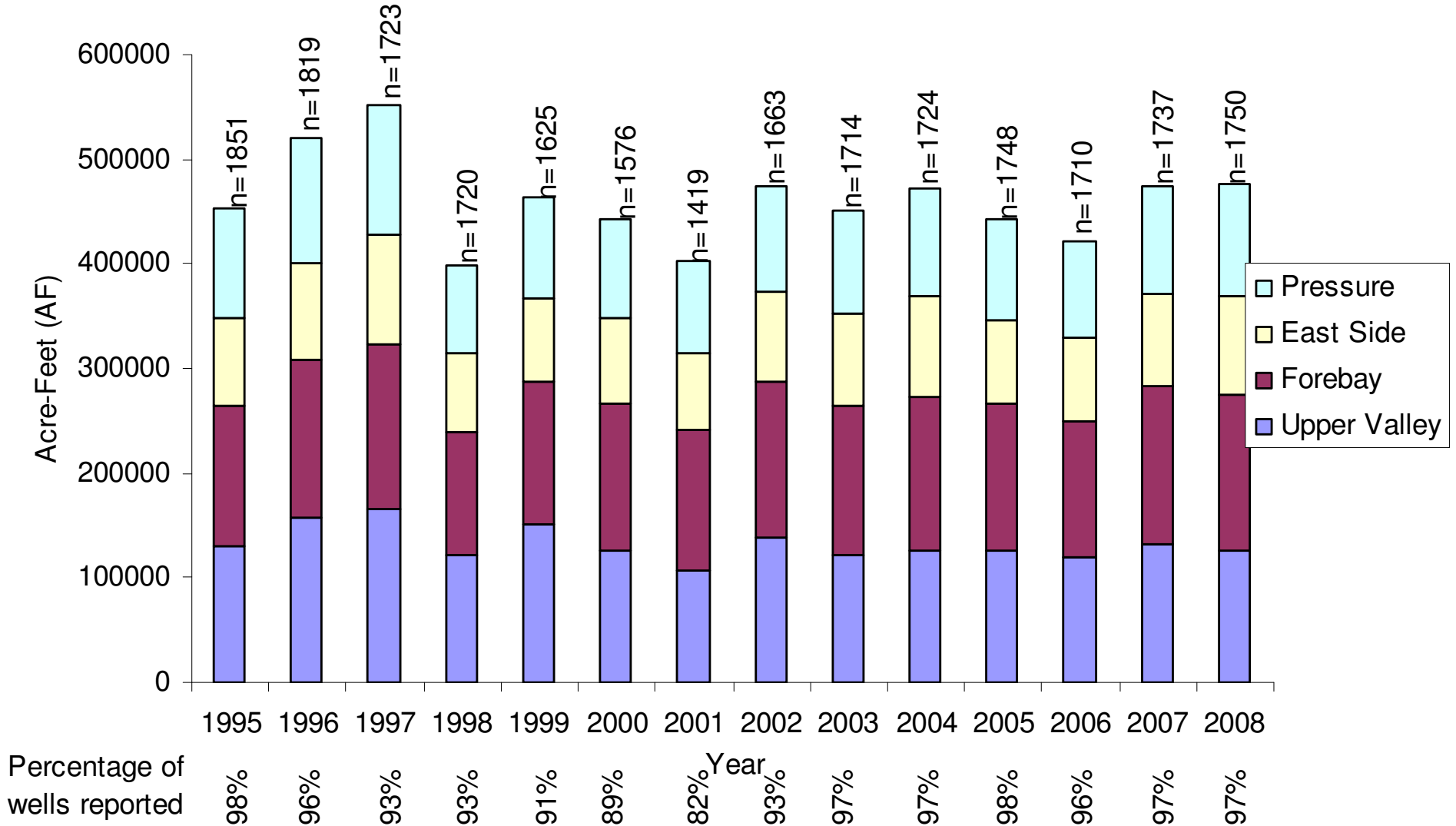
- Ag. & Urban Pumping/Extraction and Water Conservation Reporting
- Ground Water Quality Monitoring
- Ground Water Level Monitoring



Ground Water Extraction Long-Term Reporting Salinas Basin

2008 95% Reporting of >1700 Ag. Wells

Annual Ground Water Extractions in Salinas Basin



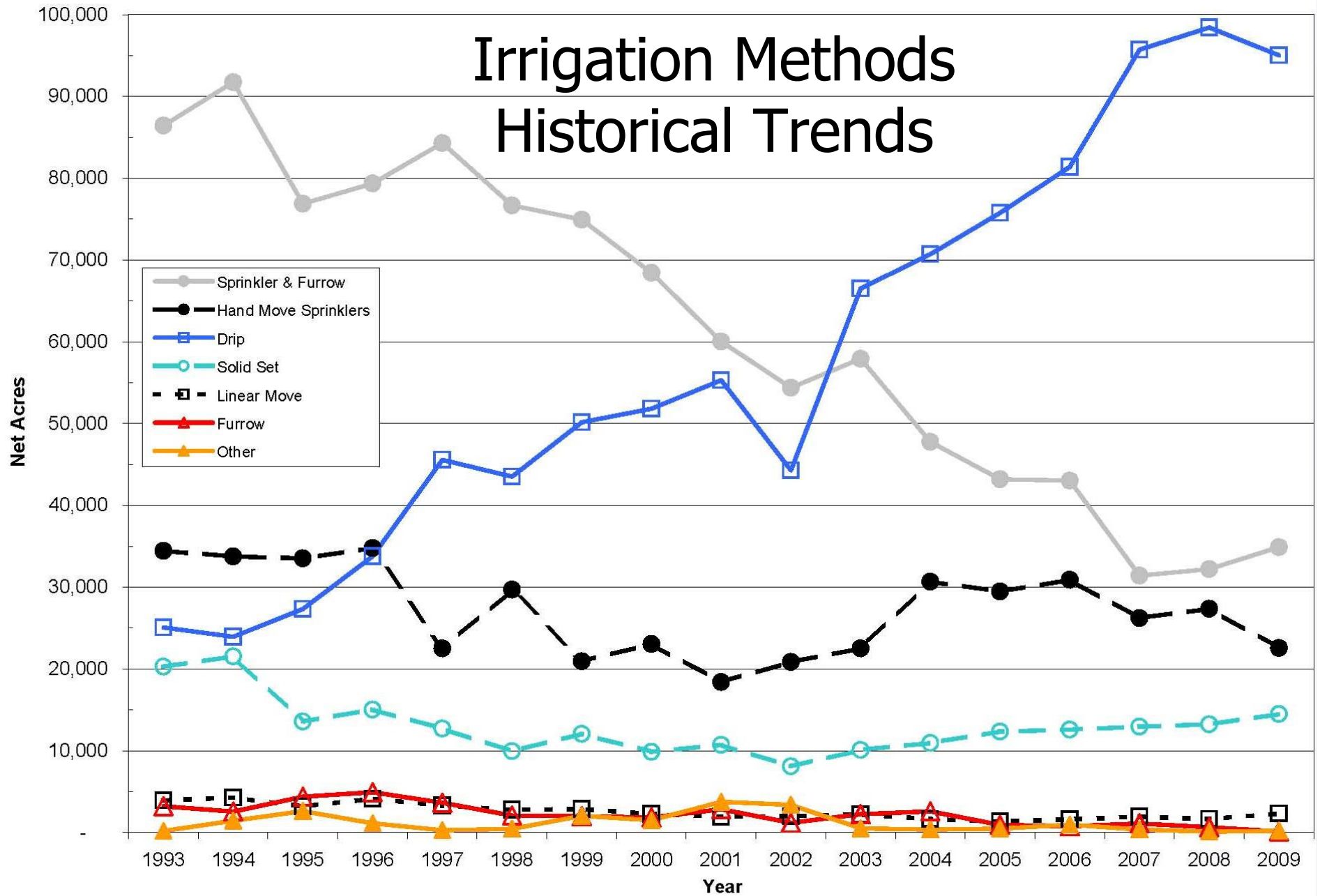


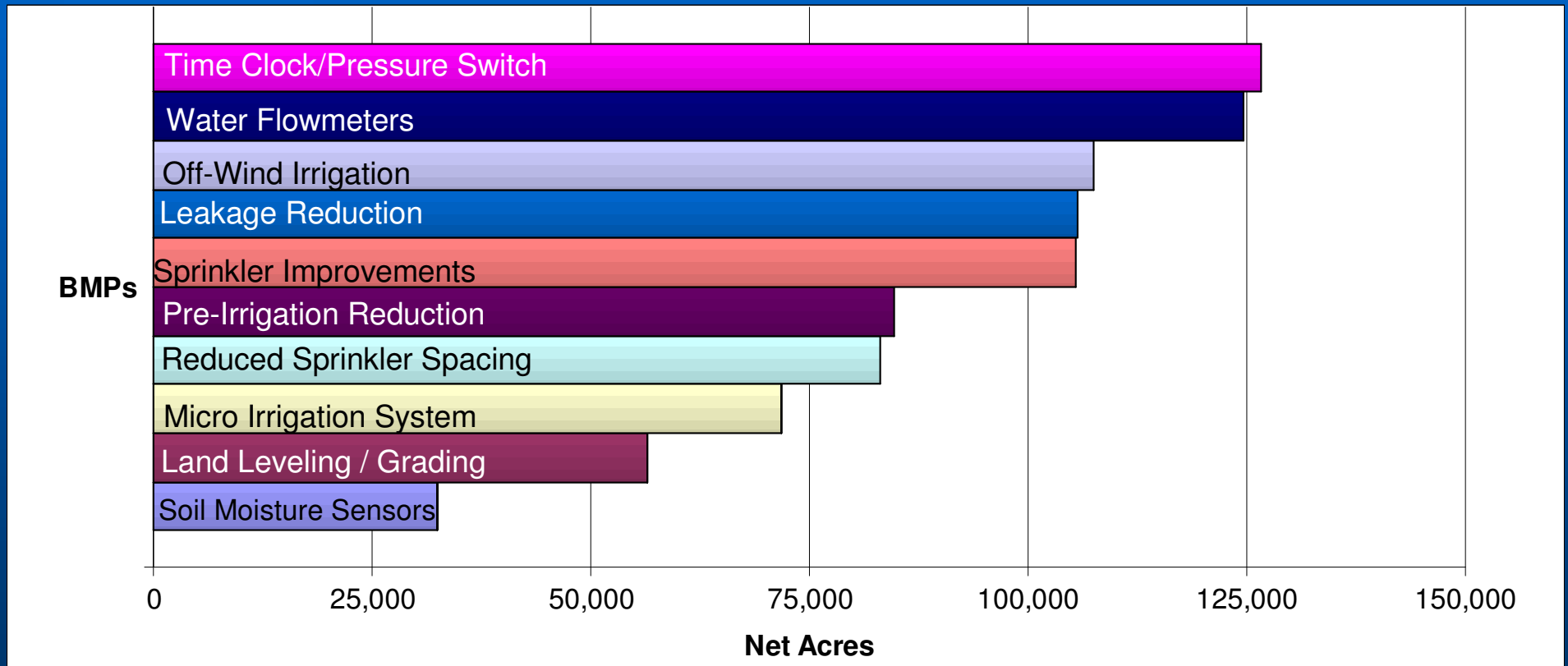
Figure 5. Types of irrigation methods used in the Salinas Valley based on companies reported

NOTE: Reported net acres vary from year to year

Source: MCWRA Ground Water Summary Report 2008 (97% Reporting of 1750 urban and agricultural wells)



2009 Forecast Top Ten Best Management Practices Based on Reported Net Acres - Salinas Valley



Source: MCWRA Ground Water Summary Report 2008
(Ag. Water Conservation Reporting 96%)

2007 Summary of Nitrate-NO₃ Concentrations for 152 Water Quality Study Wells in the Salinas Valley Basin

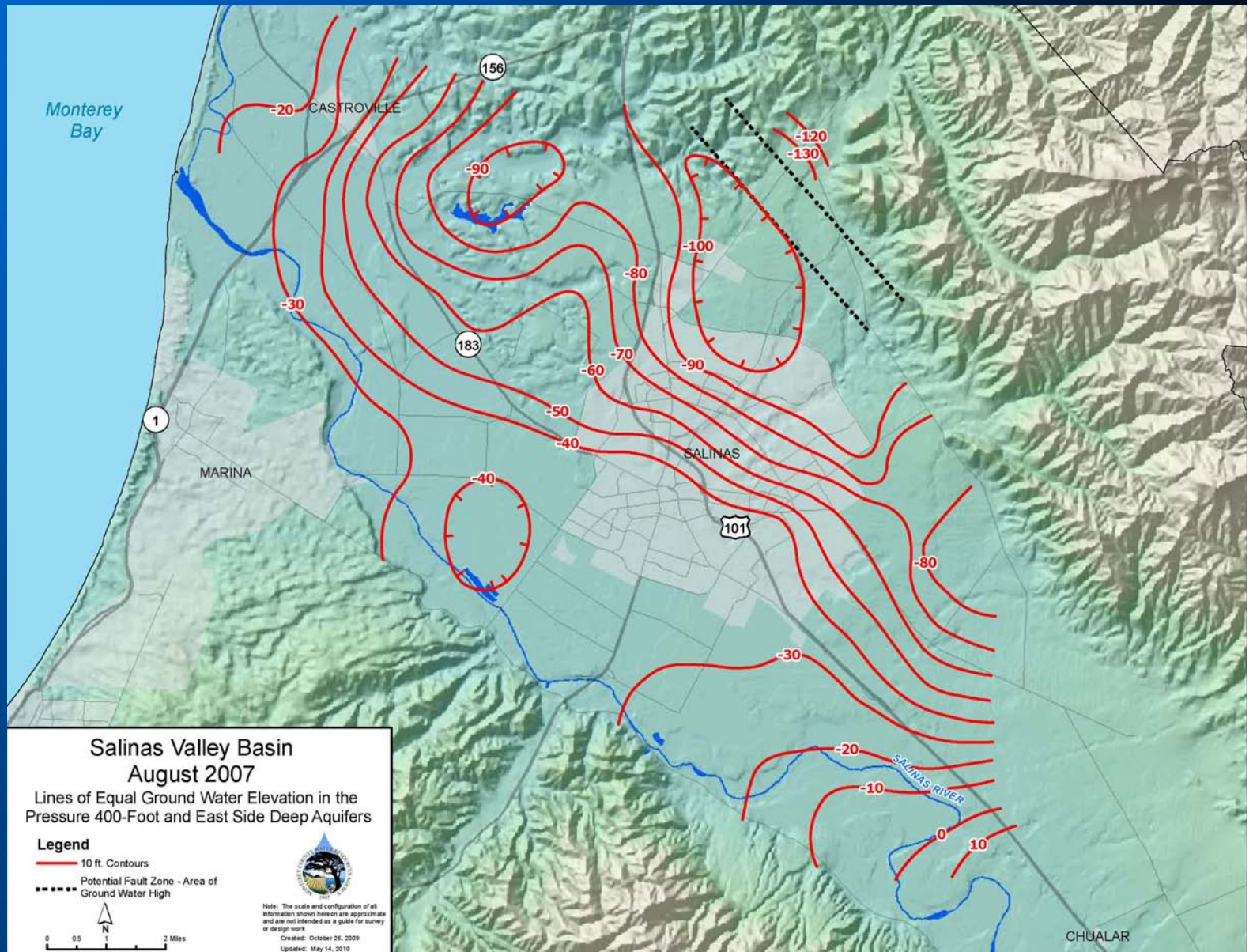
Subarea	Wells Sampled	Mean Concentration NO ₃ (mg/L)	Median Concentration NO ₃ (mg/L)	Minimum Concentration NO ₃ (mg/L)	Maximum Concentration NO ₃ (mg/L)	Number Wells > than DWS*	Percent Wells > than DWS*
Pressure 180-Foot Aquifer	28	49	20	1	284	9	32%
Pressure 400-Foot Aquifer	44	12	3	1	143	3	7%
Pressure Deep Aquifer	5	1	1	1	2	0	0%
Pressure All	77	25	3	1	284	12	16%
East Side	15	106	63	3	502	9	60%
Forebay	41	79	54	1	290	22	54%
Upper Valley	19	90	78	3	425	13	68%
Locations Without 400-ft and Deep	103	77	47	1	502	53	51%
All Locations	152	56	20	1	502	56	37%

*45 mg/L Nitrate as NO₃

(Data Source: Monterey County Water Resources Agency, June 10, 2009)

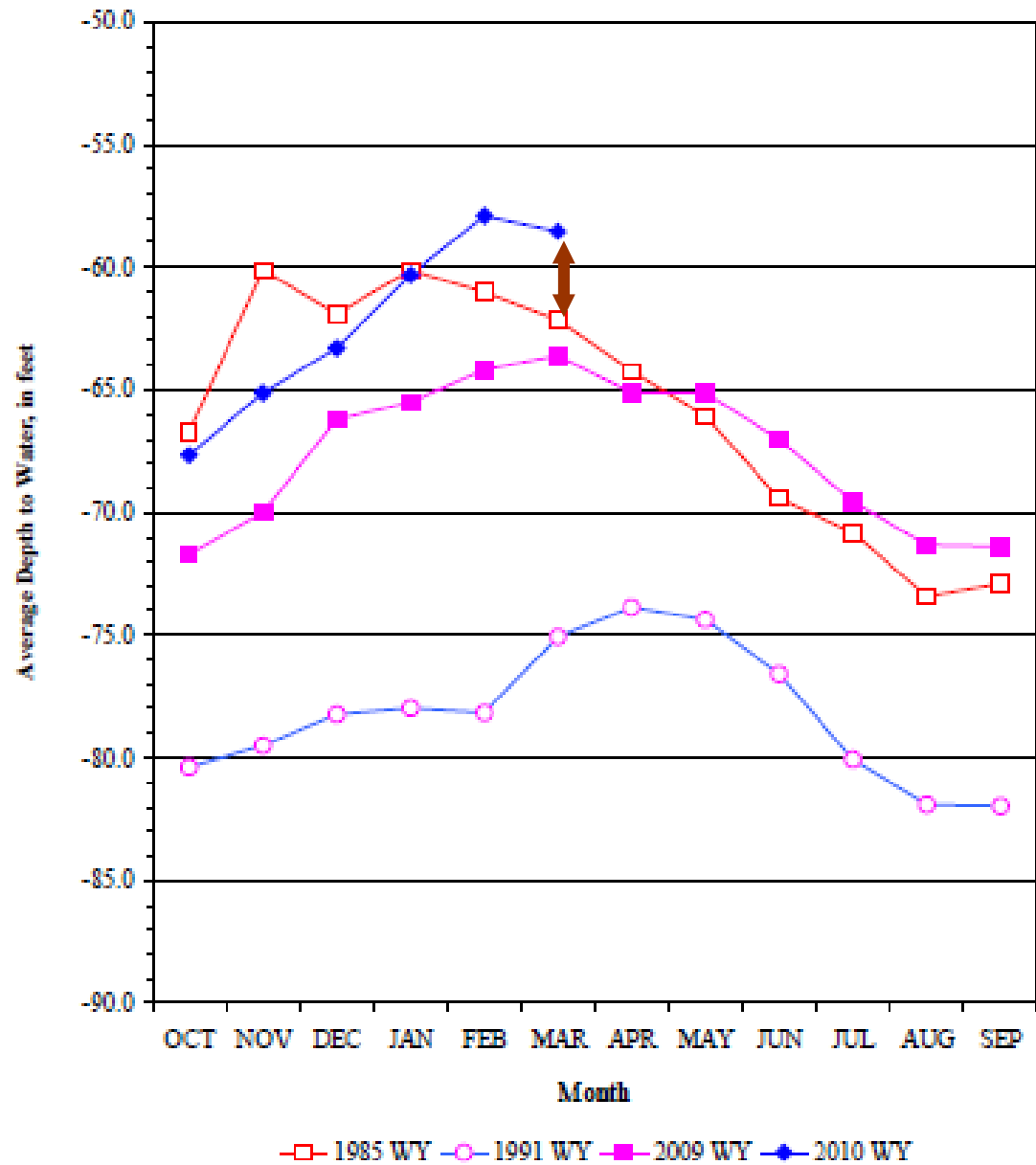


Ground Water Level Monitoring





HISTORIC GROUND WATER TRENDS FOREBAY AREA 10 Wells





319h Grant Partnerships

- MCWRA Nitrate Management Program
 - NTAC 13 Elements 4 Categories
- Ground Water Nitrate Evaluation
 - Shallow Ag. Wells
- Ag. Well Head Protection Evaluation
- Nitrate Grower Survey 2001
- Nitrate Management Grower Fact Sheets

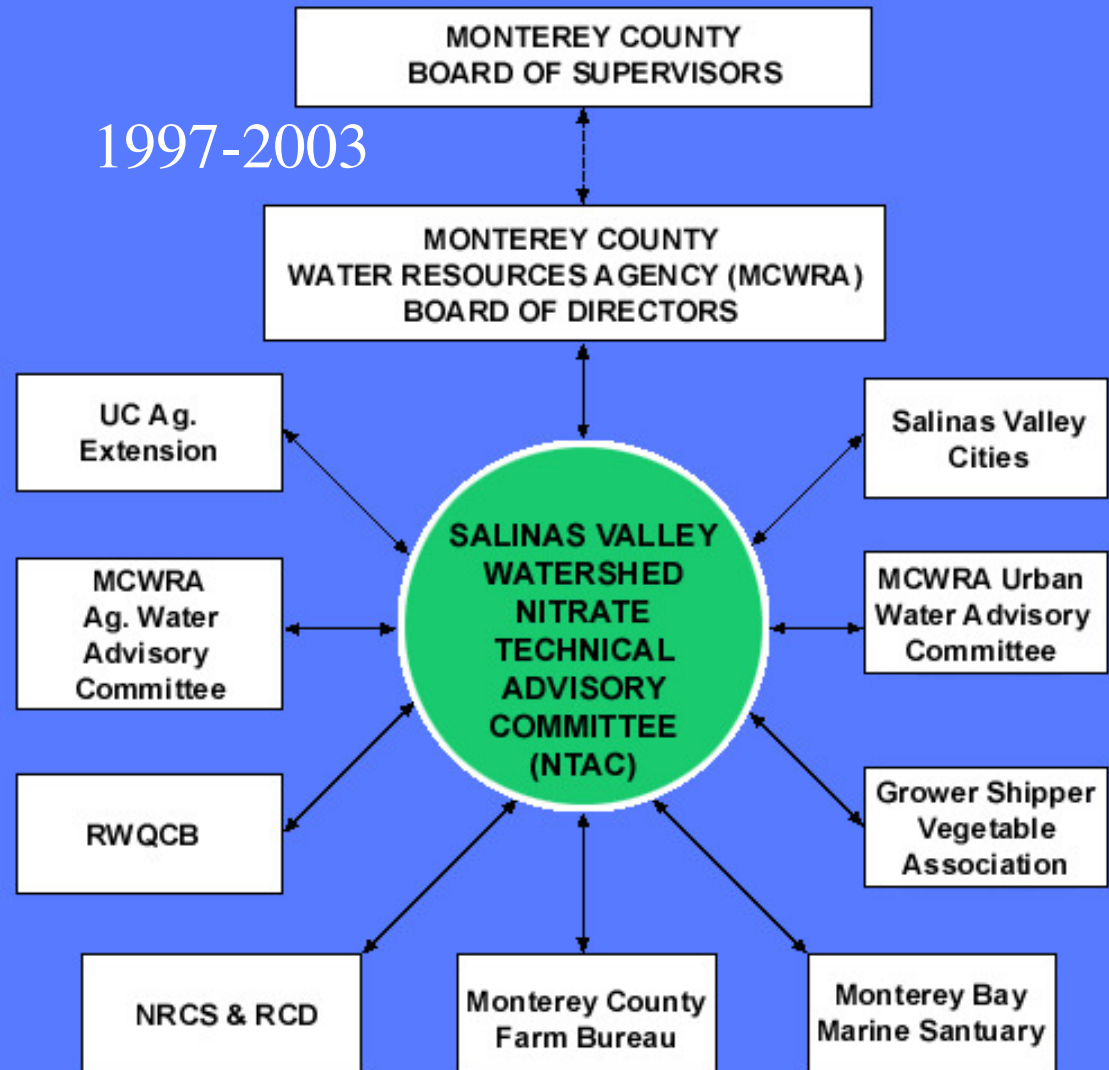
Salinas Valley Nitrate Management Plan

Began Implementation 1998 with two 319(h) grants - \$500,000

2002	Implemented 9 of 13 Elements	(69%)
2003	Implemented 10 of 13 Elements	(77%)
2008	Implemented 11 of 13 Elements	(85%)

SALINAS VALLEY WATERSHED NITRATE TECHNICAL ADVISORY COMMITTEE

1997-2003





2001 Nitrate Management Survey Results Report

Salinas Valley, California
August 2002



Prepared by

Monterey County Water Resources Agency
Water Resources Planning and Management Division

30 www.montereyherald.com THURSDAY, FEBRUARY 28, 2002

Nitrate management practices gauged

Survey sets Salinas Valley baseline

By Ben Grant

Although many growers in California's Salinas Valley would rather spend on plant water, soil, and water, fewer of them take concrete measures to date collected into their bottom line.

That was one finding from a voluntary survey of growers by the Monterey County Water Resources Agency (MCWRA) during 2001 in an effort to profile nitrate management practices in the county, which for years has been considered a hot nitrate source in the state.

The State Water Resources Control Board approved the study and funded it for \$75,000 in two grants for a four-year project leading up to the final report. Other local and industry groups collaborated broadly to represent all areas of the county.

Emily Thompson, program manager for the MCWRA in Salinas, said although only 33% of 23 percent of the growers in the county responded, the 19,000 acres they represent is 60 percent of the county's 32,000 irrigated acres.

Now, she said, she will continue to establish a baseline for future years on other best management practices (BMPs) for nitrate use as are used in the county.

She called the results mostly in

Table at a conference of the Pollution Research and Education Program, a partnership between the California Department of Food and Agriculture and several other governmental agencies and plant health industry groups.

Groundwater reliance

The study area, the Salinas Valley from Monterey Bay to San Jua, has about 2400 agricultural wells and 24 well operators. The area, Thompson said, "drains 100 percent of ground water, and that rate is wide because other areas are in California."

The nitrate issue, and how the study emerged, became Thompson's topic last year, after doing the work in the county. In 1999, 11.7 of the county's 230,000 wells were reported to be in violation of state drinking water standards.

In 2000, 11 percent of the agricultural production wells studied were found to violate in levels exceeding the standards.

Thompson said the MCWRA is working for a final solution after a job about nitrate nitrate and how to provide more of it.

"The plan's already there, we are providing best management practices or techniques that will allow us to bring the water, soil, and plant back into



Water Resources Agency staff and operations, work with Emily Thompson, Monterey County Water Resources Agency about the agency's survey on use of best management practices in general nitrate in groundwater supplies.

power (fertilizer schedule)

Water providers, she mentioned, in more complicated issues of different soils and climates and how much is nitrate management survey to see what growers are presently doing. The survey provided a baseline to gauge future work for improvement in water treatment and prevention of best management

practices. 50 percent used variable rate fertilizer, 33 percent used variable rate water, and 23 percent used variable rate water.

Management gains

According to Thompson, 60 percent of the 23 operators said they had



Fertilizer Management in Coastal Cool-Season Vegetables

Fact Sheet

1



Evaluate Current Irrigation and Fertilization Practices and Plan Improvements in Management

On-Farm Handling of Fertilizers

Fact Sheet

2



Avoid Fertilizer Material Spills During All Phases of Transport, Storage, and Application

Water Management in Coastal Cool-Season Vegetables

Fact Sheet

3



Evaluate Current Irrigation and Fertilization Practices and Plan Improvements in Management

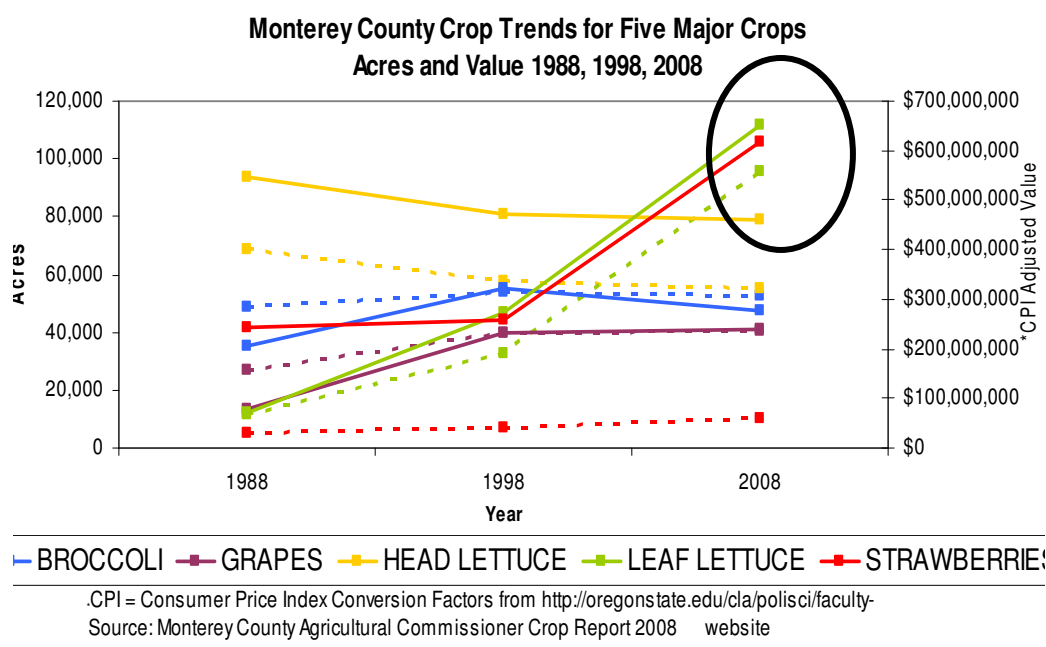
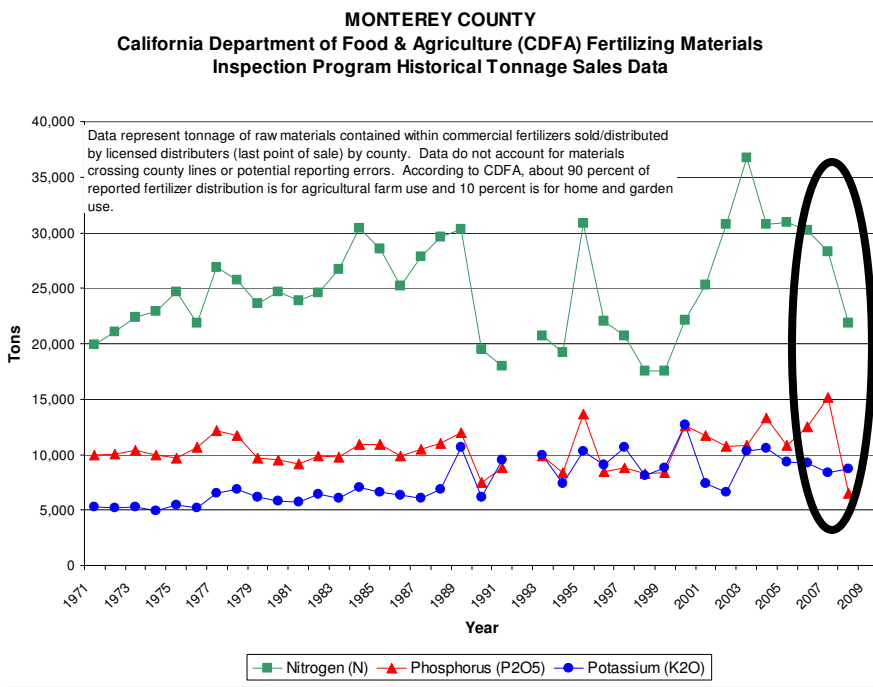
Using the Nitrate Present in Soil and Water in Your Fertilizer Calculations

Fact Sheet

4

The information contained in this Fact Sheet is intended to help the grower reduce the amount of nitrogen

Partnerships Working Toward Environmental Ag. Sustainability





Conclusion

- **Long-Term Solutions Work**
- **20 Year Plan is Reasonable**
- **Use the Stable Foundation from Past for Present & Future Building Blocks**
- **Need Shared Goals and Objectives**
- **Leadership to Work Through Difficult Issues Together**



Recommendation

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