



# TODAY'S ACTION

Consider receiving a report:  
*“Recommendations to Address the  
Expansion of Seawater Intrusion in the  
Salinas Valley Groundwater Basin”;*  
and provide direction to staff



# Committee Action

- None.



# Prior BOD Action

- On July 11, 2017 at a special Joint Meeting of the Board of Supervisors of Monterey County, Board of Supervisors of the Monterey County Water Resources Agency and the Water Resources Agency Board of Directors:
  - It was requested that staff provide to the Board recommendations for actions that, if implemented, would slow or halt the further expansion of seawater intrusion.

# Prior BOD Action (cont.)

- On October 16, 2017 the Monterey County Water Resources Agency Board of Directors received the report *“Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin”* and provided the following direction to staff:
  - Develop an online forum to provide access for public comment on the recommendations;
  - Provide scoping and cost of a Deep Aquifers investigation;
  - Make the report and Board of Directors presentation available on line; and
  - Begin outreach to the public on the report’s recommendations.



# Financial Impact

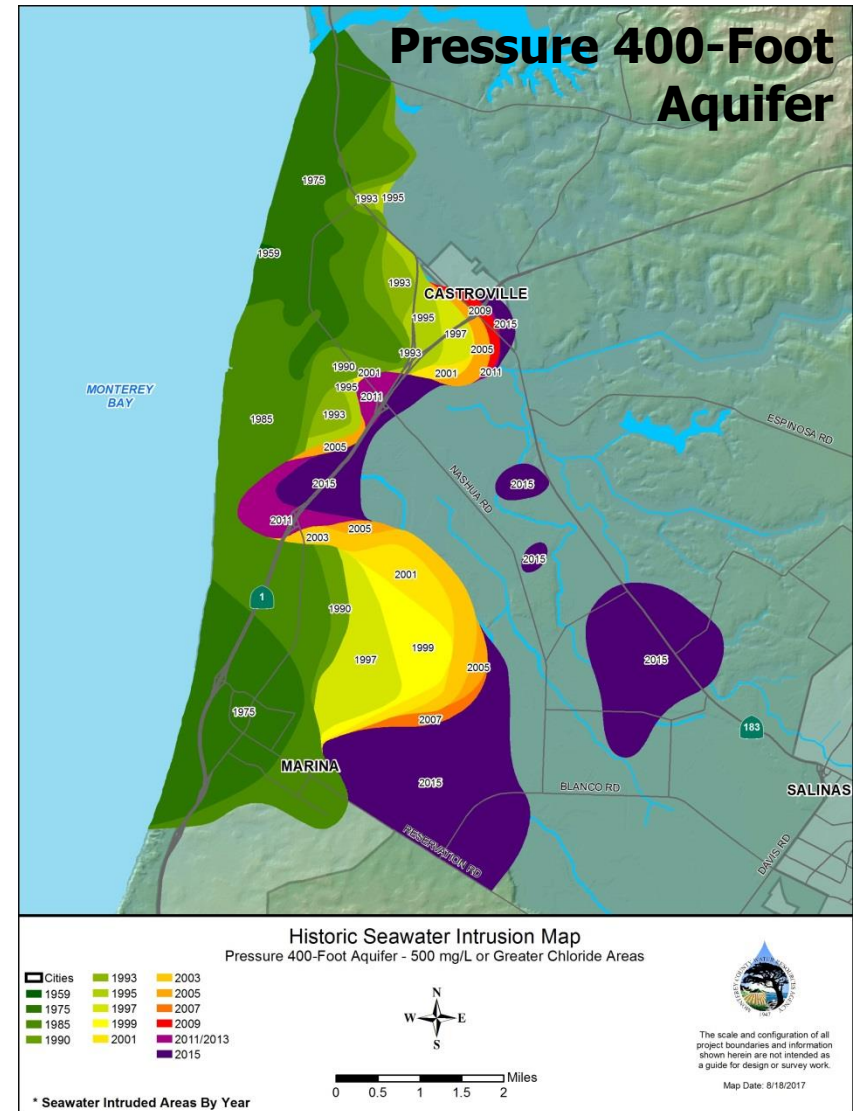
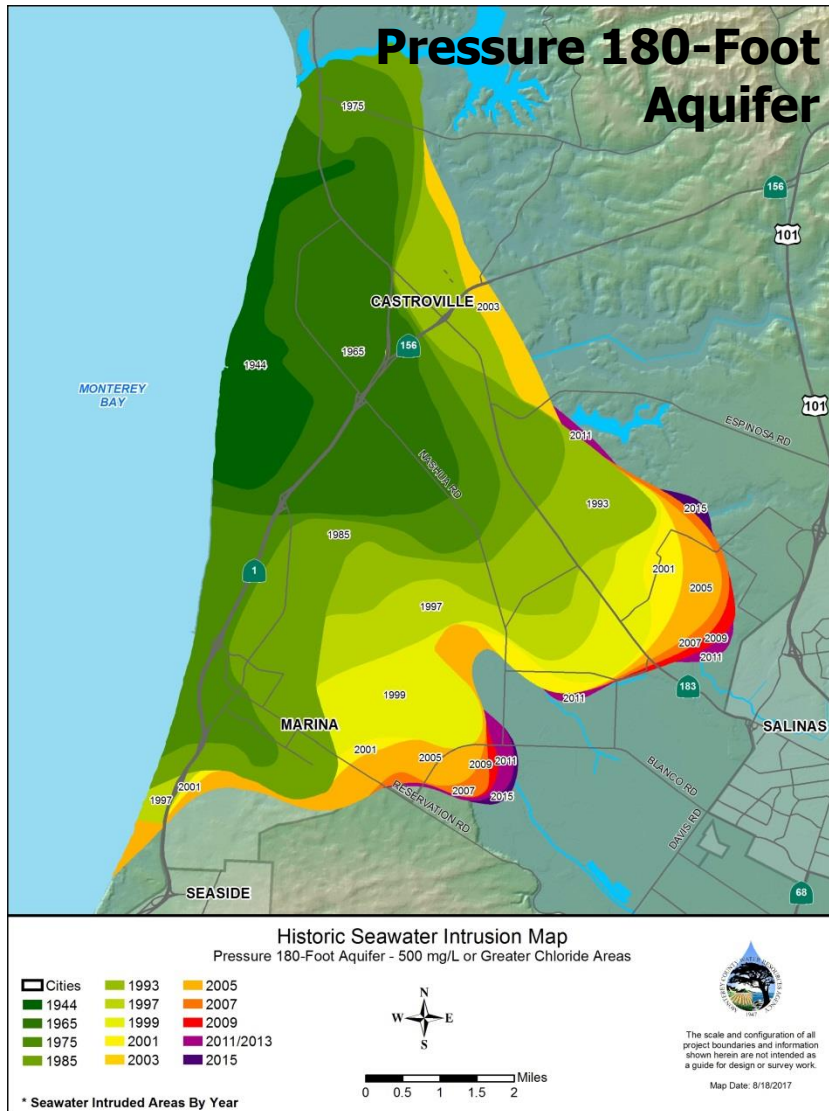
- None to receive this report.
- The total cost to implement these recommendations have not yet been fully developed.
  - Adopted budget for FY 2017-18 has no identified funding to implement these recommendations.



# Discussion

- 2015 coastal Salinas Valley seawater intrusion contours:
  - Showed advancement of seawater intrusion front; and
  - Included delineation of “islands” of seawater intruded groundwater in the Pressure 400-Foot Aquifer beyond the contiguous seawater intrusion front.

# Discussion (cont.)







# Discussion (cont.)

- Responding to direction of the Joint Boards, staff prepared the report:

*“Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin” (Report)*



# Discussion (cont.)

## The Report:

- Provides a discussion of the current knowledge and related background information surrounding seawater intrusion pathways and potential impacts.
- Serves as a body of evidence to catalogue the findings used to support the recommendations presented here, and within the Report.
- Each recommendation can be implemented on its own or in concert with the others, and the relative importance of each has been discussed in the Report.



# Discussion (cont.)

- The recommendations have been developed as a comprehensive solution that, along with continued operation of projects that have been constructed for the same purpose, have the strongest potential to ensure success in slowing or halting further seawater intrusion.



# Discussion (cont.)

## Recommendations - Overview

1. An immediate moratorium on groundwater extractions from new wells in the Pressure 400-Foot Aquifer within an identified Area of Impact (with exemptions).
2. Enhancement and expansion of the Castroville Seawater Intrusion Project (CSIP) Service Area.



# Discussion (cont.)

## Recommendations - Overview

3. Following expansion of the CSIP Service Area, termination of all pumping from existing wells within the Area of Impact, except for the following use categories:
  - a. Municipal drinking water supply wells;
  - b. Wells operating under the auspices of the Castroville Seawater Intrusion Project; and,
  - c. Monitoring wells owned and maintained by the Agency or other water management agencies.



# Discussion (cont.)

## Recommendations - Overview

4. Initiate and diligently proceed with destruction of wells in Agency Zone 2B, in accordance with Agency Ordinance No. 3790, to protect the Salinas Valley Groundwater Basin against further seawater intrusion.
5. An immediate moratorium on groundwater extractions from new wells within the entirety of the Deep Aquifers until such a time as an investigation determines its long-term viability.



# Discussion (cont.)

## Recommendations - Overview

6. Initiate and diligently proceed with an investigation to determine the long –term viability of the Deep Aquifers.

Implementation of these recommendations will require close consultation with the County Counsel, and depending on the actions pursued, additional work by Agency staff and cooperation with RMA-Planning staff to ensure compliance with CEQA and other applicable procedures and policies.



# Discussion (cont.)

- Recommendations in the Report pertain to three topic areas:
  - Pressure 400-Foot Aquifer
  - Well Destruction
  - Deep Aquifers





## Recommendations 1, 2, and 3

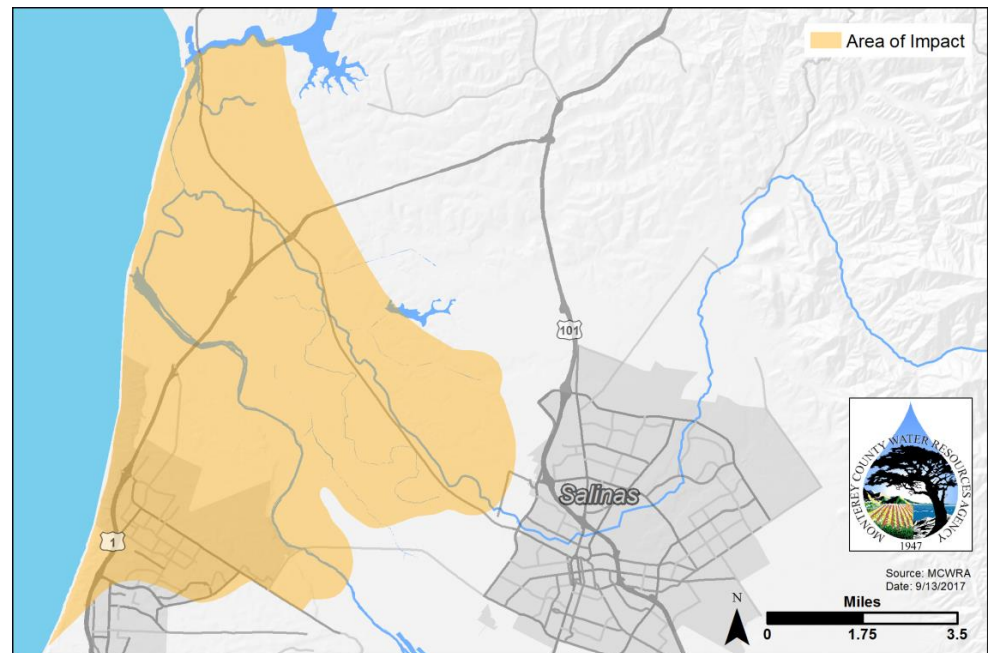
### The Pressure 400-Foot Aquifer

1. An immediate moratorium on groundwater extractions from new wells in the Pressure 400-Foot Aquifer within an identified Area of Impact.
  - Exemptions:
    - CSIP Supplemental Wells
    - Agency owned and maintained Monitoring Wells
    - **Replacement Wells?**
      - Not recommended for exemption in the Report but requires further discussion.

## Recommendations 1, 2, and 3

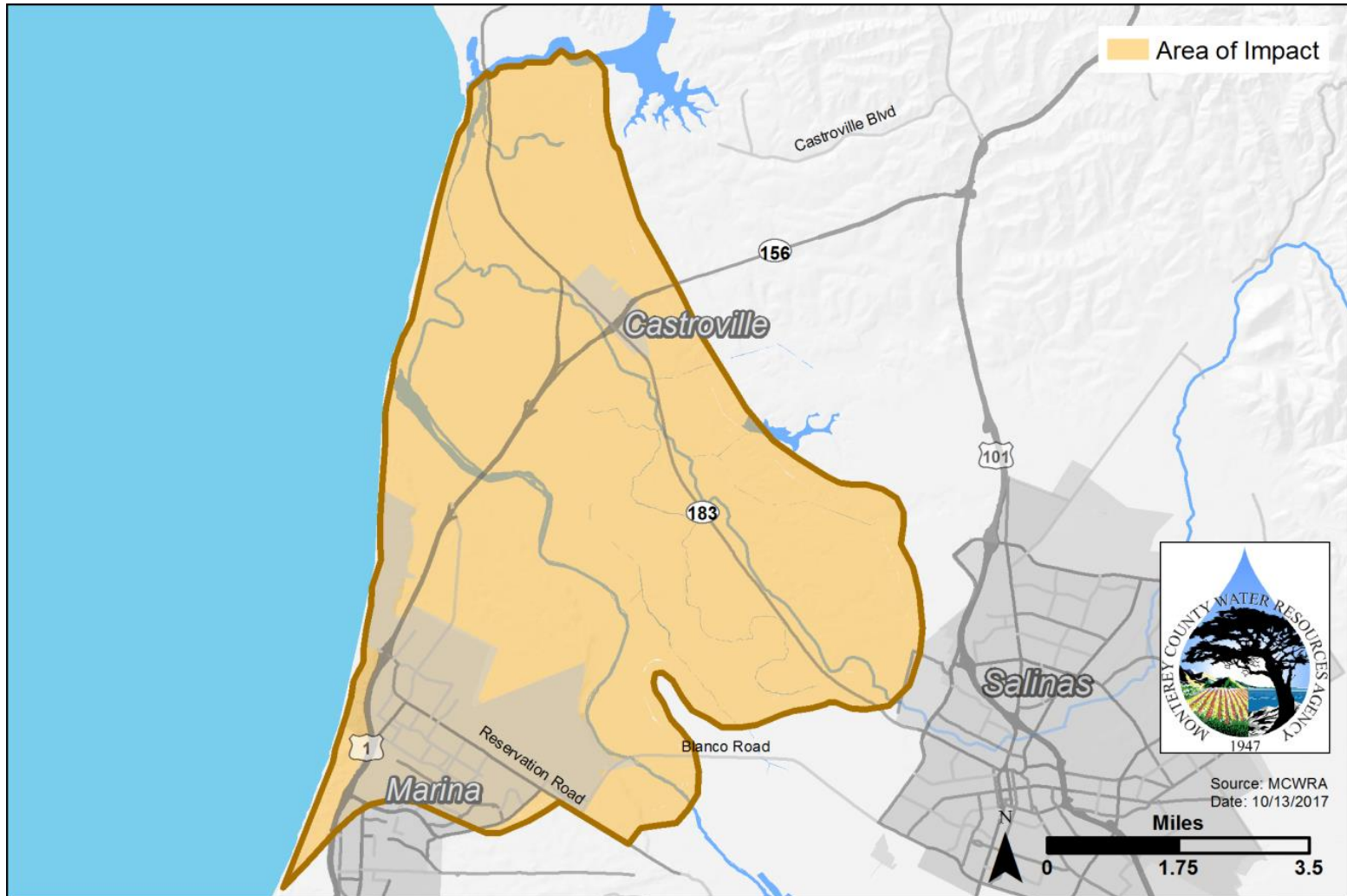
### The Pressure 400-Foot Aquifer (cont.)

- **Area of Impact:** that portion of the 180/400 Foot Aquifer Subbasin in which chloride concentrations in either the Pressure 180-Foot or Pressure 400-Foot Aquifer are 250 milligrams per liter (mg/L) or greater.
- Intended for implementing recommendations proactively for managing seawater intrusion.



# Recommendations 1, 2, and 3

## The Pressure 400-Foot Aquifer (cont.)





## Recommendations 1, 2, and 3

### The Pressure 400-Foot Aquifer (cont.)

2. Enhancement and expansion of the CSIP Service Area.
  - Enhancement:
    - Booster Pumps
    - Additional Storage
    - Optimize operational timing
  - Expansion should include, at a minimum, lands served by wells currently extracting groundwater within the Area of Impact.

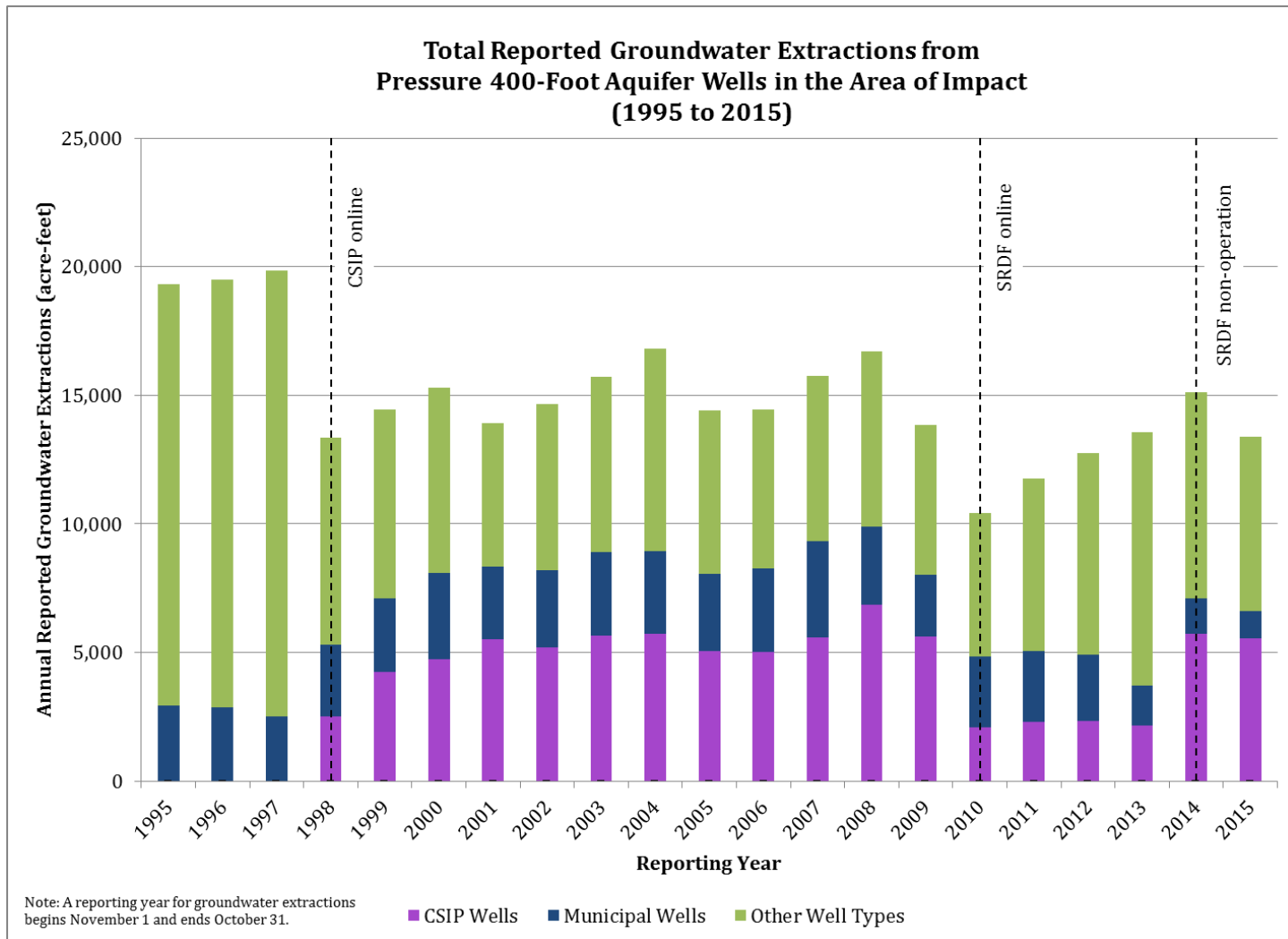


## Recommendations 1, 2, and 3

### The Pressure 400-Foot Aquifer (cont.)

3. Following expansion of the CSIP Service Area, termination of all pumping from existing wells within the Area of Impact, except for the following use categories:
  - a. Municipal water supply wells;
  - b. Wells operating under the auspices of the Castroville Seawater Intrusion Project;  
and,
  - c. Monitoring wells owned and maintained by the Agency or other water management agencies.

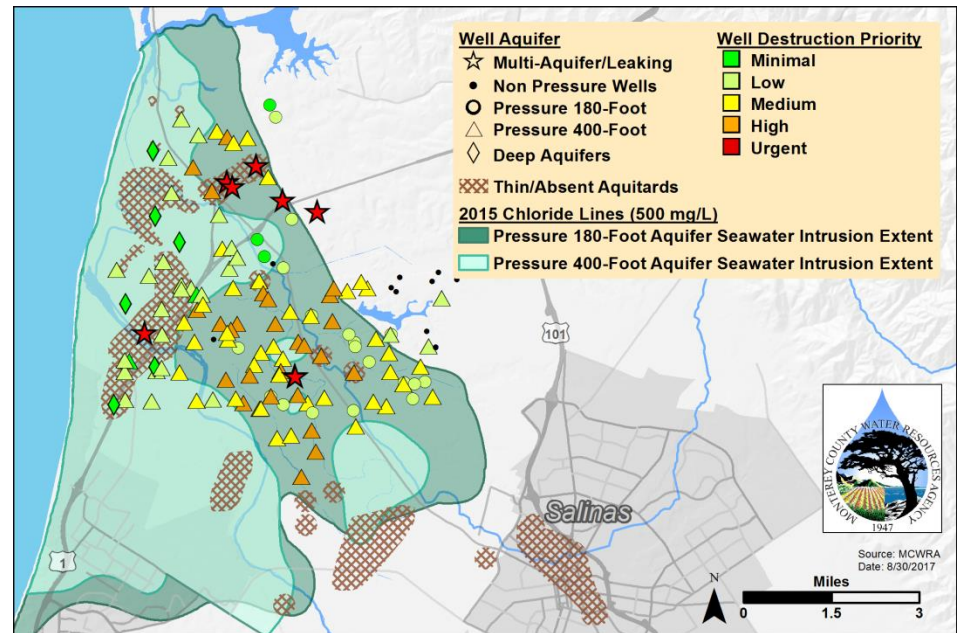
# Recommendations 1, 2, and 3 The Pressure 400-Foot Aquifer (cont.)





## Recommendation 4 - Well Destruction

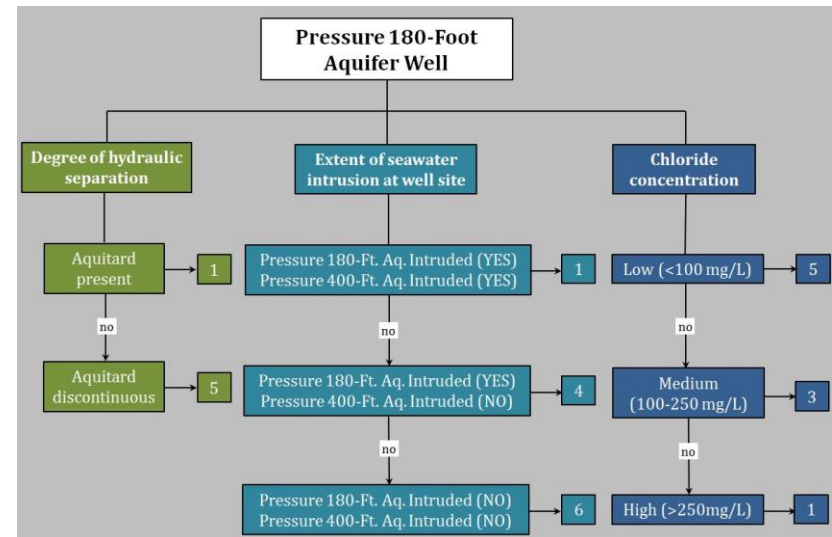
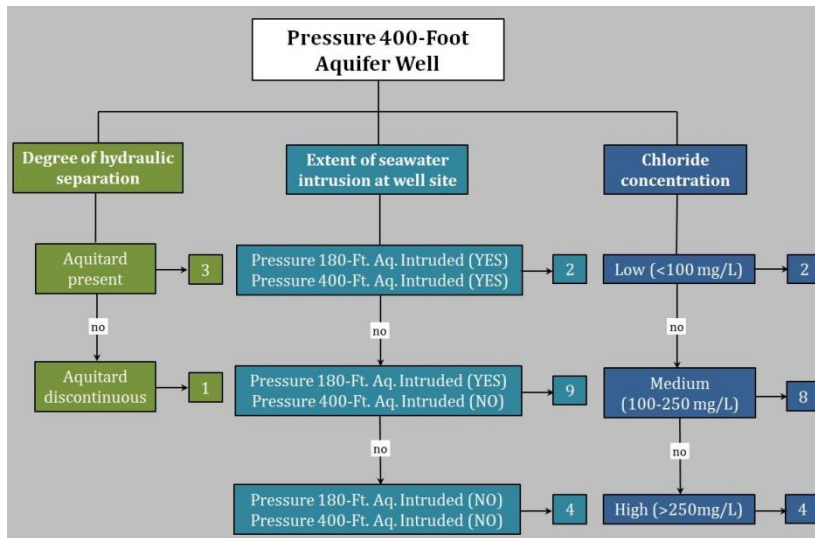
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## Recommendation 4 - Well Destruction (cont.)

### 4. Well destruction prioritization.



## Recommendation 4 - Well Destruction (cont.)

### 4. Well destruction prioritization.

Prioritization Categories and Well Counts for Destructions in Zone 2B	
Prioritization Category	Number of Wells in Category
Urgent	8
High	27
Medium	39
Low	45
Minimal	23
<b>TOTAL</b>	<b>142</b>

Well Destruction Costs by Prioritization Category		
Prioritization Category	Number of Wells	Cost to Destroy Wells
Urgent	8	\$400,000
High	27	\$1,350,000
Medium	39	\$1,950,000
Low	45	\$2,250,000
Minimal	23	\$1,150,000
<b>TOTAL</b>	<b>142</b>	<b>\$7,100,000</b>



## Recommendations 5, and 6 - Deep Aquifers

5. An immediate moratorium on groundwater extractions from new wells within the entirety of the Deep Aquifers of the 180/400 Foot Aquifer Subbasin until such time as an investigation of the Deep Aquifers is completed and data pertaining to the hydraulic properties and long-term viability of the Deep Aquifers are available for knowledge-based water resource planning and decision making.

## Recommendations 5, and 6 - Deep Aquifers (cont.)

### Recommendation #5 (cont.)

- a. Monitoring wells, public agency wells, municipal water supply wells, wells for which a construction permit has already been issued, and well repairs should be considered for exemption from this recommendation.
- b. The moratorium should include a prohibition of:
  - i. Replacement wells, unless it can be demonstrated that the installation of such a well will not result in further expansion of the seawater intrusion front; and,
  - ii. Deepening of wells from overlying aquifers into the Deep Aquifers, deepening of wells within the Deep Aquifers, and other activities that would expand the length, depth, or capacity of an existing well.

## Recommendations 5, and 6 - Deep Aquifers (cont.)

Period/Epoch		Formation	Hydrostratigraphy
Quaternary 2.5 MYA to present	Holocene	Recent Alluvium	Shallow Aquifer
	Pleistocene	Valley Fill	Salinas Valley Aquitard
			Pressure 180-Foot Aquifer
		Aromas Sands (near coast)	Pressure 180/400-Ft Aquitard
			Pressure 400-Foot Aquifer
		Paso Robles	Pressure 400-Foot/Deep Aquitard
			Deep Aquifers
Tertiary 23 to 2.5 MYA	Pliocene	Purisima / Pancho Rico	
		Santa Margarita	
	Miocene	Monterey	Minimally water-bearing
Mesozoic		Granitic basement	Non water-bearing

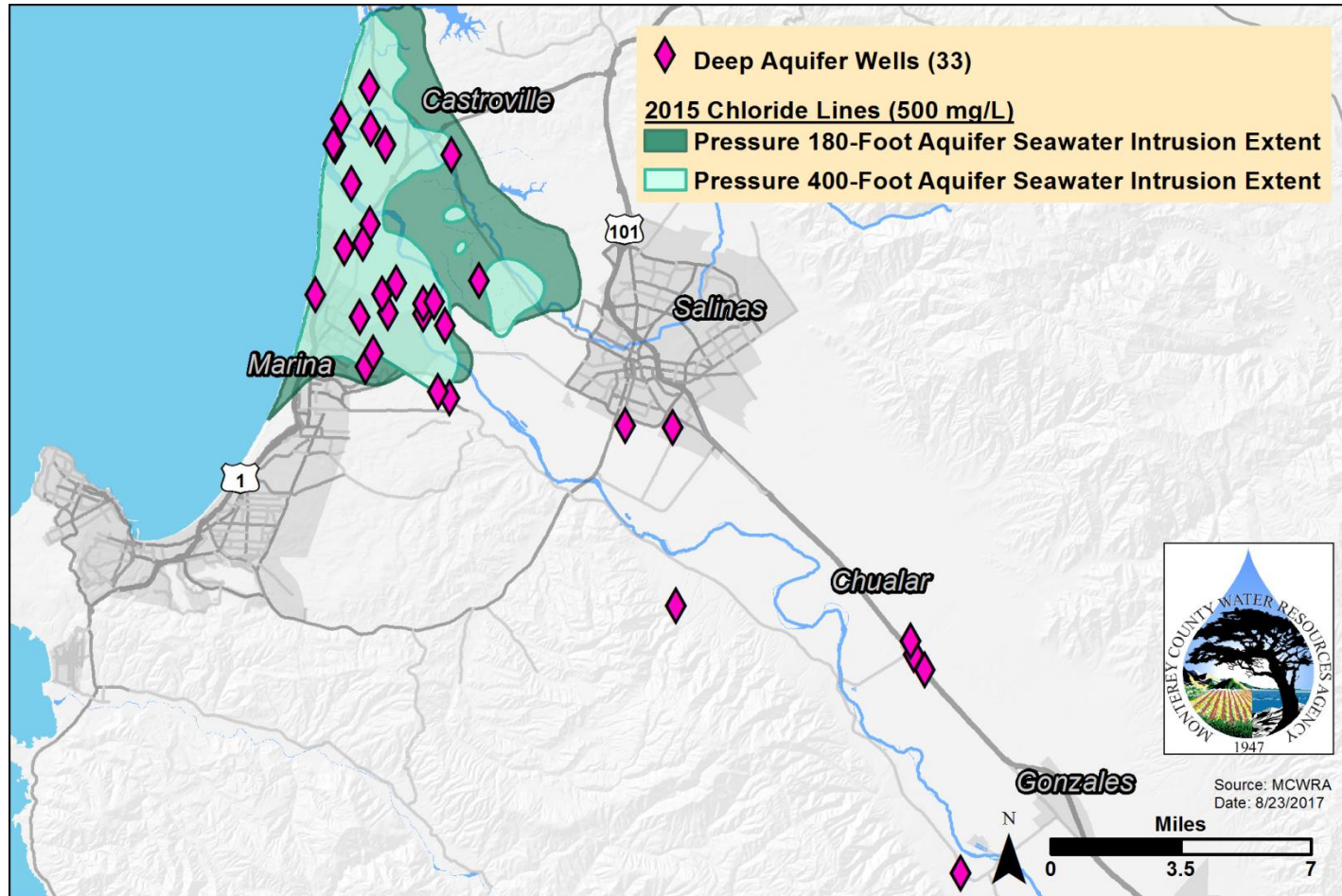
MYA = Million Years Ago

Not to scale.

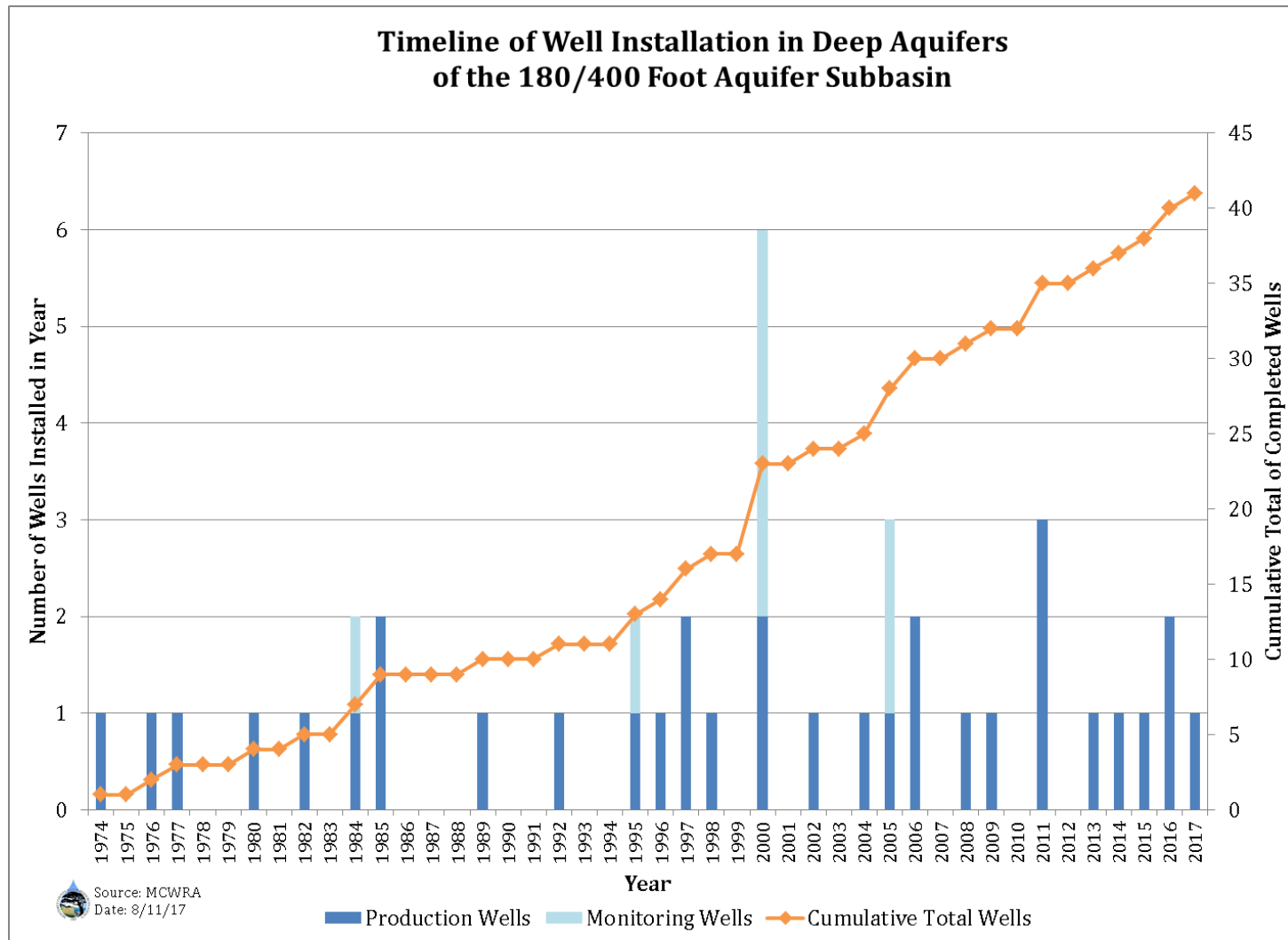


# Recommendations 5, and 6 - Deep Aquifers (cont.)

## Wells in the Deep Aquifers

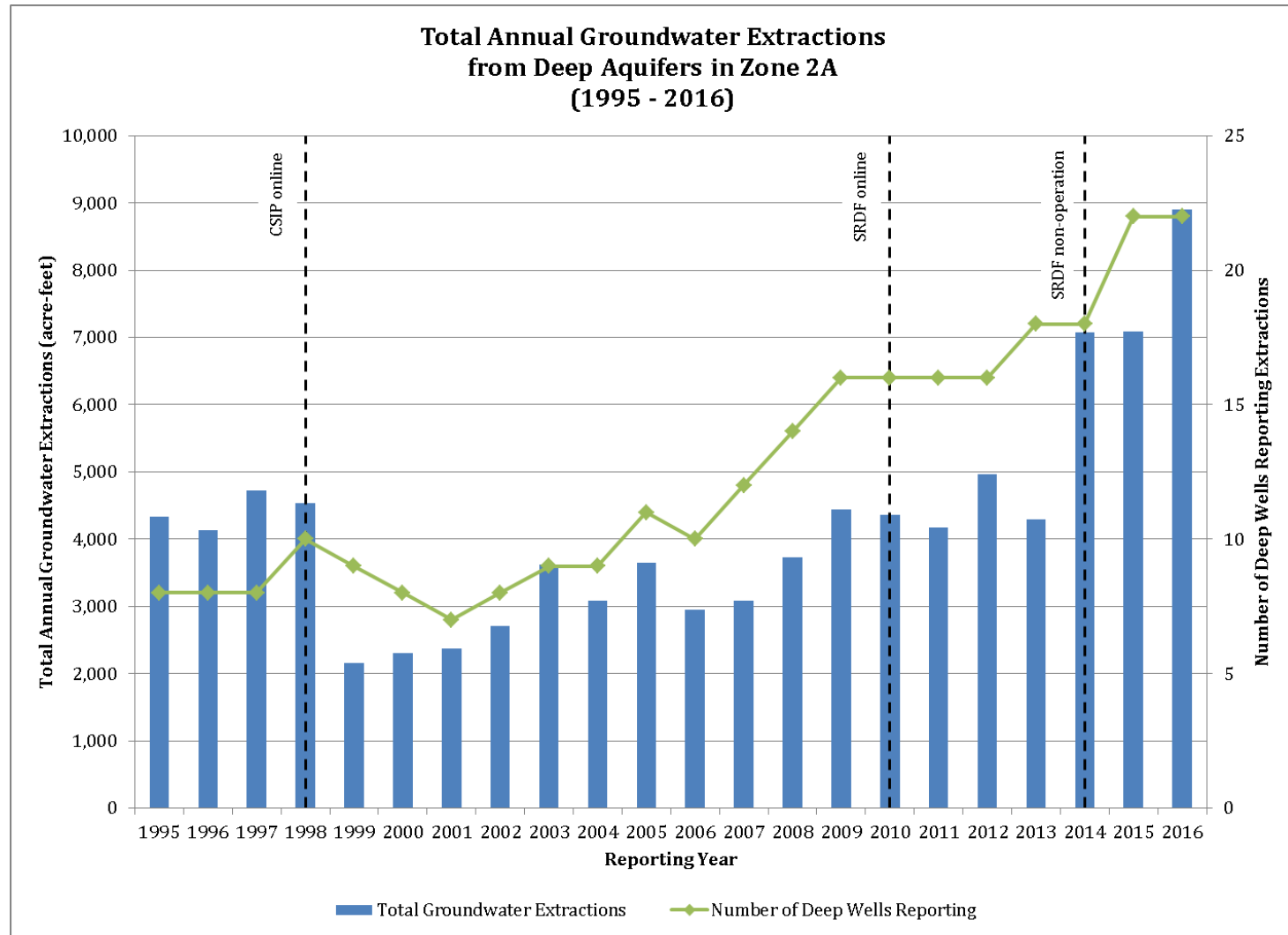


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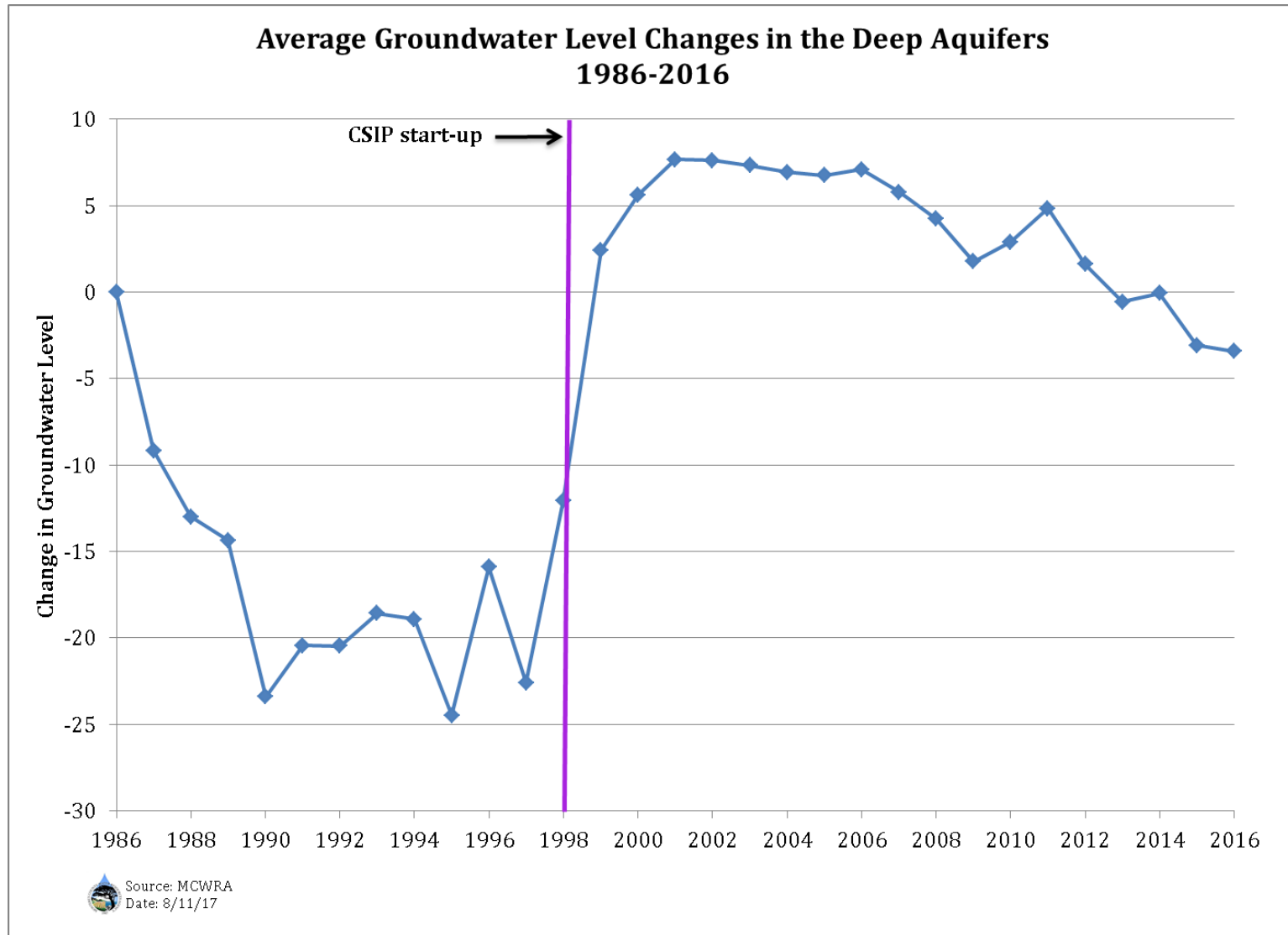




# Recommendations 5, and 6 - Deep Aquifers (cont.)



## Recommendations 5, and 6 - Deep Aquifers (cont.)





## Recommendations 5, and 6 - Deep Aquifers

6. Initiate and diligently proceed with an investigation to determine the hydraulic properties and long-term viability of the Deep Aquifers and make this information available for knowledge-based water resource planning and decision making.



# Summary

The information provided here and in the report  
*“Recommendations to Address the Expansion of  
Seawater Intrusion in the Salinas Valley Groundwater  
Basin”*

- Provides a discussion of the current knowledge and related background information surrounding seawater intrusion pathways and potential impacts.
- Serves as a body of evidence to catalogue the findings used to support the recommendations presented here, and within the Report.
- Provides recommendations for actions that staff believe, if implemented, would slow or halt the further expansion of seawater intrusion.

# Summary (cont.)

- Each recommendation can be implemented on its own or in concert with the others, and the relative importance of each has been discussed in the Report.
- The recommendations have been developed as a comprehensive solution that, along with continued operation of projects that have been constructed for the same purpose, have the strongest potential to ensure success in slowing or halting further seawater intrusion.

# Summary (cont.)

- Implementation of these recommendations will require close consultation with County Counsel, and depending on the actions pursued, additional work by Agency staff and cooperation with RMA-Planning staff to ensure compliance with CEQA and other applicable procedures and policies.



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