# Pesticides Detected in Ground Water and Surface Water

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Presentation to the California Weed Science Society 2016 Annual Conference
Sacramento, California.
January 15, 2016

# Presentation Outline

- Pesticide Contamination Prevention Act (PCPA)
- Sources of pesticide groundwater monitoring data
- Categories of pesticides monitored by DPR
- Pesticides found in groundwater during 2013-14
- Recent changes to PCPA legislation

# AB 2021 - Pesticide Contamination Prevention Act (PCPA)

- Purpose: to prevent further pollution of groundwater due to agricultural use of pesticides
- Enacted in 1986
- Revised in 2014

# Major Question!

Please note: as described in the oral presentation, this question is generically investigated by DPR for any AI or breakdown product detection in groundwater found by DPR or reported to DPR. It does not refer to [in this particular talk] a detection of any specific AI or breakdown product found in an actual DPR study or reported to DPR by another agency.

Was the pesticide detected in groundwater the result of legal agricultural use of that pesticide in the region where it was found?

Domestic

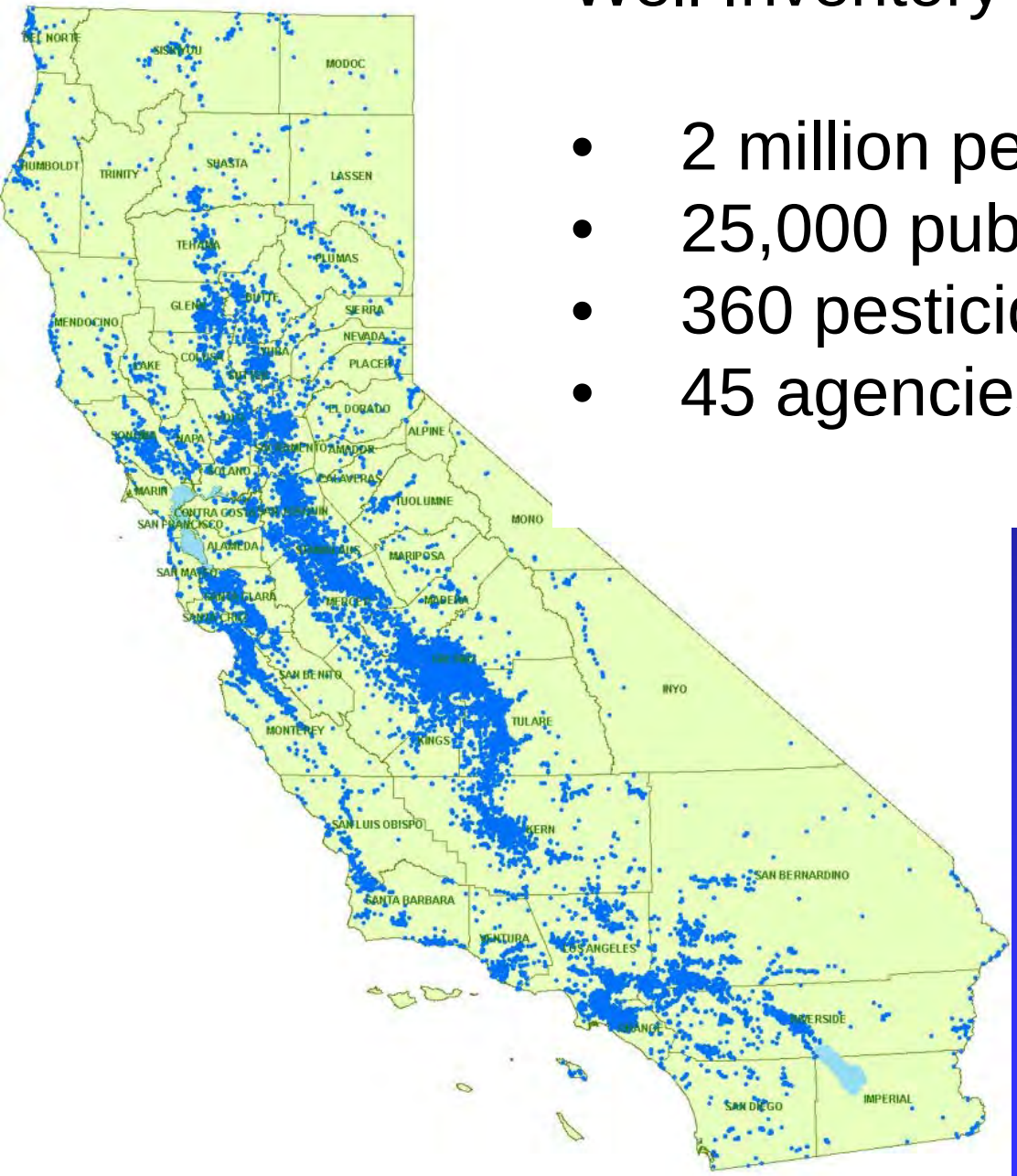
Agricultural

Public

# Legal Agricultural Use Means …

- The pesticide is registered in California
- The pesticide is labeled for agricultural use
- The source of contamination was non-point application of pesticide to crops in the area
- The source of pesticide contamination was **not** a point source (e.g., spill near wellhead)

# Well Inventory Database:




- 2 million pesticide samples
- 25,000 public/private wells
- 360 pesticides/degradates
- 45 agencies

# Major Sources of Monitoring Data

85% - CDPH/SWRCB (public water systems)

8% - SWRCB (GAMA Program)

3% - DPR

4% - Other agencies (EPA, ARB, etc.)

Annual summary report:

"*Sampling for Pesticide Residues in California Well Water: 2014 Update*"

# Ground Water Protection List: 3 CCR Section 6800

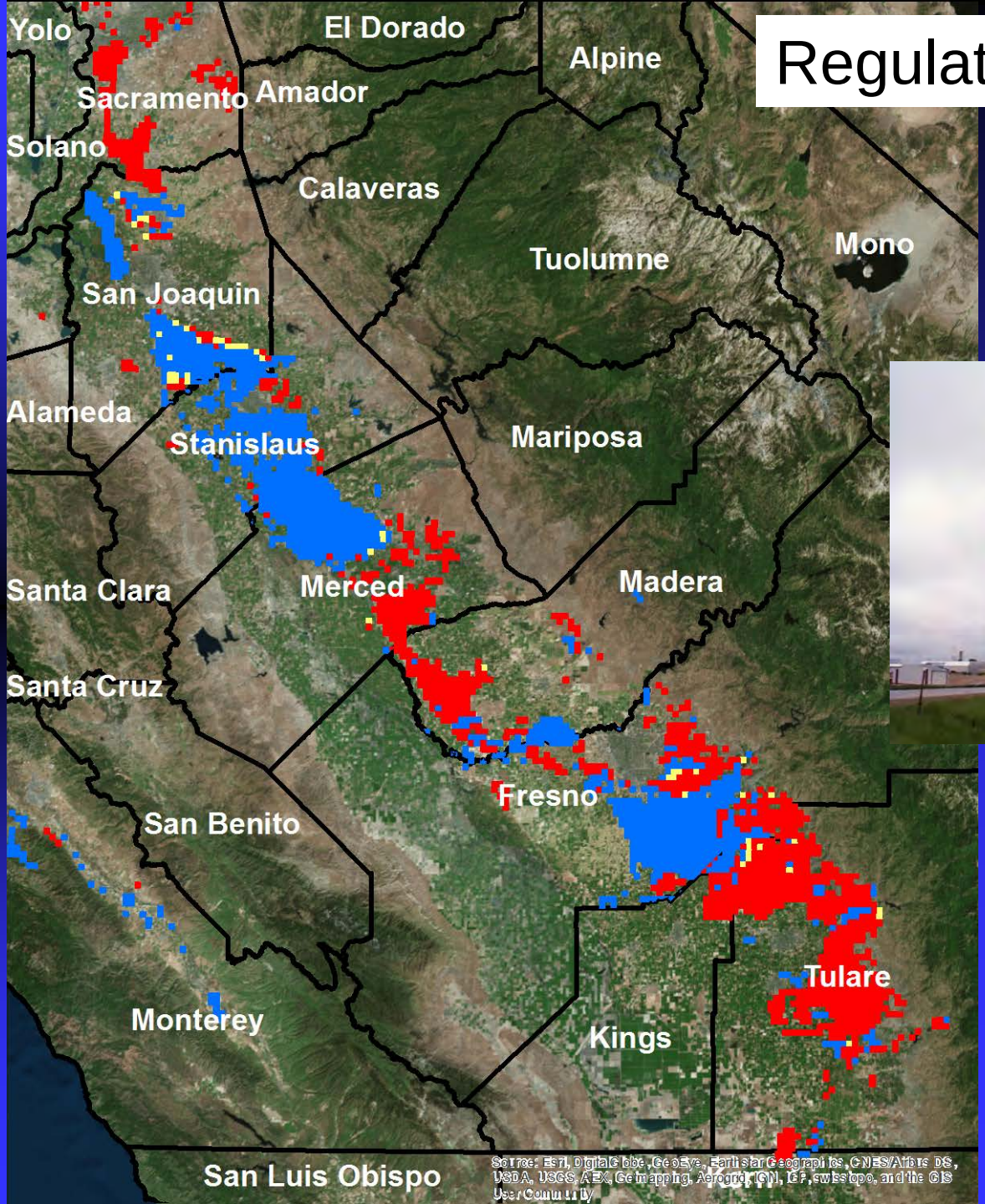
6800(a) – pesticides <u>previously</u> found in groundwater whose use is now regulated through permit process

6800(b) – pesticides <u>not yet</u> found but determined to have potential to contaminate groundwater

# Pesticides Listed in Section 6800(a)

| Active Ingredient | Product Name |
| --- | --- |
| Atrazine | Aatrex ® |
| Simazine | Princep® |
| Bromacil | Hyvar®, Krovar® |
| Diuron | Karmex®, Krovar® |
| Prometon | Pramitol® |
| Bentazon | Basagran® |
| Norflurazon | Solicam®, Predict®, Zorial ® |

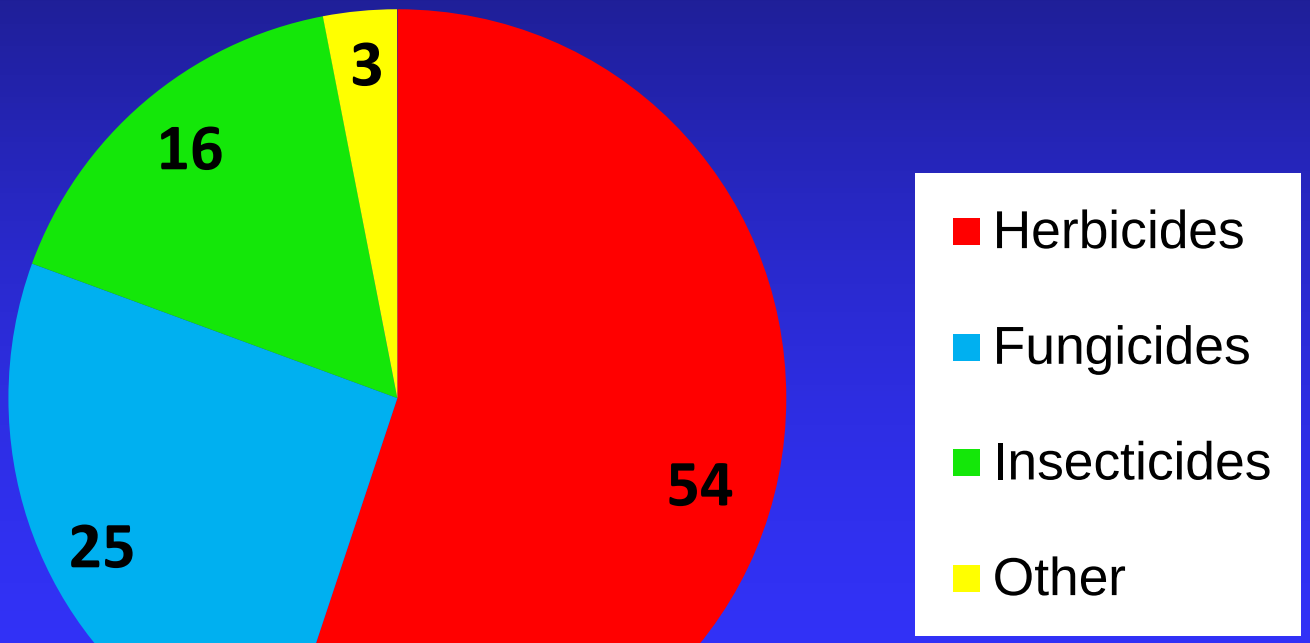
# Regulated Use Areas



| Major Soil Property | Pathway and Control |
| --- | --- |
| Coarse, Sandy Soils – high infiltration rates | Pesticide leaching with irrigation that percolates to groundwater<br><br>Minimize Percolation |
| Hardpan Present or Clayey Soils - low infiltration rates | Pesticides move offsite in surface runoff to sensitive sites<br><br>Improved Incorporation<br>*or*<br>Manage Runoff Water |

# Pesticides Listed in Section 6800(b)

Currently 98 active ingredients in Section 6800(b)



# Pesticide Detections in 2013-14

27 unique pesticides or degradation products detected

| | DPR | SWRCB/CDPH | Total | Percent of Total |
|---|---|---|---|---|
| **Pesticides/Degradates Sampled** | 47 | 108 | 139 | |
| **Pesticides/Degradates Detected** | 16 | 12 | 27 | 19% |
| **Wells Sampled** | 240 | 6,390 | 6,628 | |
| **Wells with Detections** | 84 | 424 | 507 | 8% |
| **Counties Sampled** | 11 | 57 | 57 | |
| **Counted with Detections** | 8 | 21 | 25 | 44% |

# Detections of 6800(a) Pesticides

6 of 27 detected chemicals are regulated pesticides
4 of 27 are degradation products of regulated pesticides

| Pesticide | Wells with Detections | Degradate | Wells with Detections |
|---|---|---|---|
| Atrazine | 4 | DEA | 10 |
| Simazine | 45 | DACT | 63 |
| | | ACET* | 56 |
| Bromacil | 25 | | |
| Diuron | 18 | | |
| Prometon | 3 | | |
| Norflurazon | 17 | DSMN | 31 |

*ACET is a known degradate of both atrazine and simazine

# Detections of 6800(b) Pesticides

6 of 27 detected chemicals are 6800(b) list pesticides
1 of 27 is a degradation product of 6800(b) list pesticide

| Pesticide | Wells with Detections | Degradate | Wells with Detections |
|---|---|---|---|
| 2,4-D | 1 | | |
| Azoxystrobin | 1 | Azoxystrobin Acid | 5 |
| Bispyribac-Sodium | 2 | | |
| Dicamba | 1 | | |
| Imidacloprid | 1 | | |
| Penoxsulam | 7 | | |

# Detections of Non-registered Pesticides

7 of 27 detected chemicals are no longer registered in CA

| Pesticide | Wells with Detections |
|---|---|
| 1,2-D | 14 |
| Carbon Disulfide | 1 |
| Dalapon | 1 |
| DBCP | 372 |
| EDB | 12 |
| Tetrachloroethane | 1 |
| Xylene | 5 |

# Detections of Pesticides not on Ground Water Protection List

2 of 27 detected chemicals are **not** on 6800(a) or 6800(b)
1 of 27 is a degradation product of an unlisted pesticide

| Pesticide | Wells with Detections | Degradate | Wells with Detections |
|---|---|---|---|
| Dacthal | 0 | TPA | 17 |
| Diquat Dibromide | 7 | | |
| Methyl Bromide | 2 | | |

# Revised Pesticide Contamination Prevention Act (2014)

Major revisions:

- DPR can revise its methodology for placing pesticides on Section 6800(b) of the Ground Water Protection List
- DPR can now formally review active ingredients when only their degradation products are found in groundwater

# Contact Information

**DPR Website:**
**http://www.cdpr.ca.gov/**

**DPR Ground Surface Water Program:**
**http://www.cdpr.ca.gov/docs/emon/surfwtr/index.htm**

**DPR Ground Water Program:**
**http://www.cdpr.ca.gov/docs/emon/grndwtr/index.htm**

**DPR Ground Water Permit Use Conditions:**
**http://www.cdpr.ca.gov/docs/emon/grndwtr/regs/pesticide_use.htm**

**DPR Chemigation Website:**
**http://www.cdpr.ca.gov/docs/emon/grndwtr/chem.htm**

**DPR Wellhead Protection Website:**
**http://www.cdpr.ca.gov/docs/emon/grndwtr/wellhead_protection.pdf**

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