

Texas Commission on  
Environmental Quality

# Drought and Public Water Systems

Alexander Hinz

Public Drinking Water Section

Water Supply Division



# Community Public Water Systems

- A public water system which has a potential to serve at least 15 residential service connections on a year-round basis or serves at least 25 residents on a year-round basis.



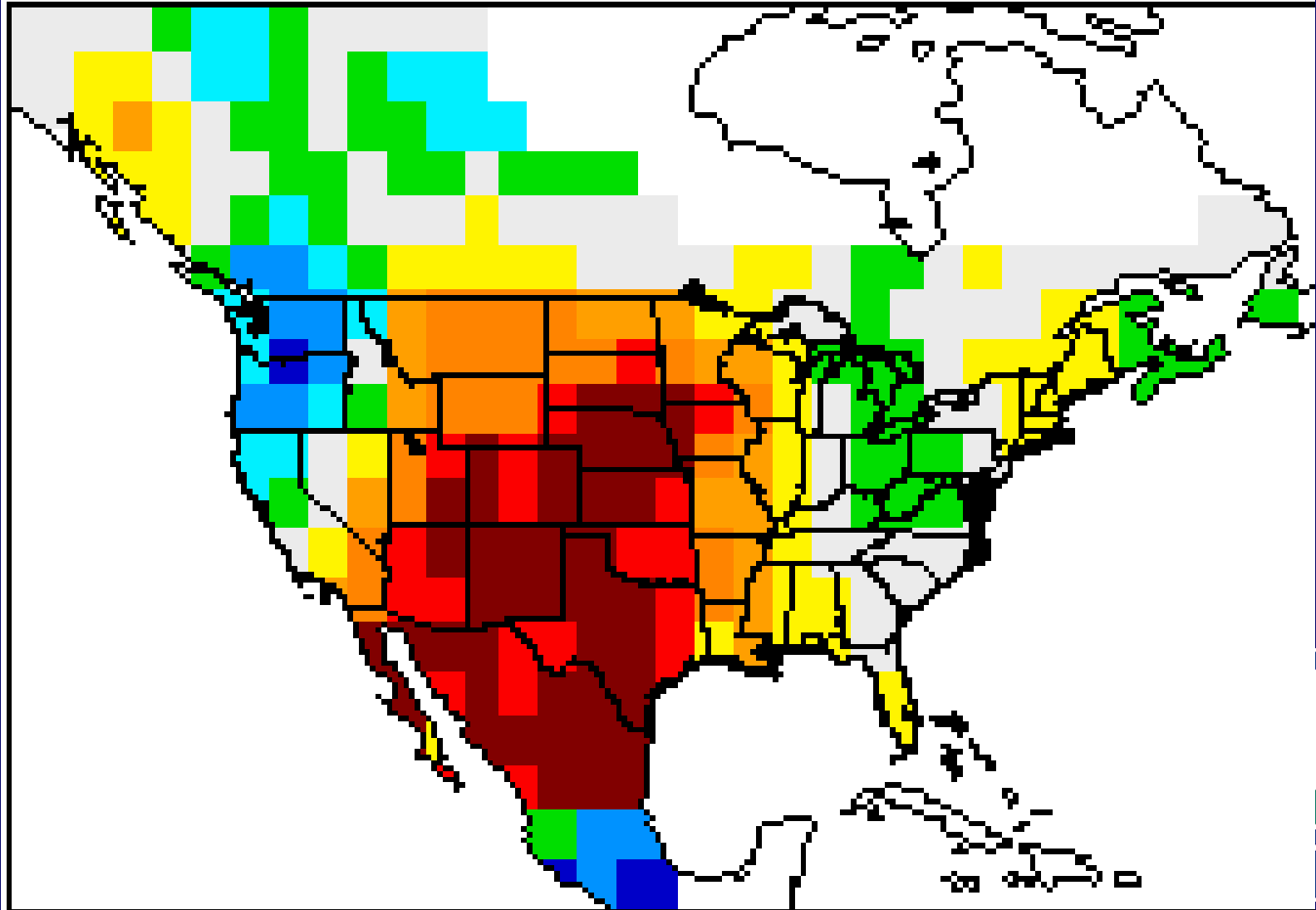
# Texas Commission on Environmental Quality

- Regulate chemical and microbiological quality of public drinking water
- Review plans and specifications for drinking water related projects
- Conduct comprehensive compliance investigation of public water systems on a three year cycle



# Current Drought of Record

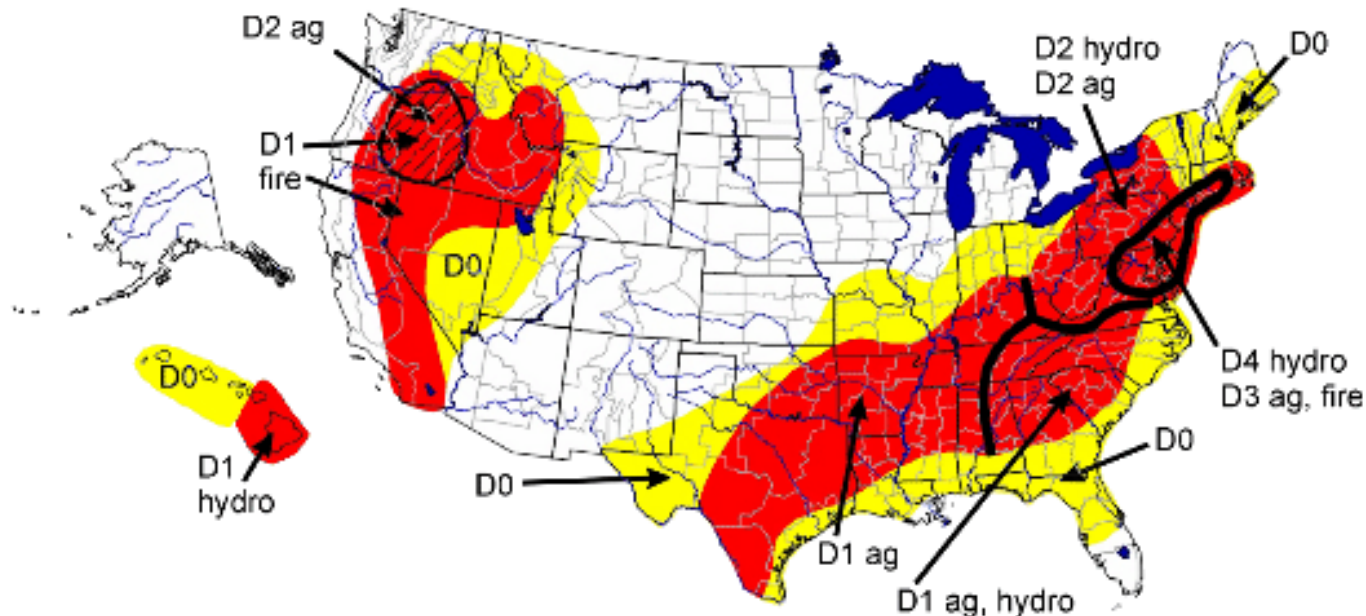
1956



# 1999 Drought

August 18, 1999 (scheduled release time Thursday a.m.)

## U.S. Drought Monitor



"Drought" means moisture shortages leading to damaged crops or pastures, high wildfire risk, or water shortages. The map is based on information from many sources, including both satellite and surface data, and it focuses on widespread drought. Local conditions may vary.

**Yellow** (D0) = Drought Watch Area (abnormally dry but not full drought status)

**Red** (D1–D4) = Current drought ranging in severity from standard (D1) to severe (D2–D3) to extreme (D4)

Crosshatching (⊗) = Overlapping drought type areas

Drought type: Used when impacts differ

Ag = agricultural (crops, grasslands)  
 Fire = forestry (wildfire potential)  
 Hydro = hydrological (rivers, wells, reservoirs)

Plus (+) = Forecast to intensify next two weeks

Minus (-) = Forecast to diminish next two weeks



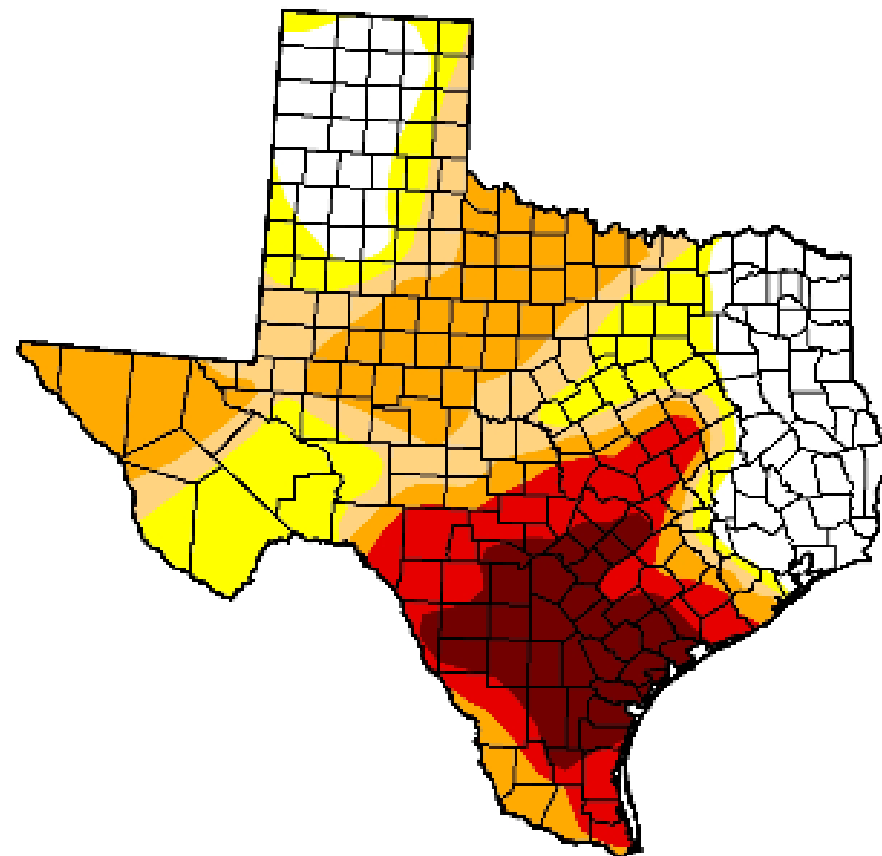
# 2009

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	22.1	77.9	60.5	45.9	22.7	11.2
Last Week (04/14/2009 map)	14.9	85.1	68.2	50.6	25.1	11.5
3 Months Ago (01/27/2009 map)	11.6	88.4	62.1	37.5	16.5	4.2
Start of Calendar Year (01/06/2009 map)	41.7	58.3	24.5	15.0	9.1	4.2
Start of Water Year (10/07/2008 map)	67.2	32.8	20.5	11.0	3.6	0.0
One Year Ago (04/22/2008 map)	37.2	62.8	43.6	18.4	10.5	3.3

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements*



**Released Thursday, April 23, 2009**

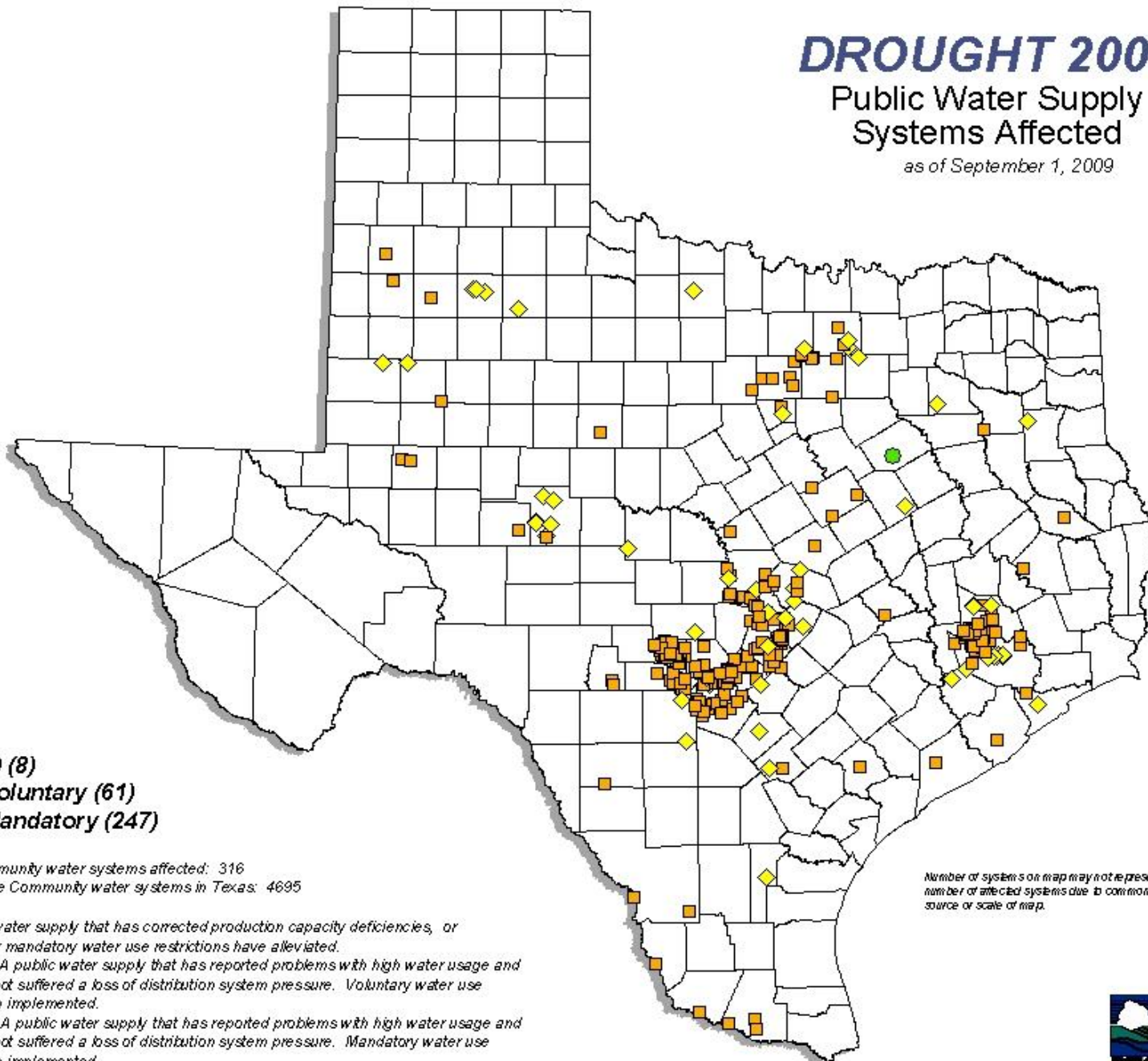
**Author: R. Heim/L. Love-Brotak, NOAA/NESDIS/NCDC**

**<http://drought.unl.edu/dm>**

# DROUGHT 2009

## Public Water Supply Systems Affected

as of September 1, 2009



- **RESOLVED (8)**
- ◆ **WATCH - Voluntary (61)**
- **WATCH - Mandatory (247)**

Total number of Community water systems affected: 316  
Total number of active Community water systems in Texas: 4695

**Resolved** A public water supply that has corrected production capacity deficiencies, or drought conditions for mandatory water use restrictions have alleviated.

**Watch - Voluntary** A public water supply that has reported problems with high water usage and production, but has not suffered a loss of distribution system pressure. Voluntary water use restrictions have been implemented.

**Watch - Mandatory** A public water supply that has reported problems with high water usage and production, but has not suffered a loss of distribution system pressure. Mandatory water use restrictions have been implemented.

Number of systems on map may not represent total number of affected systems due to common water source or scale of map.

# 2011

## U.S. Drought Monitor

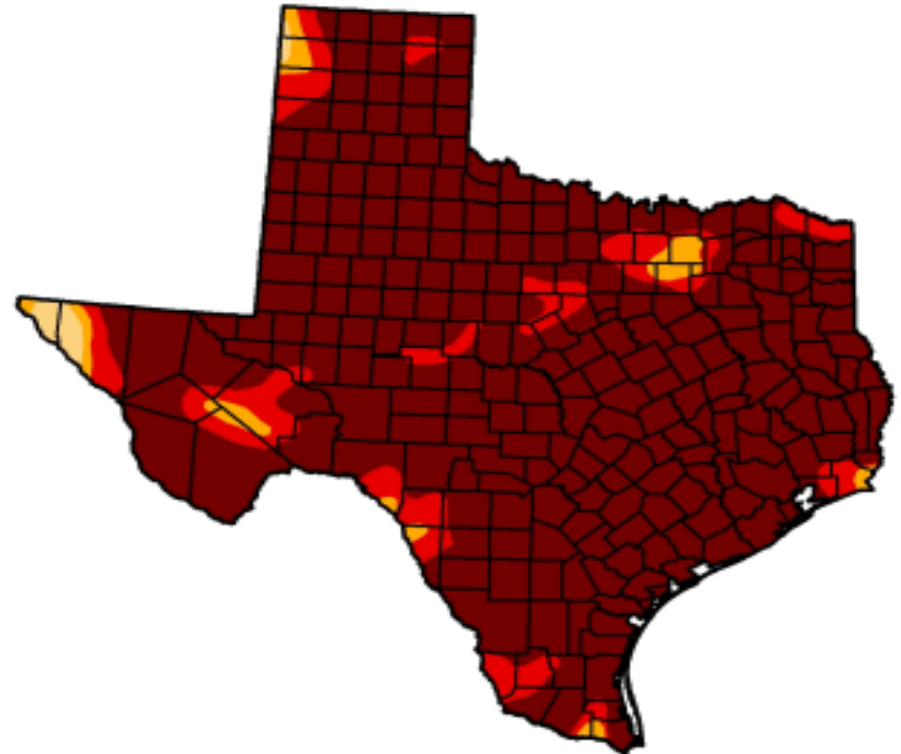
### Texas

October 4, 2011

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	100.00	99.16	96.99	87.99
Last Week (09/27/2011 map)	0.00	100.00	100.00	99.16	96.65	85.75
3 Months Ago (07/05/2011 map)	2.41	97.59	95.73	94.39	90.21	71.30
Start of Calendar Year (12/28/2010 map)	7.89	92.11	69.43	37.46	9.59	0.00
Start of Water Year (09/27/2011 map)	0.00	100.00	100.00	99.16	96.65	85.75
One Year Ago (09/28/2010 map)	75.57	24.43	2.43	0.99	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



Released Thursday, October 6, 2011

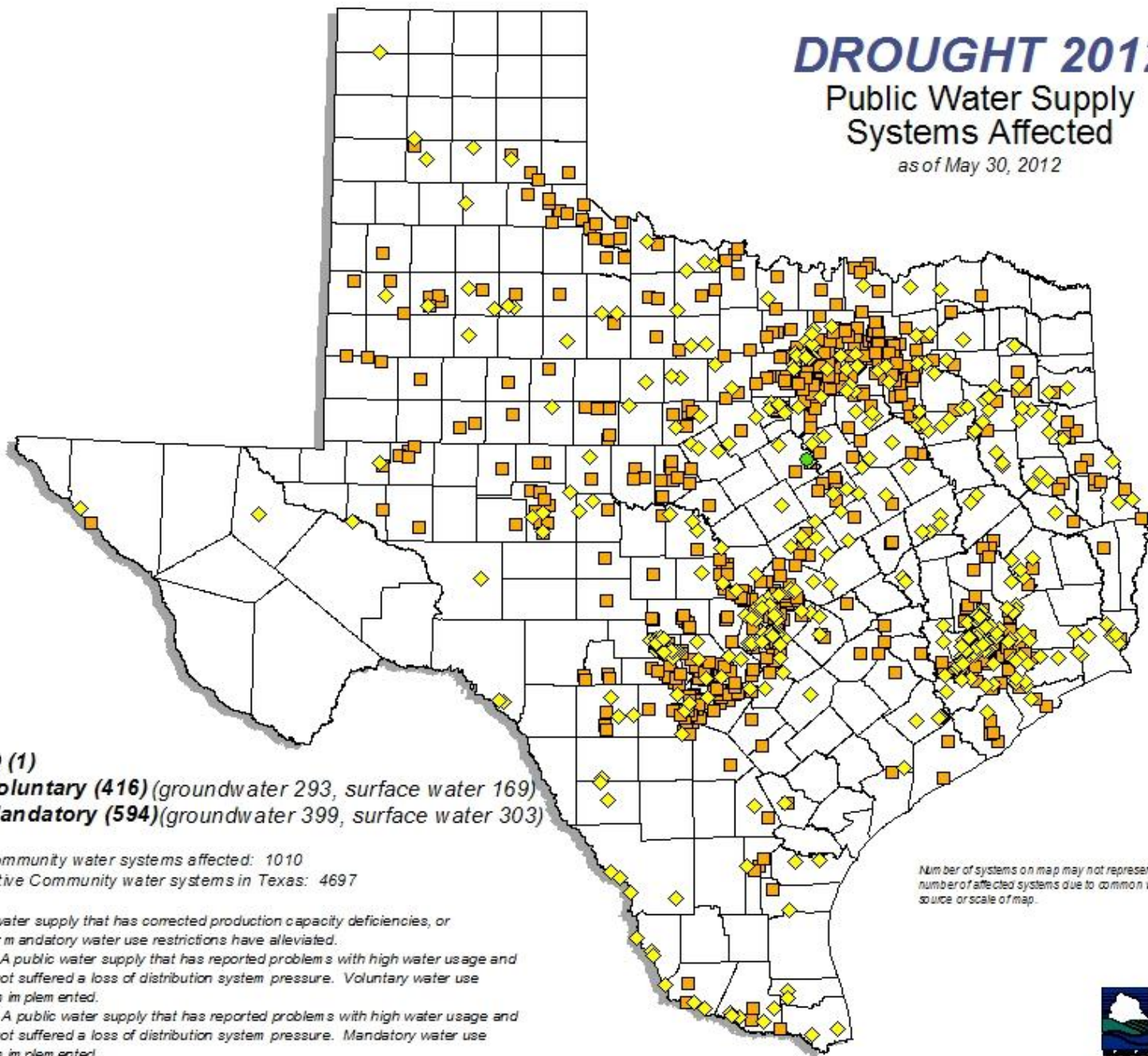
<http://droughtmonitor.unl.edu>



# DROUGHT 2012

## Public Water Supply Systems Affected

as of May 30, 2012



● **RESOLVED (1)**

◆ **WATCH - Voluntary (416)** (groundwater 293, surface water 169)

■ **WATCH - Mandatory (594)** (groundwater 399, surface water 303)

Total number of Community water systems affected: 1010

Total number of active Community water systems in Texas: 4697

**Resolved** A public water supply that has corrected production capacity deficiencies, or drought conditions for mandatory water use restrictions have alleviated.

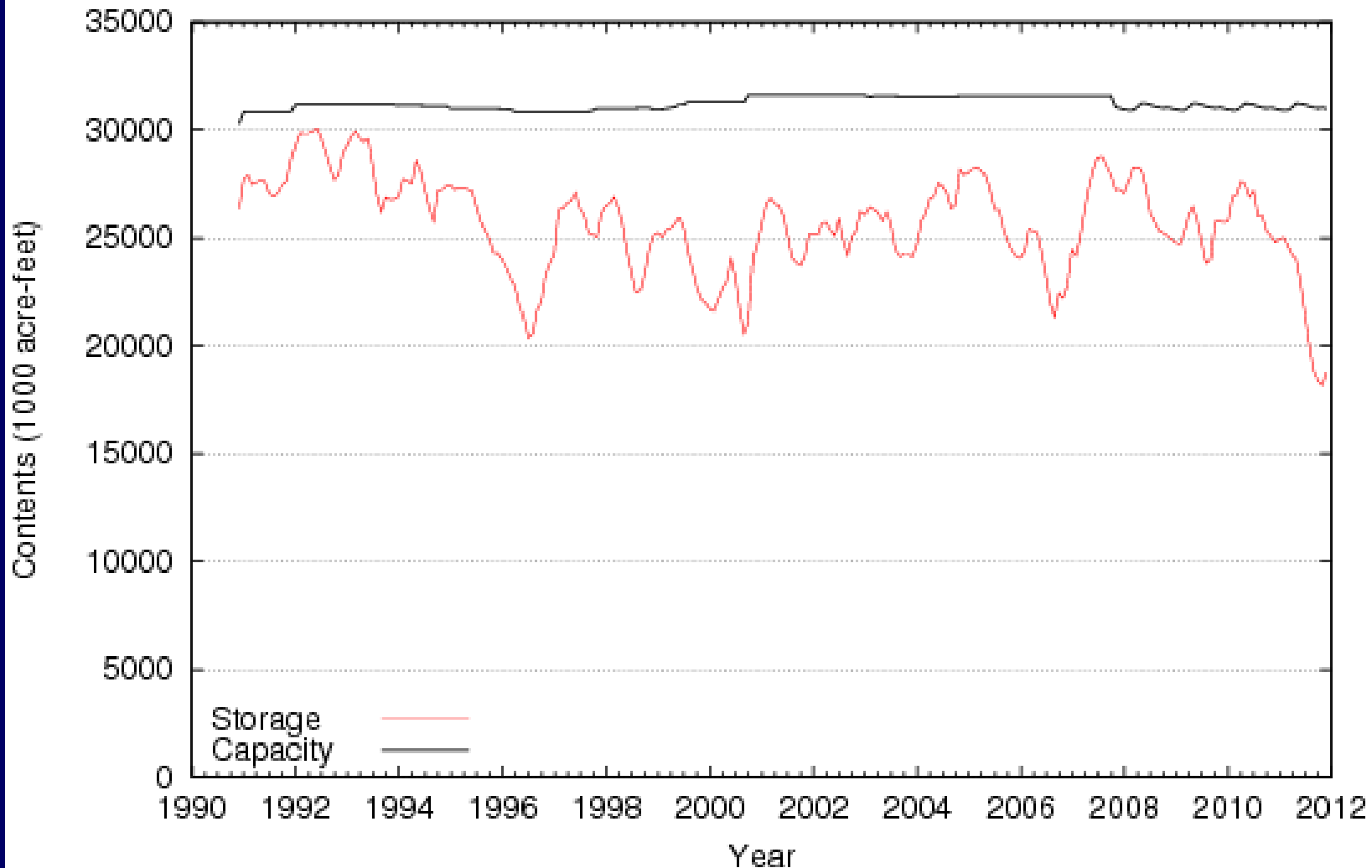
**Watch - Voluntary** A public water supply that has reported problems with high water usage and production, but has not suffered a loss of distribution system pressure. Voluntary water use restrictions have been implemented.

**Watch - Mandatory** A public water supply that has reported problems with high water usage and production, but has not suffered a loss of distribution system pressure. Mandatory water use restrictions have been implemented.

Number of systems on map may not represent total number of affected systems due to common water source or scale of map.

# Storage Levels of Major Reservoirs

Storage near end of Dec, 2011: 18.742 Million acre-ft (61%)  
Conservation Capacity: 30.972 Million acre-ft



# Drought Contingency Plans: Who is Required to Report to TCEQ?

- A wholesale or retail water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan



# Why is it Important to Report Drought Status?

- The TCEQ maintains a database and tracks system's drought status
- The TCEQ holds bi-weekly drought meetings to discuss "At Risk" systems that may have less than 180 day supply of water remaining
- Led to the Formation of the Emergency Drinking Water Task Force



# Emergency Drinking Water Task Force

- Meet weekly to discuss the status of the At Risk systems
- Discuss solutions tailored for each system
- Discuss what assistance can be provided
- Discuss coordination of resources to accomplish the goals of the task force



# TCEQ Related Assistance

- Financial, Managerial and Technical (FMT) assistance provided to water systems
- Coordination with funding agencies
- Expedited agency review of exceptions to rules
- Expedited agency review of plans and specifications



# Most Common Drought Related Issues

- Decrease in groundwater production due to lower aquifer levels
- Decreasing lake levels for surface water systems
- Evaporation played a significant role in depleting water supplies
- Funding for solutions



# Most Common Remedies

- Drilling a new well
- Extending surface water intake into deeper water
- Interconnection with an adjacent system
- Lots of rain!

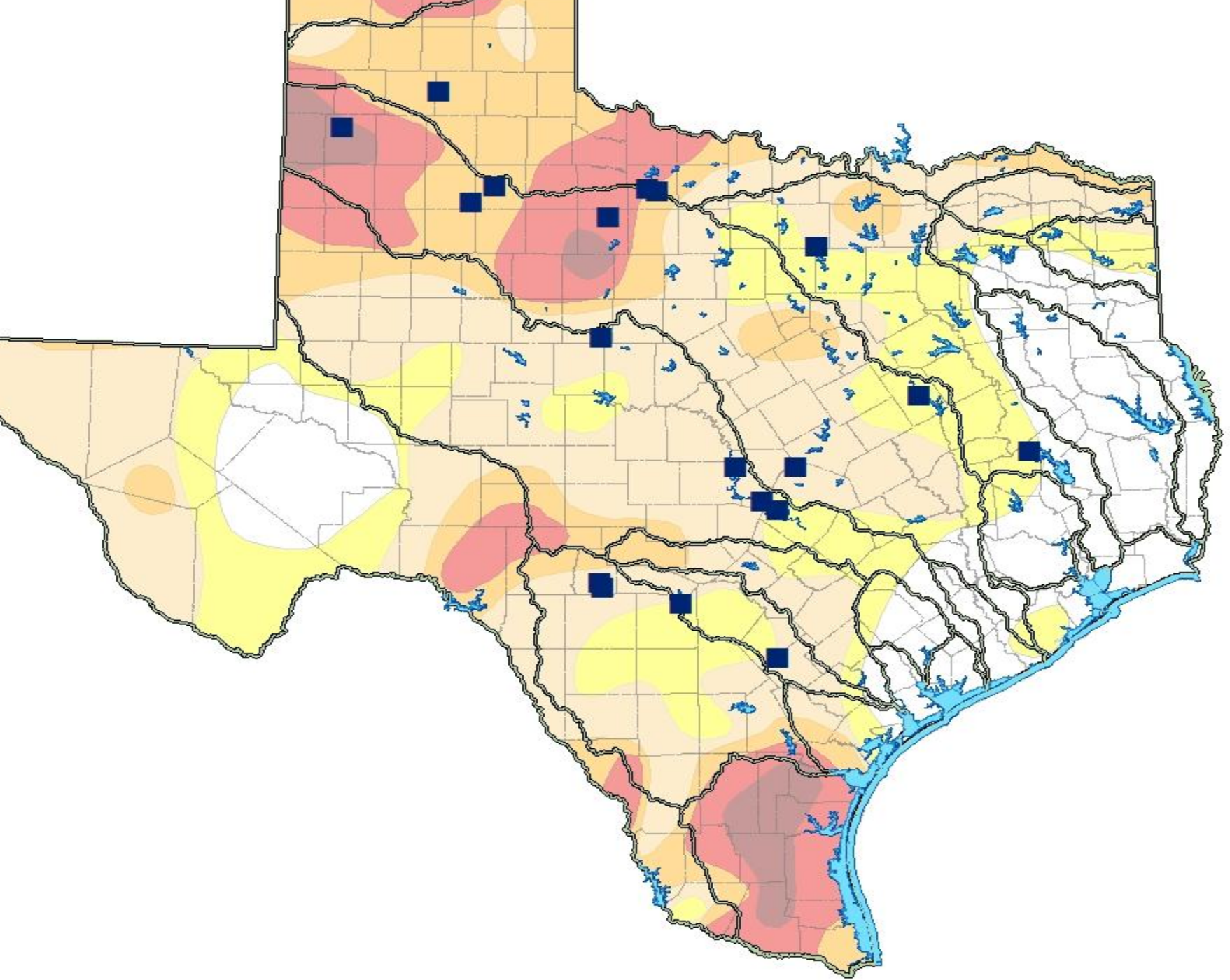




# What happens when a public water system can no longer provide water to customers?

- Request for emergency services must start at the local level.
- Emergency drinking water services will be provided by the Texas Division of Emergency Management on a temporary basis.





# Lessoned Learned?

- Have a Drought Contingency Plan with appropriate triggers
- Be prepared to provide water under varying hydrological conditions
- Proper financial planning (rates)



Alexander Hinz  
Public Drinking Water Section  
Water Supply Division  
512-239-4720  
[Alexander.Hinz@tceq.texas.gov](mailto:Alexander.Hinz@tceq.texas.gov)

