

Texas Drought

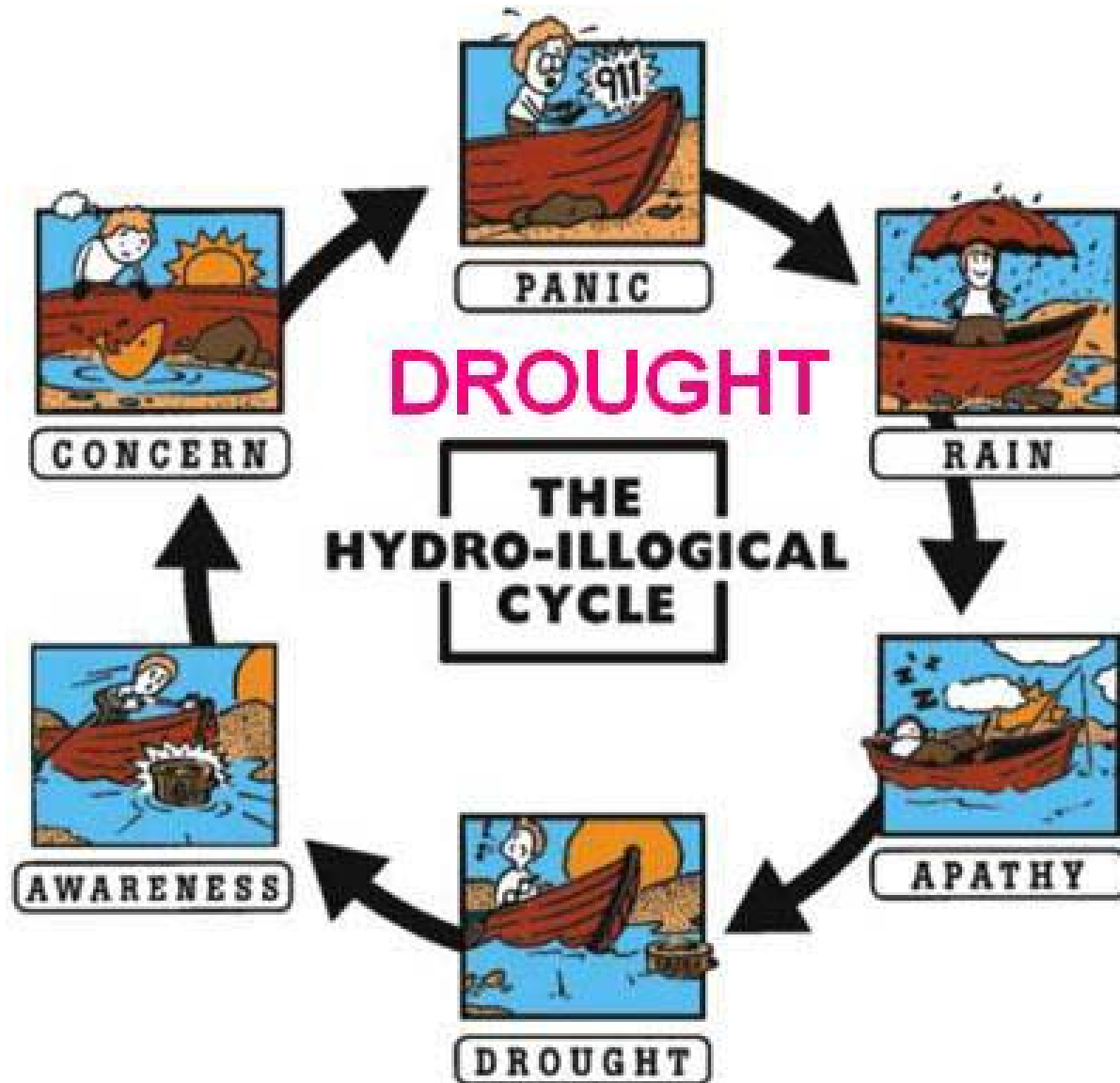
Raymond Slade, Jr.,
Certified Professional Hydrologist



Slide show organization

- **Introduction**
- **Data used for drought evaluation**
- **Drought measures (indices)**
- **Additional drought information**

Introduction





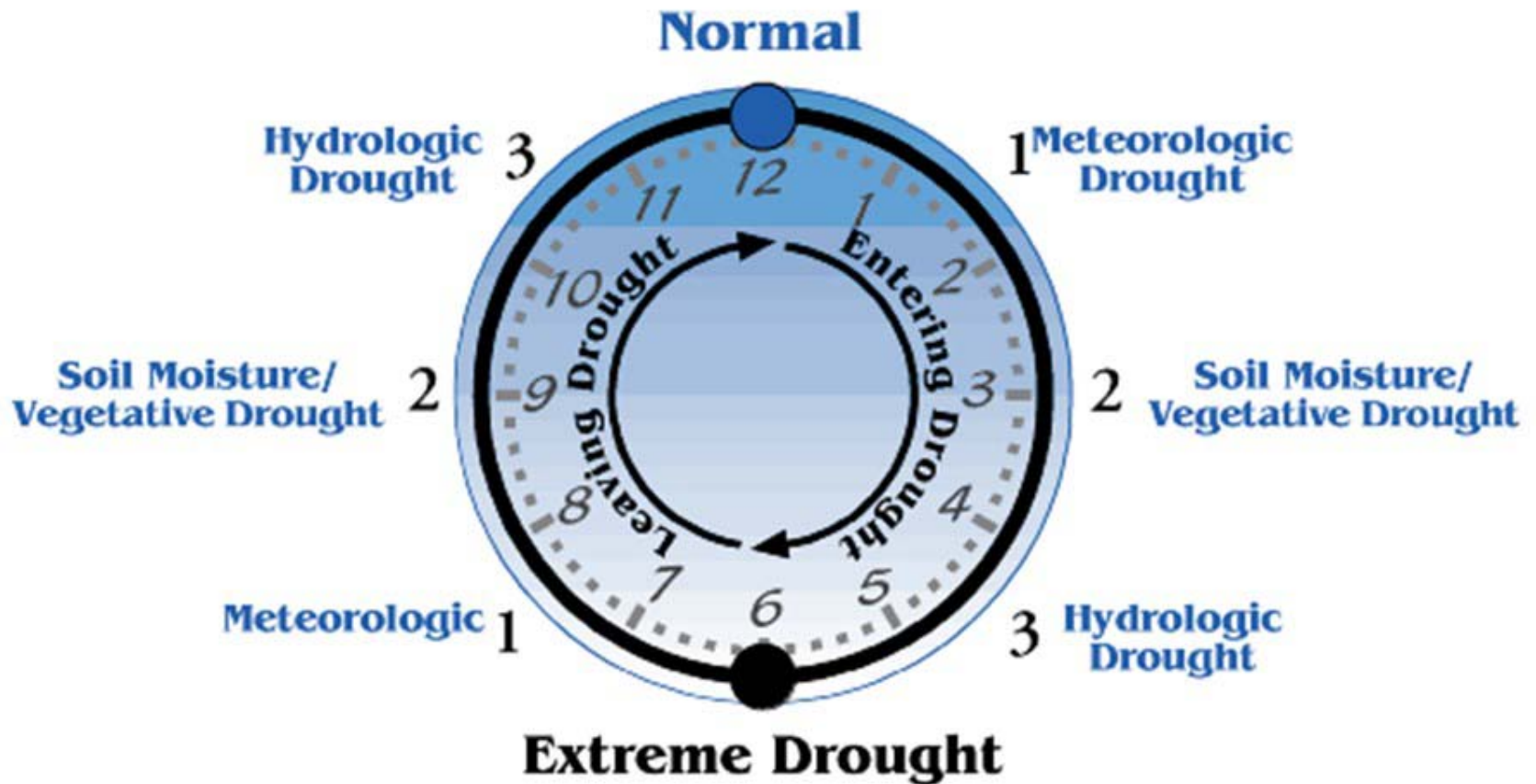
“We know the value of water when the well runs dry” - Benjamin Franklin



Drought Definitions

- **What types of drought exist?**
 - meteorologic** (lack of precipitation during some time period)
 - hydrologic** (surface water and/or groundwater)
 - water supply availability** (i.e., agriculture, municipal supply)
- **When does a drought begin?** Usually unknown
- **What area does a drought cover?** Usually unknown
- **When does a drought end?** Usually ends with a flood
- **How do you evaluate drought severity?**
 - Must be based on beginning date, a defined area, and an evaluation period - now (snapshot in time) or time period such as previous 7 days or previous month.

Typical drought cycle



Data used for drought evaluation

**Evaluate drought
severity:**

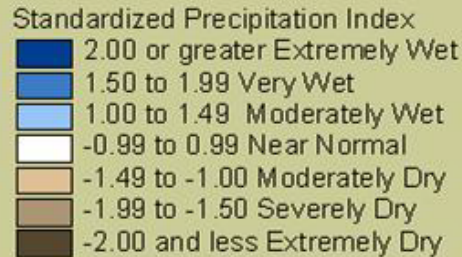
Precipitation data



**Standardized Precipitation Index (SPI)
through the end of July, 2006**

**Data Courtesy of Western Regional Climate Center
Desert Research Institute
Reno, Nevada**

**Provisional Data Provided by
NOAA/NWS/CPC and
NOAA/NESDIS/NCDC**



08/08/06

<http://www.wrcc.dri.edu/spi/spi.html>

**Texas Water
Development
Board (TWDB)
presents drought
information**

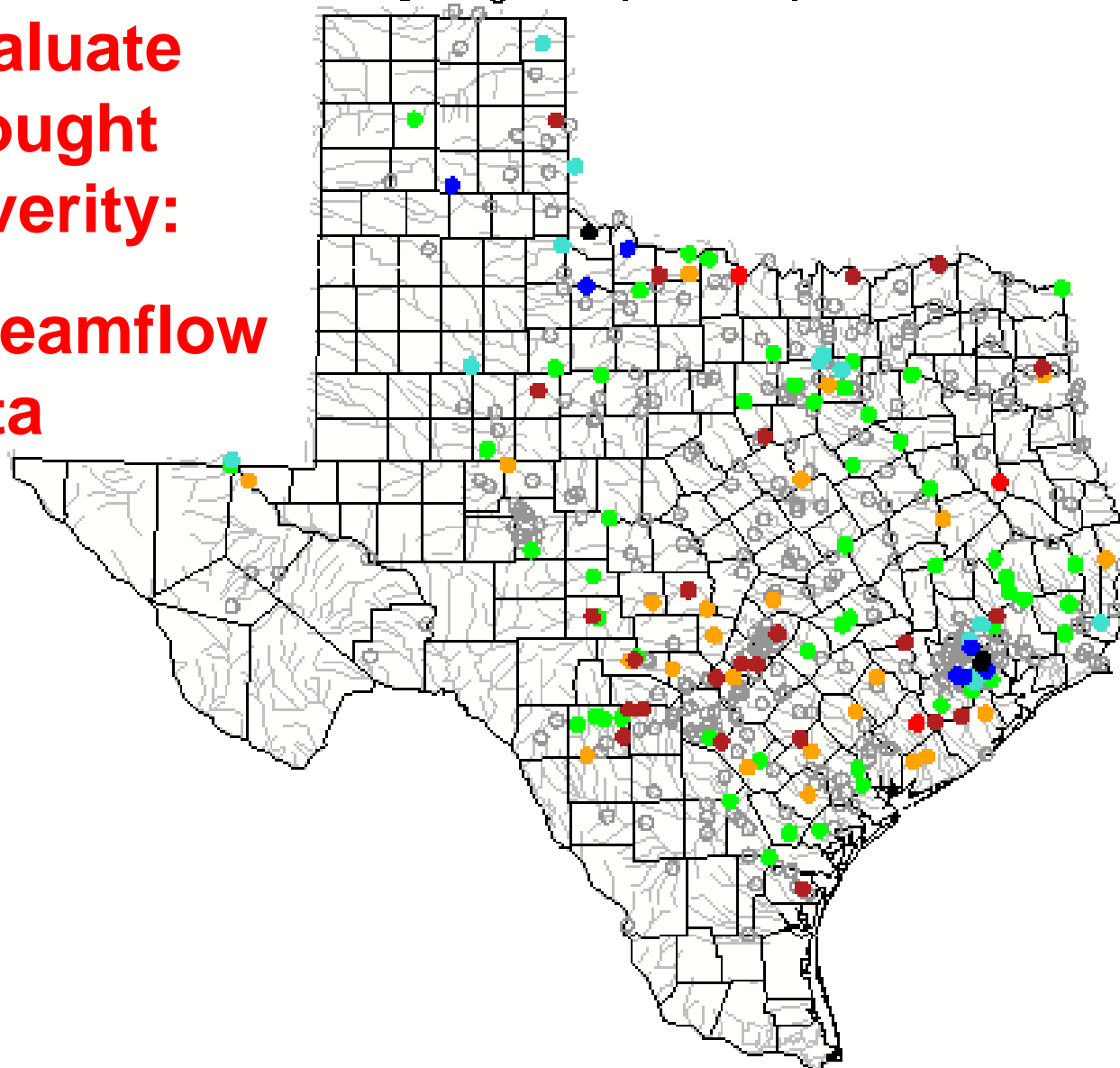
[http://www.twdb.state
.tx.us/DATA/drought/i
ndex.asp](http://www.twdb.state.tx.us/DATA/drought/index.asp)

Daily Streamflow Conditions

Select a site to retrieve data and station information.

Thursday, August 24, 2006 02:20ET

Evaluate
drought
severity:
Streamflow
data



The U.S. Geological
Survey presents
streamflow data

http://waterwatch.usgs.gov/new/index.php?r=tx&id=ww_current

Explanation

- High
- ≥ 90 th percentile
- 75th - 89th percentile
- 25th - 74th percentile
- 10th - 24th percentile
- < 10 th percentile
- Low
- Not ranked

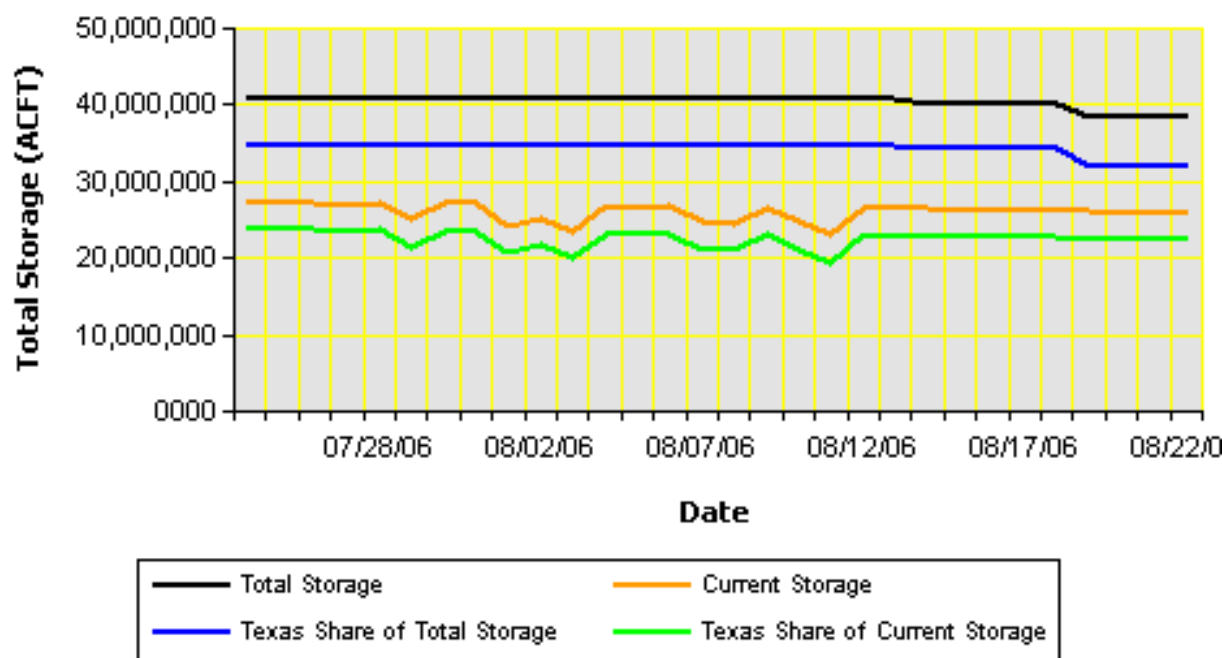
Evaluate drought severity:

Reservoir levels and groundwater levels

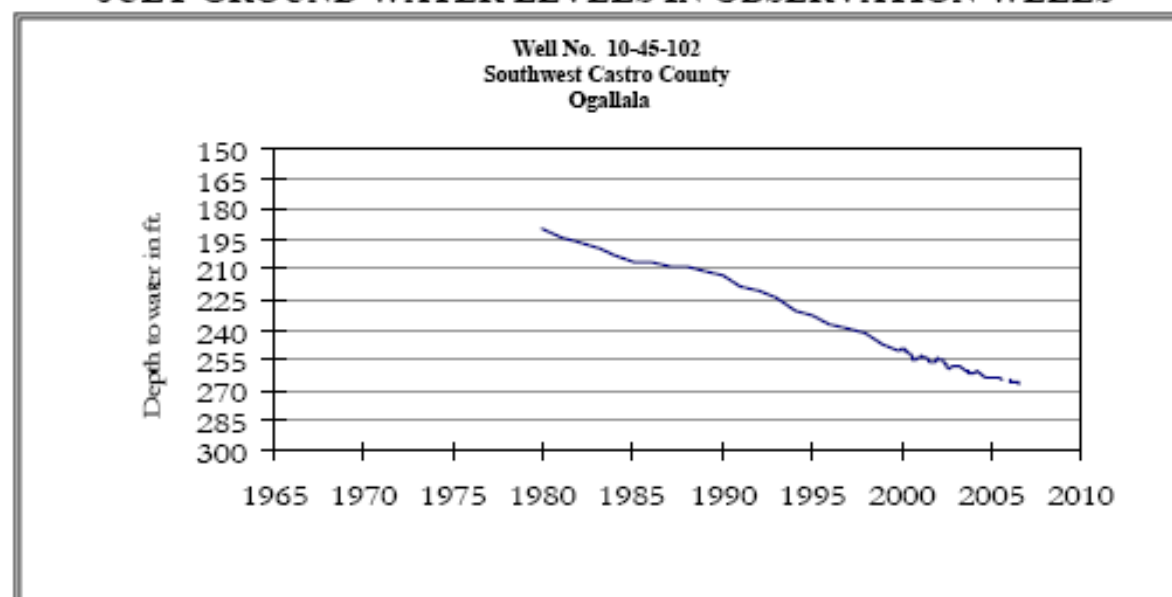
Texas Water Development Board presents reservoir and groundwater levels

<http://wiid.twdb.state.tx.us/>

Reservoir Storage for Texas



JULY GROUND WATER LEVELS IN OBSERVATION WELLS



Drought measures (indices)

- Along with rainfall data, droughts are assessed by a **Standardized Precipitation Index**, which is updated at the end of each month. The maps present drought conditions by county for the past one, three, and six months, and one and three years—they are available at:
 - <http://www.drought.unl.edu/whatis/indices.htm#spi>
- Also available above for drought assessment is the **Parmer Drought Severity Index**, which presents up-to date drought measures for each climatic region in Texas. However, the drought index presented by this site represent large regions, thus the conditions in a particular area might not be accurately represent by the region containing the County.
- http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif

Additional information for drought assessment

- Most of the drought indices represent a current point in time (snapshot). Some of the indices can represent a time period such as the last month, 3 months, or a year. An index based on a time period can be more meaningful than a snapshot index because a single storm during a long drought would have minimal affect on an index based on a period.

Other drought assessments

However, many other drought measures exist. The TWDB presents 6 common drought indices at

<http://www.twdb.state.tx.us/apps/droughtinfo/default.aspx>

Along with the indices from the previous slide, TWBD presents indices for: crop moisture, streamflow, reservoir storage, and fire potential

Maps for each of the indices can be viewed at

<http://www.twdb.state.tx.us/apps/droughtinfo/MapView.aspx>

Additional drought information

Drought severity evaluated by hydrologic and meteorologic data

Data Summary

Worst drought ever

100-year drought

10-year drought

1-year drought

If you are without water

To bad--so is everybody else

Find emergency water--won't happen often

You are in trouble—better find additional water

Move or steal water with gun or legislation

**If water shortage “worse” than drought severity:
not enough water initially or water use has increased**

Texas drought losses top \$4 billion (2006 drought)

COLLEGE STATION, Texas, Aug 12, 2006 (UPI via COMTEX) -- Economic losses from the drought in Texas have topped \$4 billion and could reach record territory unless the dry spell is broken in a big way.



Drought identified water dilemmas

Conserve water, export water, limit growth?

Looking for water in Hays County

Drought and growth blamed for lack of groundwater.

By [Miquel Liscano](#)
AMERICAN-STATESMAN STAFF
Friday, June 30, 2006

HAYS COUNTY — When Wayland Clark decided to build a home in northern Hays County 26 years ago, a local well driller gave him some advice about rural water.

"Water is kind of like love," Clark recalled the old-timer saying. "It's where you find it."

NEWS 

HOME: JUNE 2, 2000: NEWS

High and Dry

LCRA Approves Controversial Pipeline to Dripping Springs

BY ROB D'AMICO

The Lower Colorado River Authority (LCRA) continues to proclaim that it is fulfilling its mission as an environmental steward by offering an

Wimberley water conference addresses dry wells

As population grows, will groundwater be plentiful?

By [Asher Price](#)
AMERICAN-STATESMAN STAFF
Thursday, August 17, 2006

Wimberley Valley Watershed Association
NEWS AND EVENTS

Hays County seeks to offset development with land buys

Hays County seeks to offset development with land buys
Purchases of pools and land intended to balance development.

By [Asher Price](#)
AMERICAN-STATESMAN STAFF
Wednesday, January 18, 2006

Texas Water Development Board Drought Page

- What Drought is and How it is Measured
- Drought Conditions
- Current Drought Monitoring
- Outlook
- Historical Data
- Mitigating Drought
- Drought Related Links

[http://www.twdb.state.tx.us/data/DROUGHT/
index.asp](http://www.twdb.state.tx.us/data/DROUGHT/index.asp)