

# Drought Management

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*What's on Tap for South Central  
Texas?*

# *Draught...*



# *Drought...*



Photo: [wunderground.com](http://wunderground.com)

# What is Drought?

- Extended Period of Time with *Below Normal* Precipitation...
- Natural occurrence in every region
- Results in a Water Shortage for User Groups
  - Municipalities
  - Agriculture
  - Industry
  - Environment

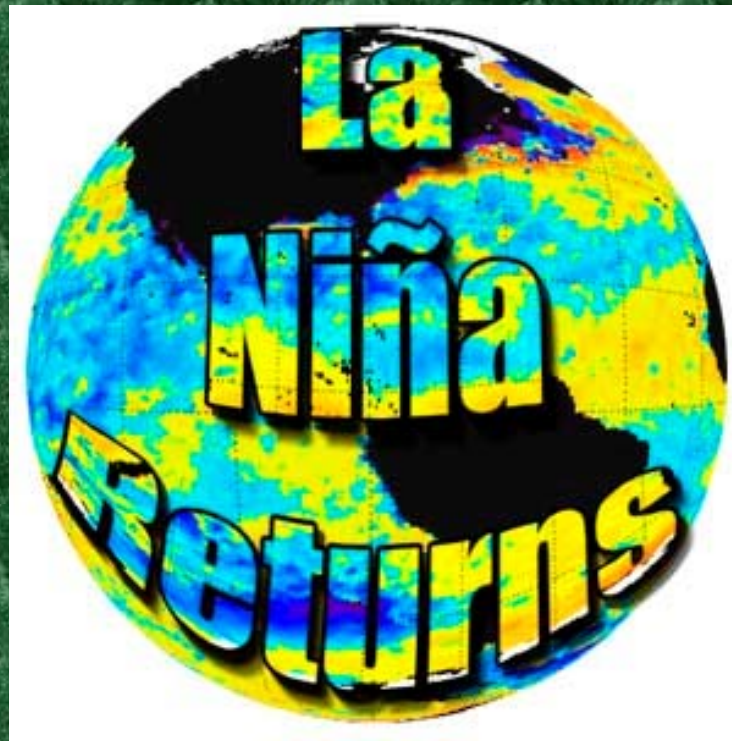
# Unlike floods



- Or college buddies



We usually know when Droughts  
are Coming and can *Plan* for their  
Impact



# How do you Plan for a Drought?

- With Drought Management...



**City of Austin**

**Drought  
Contingency  
Plan**

May 2005

- aka *Drought Contingency Planning*

# Why use Drought Management and Drought Contingency Plans?

An *inexpensive way* to...

- To Extend Existing Water Supplies
- To Ensure *Critical* Water Needs are met during dry periods
- To Reduce *Peak* Demands
- To Reduce *Economic* Impacts
- To Reduce *Environmental* Impacts
- To Reduce *Social* Impacts



# How does Drought Management Accomplish so much?



Think of a Formal  
Dining Room

# How often do we use the Formal Dining Room?

- Holidays



- Guests



*Is it really worth  
the cost and the  
space?*

# Think of a New Water Supply System as a Formal Dining Room

How *often* will it be used?

Is it *worth* the cost?

Is there really a *demand* for it?

# *Why Drought Management Works*

- By *inexpensively* reducing demands...  
...we *delay* the need for *expensive* supplies
- This *creates* more opportunities
  - Not invested in something that is seldom used
  - Saves natural resources
  - Saves money

# Why is Drought Management Inexpensive?

- Drought Management is a *Behavioral* solution to Water Supply Shortages
- Education tends to be *cheaper* than Construction

# *How Drought Management Works*

- *Reduces Non-necessary Water Demands*  
which...
- *Extends existing Water Supplies necessary to meet Essential Needs:*

Drinking Water  
Manufacturing  
Environment

# What are *Non-necessary* Water Uses?

- Lawn watering
- Refilling swimming pools
- ~~Washing the cat~~
- Washing the car

# Lawn Watering/Landscape Irrigation is Biggest User

- Municipal Water Use  
More than *Doubles* during Summer Months due to irrigation
- According to Texas Water Development Board...Half of water applied to lawns is *wasted* due to over-watering and runoff

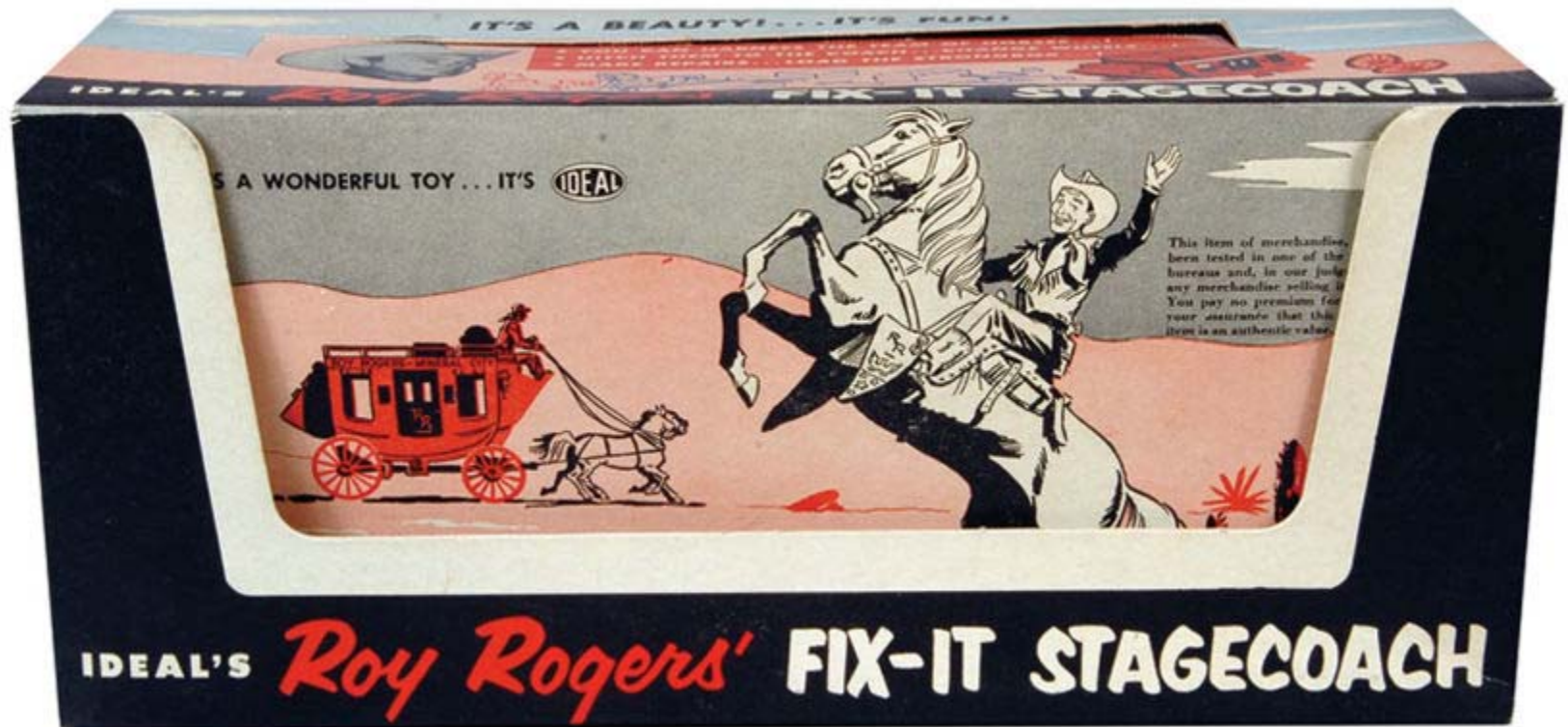




# How does Drought Management Address this Problem?

- Uses Trigger Levels and Stages
  - Based on Drought Severity
  - Limit *Timing and Frequency* of Lawn Watering
    - Early Morning or Late Evening Watering
    - Once a week

# So What are Trigger Levels and Stages?



# So What are “Drought” Trigger Levels and Stages?

- Trigger Levels
  - Indicate a Drought’s impact on water supply
    - Reservoir level
    - Streamflow
    - Aquifer Level
- Stages
  - Demand Management Response based on Trigger Level

# SAWS Drought Management Plan

- Trigger Level

*-Based on Aquifer Level*

650' = Stage 1

640' = Stage 2

630' = Stage 3

- Stage

*-Sprinkler Irrigation*

Stage 1 = Once week lawn watering before 10am or after 8 pm

Stage 2 = Once week lawn watering 3-8am & 8-10pm

Stage 3 = every other week lawn watering 3-8am & 8-10pm

For more detail see [www.saws.org](http://www.saws.org)

# Why Use Stages?

- Educational Process
  - Learning Curve allows time for users to understand Plan
  - Gives water users opportunity to discover what practices work for their situation
  - Can't go from no restrictions to no watering overnight

# Why Use Stages?

- Buffer

- Each stage implemented to stabilize demand conditions and provide buffer against further instability.



- *Smaller* Reductions in use early may delay *Larger* reductions in use later

# Drought Management *differs* from Water Conservation

- Water Conservation involves *on-going* approaches
  - Low-flow toilets
  - Improved sprinkler efficiencies
  - Reduced Water Loss from system
- Drought Management is *short-term* response to water supply shortage
  - Once a week watering
  - Restrictions on non-necessary uses

# Drought Management *works with* Water Conservation

- Ongoing Water Conservation Program provides greater reserves of water before drought begins



# What is being done?

- State Water Law
  - Requires municipal systems to develop Drought Contingency Plans
- Is it working?
  - Apparently so...
  - As of September 1 of this year, 266 water systems had implemented their Drought Contingency Plans.

Title 30, TAC Chapter 288

# What else is being done?

- Regional Water Planning Groups
  - Required to consider Drought Management as a Water Management Strategy in the recently filed 2006 Plans
- Was this done?
  - No.
  - In fact, *none* of the Planning Groups considered Drought Management as a strategy

# In fact, One Planning Group noted...

- Drought Management was not selected as a strategy because it is “*a short term measure that causes considerable discomfort to residents and results in young families dipping bathwater out of the bathtub and flushing toilets for the 10 years of a drought*”.

# Why is Drought Management important to Regional Water Planning?

1. Water Demands are based on Per Capita Use during a drought...
2. If Per Capita Use reductions resulting from Drought Management efforts are not considered...
3. Demands are overestimated and the unneeded water supply projects may be built

# Is this significant?

## Consider...

1. During 2002, drought management efforts in San Angelo reduced per capita use to 118 gallons per capita per day (gpcd). The average is 200 gpcd.
2. During 2000, drought restrictions reduced water use in San Antonio by 14% over a six-month period.
3. During 2006, drought restrictions reduced water use in Llano by 30%.

# How much could be saved with Drought Management?

- 2006 Study by Lone Star Sierra Club...
  - In South Central Texas (Region L)
  - Once-a-week* watering requirements for 9 largest cities in Region could save **47,000** acre-feet in 2060
- August 2006 SAWS in Stage 1 Drought Plan
  - 1x week watering and no weekend watering
  - Weekend Water Use is 15% less than weekday

# Reasons to be Optimistic

- South Central Texas Regional Water Planning Group *and*
- Region H Planning Group (Houston)
  - Including Drought Management Studies in Proposed Scope of Work for the next 2 years

# What Can We Do?

- Know where your water comes from
  - Water IQ
  - Follow the Stages of the Plan
- Pay attention to climatic forecast and act accordingly
  - Not trying to establish lawns or new plants if predictions of drought
- Help your neighbors understand
  - Remember, this is an educational process!



# What Else Can We Do?

- Follow responsible lawn-care practices, such as watering once a week or less on a regular basis. Grass that is watered deeply and infrequently has a stronger root system.
- Reduce lawn areas on your property-create attractive gardens by planting native and well-adapted grasses, shrubs and trees.
- Reduce your indoor water use by installing low-flow showerheads, toilets and water-efficient washing machines.



MULCH! MULCH! MULCH! MULCH! MULCH!

Anything Else?

# Learn More?

- [www.TexasWaterMatters.org](http://www.TexasWaterMatters.org)
  - Go to Drought Management
    - Take the Drought Quiz

You might WIN...

*-A Free Drought!*

