THE MEADOWS CENTER FOR WATER AND THE ENVIRONMENT

No natural resource is more important to our future than Water. Water is what we do.

RESEARCH | STEWARDSHIP | SERVICE | EDUCATION

The Meadows Center
for Water and the Environment
Texas State University

CYPRESS CREEK

Let's keep it clean, clear & flowing

10

Celebrating 10 Years

Of stakeholder-driven watershed protection in the Cypress Creek Watershed

SAN MARCOS
WATERSHED INITIATIVE

The Meadows Center for Water and the Environment
Texas State University

EPA United States Environmental Protection Agency

Texas Commission on Environmental Quality

TEXAS STATE UNIVERSITY
The rising STAR of Texas

The Meadows Center for Water and the Environment
Texas State University

Texas Stream Team

The Meadows Center for Water and the Environment
601 University Drive | San Marcos, TX. 78666
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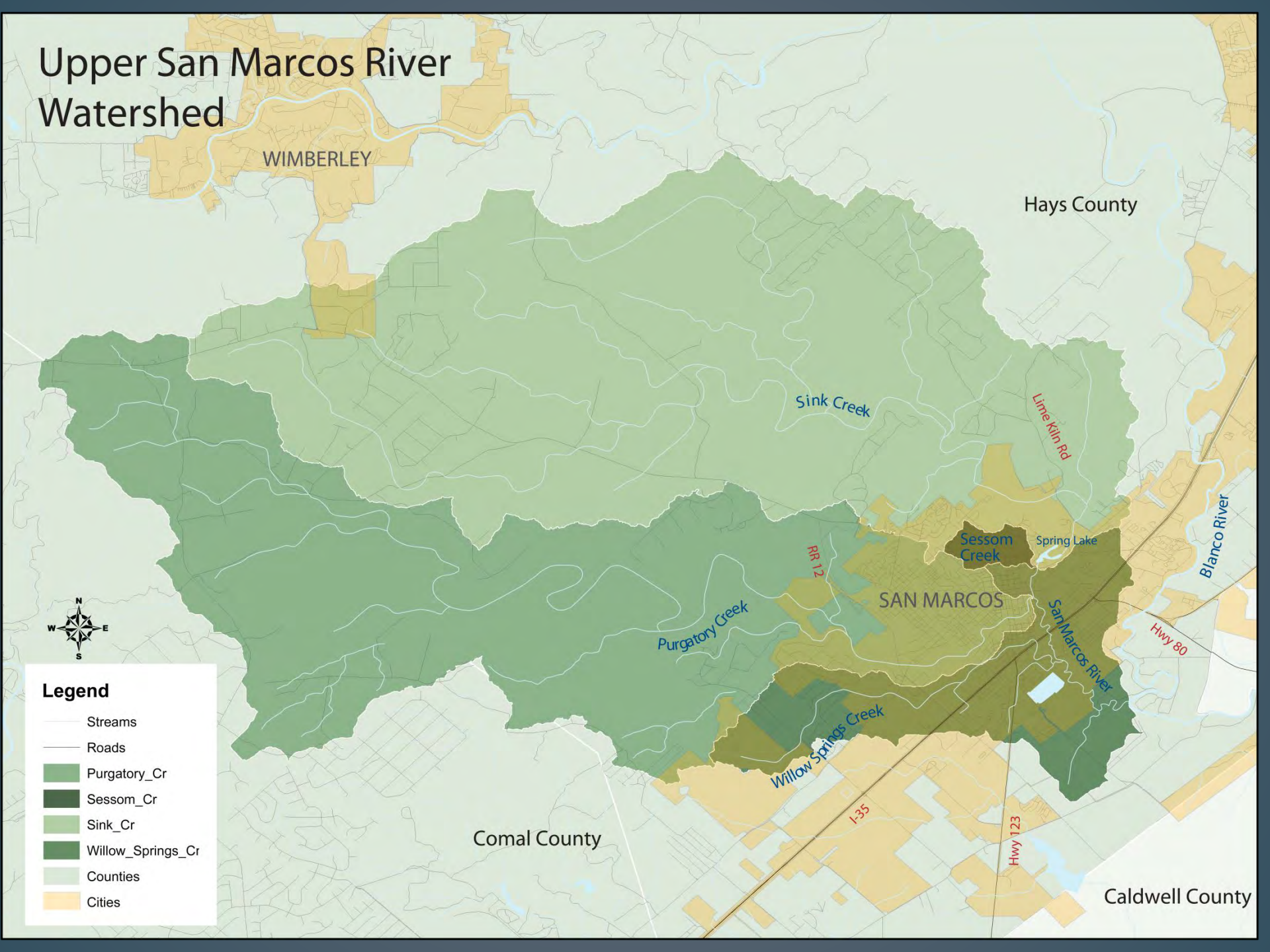
SMWI Mission and Goals

Mission of the San Marcos Watershed Initiative

- Restore and preserve the Upper San Marcos River through research, education and stewardship

Goals

- Improve water quality
- Protect spring flows
- Protect habitat
- Stakeholder engagement
- Educate the community


Upper San Marcos River Watershed
WIMBERLEY
Hays County
Sink Creek
Lime kiln Rd
Blanco River
Sessom Creek
Spring Lake
RR 12
SAN MARCOS
Purgatory Creek
San Marcos River
Hwy 80
Willow Springs Creek
I-35
Hwy 123
Comal County
Caldwell County
N
W
E
S
Legend
Streams
Roads
Purgatory_Cr
Sessom_Cr
Sink_Cr
Willow_Springs_Cr
Counties
Cities

SMWI Current Efforts

- WPP accepted by EPA in 2018
- Two TCEQ CWA Sec. 319 Grants to implement Watershed Protection Plan
  - Primary partners include Meadows, City of San Marcos, San Marcos Greenbelt Alliance, Mermaid Society, and local citizens
  - Riparian restoration, invasive plant removal, reduced stormwater flows, bank stabilization, increased community access, outreach and education

The Cypress Creek Project

Watershed Protection

- Activities to prevent pollution, protect flow
- Preserve water quality through local permitting, ordinances
- Improve tools for decision makers to calculate effects of land use changes on water quality
- Site-specific LID/Green Infrastructure demonstration sites
- Outreach and education efforts
- Monitoring and modeling water quality changes

Simply Stated:

The Cypress Creek Watershed Protection Plan aims to ensure that the long-term integrity and sustainability of the Cypress Creek watershed is preserved and that water quality standards are maintained for present and future generations.

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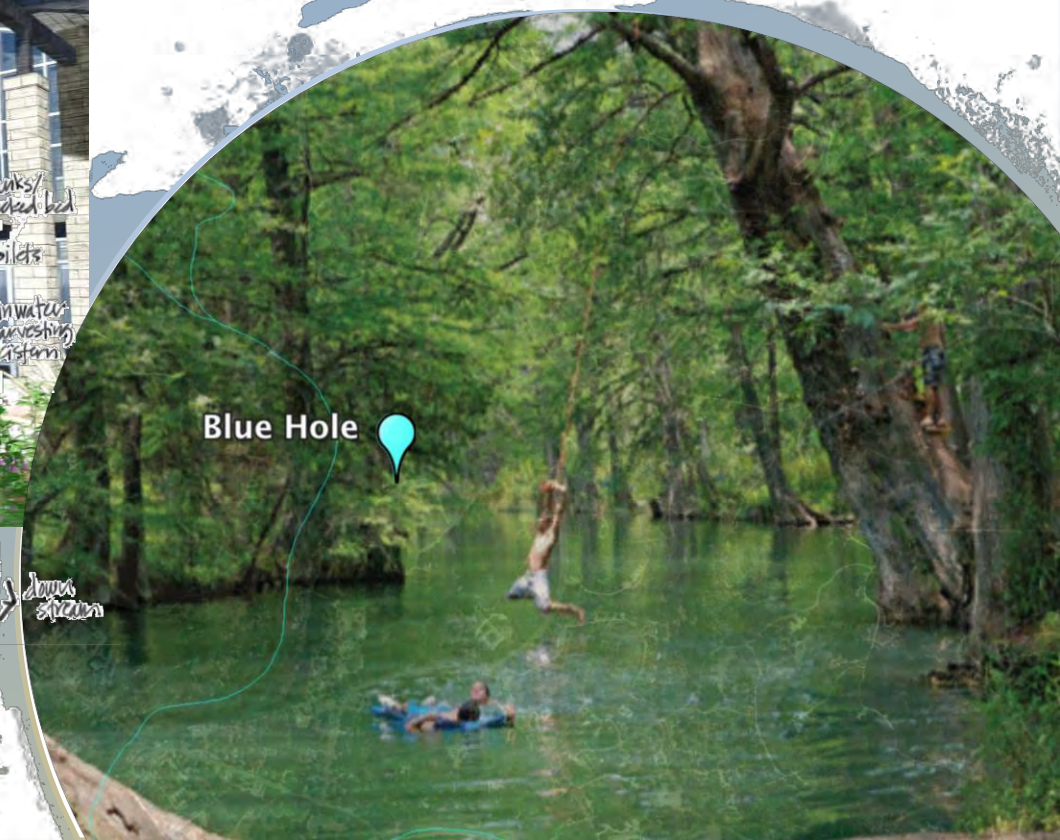
A One Water School for Wimberley ISD



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Billion-Dollar Weather and Climate Disasters: Mapping

- Overview
- Mapping
- Time Series
- Summary Stats
- Table of Events

To better visualize the spatial dimensions of Billion-dollar weather and climate events, below is an interactive event frequency mapping tool. This interface provides a customizable range of years and disaster types, to help visualize how disaster costs change over space and time. A dynamic summary of the Billion-dollar disaster events is also refreshed as the map selection is updated.

CPI-Adjusted | Unadjusted

« 2016 | 1980 »

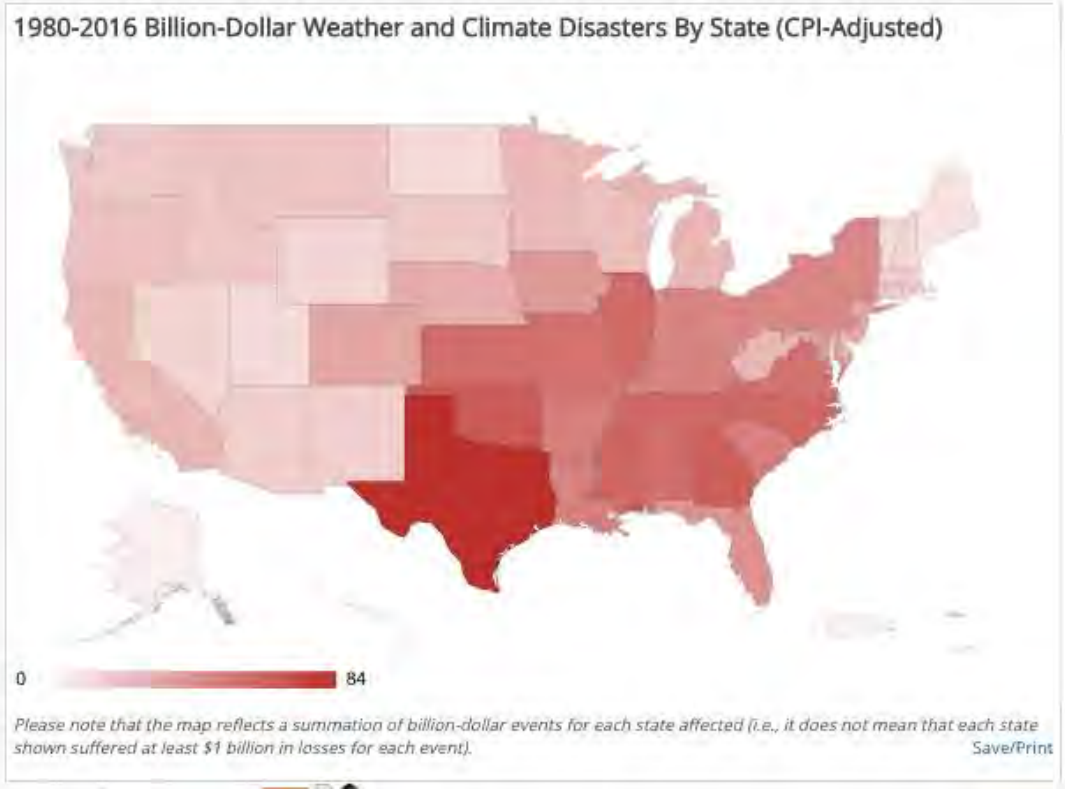
Update

- [x] Drought
- [x] Flooding
- [x] Freeze
- [x] Severe Storm
- [x] Tropical Cyclone
- [x] Wildfire
- [x] Winter Storm
- [ ] All Disasters

Begin Year: 1980

End Year: 2016

From 1980–2016, there were 24 drought events, 26 flooding events, 7 freeze events, 83 severe storm events, 35 tropical cyclone events, 14 wildfire events, and 14 winter storm events with losses exceeding $1 billion (CPI-Adjusted) each across the United States.




ADVANCING
ONE WATER
IN TEXAS

LOCAL

Wimberley school to make history as first 'One Water' school in Texas

A 'One Water' school means it will use 90 percent less groundwater than a typical school of this size.

Author: Shawna Reding
Published: 8:04 AM CST December 3, 2018
Updated: 11:06 AM CST December 3, 2018


ADVANCING
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One-Water: Valuing water at every phase of the water cycle

- **STORMWATER MANAGEMENT**
  - SIMILAR TO AN UNDEVELOPED SITE WITH NO IMPERVIOUS COVER
    - PROTECT WATER QUALITY
    - CONSERVE WATER QUANTITY
- **WATER CAPTURE AND RE-USE**
  - ON SITE WW TREATMENT → LANDSCAPE IRRIGATION
  - AC CONDENSATE + RAINWATER HARVESTING → TOILET FLUSHING
- **CONSERVATION**
  - LOW FLOW FIXTURES
  - NATIVE AND ADAPTED WATER-WISE LANDSCAPING & SITE REGENERATION

Water Collection + Onsite Wastewater Reuse

- RECIRCULATING PACKED-BED FILTER SYSTEM
- FIRST COST SAVINGS - $300,000 *based on 7500/day system
- POTENTIAL SAVINGS VS CONVENTIONAL SYSTEM
  - OVER 30 YEARS ANNUALLY $20,000 - $30,000
- CASE STUDY – ORENCO SCHOOL – ADVANTEX
- PARALLEL PERMITTING APPROACH WITH HAYS & TCEQ

Stormwater Management

- Protect Water Quality & Conserve Water Quantity

Conventional vs One-Water Cost Summary

WATER SUBSYSTEM	COST TYPE	CONVENTIONAL	ONE-WATER
WASTE WATER + REUSE	CAPITAL COST	$ 750,000	$ 446,778
	ANNUAL O & M COST	$ 26,695	$ 6,000
RAINWATER + AC CONDENSATE COLLECTION FOR TOILET FLUSHING	CAPITAL	$ -	$ 250,000
	ANNUAL O & M COST	$ 19,488	$ 10,188
STORMWATER MANAGEMENT (LID & GREEN INFRASTRUCTURE)	CAPITAL COST	$ -	$ 125,000
	ANNUAL O & M COST	$ -	$ -
SUM TOTAL ALL WATER SYSTEMS	CAPITAL + 30 YEAR O & M COST	$ 2,135,490	$ 1,307,418

Benefits: Bringing It All Together

- FOR WISD:
  - Reduced capital and operating costs
  - Establish leadership in the community on a flagship site
- FOR THE COMMUNITY
  - A catalyst for creating a watershed culture
  - A Living Lab for integrated water management
- FOR THE CHILDREN
  - Healthier and smarter kids
  - Engaging and Inspirational Learning Experience

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Executive Director

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