# TEXAS STREAM TEAM

at The Meadows Center for Water and the Environment

*Dedicated to understanding and protecting the 191,000 miles of Texas waterways.*

The Meadows Center
for Water and the Environment

Texas Stream Team



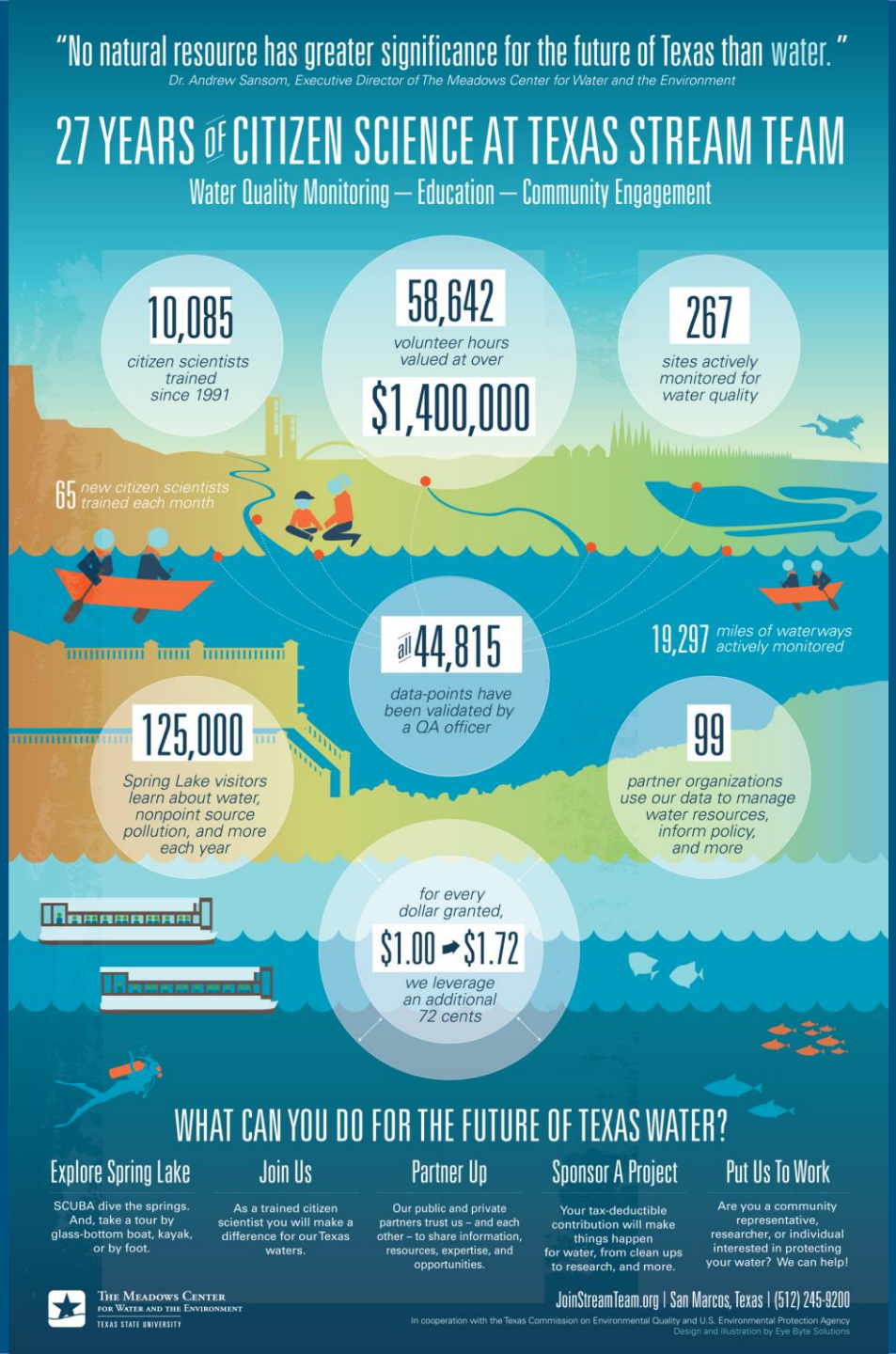



# MISSION:

To facilitate environmental stewardship by empowering a statewide network of concerned citizen scientists, partners, and institutions in a collaborative effort to promote a healthy and safe environment though environmental education, data collection, and community action.

# WHAT WE DO

- Environmental Education
- Data Collection
- Data Use
- Community Action
- Watershed Services

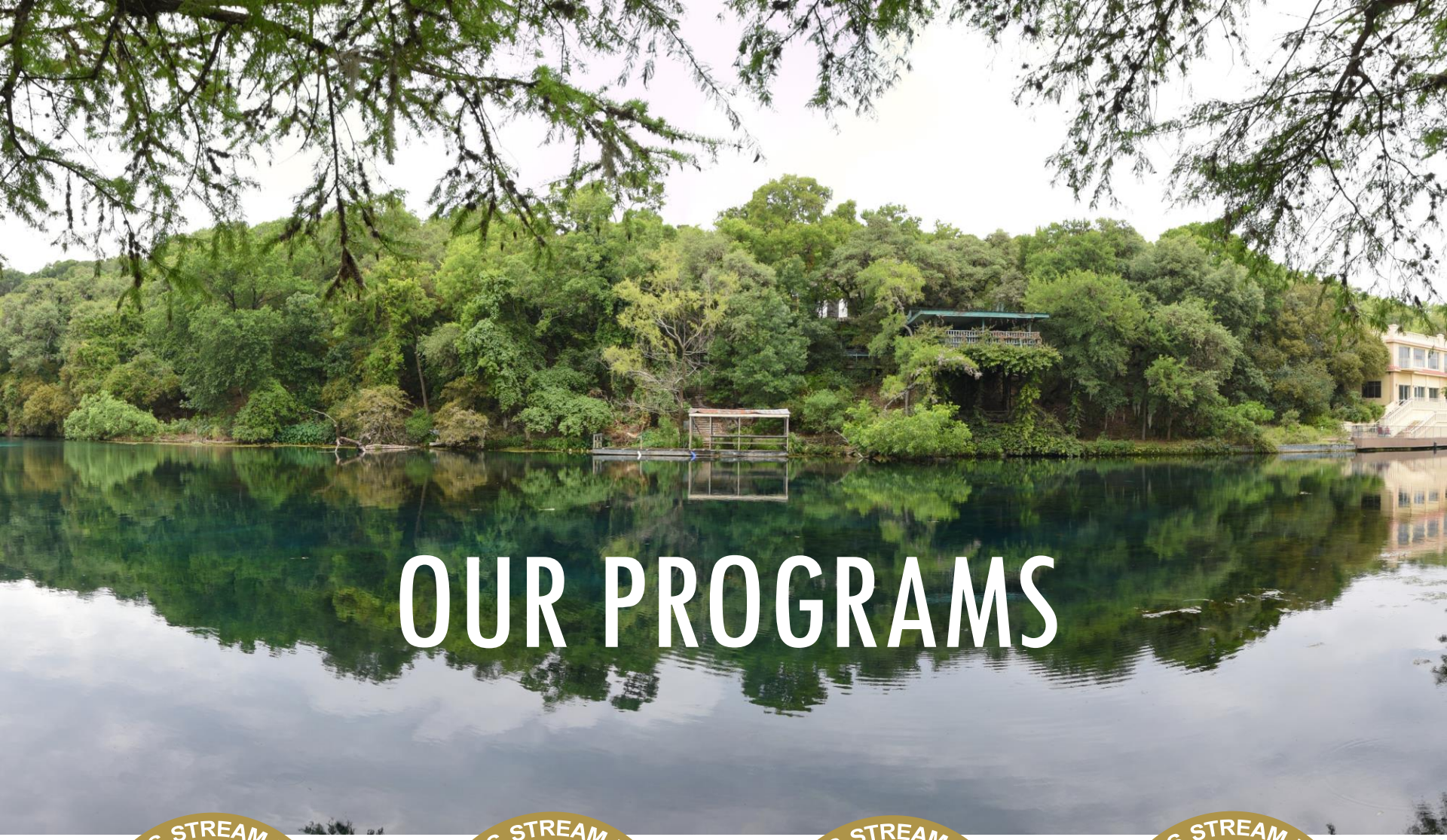

"No natural resource has greater significance for the future of Texas than water."
Dr. Andrew Sansom, Executive Director of The Meadows Center for Water and the Environment
27 YEARS OF CITIZEN SCIENCE AT TEXAS STREAM TEAM
Water Quality Monitoring — Education — Community Engagement
10,085
citizen scientists trained since 1991
58,642
volunteer hours valued at over
$1,400,000
267
sites actively monitored for water quality
65 new citizen scientists trained each month
19,297 miles of waterways actively monitored
all 44,815
data-points have been validated by a QA officer
125,000
Spring Lake visitors learn about water, nonpoint source pollution, and more each year
99
partner organizations use our data to manage water resources, inform policy, and more
for every dollar granted,
$1.00 ➡ $1.72
we leverage an additional 72 cents
WHAT CAN YOU DO FOR THE FUTURE OF TEXAS WATER?
Explore Spring Lake
SCUBA dive the springs. And, take a tour by glass-bottom boat, kayak, or by foot.
Join Us
As a trained citizen scientist you will make a difference for our Texas waters.
Partner Up
Our public and private partners trust us – and each other – to share information, resources, expertise, and opportunities.
Sponsor A Project
Your tax-deductible contribution will make things happen for water, from clean ups to research, and more.
Put Us To Work
Are you a community representative, researcher, or individual interested in protecting your water? We can help!
The Meadows Center for Water and the Environment
Texas State University
JoinStreamTeam.org | San Marcos, Texas | (512) 245-9200
In cooperation with the Texas Commission on Environmental Quality and U.S. Environmental Protection Agency
Design and illustration by Eye Byte Solutions

# DAY-TO-DAY ACTIVITIES

- Technical support
- Education and outreach
- Publications and resource guides
- Environmental education grants

# TST PARTNERS, NETWORK

- Provide kits, supplies, materials
- Host Trainings, projects and educational/outreach events
- Create Monitoring Plans for citizen scientists
- Conduct quality assurance and submit data
- Incorporate TST data into projects, planning
- Use TST data to supplement water quality monitoring
- Act as watershed ambassadors, regional hubs



# OUR PROGRAMS

TEXAS STREAM TEAM
PADDLERS

TEXAS STREAM TEAM
ANGLERS

TEXAS STREAM TEAM
MONOFILAMENT FINDERS

TEXAS STREAM TEAM
BIOMONITORS

# CERTIFICATION TRAINING COURSES

- Standard Core Water Quality Monitoring
- Paddler Core Water Quality Monitoring
- Advanced NPS Water Quality Monitoring
- *E. coli* Monitoring and Analysis
- Riparian Bull's Eye Assessment
- Macroinvertebrate Rapid Bioassessment

# DATA COLLECTING AND PARAMETERS

## Core Water Quality Parameters

- Temperature
- pH
- Dissolved Oxygen
- Specific Conductivity
- Total Dissolved Solids
- Salinity
- Secchi Disk and Total Depth
- Field Observations

## Advanced Water Quality Parameters

- *E. coli*
- Nitrate-Nitrogen
- Orthophosphate
- Turbidity
- Streamflow

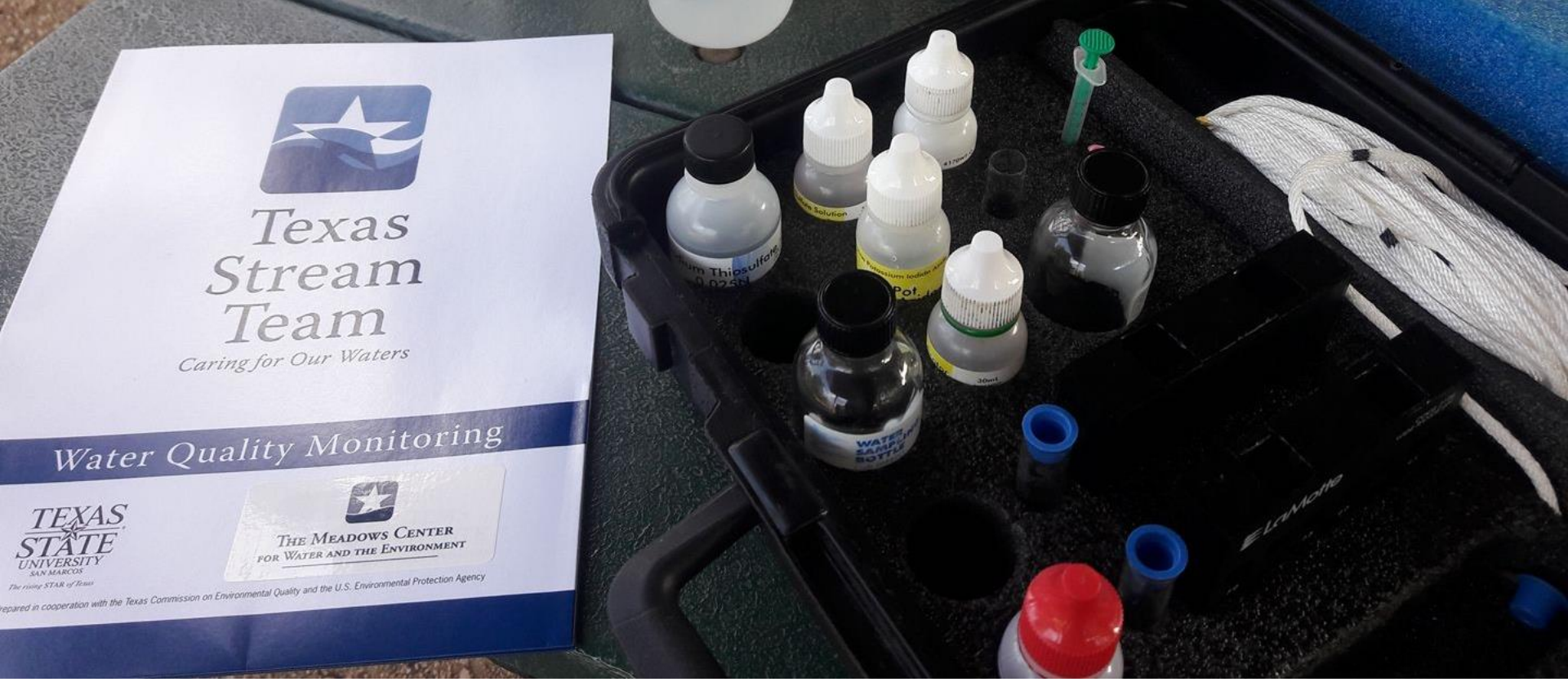
# WATERWAYS DATAVIEWER DATA ENTRY

| Action | Site ID | Sample Date... | Air Temperature (° C) | Water Temperature (° C) |
|---|---|---|---|---|
| Edit \| Del | 81349 | 7/17/2018 | 32.10 | 27.70 |
| Edit \| Del | 81229 | 7/16/2018 | 34.00 | 27.00 |
| Edit \| Del | 80336 | 7/16/2018 | 32.00 | 24.00 |
| Edit \| Del | 81074 | 7/15/2018 | 27.00 | 27.10 |
| Edit \| Del | 80347 | 7/15/2018 | 32.00 | 31.20 |
| Edit \| Del | 10743 | 7/14/2018 | 30.00 | 28.00 |
| Edit \| Del | 10749 | 7/14/2018 | 28.00 | 27.00 |

Upon submission and verification, data is uploaded directly to the TST Database.

# QUALITY ASSURANCE & QUALITY CONTROL

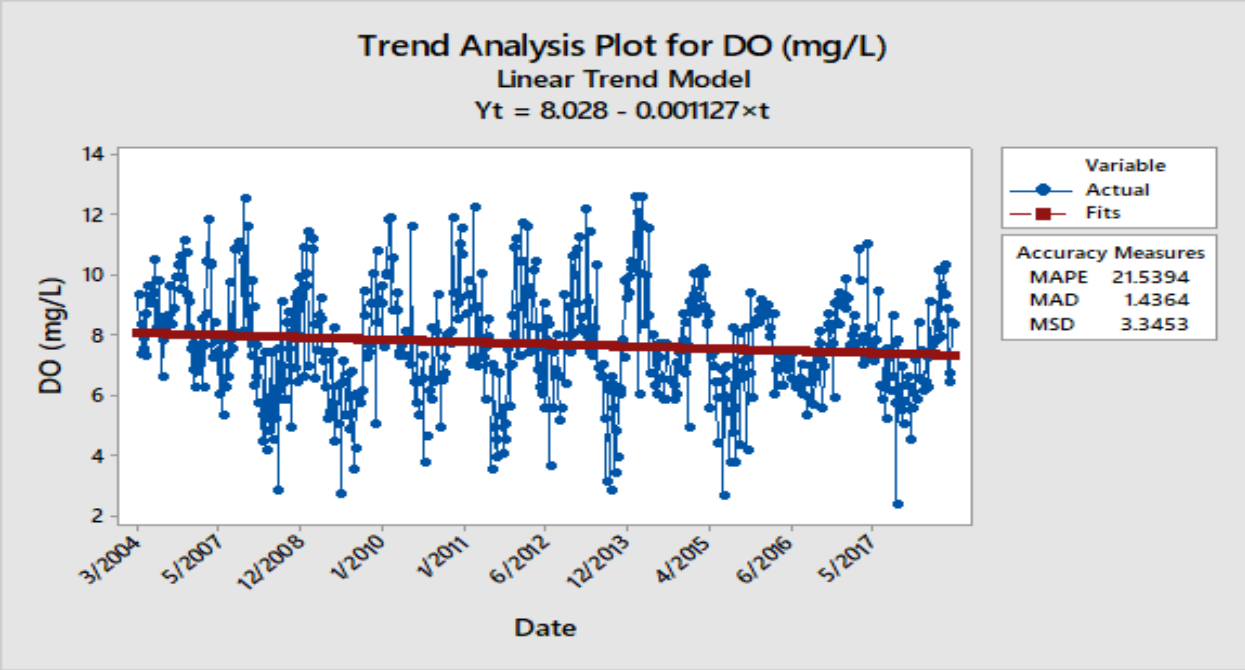
- Quality Assurance Project Plan (QAPP) approved by TCEQ
- Must be a certified TST Citizen Scientist to submit environmental monitoring data
- Data is reviewed by a Quality Assurance Officer (QAO)
- TST Citizen Scientists are encouraged to attend Quality Control (QC) sessions




# DATA USES

- Inform communities about local water quality
- Municipalities outreach messages
- Data Summary Reports
- Submitted to EPA's water quality database
- WPP and TMDLs
- TST Partners
- Interpretive displays, education and outreach event
- Research projects
- Presented on Waterways Dataviewer

# Data Summary Reports



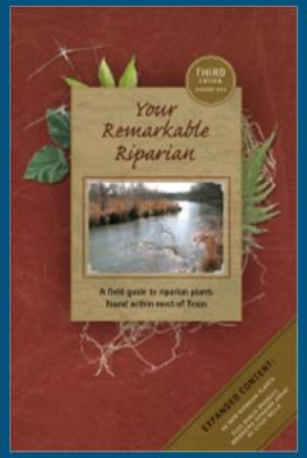

Linear Trend Model of Dissolved Oxygen at all sites within the Wimberley Valley Watershed

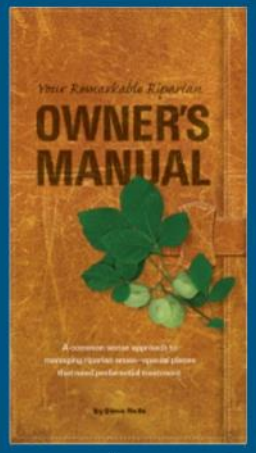
- Watershed Data Analysis
- Site by Site Analysis
- Sampling Information
- Linear Trend Models
- Trends over Time
- Watershed Summary

# RIPARIAN ASSESSMENT & MACROINVERTEBRATE BIOASSESSMENT PROGRAM

Assess the health of waterways based on the riparian habitat and the aquatic insects that are present there.

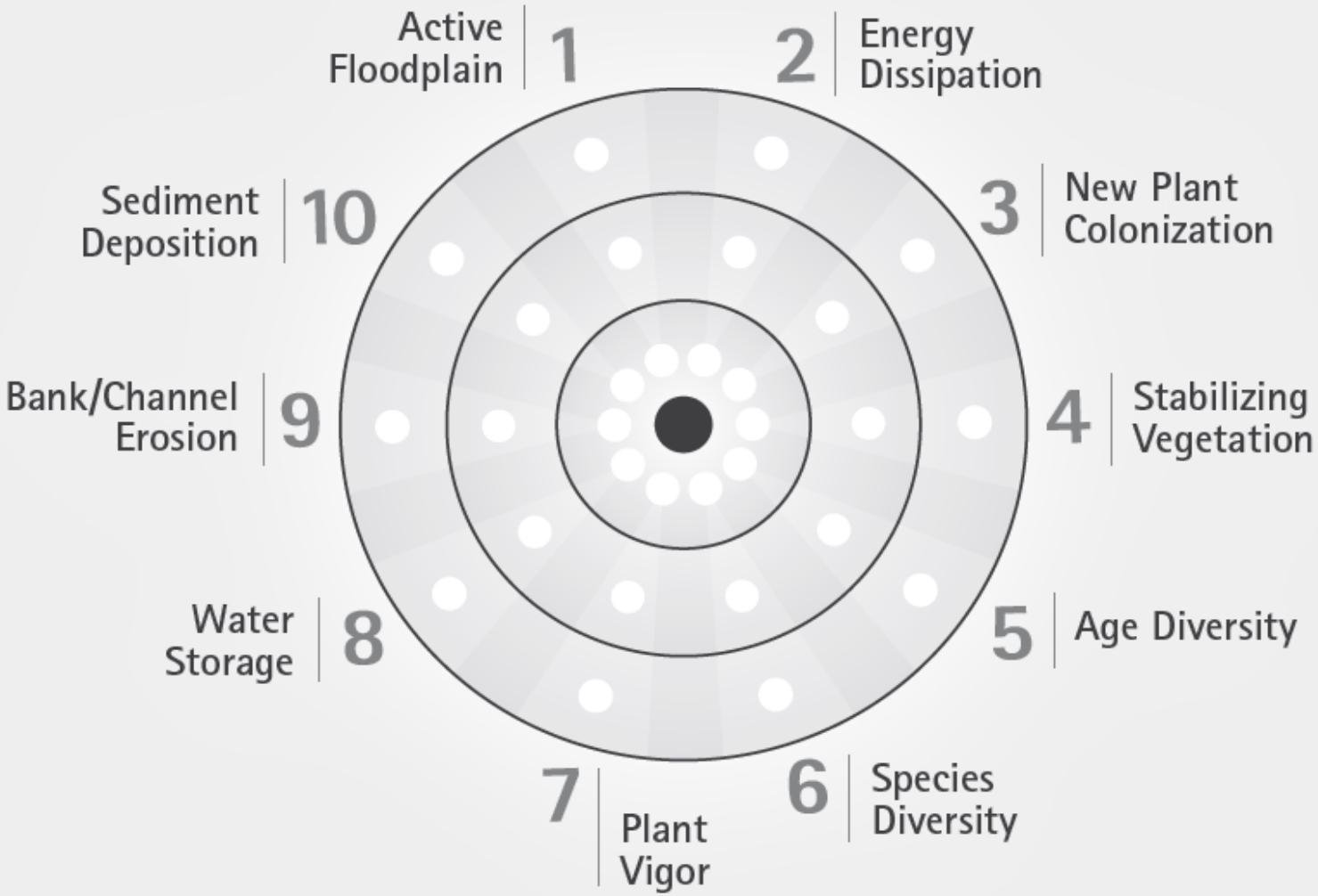
# YOUR REMARKABLE RIPARIAN



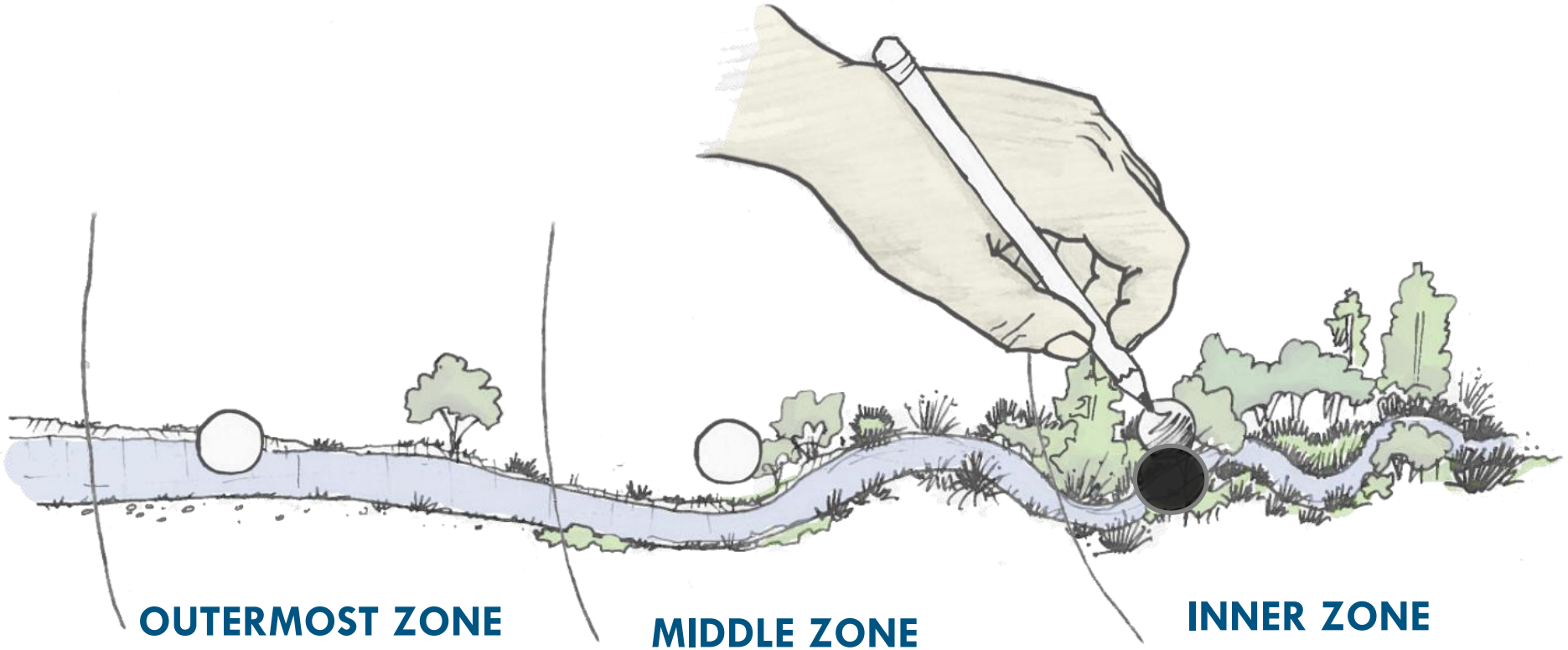

- Field Guide to riparian plants found within most of Texas
- Cultivates awareness and appreciation for riparian plants and the role they play in the production of abundant, clean water
- Used as a companion to complete and submit forms with one to four photos to report observations to Texas Stream Team

# RIPARIAN BULL'S-EYE EVALUATION TOOL




Ten riparian indicators to guide your eye in assessing riparian landscapes for their function and identifying activities that may be hindering the natural riparian recovery process

# THE BULL'S-EYE ZONES



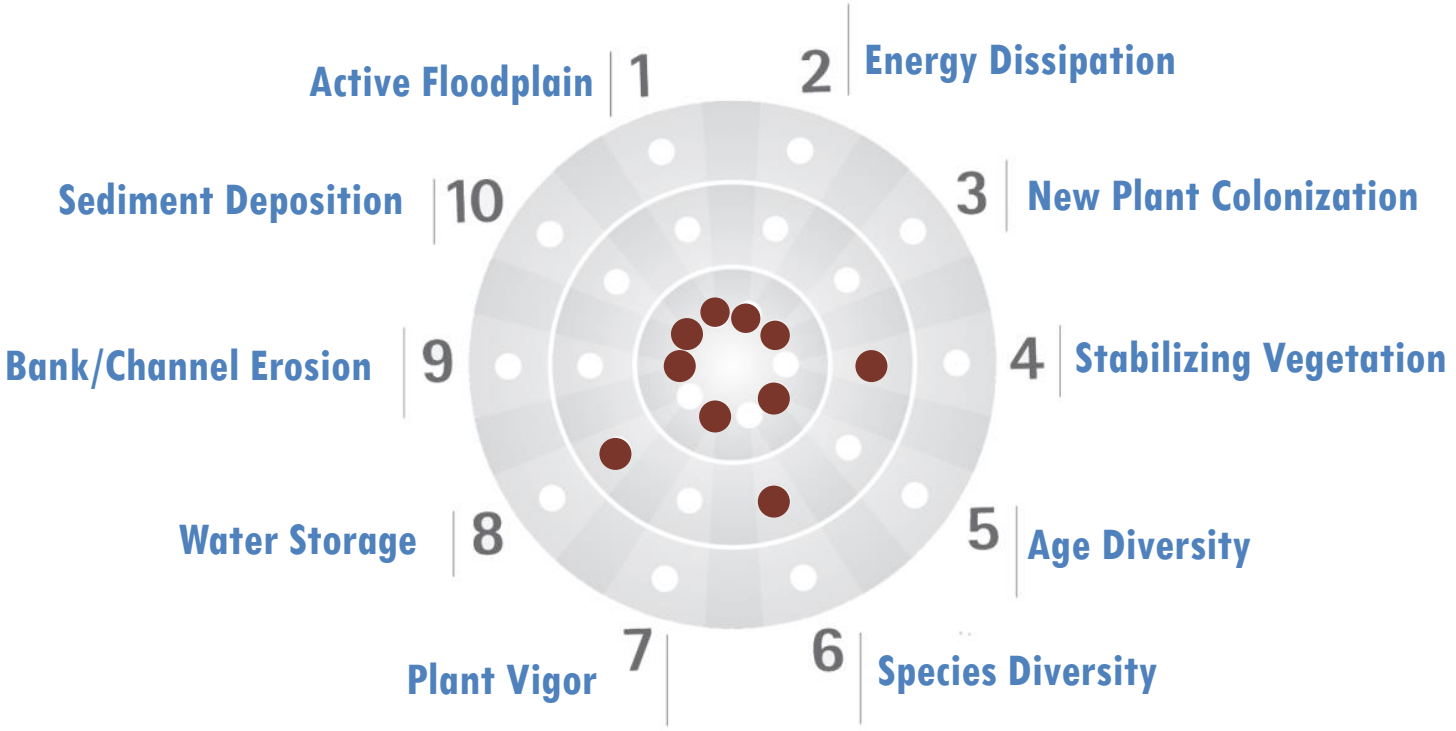
**OUTERMOST ZONE**
**Totally Dysfunctional**
**Riparian Condition**

**MIDDLE ZONE**
**At-Risk Condition,**
**Riparian Danger Zone**

**INNER ZONE**
**Optimal Function,**

# PUTTING IT ALL TOGETHER

## *OBSERVATION IS A POWERFUL TOOL*




Filling in the bulls eye evaluation.

# REQUEST A RIPARIAN EVALUATION TRAINING EVENT


Leakey Springs – June 21, 2018

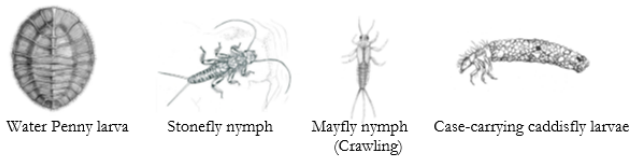

Oso Creek – October 26, 2017


Resaca De La Palma State Park – July 11, 2018

# MACROINVERTEBRATE RAPID BIOASSESSMENT TRAINING

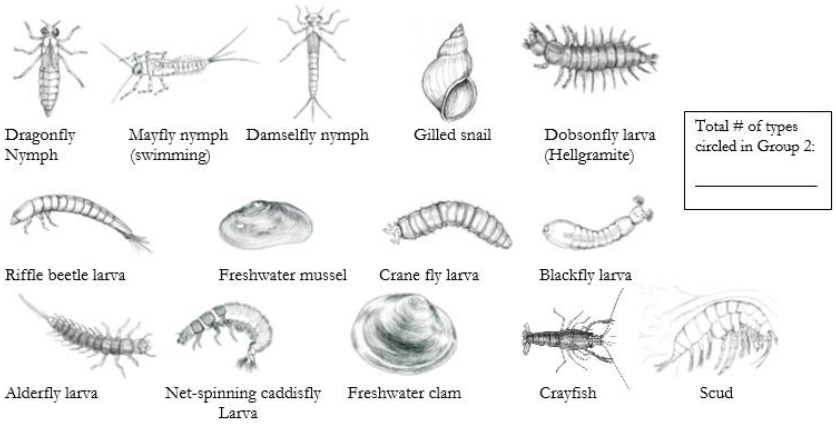
# MACROINVERTEBRATE RAPID BIOASSESSMENT

**Group 1:** These animals are mostly intolerant to pollution. Their dominance generally signifies Good to Excellent water quality



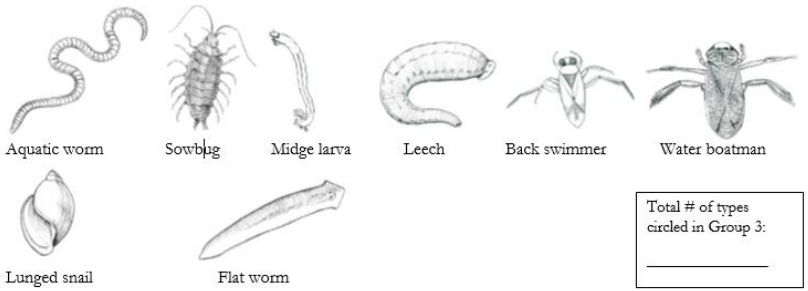

Total # of types circled in Group 1: _____

**Group 2:** These animals live in a wide range of water quality conditions

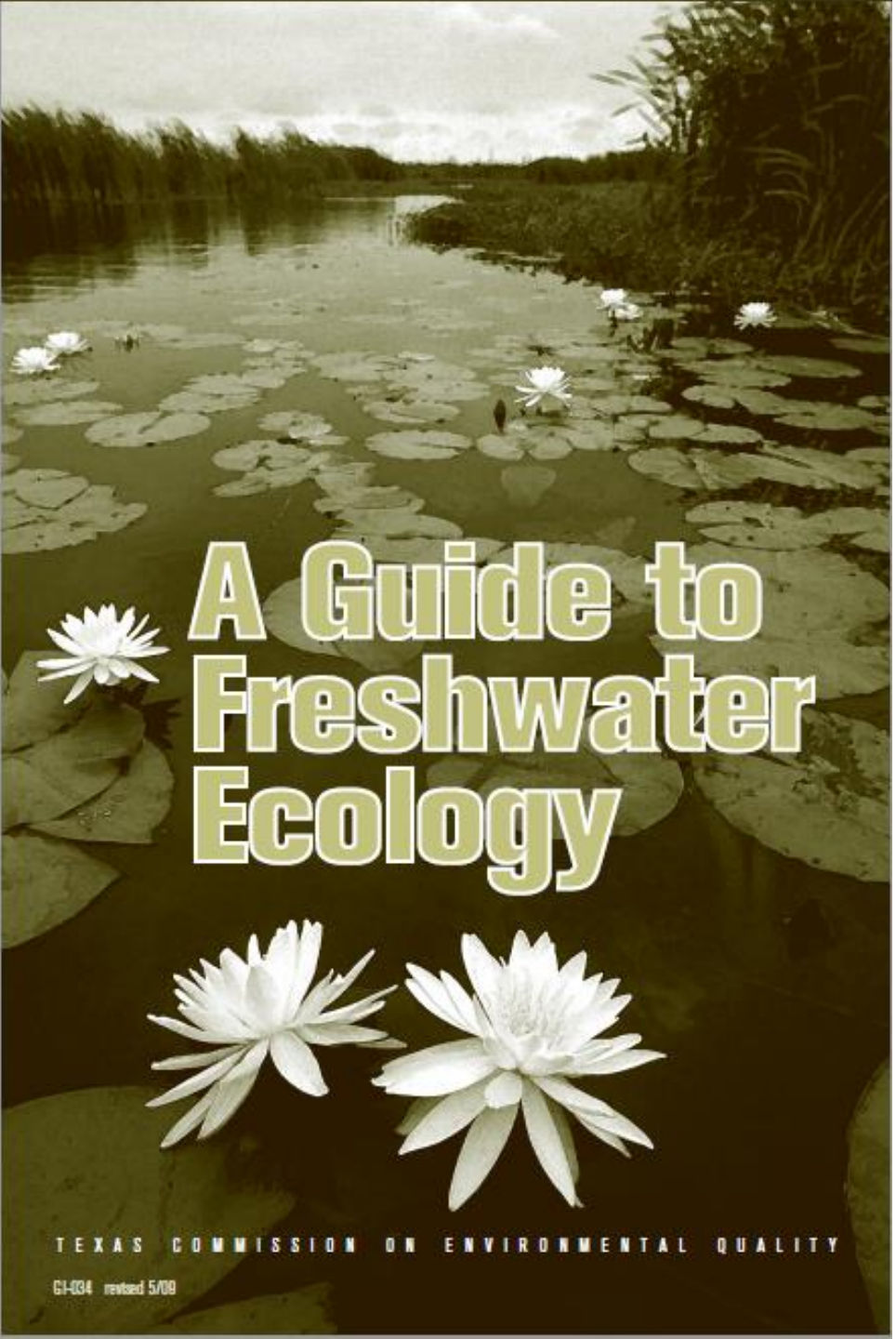



Total # of types circled in Group 2: _____

**Group 3:** These animals are mostly tolerant of pollution. Their dominance generally signifies poor water quality.




Total # of types circled in Group 3: _____




# MACROINVERTEBRATE IDENTIFICATION RESOURCES

For identifying aquatic macroinvertebrates and group according to pollution tolerance and water quality conditions refer to:

- *General Key for Macroinvertebrates*
- *A Guide to Freshwater Ecology*
- *Key to Macroinvertebrate Life in the River*

# WATERSHED SERVICES & TST

- Community assistance for education and outreach strategies, grants, loan applications
- Information gathering and monitoring to address data gaps
- Local planning, protection, restoration, clean ups, and habitat monitoring
- Watershed protection plans, TMDLs, water conservation initiatives
- University research, long term monitoring efforts

# COMMUNITY ENGAGEMENT

- Community-based monitoring with citizen science
- Educational workshops for school and youth programs
- Connect home owners to watersheds promote NPS pollution reduction
- Early warning system for water quality issues
- Inform public about environmental management decisions

## Become a Partner Today!


Thank you!
512-245-1346
txstreamteam@txstate.edu
The Meadows Center
for Water and the Environment
Texas Stream Team