Mission

• Engage the community in land and water stewardship at the Jacob’s Well Natural Area through education, research and personal experience to sustain the health of our watersheds and aquifers.

• Advocate for clean, clear flowing streams and the equitable allocation of water for current and future needs of the Wimberley Valley.
Program Areas

- Sustainable Living Program
- Education & Outreach
- The Retreat At Jacob’s Well
- Land Conservation & Stewardship
- Volunteer Program
- Policy & Advocacy
- Research & Monitoring
The Wimberley Valley Watershed Association (WVWA) contributes monitoring data collected under the Guadalupe Basin CRP quality assurance project plan from the Blanco River and Cypress Creek.

WVWA has been collecting data since 2003.
Goals

- Establish baseline water quality data
- Identify specific pollution problems
- Detect spatial and temporal trends
- Disseminate findings and make recommendations
Site locations and monitoring frequency

- Eight sites are sampled quarterly
- Wimberley Square is sampled quarterly by GBRA
- Collection, preservation, and transportation are in accordance with TCEQ’s Surface Water Quality Monitoring (SWQM) Procedures Manual
- The Quality Assurance Program is implemented by the WVWA as a sub-tier participant of the GBRA’s QAPP. WVWA contracts TSU Texas Stream Team to conduct monitoring.

Field Measurements

- Flow (CFS)
- DO (mg/L)
- Conductivity (uS/cm)
- Temperature (°C)
- pH
- Flow Severity
- Days Since Rain

Water Chemistry (GBRA Lab)

- E. coli (MPN/100 mL)
- Ammonia (mg/L)
- Total P (mg/L)
- Total Suspended Solids (mg/L)
- Nitrate (mg/L)
Citizen collected bacteria data.
Monitoring Cypress Creek

CRP Site IDs:
12677 – Cypress Creek - Jacobs Well
12676 – Cypress Creek - RR12 North
12675 – Cypress Creek - Blue Hole
12674 – Cypress Creek - RR12 (GBRA)
12673 – Cypress Creek - confluence
12665 – Blanco River – Fishcer Store
12663 – Blanco River - 7-A @ 1492
12661 – Blanco River – RR 12
12660 – Blanco River - Fulton CR173
## Budget

- Lab Analysis (GBRA)
- Field Technician (Texas State Univ.)
- Equipment and Training

### Water Quality Summary

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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<td>2003</td>
<td>$10,062</td>
<td>$ 9,968</td>
<td>$7,352</td>
<td>$8,296</td>
<td>$9,131</td>
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<td>2009</td>
<td>$ 9,107</td>
<td>$11,109</td>
<td>$8,633</td>
<td>$8,280</td>
<td>$7,849</td>
<td>$ 96,867</td>
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<td><strong>TOTAL</strong></td>
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## Data Collection

### Water Quality Summary

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<tr>
<th>Parameter</th>
<th>Parameter Code</th>
<th>8/2/10</th>
<th>10/5/10</th>
<th>1/4/11</th>
<th>3/1/11</th>
<th>6/1/11</th>
<th>10/12/11</th>
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<tbody>
<tr>
<td>Flow (cfs)</td>
<td>4</td>
<td>21</td>
<td>4.7</td>
<td>5</td>
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<td>dry</td>
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<tr>
<td>E. coli (org/100mL)</td>
<td>1211</td>
<td>31699</td>
<td>190</td>
<td>140</td>
<td>110</td>
<td>250</td>
<td>460</td>
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<td>Suspended Solids (mg/L)</td>
<td>1215</td>
<td>530</td>
<td>3.3</td>
<td>1.4</td>
<td>&lt;1</td>
<td>1.3</td>
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<tr>
<td>Turbidity (NTU)</td>
<td>1325</td>
<td>82079</td>
<td>3.1</td>
<td>0.9</td>
<td>0.5</td>
<td>0.7</td>
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<td>pH</td>
<td>1059</td>
<td>400</td>
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<td>7.9</td>
<td>7.8</td>
<td>7.9</td>
<td>7.7</td>
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<td>Temperature (C)</td>
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<td>10</td>
<td>25.7</td>
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<td>15.9</td>
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<td>Dissolved Oxygen (mg/L)</td>
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<td>300</td>
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<td>9.2</td>
<td>6.1</td>
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<td>Conductivity (umhos/cm)</td>
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<td>94</td>
<td>576</td>
<td>576</td>
<td>540</td>
<td>567</td>
<td>382</td>
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<td>Total Phosphorus (mg/L)</td>
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<td>Nitrate-N (mg/L)</td>
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<td>620</td>
<td>0.12</td>
<td>0.23</td>
<td>0.12</td>
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<td>Chloride (mg/L)</td>
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<td>940</td>
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<td>17.6</td>
<td>17.8</td>
<td>19.8</td>
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<td>Sulfate (mg/L)</td>
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<td>Total Hardness (mg/L)</td>
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<td>280</td>
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<td>261</td>
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<td>Ammonia-N (mg/L)</td>
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<td>610</td>
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<td>0.12</td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
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<td>Chlorophyll a (mg/m$^3$)</td>
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<td>32211</td>
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<td>&lt;1</td>
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<td>Phoephtylin (mg/m$^3$)</td>
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<td>32218</td>
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<td>Total Kjeldani Nitrogen (mg/L)</td>
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<td>&lt;0.2</td>
<td>0.23</td>
<td>&lt;0.2</td>
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</table>

Water Quality Summary
Conductivity is increasing over time

Conductivity for All Sites

$y = 0.1937x - 7446.2$
$R^2 = 0.4149$
D.O. depressed at Blue Hole =
D.O. declines over past decade

Fig 3 is an image from the GBRA 2013 CRP report (p.51)
Nutrients are elevated at Jacob’s Well

NOT exceeding the screening criteria of 1.95 milligrams per liter

Contact recreation / lower TARGET in WPP
Fish Kill

September 2013
Approx. 25-30 fish died (sun fish and bass) in the City of Woodcreek. The cause seems to be low or no flow in Cypress Creek causing dissolved oxygen levels to drop. Additional stress could also be caused by recent rains stirring up sediment releasing sulfur dioxide into the water column. This combination of high concentrations of sulfur dioxide and low dissolved oxygen most likely caused the fish kill.
Cypress Creek Watershed Issues

- Groundwater decline and low spring flows causing depressed dissolved oxygen in Cypress Creek
- Urbanization and “failing” septic tanks possibly causing increased levels of bacteria, nutrients and suspended solids from Wimberley Square to confluence
- Public water supply impacted by bacteria found in groundwater samples
Additional Monitoring

- Repeat Emerging Containments Sampling - USGS (400 parameters baseline 2005)
- Biological Study (Zara Environmental)
- Bacterial Intensive Monitoring Event
- Bacterial Source Tracking
- Stormwater Sampling
- Monitor BMP effectiveness
- Local Groundwater Model (EAA & SWRI)
- Groundwater Monitoring
- Insure USGS Station is maintained
Actions over the next year

- City of Wimberley is taking necessary steps to build wastewater plant for downtown
- Continue research on newly discovered Pleasant Valley springs on the Blanco
- Continue Science Dive Program at JW
- Develop SGWMA Protection Strategy
- Secure commitments from key stakeholders to support WPP match
- Write Grants for WPP Implementation
Jacob’s Well Update
Interaction of the Trinity Aquifer and Local Springs
VISION

Center for Sustainable Living Program

To demonstrate the principles, ways and means of sustainable living, so as to promote, protect and perpetuate the health of our community and the longterm stewardship of Jacobs Well and Cypress Creek.
The Retreat at Jacob’s Well
Volunteer Program – Hays County Master Naturalist Restoration Rangers

- Grassland restoration
- Cedar Management
- Invasive Species
- Riparian Area
- Trails & Maintenance
Friends of Jacob’s Well
Environmental Education
Everyone is invited to join Hays County, Saturday May 10th for the Grand Opening of Jacob’s Well Natural Area
Contact Info

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