



Coordinated Watershed Protection in Southeast and South Central Texas

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Update from the Regional Watershed Coordinator

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Hello, and welcome to the January newsletter. On November 8, LCRA held their **Clean Rivers Program Meeting** for stakeholders in the lower basin in Bay City.

The LCRA five-year Basin Summary Report is being prepared and should be published in 2007. Information on the statewide stakeholders meeting held in October, was presented, including agency participation from TCEQ, LCRA, and TSSWCB.

Three presentations on issues affecting the Lower Colorado River Basin were also presented at the meeting and are summarized in the following paragraphs:

WCSC Meeting Schedule
March 8, 2007
June 7, 2007
September 6, 2007
December 6, 2007

Lori Hamilton with TCEQ presented an update on the **Use Attainability Analysis (UAA) for dissolved oxygen (DO) on Caney Creek**. The creek is currently listed as being impaired for low DO and elevated bacteria. Three sampling events consisting of 24 hour DO and biological surveys were conducted over two years, one in the spring (March-June) and two during the summer (July-September). Results showed the creek had adequate flows, however further evaluation of water chemistry data are needed.



Colorado River in Wharton; photo by Brian Koch

Angela Rodriguez with the LCRA gave a presentation on the **Freshwater Inflow Needs Study to West Matagorda Bay**. A study was conducted in order to better understand relationships between the volume and seasonal timing of freshwater inflows to biological productivity in the bay. These results augment the last study done in 1997. Results included a recommendation to increase water flow estimates into the bay from May-June compared to earlier estimates.

David Cowan discussed the **LCRA Anti-Dumping Campaign** along the Colorado River and current grant funded efforts being used to combat the problem, including public education, outreach and possible enforcement activities. He showed portions of the Colorado River Aerial Survey and described the creation of an advisory panel tasked with the prioritization of the 324 dump sites. For more information and summaries of LCRA Clean Rivers Program meetings, see <http://www.lcra.org/crp/crpmeetings.html>

In November and December, the **Dickinson Bayou WPP Land Use Workgroup** met to discuss additional needs from the workgroup members to answer land use questions within the watershed. Information requested included total agriculture acreage and practices, number of homes potentially on septics, maps of the Municipal Utility Districts and Public Utility Districts, and master plans of the cities in the watershed. In March 2007 there should be a draft State of the Watershed, and a final WPP by October 2007.

For more information and past issues of this newsletter please visit: <http://www.tsswcb.state.tx.us/cwp>

TSSWCB Wharton Regional Watershed Coordination Steering Committee

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The **TSSWCB Wharton Regional Watershed Coordination Steering Committee** met in Columbus on November 2, 2006. Bud Solmonsson, from Texas Sea Grant provided an update to the group on the **Dickinson Bayou WPP**. He introduced himself as the new Watershed Coordinator for the project. In addition to the Dickinson Bayou WPP, he is working to fit the Armand Bayou WPP into USEPA's 9-elements. The draft Dickinson Bayou WPP is slated to be completed in October 2007. A TMDL for low dissolved oxygen is being developed for Dickinson Bayou and the Bayou is also on the *2004 303(d) List* for elevated bacteria. For more information on the Dickinson Bayou WPP please visit <http://www.dickinsonbayou.org>.

Todd Running, from Houston-Galveston Area Council (H-GAC) provided an update on their efforts with the **Bastrop Bayou WPP**. Work on the contract with TCEQ is ongoing, along with the ambient water quality sampling for bacteria at eight sites.



Failing septic systems have been identified as one of the contributors to elevated bacteria concerns in Bastrop Bayou; H-GAC photo

Two sources thought to contribute the largest amounts of bacteria are failing septic systems, with an estimated 40-50% failing, and direct deposition into the bayou from livestock. Area ranchers have

indicated they are willing to implement agricultural Best Management Practices to address the livestock issue.

There has also been a great deal of interest and involvement from the Brazoria County Commissioners; they have installed signs along roads within the county, which point out the watershed and its relationship with Christmas Bay, which is known as the last stronghold for seagrass in the Galveston Bay System. Currently Bastrop Bayou is not listed for any impairment. For more information, see <http://www.h-gac.com>.

Nikki Dictson, from Texas Cooperative Extension gave an update on the progress of the **Plum Creek WPP**. The update included highlights of project promotion through press releases and a meeting attendance report of various entities located within the watershed. An overview and history of the Plum Creek Watershed Partnership (PCWP) formation, including meetings of the Steering Committee and five Work Groups (Outreach and Education, Agricultural NPS, Urban NPS, Habitat and Water Quality, and Wastewater), was also presented. A marketing campaign was established to solicit ideas for a PCWP logo and the development of a project promotional brochure. The Outreach and Education workgroup created a branding survey; this survey was given to the other PCWP work groups. The Texas Watershed Steward Program is being piloted in Plum Creek and incorporated into the PCWP outreach strategy. This program includes modules which involve educating stakeholders on watershed protection and stewardship. For more information on the Texas Watershed Steward Program, visit <http://tws.tamu.edu>.

Various hydrologic modeling programs will be used in the Plum Creek Watershed project including Spatially-explicit Geographic Information System (GIS) methodology - **SELECT**, Load Duration Curves - **LDCs**, **SP**atially **R**eferenced **R**egressions **O**n **W**atershed attributes -

SPARROW, and Soil and Water Assessment Tool - **SWAT**. For more information, visit <http://pcwp.tamu.edu>.

David Cowan from the Lower Colorado River Authority (LCRA) presented their **Anti-Dumping Campaign and Aerial Survey**. This campaign started in 2002 when a basin stakeholder from Matagorda County raised concerns about illegal dumping in Tres Palacios Creek. LCRA applied for a CWA §319(h) grant from TCEQ to address the issue. With the grant money, signs were posted, clean-ups were conducted, and outreach tools, such as placemats in restaurants, were distributed, and radio spots featuring Finley the Catfish discouraged illegal dumping. Matagorda County Crime Stoppers offered rewards up to \$5,000 for people who report illegal dumping, leading to arrest and conviction of the suspects. This led LCRA to focus on basin-wide dumping, and through an extension of the TCEQ 319 grant, LCRA was able to survey the basin by helicopter and video their findings.



Caney Creek in Wharton County, a tributary of the Colorado River, was included in LCRA's aerial survey; photo by Brian Koch

The flyover began in McCulloch County and ended at the coast in Matagorda County. The main river and major tributaries were flown surveying the areas extending out 300 yards from the waterbodies. Of the 21 counties surveyed, 324 dumpsites were located, with 182 identified as being within the

100-year floodplain. One-third of the sites were located in a 3-county area Wharton, Matagorda, and Colorado counties. The sites ranged from open fields to pits and ravines, with waste content that included tires, old cars, household garbage and construction trash.

Next steps in the process include setting up an advisory panel to prioritize dumpsites, and securing additional grant money to fund voluntary clean-ups, work with riverside landowners on the issue, and to continue the outreach campaign. For more information, visit http://www.lcra.org/cleanwater/illegal_dumping.html.

Kevin Wagner from the Texas Water Resources Institute (TWRI) gave a presentation on the **Bacteria TMDL Task Force**. TSSWCB and TCEQ established this joint technical Task Force at a joint Work Session on September 27, 2006, in an effort to resolve the multi-faceted issues affecting bacteria TMDLs in Texas.

The issues include modeling strategies, water quality standards, bacteria re-suspension, and bacteria re-growth. The Task Force members are Allan Jones, TWRI; George DiGiovanni, Texas Agricultural Experiment Station-El Paso; Larry Hauck, Texas Institute for Applied Environmental Research; Joanna Mott, Texas A&M University-Corpus Christi; Hanadi Rifai, University of Houston; Raghavan Srinivasan, Texas A&M University; and George Ward, University of Texas-Austin. In addition to the Task Force members, over 40 expert advisors, representing various stakeholder perspectives, provide input into a "current findings" report.

Responsibilities of the Task Force include; review of USEPA TMDL guidelines and the various strategies employed by selected states in the development of bacteria TMDLs, evaluating scientific tools such as bacteria fate and transport modeling, bacteria source tracking, alternative approaches to bacteria modeling and

source tracking, and, finally, identifying gaps in our understanding of bacteria fate and transport that require additional research and tool development.

The third draft of the Task Force report was published on January 24, 2007 and provides TCEQ and TSSWCB with a variety of methods to more effectively address individual bacteria impairments, statewide. For more information please visit <http://twri.tamu.edu/bacteriatmdl/>.

The next meeting of the WCSC will be Thursday, March 8, 2007 10:00 a.m. – 12:00 p.m. in Columbus. For more information on the WCSC, including meeting agendas, summaries and presentations please visit: <http://www.tsswcb.state.tx.us/cwp>.

A Sanctuary in Suburbia

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At Clear Lake Shores, visitors to Jarboe Bayou Park will find an oasis in the middle of suburbia. Ten years ago this area had eroded along the banks. Wildlife searched for better habitat and the land looked like a good place for another house lot. Today people can sit on benches and watch the sailboats and the wildlife that have returned.



Jarboe Bayou Park; USDA-NRCS photo

Vanessa Hamilton, a Clear Lakes Shores city councilwoman, worked tirelessly for 10 years to bring this park to fruition. The city bought the land in 1997 to build a

park. Three grants and nine years later, the city has restored more than 700 feet of shoreline and two island remnants. Smooth cordgrass was needed to attract shrimp, oysters and crabs, which in turn bring white ibises, green herons, hawks and river otters to feed. Eddie Seidensticker, NRCS resource conservationist, helped the city by supplying the plants and helping them plant the shoreline.

The park was dedicated at Jarboe Bayou Park October 20, 2006. NRCS has played a major part in restoring untold acres of shoreline by creating wildlife habitat, enhancing parks, and stopping the continuing erosion of the marshes in the Galveston Bay System.

Update from the Plum Creek Watershed Partnership

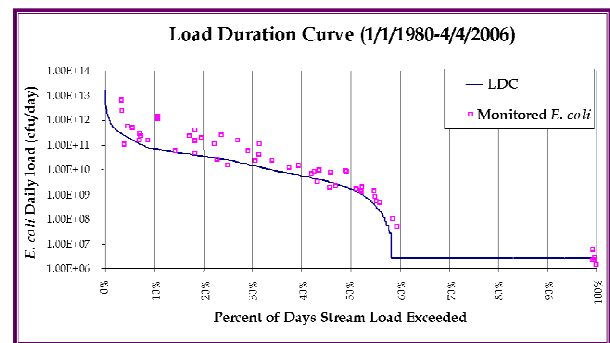
Nikki Dictson, Extension Program Specialist, Texas Cooperative Extension, College Station, Texas, n-dictson@tamu.edu

The Plum Creek Watershed Partnership (PCWP) has continued to meet monthly to discuss the issues in the watershed and develop the Watershed Protection Plan. In November, the five PCWP work groups met and discussed potential best management practices (BMPs) for their topical groups that would be appropriate in the watershed. They discussed what audiences needed to be reached and how to effectively reach them to achieve implementation of these practices.

The Agricultural NPS work group had presentations and discussions on agricultural BMPs, septic systems, wildlife and pets; the Urban Stormwater and NPS work group discussed BMPs including pets, urban runoff, and nutrient issues; the Water Quality and Habitat work group discussed BMPs on pets, urban runoff, nutrient issues, livestock, wastewater treatment plants and septic systems. The Outreach and Education work group had

presentations and discussions that touched on all the pollution source areas. The Wastewater and Industry work group also had a presentation by Paul Jensen, from PBS&J on the Eastern Hays County Wastewater Study. An important factor in the resulting recommendations was the ability for wastewater reuse in this area. This study resulted in an East Hays County Wastewater Compact between Hays County, Guadalupe-Blanco River Authority, and the Cities of Buda, Neiderwald, Kyle and Uhland. However, this compact has yet to be signed.

The fifth PCWP Steering Committee met on December 14, 2006 in Lockhart. Presentations at the meeting included: An Overview of the Plum Creek Watershed Protection Plan by Mark McFarland; Load Duration Curves (LDCs) for Plum Creek presented by Nikki Dictson and Dr. Karthi Karthikeyan, Texas A&M University Biological and Agricultural Engineering Department; Review and Discussion of Potential Pollutant Source Assessment SELECT (Spatially Explicit Load Enrichment Calculation Tool) by Aarin Teague, PE in training, Texas A&M University Biological and Agricultural Engineering Department. Potential point and nonpoint source contributors for Plum Creek have been identified and assessed using LDCs and SELECT. LDCs have verified that both point and nonpoint sources of pollution are present in Plum Creek. However, LDCs cannot identify relative magnitudes of specific source contributions.

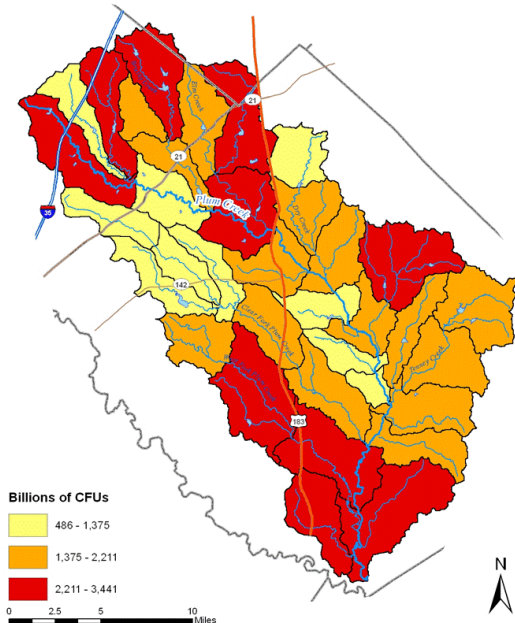


Load Duration Curve using data from GBRA's monitoring station near Uhland; Texas Cooperative Extension

SELECT utilizes land use data and source number estimates to predict source densities in each subwatershed. Total potential pollutant loads can then be determined for each subwatershed using known pollutant (*E. coli*) production rates.

Assessments have indicated that livestock, wildlife, pets, septic systems, and wastewater facilities are contributing to water quality concerns in Plum Creek, with both point sources and nonpoint sources playing a role in stream water quality concerns and impairments.

**Total Average Daily Potential
E. coli Load**



SELECT results showing Total Average Daily Potential *E. coli* loads in each subwatershed in Plum Creek; Texas Cooperative Extension

However, the magnitude and distribution of each of these pollutant sources varies from source to source. Urban development in the northern portion of the watershed likely influences water quality in that portion of the creek, as does rural land use in downstream portions of the landscape.

In addition to the initial modeling results, progress on the Watershed Protection Plan (WPP) development by Matt Berg and the

Next Steps by Nikki Dictson were also presented.

For More Information on the Plum Creek Watershed Partnership please visit: <http://pcwp.tamu.edu>.

Upcoming PCWP Meetings and Events

Steering Committee Meeting
Thursday, March 8, 2007
6:00-8:00 pm
First Lockhart National Bank, Lockhart

Plum Creek Clean-Up
Saturday, March 3, 2007
9:00 a.m.
Steeplechase Park, Kyle
<http://www.cityofkyle.com/parks/creekcleanup.php>

Students in the Plum Creek Watershed playing role in Water Monitoring Program

Cinde Thomas-Jimenez, Education Coordinator, Guadalupe-Blanco River Authority, Sequin, Texas, cjthomas-jimenez@gbra.org

Students from six elementary schools in the Plum Creek Watershed are participating in an innovative water monitoring program.

In October 2006, GBRA Education Coordinator and PCWP Outreach and Education workgroup member, Cinde Thomas-Jimenez met with local curriculum directors and principals to propose that watershed area students participate in the Plum Creek water quality education and monitoring effort for the 2006-2007 school years.

After receiving enthusiastic approval from the administrators, Thomas-Jimenez then met with and trained the participating science teachers. She also spent over a week in classrooms using a tabletop watershed model to illustrate and discuss watersheds, nonpoint source pollution and the Plum Creek project directly with the

students. Water monitoring test kits, all needed supplies, watershed map posters and student workbooks were donated to the schools by GBRA.

A total of 760 fourth and fifth grade students, as well as 18 teachers, have already conducted the first of three rounds of water quality testing. Students are using the Texas Watch model for their monitoring and are testing water from Plum Creek for temperature, dissolved oxygen, pH, turbidity, nitrates and phosphates. Additional testing rounds will be conducted in February and May 2007.

The students' water quality monitoring results will be posted on the PCWP website hosted by Texas Cooperative Extension at <http://pcwp.tamu.edu/>. The website will also contain a discussion forum where the students can post questions and discussion topics to interact with the stakeholders, scientists, and agencies involved. Ideally, students will review and discuss their results with students in other parts of the watershed.



Clear Fork Creek, a tributary of Plum Creek, near Lockhart State Park; photo by Matt Berg, TCE

This project also provides opportunities for students to present their findings in a public setting, such as a PTA, school board or city council meeting, a County Commissioners Court session, or even to the GBRA Board of Directors.

Later this spring, GBRA will have a model of the Guadalupe River Basin available to set up at schools or public meetings to promote an understanding of nonpoint source pollution. Students participating in this project could assist with presenting the model and promote discussion about nonpoint source pollution in the watershed where they live and go to school.

The Partner Schools include:

- **Negley Elementary, Hays CISD, cooperating teacher Meagan Maddux**
- **Tobias Elementary, Hays CISD, cooperating teacher Tammy Garza**
- **Hemphill Elementary, Hays CISD, cooperating teacher Julie Parsons**
- **Science Hall Elementary, Hays CISD, cooperating teacher Elaine Hanson**
- **Plum Creek Elementary, Lockhart ISD, cooperating teacher Jennifer Lickert**
- **Luling Shanklin Elementary, Luling CISD, cooperating teacher Cris Chonka**

EPA Helps Farmers Turn Livestock Waste into Wealth

Roxanne Smith, United States Environmental Protection Agency smith.roxanne@epa.gov

EPA and its partners have released guidance that can help farmers manage livestock waste and boost farm earnings while reducing greenhouse gases. Processing livestock manure under controlled conditions can produce biogas, a source of greenhouse gas emissions. Farmers also benefit because the biogas can be used to generate electricity.

"Using biogas has multiple benefits; it decreases greenhouse gas emissions, produces renewable energy for rural communities, and safeguards local air and

water quality," said Bill Wehrum, EPA's acting assistant administrator of Air and Radiation. "This guidance will help farmers and potential investors make informed choices about which systems work best for farms, for profits, and for our environment."

Biogas is made up of methane and carbon dioxide. Because methane is more than 20 times as potent as carbon dioxide at trapping heat in the atmosphere, capturing biogas provides significant environmental benefits. Also, farmers and project developers can increase their incomes by using biogas for on-site electricity generation or delivery to a local electric utility.

Waste methane recovery systems, also known as anaerobic digestion systems, are estimated to be feasible at about 7,000 dairy and swine operations in the United States. In 2005, about 110 systems were operational or under construction, and another 80 were in the planning stages.

The standardized guidance was developed jointly by EPA's AgStar program, the Association of State Energy Research and Technology Transfer Institutions, and USDA. The guidance will provide a standardized method that will allow farm operators and investors to compare the effectiveness of available waste methane recovery systems.

AgStar is a voluntary program that encourages the use of waste methane recovery systems on dairy and swine farms. Each year, these systems have reduced methane by about 1.5 million metric tons of CO₂ equivalent, while providing enough renewable energy to power over 20,000 average American homes. For more information see <http://www.epa.gov/agstar/resources/proTOCOL.html>.

New Publication Available on Converting Manure to Energy

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In the wake of higher gas prices, interest in renewable and green energy has been fueled tremendously. This led to the publication of a Texas Cooperative Extension publication called "Manure to Energy: Understanding Processes, Principles and Jargon."

This publication gives agricultural producers and the general public information on bio-energy, said Dr. Saqib Mukhtar, Extension agricultural engineer and one of the authors.

The demand for hydrocarbon energy—or energy from crude oil, natural gas and coal—will continue to rise. However, potential sources of energy include biomass sources, such as trees, agricultural crops, animal manure and municipal solid waste, he said.

The publication primarily focuses on converting manure to energy on the farm and the management of co-products resulting from that conversion, Mukhtar said.

Co-author of the publication was Sergio Capareda, assistant professor in the department of biological and agricultural engineering at Texas A&M University.

The free publication (No. 428) may be ordered from the Extension Bookstore Website at: <http://tcebookstore.tamu.edu>.

It also may be ordered from the Texas Animal Manure Management Issues Web page at <http://tammi.tamu.edu/>.

Initial Ethanol Push Challenges Beef Market

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Like it or not, ethanol is coming, and beef producers must be prepared to weather the transitional phase and capitalize on the potentials in the future, said two speakers at the January 2007 Southwest Beef Symposium in Amarillo.

"The short run is going to be tough, but in the long run, things will work out," said Dr. Steve Amosson, Texas Cooperative Extension economist.

Feed prices are being driven up by predictions of 3 billion gallons of ethanol production capacity coming online in the next year. Ethanol would require almost an 8-million acre increase in corn acreage, which equates to an additional 1.1 billion bushels of corn, Amosson said.

"I feel the corn prices will range from \$3 to \$4.25 per bushel on the board for the next couple of years, and the differential between corn and sorghum will narrow," he said.

Competition for acreage will increase, forcing other feed sources and crop prices higher.

In the short run, fed cattle prices will remain relatively unchanged, and feeder cattle and calf prices may continue to soften, Amosson said. A rule of thumb, he said, is calf prices will drop \$1.50 per hundredweight for every 10 cent rise in corn prices.

This is going to reduce the predicted expansion phase of the cattle cycle, he said. But in three to four years that reduction will have cattle producers seeing record prices.

"Cattlemen also have a potential to gain market share relative to the swine and poultry industries because cattle can be fed the distiller's grain by-products, where the other industries can't," Amosson said.

"We just have to learn to feed those dried distiller's grain," he said.

Dr. Jim MacDonald, Texas Agricultural Experiment Station beef cattle nutritionist, agreed, saying "You don't have to like it, but you had better learn how to feed it."

And that, MacDonald said, is his job – helping the cattle producers learn how to feed the byproduct.

While ethanol had its share of unfriendly comments during the two-day symposium, MacDonald said, "We're going to get there, we just have to manage the transition.

"A lot of concern has come with ethanol in this area," he said. "But we are better off with the plants here than not because we're not the only game in town."

Dried distiller's grains from the Midwest are being shipped into the export market, he said. So the fact that the Panhandle will produce 600 million gallons of ethanol per year soon, resulting in 1.5 million tons of distiller's grains, will help keep prices reasonable.

When corn is processed for ethanol, it breaks down to one-third ethanol, one-third carbon dioxide and one-third byproduct or distiller's grain, MacDonald said.

These distiller's grains still have all the nutrient profile of corn, only the starch has been removed, he said. It has 40 to 45 percent fiber and 25 to 30 percent crude protein.

"It's going to be a cheaper protein source in the future and if used as a forage supplement, it can be used for both protein and energy supplementation," MacDonald said.

Water Quality Meetings in Southeast and South Central Texas

March 8 – TSSWCB Wharton Regional Watershed Coordination Steering Committee Meeting (Columbus)

March 8 – Plum Creek WPP Steering Committee Meeting (Lockhart)

March 10-14 – ASABE 4th Conference on Watershed Management to Meet Water Quality Standards and TMDLs (San Antonio)
<http://www.asabe.org/meetings/tmdl2007/>

March 15 – Upper Oyster Creek TMDL Public Comment Meeting (Sugar Land)

March 22 – Guadalupe-Blanco River Authority Clean Rivers Program Steering Committee Meeting (Seguin)

March 22 – Adams and Cow Bayous TMDLs Public Comment Meeting (Orange)

March 26 – Public Comment on Upper Oyster Creek TMDL due to TCEQ

March 27 – Dickinson Bayou WPP Steering Committee Meeting (TBD)

March 28 – Internet Tools for Watershed Management (EPA Webcast)

April 19 – Dickinson Bayou Watershed Partnership Meeting (TBD)

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