Coordinated Watershed Protection in Southeast and South Central Texas

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In this Issue:

- TSSWCB Request for Proposals for Clean Water Act Section 319(h) Grants
- Update from the Regional Watershed Coordinator: Buffalo/White Oak Bayous TMDL; Connecting the Dots Symposium; and Texas Water Monitoring Congress
- TSSWCB and TCEQ Establish Task Force on Bacteria TMDLs
- Statewide Stakeholder Meetings: TCEQ Clean Rivers Program; TCEQ/TSSWCB Nonpoint Source Program
- Update from the Plum Creek Watershed Partnership
- Goats Advocated as Environmentally Sound Brush Control

TSSWCB Request for Proposals for Clean Water Act Section 319(h) Grants

TJ Helton, Nonpoint Source Grant Coordinator, TSSWCB, Temple, Texas
thelton@tsswcb.state.tx.us

The Texas State Soil and Water Conservation Board is requesting proposals for projects seeking funding under the Clean Water Act Section 319(h) grant program.

The types of agricultural/silvicultural NPS activities that can be funded with 319(h) grants include the following: implementation of watershed protection plans (WPP) and the nonpoint source portion of TMDL Implementation Plans, demonstrations, technical assistance, public outreach/education projects, development of WPPs, and monitoring activities to determine the effectiveness of specific pollution prevention methods.

To obtain a copy of TSSWCB's proposal submission packet, please visit www.tsswcb.state.tx.us/programs/319/fy07rfp.doc or contact a member of the Nonpoint Source Team at (254) 773-2250. Proposals must be received no later than February 16, 2007 to be considered.

Update from the Regional Watershed Coordinator

Brian Koch, Regional Watershed Coordinator, TSSWCB, Wharton Regional Office, Wharton, Texas
bkoch@tsswcb.state.tx.us

Hello, everyone and welcome to this issue of the regional newsletter. These past several months have again been busy with meetings and activities pertaining to water quality.

WCSC Meeting Schedule

March 8, 2007

June 7, 2007

September 6, 2007

December 6, 2007

On September 7, a meeting was held concerning the **Buffalo/Whiteoak Bayous Total Maximum Daily Load**. Representatives from the Harris County Health Department presented results from a study that examined pollutant contributions from wastewater treatment plants (WWTPs).

In the study, they sampled for bacteria from end-of-pipe effluent and sediment. Data indicated significant amounts of *E. coli* up to 22,000 cfu/100ml, which raises a concern of possible re-growth between the period of final de-chlorination and release at the outfall. TCEQ regional staff conducted their own study on WWTPs, by

performing unannounced inspections of these facilities. Their findings showed 80-90% of the WWTPs had issues of concern, with operator malfunction being the highest.

To achieve the allocations in the draft TMDL, TCEQ reported that dry weather loadings would need to be reduced by about 40% and wet weather loadings have to be reduced by 90-100%. These streams are effluent dominant during dry weather flow; median flow is assumed when there is a rainfall event up to 0.8 inches, and wet weather flow constitutes rainfall events over 0.8 inches.

Buffalo Bayou in Harris County; TCEQ photo

The final project report has been completed by Dr. Hanadi Rifai from the University of Houston, and is available on the project website. Another meeting, concerning the Buffalo/Whiteoak Bayous Total Maximum Daily Load, will be February 8, 2007. For more information on the Buffalo Bayou/Whiteoak Bayous TMDL project please visit: http://www.tceq.state.tx.us/implementation/water/tmdl/22-buffalobayou.html.

On September 12 in Austin, Texas Watch hosted a public outreach symposium titled **"Connecting the Dots"**. This is an annual symposium that provides a forum for resolving gaps in communication between the general public and local, state and federal water resource programs. During the 2005 "Connecting the Dots" meeting several initiatives were recommended in order to enhance the ability of water resource management programs to conduct enforcement, permitting, and education activities. These recommendations were used to provide topics for the 2006 meeting. They included the following:

- Improve tracking and reporting of repeat violators
- Create a central clearinghouse to guide citizens through the enforcement and response resources at environmental agencies
- Develop "cradle to grave" oversight of the permitting process
- Require developers to post a bond prior to receiving permits
- Require training of real estate agents, city/county planners, and developers in the relevant laws and regulations as well as the cost benefits of environmentally friendly development.

For more information on Texas Watch please visit: http://www.texaswatch.geo.txstate.edu/.

The **Sixth Texas Water Monitoring Congress**, a bi-annual meeting sponsored by the Texas Water Monitoring Council (TMWC), was held in Austin, September 13-15. The TWMC is a broad-based collaborative body formed to help achieve effective and efficient collection, interpretation, and dissemination of basic data and processed information for use in addressing issues, policies, and management of Texas Waters. The Congress started with presentations on various projects, studies, policies, and programs related to water quality and quantity monitoring across the state.

Two presentations of interest included an overview of the **Richland-Chambers Wetland Water Reuse Project** by Darrell Andrews from the Tarrant Regional Water District. In this project, water from the Trinity River below Richland-Chambers Reservoir is diverted through constructed

wetlands for treatment then moved into Richland-Chambers Reservoir for future use. The wetlands area is currently around 250 acres, but eventually the goal is to have around 2,000 acres for treatment purposes. Monitoring on the current wetland system showed a 95% reduction in total suspended solids, 80% reduction in nitrate, and 65% reduction of phosphorous.

The other presentation was **Bacteria, Cows, Gators, and People - The Role of Targeted Monitoring and GIS Analysis in Rural Watershed Studies** by Chuck Wemple from the Houston-Galveston Area Council.

Cattle along Bastrop Bayou in Brazoria County; H-GAC photo

This study focused on the Bastrop Bayou watershed, which is experiencing population growth, along with agriculture, and increased pressure on Christmas Bay, the location of some of the last remaining seagrass beds in the Galveston Bay complex.

GIS was used to get a better understanding of the watershed, including identifying what portions of the population were on septic systems or were on regional wastewater treatment. This was done by using addresses, and comparing them to coverage areas of WWTPs.

The core of the Congress was five focus groups that convened to discuss Surface Water Quality, Public Outreach, Surface Water Resources, Groundwater Resources, and Geographic Information Systems Applications. Each group reviewed the recommendations made by the 2004 Congress, assessed progress, and developed recommendations for current and future goals and actions. The results of the focus groups were presented and discussed, with the key points common to all groups including:

- Discuss and develop strategies to better inform the public on water quality
- Make water quality data easier to access
- Highlight new and emerging technologies and make them available to all interested parties
- Statewide Water Conservation Education
- Recommend more funding for different programs useful to those who benefit from them
- Make better use of the collected data

These recommendations will be considered for the next meeting of the Congress in 2008. For more information on the TMWC including summaries and proceedings from past meetings please visit: http://www.txwmc.org/.

For more information on the WCSC and to view past issues of this newsletter, please visit: http://www.tsswcb.state.tx.us/programs/wharton_wcsc.html.

TSSWCB and TCEQ Establish Task Force on Bacteria TMDLs

John Foster, Nonpoint Source Team Leader, TSSWCB, Temple, Texas
jfoster@tsswcb.state.tx.us

The Texas Commission on Environmental Quality (TCEQ) and the Texas State Soil and Water Conservation Board (TSSWCB) convened for a joint meeting and work session on Wednesday, September 27 at the Texas Agricultural Experiment Station–Blackland Research and Extension

Center to renew their partnership in cleaning up impaired bodies of water.

Commissioners and Board Members authorized their Executive Directors to sign a revised Memorandum of Agreement on Total Maximum Daily Loads (TMDLs), Implementation Plans, and Watershed Protection Plans (WPPs). This framework for collaboration between the two agencies describes the programmatic mechanisms the agencies will employ to develop and implement TMDLs and WPPs. The Board and Commission established a joint technical Task Force on Bacteria TMDLs.

TCEQ Commissioners and TSSWCB Board Members at the TMDL work session; photo by TSSWCB

The Task Force, chaired by Dr. Allan Jones with the Texas Water Resources Institute, is charged with:
(1) Examining approaches other states use to develop and implement bacteria TMDLs, (2) Making recommendations on cost- and time-effective TMDL development methodologies, (3) Making recommendations on Implementation Plan development approaches, including modeling and bacterial source tracking (BST) methodologies, (4) Evaluating the variety of models and BST methods and recommending under what conditions which approach is more appropriate, and (5) Describing a science and research roadmap to reduce uncertainty in what we know about how bacteria behave under water conditions in Texas.

Task Force members include Drs. George DiGiovanni with Texas Agricultural Experiment Station–El Paso, Larry Hauck with the Texas Institute for Applied Environmental Research, Joanna Mott with Texas A&M University–Corpus Christi, Hanadi Rifai with the University of Houston, Raghavan Srinivasan with Texas A&M University, and George Ward with the University of Texas at Austin.

The Task Force members are currently working on the third draft of their report. Stakeholders with expertise on bacteria related issues along with local, state, and federal agencies with jurisdictions impacting bacteria and water quality have already provided significant input through 3 meetings/teleconferences in October, November, and December. The third draft of the report will be delivered to the TCEQ and TSSWCB on January 8th.

Recommendations from the Task Force will be used by the Board and the Commission to keep Texas at the national forefront of implementing water quality prevention and abatement projects that lead to cleaner water for drinking, swimming, and fishing. For more information please visit: http://twri.tamu.edu/bacteriatmdl/.

Statewide Stakeholder Meetings: TCEQ Clean Rivers Program; TCEQ/TSSWCB Nonpoint Source Program

Brian Koch, Regional Watershed Coordinator, TSSWCB, Wharton Regional Office, Wharton, Texas bkoch@tsswcb.state.tx.us

On October 11 TCEQ hosted their **Statewide Clean Rivers Program Meeting** in Austin. This meeting highlighted, through presentations and discussion, achievements and activities involving Clean Rivers Program (CRP) partners from across the state. This was broken into two sections: **Responding to Local Water Quality Issues**, and **Maximizing**

Program Effectiveness through Partnerships.

One of the presentations focusing on Responding to Local Water Quality Issues was titled **Helping Rapidly Developing Communities Address Water Quality Challenges Special Study of Cotton and West Fork Double Bayous** by Todd Running from the Houston-Galveston Area Council (H-GAC).

The issue is that dissolved oxygen (DO) problems occur in 18 of 51 segments in the H-GAC basins, which is a common problem in coastal streams due to problems such as having low gradients, being slow moving by nature, having tidal influence, and being poorly mixed. Many of these are currently on the 303(d) List for low DO. H-GAC's assessment for the 2006 Basin Summary Report indicates that only 2 of those segments should be on the "impaired" list.

As a result H-GAC met with stakeholders along both waterways to assess the priority of conducting a DO study on Cotton Bayou, and noted the impairment on West Fork Double Bayou. H-GAC also worked with TCEQ to develop a study scope, and a project workplan for FY 2006-2007 was approved by their steering committee in April 2005. Other partners involved were USGS and the Trinity River Authority.

The monitoring should be complete in August 2007, with a complete data analysis and report by December 2007. The results will be shared with the TCEQ Surface Water Quality Monitoring and Standards teams for modeling and assessment. This partnering resulted in faster response to stakeholders, long term relations with other CRP partners, and open lines of communication between CRP and other TCEQ teams eased project planning.

The other focus, Maximizing Program Effectiveness through Partnerships, was summarized well through the presentation titled: **The Plum Creek Watershed Protection Plan: CRP partners bringing resources to community based efforts** by Debbie Magin, from Guadalupe-Blanco River Authority (GBRA).

Plum Creek, a tributary the San Marcos River and eventually the Guadalupe River, has been experiencing water quality issues for bacteria and nutrients in recent years.

Plum Creek in Caldwell Count; photo by Brian Koch

Through a priority assessment of watersheds in Southeast and South-Central Texas done by the TSSWCB Wharton Regional Watershed Coordination Steering Committee, the Plum Creek Watershed was selected in December 2005 for Watershed Protection Plan development. This is a voluntary stakeholder driven, proactive process designed to leverage resources and knowledge to aid in plan development and eventually implementation to improve water quality to restore the beneficial uses of Plum Creek.

Early in the stakeholder process, it was discovered that there was a need for additional surface water quality monitoring (SWQM) to support the two monthly GBRA sites, and the quarterly TCEQ site already in place. The goal of the additional SWQM sites: to better determine the location of pollutant sources, to assist in modeling and greater Best Management Practice effectiveness.

With the planning underway and a local partnership established, GBRA will leverage CRP resources and GBRA internal funds with CWA §319(h) grant monies from TSSWCB to establish additional water quality monitoring throughout the watershed. The monitoring will include monthly routine, seasonal targeted, spring flow, and WWTP effluent. Having the PCWP in place, with a CRP partner involved allowed for resources to be allocated for completing one of the steps in achieving the greater goal of improving and restoring Plum Creek.

The **TCEQ/TSSWCB Nonpoint Source Program Meeting** was held on October 12, again in Austin. The focus of this meeting was watershed planning and implementation efforts on a statewide basis, and to allow for stakeholders to provide input to the Statewide Nonpoint Source Program.

The presentation that highlighted the NPS program activity was titled **EPA Perspective on NPS Management** by Susan Branning, USEPA Region 6.

Measurable watershed improvements such as restoring Aquilla Reservoir from atrazine impairment, increasing public involvement in NPS related activities, and assisting urban communities in reduction of NPS pollution were highlighted.

In order to receive CWA §319(h) funding for implementation of watershed based plans, USEPA requires individual plans to satisfy 9-Elements fundamental to developing a potentially successful plan. The presentation on the **Watershed Protection Approach** by Randy Rush from USEPA Region 6 laid out the 9 elements, and provided examples of what is required in watershed based plans.

The 9 elements promote the integration of local, state, and federal agencies in the planning process. They also focus on size of the watershed, making sure implementation is economically efficient, are built on existing planning, monitoring, and education activities, and give high priority to well leveraged programs.

Also mentioned was USEPAs ***Handbook for Developing Watershed Plans to Restore and Protect Our Waters***, which is a great tool to help answer watershed planning questions. Examples of data for the plan included land use, pollutant sources, waterbody conditions, and water quality monitoring data. Examples of watershed plans from across the nation that are addressing the 9-elements were also provided.

For more information on the 9 elements, WPP activity in Texas, the EPA Handbook, and EPAs national examples of plans please visit: http://www.tsswcb.state.tx.us/programs/watershed.html.

Update from the Plum Creek Watershed Partnership

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

In September, the five work groups of the PCWP met to discuss the proposed analysis to identify pollutant sources and the modeling approach to better understand watershed issues as discussed at the steering committee meeting in August.

The first to meet was the Outreach and Education work group on September 5, at the Luling Foundation Farm. Examples of a marketing campaign and outreach and education materials were distributed to the group. These examples included a brochure and work plans from the Arroyo Colorado Watershed Protection Plan and

US EPA's Getting in Step Guide which is available at: http://www.epa.gov/owow/watershed/outreach/documents/.

All of these contain great examples of different strategies used to educate stakeholders, prioritize future efforts, and to publicize these efforts to improve water quality.

Plum Creek in Caldwell County; photo by Brian Koch

Discussion on the marketing survey example led to the creation of a branding survey including questions relating to the stakeholders overall knowledge, opinion, and vision for Plum Creek. The goal of the survey is to help create a marketing strategy, including a logo and a slogan that people would relate to the PCWP and efforts to improve water quality. The new logo identifying the PCWP efforts would be used in all of the news media, workshops, and projects to increase public participation and awareness for the PCWP process and improving the water quality in the watershed. This branding survey was then distributed to the remaining four work groups that met in September for the participants to complete and provide feedback.

At the 4 remaining work groups, an overview of the proposed land use land cover analysis, subwatersheds, pollutant source assessment, and potential modeling described at the August 10 Steering Committee was presented. The purpose of the overview was to clear up any concerns, allow the stakeholders to ask any additional questions, and most importantly to get feedback from them on the input data to these assessments.

The overview presentation broke down the steps and the input information involved in each process to allow for questions and essential input from the stakeholders. The first step in this process is to review the potential sources for bacteria and nutrients specific to the watershed. The next step is to identify the most accurate land use data, and at the moment, the 1992 data is the most recent. As a result, the groups decided it would be best to have an updated land use map created for the area using recent aerial photography from 2004 digitized and ground-truthed.

Each of the work groups than had discussions about the information pertaining to their topical areas that would be used in the analyses. The Agricultural NPS Work Group met in Lockhart at the Courthouse Annex on September 12, and discussed the USDA National Agricultural Statistics Service numbers for cattle, horses, sheep and goats for the watershed. They also discussed the wildlife numbers for deer and feral hogs.

On September 20 at the Polonia WSC office in Lockhart, the Water Quality and Habitat Work Group discussed the numbers of deer and feral hogs, dogs, OSSFs, and WWTPs in the watershed. The Urban NPS Work Group met on September 21 in at the Buda City Hall, and discussed in detail the method of obtaining the numbers of housing units from the 2000 US Census to be used in identifying the number of dogs and the number of septic systems in the watershed. Also, on September 21, in San Marcos the Wastewater and Industry Work Group discussed the number of WWTPs, OSSFs, and housing units in the watershed. The Water Quality and Habitat and the Waste Water and Industry Work Groups also discussed the approach of using Load Duration Curves. The information and comments obtained during the September

work group meetings has been used to refine the data for the assessments. The pollutant source assessment by subwatershed, Load Duration Curves and modeling will be used to assist with the Watershed Protection Plan and to satisfy USEPA's 9 Essential Elements.

The PCWP Water Quality and Habitat work group discusses issues at their September 20 meeting; photo by Brian Koch

On October 26, the Steering Committee met in Lockhart. Presentations from TCEQ staff covered general information on Water Quality Standards and Assessment in Texas. Also, an update of the overall project activities and workgroup meetings was given to show the stakeholders the progress up to that point, and included discussion of data needs by the workgroups to move forward with planning.

Source Identification Strategies and Methods, to assist with modeling efforts, were presented. This described how the Plum Creek Watershed would be broken down to subwatershed level and the potential sources located in each subwatershed would be ranked relative to land use where they would be supported, and then distributed in each area to best support the model. An overview of Load Duration Curves was presented to give stakeholders an understanding of how the data will be utilized to characterize loadings and needed reductions in Plum Creek.

For more information on this project, including presentations from previous meetings and future meeting schedules please visit: http://pcwp.tamu.edu or contact Nikki Dictson or Brian Koch at the information provided at the end of this newsletter.

PCWP Meetings in January

Outreach and Education Workgroup
Tuesday, January 9, 2007
9:00 AM - 12:00 PM
Luling Foundation Farm Office, Luling

Agricultural NPS Workgroup
Tuesday, January 9, 2007
6:00 PM - 9:00 PM
Caldwell County Annex Lobby, Lockhart

Urban Stormwater and NPS Workgroup
Thursday, January 11, 2006
9:00 AM - 12:00 PM
New Kyle City Hall, Kyle

Wastewater and Industry Workgroup
Thursday, January 11, 2006
1:00 PM - 3:00 PM
New Kyle City Hall, Kyle

Water Quality and Habitat Workgroup
Wednesday, January 17, 2006
6:00 PM - 9:00 PM
Polonia WSC Office, Lockhart

Goats Advocated as Environmentally Sound Brush Control

Robert Burns, Texas Cooperative Extension
rd-burns@tamu.edu

Got brush? Want to use less herbicide to control it? Need to preserve native species of legumes and native grasses? Consider bringing in the goats, said Dr. Jim Muir, a forage ecologist with the Texas Agricultural Experiment Station. Many goat owners use their animals to control brush on their own land, but there is a business opportunity for goat owners to hire their herds to control undesirable plants on others' land, Muir said.

"The problem many landowners have is removing a lot of brush that they don't want," Muir said. "They want to open up their land. And in order to do that biologically, in other words without using too many herbicides or artificial means, we can use goats."

Goat owners are already doing so in other states, Muir said, but to his knowledge, it just isn't being done in Texas. "There are landowners who use their goats to control brush, but none of them that actually hire their animals out to do that," he said. "And the purpose of our work is to facilitate or to encourage that approach." Several hurdles to using goats to control brush include predators, landowner misconceptions and potential risks to the animals' health, he said. Funded by a $178,000 grant from the USDA Sustainable Agriculture and Research Education program, Muir hopes to clear these hurdles. But the highest hurdle, he admitted, is educating goat owners and landowners and land managers that commercial brush control using goats is a viable option. "For Texas it's a new concept, and that's why we got the SARE grant," he said. Since goats readily eat many undesirable plants– green briar, sumac and poison ivy, for example– landowners may reason that the goat owner should pay them to use their land, which they are in effect feeding the goats. But it's not so simple, Muir said. To effectively control undesirable plants, the goats must be left on the area long enough to eat plants they ordinarily wouldn't.

This kind of grazing management entails a health-cost to the goat less weight gained over time or even loss of weight that they would realize under optimum grazing management, Muir said. Lighter animals equal a cost to the goat owner, in terms of meat sales or lower fertility rates, he said. Also there are higher management costs. Goats require better fencing and protection from predators. And they can't just be turned into an area and left. If they get too hungry they may eat poisonous plants, he said.

"So there is a cost to the goat owner and benefits to the landowner. But we have to show them that." The benefits to the landowner are many, though cost isn't one of them, Muir said. "There are cheaper or less expensive ways to control browse than to use goats without question," he said. "Backpack herbicide spraying is probably less expensive in the long run. But if you are interested in doing things in an environmentally sound way, then goats may be one way to do that."

Goats readily eat many undesirable plants – green briar, sumac and poison ivy, for example. Texas Cooperative Extension photo.

Using goats could also preserve native plants and legumes of Central Texas, Muir said. In the last decade, Central Texas has experienced an influx of urban homesteaders buying small acreages as a place to retire or as a weekend retreat. These people, whom Muir calls "urban refugees," more often want to restore their rangeland with native species. Blanket herbicide treatments kill these native species along with the undesirable plants. But goats, contrary to popular conception, are picky eaters, and more likely to eat the green briar than rare species such as the velvet bundle flower or tropical neptunia, he said.

Managers of public parks and utility right-of-ways also might want to use goats to control brush, Muir said. Although used as labeled, modern herbicides are safe to use and pose little risk to human health;

public perception is that they are not. Use of goats to control brush in other states is a way to build credit to a community wary of herbicide usage next to schools, housing divisions and public areas, he said. Muir emphasized that using goats to control brush does not exclude the use herbicides to clear land. Mature plants are harder to control with herbicides than new growth, however, and their management is a job done better by goats than chemicals, he said. In the first year of the study, Muir has developed grazing schemes and tested various means of predator control. The plants are controlled either with spot spraying with herbicides or cutting out the plants with a machete or some other means."

"They (the goats) weaken the plants is essentially what they do," he said. "They very rarely take the plants out completely, but they weaken them enough so the landowner can come in and control the next stage of the study, he said, is to partner with an agricultural economist to develop budgets and business plans for goat owners who want to hire out their animals.

Upcoming Water Quality Meetings

January 8 – Third draft of task force report delivered to TCEQ and TSSWCB
http://twri.tamu.edu/bacteriatmdl/

January 17 – Using NEMO to Advance Watershed Management (EPA Webcast)
http://www.epa.gov/watershedwebcasts/

January 19 – Integrated Nutrient Management (EPA Webcast)
http://lpe.unl.edu/

January 23-25 – 8th Biennial State of Galveston Bay Symposium (Galveston)

February 8 – Buffalo/White Oak Bayous TMDL Meeting (Houston)

February 15 – Clear Creek Bacteria TMDL Meeting (Friendswood)

February 20 – Matagorda and Tres Palacios Bays TMDL Meeting (Palacios)

February 27 – Texas Forest Service Ecosystem Service Markets Conference (Houston) http://tfsweb.tamu.edu/ecoserv/

Contact Information

Brian Koch Regional Watershed Coordinator Texas State Soil and Water Conservation Board Wharton Regional Office 1120 Hodges Lane Wharton, TX 77488 Phone: 979-532-9496 Fax: 979-532-8765 E-mail: bkoch@tsswcb.state.tx.us http://www.tsswcb.state.tx.us/	Nikki Dictson Extension Program Specialist Texas Cooperative Extension Texas Watershed Steward Program 355A Heep Building, 2474 TAMU College Station, TX 77843-2474 Phone: 979-458-3478 Fax: 979-845-0604 E-mail: n-dictson@tamu.edu http://watershedsteward.tamu.edu/

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