The Geronimo Flow

August 2013

Your Newsletter

The Geronimo and Alligator Creeks Watershed Partnership was formed in 2010 to restore and protect water quality in the Geronimo and Alligator Creeks Watershed due to elevated levels of bacteria and nitrate-nitrogen. The Partnership completed a Watershed Protection Plan in 2012 and is now working toward full implementation. The purpose of the newsletter is to inform and engage local stakeholders in helping to improve and protect the quality of water in Geronimo and Alligator Creeks.

Seguin High School Project Based Learning Summer Class

The Seguin High School, in partnership with the Guadalupe-Blanco River Authority (GBRA), conducted a Project Based Learning Academy this summer with the focus on the Geronimo Creek Watershed.

Project based learning is a method of teaching that involves hands-on activities with real world applications. The course awarded students with one credit for a Digital and Interactive Multimedia course, which is a recognized state credit for technology and professional communications. The student project was to develop education and outreach components to support the Geronimo and Alligator Creeks Watershed Protection Plan. They studied first-hand the existing conditions through site visits within the watershed. Students tested for contaminants in water samples and assisted with a clean up along Geronimo Creek at the Seguin Outdoor Learning Center. The final product of the class was a graphic design set that promotes awareness of the Geronimo and Alligator Creeks Watershed. Students presented their design set to local retail establishments and restaurants for the purpose of requesting participation in their outreach effort. Several area restaurants and businesses agreed to participate.

Elements of the design set include bumper stickers, magnets, labels, and placemats. Each of these items has a water quality education theme. For example, the placemat features Geronimo and Alligator Creeks and is a fun way for kids of all ages to learn more about watersheds and

In this issue:

Students in the Seguin HS Project Based Learning Class cleaning up along Geronimo Creek at the Seguin Outdoor Learning Center.

In agriculture, a grass filter strip acts as a buffer between a cultivated field and a nearby waterway.

pollution. Students coordinated with local restaurants to use the placemats on September 18th, World Water Awareness Day, as well as any other time during the year in order to promote awareness of local water quality issues.

We encourage you to take a look at the materials produced during the course that will soon be posted to the project webpage under the "Meetings and Events" tab. Also, representatives from Seguin High School will present an overview of the class at the upcoming Partnership meeting September 10th, so be sure to come to the meeting and hear more about it!

Filter Strips in Agriculture

A filter strip is a vegetated buffer positioned between potential contamination sources and a body of water such as a creek, stream, river (either flowing or typically dry), or a pond or lake. The purpose of a filter strip is to reduce the concentration of pollutants in rainfall runoff. They are effective in limiting the transport of suspended sediment, nutrients, bacteria, and/or pesticides to adjacent waterways. Filter strips can be installed down slope from field crops, pastureland, livestock pens, equipment and chemical storage areas, and other land areas from which pollutants might originate.

A filter strip may consist of a combination of vegetation types.

Filter strips reduce contamination of surface water through a variety of mechanisms. As runoff enters the filter strip, velocity decreases allowing suspended sediment to settle out. Some nutrients and pesticides bound to soil particles are removed in this manner. Additionally, a greater amount of water infiltrates into the soil taking with it other dissolved contaminants not bound to soil particles. Finally, nutrients deposited in the filter strip are utilized by the vegetation, while pesticides and other organics are degraded through natural biological and chemical processes.

Design Considerations

Slope, soil texture, vegetation, and the flow distribution of runoff all should be considered when siting and designing a filter strip. Characteristics of the target pollutant(s), such as solubility, can also affect design considerations.

Slope is the most important site characteristic in determining the appropriate width of a filter strip. Slope length and steepness directly affect runoff velocity, and thus infiltration rate. Gently sloping areas are ideal, however sites with slopes greater than 5% can be used effectively with proper design. Generally, as slope increases the width of the filter strip should increase. While there is no minimum or maximum, filter strips often range in width from 25 to 50 feet for slopes between 1-10%.

Soil texture also influences infiltration rate and dictates the appropriate width of a filter strip. Soils with greater clay content typically require a wider filter strip to achieve the same amount of pollutant removal compared to sandy soils.

Selecting the proper vegetation for a filter strip is critical. Non-woody species that are native to the region should be used. Plantings can be a single species or a mixture. It is important to maintain a solid plant cover and to select species that are

September 18th is World Water Monitoring Day!

A watershed protection plan (WPP) is a comprehensive management plan developed by local citizens to resolve complex water quality problems.

tolerant to any herbicides being used on the land that drains onto them.

Filter strips should be constructed at a point between areas of use and a body of water, and should be constructed in a way that maintains uniform flow across the width of the strip and reduces channelized flow. Removal of pollutants that are dissolved in runoff typically requires a greater filter strip width to achieve desired reductions.

Effectiveness

Contaminant removal efficiencies are variable and influenced by a variety of factors. Physical characteristics such as slope, soil type, vegetation within the strip, and filter strip width are the main factors impacting effectiveness. Maintaining the vegetation within the filter strip is essential to ensure it will effectively remove pollutants. Common maintenance activities include inspection, reseeding bare areas, soil testing and fertilizing, weed control, mowing, and channel/gully repair.

Filter strip width has been directly linked to effectiveness, with wider strips typically achieving greater pollutant removal (Table 1).

Technical and Financial Assistance

The United States Department of Agriculture - Natural Resources Conservation Service (NRCS) offers both technical and financial assistance to landowners through the following conservation programs:

- Conservation Reserve Program (CRP)
- Conservation Stewardship Program (CSP)
- Environmental Quality Incentives Program (EQIP)
- Wildlife Habitat Incentives Program (WHIP)

For technical assistance and information regarding NRCS programs visit www.nrcs.usda.gov or contact your local USDA-NRCS representative, Bill Finch at 830-379-0930 or william.finch@tx.usda.gov

The Texas State Soil and Water Conservation Board also provides technical and financial assistance for development of site specific Water Quality Management Plans (WQMPs), which can include practices such as filter strips.

For additional information regarding these resources visit www.tsswcb.texas.gov or call (254) 773-3311.

Additional Resources

Natural Resources Conservation Service Conservation Practice Standard ftp://ftp-fc.sc.egov.usda.gov/NHQ/practice-standards/standards/393.pdf

Using Vegetative Filter Strips to Improve Water Quality – AgriLife Bookstore https://agrilifebookstore.org

Sediment	Total N	Total P	Bacteria	Slope	Width
66%	0%	27%	-	3-4%	15 ft.
83%	48%	46%	-	3-4%	30 ft.
92%	95%	97%	87%	3%	69 ft.

Table 1. Pollutant removal effectiveness of filter strips. (Adapted from Jaber & Ampin 2011 and Chaubey et al. 1994)

Septic System Homeowner Workshops in November

Pumping out a septic tank should be a regular part of your maintenance activities.

Failing septic systems were identified in the Geronimo and Alligator Creeks WPP as potential sources of nitrate-nitrogen and bacteria contamination.

In Guadalupe County homeowners with aerobic systems are required to have a maintenance contract with a licensed service provider for two years after installation. After that time the homeowner must continue to have their system under a maintenance contract or they may obtain certification and maintain their own system. Septic system owners wishing to become certified should consult the Texas Onsite Wastewater Association website to view the schedule for the 16-hour Basic Maintenance Provider Course, which is the only course that will certify them to maintain their system. Currently, the Basic Maintenance Provider Course is scheduled for Friday, August 23 through Saturday, August 24th, at the Ramada Inn, 1051 IH 35S, exit 189, in New Braunfels. Cost is $325.

Comal County residents have the same two-year requirement after installation to have a maintenance contract, but after that time the homeowner does not need to be certified in order to maintain their own system.

As part of implementation of the Geronimo and Alligator Creeks WPP, Extension is providing two Homeowner Maintenance of Septic Systems courses on November 12th and 13th. Course content is identical each evening, so we encourage you to attend the course at the location that is most convenient. The course will not certify individuals to maintain their septic system, but will provide a very good introduction to overall system function and maintenance.

The 2-hour course will provide a basic understanding of the operational and maintenance activities of conventional and aerobic septic systems. Topics covered will include treatment processes, health and safety considerations, how to inspect and maintain the system, and how activities in the home can impact the system. The course also provides answers to some of the most frequently asked questions, including when to pump out a tank and what can and cannot go down the drain.

Course Information:

Tuesday, Nov. 12, 2013, 6-8pm
GBRA River Annex
905 Nolan Street
Seguin, Tx 78155

Wednesday, Nov. 13, 2013 6-8pm
Comal County Extension Office
325 Resource Drive
New Braunfels, Tx 78132

Registration is required to reserve a seat for the course. To register, contact:

Ward Ling, AgriLife Extension
979-845-6980 or
wling@ag.tamu.edu

Do you have something you would like to contribute to the newsletter? Or, would you like to see us provide information on a particular topic? Suggestions can be sent to Ward Ling at wling@ag.tamu.edu or call 979-255-1819.

Newspaper Articles

In our continuing effort to increase public awareness and involvement in implementing the Geronimo and Alligator Creeks WPP, we will begin publishing monthly educational articles in the Seguin Gazette and New Braunfels Herald-Zeitung. With special funding from the Texas State Soil and Water Conservation Board, the plan is to provide local readers with information about the watershed and water quality concerns, and recommendations on how to better manage potential sources of pollution such as bacteria and nutrients. Articles will cover all three potential pollution source categories: urban, agriculture, and wastewater nonpoint sources. Through this process, we hope to reach and engage a broader audience across the watershed.

When you see these news articles, please be sure to pass them on to friends and neighbors!

Riparian Workshop Scheduled for September 17th

Outdoor class time for the Riparian Workshop will take place along Geronimo Creek.

A Texas Riparian and Stream Ecosystem Workshop is scheduled for Tuesday, September 17th, from 8am to 4pm. It will be held at the GBRA River Annex at 905 Nolan Street in Seguin.

A riparian zone is the land area adjacent to the bank of a stream, creek, river or lake. The workshop will focus on the nature and function of riparian zones and the benefits and direct economic impacts from healthy riparian zones. The program will include an introduction to riparian principles, watershed processes, basic hydrology, erosion/deposition principles, and riparian vegetation. Potential causes of degradation and possible resulting impairments will be discussed.

Information will be provided on available local resources, including who can provide technical assistance and tools that can be employed to prevent and/or resolve degradation.

This one-day training will include both indoor classroom presentations and an outdoor stream walk.

At the conclusion of the workshop, participants will receive a certificate of completion.

Continuing Education Units available: Texas Department of Agriculture Pesticide Applicators License – 3 CEUs; Texas Water Resources Institute – 1 CEU; Texas Nutrient Management Planning Specialists –6 hours; Texas Forestry Association –6 hours; Society of American Foresters –4. 5 hours; Texas Board of Architectural Examiners "Acceptable for HSW credit"; and the program may also be used for CEUs for Professional Engineers.

Registration will be required by September 10th, and please remember to select if you would like the catered lunch (cost of $10 cash at the door) or if you will bring your own lunch and drink.

To register, go to:

http://naturalresourcestraining.tamu.edu/schedule/sept-17-2013-texas-riparian/

Or contact Nikki Dictson at 979-458-5915 or n-dictson@tamu.edu

Nonpoint source pollution can come from many sources such as pets, wildlife, livestock, feral hogs, and septic systems.

Upcoming events

- ***Partnership Meeting September 10, 2013 at the GBRA River Annex at 905 Nolan Street, Seguin.***
- ***Riparian Workshop September 17th***
- ***Free septic system homeowner trainings November 12th and 13th***
- ***Nonpoint Source Education for Municipal Officials (NEMO) Workshop coming in Spring 2014—details coming soon!***

This publication was developed with funding support from the U.S. Environmental Protection Agency through a Clean Water Act §319(h) Nonpoint Source grant administered by the Texas State Soil and Water Conservation Board

Next Partnership Meeting

The Geronimo and Alligator Creeks Watershed Partnership will meet on September 10th in the GBRA River Annex in Seguin. The Partnership is open to all individuals with an interest in learning about and doing more to improve and protect water quality in the Geronimo and Alligator Creek's Watershed.

Refreshments (sandwich fixings, chips, drinks) will start at 5:30 with the meeting beginning at 6pm.

Agenda topics include a presentation on the work performed by Seguin High School students in and around Geronimo Creek as part of a summer project-based learning class (story on page 1 of this newsletter) and a presentation by the Texas Parks & Wildlife Department (TPWD) Kills and Spills Team. The TPWD Kills and Spills Team conducts investigations and assesses the impact on fish and wildlife resources caused by natural events, pollution events, and/or construction and maintenance projects in waters of the State. This presentation will cover current events (the Marble Falls bridge demolition, etc.), reporting pollution events, fish and wildlife kills, and what to look for in the field. The process to obtain a permit to conduct construction or maintenance activities in or near waters of the State will also be presented. An overview of the Texas Administrative Code and TPWD policy will be addressed to layout the process to conduct the work appropriately.

Come see and hear about local issues and get involved. We hope to see you there!