

# The Arroyo Colorado Watershed Partnership NEWSLETTER



## Hola Arroyo Partners!

A big welcome goes out to our new Partners! Since the last newsletter, existing partnerships have been strengthened and new ones developed. Over 700 individuals will receive this newsletter, signifying an increase in awareness of our local water quality issues.

Jim Tabak, Valley Land Fund Board of Directors chairman, is a new Arroyo Colorado (AC) Steering Committee member. Also, two of the workgroups have new leaders. Dr. Lee Clapp of Texas A&M University–Kingsville joins me as the new wastewater infrastructure workgroup co-leader. Pamela Casebolt of Texas State Soil and Water Conservation Board (TSSWCB) is the new agricultural issues workgroup co-leader along with Andy Garza of TSSWCB.

Water quality monitoring efforts have been expanded to a few drainage ditches that empty into the AC, thanks to Texas Stream Team (formerly Texas Watch) volunteers. Additional sampling will be done instream of the AC, thanks to the Texas Clean Rivers Program, the U.S. International Boundary and Water Commission (USIBWC) and the University of Texas–Brownsville.

Finally, our valued partner, the USIBWC, intends to continue working with the Partnership on improved

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management of natural resources within the interior floodways (includes the AC and North Floodway Watersheds) and pledges to consider the AC Watershed Protection Plan during any future interior floodway management activities and planning.

Unfortunately, a fish consumption advisory was released (see the article on page 2) for the AC Above Tidal Segment and the AC Tidal Segment was listed as impaired due to high levels of bacteria; the Tidal Segment was previously only listed for low dissolved oxygen levels, while the Above Tidal Segment has always been listed for high bacteria. We will have two guest speakers at our next steering committee meeting to discuss these issues. Please join us!

*Laura De La Garza* 

## Proposals submitted by the Arroyo Colorado Watershed Partnership

The following proposals, submitted by the Partnership,\* are under review.

- **Developing a PSA in the Arroyo Colorado Watershed**.....\$55,632
- **A Curriculum for the Arroyo Colorado Watershed**.....\$35,500
- **Development and Implementation of Innovative Stormwater Regional Detention Facility Designs for Urban Stormwater Runoff Quality Improvement in the Arroyo Colorado Watershed\***...\$300,000
- **Arroyo Colorado Watershed Wetlands Education/Outreach Pavilion & Interpretive Center** \$99,609
- **Integrated Farm Management Education Program**.....\$92,611

The following proposals, submitted by the Partnership,\* were not selected for funding.

- **Development of an Arroyo Colorado Education and Outreach Center in Rio Hondo, TX** .....\$78,202
- **Pesticide Education in the Coastal Zone of the Arroyo Colorado Watershed** .....\$116,651
- **Site Suitability Study for Regional Wetlands Treatment Systems for the Arroyo Colorado\*** \$246,930

(\*Proposals submitted by Texas A&M University–Kingsville in cooperation with the AC Partnership)



# Arroyo Colorado

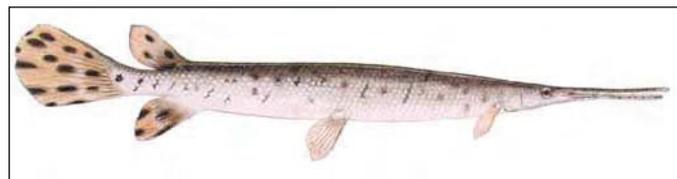
## Advisory issued for consuming longnose gar

The Texas Department of State Health Services (DSHS) issued an advisory on January 31, 2008 that people should not eat the longnose gar from the Arroyo Colorado, Llano Grande Lake and the Main Floodway upstream of the Port of Harlingen. DSHS has advised people since 1980 to limit consumption of small mouth buffalo caught in the Arroyo Colorado.

The advisories are from high levels of DDE, PCBs and mercury found in the longnose gar and high levels of DDE and PCBs found in the smallmouth buffalo.

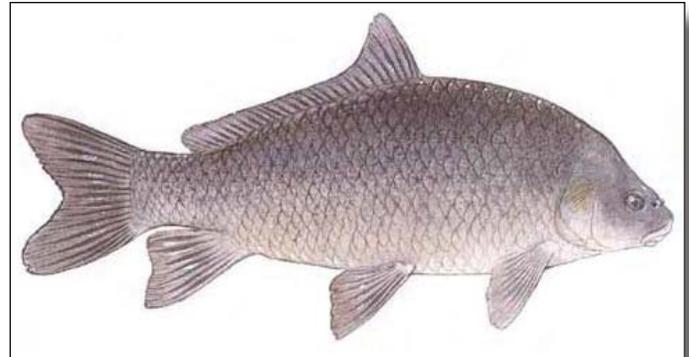
All fish collected in a 2006 fish tissue study contained some level of DDE, PCBs and mercury but only these species contained levels high enough to warrant a DSHS advisory.

The highest level of DDE, a chemical that comes from the breakdown of the pesticide DDT, was found in smallmouth buffalo caught near County Road 506 in La Feria. DDE is a legacy pollutant, a term used to describe substances whose use has been banned by the Environmental Protection Agency (EPA).



*The longnose gar, not to be confused with alligator gar called caton in Spanish, found in the Arroyo Colorado is not fit to eat because of high levels of pollutants.*

PCBs, also legacy pollutants, are industrial chemicals most widely used as coolants and lubricants in transformers, capacitors and other electrical equipment. The Texas Commission on Environmental



*DSHS has advised people not eat the small mouth buffalo since 1980.*

Quality (TCEQ) extensively investigated the source of the PCBs and narrowed the probable source to a couple of stretches of the Donna Canal.

The highest level of mercury, a widespread contaminant, was found in longnose gar also caught near County Road 506. There are no known industrial dischargers of mercury to the Arroyo Colorado and/or the Rio Grande. One possible explanation for mercury contamination is bioaccumulation.

The TCEQ and EPA approved four Total Maximum Daily Load (TMDL) studies and initiated an Implementation Plan for these legacy pollutants in 2001 to reduce pollutant concentrations in fish tissue in the Arroyo Colorado Above Tidal Segment, the Donna Reservoir and Main Canal in Cameron and Hidalgo counties. A full report of these studies and plan is available at [www.arroyocolorado.org](http://www.arroyocolorado.org).

Tissue monitoring in fish caught from the Arroyo Colorado will continue on an approximate five-year cycle, until DSHS lifts the consumption restrictions for all fish species. 

## New Faces in the Arroyo Colorado Partnership

Geraldo Tapia of Texas AgriLife Extension Service in Hidalgo County was recently hired as an agricultural technician to work on the Education of Best Management Practices in the Arroyo Colorado Watershed project.

Along with his many responsibilities as a recently named Willacy County Extension agent, Lucas Garcia is also assisting with the Arroyo Colorado educational programs targeted toward agricultural producers.



*Yard trimmings and other green waste (left) are placed in windrows for approximately 6 weeks to allow the material to completely break down into a useable virtually odor-free soil amendment. A City of McAllen employee (right) uses a probe to measure the temperature at the center of the compost pile. To effectively compost the material, the pile must reach between 135 to 155 degrees Fahrenheit. Once it reaches this temperature, the material is turned and allowed to heat up again. This process is repeated up to five times before the composted material is ready.*

## City of McAllen saves the greens

The City of McAllen has produced more than 8,000 cubic yards of enriched compost since the city began collecting green waste from the local Walmart as part of its “Save the Greens” pilot project, said Ouina Rutledge, the city’s recycling manager.

The pilot program, started in February 2007, was initiated because the city needed to improve the compost it was making and increase the use of compost by developers, landscapers, gardeners and residents, Rutledge said.

McAllen has been collecting and composting residents’ yard trimmings since 2002, but composted yard trimmings are typically low in nutrients as opposed to composted manure or green waste.

From collecting vegetative waste once a week from one grocery store, the program has grown to collecting additional green waste of floral, nursery and bakery goods three times a week. The program is currently expanding to three more grocery stores and several businesses—Rio Grande Valley Food Bank, Magic Valley Frozen Foods and McAllen Produce Trade Zone—voluntarily bring vegetable waste to the compost facility.

“We will eventually expand to include other grocery stores, restaurants and schools,” Rutledge said. The green waste is separated from possible contaminants (plastics and Styrofoam) by store

employees and placed in a dumpster. The city collects the dumpster and transports it to the city’s composting facility. From there, the green waste is added to the yard waste and the resulting compost, high in nitrogen and beneficial organisms, is sold to nursery owners, organic growers, residents and landscapers.

“Organic growers in the region are using this compost and the resulting produce is sold back to the local business thus ‘closing the loop’ for community sustainability,” Rutledge said.

“McAllen’s composting project is a great example of what cities within the Arroyo Colorado watershed can do to improve our local water quality given that compost improves the ability for soils to absorb water resulting in less water runoff,” said Laura De La Garza, watershed coordinator for the Arroyo Colorado Watershed Partnership.

The environmental benefits of this project include:

- decrease in the amount of vegetative waste sent to the landfill,
- reduction in amount of greenhouse gases produced by vegetative solid waste disposed in the landfill,
- reduction in the amount of chemical fertilizers used by growers,
- increase in the level of community participation and awareness in recycling, and
- reduction in the need for irrigation water.





# Arroyo Colorado

## Work Group Reports

### Education and Outreach Work Group



*The Arroyo Colorado physical watershed model was recently demonstrated at the Rio Grande Valley Livestock Show in Mercedes. Over 500 people viewed the model over the three-day period that it was demonstrated.*

The physical watershed model is busy touring the Arroyo Colorado Watershed. This interactive model, which displays the Arroyo Colorado, the Rio Grande, the Gulf of Mexico and the Lower Laguna Madre, is used to educate children and adults about water flows in the Lower Rio Grande Valley, water quality impairments and how individuals impact their watersheds. We need your help in displaying the model. Please check the Web site for more information on where the model will be next and how you can demonstrate it at your next event!

Texas Stream Team (formerly Texas Watch) hosted a volunteer monitor training event on Feb. 1, and

volunteers continue to actively monitor the watershed on a regular basis. Thanks and appreciation goes out to all involved! Please check the Web site for information on how to become a volunteer monitor.

The City of McAllen has extensive education and outreach programs and recycling programs, such as Save the Greens and Pay as You Throw, in which local citizens can participate. For more information on the Save the Greens program, refer to the article on page 3 of the newsletter.

Two proposals were submitted to the EPA Environmental Education Program in December. The first involves developing and broadcasting radio and television public service announcements throughout the Valley. The second proposes to polish an existing Arroyo Colorado curriculum (created by the International Museum of Arts and Sciences and the city of McAllen) and to “teach” teachers how to use the curriculum in their classrooms.

Future education and outreach efforts include the installation of road signs to mark Arroyo Colorado Watershed boundaries and storm drain stenciling that informs people that anything entering the storm drain eventually flows to the Arroyo and out into the Laguna Madre.

### Habitat Work Group

Work continues in the development of a regional wetland that will improve water quality and enhance habitat in the Arroyo Colorado Watershed. The habitat workgroup has identified several potential sites for the regional wetland and is currently seeking funding to assess three of these sites considered to be the most suitable based on preliminary analysis. One funding option is to create a wetland mitigation bank from which credits could be generated and sold to mitigate for wetland areas altered by construction activities or other projects.

The Four Cities Wetland project, discussed more in the wastewater workgroup summary, is progressing. These four wetlands, located in the cities of San Juan, La Feria, San Benito and Mercedes will be designed

based on ecological principles that will allow for water quality improvement as well as provide quality habitat for migratory birds and other critters.

The habitat work group is also working on creating a natural area inventory map. This map would show critical environmental areas that need to be preserved and where connections between green/open spaces can be made. The map currently includes the location of wildlife refuges and other land in public conservation and efforts are being made to map lands in private conservation easements. This map is the first step in SmartGrowth with the next step being the prioritization of natural areas to identify which should be preserved first.



### **Agricultural Issues Work Group**

The agricultural community continues to do its part in implementing the Arroyo Colorado Watershed Protection Plan. The Texas State Soil and Water Conservation Board (TSSWCB) has worked with local producers to develop an additional 96 water quality management plans that cover 4,700 acres. This program also provided \$447,000 in financial assistance to producers to implement best management practices, such as land leveling, irrigation pipeline, pasture planning and cross fencing. Approximately 70 percent of the funds were expended in Cameron County with the remaining 30 percent funding practices in Hidalgo County.

Geraldo Tapia, the new Texas AgriLife Extension Service education technician who joined the partnership in September 2007, and the county Extension agents kicked off the soil-testing campaign

in October and 662 soil samples have been received to date. If you are interested in participating in future campaigns or other educational programs, please contact your local county Extension office.

Quality Assurance Project Plans were approved for both the Agricultural Nonpoint Source Assessment and SWAT projects, which allowed project personnel to begin monitoring and modeling activities, respectively. Both projects were funded by TSSWCB through an Environmental Protection Agency Clean Water Act grant.

Scientists with Extension and Texas A&M University–Kingsville began monitoring activities this spring. The results of these projects will provide evidence of how BMP education and implementation efforts are impacting water quality in the Arroyo Colorado.

### **Wastewater Infrastructure Work Group**

The main goal of the wastewater infrastructure workgroup is to reduce pollution through improved wastewater treatment and expanded wastewater connections to underserved communities. Several measures have been proposed to achieve this goal, all of which are outlined in the Arroyo Colorado Pollutant Reduction Plan. Specifically, constructing small and large wetlands and upgrading wastewater treatment plants to the highest level of secondary treatment are priorities in the implementation of the Arroyo Colorado Watershed Protection Plan. Currently, the wastewater workgroup leaders are working to follow up on each city's voluntary commitment to reduce pollution to the Arroyo Colorado.

The cities of San Juan, La Feria, San Benito and Mercedes are all making progress to meet the near-term goal of constructing small, local treatment wetlands. The City of San Juan is projected to begin construction of an approximately 8-acre wetland later this spring. The cities of San Benito and La Feria are in the design phase with wetland construction projected to begin in early 2009. The City of Mercedes is awaiting approval of a permit amendment for facility expansion and, upon receipt, will begin working on wetland permitting and design later this



*A sand quarry near La Feria is one of the potential sites for a water treatment wetland system along the Arroyo Colorado.*

year. This Four City Wetland project, funded by the Texas Commission on Environmental Quality, is a collaborative effort of the wastewater and habitat workgroups. Once constructed, these wetlands will be used not only for treating wastewater but will also provide ecological, educational and recreational opportunities.

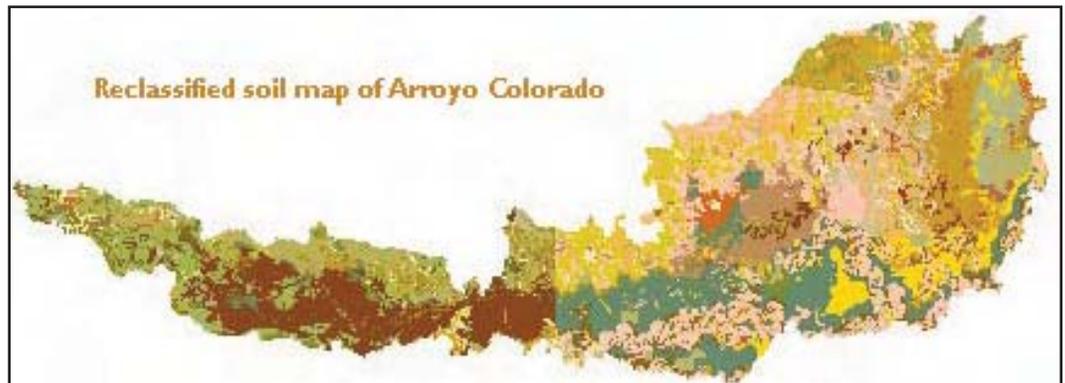
This workgroup is also assisting with the development of a proposal for a Texas Water Development Board Regional Wastewater Planning grant. This funding would be used to facilitate planning for treating wastewater in growing urban areas as well as in colonias.



# Arroyo Colorado

## Researcher using SWAT to simulate Arroyo pollutants

Dr. Narayanan Kannan of Texas AgriLife Research and Extension Center at Temple (Blackland Research and Extension Center) is using the Soil and Water Assessment Tool (SWAT) computer model and a geographic information system (GIS) to help restore the Arroyo Colorado.



Kannan is using these tools to simulate the amount of sediment, nutrients and biochemical oxygen demand (BOD) currently in the watershed and to simulate different scenarios of potential pollutant reductions that might result from using different best management practices (BMPs) recommended by the Texas State Soil and Water Conservation Board (TSSWCB).

“I am currently finishing compiling available data to calibrate an updated model setup for the Arroyo for the period of 1999 to 2003,” Kannan said, “and validating it using measured flow and in-stream measurements of the pollutants for the period of 2004-2006.

“Once that is finished, I will run a suite of BMPs—most of them are agricultural management practices—that can reduce nutrient loads in the Arroyo Colorado,” he said.

“The scenarios that can bring the most nutrient load reduction will be recommended for implementation. Implementing these BMPs will improve the water quality of the Arroyo Colorado.”

His research is part of the SWAT Model Simulation of the Arroyo Colorado Watershed project, managed by the Texas Water Resources Institute and funded by TSSWCB through an Environmental Protection Agency Clean Water Act grant.

Others involved in the data collection and/or model setup include Dr. Raghavan Srinivasan of Texas A&M University’s Spatial Science Laboratory, Andy Garza of TSSWCB, Roger Miranda of Texas Commission

of Environmental Quality (TCEQ) and others in the Arroyo Colorado.

TCEQ conducted the first Arroyo Colorado modeling effort, from 1988 to 1999, using the Hydrological Simulation Program—Fortran (HSPF) model.

Because of the rapidly growing urban areas and changing land use, in 2003 TCEQ recommended a reassessment of the watershed using additional and more recent data to create a more sophisticated Total Maximum Daily Load analysis with less uncertainty and better characterization of the watershed.

Knowing the current amounts of the pollutants will help estimate needed reductions of the pollutants to meet the TMDLs requirements set by TCEQ.

The current model being used, SWAT, is a sophisticated computer model developed by the U.S. Department of Agriculture’s Agricultural Research Service in Temple, Texas. SWAT predicts how much water, sediment, nitrogen, phosphorus, pesticides, bacteria and other pollutants are running off the land and getting into lakes and rivers, and the impact different watershed management decisions could have.

For input into SWAT, Kannan is compiling data from the U.S. Geological Survey, U.S. Department of Agriculture’s Natural Resources Conservation Service, the Office of the Texas State Climatologist at Texas A&M University, Nueces River Authority, International Boundary and Water Commission and TCEQ. 



## Looking ahead

Much is being planned to get us closer to accomplishing the mission and vision of our Partnership. Although we have not yet been awarded additional grants, we can proceed with a number of projects, thanks to our strengthening partnerships. With the help of local landscape designers and community organizations, we plan to organize an event to develop a conceptual design for a Rio Hondo nature and outreach center, which includes another treatment wetland; and we are already beginning to work toward improving the Arroyo Colorado Watershed curriculum.

We will continue to pursue grants and partners for the development of large- and small-scale wetlands, further investigate the potential for establishing a wetland mitigation bank and support the ongoing

efforts by Dr. Kim Jones and his graduate students in the preliminary investigation of identified potential wetland sites.

Thanks to the assistance of Jim Tabak of the Valley Land Fund, Ken Jones of the Lower Rio Grande Valley Development Council and the Texas Water Resources Institute, we will continue to work on long-term sustainability of our Partnership, including the development of a budget and business plan.

Thank you for your support! One way to show it is to attend one of our meetings and other local environmental events. See the back page for a list of some upcoming events.

*Cheers Partners!*

*Laura* 



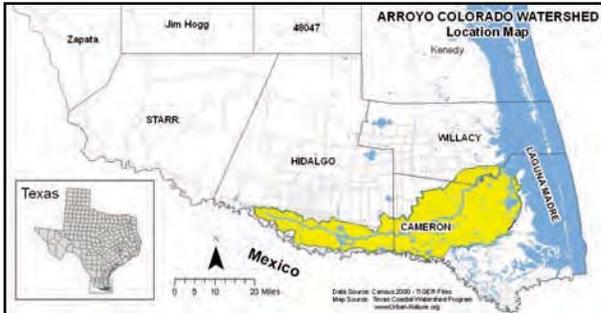
Water quality sampling efforts with the Agricultural Nonpoint Source Assessment Project began this spring. (clockwise from top left) Xavier Peries of Texas AgriLife Extension Service measures groundwater depth in a producer's field. When enough groundwater is available, Peries takes a sample and measures electrical conductivity and dissolved oxygen in the field (additional parameters will be measured in the laboratory) to determine effects of irrigation and BMPs on surface and groundwater quality. Christopher Vera and Dr. Venki Uddameri of Texas A&M University-Kingsville measure the width of a drainage ditch where water samples will be collected. Flow data is also collected at various widths. These measurements will help determine potential mitigating properties of vegetation in the drainage ditches.



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## UPCOMING MEETINGS/ACTIVITIES

### *Steering Committee Meetings*

April 24, 2008 4:30-7 PM Citrus Ctr, Weslaco  
 July 24, 2008 4:30-7 PM Citrus Ctr, Weslaco

### *Outreach & Education Work Group Meetings*

April 15, 2008 4-6 PM AgriLife Ctr, Weslaco  
 July 15, 2008 4-6 PM AgriLife Ctr, Weslaco

### *Agricultural Work Group Meetings*

July 24, 2008 10-Noon Citrus Ctr, Weslaco

### *Habitat Work Group Meetings*

April 24, 2008 2-4 PM Citrus Ctr, Weslaco  
 July 24, 2008 2-4 PM Citrus Ctr, Weslaco

### *Water Quality Monitoring Workgroup Meeting*

April 9, 2008 5:30-7 PM TBA

### *Wastewater Workgroup Field Trip*

April 29, 2008 8 AM-6 PM Invista (Victoria)

### *USIBWC Citizen's Forum Meeting*

April 16, 2008 4-6 PM RGV Partnership

### *Hummingbird Days*

April 19, 2008 9 AM-4 PM McAllen Birding Ctr

### *Earth Fest*

April 19, 2008 Noon-6 PM Linear Park,  
 Brownsville

### *IMAS Earth Day Celebration*

April 20, 2008 1-5 PM IMAS, McAllen

### *McAllen Goes Green*

April 26, 2008 9-Noon McAllen Recycling Ctr

### *Compost Awareness Week*

May 4-10, 2008 McAllen Recycling Ctr

## The Arroyo Colorado Watershed Partnership

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