THE ARROYO COLORADO WATERSHED PARTNERSHIP
NEWSLETTER

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Hola Arroyo Partners

Happy New Year! I do not know about you, but for me, 2005 flew by quickly. Last year was a good year for watershed planning in the Lower Rio Grande Valley. We made a name for ourselves, *The Arroyo Colorado Watershed Partnership,* and our membership grew from 205 at the end of 2004 to over 370 current members. We have people's attention across this great state of Texas, as **The Arroyo Colorado Watershed Protection Plan** (WPP) will be the first watershed plan for Texas.

Attendance at our meetings has been good and our work group leaders and work group members have diligently worked to produce their portion of the Arroyo WPP. At this time, we have two consultants gathering and evaluating data for us. Alan Plummer Associates, Inc. is doing a feasibility study for habitat restoration/modification to improve water quality in the Arroyo. Karen Ford of White Hat Creative, and Susan Poag and Cathy Schechter of SUMA/Orchard Social Marketing, Inc. are working on conducting a market survey to help develop the education component of the plan and the results of their efforts will be recommendations and materials for an effective outreach campaign to promote long-term stewardship of Arroyo Colorado watershed.

The Arroyo WPP is taking shape, and the first draft is scheduled for completion by the end of January 2006. This first draft plan should be thought as phase one, after which there will be an opportunity for further comment and input. The next Steering Committee meeting is scheduled from 6 PM to 9 PM, January 19, 2006 in the Rio Red Classroom of the Texas A & M Kingsville Citrus Center, located at 312 N. International Blvd., Weslaco, Texas. This next meeting is extremely important as we will be reviewing the draft Arroyo WPP, and the Steering Committee will approve and prioritize projects.

INSIDE THIS ISSUE

Hola Arroyo Partners	1
The New Steering Committee	1
Status of Watershed Protection Plans	2
TSS, Nutrients, and Dissolved Oxygen	2
Highlights of the Agricultural Plan Component	3
More Work Group Highlights	3
Some Strategies of the Watershed Plan	5

Participants seated at an Arroyo Colorado Steering Committee held in the Rio Red Classroom of the TAMUK Citrus Center

The New Steering Committee

By Laura De La Garza

During the December 2004 Steering Committee meeting, members voted to form a task group to fill vacancies and re-evaluate membership, in an effort to make the Steering Committee more representative of the local community. The special task group members included Don Hockaday, Paul Bergh, Tony Reisinger, Javier Guerrero, and me, Laura De La Garza. A list of nominees was presented to the Steering Committee on August 4, 2005, and at that meeting, they were voted in as the new Steering Committee.

Steering Committee Members

Andy Garza – Tx State Soil and Water Conservation Board
Alan Johnson – Texas State Bank
Alan Moore – Cameron County Drainage District #5
Amado Salinas – Military Highway Water Supply Corporation
Butch Palmer – Port of Harlingen Authority
Darrell Gunn – Harlingen Waterworks System
Don Medina – LRGV Storm Water Task Force
Jim Chapman – Sierra Club
*Mary Lou Campbell – Sierra Club
John Wallace – Laguna Atascosa National Wildlife Refuge
* M. Clare Lee – U.S. Fish and Wildlife Service
Dr. Jude Benavides – University of Texas Brownsville
Ken Jones – Lower Rio Grande Valley Development Council
Dr. Kim Jones – Texas A&M Kingsville
* Dr. Venki Uddameri – Texas A&M Kingsville
Marco Pedraza – McAllen Public Utilities
Minerva Martinez – Rio Hondo Water Supply Corp
Neil Haman – Texas Water Development Board
Paul Bergh – Coalition to Save the Arroyo Colorado, Lower Laguna Madre Foundation
*Chris Rakestraw –Coalition to Save the Arroyo Colorado
Randy Blankinship – Texas Parks and Wildlife Department
Ray Prewett – Texas Citrus Mutual

Please see *Steering Committee* on page 4

Status of Watershed Protection Plans

By Roger Miranda

Currently, the TCEQ is trying to resolve the sticky issue of the legal standing of watershed protection plans (WPPs). WPPs are a relatively new vehicle for water quality improvement, and the TCEQ is evaluating how to best incorporate them into their regulatory structure. The TCEQ could incorporate the plan as part of the State's Water Quality Management Plan (WQMP) where the Total Maximum Daily Loads (TMDLs), and TMDL Implementation Plans (IPs) go, or the plan could be passed as an Agency Resolution which is not legally binding, or an Executive Order, which is legally binding. Finally, the plan could be adopted as a watershed rule which would require a lengthy public comment and legal process. No decisions have been made yet as these and a few other legal options are still being considered.

At this point, the Arroyo WPP is a completely voluntary effort. Work continues on the Phase II TMDL study of the tidal segment of the Arroyo to determine how much of the low dissolved oxygen (DO) problem is due to nutrient loading and how much is due to the physical condition of the Arroyo itself. Modelling is expected to be completed by 2007; therefore, we are looking at 2008 before the development of a TMDL for the Arroyo is completed. Pollutant loading allocations may not come to pass in terms of adoption if we are making headway in nutrient reductions with this WPP. There is a clause in the federal Clean Water Act which states that if a regulatory mechanism is already in place to address a water quality impairment, then the water body could be placed in a different category list of impaired water bodies (303(d) list) and development of a TMDL could be suspended indefinitely, pending the outcome of regulatory mechanism. The crux of the matter is the definition of a "regulatory mechanism" which goes back to the legal standing of the WPPs.

Vision an ecologically sound Arroyo Colorado and Lower Laguna Madre

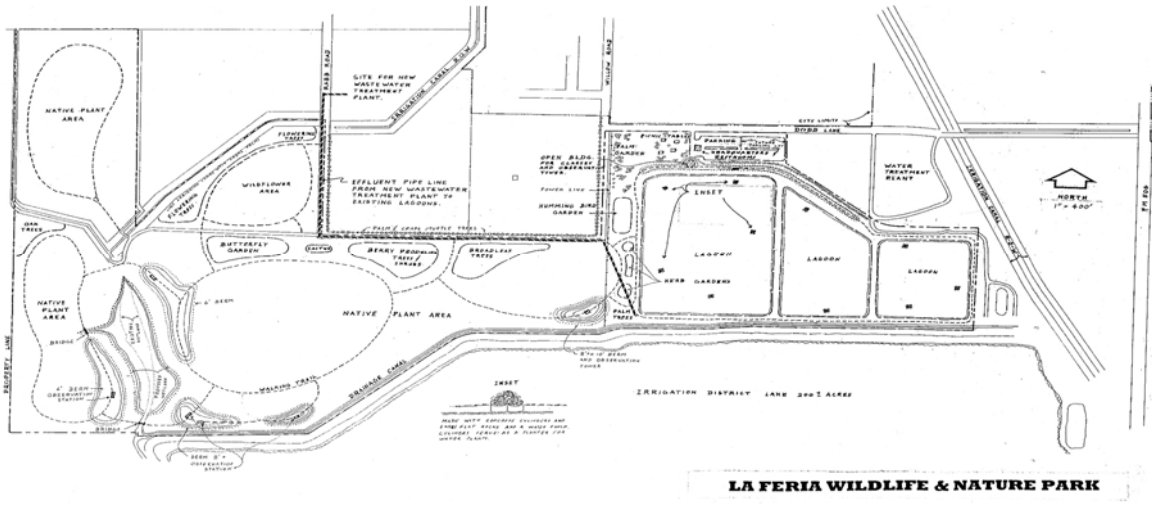
TSS, Nutrients, and Dissolved Oxygen

By Roger Miranda

Nutrients are essential for plant growth. During the day, plants use nutrients, carbon dioxide and sunlight to manufacture the sugars, proteins, and carbohydrates they need to survive (i.e., they make their own food). The process is called photosynthesis and oxygen is produced as a by-product. At night, plants use their food like any other living organism (they have to eat too!). This process is called respiration. During respiration, plants actually consume oxygen just like we do. Algae are essentially aquatic plants and undergo photosynthesis and respiration like all other plants.

Excessive nutrients in water can cause excessive algal growth. During the day, excessive algal growth can produce high levels of dissolved oxygen through photosynthesis, but during the night the same algae can consume large amounts of oxygen, depleting the water column and depriving aquatic animals of this life-sustaining element. Bacteria also undergo respiration, and in doing so, consume oxygen (all living things must eat). Bacteria do this as they decompose organic matter. Excessive algal growth can create large amounts of organic matter from the reproduction and death of individual algal cells. Bacteria eat (decompose) the dead algae, and in doing so consume oxygen.

Please see *Nutrients* on page 5



Schematic drawing of the proposed La Feria Wildlife and Nature Park. After construction of their new wastewater treatment plant, the old lagoon system will be incorporated into their parks system and also used for additional treatment of their wastewater effluent.

Highlights of the Agricultural Plan Component

By Kevin Wagner

Agriculture is extremely important to the economy in the Valley. According to the 2002 Census of Agriculture, the market value of crops sold in Cameron County is over $62 million and over $182 million in Hidalgo County.

However, agricultural nonpoint source (NPS) runoff has been identified as responsible for high percentages of the suspended sediment, biological oxygen demand (BOD), nitrate, ammonia, and phosphate load in the Arroyo Colorado. To address this, the Arroyo Colorado Agricultural Issues Workgroup was formed in December 2003 to develop a strategy.

The goal of the strategy is to achieve the voluntary adoption of BMPs on 33% of the irrigated cropland by 2010 and 50% by 2015. Based on current irrigated cropland acreages (300,000), it is estimated that if the strategy is fully implemented, then annual sediment, nitrogen, and phosphorus reductions will be 150,000 tons per year, 42.5 tons per year, and 7.1 tons per year, respectively.

To achieve the short-term goal of treating 33% of the irrigated cropland by 2010, it is estimated that assistance costs will be approximately $4.2 million in addition to existing programs. To achieve the long-term goal of treating 50% of the irrigated cropland by 2015, it is estimated that assistance costs will be in the order of $4.6 million in addition to existing programs. Thereafter, over $100,000 per year will be needed for continued technical assistance and educational programs.

A number of funding programs are available for assisting with implementation of this strategy, the most significant of which are the following:

- SB 503 Water Quality Management Plan Program (TSSWCB)
- Clean Water Act Section 319(h) Program (TSSWCB)
- Environmental Quality Incentive Program (NRCS)

Through the implementation of this strategy, the Agricultural Issues Work Group is confident that substantial strides will be made to address NPS runoff from the agricultural lands in the Arroyo Colorado.

More Work Group Highlights

The Habitat Restoration Work Group
By Kay Jenkins

The Habitat Restoration Workgroup met on December 8 and 9, 2005 in Weslaco. At the December 8th meeting, the workgroup heard a presentation by Alan Plummer & Associates on their draft technical report regarding the feasibility study for habitat restoration/modification to improve water quality in the Arroyo Colorado. At the December 9th meeting the work group members took the draft report and the maps provided by Alan Plummer and Associates and developed criteria that would be used to recommend a habitat restoration implementation plan. They brainstormed a list of additional studies that would be needed to implement some of the strategies, a list of strategies that could be implemented in the short term, a list of strategies that would be recommended for implementation but would require additional time, funds, and partnerships to develop, and a list of pilot projects to implement in the short term to help stakeholders better understand the water quality benefits and costs associated with implementing some of the strategies. Using the maps provided in the draft technical report, workgroup members identified on a cursory basis sub-basins where implementation of specific strategies would probably provide the most benefit for water quality improvement.

At the December 9, 2005 meeting, the Habitat Workgroup also reviewed the habitat "chapter" outline and noted people who would be good contributors for specific outline topics. Two of the members, Randy Blankinship and Chris Hathcock, provided draft text for specific topics in the habitat chapter. Several workgroup members provided feedback on the draft technical report prepared by Alan Plummer and Associates and those comments were passed on to the consultants. Alan Plummer and Associates is expected to provide their final technical report by mid- January. The Habitat Workgroup has scheduled an all-day meeting on January 19, 2005, to further refine the recommendations for the habitat component of the WPP.

Please see *More Highlights* on page 4

Steering Committee from page 1

Richard Eyster – Texas Department of Agriculture
Rick Reyes – U. S. International Boundary and Water Commission
Rocky Freund – Nueces River Authority
Steve Bearden – Rio Grande Valley Sugar Grower's, Inc
Sam Simmons – Cotton Grower's Association
Tony Reisinger, Jr. – Texas Sea Grant Marine Advisory
Wayne Halbert – Harlingen Irrigation District Cameron County #1
* Alternates/Supporting Members

I am happy to announce our new Steering Committee chairperson, Dr. Jude Benavides, Assistant Professor of Hydrology and Water Resources in the Department of Chemistry and Environmental Science of the University of Texas in Brownsville. Dr. Benavides was elected at the Steering Committee/Partnership meeting held on August 4, 2005. He joins us with a strong desire (and time commitment) to assist in the drafting of this plan. Dr. Benavides is from the Valley, comes with strong credentials with a background in flood management, and I want to welcome him to our Arroyo Partnership. Dr. Benavides' main responsibility is to moderate the Steering Committee meetings. The work group leaders and 1 will work with him to set the agenda. I will state this once again. Everyone has an equal voice in this process, and we welcome comments, suggestions, and personal assistance in drafting our Arroyo WPP.

More Highlights from page 3

The Education and Outreach Work Group
By Laura De La Garza

The Education and Outreach Work Group has been following the EPA "Getting in Step" guide for conducting watershed outreach campaigns. This guide recommends performing a market survey; therefore, the work group went about the process of hiring a firm to conduct such a survey. In October, 2005, Karen Ford of White Hat Creative, and Susan Poag and Cathy Schechter of SUMA/Orchard Social Marketing, Inc. were hired to design and conduct the survey and to help promote the development and implementation of the E&O component of the plan. The results of their efforts will be recommendations and materials for an effective outreach campaign to promote long-term stewardship of Arroyo Colorado watershed.

Hiring the firm took longer than expected. According to the work plan and contract, the final deliverable from the consultants is due May 2006. However, the work group plans to develop their portion of the plan which reflects the work done to date. The general consensus of the group is that Valley residents need to be made more aware of the water quality issues associated with the Arroyo Colorado. We know that we need to define the problem and the potential impacts to the community. Projects like signage marking the watershed boundary and the making of an educational video have been identified to be part of the plan. There is ongoing work with the IMAS and the City of McAllen to initiate a storm drain marking project and the draft educator's guide "Restore our Watershed: Arroyo Colorado Watershed Curriculum" is currently under review by Christina Mild.

The Wastewater Infrastructure Work Group
By Roger Miranda

The Wastewater Infrastructure Work Group has produced the wastewater infrastructure portion of the plan to reduce nutrients, biochemical oxygen demand, fecal pathogens and suspended solids loading into the Arroyo Colorado. Since the production of the first draft, there have been follow-up meetings with most of the municipalities, public utilities, and water supply corporations. The purpose of these meetings was to solicit comments and input to the Wastewater Infrastructure Plan (WWIP). There were also discussions pertaining to the feasibility of designing and constructing wetland cells or polishing ponds, which would limit and remove nutrients from the wastewater effluent. All the participating entities have agreed, in principle, to the voluntary construction of such tertiary treatment systems, contingent on land availability and funding. Many of the entities suggest reuse as an option to limit nutrient loading to the Arroyo. La Feria, the Military Highway Water Supply Corporation, San Benito, Mercedes, Weslaco, Pharr and McAllen have made fairly firm commitments to work on incorporating some type of polishing pond or wetland system into their post-treatment mechanisms.

At an October 19th work group meeting, questions concerning the draft wastewater component of the plan were addressed along with updates on local wastewater improvement efforts and potential funding sources. Currently, the second draft of the WWIP is under review by the TCEQ. In general, reuse, ponds and constructed wetlands appear to be the most viable options for nutrient load reductions associated with wastewater effluent.

Nutrients from page 2

So, excessive nutrients lead to excessive algal growth, which, under the right conditions, can lead to oxygen depletion from algal and bacterial respiration.

Total Suspended Solids (TSS) are small particles of fine sediment, organic matter, and/or insoluble minerals that remain suspended in water due to their small size and buoyancy. Because these particles can obstruct sunlight and reduce or even prevent photosynthesis from occurring in the water column, dissolved nutrients that would normally be used up by algae upstream remain in solution until a change in flow regime downstream causes suspended sediment to settle out of the water column. The sudden settling of suspended sediment (and associated increase in sunlight penetration into the water column), coupled with the availability of nutrients that would normally have been consumed by algae upstream, can cause algal blooms that deplete oxygen in the water column downstream. Sediments can also transport phosphorus (an essential plant nutrient); phosphorus molecules often adhere to clay particles and are transported downstream where they can be released to the water column under the right conditions, contributing to algal blooms.

Steve Bearden, Steering Committee Member and President and CEO of the Rio Grande Valley Sugar Growers, Inc. and Laura De La Garza, Arroyo Colorado Watershed Coordinator review and discuss maps showing modeled nutrient loading to the Arroyo Colorado.

Some Strategies of the Watershed Plan Colorado

By Laura De La Garza

The work group highlights contained in this newsletter offer a sense of the watershed protection plan for the Arroyo Colorado. The TMDL model completed in 2002 identified runoff from agricultural fields and effluent from wastewater treatment plants as the main contributors to nutrient loading to the Arroyo Colorado. We know that nonpoint source pollution from urban sources will be a growing concern as Valley urban centers continue to grow; therefore, this Arroyo WPP will require everyone to do their part to help improve the quality of water in the Arroyo Colorado.

The agricultural community will be encouraged to voluntarily adopt Resource Management Systems and Water Quality Management Plans to reduce nutrient, residue, and sediment runoff. They will be encouraged through education programs, technical assistance, and financial assistance for their implementation. It is acknowledged that better data is needed to characterize what is actually draining from the irrigated fields and to what extent the drainage ditches limit the pollution loadings to the Arroyo Colorado. Thus, the agricultural portion of the plan will also include additional monitoring and assessment.

Most of our municipalities have improved, or plan to improve their wastewater collection and treatment systems in some way. Our cities should be commended for the numerous colonia hook-ups and for the partial reuse of their wastewater

Please see *Main Strategies* on page 6

"Restore, protect, and preserve the water quality of the Arroyo Colorado"

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Main Strategies from page 5

effluent. The WPP will support upgrades for a few cities, additional reuse, and the construction of tertiary treatment ponds and wetlands. The WWI component of the plan will also call for additional nutrient monitoring of the wastewater effluent to gage the efficiencies of the new systems.

Our Habitat work group is working to refine their recommendations for the plan. We know that constructed wetlands of different sizes will be part of the plan, along with bank stabilization strategies and detention ponds and swales, for the treatment of nonpoint sources of pollution. The educational component will support an extensive Arroyo Colorado awareness campaign and the land use component will outline strategies to let the communities know there are alternatives to sprawl development.

Money is needed to make this plan work. The drafting of this Arroyo Colorado Watershed Protection Plan will attract grant monies. Many of the granting entities look for an integrated watershed-based approach, innovation, strategic planning drawn from public and private partners, and a plan that is technically sound. Thanks to all the hard work from our technical experts, this plan will be technically sound, and thanks to the regional support of the participating stakeholders, this plan will demonstrate innovation, community collaboration, and partnerships.

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