

THE ARROYO COLORADO WATERSHED PARTNERSHIP NEWSLETTER

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HOLA, ARROYO PARTNERS!

Thanks to your dedication and the support we have received from our local, state, and federal partners, we are completing the first phase of the Arroyo Colorado Watershed Protection Plan. Our Steering Committee and Work Groups have been meeting for over two years to work out detailed elements of the plan. We've had a total of 31 work group meetings to hash out the different elements of the plan and 11 Steering Committee/Partnership meetings to review and approve the recommendations from the different work groups. We've had consistently good attendance at our Steering Committee/Partnership meetings with a diverse group of about 30-40 individuals attending to represent different interests in our community.

We've also received some great products from some very qualified consultants. Alan Plummer Associates, Inc. (APAI) completed a feasibility study for habitat restoration and modification and produced a comprehensive document that provides a "toolkit" of strategies we can use to enhance both water quality and habitat. This toolkit not only includes conceptual designs with their applications and limitations, but also shows unit costs for construction, operation, and maintenance. From a long list of strategies, APAI then assisted us in identifying the ones that would be most feasible in our watershed and identified general locations where these strategies would be most effective.

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We also had help from Karen Ford of White Hat Creative, and Susan Poag and Cathy Schechter of SUMA/Orchard Social Marketing, Inc. to brand our campaign (see following article) and to help make people aware of our efforts to improve the quality of water in the Arroyo Colorado. Thanks to all of our partners and consultants, we are on our way to improving the Arroyo Colorado!



BRANDING OF THE CAMPAIGN

By Laura De La Garza

Karen Ford of White Hat Creative and her team were hired to assist the Education and Outreach Work Group in the development of a long-term plan for marketing our message about the water quality issues associated with the Arroyo Colorado. The first thing they suggested was to "brand" the campaign. The purpose of a campaign brand is to ensure consistent delivery of key messages, which enhances public awareness. Our goal is to increase awareness of the water quality issues associated with the Arroyo Colorado and to foster local stewardship, with the ultimate goal of improving the quality of water in the Arroyo Colorado and the Lower Laguna Madre. Our

consultants went through quite a process to develop the logo and tag line (see pictures); our campaign is now branded!

In conjunction with the branding process we worked with SUMA/Orchard Social Marketing, Inc. to develop and conduct a social marketing survey. After the consultants became familiar with the issues and the planning effort, they conducted one-on-one telephone interviews with a number of stakeholders and influential people in the Valley to begin gauging awareness levels, attitudes, and beliefs surrounding the Arroyo Colorado. They next developed materials for focus group meetings, including visuals of a variety of logos and taglines. Backing up for just a minute, the logos and taglines



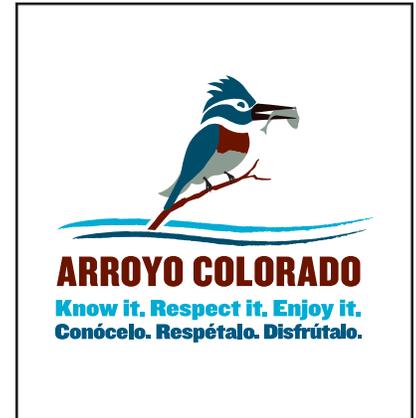
that were presented and tested at the four focus groups meetings were the result of the feedback we received from participants at the January 2006 Steering Committee meeting. This was one of our liveliest meetings.

Karen Ford presented ideas gleaned from the one-on-one interviews and went through an exercise that stimulated open discussions regarding perceptions of the Arroyo Colorado. Through the process, we narrowed down the design ideas and settled on the concept of a Kingfisher bird with a fish in its mouth. Colors and tag lines were also discussed and as a result, new material was developed which was tested at the focus group meetings. Feedback from the focus groups narrowed things down to two designs. These designs were sent out via email to people on the Arroyo Colorado e-mail list. Fifty people responded, and with that feedback, we ultimately chose the logo and tag line we have now.



There was then a little tweaking of the design

based on comments received from a few of our members and the ultimate review of our design team. The suggestions called for a more colorful Kingfisher that was a little more true to the species that live around the Arroyo Colorado, with the idea of having something that could be eventually embroidered on a shirt or cap. To implement that suggestion, Anthony Reisinger, a local graphic designer and environmental studies student at the University of Texas Brownsville, sketched out a more detailed Kingfisher. His friend and often-times partner in graphic designs, William B. Spilman of Prophecy Studios, fined-tuned the design which was returned to the original logo designer, Shawn Harrington of the Asterisk Group, for the final design modifications. And there you have the short version of the full evolution of the logo for the Arroyo Colorado and its tagline "Know it. Respect it. Enjoy it."



THE PROPOSED AERATION STRUCTURES

By LAURA DE LA GARZA

Aeration structures for the Arroyo Colorado have been a topic of discussion in many of our work group and Steering Committee meetings. This project was initiated about nine years ago by the



Port of Harlingen and the City of Harlingen in an effort to reduce the amount of sediment entering the Port's turning basin and the lower segment of the Arroyo Colorado. When the initial studies by NRS

Consulting Engineers revealed that the structures would have minimal effect in reducing sedimentation downstream, the project was almost dropped until a group of civic leaders from Harlingen, including members of the Valley Sportsman Club and the Coastal Conservation Association, decided to pursue the effort for other reasons.

The proposed structures would be constructed to slow and retain water to achieve a water level of 1/2 to 1-1/2 feet above normal base level. They would be made of broken concrete from recycled road material. The structures would not be solid but made up of "rocks" stacked to create small rapids that would make the Arroyo Colorado "a little more interesting" visually while adding a pleasant sound and some oxygen to the stream. Although water quality benefits may be minimal, the placement of these structures might lead to the creation of additional aquatic and native bank habitats, healthier water in at least part of the stream, and in the end, create a more aesthetically appealing stream with more fish.

At one point, the structures were called weirs —small

dams that back-up water and regulate its flow. Dams are generally solid structures that change and impact natural stream and aquatic processes. Texas Parks



and Wildlife Department (TPWD), the U.S. Fish and Wildlife Service, and a couple of local environmental groups raised concerns about the impact of the structures to bank and stream vegetation, the passage of recreational users in kayaks and canoes, and most importantly, the possible impact to the

movement of aquatic species.

Solutions to those concerns were worked out after presentations and discussions at Habitat Work Group and Steering Committee meetings, a field trip, a special task group meeting, and the diligent collaboration of several individuals. The final proposal is that all the concrete rock placed in the Arroyo Colorado be submerged to create riffles, and not waterfalls; that a chute, or lower middle area, be created for boat and fish passage; and that the project sponsor be willing to allow additional oversight from the concerned groups.

At one point, there was a proposal to submit a complete re-design of the proposed structures; however, after more discussions between the project sponsor and TPWD it became apparent that re-design was not necessary if the environmental concerns were addressed through permit conditions of the International Boundary and Water Commission (IBWC). The project sponsors and TPWD have agreed on the proposed conditions of the permit. So it looks like parts of Arroyo Colorado are closer to becoming a little more "interesting" .

TOTAL MAXIMUM DAILY LOAD / MONITORING WORK GROUP REPORT

BY ROGER MIRANDA

Work continues on the ambitious effort to characterize the physical, chemical and biological systems at work in the Arroyo Colorado with the ultimate goal of determining a pollution limit for the stream. Understanding the respective effects of physical stream modifications, high pollutant loading and site-specific biochemistry on dissolved oxygen (DO) dynamics is a critical part of determining a Total Maximum Daily Load (TMDL) for the Arroyo Colorado. For this purpose, in 2005, the Arroyo Colorado Further Study / TMDL / and Monitoring Work Group (referred to herein as the TMDL Work Group) helped design and implement an intensive data collection effort for the Arroyo Colorado. In accordance with the sampling design approved by the TMDL Work Group, the US Geological Survey (USGS) and the Texas Commission on Environmental Quality (TCEQ) completed intensive sampling events in two reaches located in the upper portion of the tidally-influenced segment of the Arroyo Colorado in February and May of 2006. Field measurements of temperature, DO, pH, conductivity, and sedimentation rates were collected at various

depths over two separate 24-hr periods along with water samples for laboratory analysis of nutrients, biochemical oxygen demand and other chemical parameters. In addition to these data and sample collection efforts, the Arroyo was also sampled to determine important seasonal biochemical rates such as algal oxygen production, community respiration, and to characterize the micro-biological flora and fauna unique to this tidal stream.

In June of 2006, the TCEQ, in cooperation with the International Boundary and Water Commission (IBWC), re-established the continuous water quality monitoring site in the Arroyo Colorado at the Rio Hondo Bridge. A similar site was originally installed by the USGS, but was discontinued due to lack of funding. The monitoring site measures meteorological (i.e., air temp, wind speed, wind direction, etc.) and field water quality parameters (i.e., temp., DO, pH and conductivity) at two depths (<1-meter and 3-meters) in real-time. The data (real-time and historical) is available for viewing and downloading at the following URL:

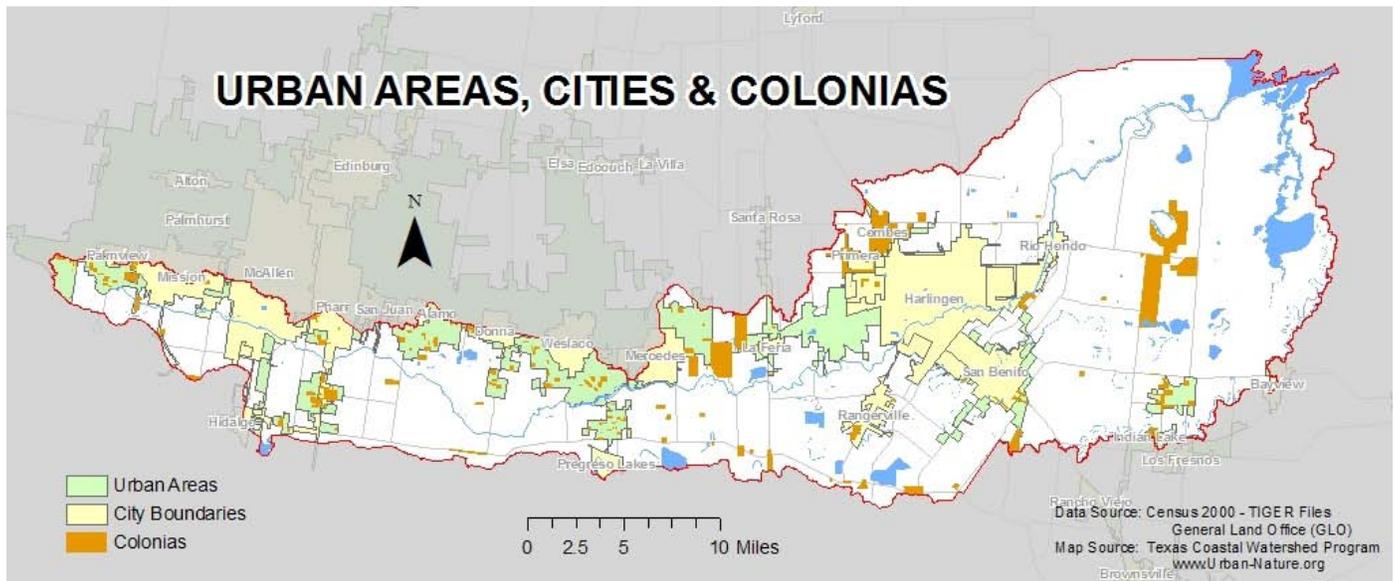
http://dsr/cgi-bin/lsr/water_site_photo?cams=730

The TCEQ plans to install additional equipment at

the Rio Hondo site to measure current velocity at multiple depths for detailed characterization of the tidal hydrodynamics in the Arroyo Colorado's zone of impairment.

In late 2005 and early 2006, the TMDL Work Group took on the task of developing a monitoring plan for inclusion in the Arroyo Colorado Watershed Protection Plan (WPP). The Nueces River Authority took the lead in this effort, developing a comprehensive monitoring plan with participation from the TCEQ,

Texas Parks and Wildlife Department, Texas State Soil and Water Conservation Board, Texas Sea Grant, and the USGS. The monitoring plan was modified (scaled back) in May, 2006 to bring it more in line with the only funding identified for this task. The current monitoring plan calls for quarterly monitoring of twelve sites on the Arroyo Colorado, targeted monitoring to gage the effectiveness of constructed wetland treatment systems, and edge-of-field monitoring to characterize specific non-point sources of pollution.



WASTEWATER INFRASTRUCTURE WORK GROUP REPORT

BY ROGER MIRANDA

The Wastewater Infrastructure Work Group of the Arroyo Colorado Partnership completed a major milestone in June, finalizing the Arroyo Colorado Pollutant Reduction Plan (PRP). The major components of the plan were largely agreed upon by the wastewater infrastructure work group participants back in March of this year (2006). However, the PRP document was revised slightly in June, 2006 to modify portions of the plan pertaining to control actions pledged by the Harlingen Water Works System (HWWS). As a result of these modifications, HWWS' portion of the plan now places more emphasis on wastewater reuse. The change did not significantly affect the overall estimates of pollutant loadings mitigated by implementation of the Arroyo PRP drafted in March. However, detailed estimates of the loading reductions expected from HWWS' reuse program will have to wait until after the completion of

a Wastewater Master Plan currently being developed by consultants for HWWS. Completion of HWWS' Wastewater Master Plan is expected in 2007. As a consequence of the June revisions, support for the final Arroyo PRP document is now unanimous (i.e., all participants have signed letters of support). Load reduction estimates in the Arroyo PRP document



may be revised in the future as more information on HWWS' reuse program becomes available. The latest version of the Arroyo PRP (July, 2006) can be found at the following URL:

<http://www.arroyocolorado.org>

The major elements of the Arroyo PRP will be incorporated into the Arroyo Colorado Watershed Protection Plan which is expected to be completed in August, 2006. However, many of the control actions contained in the plan are already being implemented. Funding for construction of wetland systems for the cities of San Juan, La Feria, SanBenito, and Mercedes

is currently being secured by the Texas Commission on Environmental Quality.

Following completion of the Arroyo Colorado Watershed Protection Plan in August of this year, the Wastewater Infrastructure Work Group will begin to focus their attention on 1) implementation of the remaining provisions of the plan 2) future revisions to the current plan to further mitigate loadings from wastewater and 3) the difficult issue of future growth, both within the areas served by the participant's Certificates of Convenience and Necessity and in unincorporated areas within the watershed.

MORE WORK GROUP HIGHLIGHTS HABITAT WORK GROUP

BY KAY JENKINS

The Arroyo Colorado Habitat Restoration Plan was finalized in May 2006. The plan includes a thorough description of the historical and current conditions of terrestrial and aquatic habitats associated with the Arroyo Colorado watershed, identifies current threats to habitat within the watershed, lists the existing habitat conservation and restoration efforts and summarizes the toolkit of strategies for habitat improvement. Most importantly, the plan describes and discusses the recommended action items for water quality and habitat improvements.



The threats to habitat associated with the Arroyo Colorado are:

- Continued loss of wetlands and riparian areas
- Continued channel and streambank erosion
- Invasive plant species
- Continued DO problems in the Arroyo Colorado

Based on the above listed threats, ten actions are recommended by the Habitat Work Group in the Restoration Plan to address these problems. The

action items were presented at the May 25, 2006 Steering Committee meeting and accepted as part of the Arroyo Colorado Watershed Protection plan.

Action 1 – Support the ongoing efforts of the federal, state, and local agencies and organizations to implement terrestrial habitat conservation objectives in the Arroyo Colorado watershed through partnerships and funding.

Action 2 – Protect and restore existing riparian areas, resacas, and freshwater wetlands.

Action 3 – Work with drainage districts to modify drainage ditches and maintenance practices to reduce channel and streambank erosion

Action 4 - Participate with IBWC during development of maintenance or new work projects for the Arroyo Colorado.

Action 5 – Develop partnerships with the IBWC, drainage districts, and private landowners to implement bank/slope stabilization projects in hot spots along the Arroyo Colorado or in drainages within the watershed.

Action 6 – Implement projects that would detain storm water runoff reduce sediment load and reduce the volume and velocity of the flow of the runoff in drainage ditches and the Arroyo Colorado.

Action 7 – Support ongoing and increased use of vegetated filter strips around agricultural production and urban development areas to slow storm water runoff from these areas.

Action 8 – Implement wetland systems to treat storm water in urban developments, redevelopments and in areas under agricultural production to reduce non-point source pollutant loading to the Arroyo Colorado.

Action 9 – Build constructed wetlands for tertiary treatment of waste streams from individual wastewater treatment plants and/or for polishing flows from multiple wastewater treatment plants in close proximity with habitat features when feasible.

Action 10 – Construct large off-channel treatment wetlands that treat flows from both point and non-point discharges and provide habitat.

Because pollutant loads entering the Arroyo Colorado from the watershed area closest to the impaired zone have the least amount of time and distance to get assimilated, actions that are implemented in this region of the watershed should result in immediate improvement to the water quality in the Arroyo Colorado.

EDUCATION AND OUTREACH

BY LAURA DE LA GARZA

The final report on our social marketing survey was completed in May 2006. The report summarizes the work done by SUMA/Orchard Social Marketing, Inc. for the Education and Outreach Campaign. The survey was designed to gage the general level of awareness and attitudes of people who live in our watershed about water quality issues associated with the Arroyo Colorado and the Lower Laguna Madre. SUMA/Orchard conducted 20 one-on-one stakeholder interviews, 4 focus group meetings, and

Arroyo Colorado and the Laguna Madre. They know even less about the issues concerning the Arroyo Colorado. Consequently, the major component of the E & O plan is building awareness.

The market survey also identified the issues that are most important to Valley residents. Nearly all—94%—believe a clean environment is very important. A clean environment was rated as slightly more important than new jobs and business opportunities, and lower taxes! Interviews with stakeholders and the focus group discussions indicated deep concern about the changes the Valley faces. Participants were open to the facts presented about the Arroyo Colorado, and expressed strong sentiment that “we’re all in this together,” and “we all must do our part to help clean up the Arroyo Colorado.”

The report produced by our consultants also provides valuable information and recommendations about the steps necessary for a successful outreach campaign. The recommendations included ways to present the message and the best channels of communication for getting the message across. The basic strategy is as follows:

1. Brand the initiative
2. Offer basic facts about the Arroyo Colorado
3. Use Advertising and Direct Mail to Raise Awareness and Increase Communal Involvement in the Arroyo Colorado Watershed Partnership initiative
4. Development Partnership Agreements for Message Distribution
5. Create Micro-Campaigns for Specific Target Audiences
6. Institutionalise a Practice of Ongoing Campaign Evaluation

250 telephone interviews to assist in the development of the education and outreach (E & O) component of the watershed protection plan.

We gained valuable insight from this process. The good news is that the survey indicated that Valley residents are ready to do their part toward a cleaner, healthier Arroyo Colorado. However, the survey also revealed that the vast majority of Valley residents do not know the source of their tap water or that their storm water or wastewater eventually ends up in the

The branding of the initiative has been completed and we have started the task of offering of basic facts. Overall, we are on our way to getting the message out about the water quality issues associated with the Arroyo Colorado and we are now armed with additional strategies to do it more effectively.



AGRICULTURAL ISSUES

BY ANDY GARZA

Good progress is being made on the agricultural component of the plan. The goal is to have 33% of irrigated farmland under Water Quality Management Plans (WQMPs) by 2010 and 50% by 2015. Since December 15, 2005 30 WQMPs have been certified and \$102,728 have been obligated for cost-share assistance. The best management practices funded include:

- Irrigation Land Leveling
- Irrigation Pipeline
- Pasture and hayland planting
- Cross fencing

The EPA has tentatively approved, as submitted by the TSSWCB, the grant proposed to monitor water quality at various sites in the watershed. The approval process should be completed sometime in September, 2006.

The third component of the agricultural plan is the educational component. The market survey

conducted for the Education and Outreach component of the plan stressed the importance of involving the Texas Cooperative Extension agents, and that is one thing that is ongoing. They are on schedule with the current grant on deliverable and they are doing more crop tours and field days.



TOP STRATEGIES FOR WATER QUALITY IMPROVEMENT

BY LAURA DE LA GARZA

The Arroyo Colorado Steering Committee prioritized the top strategies for improving water quality in the Arroyo Colorado at its May 25, 2006 Steering Committee meeting. It is important to prioritize strategies not only to keep a focus on the actions that will provide most benefit, but also to the support the process of seeking grant funding.

The top strategies for improving water quality in order of priority are:

1. Construct regional wetlands to treat flows from multiple sources and also individual wetland systems to enhance treatment of treated wastewater effluent.
2. Conserve and restore existing riparian and wetland habitats.
3. Collect additional water quality data in order to fill data gaps, to inform management decisions, and support education and outreach.
4. Test and promote existing and new BMPs that focus on water quality improvements.

5. Conduct education and outreach activities.
6. Reduce channel and stream bank erosion.
7. Create a geographical information system (GIS) to manage data in ways that support adaptive management.

Grants come from federal, state, and private resources. Grant providers specify the types of projects and organizations that qualify for their funding. Most grants are available to state and local governments, universities, and/or public and private nonprofit organizations. They provide for different activities such as outreach and education, land acquisition, the demonstration of best management practices, and habitat conservation and restoration.

The Arroyo Colorado Watershed Partnership faces an important question: whether or not to form a nonprofit organization under the 501(c)(3) tax-exempt filing. Status as a tax-exempt nonprofit group would allow the Partnership to apply for and receive grants directly. So far, the Partnership has been supporting the grant applications of our state and local governments, universities, and existing nonprofits organizations that have projects corresponding with the goals and objectives of our watershed protection plan. This important issue will be discussed at the next Steering Committee meeting.

**The Arroyo Colorado Watershed
Partnership**

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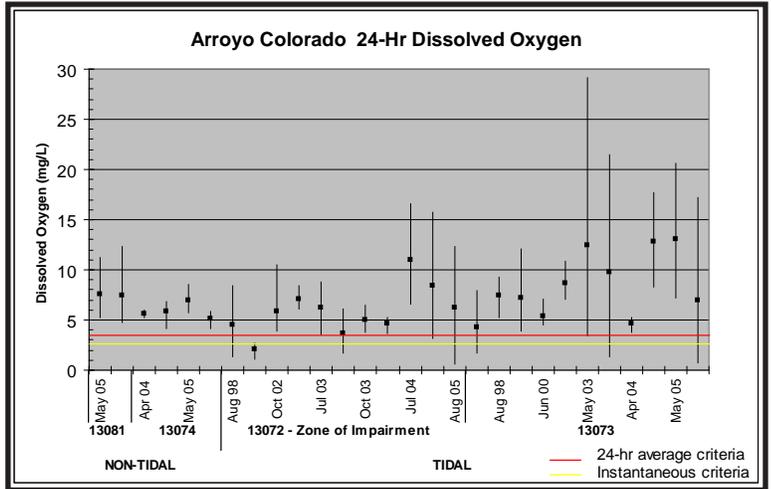
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We're on the Web!

Visit us at:

www.arroyocolorado.org



**NEXT STEERING COMMITTEE/
PARTNERSHIP MEETING**

Wednesday August 30, 2006

4:00 PM to 7:00 PM

Rio Red Classroom of the Texas A & M Kingsville Citrus
Center

312 N. International Blvd., Weslaco, Texas 78596



Arroyo Colorado Watershed Partnership

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