Welcome Newly Elected
San Antonio River Authority
Board of Directors

SARA’s Vision
Leaders in Watershed Solutions

SARA’s Mission
Sustain and Enrich Life in the
San Antonio River Watershed

For more information about SARA’s Board of Directors,
please visit www.sara-tx.org

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As “Leaders in Watershed Solutions,” the San Antonio River Authority (SARA) is committed to advancing the health and safety of our waterways. SARA set a goal this fiscal year to “expand our role in the implementation of sustainable land use and stormwater best management practices (BMPs) in the San Antonio metropolitan area.” In support of this goal, SARA is constructing a demonstration rain garden for homeowners at its Environmental Center located at 600 E. Euclid near downtown San Antonio.

Rain gardens contribute to the health and safety of our waterways by slowing down rain water, storing stormwater runoff and filtering out pollutants. Slowing down stormwater helps reduce the potential for stream bank erosion and scouring. Containing stormwater allows for the natural filtration of pollutants, thus protecting the water quality of our streams. In addition to filtering pollutants and slowing down the water, rain gardens support water conservation by naturally providing for plants within the garden. Ideally, these would be native plants, able to withstand the infrequency of our area’s annual rainfall.

SARA staff in the Watershed Engineering Department designed the rain garden at SARA’s Environmental Center, with native plant selection and landscape design assistance from other departments. SARA’s Watershed & Parks Operations Department staff are constructing and planting the rain garden.

The demonstration rain garden should be complete in spring 2014, with an online homeowner’s how-to guide and instructional videos to help you plan for and implement your own rain garden. For additional information on sustainable land use and low impact development, visit www.sara-tx.org.

By Rudy Farias

Employee Highlight

By Kim Garcia

It is with great pleasure that we introduce Paul Martinez, Lock and Dam Operator, within the San Antonio River Authority’s (SARA) Watershed and Parks Operations Department.

Paul began his career with SARA in August 2008 in the maintenance section of the Parks Services Department. In 2009, he transferred to the Watershed Operations Department, where he became a Lock and Dam Operator on the Museum Reach portion of the San Antonio River Walk. (The Parks Services and Watershed Operations departments merged in 2013 to become the Watershed and Parks Operations Department.) As Lock and Dam Operator, safety is always first. Paul also helps maintain the vegetation along the Museum Reach by performing landscaping. In Paul’s position, he gets to interact with the public on a regular basis, which is something he really enjoys. He often fields questions on how the locks work and what types of plants and wildlife can be found along the San Antonio River.

Paul has lived in San Antonio most of his life, except for time he spent serving in the military. He served in the United States Army for 10 years. While in the U.S Army, Paul attended Basic Training in Missouri, Advanced Individual Training in Virginia, Airborne Training in Georgia and Armory Training in Maryland. He was stationed at Fort Hood, Texas for Operation Desert Storm and a Hardship Tour in Korea.

Outside of work, Paul enjoys spending time with his family. Paul has a 15-year-old son who loves to play basketball and is an all-around sportsman. They enjoy hunting and fishing together. Paul also enjoys helping his father at his ranch raising cattle, going to the movies, barbecuing and attending sporting events.

Paul invites everyone to come out and visit him at the Lock and Dam on the Museum Reach.
Every year our watershed is affected by pollutants which impact water quality and harm the environment of our rivers and creeks. If not disposed of properly, household hazardous waste such as paint, solvents and used motor oil can harm creeks and rivers and pose serious health threats to our communities and the environment. Through the San Antonio River Authority’s (SARA) Community Assistance Program, local household hazardous waste collection events provide a convenient way for residents to properly dispose of household and automotive hazardous waste.

SARA partners with local governments and other organizations to organize collection events throughout its four-county jurisdiction to ensure that hazardous waste, used tires, e-waste and unused pharmaceuticals do not end up in creeks and rivers.

On Saturday, November 9, SARA, Wilson County and Alamo Resource Conservation & Development Area, Inc. sponsored a free waste collection event in Stockdale. Over 100 Wilson County households properly disposed of 400 pounds of pesticides and herbicides; 400 pounds of flammable liquids; 4,500 pounds of oil-based and latex paint; 400 pounds of flammable solids; 200 pounds of aerosols; 80 pounds of acids and bases; 1,850 pounds of oil and oil filters; 80 pounds of alkaline batteries; approximately 1,000 tires; and approximately 100 pounds of unused pharmaceuticals.

A Goliad County Household Hazardous Waste Collection Event was held on Saturday, November 23, at the Goliad Memorial Auditorium Parking Lot. Over 50 Goliad County households properly disposed of 125 pounds of pesticides and herbicides; 133 pounds of flammable liquids; 856 pounds of oil-based and latex paint; 157 pounds of flammable solids; 70 pounds of aerosols; 24 pounds of oxidizers; 20 pounds of acids; 2,100 pounds of oil and oil filters; approximately 300 tires; and nearly 100 pounds of unused pharmaceuticals.

For additional information on ways to protect our watershed or for information on the next household hazardous waste collection event, please visit www.sara-tx.org.
The San Antonio River Authority’s (SARA) Martinez II Wastewater Treatment Plant in southeast Bexar County will soon be the site of a new recycling facility through a public/private partnership agreement. The facility will be located on 52 acres of land adjacent to the treatment plant that was once used as a biosolids—the solids remaining after the treatment process—land application operation. The new recycling facility will present a long-term, sustainable alternative to landfill disposal for the treatment and beneficial use of these waste products through composting, along with other recycled materials.

After releasing a request for proposals, a proposal from Texas Landfill Management, LLC (TLM) was received to compost biosolids on the site along with other recycled compostable materials such as clean wood, brush, yard trimmings and food waste. TLM is an Austin-based company that specializes in solid waste handling, including transportation, landfill disposal, composting and materials recycling. Composting biosolids with these other woody waste materials is a preferred method of biosolids stabilization and reuse that produces a desirable pasteurized final product suitable for use in commercial and home gardening and landscaping projects.

Under this agreement, other activities are allowed on the site:
- Compost and soils bagging operation
- A “Garden-Ville” store to sell bulk and bagged gardening products to the public
- A new innovative portable toilet operation that does not use high-strength chemicals as traditionally used
- A tree farm that uses compost-amended soils and reuse water
- Tire recycling and processing
- A materials recycling facility (MRF) transfer station that receives comingled recycled materials to be transferred into larger trucks that transport the material to TLM’s MRF located in the Austin area
- Other recycling-related activities

As a result of negotiations between SARA and TLM, a long-term contract was finalized for the design, construction and operation of the new Martinez II Recycling Facility. Construction of the facility is expected to commence in mid-2014, with operations starting by late summer.

The operation will benefit SARA in many ways:
- Provide a long-term, sustainable biosolids recycling alternative to traditional landfill disposal
- Create new revenue streams including lease income, royalties from incoming waste tipping, royalties from compost sales, laboratory testing fees, wastewater processing, reuse water sales and others
- Provide trees and compost for use on SARA projects at no additional cost
- Provide transportation savings by having a biosolids disposal facility located adjacent to SARA’s wastewater operation

Total potential income and cost savings are estimated at nearly $220,000 per year and benefit several departments within SARA. The facility will not only benefit TLM, SARA and its various operations, but will be open to serve other communities and commercial and retail customers in our service area. Everyone wins when past disposal problems are addressed through sustainable practices.
Working with the Federal Emergency Management Agency (FEMA), City of San Antonio, Bexar County and other stakeholders, the San Antonio River Authority (SARA) completed a Flood Insurance Study for watersheds in the San Antonio River Basin (SARB). Using the latest and greatest data and models, SARA started watershed master planning (WMP) efforts in several major watersheds including Salado Creek, Leon Creek and the Upper San Antonio River (USAR) watersheds.

As a component of the WMP efforts, water quality (WQ) models were developed to assess potential damage centers where impaired WQ conditions were identified. Watershed WQ models were developed using the Hydrologic Simulation Program - Fortran (HSPF) program, and instream WQ models were developed using the EPDRiv1 program.

In addition, several enhancement tools have been or are being developed by SARA to assist the WQ modeling efforts. These include the SARA Timeseries Utility Tool, Load Reduction Tool and Enhanced Best Management Practice (BMP) Tool. These state-of-the-art tools are the first of their kinds and on the cutting edge of the WQ modeling profession nationwide. The tools will use previously developed and calibrated HSPF and EPDRiv1 models to (1) identify WQ impaired water bodies; (2) determine percent load reductions needed for each of the selected constituents on a sub-basin reach basis; (3) conduct modeling and prioritization of BMPs including cost/benefit analysis; and (4) conduct pre-development condition modeling to define baseline conditions for evaluating alternative scenarios of watershed condition.

How the System Works

Both the HSPF and EPDRiv1 models were developed for continuous simulation through dry- and wet-weather periods to allow an assessment of both dry-weather and stormwater WQ conditions. The identification of WQ damage centers was based on WQ screening levels adopted by the Texas Clean Rivers Program for the SARB. The constituents simulated include temperature, carbonaceous biochemical oxygen demand, dissolved oxygen, total suspended solids, nutrients (nitrogen and phosphorus), chlorophyll a, bacteria (E. coli) and representative metals (lead and zinc).

The SARA Timeseries Utility Tool was developed as a tool for the efficient export of any HSPF time series, for example, runoff and constituent time series from a specific land use in the watersheds as well as from the reaches. The SARA Load Reduction Tool is being developed to automatically determine a load reduction for each reach within a sub-basin on a constituent by constituent basis to meet a threshold concentration level.

The SARA Enhanced BMP Tool is also under development to simulate the effects of BMPs on the required load reduction within SARA’s watershed models. The tool will use calibrated HSPF simulations and the BMP optimization components of EPA’s SUSTAINOPT tool. Results from the Load Reduction Tool are used to quantify the extent of BMP implementation needed in each sub-basin.
Quality of the Results

The developed WQ models were calibrated and validated to available flow and WQ data and peer reviewed by national experts to ensure conformance with strict WQ modeling standards. The modeling efforts and results have been published at conferences and were well-received by technical and policy audiences.

The SARA Timeseries Utility Tool was fully tested before releasing to a professional user group in October 2013. The user group expressed great interest in this tool thus solidifying SARA’s reputation of leadership and scientific achievement in WQ modeling.

The SARA Load Reduction Tool is undergoing final testing and should be released to the professional user group soon. The development of the SARA Enhanced BMP Tool is ongoing and should be completed and fully tested in late 2014.

Future Expansion and Application

SARA is engaged with engineering consultants Atkins North America and AQUA TERRA Consultants to complete the development and testing of the above-mentioned tools. SARA is also engaging Atkins North America and Wilson Engineering to enhance the EPDRiv1 model. SARA and its consultants will apply the developed models and tools to support the WMPs of all watersheds in the SARB, including the identification of required load reductions and the types and numbers of BMPs to achieve the required load reductions.

Communication with the Environmental Protection Agency (EPA) is ongoing to allow widespread application of these tools. Multiple user groups are expected to use the tools to further enhance their own WQ modeling efforts. By spearheading modeling breakthroughs such as the development of these tools, SARA is achieving its vision to be leaders in watershed solutions.
On May 6, 2009, the San Antonio River Authority (SARA) hosted a summit to discuss the problem of illegal dumping in Bexar County. This illegal dumping summit included representatives from law enforcement agencies, city and county departments and citizen groups. The summit led to the formation of a regional Illegal Dumping Task Force as part of the Bexar Regional Watershed Management (BRWM) partnership. The task force meets bi-monthly to discuss regional issues and case studies, interagency coordination, public education and ongoing training initiatives.

As part of the BRWM and the Illegal Dumping Task Force, SARA sponsors and hosts free annual training seminars for elected and appointed officials; law and code enforcement officers; environmental investigators; and administrative staff. SARA hosted the fourth such annual training seminar this past October. The Edwards Aquifer Authority co-sponsored, and the Alamo Area Council of Governments provided illegal dumping enforcement handbooks from the Texas Illegal Dumping Resource Center (TIDRC, www.tidrc.com).

Trainees learned from Dr. John Ockels of the TIDRC about local enforcement of state laws pertaining to illegal dumping. They also learned about illegal dumping case studies from Texas Commission on Environmental Quality (TCEQ) investigators, local law enforcement officers and investigators and an assistant district attorney.

These annual training seminars have become an invaluable tool to help local agencies identify and mitigate illegal dumping and even prevent dumping before it happens. The seminars, held in SARA’s training facility at its Martinez II Wastewater Treatment Plant Administration Building, create a great opportunity for communication and coordination between different government agencies.

By continuing to administer the Illegal Dumping Task Force and sponsor annual illegal dumping enforcement training seminars, SARA is generating lasting and recognized improvements to the health and safety of the San Antonio River Watershed.
You wanted it and the San Antonio River Authority (SARA) delivered. The much-anticipated Basin Field Guide (BFG) has arrived, and its presence online is providing insights and answers to green thumbs and novices alike. The BFG is an online database of plants and animals that are most common in the San Antonio River Watershed. It is a robust resource and provides information about a diverse landscape, but these two things alone do not make the BFG meaningful. It is what people do with this information that makes the BFG a call to action.

The basic structure of the BFG is simple, dividing the user experience first into flora or fauna (plants or animals). From there, one can begin to delve a little deeper. With the animal section divided into six broad categories—amphibians, birds, fish, invertebrates, mammals and reptiles—and the plants split into two—herbaceous or woody—the robustness of the guide starts to become clearer. Boasting over 180 plants and a whopping 246 animals, the BFG is poised to grow even bigger. The guide provides a description of the species, an image and, in many cases, an interesting fact or two about the species. The guide is very user friendly for naturalists and people who are inexperienced with the classification of living things.

Not only is the BFG a unique and expansive resource, it is one that covers one of the most diverse ecosystems in the world: South Texas. The San Antonio River Watershed, or drainage basin, contains five unique ecoregions within its boundaries. The Edwards Plateau, Southern Texas Plains, Texas Blackland Prairies, East Central Texas Plains and the Western Gulf Coastal Plain all reach into the part of landscape that drains into the San Antonio River. Each of these ecoregions has different conditions that provide habitat to different plants and animals. Trying to encapsulate this diversity is no easy task, which is why the BFG is a living database that can be modified on a regular basis.

While the diversity and amount of content are vast, it is what we hope users will do with this information that is the most important. The old idiom, “Tell me, I’ll forget; show me, I’ll remember; involve me, I’ll understand” rings true when exploring the BFG. SARA hopes that the BFG will lead people to action. By incorporating many of the native plants into one’s backyard, by preserving the natural diversity in one’s own neighborhood or by simply understanding the significance of this diversity, the San Antonio River Watershed can become a healthier place to live.

The BFG is accessible from the Public Resources section SARA’s website at www.sara-tx.org.
Adair Ramsey Sutherland and Roberto G. Rodríguez, who recently retired from San Antonio River Authority’s (SARA) Board of Directors, were driven in their service by a passion to unify communities throughout the San Antonio River Watershed.

Ms. Sutherland, a native of Goliad, Texas, was appointed by Texas Governor George W. Bush on April 17, 2000 to complete the unexpired term of her brother, Robert Howard Ramsey, Jr. Ms. Sutherland represented Goliad County on the SARA Board of Directors. She advocated passionately for enhanced public access to the San Antonio River in Goliad County and throughout the watershed. For example, Ms. Sutherland assisted in the creation of and provided continued support to Canoe Trail Goliad. She volunteered at the fall and summer flotillas and provided strategic guidance during the incorporation of Canoe Trail Goliad into a non-profit organization. Ms. Sutherland was instrumental in the creation of the Goliad County Water Supply Corporation and in SARA’s acquisition and development of the property now known and operated as Branch River Park in Goliad.

Mr. Rodríguez, a native of San Antonio, Texas, was elected on February 1, 2001 to the SARA Board of Directors to represent Bexar County District 2. Having fond memories of the beauty of the Westside Creeks as they were when he was a child, Mr. Rodríguez has advocated passionately for restoration of Alazán, Apache, Martinez and San Pedro creeks, actively pursuing community and political support to ensure advancement of the Westside Creeks Restoration Project and advocating for a balance of environmental restoration and flood protection to mitigate threats to life and property. During his service on the City of San Antonio’s Linear Creekway Parks Advisory Board, Mr. Rodríguez’s leadership helped to secure funding for creekway trails, signaling the first significant investment in recreational improvements along the creeks, including $10 million to support Westside Creeks Proposition 2 funding. Mr. Rodríguez worked diligently to ensure the protection of archaeological treasures within the San Antonio River Improvements Project area, with particular emphasis on preservation of Native American relics.

SARA extends its gratitude and appreciation for Ms. Sutherland’s and Mr. Rodríguez’s exemplary leadership and commitment to improving the quality of life for all in the San Antonio River Watershed. The legacies they have left in our hands are as timeless as the San Antonio River.
In 2000, the Texas Commission on Environmental Quality (TCEQ) together with the San Antonio River Authority (SARA) found concentrations of bacteria in the Upper San Antonio River (USAR), including both Bexar and Wilson counties, Salado Creek and Walzem Creek that could pose a health risk for people who swim or wade in those streams. In coordination with SARA, the TCEQ conducted a total maximum daily load (TMDL) study to determine the pollutant limits necessary to improve water quality and to meet the primary contact recreation use standard. The final TMDL report identified both regulated and unregulated sources of pollution. Possible sources and/or causes of contamination include: urban stormwater runoff; runoff from undeveloped lands; wildlife deposition; discharges from wastewater treatment facilities and other institutions; pets and livestock deposition; leaking sewer infrastructure and failing septic systems.

To meet the TMDL requirements, stakeholders are now being organized to develop a specific plan to reduce bacteria. The stakeholder group consists of rural and urban interests in the watershed including private citizens and ranchers, the City of San Antonio, Bexar and Wilson counties, SARA, the San Antonio Water System (SAWS), state and federal agencies and agricultural interests. The plan development process involves forming a Coordination Committee that has the responsibility to reach agreement on an Implementation Plan (I-Plan) and submit it to the TCEQ by the fall of 2014. The I-Plan must be agreed to by the stakeholders in the watershed and defines the implementation activities for the next few years to reduce bacteria concentrations, and, ultimately, to reach the contact recreation standard.

The first meeting of the Coordination Committee was August 15, 2013, and one of the first actions by this committee was to form a technical workgroup that meets twice monthly to research the issue and provide technical advice to the committee. The Coordination Committee meetings are held quarterly and are open to the public. For more information on the USAR TMDL I-Plan, visit www.tceq.texas.gov/waterquality/tmdl.
Throughout this issue of the River Reach, you have read about many San Antonio River Authority (SARA) projects and programs which are supporting the stewardship of the San Antonio River Watershed. From hosting household hazardous waste drop-off events to developing a technical manual to advance the use of Low Impact Development (LID) techniques, we work to provide opportunity to advance stewardship of our rivers and creeks.

Stewardship of our natural resources also comes through knowledge. By cataloging the flora and fauna of the watershed in the online Basin Field Guide, promoting “Be Watershed Wise” initiatives and advancing the development of flood and water quality models, SARA continues to make information, data and technical tools available to support better understanding and appreciation for the resources and function of the watershed.

The value of the information provided and the implementation of projects and programs can only truly be achieved if they result in better actions and improved decision-making. The most challenging part of stewardship is sustaining changes in behavior—both by individuals and by communities. Fortunately, there are many signs that point to heightened stewardship of our watershed. Significant investment by Bexar County in regional flood control projects and ecosystem restoration; major bond projects by the City of San Antonio that improve drainage and pilot the use of LID techniques; bold steps by the Karnes County Commissioners Court to remove debris from the San Antonio River; community support throughout the watershed for recreational access and use of the San Antonio River and its tributaries; and the growing desire of citizens to reduce sources of pollution and remove trash and debris from rivers and creeks.

Improving our collective stewardship both through publicly funded projects and through our personal actions is an investment in the future economic and environmental sustainability of our region. SARA will continue to be at the forefront of expanding stewardship within the San Antonio River Watershed.