



What goes in

won't come out



Stormwater Quality

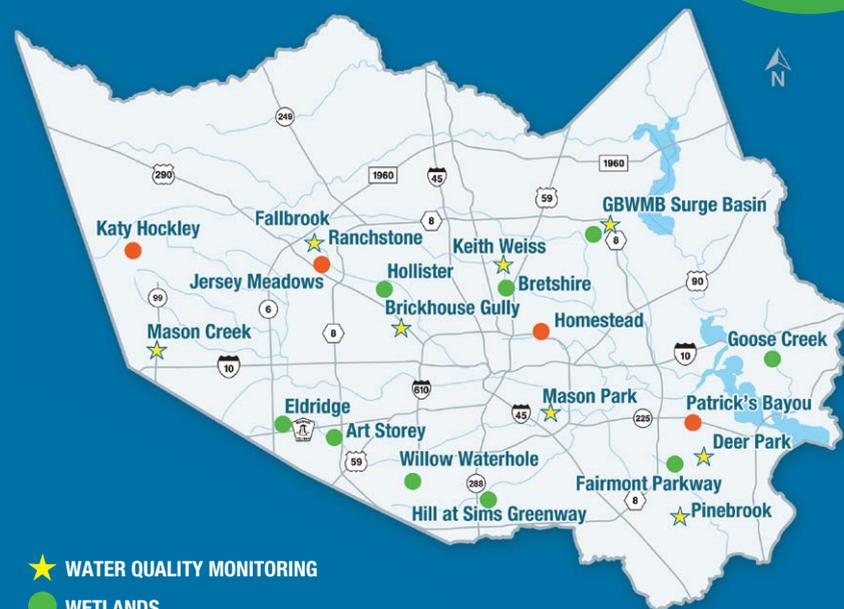
PROTECTING AND ENHACING OUR BAYOUS

WHO WE ARE

HCFCF Stormwater Quality

The Harris County Flood Control District (HCFCF) builds and maintains a network of bayous, creeks and stormwater detention basins as part of its mission to reduce flooding risks and damages in Harris County. The quality of stormwater that flows through the 2,500 miles of bayous and creeks overseen by the Flood Control District is of increasing public concern. Many waterways are threatened by pollution.

The District's Stormwater infrastructure is extensive, including more than 1,500 channels totaling about 2,500 miles in length. That's about the distance from Los Angeles to New York.



The Flood Control District's Stormwater Quality department works to protect our bayous, creeks and stormwater detention basins by ensuring that our flood control infrastructure is planned, designed, constructed, operated and maintained for long-term stability and environmental protection. As part of the Flood Control District's Environmental Services Division, the Stormwater Quality department is involved throughout the lifecycle of all District projects in activities such as incorporating natural channel design elements, constructing wetlands for stormwater treatment, evaluating the effectiveness of Stormwater Best Management Practices (BMPs), and educating the public about the importance of stormwater quality. Our work is driven by federal, state and local environmental permit requirements, and inspired by the Flood Control District's mission to "provide flood damage reduction projects that work, with appropriate regard for community and natural values."

WHAT WE DO

Water Quality Program

- Stormwater Permit Compliance
- Site Stabilization and Revegetation
- Water Quality Monitoring
- Public Education

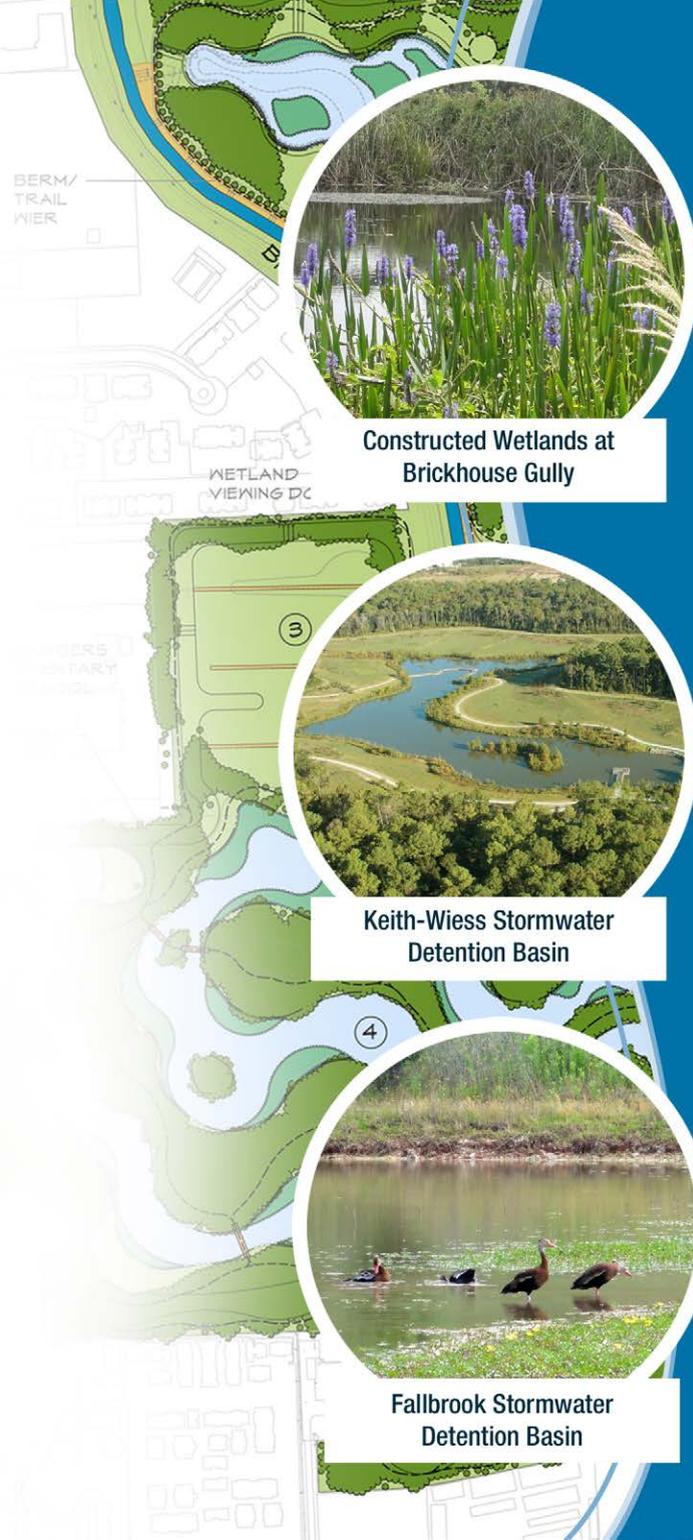


Site Stabilization and Revegetation

Soil erosion and sedimentation within our waterways and basins decrease the efficiency of flood damage reduction projects and impair water quality. The Stormwater Quality department works with project planners, design engineers and contractors to stabilize and revegetate sites to minimize erosion, reduce sediment entering the drainage channels, and improve the quality of our waters.

The Flood Control District works to incorporate natural channel design elements into its flood damage reduction projects wherever possible. Natural channel design principles allow the channel to carry its sediment load and flows without excessive erosion. The Stormwater Quality department integrates various soil management and planting techniques to encourage vegetation that will protect the basin and bayou slopes against erosion.

Vision plans for major projects often include a planting strategy provided by the Stormwater Quality department. By designing stormwater treatment wetlands, installing specialized wetlands vegetation and incorporating reforestation areas, long-term stability and water quality in stormwater detention basins and bayous is improved. These efforts also create natural wildlife habitat and reduce long-term maintenance costs.



Constructed Wetlands at
Brickhouse Gully

Keith-Wiess Stormwater
Detention Basin

Fallbrook Stormwater
Detention Basin



Stormwater Permit Compliance

The Flood Control District holds a Texas Municipal Separate Storm Sewer System (MS4) permit for stormwater discharges. This permit requires program improvements and the inclusion of water quality enhancements in the design of future projects when practical. The Stormwater Quality department oversees MS4 permit compliance, as well as compliance with other stormwater discharge permits, including the Construction General Permit (CGP), Pesticide General Permit (PGP) and the Multi-Sector General Permit (MSGP).

- **Municipal Separate Storm Sewer System Permit (MS4):** The Flood Control District's Phase I MS4 permit was originally issued in 1998. Through the implementation of the Storm Water Management Program (SWMP), the District incorporates activities to prevent or reduce the discharge of polluted stormwater into surface waters of the United States.
- **Construction General Permit (CGP):** In compliance with this permit, the Flood Control District develops Storm Water Pollution Prevention Plans (SWPPP) for its construction projects, to better manage erosion and construction site runoff.
- **Pesticide General Permit (PGP):** The Flood Control District is permitted under the PGP for all pesticide applications into, over or near our bayous, creeks and other drainage channels. By implementing a Pesticide Discharge Management Plan (PDMP), the District minimizes pesticide discharges thereby protecting local waterways.
- **Multi-Sector General Permit (MSGP):** The Flood Control District tracks compliance with this permit by ensuring that industrial applicants for discharge to Flood Control District rights of way have proper stormwater and wastewater pollution safeguards in place.

In an ecosystem, communities of organisms are dependent on each other and on their environment for survival of their species. In this pond ecosystem, you will find producers, consumers and decomposers. Producers create their own food using sunlight in a process called photosynthesis. Consumers eat producers and smaller consumers and help maintain good water quality. Decomposers break down dead and decaying organisms and recycle their nutrients.

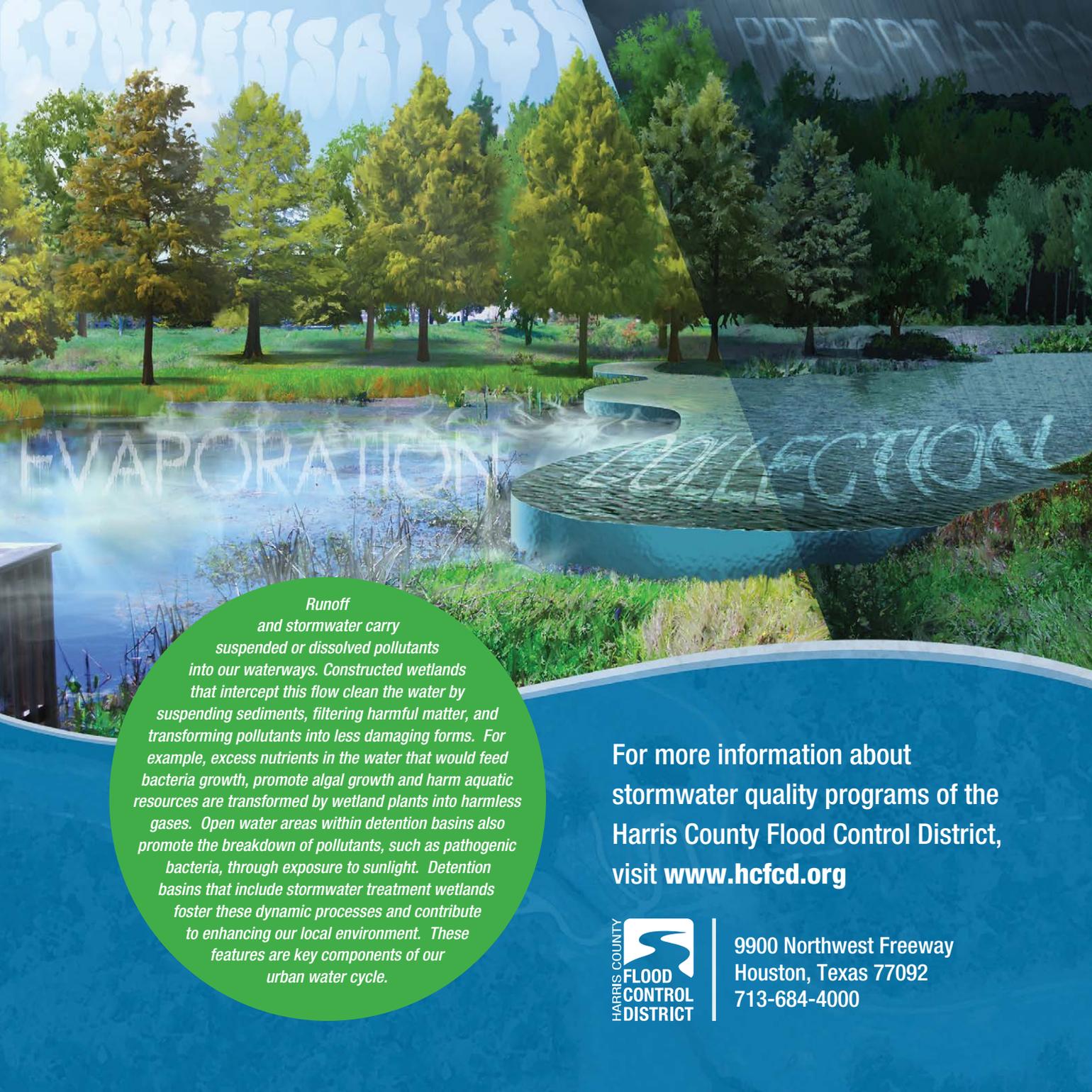
Water Quality Monitoring

The Stormwater Quality department conducts extensive monitoring to evaluate the effectiveness of structural water quality enhancements such as constructed wetlands for stormwater treatment, floatable trash collection devices, and riparian vegetated corridors. The Flood Control District uses water quality monitoring data to update and improve engineering designs for flood damage reduction projects and to meet water quality objectives and reporting requirements.

The Flood Control District has created the *Regional Best Management Practice Database* application at www.bmpbase.org to give project managers, regional partners and other interested parties a way to evaluate the effectiveness of structural BMPs constructed within the southeast Texas region. A graphical interface allows users to readily prepare maps, reports and statistical plots of the BMP effectiveness data.

The Flood Control District follows monitoring methodology derived from Standard Operating Procedures of state and federal water quality agencies. To expand the regional knowledge base, we are including qualified BMP effectiveness data from other sources. In the future, we hope to add effectiveness data from Green Infrastructure/Low Impact Development practices as well. Organizations wishing to submit data for consideration may contact the Flood Control District's Regional BMP Database Administrator at RBDcustomerservice@hcfcd.org.





PRECIPITATION

EVAPORATION

COLLECTION

Runoff and stormwater carry suspended or dissolved pollutants into our waterways. Constructed wetlands that intercept this flow clean the water by suspending sediments, filtering harmful matter, and transforming pollutants into less damaging forms. For example, excess nutrients in the water that would feed bacteria growth, promote algal growth and harm aquatic resources are transformed by wetland plants into harmless gases. Open water areas within detention basins also promote the breakdown of pollutants, such as pathogenic bacteria, through exposure to sunlight. Detention basins that include stormwater treatment wetlands foster these dynamic processes and contribute to enhancing our local environment. These features are key components of our urban water cycle.

For more information about stormwater quality programs of the Harris County Flood Control District, visit www.hcfcd.org



9900 Northwest Freeway
Houston, Texas 77092
713-684-4000