

## Stakeholder Update

The Texas Clean Rivers Program



### Steering Committee Opportunities

In August, Hurricane Harvey impacted significant portions of Southeast Texas, causing record 1,000-year flooding. Routine monitoring of the Lower Neches River Basin was suspended due to the flooding. The Lower Neches Valley Authority's saltwater barrier laboratory was inundated with three feet of water, ruining much of the analytical equipment. As we rebuild the laboratory, the LNVA and the Clean Rivers Program invite you to rebuild the steering committee for the basin by joining our stakeholder group. Contact Jeannie Bowlen at 409-892-4011 or email her directly at [jeanniem@lnva.dst.tx.us](mailto:jeanniem@lnva.dst.tx.us).

### Continuous Water Quality Monitoring CAMS749

Outside of the San Antonio and Rio Grande river basins, TCEQ only has one other continuous monitoring site, Pine Island Bayou, at a site approximately five miles from its confluence with the Neches River. Known as Continuous Ambient Monitoring Station number 749, the real time station continuously monitors for various water quality parameters, including temperature, conductivity, turbidity, pH and dissolved oxygen. While the site was flooded during Hurricane Harvey, it was quickly brought online, and continues providing water quality

### Continuous Water Quality Monitoring

### Educational Outreach

### Routine Monitoring and Analyses

information daily.

For the past year, the CAMS749 site also hosted the Longterm Deployment Module (LDM), a prototype of Hydrotech ZS Consulting. Fouling due to bacterial growth, algae caking and even colonization by clams and other creatures is a continual problem for long term use sondes such as the Pine Island Bayou site. TCEQ hopes the LDM will provide some relief from fouling, extending the time between manual cleanings of sondes. The state will analyze the data from the year-long experiment to determine the LDM's potential for future uses. [https://www.tceq.texas.gov/cgi-bin/compliance/monops/water\\_daily\\_summary.pl?cams=749](https://www.tceq.texas.gov/cgi-bin/compliance/monops/water_daily_summary.pl?cams=749)

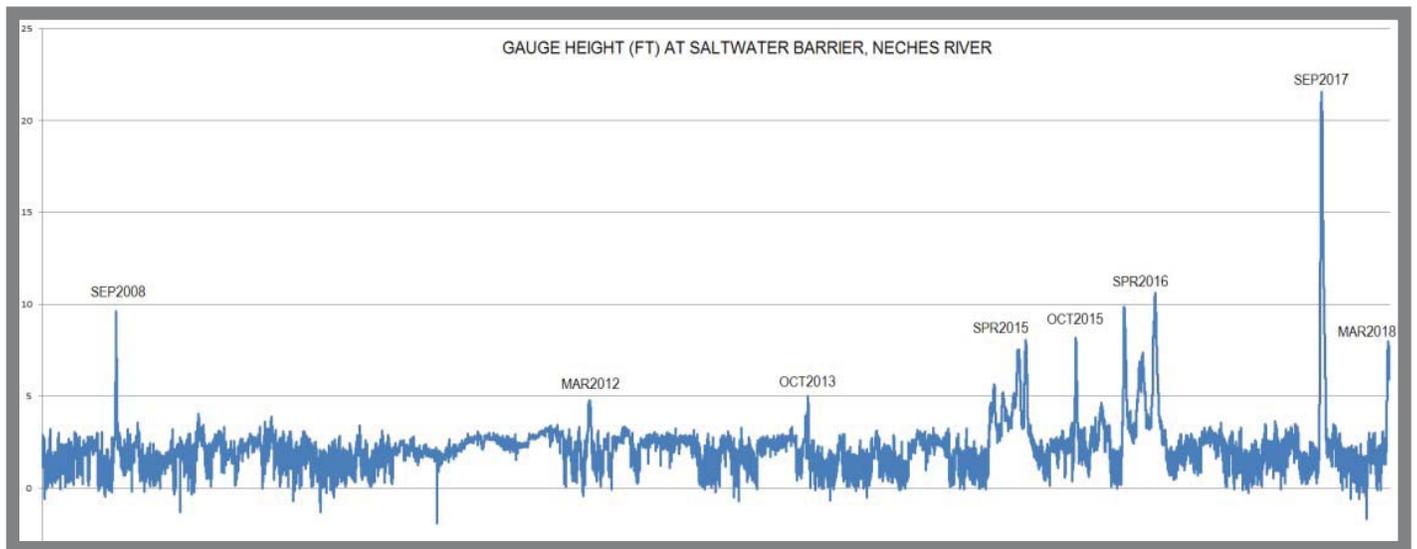


# Stakeholder Update

## Hurricane Impacts

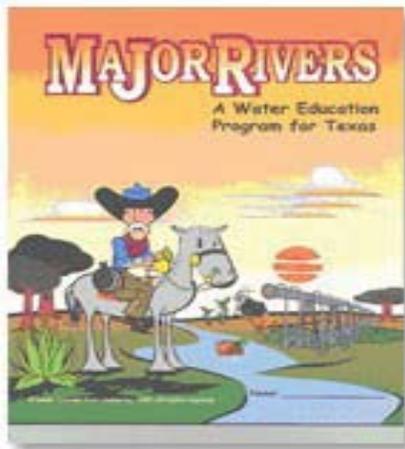
The impact of Hurricane Harvey on the people of the lower Neches watershed has been covered extensively in the media, but the impact to the watershed itself has been largely undocumented. It may take years to piece together what impact (if any) the flood had on native wildlife, invasive and endangered species. The Neches River itself often floods during spring storms, rising up to 10 feet above sea level and leaving some roads closed for several days. Particularly wet years such as spring of 2015 and 2016 produced intermittent flooding, with minor to moderate flooding along the banks of the Neches – four times in spring of 2015 alone. Hurricane Harvey sent flood water over 20 feet above sea level, and the period of flooding was considerably longer than any of the previous flood events. Analyzing the extent of that impact to the watershed compared to previous flooding events may prove difficult.

In 2005, Hurricane Rita's winds stripped many trees bare, depositing their foliage in the watershed and contributing to reduced dissolved oxygen. In 2008, Hurricane Ike's storm surge brought saline waters into many parts of the watershed, some of which may have persisted in deeper oxbows or other sources for many months. For 2017's Hurricane Harvey and its significant flooding, it becomes apparent that studies within the Neches River watershed need to be conducted (to help establish baselines against future hurricane events).



## Educational Outreach

Each year, the LNVA, in association with the Clean Rivers Program and the Texas Water Development Board, reaches out to school campuses in the river basin to offer the Major Rivers educational program. Compliant with the Texas Essential Knowledge and Skills (TEKS), the Major Rivers program offers workbooks, DVDs, and educational material on introductory ecology appropriate to its grade levels, free of charge to all interested 4th and 5th grade teachers in the basin. Major Rivers and his horse Aquifer will make learning all about water in Texas irresistibly fun. Major Rivers is a water education program designed to teach students about Texas' major water resources, how water is treated and delivered to their homes and schools, how to care for their water resources, and how to use them wisely. <http://www.twdb.texas.gov/conservation/education/kids/MajorRivers/index.asp>



## Routine Monitoring and Analyses

LNVA staff collect water quality samples from 15 routine stations and five special stations each quarter. In the past, all samples except chlorophyll a and Enterobacter were analyzed at the saltwater barrier lab. Moving forward, all samples will be analyzed by other state-certified laboratories, allowing lab personnel to perform additional monitoring and studies of the river basin.

## New Directions

Several invasive species are garnering the attention of biologists and industrialists within the watershed. Physical removal efforts for invasives has proven costly, and the use of chemicals alone to control invasives can be ineffective, costly and controversial.

Efforts to control invasive giant salvinia with weevils is beginning to show promise in areas such as Lake Sam Rayburn and B.A. Steinhagen.

The use of weevils at Sam Rayburn has reduced giant salvinia coverage from more than 5,000 acres to less than 300 acres. Recent sampling indicates weevil densities within

those 300 acres is as high as 191 adults per kilogram of plant, significantly reducing the need for herbicide usage. Given the biodiversity of the Big Thicket, these findings may contribute to the development of new biocontrol measures in the future.

Before new invasives become a nuisance, surveys to establish the extent of local species are ongoing, from alligator populations to mussel diversity. Currently interest in the American eel population has increased, and several sampling sites have been proposed throughout the basin.

Human impact on the basin continues to change, stress and occasionally heal the Neches and its tributaries. Local drilling operations may or may not be contributing to observed salinity spikes of unknown origin along



Giant Salvinia is a floating aquatic plant that grow rapidly and forms thick mats and poses a serious threat to water bodies in East Texas.

Pine Island Bayou. The trash left behind from Harvey may pose pollutant risks for some time, as each new flood moves debris, plastics, and oils originally displaced by Harvey. Portions of several tributaries and the Neches itself are flagged on the EPA 303d list for their elevated levels of fecal coliform bacteria and low dissolved oxygen (among other parameters), which may be linked to sewage or invasive hogs.

There is a definite need for more research. As the LNVA CRP moves in a new direction, we invite our stakeholders to bring their knowledge of the basin and its streams so we can work together to address water quality issues and what could be causing them, establish joint research ventures and create new research goals.



Giant Salvinia weevil

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