

# How to Live with Water

A Collaborative Model for Improved Water Management from New Orleans



Presenter: Jamelyn Austin Trucks, CFM

## Agenda

- Introduction
- Overview of Collaborative
- Our Structure
- Voice of the Collaborative
- By the Numbers – Impacts
- Knowledge Sharing
- Questions

# Our Mission Statement

The Water Collaborative of Greater New Orleans is a diverse, multi-sector regional partnership actively working towards implementation of the principles of the Greater New Orleans Urban Water Plan and other water management best practices. The collaborative and its members integrate education, research, policy development, advocacy, and state-of-the-art green infrastructure projects to ensure that the region sustainably lives and thrives with water.

# Goals

- Turn the Urban Water Plan from a visionary document into an on-the ground reality
- To advance integrated water management in Southeast Louisiana through professional development, community education, research and advocacy.

# Who/What is the Collaborative?

[www.nolawater.org](http://www.nolawater.org)

The Water Collaborative of Greater New Orleans, was founded by individuals from multiple disciplines, including architecture, engineering, landscape architecture, education, environmental regulation, community development and neighborhood organizing.

# Working Groups

**Working groups** convene experts in the fields of **building and design, community education, public policy, and advocacy**. These working groups provide critical forums for information sharing and co-learning. Working groups leverage hundreds of volunteer hours from committed professionals to achieve big results: Monthly continuing education opportunities for builders and designers, community conversations on flood risk, workshops on effectively working with government and a month-long series of water-themed events each November.

# Purpose of the Collaborative?

Keith Twitchell, President, Committee for a Better New Orleans



# How did the Collaborative come to be?

Aron Chang, Co-Founder/The Blue House and Co-Director/Ripple Effect



15 May 2017



# Why is the Collaborative important?

Nathan Lott, Coordinator/Water Collaborative



# 2016 by the Numbers

**57** new members

**363**

people attended policy forums or presentations

**402** professional development hours

**168**

people attended a walk-and-learn or boat-and-learn tour

**64%** list growth

**70**

charter members raised \$6000

440 person hours in working groups

**207**

volunteer hours



1. to H. A bioswale along Pipeline St., a NOAA bio-retention cell, a bioswale near N. Broad St.

## ASK-A-PRO SERIES: GREEN INFRASTRUCTURE BASICS

### Q: *What is a bioswale? What is a bio-retention cell? What do they do?*

**A:** Bioswales are shallow channels with wide side slopes that slow and convey rainfall. Bio-retention cells are land areas that serve to collect rainfall. Both use native plants to filter stormwater.

Bioswales are green infrastructure facilities whose primary function is conveyance of stormwater runoff. Bioswales are used as linear features to convey water from one to place of green infrastructure to another, thus creating a stormwater treatment system. Bioswales can be used across a broad range of projects, from green spaces like parks, ball fields, and residential yards to paved areas such as plazas and roadways.

Urban bioswales are most often used along urban streets where long linear spaces are available and the conveyance of stormwater is needed. These bioswales may have hard edges along their length to fit and work in tight urban environments.

The width of urban bioswales is limited by the space available and the project design intent. Defined edges can be concrete, brick, modular pavers, and other hard materials. Along streets, curbs may define the bioswale. Small gaps in the curb allow runoff from the roadway to enter along the length of the bioswale.

Bio-retention cells are designed to detain stormwater to allow for both infiltration and filtration. The name “bio-retention” refers to the biological processes plants use to uptake and retain pollutants in their vascular system.

Bio-retention cells are used in street curb extensions or bulk outs, plazas, and other urban open spaces. Because their size and shape can vary substantially, cells are well-suited to fit in most locations.

Bio-retention cell size is determined by the volume of stormwater it must manage from the catchment area. Length and width can vary substantially and are determined by site limitations and the project’s design intent. Depth can vary based upon amount of water, void space of aggregate specified, above-ground storage depth, and site groundwater table.

Inflow of stormwater can be accomplished by way of overhead flow, gaps in hard edges such as curbs, and pipes that connect to another green infrastructure facility or the storm drain system. Bio-retention cells must have an outlet to the storm drainage system to provide for overflow during intense storms and to gradually empty the cell. The cell’s outlet pipe connects the storm drain system at an existing catch basin or manhole; if none is available a new manhole must be constructed. Edge conditions can vary substantially based on adjacent land cover and the project’s design intent.

*Further reading:*  
 “NRCS Bioswales Fact Sheet”  
[https://www.nrcs.usda.gov/Internet/FILE\\_DOCUMENTS/nrcs44p2\\_029031.pdf](https://www.nrcs.usda.gov/Internet/FILE_DOCUMENTS/nrcs44p2_029031.pdf)  
 “EPA Bio-retention Fact Sheet”  
<http://nrcs.org/xp-main/epland/2012/06/US-EPA-1999.pdf>



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L. to R. are examples of Subsidence Orleans Parish

ASK-A-PRO SERIES: SUBSIDENCE AND GREEN INFRASTRUCTURE

**Q:** *I've seen some news stories about subsidence in Greater New Orleans. Sounds complicated. Can green infrastructure really reduce subsidence?*

**A:** Subsidence is complicated and can be the result of a number of conditions. Here we will discuss regional subsidence that occurs at different rates across the Greater New Orleans area. To be clear, green infrastructure cannot stop or reverse subsidence, but green infrastructure can have positive impacts with regard to localized subsidence. In particular, it can minimize settlement of the upper soils layers, which can improve the stability of our homes, roads, and utilities.

In our region, and particularly south of Lake Pontchartrain, three general types of soils can be found: clay, sand, and organic. Even among these many variations occur, but the characteristics of each of the general soil types is comparable. Clay soils are low in porosity, and dry out and shrink when water is drained out of the subsurface. When water returns to clay soils, they swell back in volume. Sandy soils maintain their volume whether wet or dry and are highly permeable. Organic soils have various levels of porosity, but are more porous than clay soils. When water is drained out of the soils, the organic material is exposed to oxygen, resulting in oxidation of the organics. This is a chemical process, which means that organic soils do not return to their original volume when water is added back again.

Groundwater levels keep subsurface soils saturated and can be compromised in two ways. Impervious surfaces, such as rooftops, roads, and parking lots prevent rainwater infiltration, which would occur in natural conditions (e.g., a field, or swamp). The second cause is our drainage systems in New Orleans that drain and pump rainwater out of urban areas, which is necessary to prevent flooding in many instances,

but these systems have also caused, to some degree, the depth of our groundwater to drop below natural levels. Subsidence is primarily caused by the loss of buoyancy of near-surface soils as groundwater lowers. This increases the weight of the near-surface soil and results in additional loading of the underlying soils (i.e., the near-surface soils become heavier). This new load compresses the underlying soils and results in subsidence. This is an inevitable consequence of area drainage and a constriction of our city existing at or below sea level.

Both conditions result in lowering the water table, even for only a period of time, which over many years has caused subsidence in New Orleans. Subsidence, consequently affects our walkways, roadways, underground utilities, building foundations, and other infrastructure.

We know that natural groundwater levels cannot return fully. However, green infrastructure can retard groundwater level declines. So it is important to allow as much rainwater as possible to infiltrate our soils, rather than pumping water into Lake Pontchartrain, and to also reduce the impervious surfaces we build at our homes and at our work places.

*Further reading:*

"Special report: How New Orleans is making a 'serious problem' worse with its levees, pumping stations"

<http://www.theneworleansobserver.com/news/11707631-171/special-reports-how-new-orleans>

# What is the future of the Collaborative?

Harry Lowenburg, Campaign Organizer/Gulf Restoration Network



# Does this model apply to other communities?

Aron Chang, Co-Founder/The Blue House and Co-Director/Ripple Effect



# Does this model apply to other communities?

Prisca Weems, Coastal and Urban Resilience Coordinator/Greater New Orleans Funders Network



QUESTIONS?



# Thank you

If you'd like to find out more visit:  
[www.atkinsglobal.com](http://www.atkinsglobal.com)

**Connect** with the **Water Collaborative** online at [nolwater.org](http://nolwater.org), where you can learn more about water management and green infrastructure, sign up for a monthly newsletter or join a working group. Follow us on Facebook at [facebook.com/nolwater.org](https://facebook.com/nolwater.org) for events, volunteer opportunities and more.

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