WATER LITERACY PROJECT

NEW ORLEANS, LA

# Why does our city flood sometimes?

*What happened last week?*

2017

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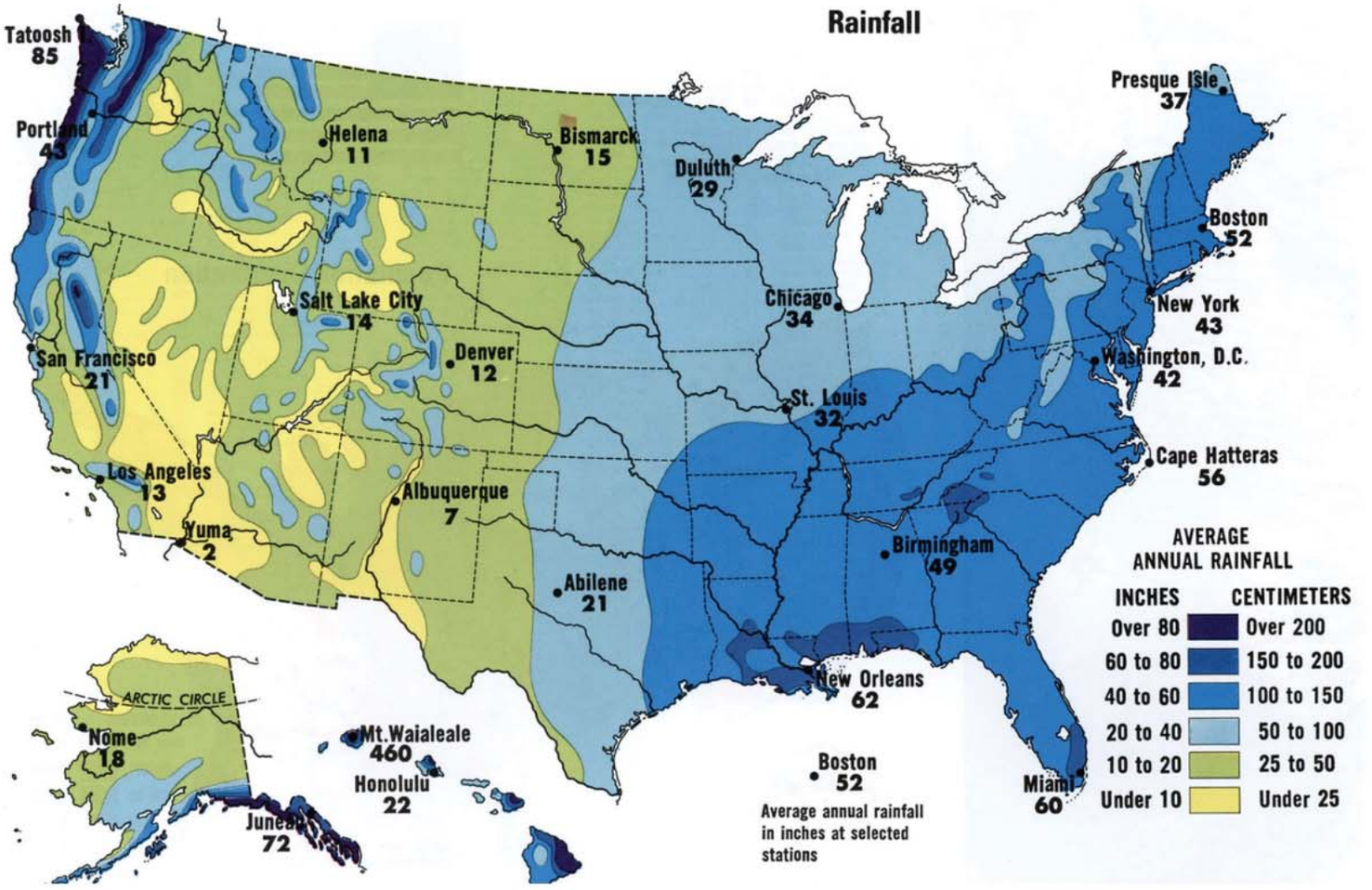
Image Credit: Waggonner & Ball

## New Orleans is a bowl.

Many parts of our city are lower than the Mississippi River and Lake Pontchartrain.

Does water flow and collect at the lowest or highest spots?




Map credit: Hammond Incorporated

## New Orleans gets a LOT more rain than other parts of the county.

And, we often get a lot of rain in very short amounts of time. Try comparing these two ideas: dumping a bucket of water versus pouring out that same bucket of water one cup at a time.

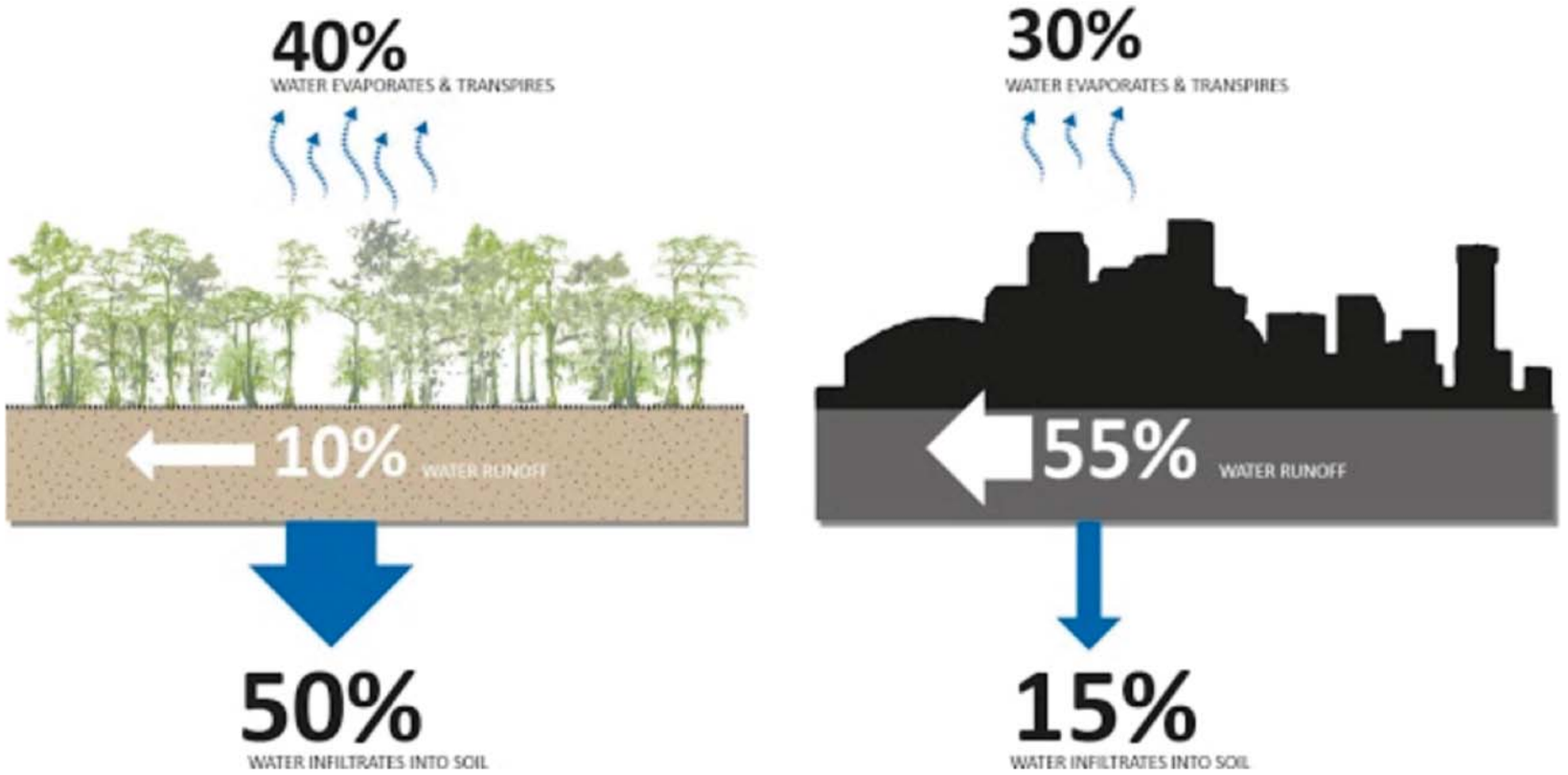



Image Credit: Waggonner & Ball

## In cities like New Orleans, all that stormwater can't just soak into the ground.

Imagine pouring water into an empty bathtub. Where does water go in the bathtub? In a city, the stormwater that quickly flows over the concrete and asphalt and doesn't soak into the ground is called "runoff." Where is the water flowing?

**This is why New Orleans has an underground system of pipes, pumps and canals that move stormwater out of the low spots. The water is then lifted into Lake Pontchartrain on the other side of levee walls.**

The city agency that oversees this work is called the Sewerage & Water Board.

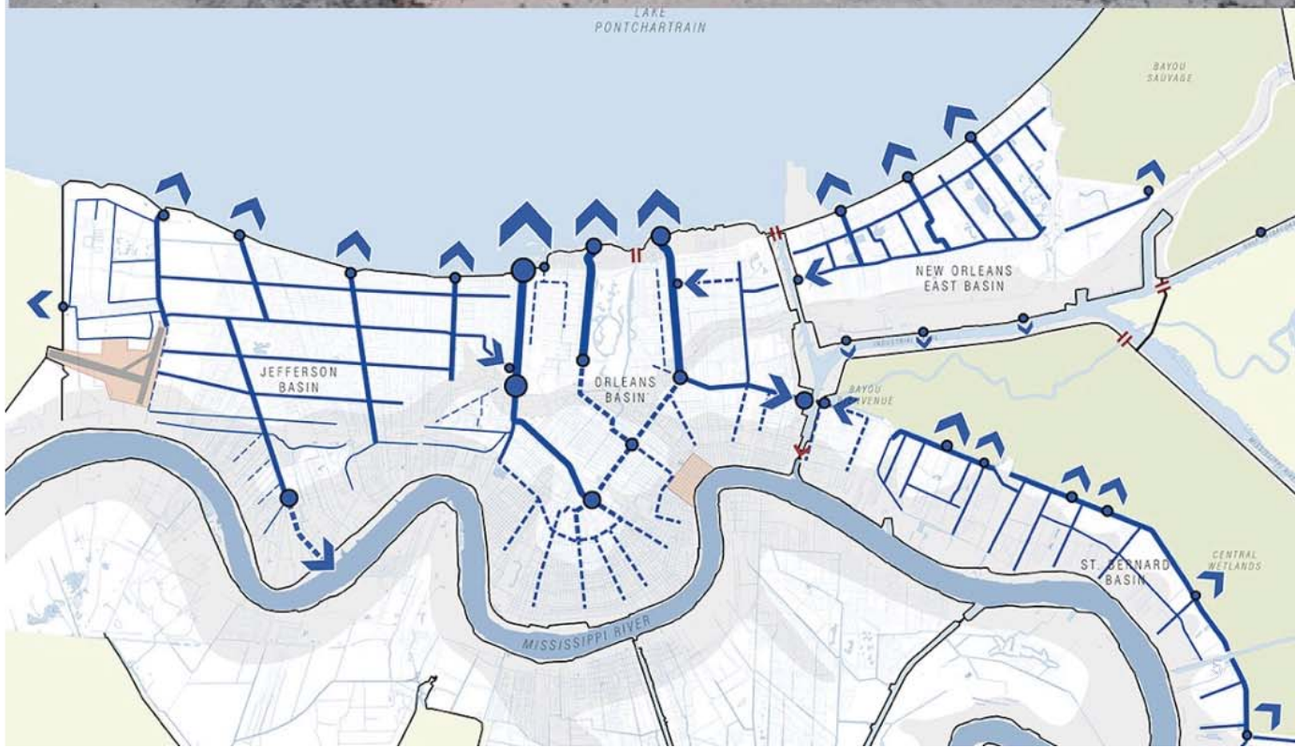



Photo Credit: Wall Street Journal
Map credit: Waggonner & Ball

# During and after a rain event, runoff (stormwater on the ground) flows into storm drains.

Storm drains are the entry point into our drainage system. It's important to keep storm drains clean so that water can flow into them.

Image: NOLA.com

Image credits: Waggonner & Ball


Image credits: Gutter to Gulf

## Water flows through underground pipes and canals until it reaches a pump station.

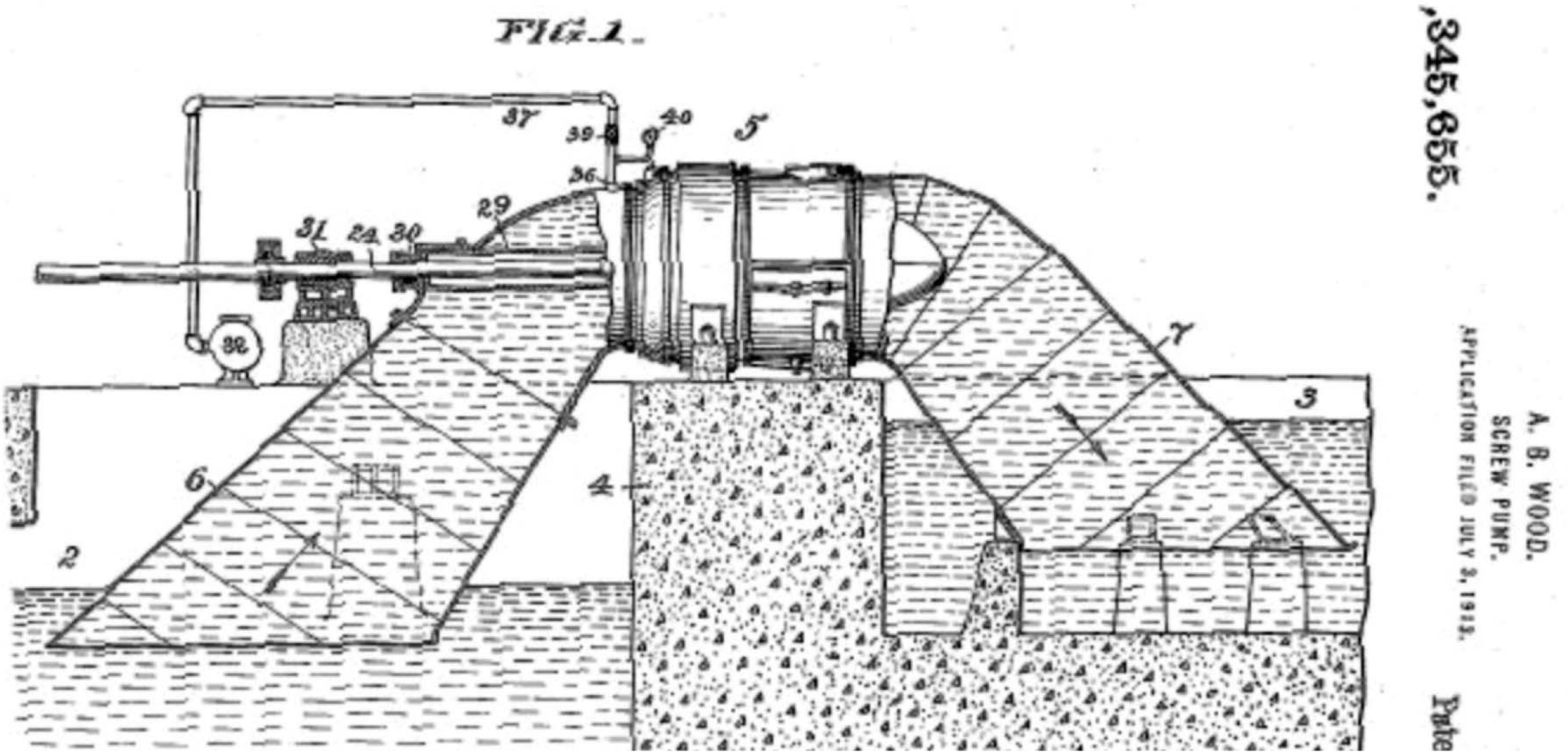
Pump stations are buildings located all over the city that house massive pumps. Pumps are machines that move water from low to high. Pumps lift water so that it can flow out of the city.

Image Credit: Ripple Effect

Image credits: Ripple Effect

**This is what the inside of a pump station looks like. The pumps are powered by electricity, and they lift water up into above-ground canals.**

Last week, several pumps were broken during and after the rainstorms. Four days later, a fire cut off electricity to several pumps, which further reduced the amount of stormwater our drainage system could handle.




## The pumps use technology that is 100 years old. They often needs major repairs.

These pumps were invented by New Orleanians in 1918. Engineers who take care of this system of pumps often compare it to taking care of vintage cars, which also needs constant repairs to keep running.

Dry weather

Wet weather

Image credits: Gutter to Gulf

**The pump stations lift all that runoff into canals, which then take the water toward the lake.**

Sometimes, we can't see the canals because they have high walls on either side.


Image Credit: Washington Post


Image Credit: NOLA.com

## On the days when it flooded, some parts of the city got A LOT more rain than others.

Some neighborhoods received about 9 inches of rain, while others only received about 5 inches.

That can be the difference between flooding and not flooding.

Image Credit: Waggonner & Ball

## Climate change is increasing our risk of flooding.

Climate change increases the frequency of and severity of severe weather events, like intense rainfall and drought.

Why might it be important to think about climate change when we think about the future of New Orleans?

# *What's the big idea?*

## Our city is bowl-shaped.

New Orleans will always be at risk for flooding, even with smaller storms, because of how our city is shaped. Stormwater will always need to be pumped up and out to keep neighborhoods from flooding.

## Pipes, pumps, and canals are old and need constant love and care.

Our system will continue to fail unless we have a better system for dealing with our water. This takes big, bold ideas, and leaders who understand how water flows and how our systems work.

# *Why was the flooding so bad last week?*

## Very fast and heavy rain overwhelmed our drainage system.

In some parts of the city, a huge amount of water (up to 9 inches) fell in a very short amount of time. Imagine if you had to bail out the bottom of a boat with a bucket that had a hole in the bottom.

## Broken pumps meant even less water could be drained.

Several pumps weren't working. This means we were able to pump out *less* water than usual, which meant more flooding in our streets.

# *What can you do?*

## Learn as much as you can about New Orleans and its relationship to water.

Ask questions about water and water systems, explore the city to find out where water is located, and where it's headed. Teach others about what you are learning about these water issue in our city.

## Prepare to lead.

Think about becoming an engineer, scientist, pump station operator, ecologist, urban planner, or one of the many other professionals who can improve how people live in "water cities" like New Orleans.

Any one of you could be the next mayor, engineer, scientist, or designer who helps come up with the big and bold ideas we need.

## *What can schools do?*

# This school's rain garden stores stormwater run-off and uses it to water the plants.

Schools, homes, and businesses can store rainwater wherever there is open space, instead of allowing it to enter the drainage system. This reduces the amount of water our pumps have to lift up and out of the city, which helps prevent flooding in the long-term.

KIPP Central City Primary Rain Garden

Image Credit: Claire Anderson

This presentation was inspired by the findings of the **Urban Water Plan**.

Special thanks to Waggonner & Ball for continued support of Ripple Effect and water literacy teachers everywhere.