Water in New Orleans

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Sewerage & Water Board of New Orleans

Restoring and Protecting Water Quality, whose job is it?

Water Quality

- What is Water Quality (WQ)
- What is lawful?
- How is WQ regulated?
- What is pollution?
- How is pollution being addressed?
- What more can be done….

Clean Water Act (CWA-1972)

- The CWA made it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained.

- Discharge permits: **N**ational **P**ollution **D**ischarge **E**limination **S**ystem, covers only some pollution sources. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.

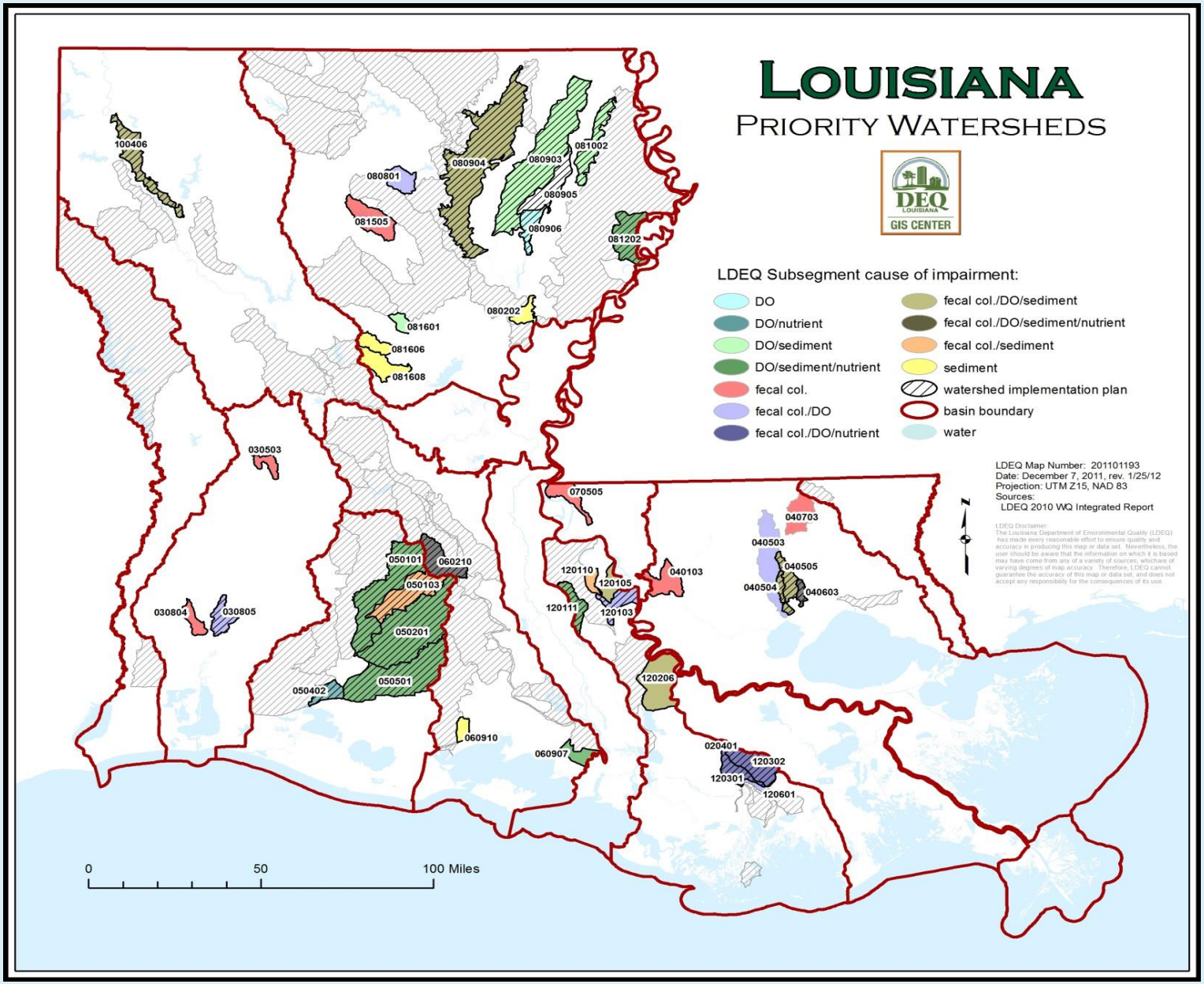
How Clean Water Act works

- States: Identify Water quality “standards” and designate use or uses (e.g., recreation, drinking water, industrial, other) of a water body
- Numerical (or narrative) statement identifying max. concentrations of various pollutants which would not interfere with the designated use.
- Water Utilities and Managers must comply with rules

Non point source (NPS) pollution

1987 amend. to the Clean Water Act

- Governor of each state must prepare a NPS Management Plan. An identification of the best management practices and measures which will be undertaken to reduce NPS pollution.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PRIORITY WATERSHEDS
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GIS CENTER
LDEQ Subsegment cause of impairment:
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watershed implementation plan
basin boundary
water
LDEQ Map Number: 201101193
Date: December 7, 2011, rev. 1/25/12
Projection: UTM Z15, NAD 83
Sources:
LDEQ 2010 WQ Integrated Report
LDEQ Disclaimer:
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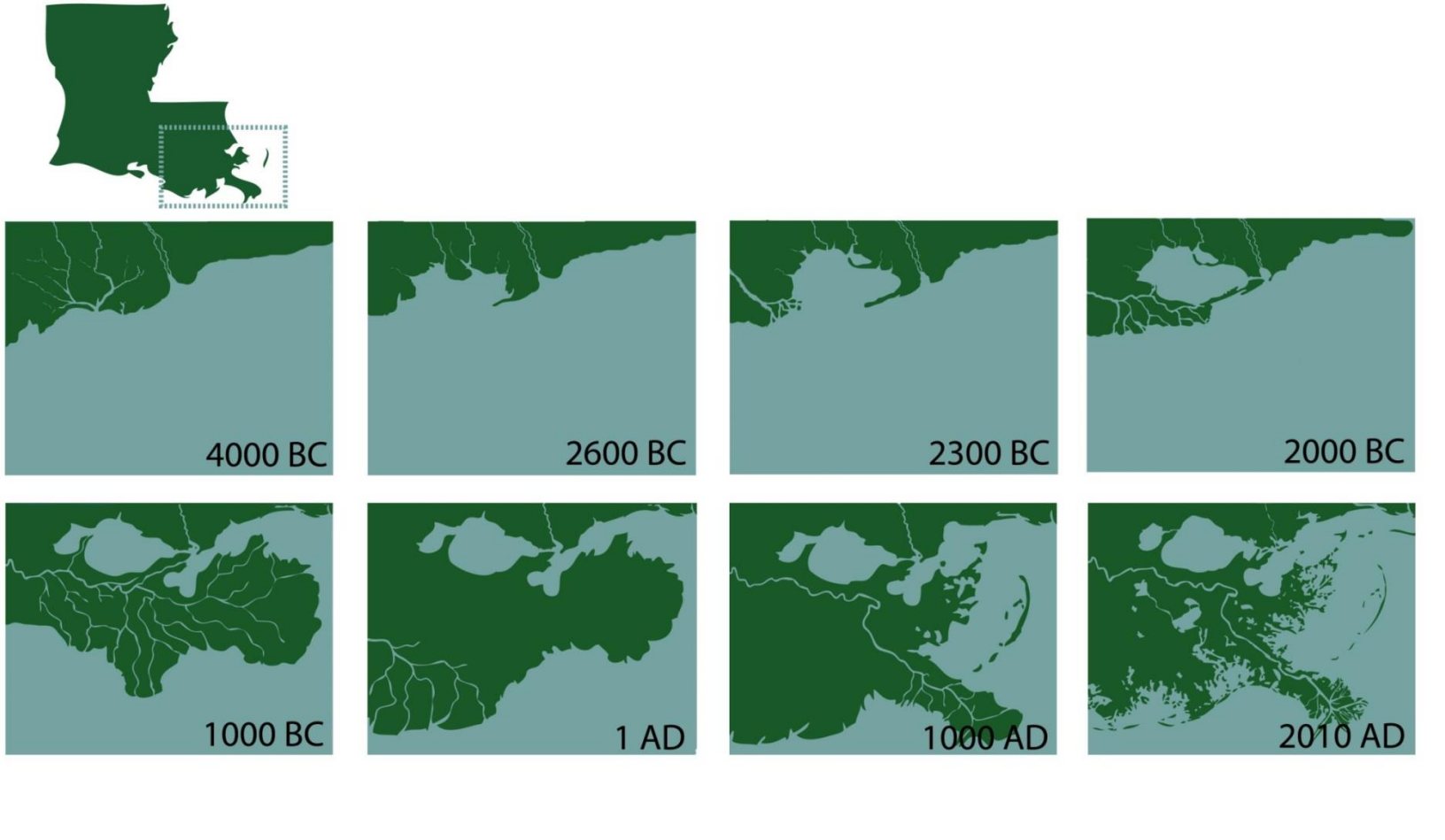
Water in New Orleans?

- Mississippi River Basin drains > 2 million square miles
- 41% of continental U.S.

SE Louisiana, including New Orleans was built by the Mississippi River Delta



We are a city that was built for access

New Orleans was settled by the French in 1718 on the high ground adjacent to the Mississippi River-only 14 feet above sea level. The city was subject to periodic flooding **from the Mississippi River and Lake Pontchartrain, as well as frequent inundation from the high intensity rainfall. We've always been flood prone.**

In the early 1800's the City was not plumbed

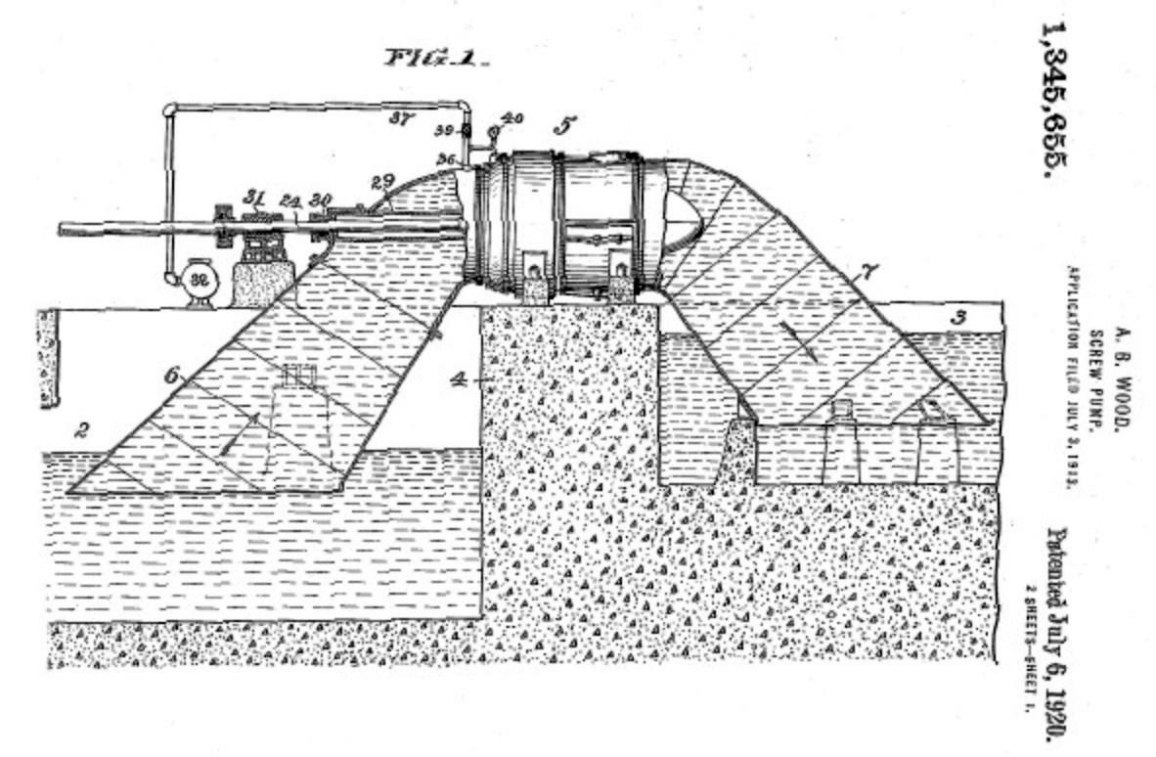
Cistern in a New Orleans Courtyard, 1800's

Much of the city burned to the ground in 1788 and again in 1794.

Ironically, over 300 billion gallons of water a day were pouring down the Mississippi less than two blocks from the fire.

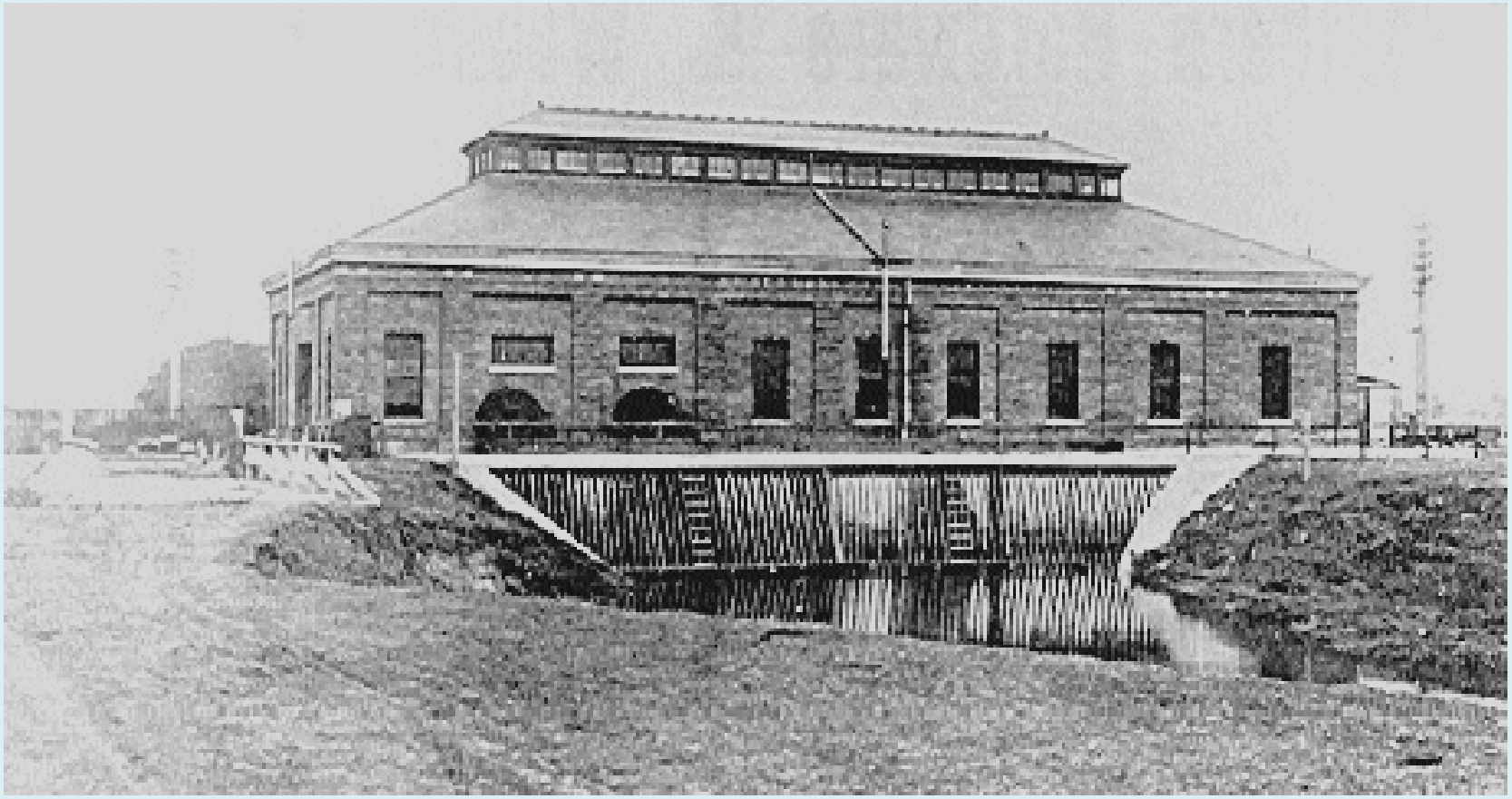
By 1893, it became apparent to city leaders that in order for the City to grow and prosper we needed a plan to **drain, dry, & adequately supply drinking water and water for fire protection to our citizens**. With this we also needed a sanitary sewerage system. Planning for the three systems began that year.

Health & Safety Issues led to technology innovations

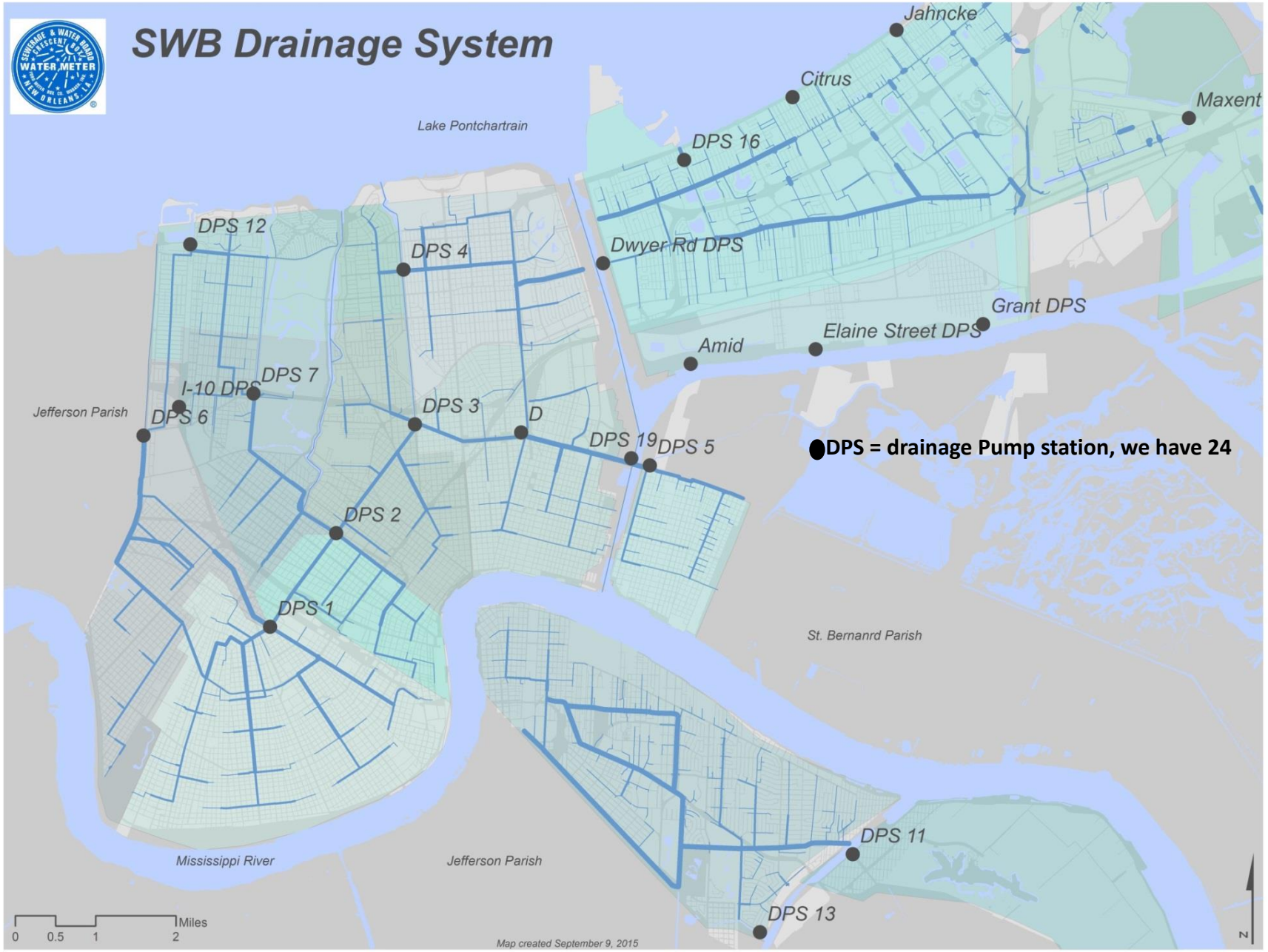


In 1913 the **Wood Screw Pump**, designed by A. Baldwin Wood allowed the Sewerage and Water Board, a newly formed organization, the ability to efficiently pump the city dry.

Grey Infrastructure-pipes, pumps, concrete lined canals



Our early infrastructure included earthen levees, canals, pipes and pumps. These gave us the confidence to build in wetlands & in areas where periodic flooding occurred.


SWB Drainage System
Jahncke
Citrus
Maxent
Lake Pontchartrain
DPS 16
DPS 12
DPS 4
Dwyer Rd DPS
Grant DPS
Elaine Street DPS
Amid
DPS 7
I-10 DPS
Jefferson Parish
DPS 6
DPS 3
D
DPS 19
DPS 5
DPS = drainage Pump station, we have 24
DPS 2
DPS 1
St. Bernanrd Parish
DPS 11
Mississippi River
Jefferson Parish
DPS 13
0 0.5 1 2 Miles
Map created September 9, 2015
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Our drainage infrastructure

- 68,000 catch basins
- 1800 miles of pipe
- 160 miles of covered canals
- 100 miles of open canals - 8 ft. to 28 ft. wide
- 24 drainage pumping stations
- 121 pumps
- Pumping capacity is over 375,000 gallons per second, 29 billion gallons a day,
- Capacity flow rate of approximately 50,000 cfs which is more than the flow rate of the Ohio River.
- Fill up an Olympic size swimming pool in 2.6 seconds,
- Fill up the Superdome in just over 40 minutes
- System can handle 1 inch of rainfall over the first hour and ½ inch every hour after that as the ground becomes saturated.
- That's 3 inches in 5 hours. Rainfall greater than that will cause flooding.
- Power is provided by generators and diesel fuel at S&WB power plant
- There is NO time to clean the rainwater as it is pumped into Lake Pontchartrain.

When it rains, we pump rainwater with NO treatment to the Lake, which means that anything on the ground can end up in the water

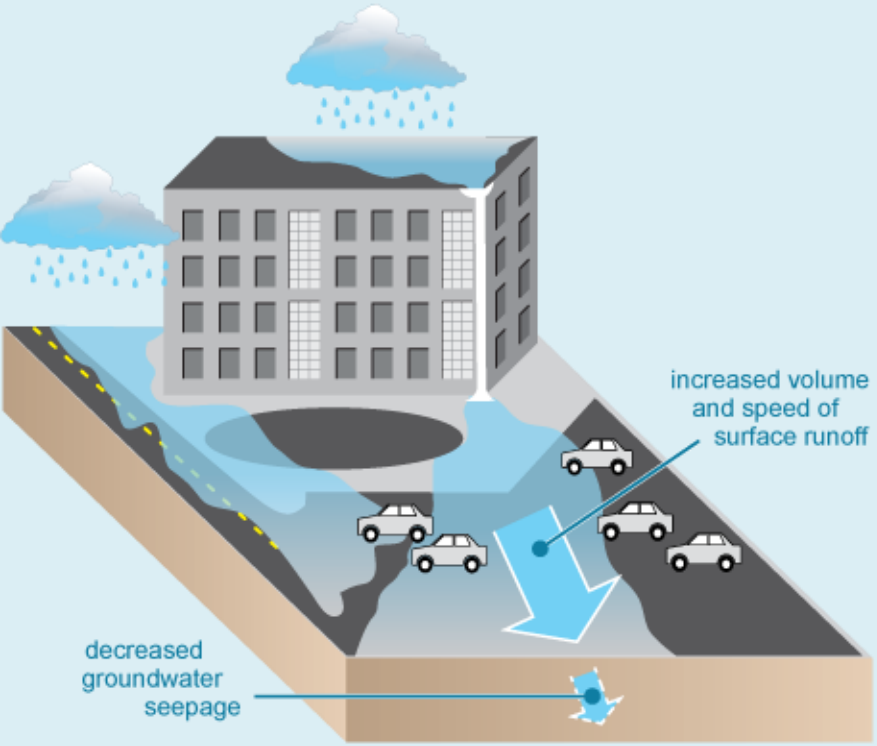
Stormwater picks up pollutants, such as trash, dirt, road grime, oil, pesticides, fertilizers, and metals, and pulls them into our stormwater system.

hitchhiking pollutants are pumped untreated into surrounding water bodies, degrading the quality of our natural water resources

Our water Infrastructure the visible & invisible

Measures that **slow water down**, hold it, and **allow it to soak into the ground** reduce the burden on our pumping system and **protect against pollution**

Impervious surfaces



Impervious 'hard' surfaces (roofs, roads, large areas of pavement, and asphalt parking lots) increase the volume and speed of stormwater runoff. This swift surge of water erodes streambeds, reduces groundwater infiltration, and delivers many pollutants and sediment to downstream waters.

Pervious surfaces

Pervious 'soft' surfaces (green roofs, rain gardens, grass paver parking lots, and infiltration trenches) decrease volume and speed of stormwater runoff. The slowed water seeps into the ground, recharges the water table, and filters out many pollutants and sediment before they arrive in downstream waters.

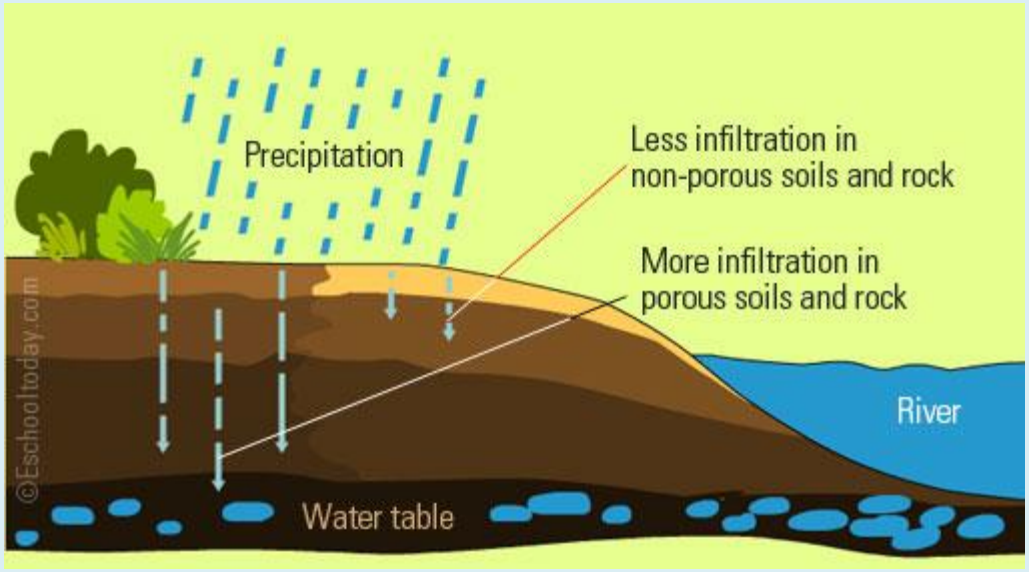
Green Infrastructure

provides infiltration and filtration to the water system

Green Infrastructure is designed to slow water down, plants capture many pollutants, soils and plants soak up rain water.

Huh?, Water Quality is about planting trees?

In many cases, yes, trees make a positive impact. Movement of storm water through green infrastructure (plants, soil, engineered landscaping) has the potential to remove pollutants of concern including suspended solids, nutrients, metals and pathogens.



Pollutant Removal Efficiency by Green Infrastructure Type (%)

	TSS	TP	TN	NO_x	Metals	Bacteria
Bioswales /Rain Gardens	59-89%	5%	46%	43%	79-81%	N/A
Constructed Wetland	72%	48%	24%	67%	42-47%	78%
Soft Edged Canal	73-85%	38-45%	40%	30%	70%	60%
Pervious Paving	74-90%	45-65%	10%	N/A	N/A	N/A
Subsurface Detention	90%	60%	55%	N/A	N/A	N/A

TSS=Total Suspended Solids; TP=Total Phosphorous; TN=Total Nitrogen; NOx=Nitrate and Nitrite; Metals=Copper and Zinc; Bacteria=Coliforms

References:

Center for Watershed Protection. September 2007, National Pollution Reduction Database, Version 3

BMP Pollutant Removal Efficiency, Appendix E (http://des.nh.gov/organization drainage basin area /divisions/water/stormwater/documents/wd-08-20b_apxb.pdf)

What we can do today to protect our watershed!

- Sweep, instead of hosing off the driveway, street, or sidewalk.
- Clean a stormdrain or two on your block
- Use pesticides and fertilizers sparingly
- Safely dispose of household cleaners and motor oil.
- Compost or mulch yard waste.
- Clean up after your pet.
- Do not wash your car in the driveway.

Be aware, Report Concerns

- Storm drain cleaning should be done consistently to capture litter, dirt, and debris and to ensure flow from our streets can enter into the system without carrying with it harmful pollutants.
- In New Orleans report pollution concerns to us at 504-52-WATER (504-529-2837)