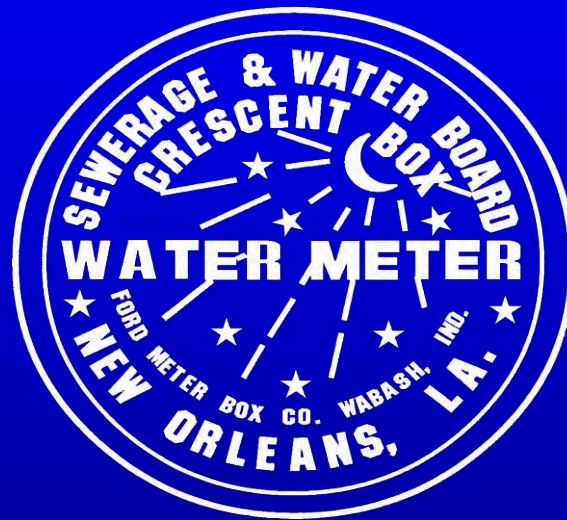


Sewerage and Water Board of New Orleans Restoration of Water and Wastewater Systems



Sarah K. Mack

**Sewerage & Water Board of New Orleans
New Orleans, Louisiana, USA**

Restoration of Water and Wastewater

- Sewerage and Water Board of New Orleans
- Hurricanes Katrina and Rita
- Water Restoration
- Wastewater Plant Restoration
- Facing the Future

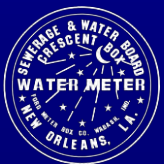
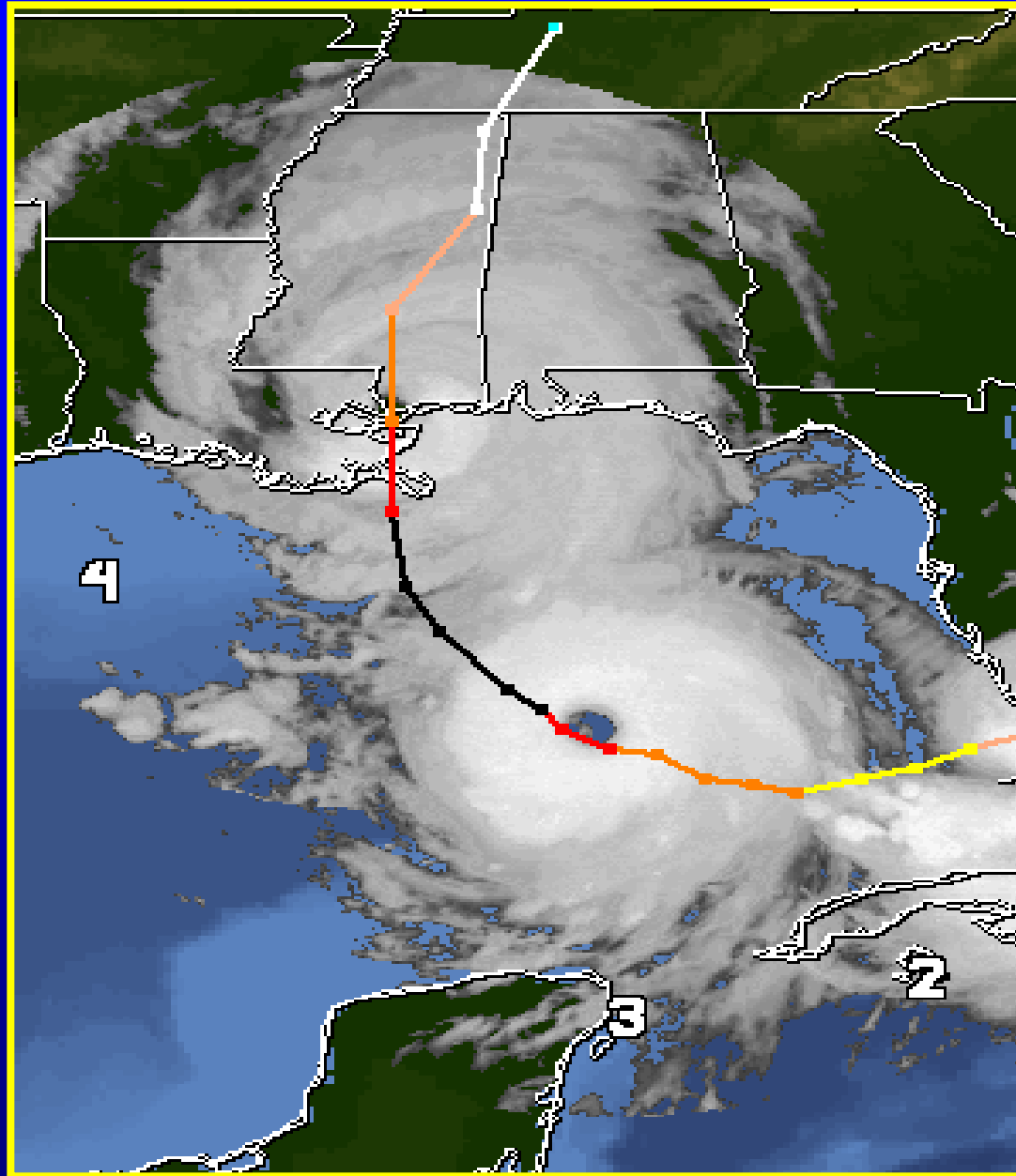


Sewerage and Water Board of New Orleans: History

- Independent Agency, established in 1899 by the Louisiana Legislature
- Provides water, sewerage, and drainage services for the City of New Orleans
- Serves approximately 460,000 Before Storm



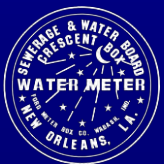
Hurricane Katrina August 28-29, 2005







Pressure begins to drop throughout the City due to numerous small leaks throughout the system



Flooding at Water Plant Entrance



Sewerage & Water Board of New Orleans

<http://swbnola.org>

Flooding Around Power Plant



Sewerage & Water Board of New Orleans

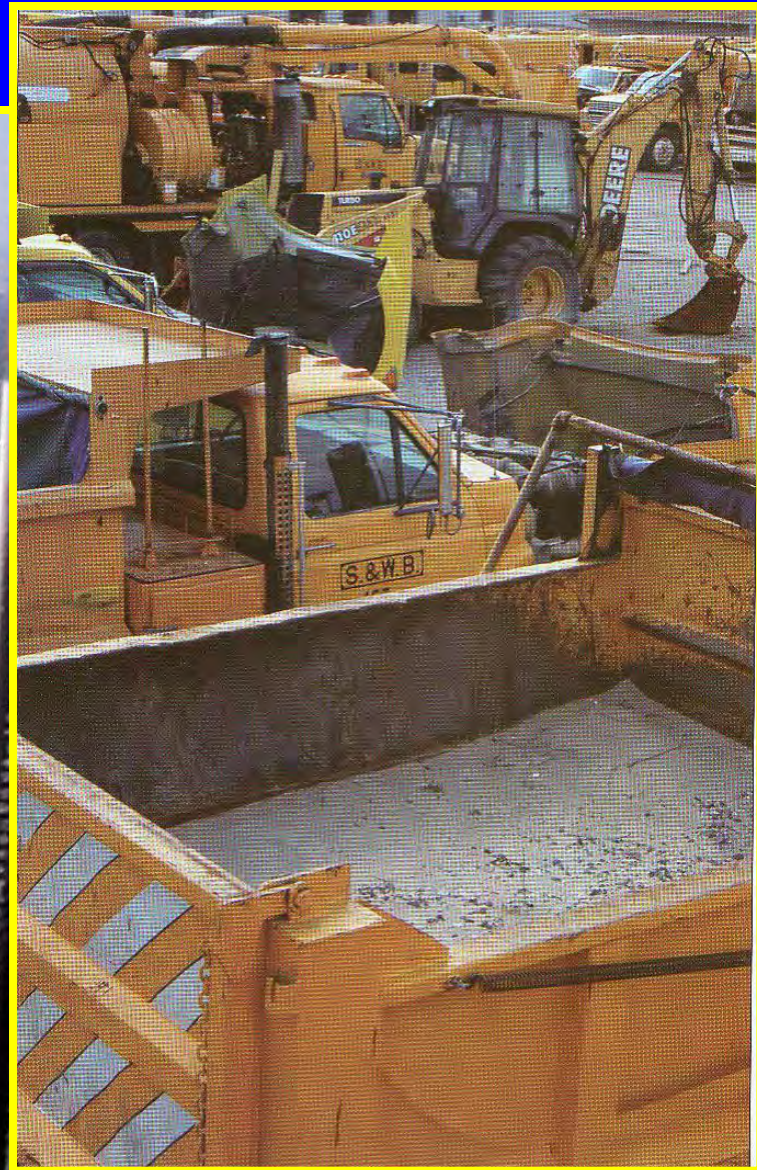
<http://swbnola.org>



Drainage and Sewage Station Equipment Flooded



Flooded Central Yard



9.14.2005



Sewerage & Water Board of New Orleans

<http://swbnola.org>

Katrina

- **300 of 1200 Personnel**
- **No Communication System**
- **No Fleet**
- **Only One of Three Operational Headquarters**
- **80% of Staff Lost Their Homes**



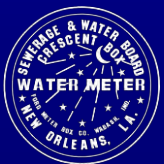
Most Massive Utility Recovery Project in American History Begins



Sewerage & Water Board of New Orleans

<http://swbnola.org>

Restoration of Water and Wastewater Systems Becomes Primary Recovery Goal in Regards to Public Health and Safety



Water Restoration

- Potable Water
- Fire Protection
- Sanitary System Operational
- Storm Water System Operational



Dewatering Basements in the Power Plant to Keep It Functional



Multiple Agency Coordination

- **Federal-Environmental Protection Agency (EPA)**
- **State- Department of Health and Hospitals (DHH)**
- **Local- Office of Public Health (OPH)**
- **Risk Communication Essential**



Boil Water Advisory

- **Legal Term-Define Conditions**
- **No Human Contact**
 - **Fire Protection Only**
- **To Lift Boil Water Advisory**
 - **Meet Specific Criteria**
 - **Prove Stability**



Boil Water Advisory Criteria

- **Break Point Chlorination-Free Chlorine Residual**
- **Hundreds of Water Samples**
- **Chlorine by Rail Car With Backup Bleach System**
- **Entergy Power and S&WB Generated Power**

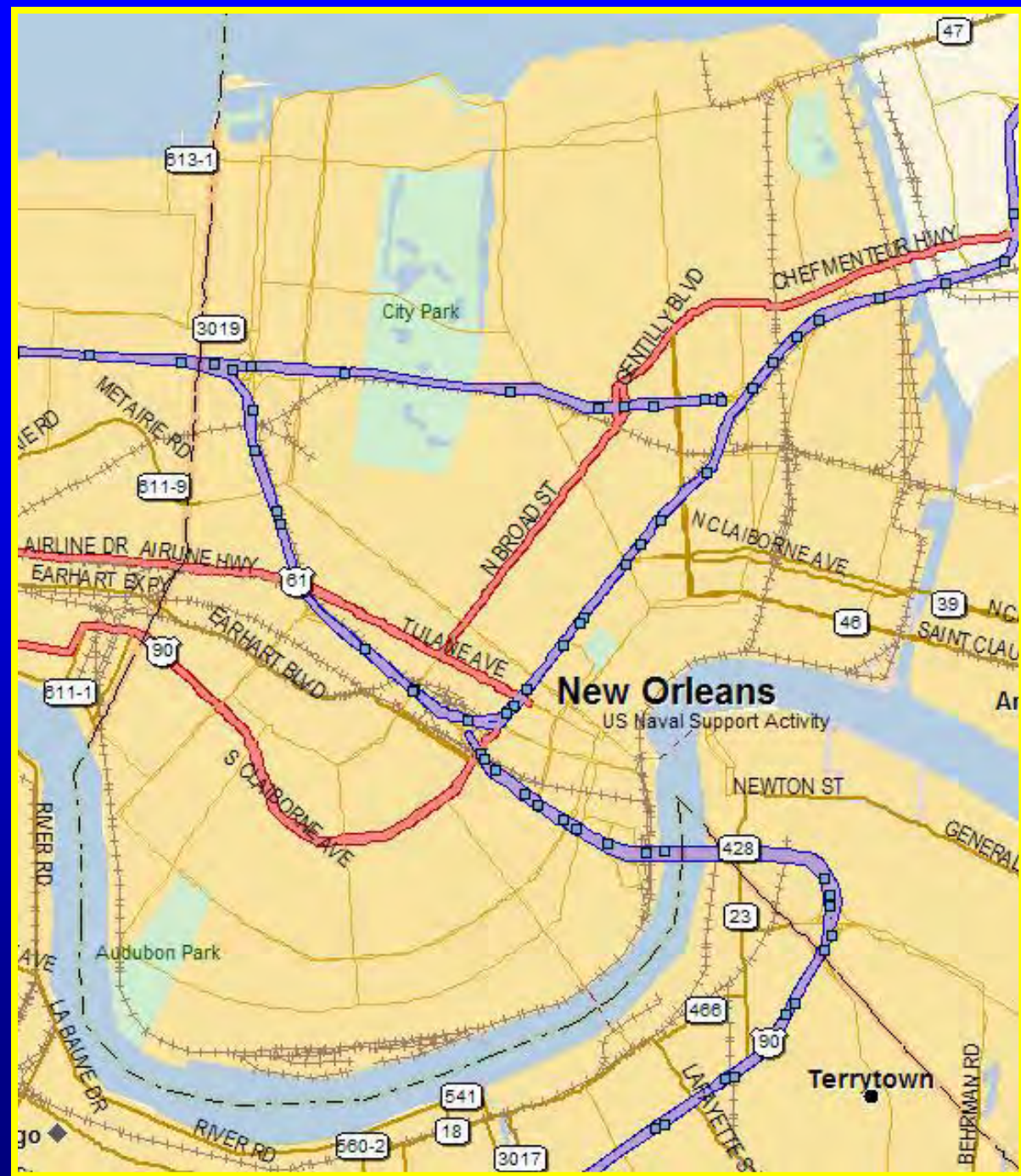


Boil Water Advisory Criteria

- **Adequate Pressure**
- **Adequate Flow to Meet Growing Demand**
- **Areas Appropriately Valved-
Control of Distribution System**
- **Would Not Jeopardize Wastewater System**



**The portion of
the City west of
the Industrial
Canal was
removed from
the Boil Water
Notice on
October 6, 2005.**





The portion of the City east of the Industrial Canal and north of the MRGO was removed from the Boil Water Notice on December 8, 2005.



**The portion of
the Lower 9th
Ward south of N.
Derbigny Street
was removed
from the Boil
Water Notice on
May 8, 2006.**



**The portion of
the Lower 9th
Ward north of N.
Derbigny Street
remains under a
Boil Water
Notice.**



Water System – 1 Year Post-Katrina

- The distribution system still contains numerous leaks.
- Currently treating 150-160 MGD for a population that should be consuming 40-50 MGD.
- Plant near hydraulic capacity.
- Lowering pressure to control loss hampers the fire department



Wastewater Restoration



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East Bank Sewage Treatment Plant

- Urgent Need for Restoration
- FEMA- Pre-Katrina Conditions
- Primary Treatment- October 16
- Flow 25 Million Gallons Day
- Secondary Treatment- November 16



East Bank Sewage Treatment Plant

- Currently 55% Restored
- Flow 80 Million Gallons Day (MGD)
- Current Pumping Capacity 180 MGD
- Electrical Power – 7 Generators
- 1.5 Year Time Frame for Restoration
- Estimated \$70 Million for Restoration



Facing the Future

- Population?
- Solids
- Nutrients
- Mitigation
- 70% Less Revenue



NATURE'S SURGE BUSTER

Scientists with the LSU Hurricane Center say Hurricane Katrina provided graphic proof of how marshes and wooded wetlands provide natural armor that can save levees during storms.

WITHOUT WETLANDS, LEVEES ARE PUMMELED

Large sections of the MR-GO levee that had little or no wetlands separating them from Lake Borgne disintegrated.



LOWER
STH
WARD

CHALMETTE

ALGIERS

Mississippi River

KATRINA'S
WESTERN
EYE WALL

Lake Borgne

Mississippi River-Gulf Outlet

PORT DRAVE

WETLANDS TAKE THE BRUNT OF THE STORM

The 20-Arpent Canal levee remained standing. The difference was the buffer of marsh and wooded wetlands, researchers said.

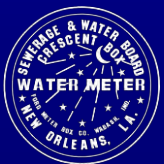
20-Arpent
Canal levee

Storm surge



Wetlands

KATRINA'S PATH

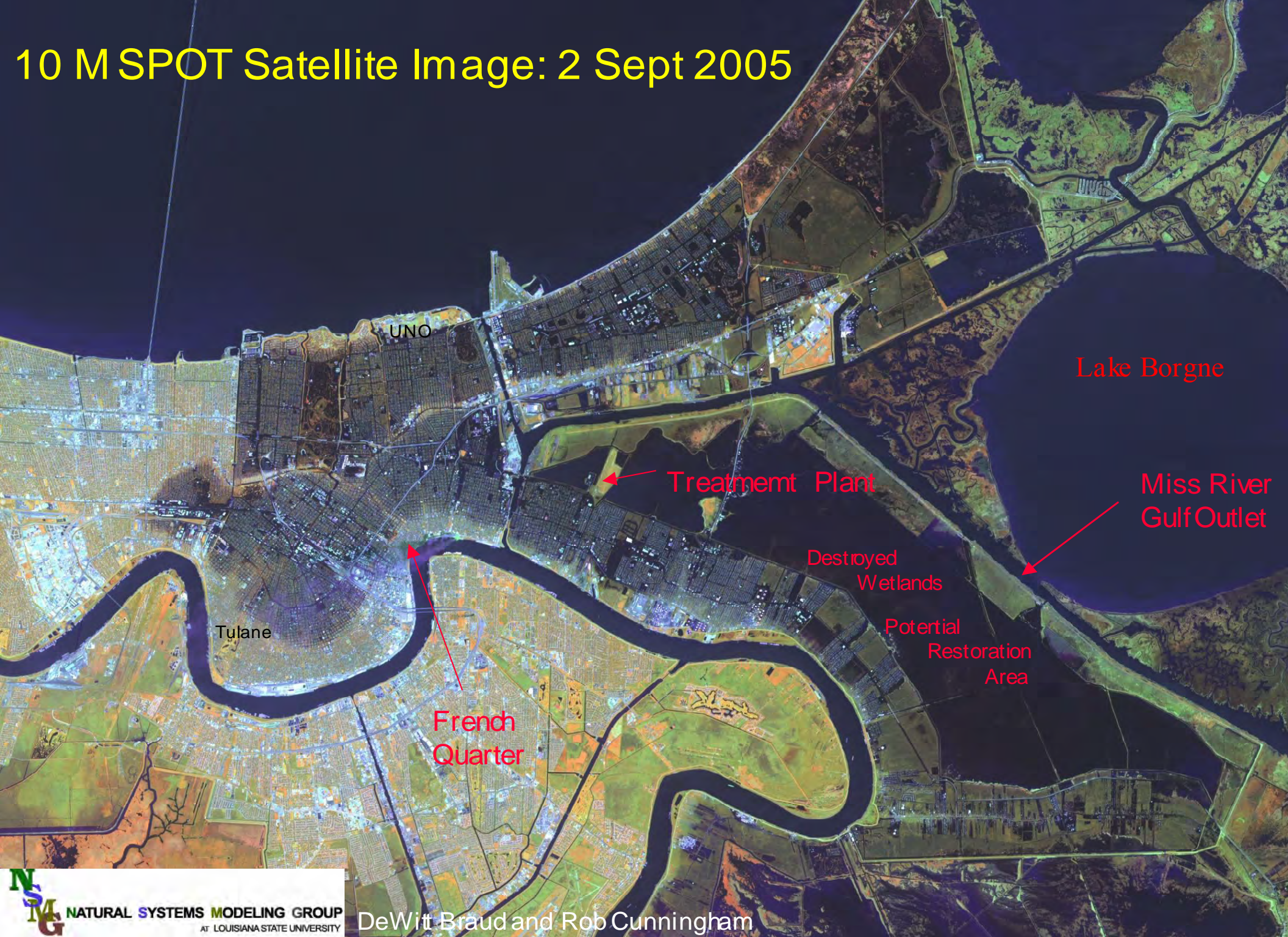


Sewerage & Water Board of New Orleans

<http://swbnola.org>



10 M SPOT Satellite Image: 2 Sept 2005



UNO

Lake Borgne

Treatment Plant

Miss River
Gulf Outlet

Destroyed
Wetlands

Potential
Restoration
Area

Tulane

French
Quarter

Multiple Benefits

- Restore critical damaged infrastructure
- Enhance 10,000+ acres of wetlands, re-establish cypress swamps
- Protect from future storm vulnerability
 - Orleans Parish
 - St Bernard Parish



World Model

- **Size**
- **Recovery**
- **Policy**
- **Port Cities**
 - **River-Transportation**
 - **Relative Water Level Rise**
 - **Increased Tropical Storms**

