

Understanding MS4 Permits & TMDL's Workshop

Louisiana Department of Environmental Quality

UNDERSTANDING MS4 PERMITS & TMDLS



MS4 Workshop: Why are we here?

- The Water Permits Division (WPD) is responsible for issuing MS4 permits
- Regulated small MS4s were required to apply for coverage under the general permit in 2003
- Small MS4 programs are not well-established across the state

MS4 Workshop: Why are we here?

- The WPD is working with the Small Business/Community Assistance Program to help small MS4s understand the WPD structure and water permit requirements
- Future Concerns for MS4s:
 - EPA plans on proposing a rule in September, 2011 that could place more stringent requirements on MS4s (expanded coverage, monitoring, promotion of green infrastructure, etc.)
 - TMDLs are being developed which will have an impact on some MS4s

Workshop Agenda

- Understanding TMDLs and Watershed Planning and Implementation
- Example of a Small MS4 Program
- Understanding MS4 Permit Requirements and Stormwater Management Plans
- Brief overview of the Water Permits Division
- Brief overview of the Small Business/Community Assistance Program

Acronyms

- BMP: Best Management Practice
- BOD: Biological/Biochemical Oxygen Demand
- CWA: Clean Water Act
- DO: Dissolved Oxygen
- DOT: Department of Transportation
- IDDE: Illicit Discharge Detection and Elimination
- LA = Load Allocation to NPS or to natural background sources
- LPDES: Louisiana Pollutant Discharge Elimination System
- MOS = Margin Of Safety
- MS4: Municipal Separate Storm Sewer Systems
- NOI: Notice of Intent
- NPS: Nonpoint Source
- O&M: Operation & Maintenance
- PHF: Pesticides, Herbicides, and Fertilizers
- POTW: Publicly Owned Treatment Works
- SWMP: Stormwater Management Plan
- SWPPP: Stormwater Pollution Prevention Plan
- TMDL: Total Maximum Daily Load
- WLA =Waste Load Allocation to point sources
- WQC: Water Quality Certification
- WWTP: Wastewater Treatment Plan

TMDLS

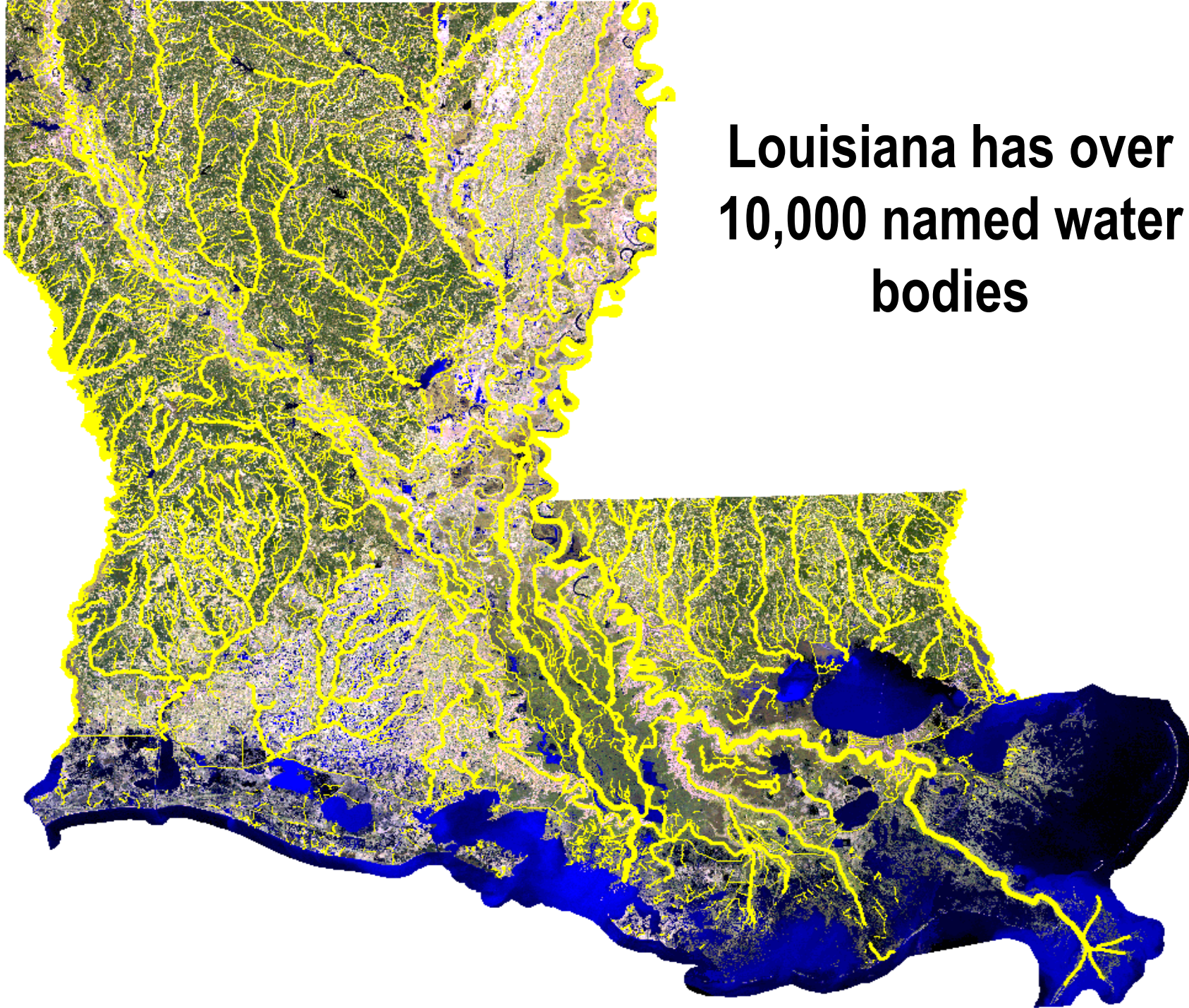
Watershed Planning and Implementation

Business Community Outreach & Incentives Division (BCOID)

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**Louisiana has over
10,000 named water
bodies**

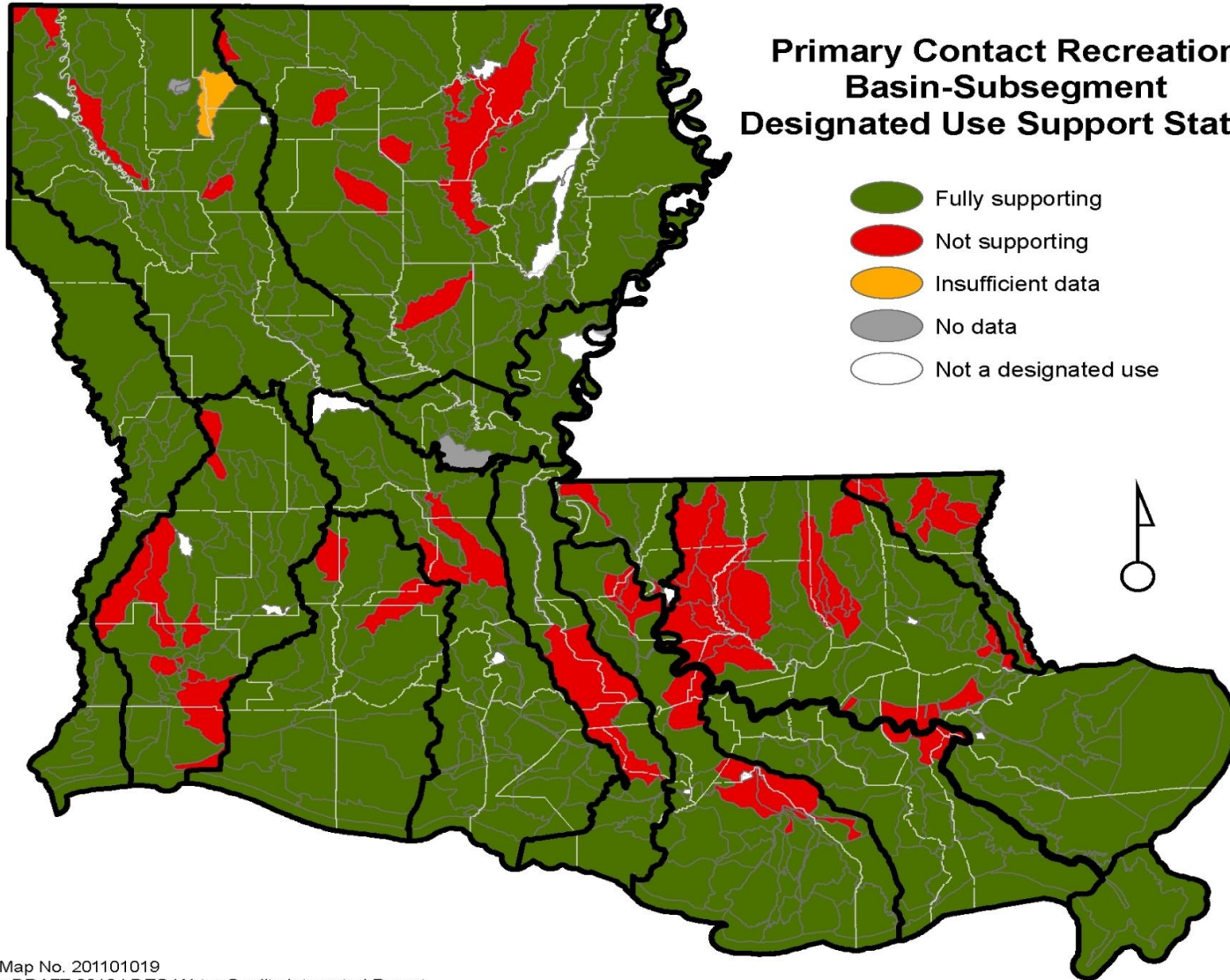
Clean Water Act (CWA) Premise

- It is the national goal of water quality which provides for protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water.
- It sets “**fishable, swimmable**” goals.

CWA Section 305(b) requires States to provide:

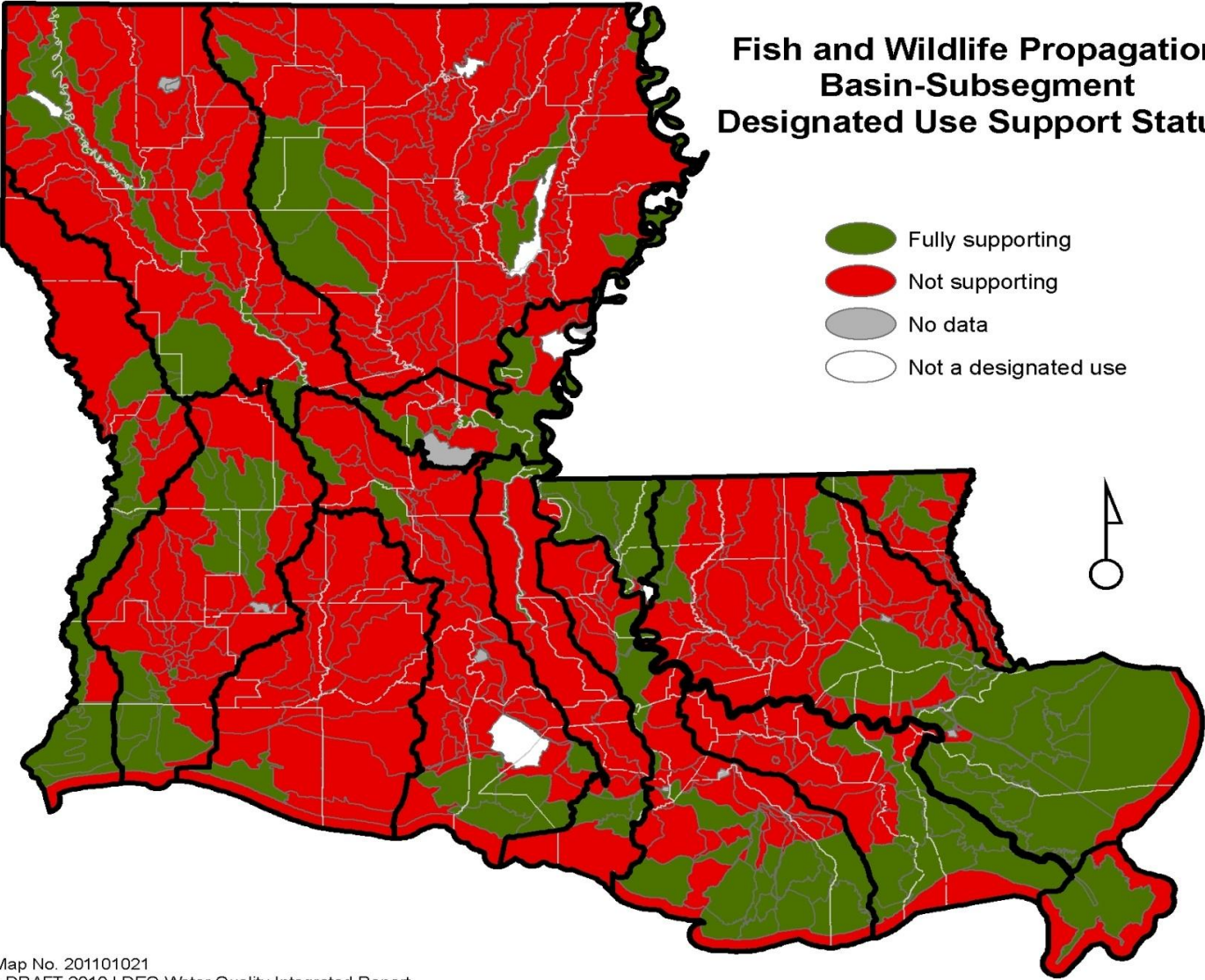
- a description of water quality of all navigable waters in the state;
- an assessment of status of waters of the state with regard to their support of recreational activities and fish and wildlife propagation

Primary Contact Recreation Basin-Subsegment Designated Use Support Status



LDEQ Map No. 201101019
Source: DRAFT 2010 LDEQ Water Quality Integrated Report

Fish and Wildlife Propagation Basin-Subsegment Designated Use Support Status



LDEQ Map No. 201101021
Source: DRAFT 2010 LDEQ Water Quality Integrated Report

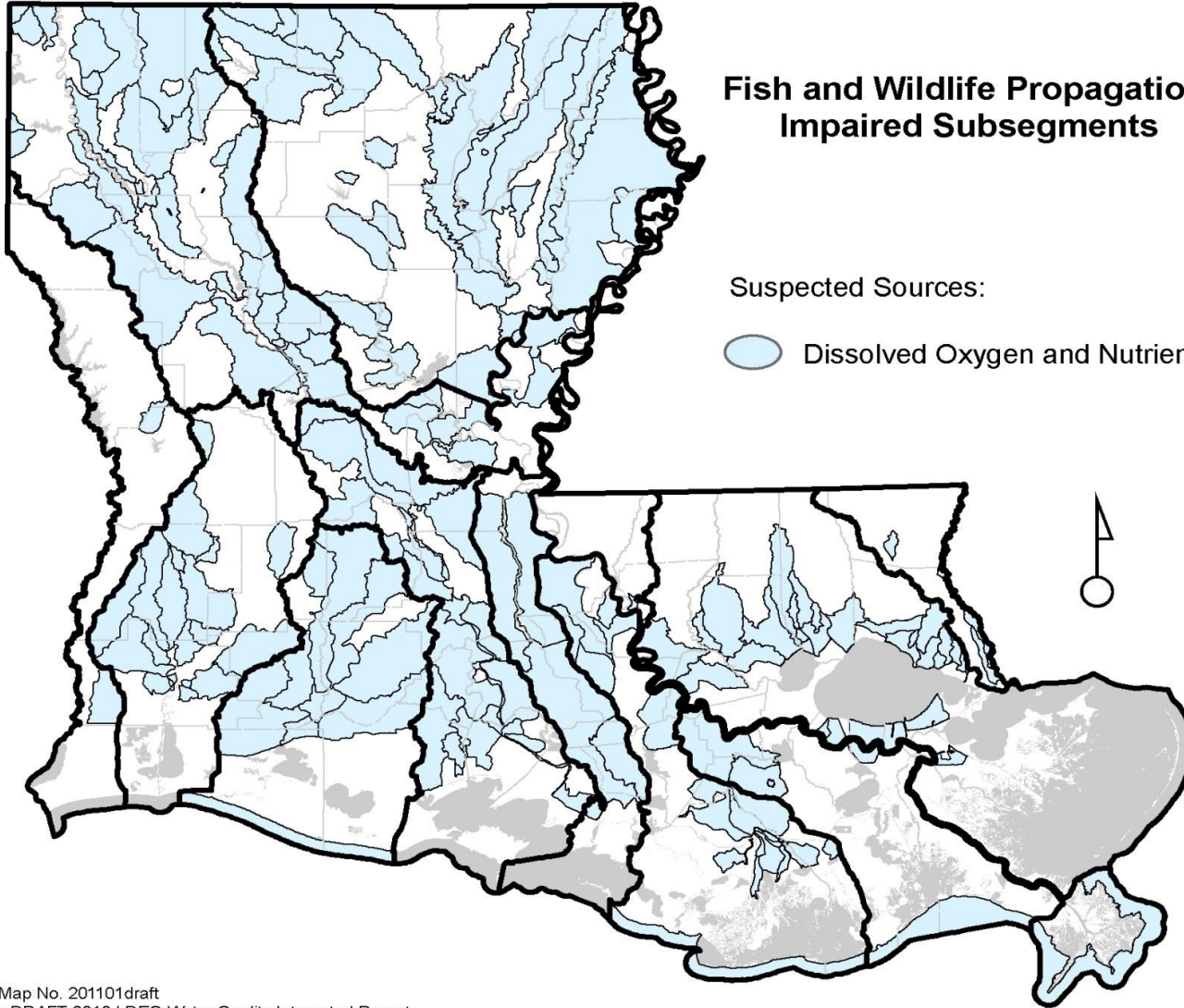
Types of Water Quality Problems Associated with Fish and Wildlife Propagation

- ❖ Mercury
- ❖ Sediment
- ❖ Nutrients (ammonia, nitrate, phosphorus)
- ❖ Dissolved Oxygen

Fish and Wildlife Propagation Impaired Subsegments

Suspected Sources:

 Dissolved Oxygen and Nutrients



LDEQ Map No. 201101draft
Source: DRAFT 2010 LDEQ Water Quality Integrated Report



In Louisiana, many water bodies do not meet nationally derived water quality standards due to naturally occurring physical, chemical, and biological factors.

This is especially true for dissolved oxygen...

Middle Fork D'Arbonne

Photo: DEQ

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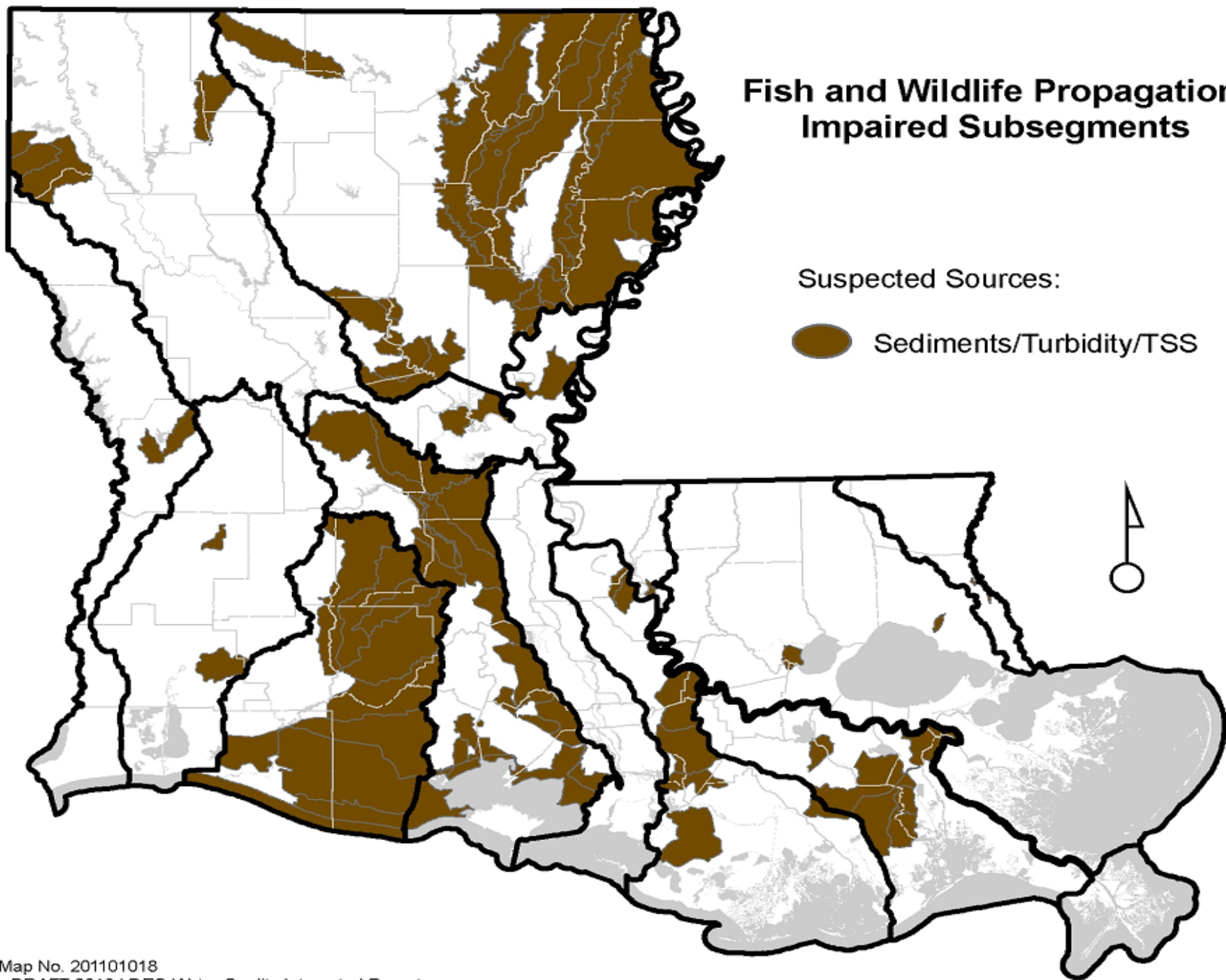
Factors that Contribute to Dissolved Oxygen Problems in Louisiana

- ❖ Sediment
- ❖ Nutrients
- ❖ Organic Material
- ❖ High Temperatures
- ❖ Low Flows

Fish and Wildlife Propagation Impaired Subsegments

Suspected Sources:

 Sediments/Turbidity/TSS



CWA 303(d) requires all States to:

- ❖ Develop a list of their state's impaired water bodies that do not meet state regulatory water quality standards.
- ❖ Establish priority rankings for these waters and develop TMDLs based on their priority rankings for the pollutants suspected of causing impairment.
- ❖ Current federal regulations regarding TMDLs found at 40 CFR 130.7
- ❖ **TMDL = Total Maximum Daily Load**

TMDL = WLA + LA + MOS

- ❖ WLA =Waste Load Allocation to point sources
- ❖ LA = Load Allocation to NPS or to natural background sources
- ❖ MOS = Margin Of Safety (greater uncertainty = larger MOS)

TMDLs in Lake Pontchartrain Basin for BOD

- Bayou Manchac
- Lower Amite River
- Gray's Creek
- Colyell Creek
- Selser's Creek
- Bayou Cane
- Tchefuncte River
- Bayou Bonfouca
- Bayou Liberty

Sources of Pollutants

- ❖ Agriculture
- ❖ Package Plants, Small Permitted Discharges
- ❖ Municipal Discharges
- ❖ On-site Sewerage Systems
- ❖ Industrial Discharges
- ❖ Natural Sources (wildlife, wind, tides, vegetation)

Implementation

- ❖ Permits will be issued based upon approved TMDLs.
- ❖ Compliance schedules will be employed such that a permittee will not be expected to meet more stringent limits immediately.
- ❖ Nonpoint sources will be addressed through existing programs.
- ❖ Projected NPS pollutant reductions will be goals.
- ❖ Watershed Implementation plans developed.

Findings

- ❖ Dischargers will have to upgrade their WWTPs to advanced secondary or tertiary treatment.
- ❖ New sources may not be allowed to discharge or may be forced to locate in other watersheds.
- ❖ Nonpoint source loadings must be reduced 50% - 90% to meet D.O. criterion.

CWA SECTION 319 requires States to:

- ❖ Assess Water Bodies and Determine Degree of Water Quality Impairment
- ❖ Identify Types of Land-Use Activities that Contribute to Water Quality Impairments
- ❖ Devise an Implementation Strategy that will Address and Correct Water Quality Problems

Sources of Nonpoint Pollutants

- ❖ Urban Storm Water Runoff
- ❖ Forestry Operations
- ❖ Agricultural Production
- ❖ Construction
- ❖ Sand and Gravel Mining
- ❖ Individual Home Sewage Systems
- ❖ Channelization of Streams, Rivers, Bayous

Examples of NPS Pollutant Sources



Watershed Planning with TMDLs

- ❖ Approximately 670 TMDLs have been completed within Louisiana;
- ❖ Nonpoint source pollution has been estimated to contribute from 30 – 100% of the pollutant load to the bayous and streams;
- ❖ How can the pollutant load be distributed and how can the TMDL be implemented?

STATE OF LOUISIANA

2002

Landsat 7 Satellite Imagery,
Enhanced Thematic Mapper Plus
TM-Panchromatic Merge



Map Number: 200301007
Map Date: February 7, 2003
Map Source: U.S. Landsat 7, Thematic Mapper Plus
(bands 7, 5, 3) merged satellite data
Map Projection: UTM, NAD83, Zone 15.



LDEQ Disclaimer: The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing this map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of map accuracy. Therefore, LDEQ cannot guarantee the accuracy of this data set, and does not accept any responsibility for the consequences of its use.

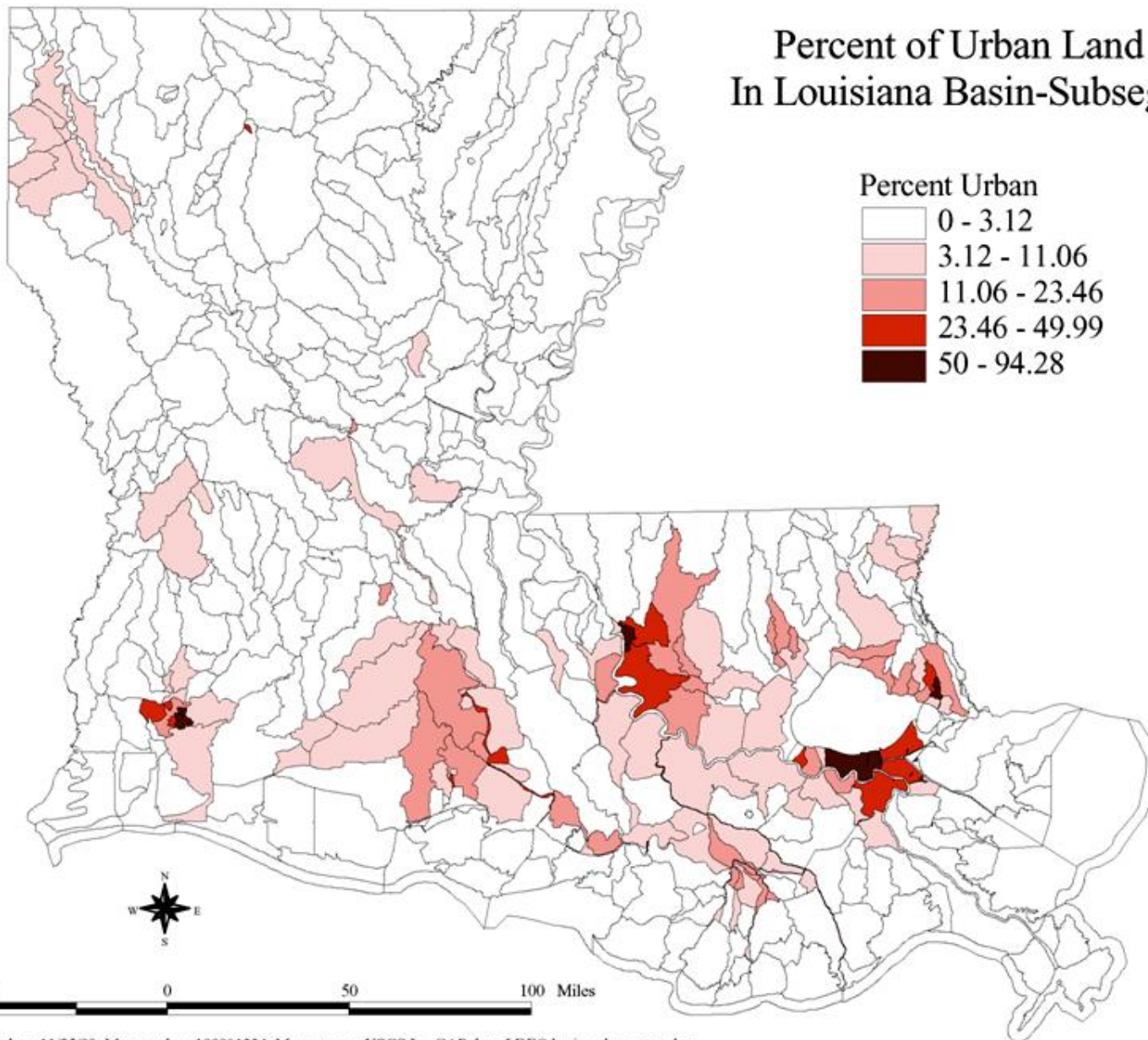
Distribution of Nonpoint Source Load

- ❖ Examine the types of land-uses that exist within the watershed;
- ❖ Identify where within the watershed the various crops and land-use types are;
- ❖ Utilize watershed modeling as a tool to identify where problem sites are (i.e. sediment, nutrient and organic loading).

Goal of Watershed Strategy

- ❖ Improve water quality in these priority watersheds within a 7 year timeframe.
- ❖ Restore the designated uses of fishing and swimming to the water bodies that are currently impaired by nonpoint source pollutants.

Percent of Urban Land Use In Louisiana Basin-Subsegments



Map date: 11/25/99; Map number: 199901334; Map sources: USGS La. GAP data, LDEQ basin-subsegment data

Urban NPS Pollutants

- ❖ Sediment from Construction Sites
- ❖ Oil and Grease From Parking Lots and Streets
- ❖ Nutrients and Pesticides from Lawns and Golf Courses
- ❖ Bacteria from Pets and Other Animals









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ENVIROSCHOOL

LOUISIANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

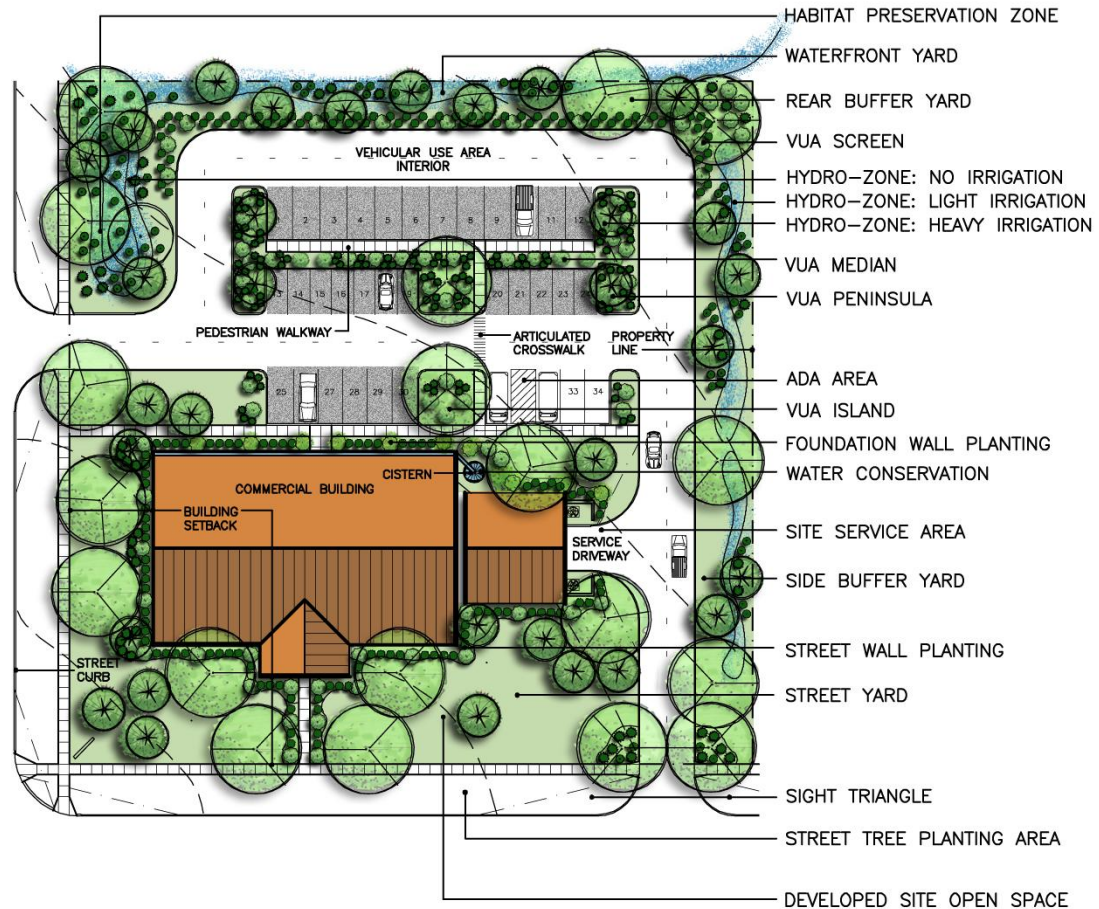


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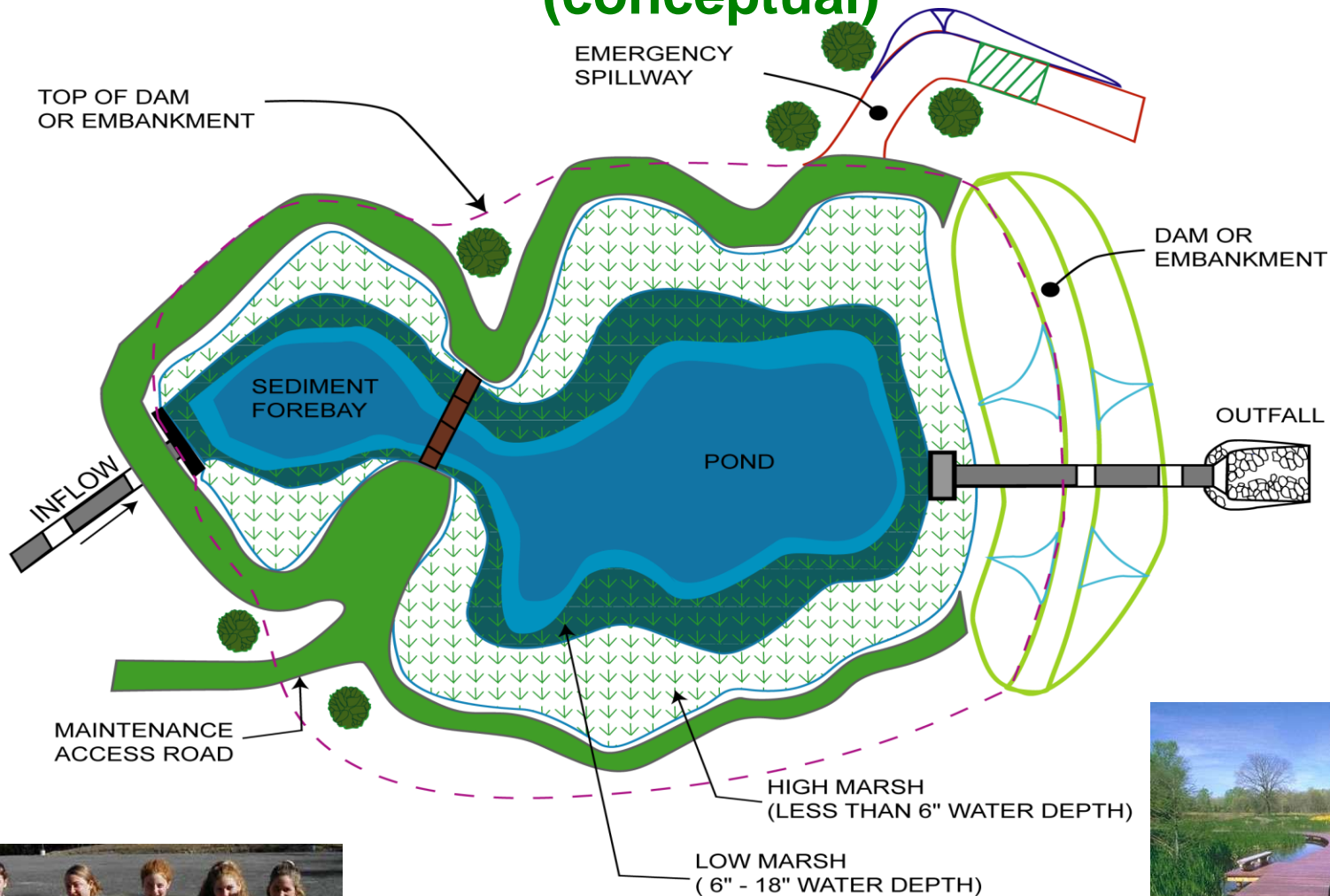
Model Landscape Code

Landscape Design Components





Woodlawn High School Constructed Treatment Wetland (conceptual)



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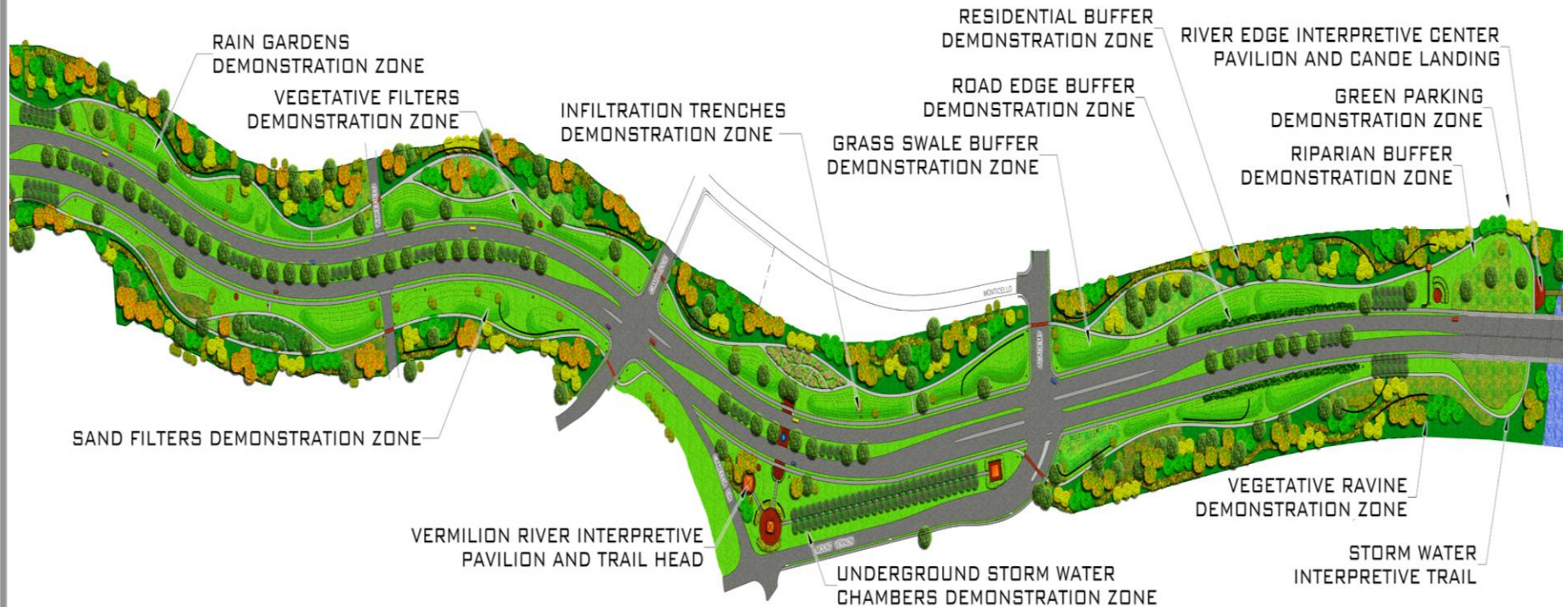


Low Impact Design Techniques



Building Better Buffers

Stormwater BMP Demonstration & Education





Educational Information Available thru LDEQ

- Basin Brochures
- Fact Sheets
- Storm Drain Markers
- Presenters for workshops
- Watershed plans



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Contact Information

Emelise Cormier

Environmental Scientist Manager

emelise.cormier@LA.gov

or

Jan Boydstun

Senior Scientist

Jan.boydstun@la.gov