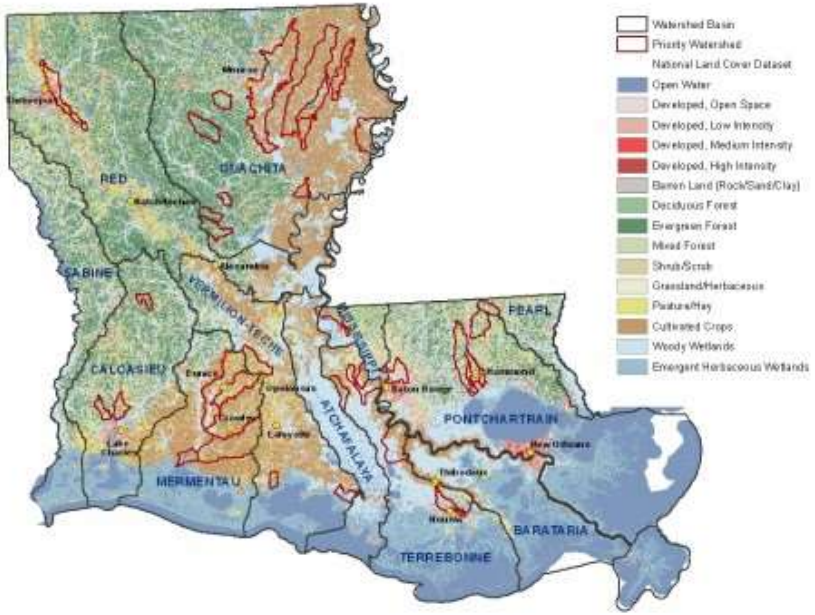
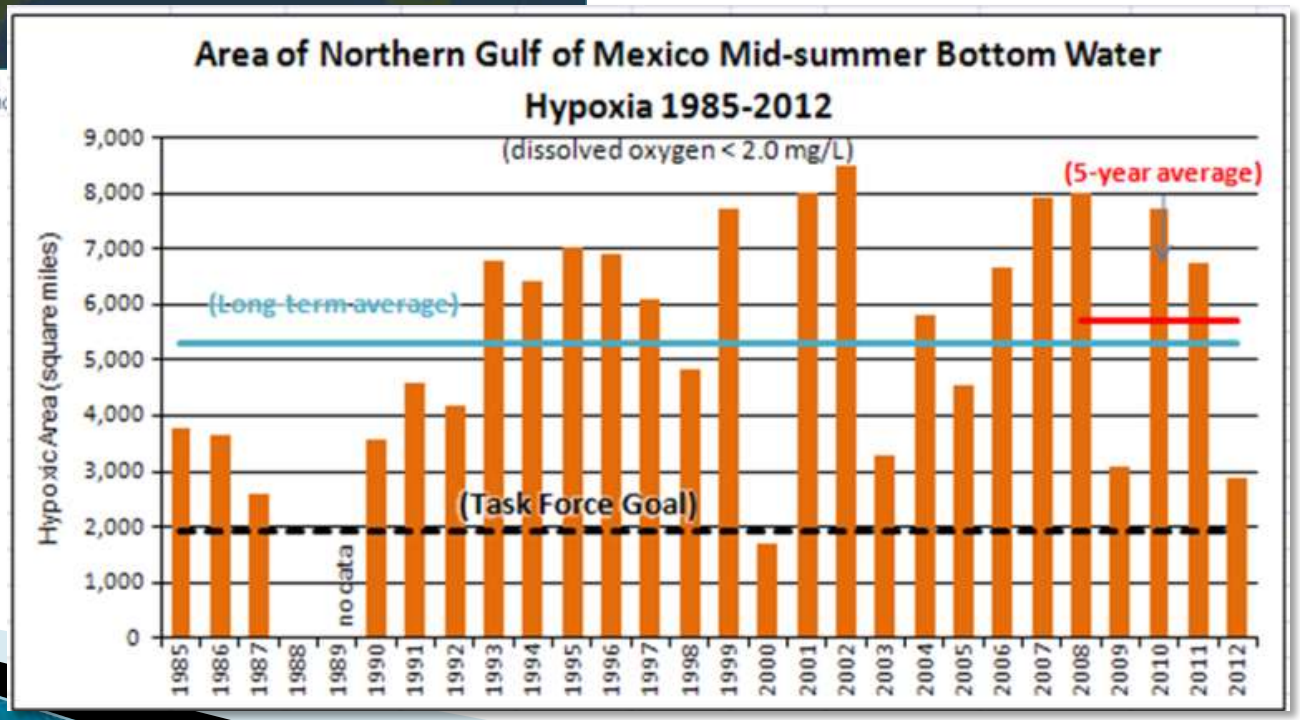
Louisiana Statewide Nutrient Management Strategy



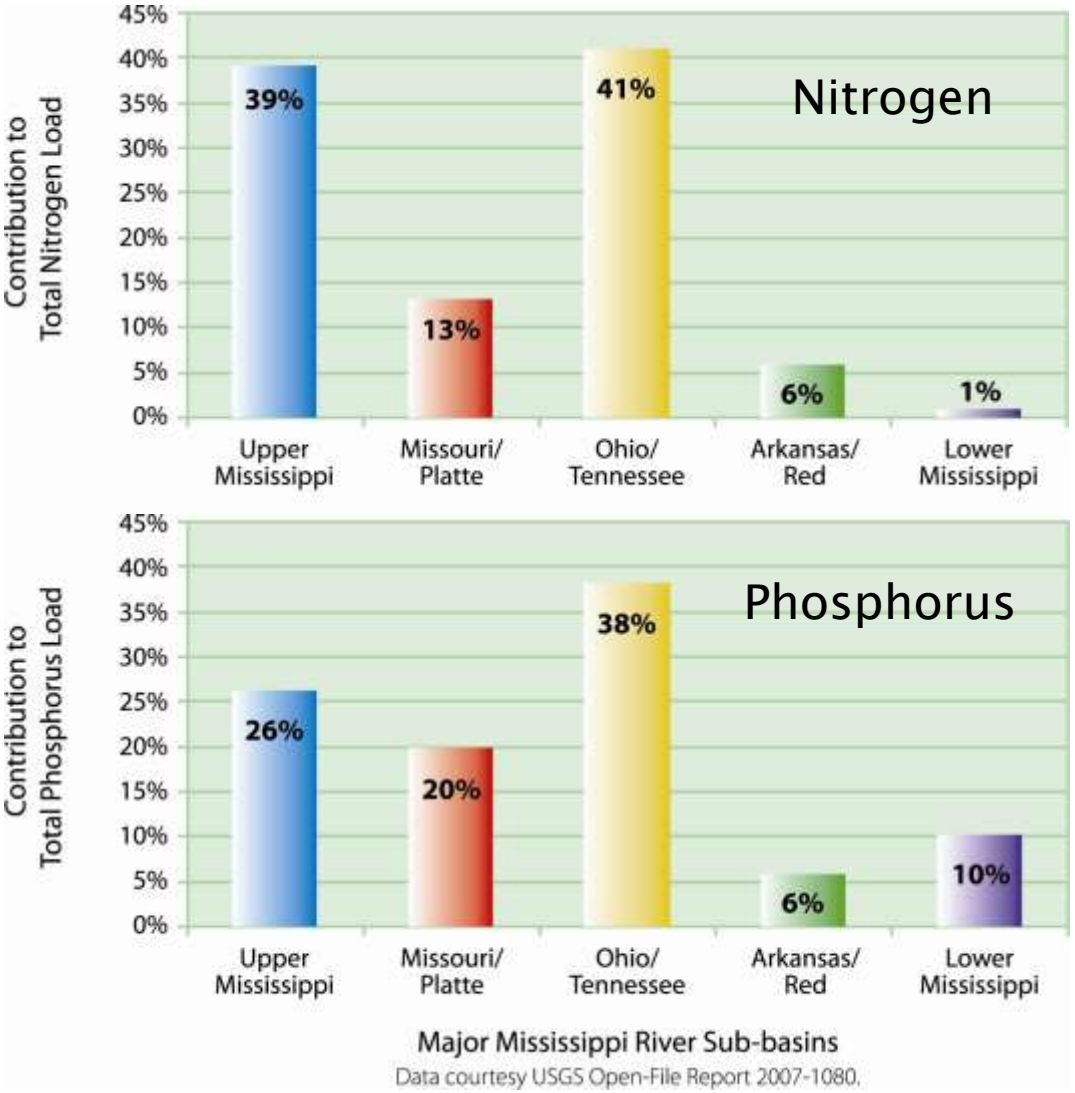
Dr. Charles Killebrew
Coastal Protection and Restoration Authority

Hypoxia in the Gulf of Mexico

GOAL:
5,000 sq km
(1,930 sq mi)
by 2015

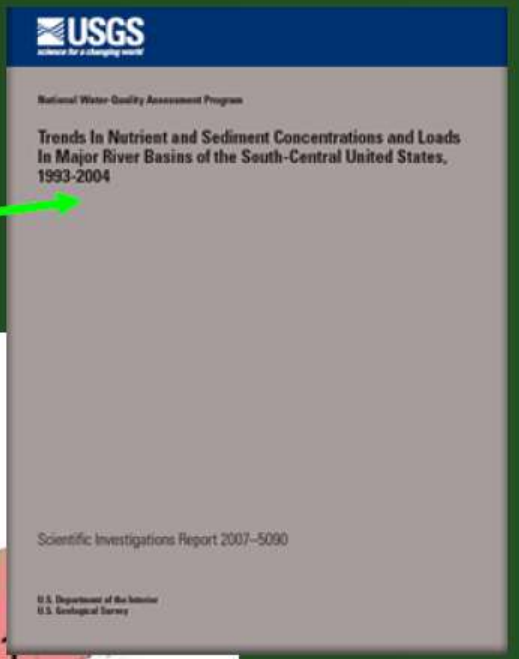


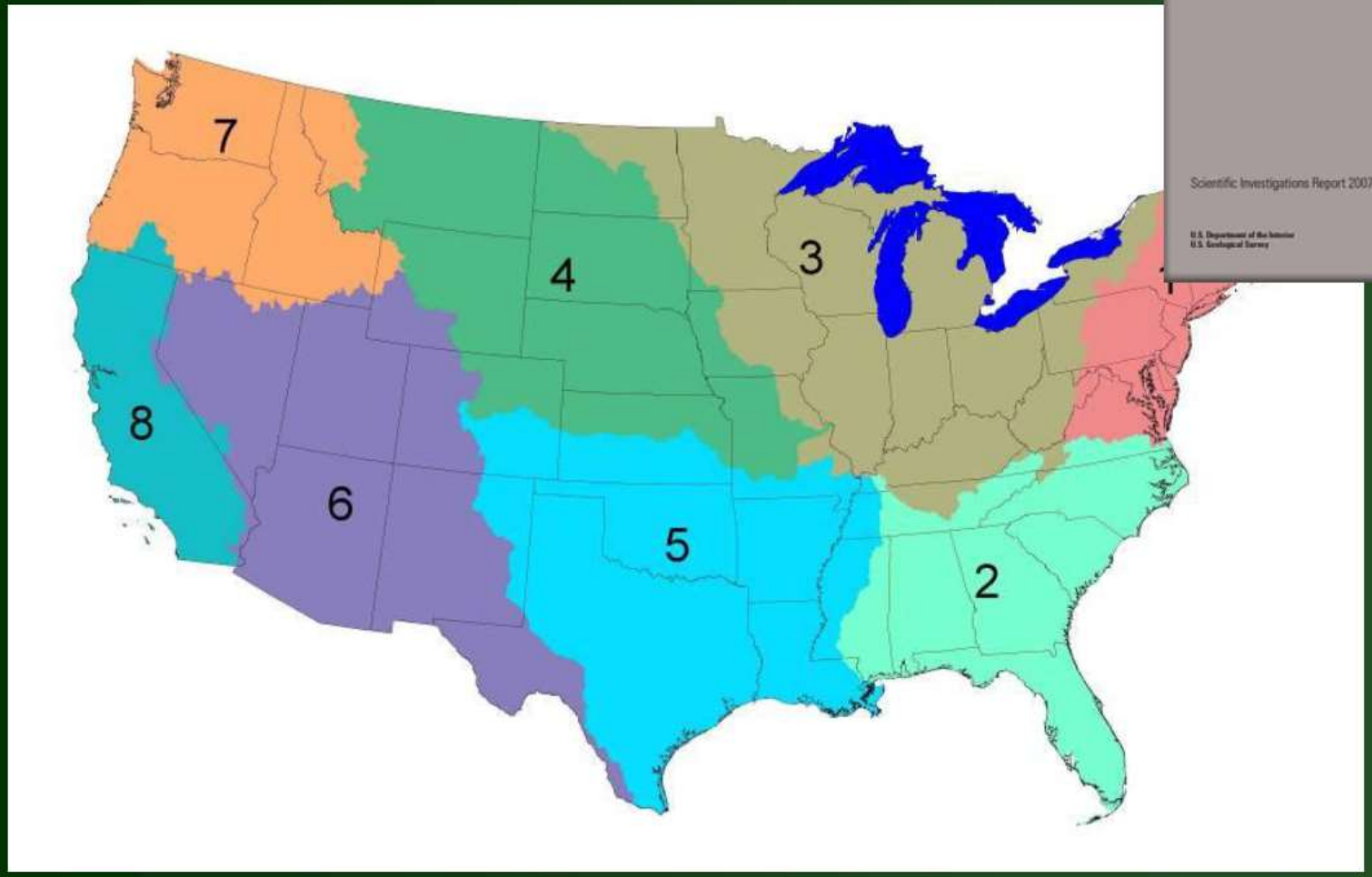
Sub-basin Contribution to MARB Nitrogen and Phosphorus



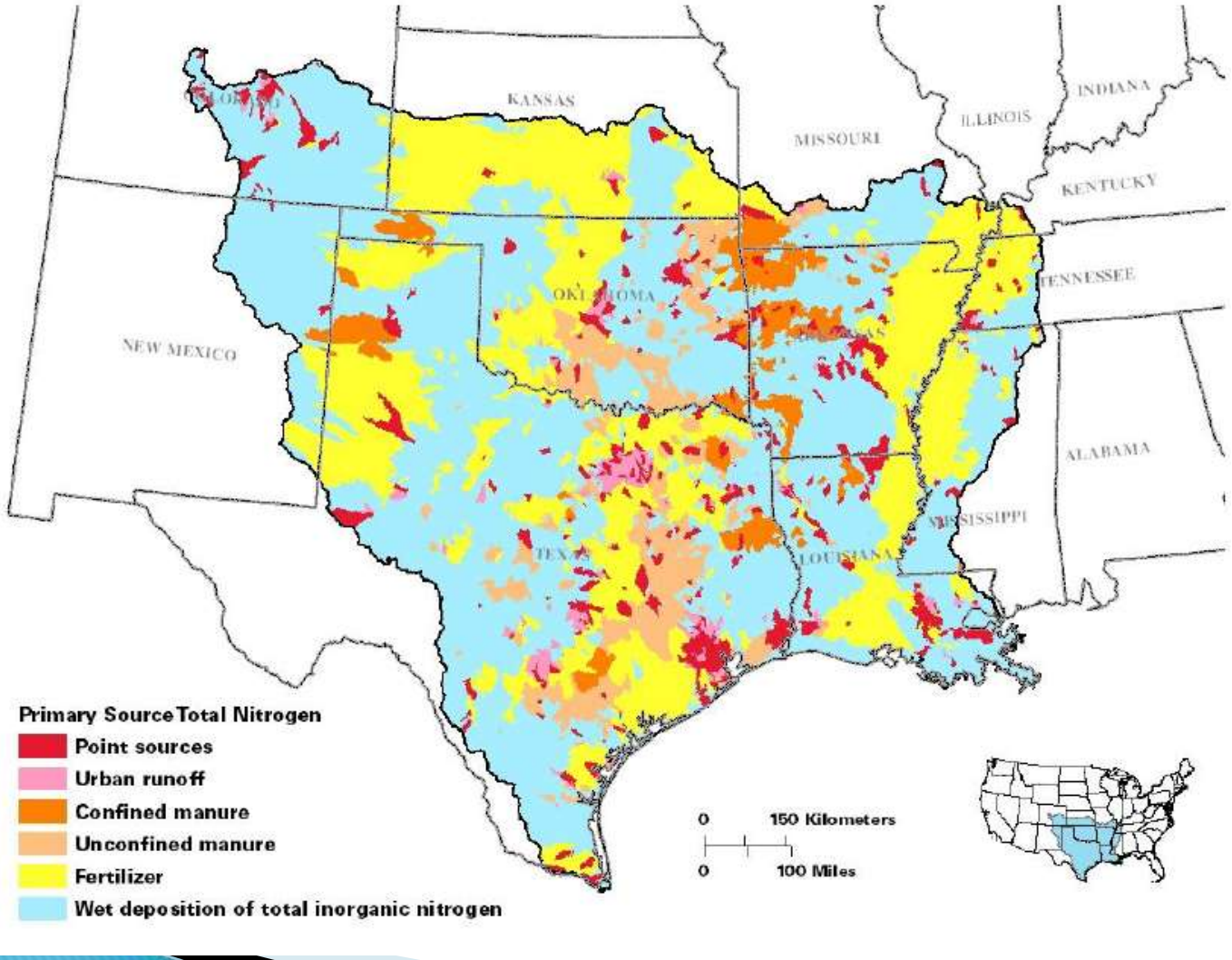
USGS Regional Assessments

Regional assessments funded through the USGS NAWQA Program
Task 1 – Trend Report; published in 2007; USGS SIR 2007-5090
Task 2 – SPARROW models; began in 2008; published in 2011

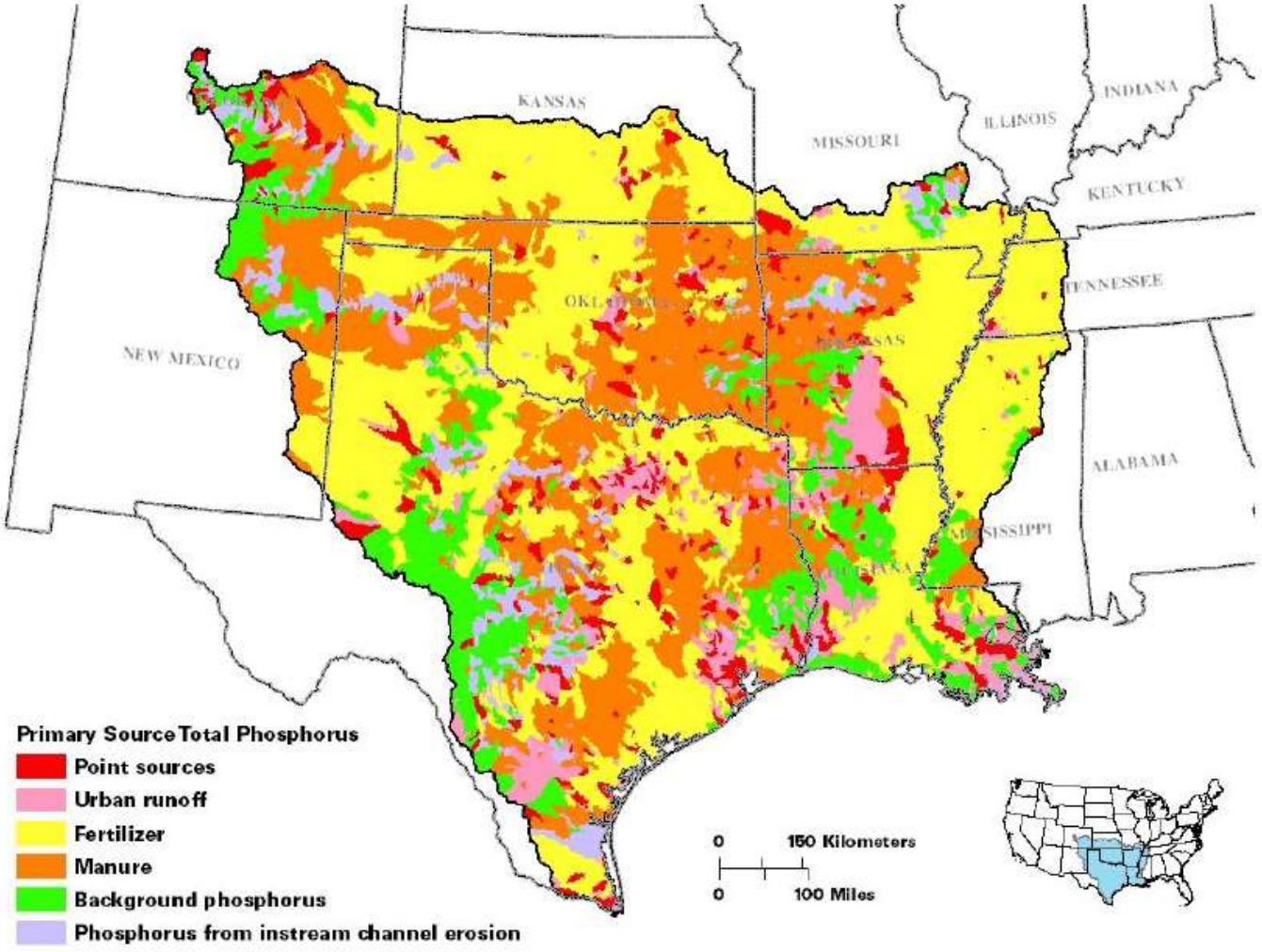


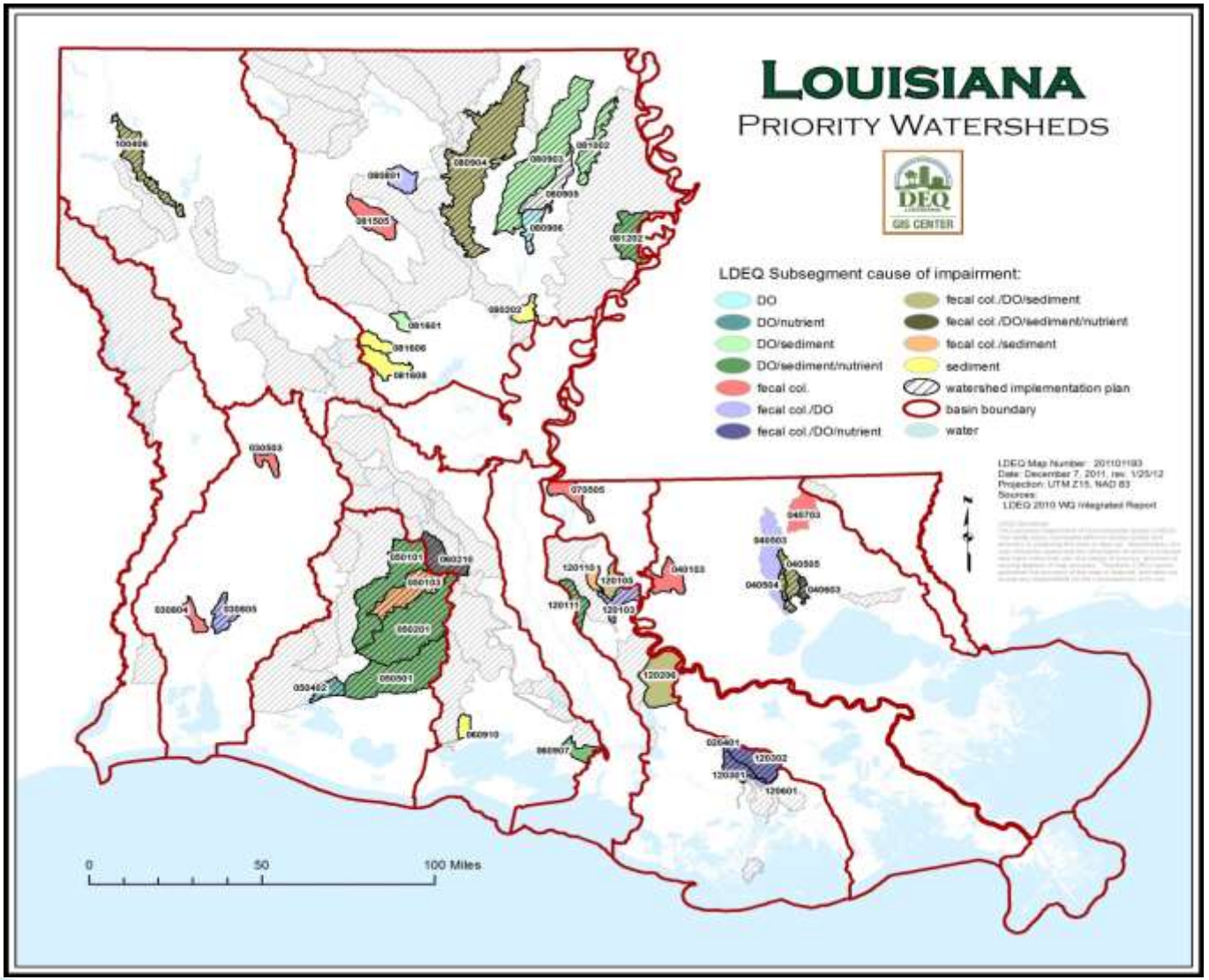


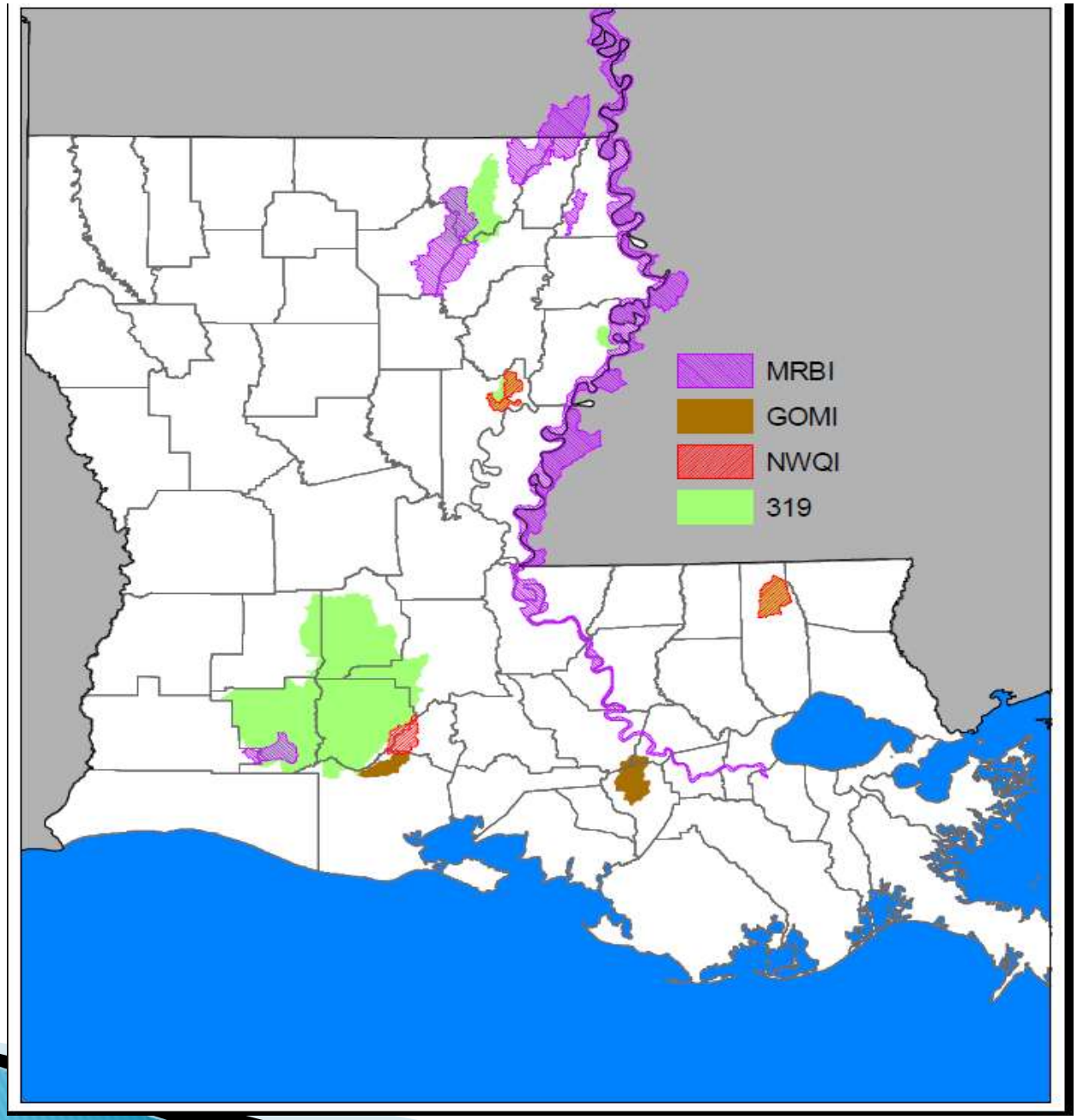
Primary Sources of Nitrogen



Primary Sources of Phosphorus




LOUISIANA
PRIORITY WATERSHEDS
DEQ
GIS CENTER
LDEQ Subsegment cause of impairment:
DO
DO/nutrient
DO/sediment
DO/sediment/nutrient
fecal col.
fecal col./DO
fecal col./DO/nutrient
fecal col./DO/sediment
fecal col./DO/sediment/nutrient
fecal col./sediment
sediment
watershed implementation plan
basin boundary
water
LDEQ Map Number: 20110193
Date: December 7, 2011, rev. 1/25/12
Projection: UTM Z15, NAD 83
Sources:
LDEQ 2010 WQ Integrated Report
0
50
100 Miles


MRBI
GOMI
NWQI
319

What Are We Doing Now?

- LDAF:
  - Master Farmers Program

    Scientifically based best management practices (BMPs) are implemented to target reduction of pollutants into the air and waters of the state.
    Firmly rooted in state law, is backed by sound science and is a critical component of Louisiana's overall water resource management programs.
- LDEQ:
  - Louisiana Pollutant Discharge Elimination System (LPDES) Permits
    - Industrial Water Permits
    - Municipal & General Water Permits
  - Nonpoint Source Pollution (NPS) Program
  - Louisiana Environmental Leadership Pollution Prevention Program (LaELP)
- LDNR:
  - Coastal Non-Point Pollution Control program

    Works jointly with LDEQ's NPS Program to educate Louisiana coastal resource users about the available best management measures and to reduce pollutants that may impact coastal waters of Louisiana.
- CPRA:
  - River Diversions

    Intercepting nutrients prior to reaching the Gulf

Louisiana Success Stories

- Point Source:
  - BASF (Geismar) converted their wastewater treatment plant from aerobic to anoxic reactors and realized a 94% reduction in nitrates
  - Awarded Environmental Leadership Award from DEQ
- Non Point Source:
  - Ouachita Basin:
    - 15 Watershed Implementation Plans have been developed
    - 11 of those watersheds experienced decreases in nitrate/nitrite
    - 13 of those have experienced reductions in TKN
    - 12 of those have experienced reductions in TP
- River Diversions/Wetland Assimilation:
  - Based on a study of the Louisiana Caernarvon diversion (Lane et al. 2004), diversions potentially remove:
  - 44 percent of Total Nitrogen (TN);
  - 50 percent of Dissolved Inorganic Nitrogen (DIN)
  - 62 percent reduction in Total Phosphorus (TP), and
  - 23 percent reduction in Dissolved Inorganic Phosphorus (DIP).

Nutrient Management Strategy

- **Goal**: Reduce nutrient levels in inland and coastal waters, including the Gulf of Mexico hypoxic zone
- **Methods**:
  - 1) Pollution controls
    - Minimize point source and nonpoint source nutrients from entering state waters (avoiding and controlling nutrients)
      - Farm, Urban, Forestry Best Management Practices (BMPs)
      - New Technologies/Applications
  - 2) Nutrient capture
    - Large scale coastal riverine diversions
    - Wetland/overland Point Source assimilation
    - Irrigation of Agricultural areas
- **Incentives**:
  - 1) Grants/Loans/Cost-share programs
  - 2) Credit Trading
  - 3) Business Forces/Economics

Strategy Features

Goal = To manage nutrient levels in inland & coastal water bodies

- Goal-oriented
- Measurable environmental outcomes
- Watershed approach
- Broadly collaborative
- Strategic micro- and macro-watershed planning approaches
- Leverage new technologies
- Comprehensive statewide water quality improvements
- Improvement projects tracked
- Progress monitoring and reporting

Strategy Development & Implementation

Stakeholder Engagement:
To identify, engage, and involve stakeholders within the watershed community.

- ***Identify stakeholders with interest in the Louisiana Statewide Nutrient Management Strategy***
- ***Engage stakeholders and determine stakeholder interests and values***
- ***Compile stakeholder interests and values***
- ***Identify stakeholder interest within appropriate scale (statewide, regional, watershed)***
- ***Identify areas where stakeholder involvement may need to be enhanced***
- ***Prepare summary of findings for use in subsequent components of the strategy***

Louisiana's Nutrient Management Strategy Development & Implementation

- Appropriate
  - Regionally, temporally, etc.
- One Size Does NOT Fit All
- Sustainable
- Identify Real Issues ⇨ Implement Real Solutions

Louisiana Nutrient Management Strategy

Excess Nutrients Contribute to Low Dissolved Oxygen Levels

The Mississippi/Atchafalaya River Basin (MARB) drains approximately 41% of the contiguous United States. US Geological Survey (USGS) models show the majority of MARB nutrient loadings come from sources upstream of Louisiana (LA) and a significant portion is associated with nonpoint source (such as agricultural and urban runoff). Seasonal fluxes of increased nutrients associated with runoff impact local water bodies and are a factor in development of a summer hypoxic zone (low dissolved oxygen) in the northern Gulf of Mexico (GOM). Management of nitrogen and phosphorus is needed to improve the quality of local water bodies and to help reduce the size of the GOM hypoxic zone. Management must include collaborative actions for both nonpoint sources and for regulated point source dischargers.

What Are We Doing Now?

In Louisiana, the Coastal Protection & Restoration Authority (CPRA), LA Dept of Agriculture & Forestry (LDAF), LA Dept of Environmental Quality (LDEQ), and LA Dept of Natural Resources (LDNR) all work on aspects of nutrient management including water quality monitoring, point source wetland assimilation, coastal river diversions, and best management practices (BMPs). Current programs such as nonpoint source pollution prevention in inland and coastal waters (LDEQ and LDNR), Master Farmer certifications (LDAF), and coastal river diversions (CPRA) are effective management practices being collectively evaluated. Additionally, monitoring in association with these programs will provide valuable baseline information that will help to determine the appropriate levels of nutrients within LA water bodies and will help to identify priority areas where nutrient issues may be addressed for the most effective results.

Where Do We Want To Be?

The LA state agencies are working together to develop a comprehensive nutrient management strategy. The strategy will take into account nonpoint and point sources of nutrients into Louisiana's water bodies. Nutrient levels will be managed through meeting regulatory requirements and through development of incentives-based approaches. Participation of all stakeholders within the watershed community will be key throughout the strategy development and implementation processes.

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http://lanutrientmanagement.org/contact

Louisiana's Plan: *To manage nutrient levels in inland and coastal water bodies*

A Louisiana Nutrient Management Strategy will employ methods for pollution control and nutrient capture. Incentives, such as grants or water quality credit trading, may facilitate voluntary participation in efforts to manage nutrients through realizing opportunities for both nutrient reduction and assimilation. Through LA participation in the Hypoxia Task Force (HTF) and the Gulf of Mexico Alliance (GOMA) and in consideration of guidance of the HTF, GOMA, and the US Environmental Protection Agency (EPA), the Louisiana state agency team has identified Ten Strategic Components for a Louisiana Nutrient Management Strategy. These components serve as the framework under which strategic actions will take place.

Ten Strategic Components of a Strategy for Louisiana

1	• Stakeholder Engagement
2	• Decision Support Tools
3	• Regulations, Policies, and Programs
4	• Management Practices and Restoration Activities
5	• Status and Trends
6	• Watershed Characterization, Source Identification, and Prioritization
7	• Incentives, Funding, and Economic Impact Analysis
8	• Targets and Goals
9	• Monitoring
10	• Reporting

STRATEGY FEATURES: goal-oriented • measurable environmental outcomes • watershed approach • broadly collaborative all available tools in the toolbox • strategic micro- & macro-watershed planning approaches • leverage new technologies comprehensive statewide water quality improvements • improvement projects tracked • progress monitoring & reporting

Getting Started: Stakeholder Engagement

Objective: To identify, engage, and involve stakeholders within the watershed community in the development of a Louisiana Nutrient Management Strategy

Stakeholder Engagement Meetings - Early 2013

- Forum for stakeholders to contribute
  - How are you **currently** managing nutrients?
  - How do you plan to manage nutrients in the **future**?
  - What are **specific practices** that you are implementing?
  - What are **barriers** to implementing?
  - What **can be done** to help implement?
  - What nutrient management **programs** do you know of?

Jan- Apr 2013:
Team Engages Stakeholders

Stakeholders Share Ideas By Apr 30, 2013

May-Sep 2013
Team Compiles Feedback

Oct-Dec 2013
Team Prepares Strategy

Dec 31, 2013
Final Draft Strategy Ready

2013

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- Stakeholder Surveys
- Contact Us

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