

LAKE PONTCHARTRAIN BASIN FOUNDATION

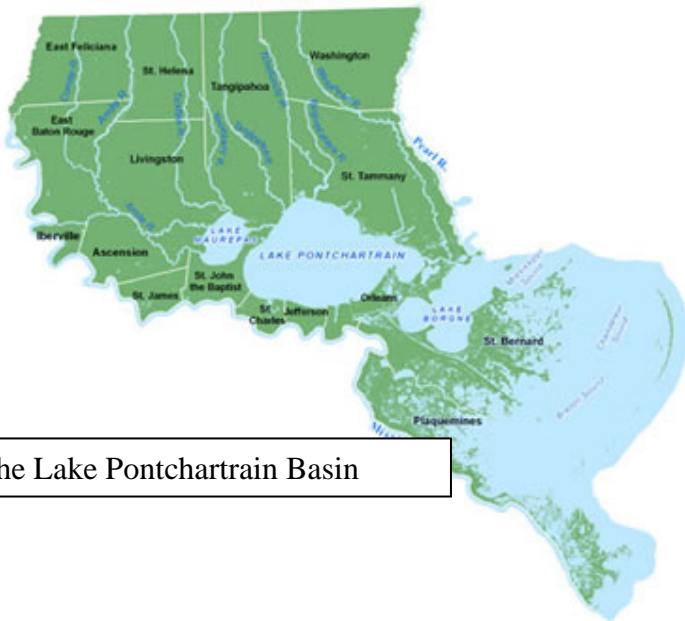
SAVE OUR COAST SAVE OUR LAKE

Lake Pontchartrain Basin Foundation
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MONITORING INDICATORS OF THE POTENTIAL IMPACTS TO THE LAKE PONTCHARTRAIN BASIN ESTUARY DUE TO DEEPWATER HORIZON OIL SPILL

Background of Lake Pontchartrain Basin Foundation

The Lake Pontchartrain Basin is a 10,000 square mile estuarine watershed encompassing 16 Louisiana parishes and 4 Mississippi counties east of the Mississippi River. It is one of the largest estuarine systems supporting fisheries in the Gulf of Mexico, and includes one third of Louisiana's valuable coastal wetlands. The Lake Pontchartrain Basin Foundation (LPBF) was established in 1989 by an act of the Louisiana State Legislature as a non-profit organization to lead the preservation and restoration of the basin's ecosystem. In 1990-92, LPBF developed a grassroots, consensus-driven, Comprehensive Management Plan (CMP) to identify major



The Lake Pontchartrain Basin

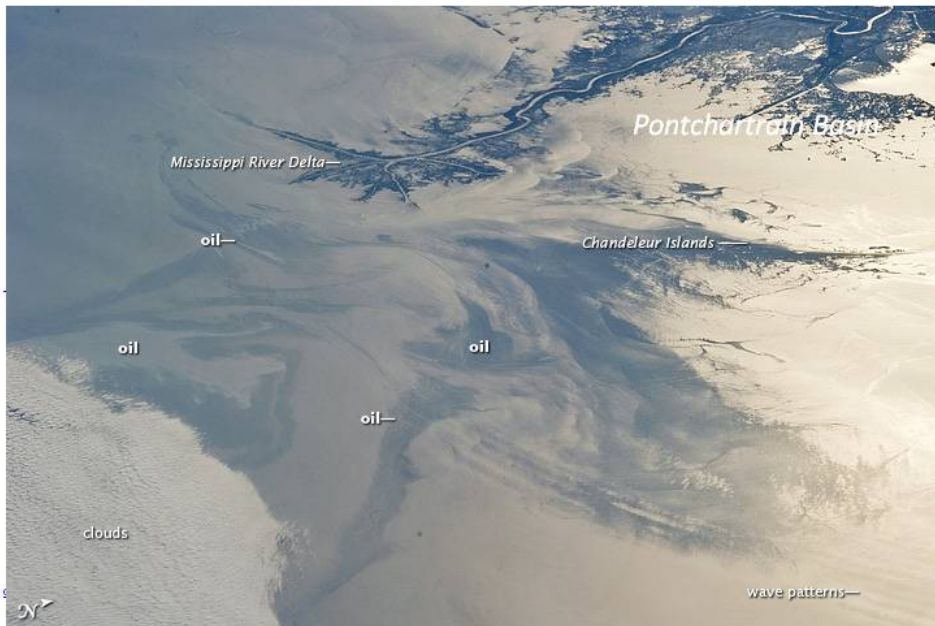
environmental problems in the watershed. This was done in partnership with the U.S. Environmental Protection Agency (EPA) Region 6; area universities; local, state, and federal agencies; elected officials; business and environmental groups; and basin citizens. The CMP identified four major long-term goals: 1) improve water quality, 2) protect essential habitat, 3) provide education/outreach, and 4) implement the plan. Utilizing the watershed approach and working with EPA for the past 20 years, LPBF has successfully implemented over 60 programs to address these goals.

LPBF has also become a leader in coastal restoration in Louisiana. It developed a coastal strategy that has been adopted by the State of Louisiana, the Corps of Engineers, the White House Council for Environmental Quality working group, and is in the City of New Orleans draft Master Plan. LPBF actively partners with state, parish and federal agencies to expedite the best possible coastal restoration and flood protection, relying on the best science and engineering. LPBF is developing an oyster reef project in Breton Sound. We have a strong relationship with local universities who have developed expertise within our watershed. LPBF's Coastal Sustainability Program is directed by Dr. John Lopez, and the Water quality Program is directed by Dr. Andrea Calvin.

INTRODUCTION OF PROPOSAL

The Deepwater Horizon spill has impacted the Lake Pontchartrain Basin, and will continue to accrue further impacts of unknown extent. The Lake Pontchartrain Basin Foundation (LPBF) is entrusted by the public to protect and restore the habitats and water of the Pontchartrain Basin. We have performed this service for over 20 years by consistently applying basic science to monitor the health of the watershed. Primarily, this has been to monitor the historical threats to the basin, such as storm water and sewage.

Gulf of Mexico Oil Spill Observed From the International Space Station



As an independent, environmental non-profit, the Lake Pontchartrain Basin Foundation has the position and the skill to bring together diverse entities from the public and private sectors and coordinating efforts of its partners:

- *Federal Agencies:* the, NOAA, US Coast Guard, U.S. Geological Survey, Environmental Protection Agency (National Headquarters, Region 6, and Gulf of Mexico Program), U.S. Army Corps of Engineers,
- *State Agencies:* Louisiana Department of Environmental Quality, Louisiana Department of Health and Hospitals, Louisiana Department of Wildlife and Fisheries, Louisiana Department of Natural Resources,
- *Local Governments:* New Orleans Metro- Orleans Parish, Jefferson Parish, the City of New Orleans and the City of Kenner; St. Tammany Parish- St. Tammany Parish, the City of Mandeville, the City of Slidell, Tangipahoa Parish, St. Bernard and Plaquemines Parishes,

- *Universities:* Louisiana State University, University of New Orleans, Southeastern Louisiana University, Loyola University, Tulane University,
- *Media and other:* the Times-Picayune Newspaper, local television stations, local radio stations, consulting firms, and civic groups,

The introduction of spilled oil and the spill response now requires that LPBF monitor a new threat to the watershed. The monitoring program outlined below is intended to establish basic metrics which will help the public understand the condition of the estuary and to guide other activities by agencies to monitor and manage the basin resources that may be affected by the Deepwater Horizon oil spill. The program here is intended to complement agency activity while being an independent and credible source of information to the public. LPBF intends to use its strong ties with local universities who have local experience and long term monitoring data.

A FRAMEWORK FOR MONITORING IMPACT INDICATORS

Although the Lake Pontchartrain estuary has lost significant wetlands, it is still an extraordinarily productive resource for both commercial and recreational species. The most productive oyster fisheries in Louisiana are within the outer marshes near Breton Sound. As a result of 20 years of restoration, record speckled trout are being caught in Lake Pontchartrain and blue crabs are harvested at the very shore of the lake. The fish and seafood are renowned for their quality. Clearly, monitoring must include indicators that relate to both the commercial and recreational species as well as the general ecology of the estuary. The pathways of crude oil constituents in the estuary may be through air, water, sediment or living tissue. The proposal here would focus on water, sediment and living tissue in the natural environment for a five year period.

Confirmed reports of black oil in Chandeleur Sound and Chandeleur Islands



acquired May 5, 2010 **NASA - Oil Reaches Chandeleur Islands, Louisiana**



Picture by Times Picayune Mathew Hinton May 8, 2010



Picture by Times Picayune Mathew Hinton May 8, 2010

Goals

The program goals are to 1) document areal extent of the oil deposition within the Lake Pontchartrain Basin due to the recent oil spill 2) develop indicators of oil spill contaminants in the natural environment 3) collect water, sediment and biological data for 5 years 4) annually assess the threat to the Pontchartrain Basin environment from the oil deposited within the basin,

and 5) report to the local public the indicators of risk to the natural environment due to the oil spill.

As a public organization with a public trust, LPBF's policy is that all scientific data is freely available to the public. Technical data would be made accessible through internet, media and publications. A public outreach component would help educate the public on the potential impacts or lack of impacts of the oil spill. LPBF policy is shaped by use of the best science and engineering information.

Methods

Mapping Initial Oil Deposition: Using available agency information and direct observation, mapping of the direct deposition of crude within the Lake Pontchartrain Basin would be performed. Features mapped would include oiled shorelines and near-shore habitats (such as submerged aquatic vegetation); the presence of tar balls, oil, sheen, crude, emulsified oil, and other indicators; and other impacts on natural habitats including land and water. Since the residual oil identified through the mapping has the potential to be an ongoing source of introduction of crude oil constituents into water, sediment and the food web, the maps will be the basis for monitoring both within the impacted areas and the adjacent habitats.

Water Quality Analysis: LPBF has a well-established water quality program for sewage, stormwater, and agricultural pollution which has become a model program for the State and the region. The LPBF data is accepted by state and federal agencies and was used to remove several waterbodies from the impaired waterbodies list (EPA). LPBF generates quality-assured, scientifically sound information that is routinely used by the public and local authorities. LPBF's water quality program is directed by Dr. Andrea Calvin.

Water quality monitoring stations will be selected relative to the map of initial oil deposition and for representation of major waterbodies within the estuary. Water will be analyzed for crude oil constituents and for detection of dispersants or related contaminants that are of concern. Water quality monitoring will use standard protocols and QA/QC.

Sediment Analysis: Shallow sediment samples will be collected and analyzed in varying densities relative to the areas of initial oil deposition. Sediment will be analyzed for crude oil constituents and for detection of dispersants or related contaminants that are of concern. Water quality monitoring will use standard protocols and QA/QC.

Tissue analysis: LPBF has partnered with University of New Orleans (UNO) researchers for many years because of their strong local expertise and long history of research within the basin. Much of the biological monitoring would be conducted through this partnership. Tissue analysis would be performed to detect levels of hydrocarbons within representative species across the basin. Population dynamics of these species would also be studied to assess pre versus post spill and long-term changes.

The Nekton Research Laboratory (NRL) at UNO has the largest database ever generated on the aquatic organisms of the Chandeleur Island barrier island system and the Biloxi Marsh nursery area. This database was created from past and on-going research projects in these regions including data from a two year intensive (monthly) survey conducted in 2003 and 2004. During this work, multiple habitats were sampled using beach seines, 16' trawls, and gillnets. This research has generated two M.Sc. theses and a peer-reviewed publication which compared

the relative ecological health of the Chandeleur Islands and Biloxi Marshes to other Louisiana estuaries (O’Connell et al., 2009). The NRL is also conducting on-going research at the Chandeleur Islands that involves the examination of how lemon sharks (*Negaprion brevirostris*) use habitats at these barrier islands. Based on that research, they have confirmed that the Chandeleur Islands serve as the northernmost pupping grounds in the world for this species.

Similar long-term databases for shellfish in Lake Pontchartrain are also available at UNO. Rangia clam and benthic invertebrate data were collected by Dr. Mike Poirrier, professor emeritus with the Department of Biological Sciences. Also, Dr. Tom Soniat specializes in American oyster as found throughout the lower Pontchartrain Basin.

COMPREHENSIVE INDICATORS ANALYSIS

The comprehensive analysis will annually draw together the water, sediment and biological data. This would be presented on maps and as an annual report. The data collected under this proposal is intended to provide basic indicators of oil spill impacts across the Lake Pontchartrain Basin. The data will be spatially explicit and, therefore, will convey the levels of concern across the basin geographically. This proposal does not comprehensively evaluate the spill impact since it does not evaluate impacts to the food web, ecosystem based toxicology, pathologies related to the oil contamination, disturbance to the ecologic processes, etc. These types of studies may be carried out by other agencies and would complement the proposed program.

BUDGET

Task	Annual cost
Oil deposition GIS mapping	\$25,000.00
Monthly water quality acquisition	\$48,000.00
Monthly water quality analysis	\$24,000.00
Quarterly sediment acquisition	\$16,000.00
Quarterly sediment analysis	\$32,000.00
Fin fish sampling & processing	\$300,000.00
Blue crab sampling and processing	\$200,000.00
shellfish sampling and processing	\$360,000.00
Comprehensive Data analysis	\$80,000.00
Sub-total	\$1,085,000.00
Overhead	\$314,650.00
Annual Total	\$1,399,650.00
5-year Program Total	\$6,998,250.00