DRAFT 9/20/05.01

CENTER FOR FOOD SAFETY AND APPLIED NUTRITION, OFFICE OF SEAFOOD ASSESSMENT OF SEAFOOD QUALITY PARAMETERS IN LAKE PONTCHARTRAIN AND LAKE BORGNE IN THE AFTERMATH OF HURRICANE KATRINA

Summary:
In the aftermath of Hurricane Katrina the Louisiana Dept. of Health and Hospitals (LDHH) has requested a microbiological and chemical assessment of the fisheries of Lake Pontchartrain and outfall receiving waters of Lake Borgne. The FDA Gulf Coast Seafood Laboratory (GCSL) proposes to deploy a rotating staff of 4 scientists in 2 mobile units to Lake Pontchartrain/Lake Borgne to collect representative seafood species under the guidance of the Louisiana Dept. of Wildlife and Fisheries. Field sampling will be conducted for a period of approximately 6 weeks. Samples, approximately 46 to 64 per week, will be logged and processed in the field and transported to the GCSL by courier. Microbiological and chemical analyses will be conducted at the GCSL and FDA SRL and other FDA laboratories as appropriate. Microbiological analytes will include fecal coliforms, bacteriophages, *E. coli* or enterococci. Chemical analytes will include volatile petrochemical hydrocarbons, polyaromatic hydrocarbons (PAH), pesticides and heavy metals. Results will be forwarded through GCSL/Office of Seafood management to LDHH.

Staff and Equipment Resources

Staff Resources: 17
The Microbial Hazards Research Unit of the FDA Gulf Coast Seafood Laboratory comprise a staff of 10 microbiologists. Four (4) of the 10 microbiologist can be deployed to the field concurrently.
Three (3) are qualified boat drivers.
Three (3) are capable deck-hands for field operations.
Four (4) will perform courier services.

The Chemical Hazards Research Unit of the GCSL comprise a staff of 7 chemists and biologists. Four (4) of the 7 chemist/biologists can be deployed to the field concurrently.
Two (2) are qualified boat drivers.
Three (3) are capable deck-hands for field operations.
Two (2) will perform courier services.

A rotation schedule for boat drivers, deck-hands, couriers, and lab analysts will be compiled.

Field Equipment Resources:
Two (2) trailerable boats: 18 ft. aluminum tri-hull and 24 ft. fiberglass mono-hull with trailers.
Two vehicles capable of trailering boats: Dodge pick-up and Ford van (consider 4wd rental).
Sample collection gear/tackle: rods/reels, cast-nets, trawls, tongs, dredge.
Two (2) RV's approx. 30 ft., self-contained, capable for housing 2-4 people in the field.
One (1) courier vehicle for transport of rotation personnel, supplies and field sample pick-up.
Igloo-type coolers and ice
Sample processing gear/implements: oyster/fillet knives, picks, mallets, homogenizers/blenders, spatulas, sample containers, sealing tape, sanitizing alcohol, etc.
Gasoline, gasoline containers and funnels: approx. 200 gallons per week.

Food, water, linens, laundry service.

Laboratory Equipment Resources:
Microbiological media, autoclaves, disposable plastic/glassware, incubators and PCR instrumentation in place. Supplemental supplies will be needed.
Electronic sensory and gas chromatography - mass spectrometry instrumentation are in place. Disposable/durable supplies on-hand

Staff and Field Equipment Deployment

Two (2) vehicles trailering boats and two (2) RV's will require a minimum of 4 staff concurrently in the field. The units will be deployed to two locations in Louisiana. The larger mono-hull boat and attending RV will base at Slidell, LA (north east side of Lake Pontchartrain). From this location the larger boat will access 6 sampling sites in Lake Borgne and 2 sites in the eastern side of Lake Pontchartrain. The smaller tri-hull boat and attending RV will base at 17th street canal on the south side of Lake Pontchartrain. This location currently bases Coast Guard vessels and is very near the pump stations de-watering New Orleans. From this location the smaller boat will access the 8 western-most sampling sites of Lake Pontchartrain.

Field Sample Collection Plan

Samples will be collected under the guidance of the Louisana Dept. of Wildlife and Fisheries (LDWF). LDWF Field Operations Chief, Jim Hanifen has agreed to provide 2 field biologists to accompany and guide FDA watercraft and personnel in the collection process. LDWF cannot supply watercraft to assist operations. All but one 13 ft. boston whaler were lost to Hurr. Katrina. GCSL will inquire about availability of gear/tackle for specimen collection. Boat put-ins around the lakes are accessable.

Location of Sample collection Sites:
A total of 10 sites will be sampled in Lake Pontchartrain.
Six (6) sites will be sampled in Lake Borgne.

The Lake Pontchartrain sites will correspond with pre-positioned LA Dept. of Environmental Quality (LDEQ) water quality sampling stations. Five (5) of these stations are located along the southern shore of Lake Pontchartrain and ½ mile offshore of New Orleans. Five (5) additional sites transect the lake along the causeway. LDEQ has collected extensive water quality data for these stations. See LDEQ map below.

Lake Borgne sites will correspond with 6 pre-positioned LDWF shellfish sampling stations.

All prospective collection sites have been identified by GPS coordinates and current/historical data on water quality is available from LDEQ for the Lake Pontchartrain sites (http://www.deq.louisiana.gov/news/pdf/post-katrinawaterqualityassessment9-20-05.ppt#3).

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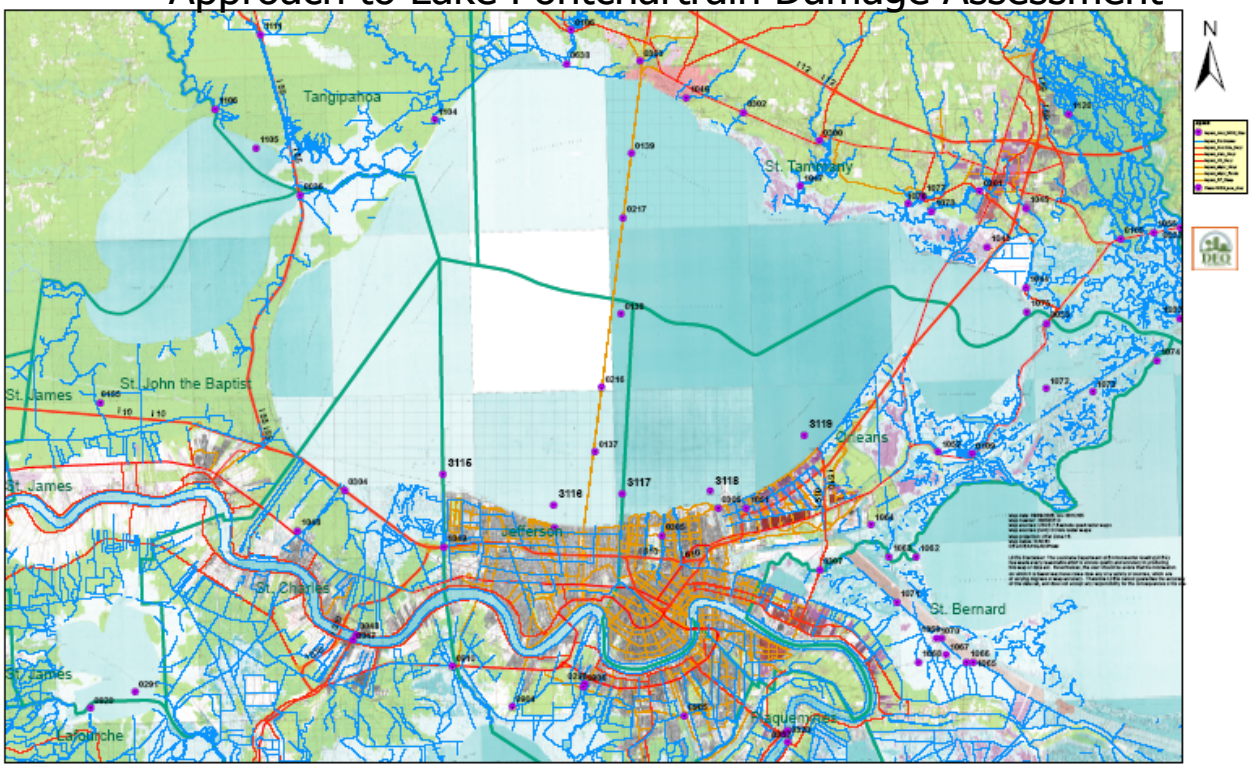
Approach to Lake Pontchartrain Damage Assessment



Historic Ambient Water Sites and 5 Post-Katrina Sites

Aquatic organisms to be sampled:

Lake Pontchartrain - finfish, crab and shrimp.

Lake Pontchartrain supports finfish, crab and shrimp fisheries and will be sampled for each of these species groups at or near the LDEQ water quality sampling stations. Oysters are very sparse in Lake Pontchartrain, do not represent a viable fishery, and therefore will be collected only as opportunities arise.

Lake Borgne - shellfish (oysters). Finfish, crab and shrimp if possible and so advised by LDWF.

Lake Borgne supports a substantial oyster fishery and will be sampled at the 6 LDWF sampling stations.

Total sample numbers per week: 46 to 64

10 Pontchartrain sites @ 4 tissue types = 40 samples

6 Borgne sites @ 1 to 3 tissue types = 6 - 24 samples

Note: additional sampling sites / samples will be included on advise/request of LDHH, LDEQ or FDA headquarters.

Frequency of sample collection at each site: weekly for a period of 6 weeks.

Methods of collection:
Field methods for collection of specimens will be species group specific. LDWF field biologists will be consulted for effective techniques. Probable methods by species group are as follows:

Finfish: line-fishing, castnet or trawl
Crab: crab-pots or trawl
Shrimp: trawl
Oysters: tongs or dredge

The GCSL will assemble the required gear/tackle for field collections. LDWF will also be consulted on best methods and availability of appropriate gear/tackle.

Number of organisms to be sampled at each site:
Specimens from each species group sufficient to yield approximately 100 g edible tissue will be collected. Estimates are as follows but are dependent upon size of captured specimens:
Finfish: 2-3 specimens
Crab: 3-4 specimens
Shrimp: 10-20 specimens
Oyster: 5-10 specimens

Tissue sample preparation in the field:
Only edible tissues of finfish, crab, shrimp and oyster will be removed from the respective species groups and prepared for analyses.

From each collection site edible tissues will be excised, composited by group and weighed. The weighed tissues will be homogenized and transferred to sealed polystyrene specimen containers. Containers will be stored either on-ice in igloo-type coolers or refrigerated in the self-contained RV's to be deployed for this operation.

Transport of field samples to GCSL laboratories:
A sample courier will be dispatched from the GCSL by auto to a pre-arranged location near Slidell, LA for sample pick-up. The GCSL will be contacted by cell-phone when samples are ready for delivery to the GCSL. Sample transport will occur within 24 hrs of notification.

GCSL couriers will also transport subsistence provisions (food, water, etc.), gasoline for watercraft, and rotation personnel as needed during field operations.

Start Date: October 10, 2005 pending acquisition of watercraft and mobile housing units.