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October 10, 1997

Jerry O'Neal
Fish and Wildlife Service
1875 Century Boulevard
Atlanta, GA 30345

RE: Progress Report for project 4N34

Enclosed is the Progress Report that you requested. Much of the sediment data is listed in the Appendix. There is a substantial amount of data that has been generated but not yet entered into the database. These data are not listed in the Appendix, but briefly summarized in the report. I see no problems meeting the June 1998 due date for the draft final report. Please contact me if you or anyone else has comments or questions.

Sincerely,

A handwritten signature in cursive script that reads "Damian Shea".

Damian Shea, Ph.D.
Principal Investigator
Director, Analytical and Environmental Toxicology Laboratory

encl.

PROGRESS REPORT

October 10, 1997

EFFECTS OF CONTAMINANTS ON FISH AND WILDLIFE IN THE MISSISSIPPI RIVER ALLUVIAL PLAIN

Project ID: 4N34

to

**DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
REGION 4**

by

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INTRODUCTION

Background

The Lower Mississippi River Ecosystem (LMRE) is a fertile delta area which is approximately 35,000 square miles in size and lies in portions of Arkansas, Mississippi, Louisiana, Tennessee, Kentucky, Missouri, and Illinois. The US Fish and Wildlife Service (Service) has established refuges in this region in an attempt to preserve and protect habitat for fish and wildlife species, including many endangered species. Over the past two decades, several studies have been conducted in the LMRE that provide compelling evidence that fish and wildlife have been exposed to high concentrations of toxic contaminants (see references in Shea 1995, 1996, and 1997a). For example, at several sites fish residues of DDT and toxaphene were greater than 10 ppm, which exceed levels considered safe for fish health and for human or wildlife consumption. It is also becoming apparent that developmental and reproductive effects (that have direct links to populations) might result at much lower residue levels (<0.01 ppm) — levels that were once considered safe and were below the analytical reporting limits of the earlier studies. At the same time, many of the refuges in this area have had little or no investigation of contaminant exposure or possible ecological effects despite their proximity to large agricultural fields, oil production platforms, and other contaminant sources. In addition, there has been very little investigation into the use, fate, residues, and possible hazards of newer pesticides commonly used on and near many of these refuges or of the potential hazards associated with other contaminants such as aromatic hydrocarbons and mercury. The Service has expressed concern about the potential impact of contaminants on fish and wildlife in this region and the lack of information and predictive tools to assess current and future hazards. Thus, the Service requested an assessment of the potential biological impacts associated with toxic contamination in the LMRE region.

In the Fall of 1994 we began Phase I of a study (under a separate investigation) to design and evaluate a conceptual approach to investigate contaminant sources, fate and associated biological effects at 26 National Wildlife Refuges (NWR) in the LMRE (Figure 1). This approach is being implemented under Phase II (which began in the fall of 1995 and is the on-going investigation) to (1) characterize the areas or ecosystems of interest (refuges and watersheds), (2) characterize contaminant sources (identify sources and estimate loadings), (3) develop contaminant fate and effects models, (4) prioritize contaminant hazards, and (5) recommend appropriate management actions. Additional details of this study were discussed by Shea (1995, 1996, 1997a).

Scientific Objectives

The FWS Region 4 Office convened a workshop in Atlanta during June 1994 to help plan an investigation of the effects of contaminants on fish and wildlife in the LMRE. The central management question motivating this study is

Do toxic contaminants pose a meaningful hazard to fish and wildlife in the Mississippi River Alluvial Valley?

Mississippi River Alluvial Plain Study Area

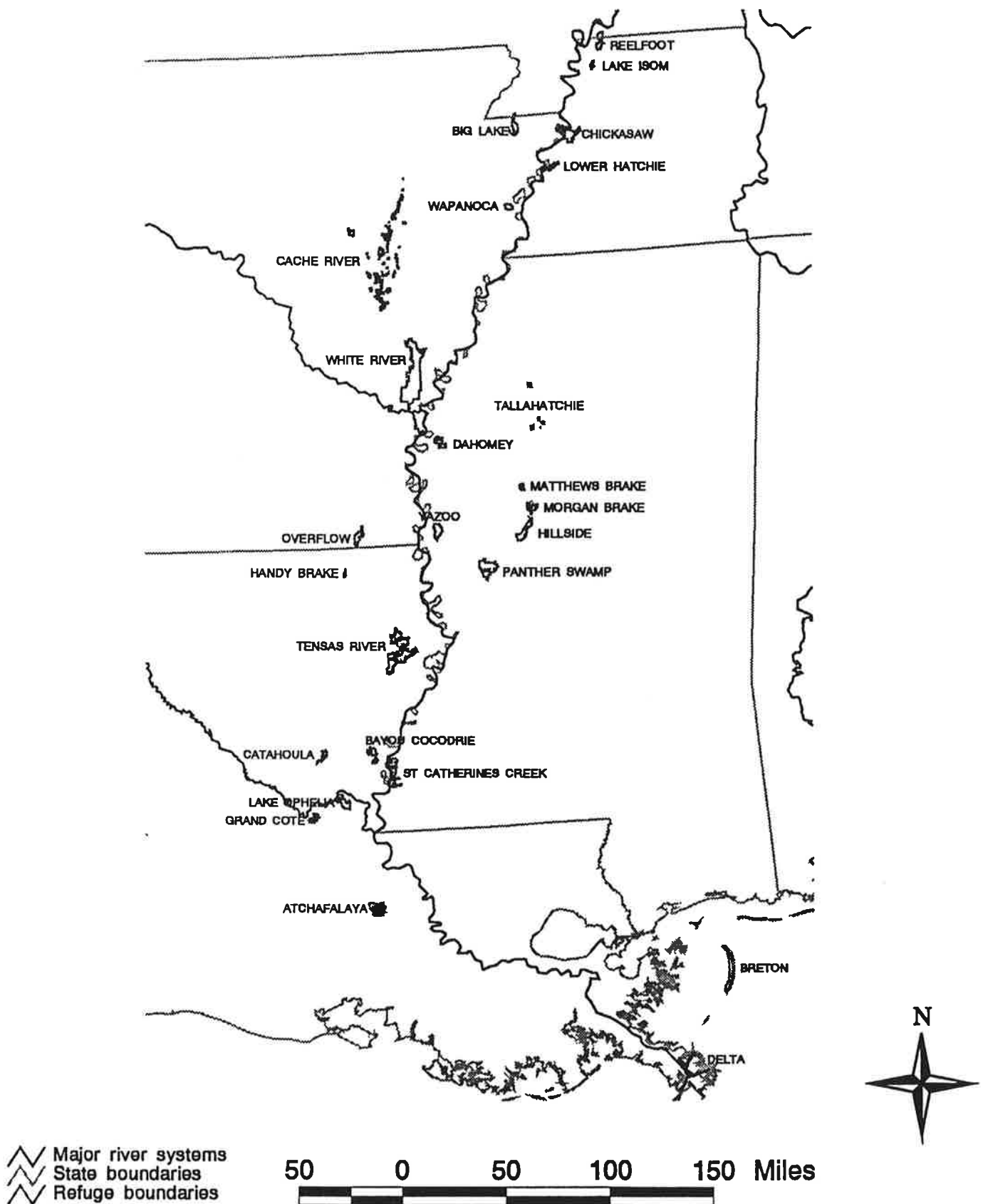


FIGURE 1

[Note that in this report, we use the term hazard to denote a condition (exposure concentration) that might result in an undesired event (death, reduced fecundity, etc.), where a hazard assessment determines the existence of a hazard, for example, by comparing predicted or measured contaminant exposure to known toxicological test endpoints (LC50s or other benchmark values). This is distinct from the often misused term of risk and risk assessment, which require estimates of probability that an undesired event will take place (Shea, 1997b). This project will identify and assess hazards; it will not provide estimates of risk.]

To provide a technical basis for answering the central management question, several scientific objectives were identified by workshop participants in two distinct categories

Contaminant Sources, Fate and Exposure

- Prioritize the contaminants of concern for each NWR and the MAV.
- Identify and quantify the dominant sources of these contaminants.
- Identify and quantify the important transport and fate processes.
- Estimate contaminant exposure (concentration and duration) in specific media.
- Estimate the spatial and temporal variability of exposure.
- Determine whether wildlife refuges act as sumps for agricultural runoff.
- Determine how various management practices (intentional flooding) affect exposure.
- Estimate the time required to decrease contaminant exposures to acceptable levels.

Contaminant Effects and Hazard

- Estimate the biological and ecological effects of this exposure.
- Estimated the hazards to specific species and to the ecosystem.
- Compare contaminant hazards to hazards from other sources of perturbation.
- Predict how hazards will change over time and how long recovery will take.
- Identify problems or hazards that require further study.
- Recommend assessment/measurement endpoints that should be monitored.

There was a workshop consensus that it will be impossible to meet each of these objectives with available resources and there was also a consensus that the project should initially focus on answering questions related to *Contaminant Sources, Fate, and Exposure* and then use this information to answer more specific questions related to *Contaminant Effects and Hazard*. Thus, the expectations have been that questions related to *Contaminant Sources, Fate, and Exposure* will be answered and an initial hazard assessment of contaminants will be completed. The specific scientific objectives have thus been refocused to include

- (1) identify and quantify sources of toxic contaminants to the 26 refuges*
- (2) develop a contaminant fate model to predict order-of-magnitude exposure*
- (3) measure contaminant exposure/residue in water, sediment, soil, SPMDs, and fish*
- (4) develop a database/GIS of physical, chemical and biological information for the region*
- (5) assess potential biological impacts and hazards using effects thresholds/benchmarks*
- (6) provide the basis and design for an ecological risk assessment*

Management Actions

The results and final products of this investigation are expected to provide managers with the information and tools necessary to make informed decisions about the consequences of various management options related to the hazard of contaminants to trust resources. Both the modeling and measurements we perform will provide managers with an estimate of current contaminant hazards.

Comparison with previous studies, results from the sediment cores, and results from our models, together will provide an estimate of changes to relative hazard over time and following specific actions. For example: Have hazards increased or decreased over the last decade? Will hazards decrease in the future with no action? How will certain water control strategies influence hazards?

How will hazards change if we stop using one herbicide and replace it with an alternative? These types of questions will be answered in our report so that management can set priorities or make decisions on various actions. In addition, a screening ecological hazard assessment will provide some perspective on the relative hazards of contaminants versus other stressors. This will not be quantitative because at present we have no means to quantify the hazards of non-contaminant stressors. However, these other stressors will be identified, linked to our ecological model (part of scientific objective number 6), and categories of relative hazards will be presented (e.g., high, medium, low, or unknown hazard levels). This could be an important tool for managers to assess the relative hazards of multiple stressors and will form the basis of (and will focus) any future ecological hazard assessment efforts.

METHODS

Modeling

We developed a contaminant fate model for each refuge using the multimedia fugacity approach of Mackay (1991). The model presently consists of a Level III *steady state* (time invariant) model that includes four environmental media or bulk compartments — air, water, sediment, and soil. These compartments are treated as assemblies of subcompartments, which can consist of air, water, solid non-living matter, and living (biotic) matter. We assume that equilibrium is attained within each compartment (e.g., between sediment and overlying water). Thus, equilibrium partitioning processes and non-equilibrium reaction kinetics are explicitly considered. Intermedia transfer processes include both diffusive-transfer processes (e.g., volatilization) and non-diffusive or "one-way" transfer processes (e.g., sediment deposition). In total, the model will consider partitioning between 10 subcompartments, four separate compartment-specific reaction (degradation) rates, 13 intermedia-transfer processes, and advection in air and water.

A Level IV *unsteady state* (time variant) model has been developed for use on refuges where sufficient information on temporal processes is available to make this type of model useful. The Level IV model is essentially the same as the Level III model, except that we allow time to vary and solve the appropriate differential equations numerically.

Data Collection and Analysis

We validate the fate model and provide direct measures of exposure by collecting water, sediment, and fish samples and deploying semi-permeable membrane devices (SPMDs) at the 26 NWRs and analyzing these samples for selected organic contaminants and metals. Samples were collected using standard field collection methods that are comparable to methods used in the BEST, NAWQA and/or EMAP programs. Fish were collected by electroshocking; sediment was collected by using a benthic grab sampler, by manual coring, and by scoop in shallow areas; SPMDs were deployed from one to three months by fixing the SPMD to submerged lines.

Water, sediment, fish, and SPMD samples have been or will be analyzed for selected organic contaminants (PAH, PCB, pesticides), metals (mostly Hg), and ancillary parameters (e.g., organic carbon in sediment). The organic contaminants are listed in Table 1. All analyses were performed using modifications to standard EPA methods. These modifications include additional sample cleanup procedures and changes to instrumental parameters that provide detection of many additional analytes (e.g., almost 50 PAH compared to EPA's 16 priority pollutant PAH) and at lower detection limits than previous studies in this region (sub ppb for most analytes in sediment, fish, and SPMDs).

Hazard Assessment

We will combine modeling and field survey results (predicted and measured exposure) with biomarker and biological effects data and published threshold values to assess the hazards that contaminants pose to trust resources. We will provide an assessment of how various management actions would affect the identified hazards to trust resources by conducting a sensitivity analysis with our model and hazard assessment. By modifying parameters that would change as a result of various management actions (water flow control, pesticide use, etc.) we will predict how these actions would affect contaminant exposure and then evaluate how this change in exposure relates to changes in biological effects or hazards to trust resources. This information will provide FWS managers with a technical basis to make decisions regarding future management actions at these NWRs.

Schedule

The project schedule has been presented in detail in Shea (1995, 1996, 1997a). Phase I of this project began in October 1994 and continued through June 1996. Phase II began in Fall 1995 and will continue through the end of 1998. A draft final report that includes all data, model results, interpretation, and recommendations is due in June 1998.

Table 1. List of organic contaminants measured in this study.

<u>Current Use Pesticides</u>	<u>Chlorinated Pesticides and PCBs</u>	<u>Polycyclic Aromatic Hydrocarbons</u>
alachlor	alpha BHC	naphthalene
atrazine	beta BHC	2-methylnaphthalene
atrazine, desethyl-	delta BHC	1-methylnaphthalene
azimphos-methyl	gamma BHC	2,6-dimethylnaphthalene
benfluralin	heptachlor	2,3,5-trimethylnaphthalene
butylate	heptachlor epoxide	C1-naphthalenes
carbaryl	alpha chlordane	C2-naphthalenes
carbofuran	gamma chlordane	C3-naphthalenes
chlorpyrifos	trans-nonachlor	C4-naphthalenes
cyanazine	aldrin	biphenyl
dacthal	dieldrin	acenaphthylene
diazinon	alpha endosulfan	acenaphthene
diethylanaline, 2,6-	beta endosulfan	dibenzofuran
dimethoate	endosulfan sulfate	fluorene
disulfoton	endrin	1-methylfluorene
EPTC	endrin aldehyde	C1-fluorenes
ethalfluralin	endrin ketone	C2-fluorenes
ethoprop	hexachlorobenzene	C3-fluorenes
fonofos	methoxychlor	dibenzothiophene
linuron	mirex	C1-dibenzothiophenes
malathion	toxaphene	C2-dibenzothiophenes
metolachlor	2,4'-DDD	C3-dibenzothiophenes
metribuzin	2,4'-DDE	phenanthrene
molinate	2,4'-DDT	anthracene
napropamide	4,4'-DDD	1-methylphenanthrene
parathion	4,4'-DDE	C1-phenanthrenes/anthracenes
parathion, methyl-	4,4'-DDT	C2-phenanthrenes/anthracenes
pebulate		C3-phenanthrenes/anthracenes
pendimethalin	PCB 8	C4-phenanthrenes/anthracenes
permethrin	PCB 18	fluoranthene
phorate	PCB 28	pyrene
prometon	PCB 44	C1-fluoranthenes/pyrenes
pronamide	PCB 52	retene
propachlor	PCB 66	benz[a]anthracene
propanil	PCB 77	chrysene
propargite	PCB 101	C1-chrysene
simazine	PCB 105	C2-chrysenes
tebuthiuron	PCB 118	C3-chrysenes
terbacil	PCB 126	C4-chrysenes
terbufos	PCB 128	benzo[b]fluoranthene
thiobencarb	PCB 138	benzo[k]fluoranthene
triallate	PCB 153	benzo[e]pyrene
trifluralin	PCB 170	benzo[a]pyrene
	PCB 180	perylene
	PCB 187	indeno[1,2,3-c,d]pyrene
	PCB 195	dibenz[a,h]anthracene
	PCB 206	benzo[g,h,i]perylene
	PCB 209	coronene

REPORT ON PROGRESS TO DATE

This section summarizes our progress on the six scientific objectives to date.

(1) *Identify and quantify sources of toxic contaminants to the 26 refuges.*

Work related to this objective is complete. All of the available data on important sources of contaminants to the refuges have been identified and their source loadings have been estimated and entered in the database. We have reviewed pesticide use data for the refuges and estimated off-refuge pesticide use from USDA, state and county records. All major point sources have been identified and available discharge records have been obtained. These source loads are used as input to our contaminant fate models discussed below. Note that there are no available loading data for a number of potentially important sources (e.g., oil production platforms) so uncertainties, sometimes substantial, exist in our database and model. The completed database will be provided with the final report.

(2) *Develop a contaminant fate model to predict order-of-magnitude exposure.*

We have completed preliminary refuge-specific, contaminant fate models based on the multimedia fugacity approach of Mackay (1991). An example output from the model is shown in Figure 2. Depending on the refuge, the model has been run for between 10 - 35 contaminants including polycyclic aromatic hydrocarbons (PAH), pesticides, and polychlorinated biphenyls (PCBs). Additional contaminants will be included in the final version of the model. All modeling software will be provided with the final report and limited training of Service staff will be available if desired.

Note that this type of model does not have the predictive capability of some other pesticide fate models (e.g., AGNPS, PRIZM), but it requires substantially less data and relies instead on more assumptions and literature values for model parameters. Use of the more predictive fate models would require data at very high temporal and spatial resolutions which would have limited the study to a single refuge. Our contaminant fate model also is useful for any organic contaminant, including PAHs which are potentially very important in the refuges with oil production. At the very least, our model provides an evaluative characterization of contaminant fate at each refuge and throughout the LMER – comparisons can be made amongst refuges and hypothesis (related to various management actions such as changes in pesticide use or water flow) can be tested. At best, the model provides an order-of-magnitude prediction of actual contaminant exposure that results from reported use and discharge.

(3) *Measure contaminant exposure/residue in water, sediment, soil, SPMDs, and fish.*

This is the most critical objective of the study. It provides the basis for assessing hazards, comparison amongst refuges and with reference sites and historical data, and is used for validating our model. All of the field sampling has been completed. We have collected abiotic samples (water, sediment, and soil), deployed SPMDs, and measured environmental quality parameters (temperature, DO, etc) at all 26 refuges. In addition, fish (and sometimes shellfish) were collected at Atchafalaya, Catahoula, Delta, Chickasaw, Panther Swamp, Reelfoot, Big

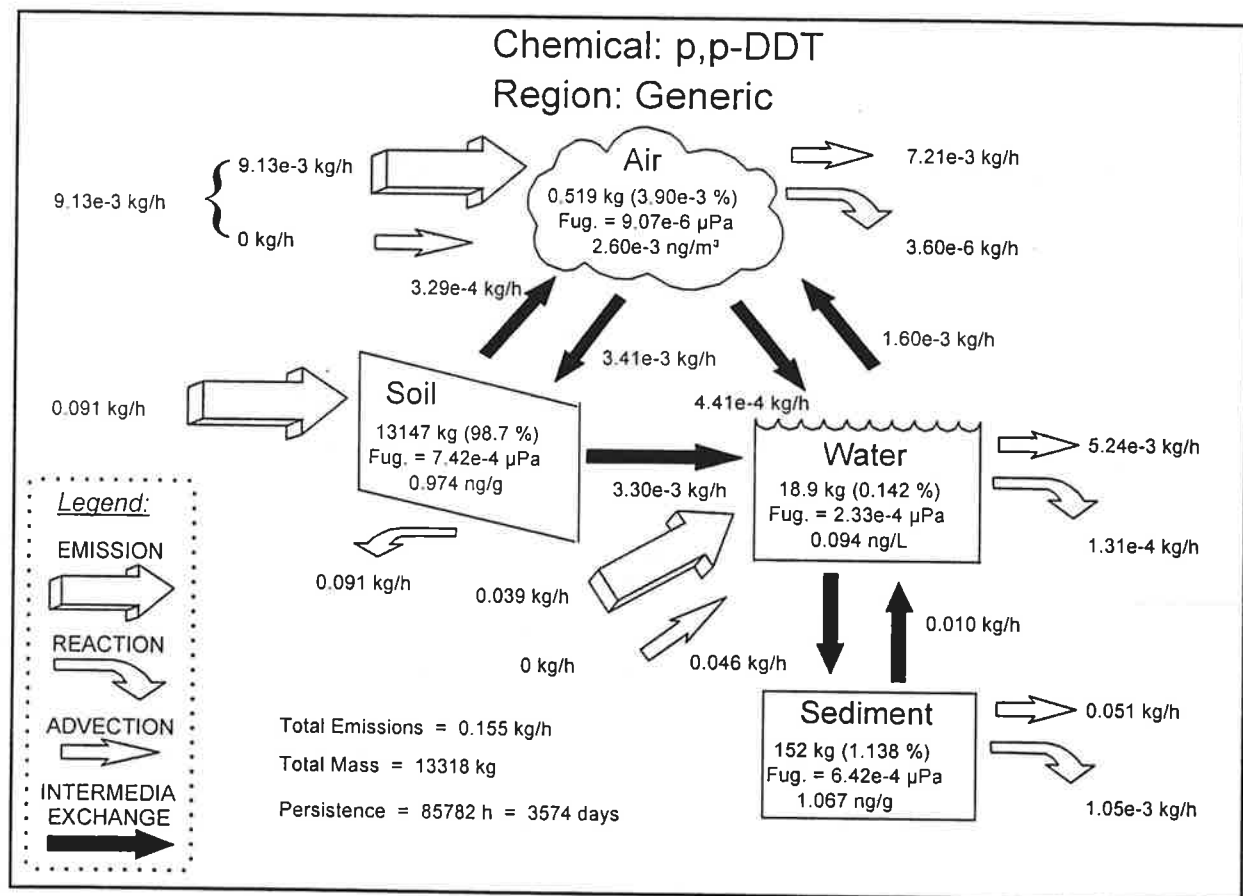


Figure 2. An example of the graphical output from the steady-state contaminant fate model.

(5) *Assess potential biological impacts using effects thresholds/benchmarks.*

Threshold and benchmark levels for biological effects have been reviewed and summarized. In the final report, thresholds will be compared to measured and predicted exposure concentrations to assess potential hazards.

(6) *Provide the basis and design for an ecological risk assessment.*

The ultimate goal of this project is to place some perspective on the potential biological impacts resulting from contaminant exposure and the importance of this exposure relative to other stressors (e.g., habitat alteration). This will help the Service to identify and prioritize management actions and will help in the design of refuge-specific and regional ecological risk assessments. We have completed qualitative ecological models of stressor-response relationships for each refuge (see Figure 3 for example). These models and analyses will be combined with the contaminant exposure/effects information to provide the basis for an ecological risk assessment.

REFERENCES

- Mackay, D. 1991. Multimedia Environmental Modeling: The Fugacity Approach. Lewis Publishers, Chelsea, MI. 257 pp.
- Shea, D. 1995. Effects of Contaminants on Fish and Wildlife in the Mississippi River Alluvial Plain: Project Design. Preliminary Report to USFWS, Atlanta, GA.
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- Suter, G.W. 1993. Ecological Risk Assessment. Lewis Publishers, Chelsea, MI.

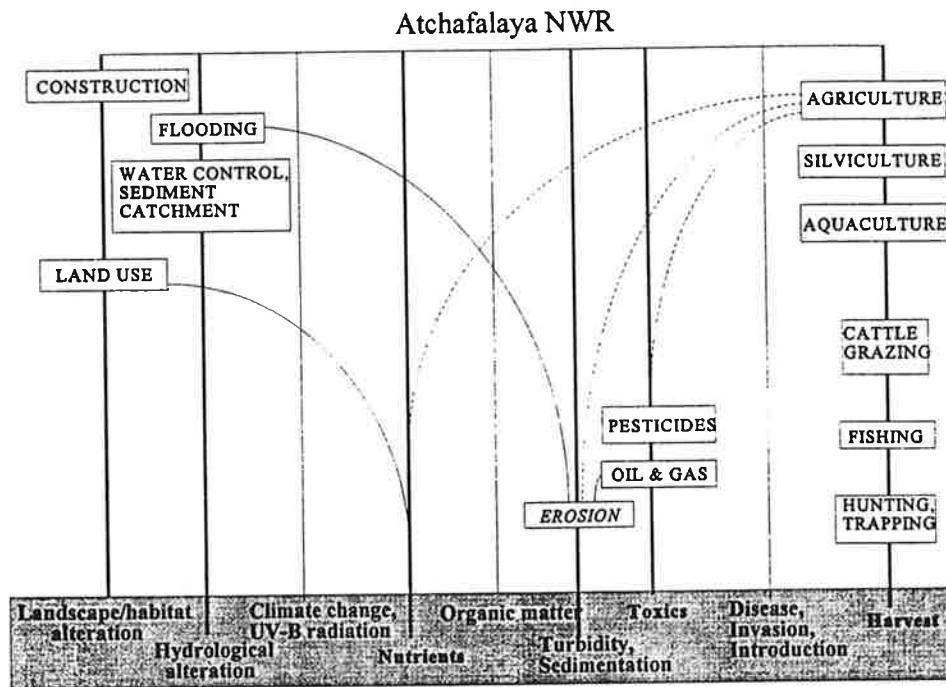


Fig. 3: A simplified conceptual model showing activities and potential stressors within the Atchafalaya NWR, which has been called the "greatest river swamp in the U.S." Only known activities and potentially significant or known stressors are highlighted; interactions across activities and stressors are conjectural. Further definition of certain activities is provided below. The agricultural influence on activity-stressor interactions relates to pre-1995 activities.

Construction

Road & trail maintenance (gravel), campsites (WMA), shooting ranges (WMA), dump & burn pile within fenced equipment area (WMA), privately-owned cabins within inholdings, WMA headquarters & equipment shed, ATV trails, water-control structures (including sediment catchments).

Land use

Ducks Unlimited waterfowl impoundment (under construction), >1 square mile moist-soil unit/waterfowl impoundment area (planted with soybeans in the summer), food plots for foraging (planted with brown millet & cow pea), reforestation and green-tree reservoir.

Flooding

Gates allow Mississippi floodwaters to pass through refuge; last opened in 1973.

Oil & Gas

Active & inactive oil wells and exploration (e.g., Happytown Oil & Gas Field, Nasser Oil & Gas Company, Gap Energy, Inc.), historic fuel refinery (WMA).

Harvesting pressures

Historic 260-acre cropland (pesticide application prior to 1995; on-refuge farming ceased in 1995; 60 acres currently left fallow, 200 acres have been reforested), crawfish farming (southeast corner of refuge), cattle grazing (east protection levee), timber sales, alligator trapping (30 alligators per year), recreational fishing (boat and bank), commercial fishing (e.g., ~22 million lbs. crawfish per year taken from basin, including catfish, buffalo & drum), hunting (e.g., white-tailed deer, fox & gray squirrels, wild turkey).

* WMA = located on Sherburne Wildlife Management Area land

APPENDIX

SEDIMENT SAMPLING SITES AND SOME PRELIMINARY DATA

Table AT-1. Sediment sample collection sites at Atchafalya NWR, LA.

Site ID	Site Location
AT01	Bayou Close
AT02	Bayou Stiff
AT03	Alabama Bayoou
AT04	Johnson Bayou
AT05	Little Alabama Bayou
AT06	Swamp on east side of refuge - north end
AT07	Swamp on east side of refuge - south end
AT08	Active & inactive oil sites - tank battery area ~ 1.5 miles east of Big Alabama Bayou
AT09	Waterfowl impoundments - north unit
AT10	Historic oil containment site
AT11	Historic fuel refinery
AT12	Active & inactive oil sites - tank battery area south of Happytown Road 50 meters east of Refuge Road
AT13	Active & inactive oil sites: capped well off Happtown Road ~ 150 meters west of Alabama Bayou
AT14	Active & inactive oil sites: well site off Hwy 975, ~.3 miles south of Refuge HQ

Table AT-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Atchafalaya NWR, LA (ng/g, dry weight).

Parameter	Sampling Site											
	AT01	AT02	AT03	AT04	AT05	AT06	AT07	AT09	AT11	AT12	AT14-1	AT14-2
Pesticides												
alpha BHC	bdl	bdl	bdl	bdl	bdl	0.18	bdl	bdl	0.45	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	0.48	0.27	bdl	0.86	bdl	bdl	bdl	bdl	bdl	bdl	bdl
gamma BHC	bdl	2.58	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	2.25	bdl	0.29	bdl	1.44	0.49	0.33	1.23	2.44	1.1	2.05
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	bdl	bdl	bdl	bdl	bdl	0.9	0.24	0.19	bdl	1.3	1.32	0.53
gamma chlordane	0.18	bdl	bdl	bdl	bdl	1.37	0.36	0.23	bdl	2.06	1.93	1.05
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	0.15	bdl	bdl	bdl	0.21	0.24	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.18	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	0.1	bdl	0.11	bdl	bdl	0.11	0.11	0.04	bdl	0.08	0.04	0.12
methoxychlor	bdl	0.44	bdl	bdl	0.27	bdl	0.16	bdl	bdl	bdl	bdl	bdl
mirex	0.16	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	0.11	0.07	bdl	0.22	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	0.13	bdl	bdl	bdl	bdl	bdl	0.68	bdl	bdl	bdl	bdl	bdl
4,4'-DDD	0.13	0.2	0.18	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDE	1.29	9.1	0.94	2.1	0.77	0.27	0.12	0.07	1.74	0.26	bdl	bdl
4,4'-DDT	0.05	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	1.60	9.41	1.19	2.10	0.99	0.27	0.80	0.07	1.74	0.26	0.00	0.00
PCBs												
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.7	bdl	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	0.94	bdl	0.19	bdl	bdl	0.57	1.29
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.49	bdl	0.65
PCB 52	bdl	bdl	bdl	bdl	bdl	0.72	bdl	0.15	bdl	1.07	0.4	1.1
PCB 66	bdl	bdl	bdl	bdl	bdl	0.63	bdl	bdl	bdl	0.28	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	0.34	bdl	0.07	bdl	0.67	0.26	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	0.1	bdl	bdl	0.06	0.04	bdl	0.61	0.16	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	0.13	bdl	bdl	bdl	bdl	bdl	0.04	bdl	0.12	0.06	0.1
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.00	0.13	0.10	0.00	0.00	2.69	0.04	0.45	0.61	3.49	1.29	3.14
moisture (%)	31.6	42.9	26.3	40.0	36.8	51.3	58.3	37.5	75.0	46.4	30.8	39.3

bdl - below detection limit (0.05 ng/g dry weight)

Table BC-1. Sediment sample collection sites at Bayou Cocodrie NWR, LA.

Site ID	Site Location
BC01	Bayou Cocodrie
BC02	North end ridge and swale
BC03	South end ridge and swale
BC04	Wallace and Little Wallace Lakes
BC05	Cross Bayou
BC06	Dobbins Lake

Table BC-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Bayou Cocodrie NWR, LA (ng/g, dry weight).

<u>Parameter</u>	<u>Sampling Site</u>					
	BC01	BC02	BC03	BC04	BC05	BC06
Pesticides						
alpha BHC	bdl	0.07	0.09	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl
gamma BHC	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	0.24	0.13	bdl	bdl	bdl	bdl
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.12	bdl	0.1	bdl	0.07	bdl
gamma chlordane	0.26	bdl	bdl	bdl	0.06	0.12
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	0.06	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	0.16	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl
mirex	0.14	bdl	bdl	bdl	0.06	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	0.12	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	0.32	bdl	0.18	bdl	0.17	0.78
4,4'-DDD	0.33	bdl	0.05	bdl	0.28	bdl
4,4'-DDE	1.06	0.3	0.54	0.27	0.88	0.42
4,4'-DDT	0.11	bdl	bdl	bdl	0.27	bdl
Sum of DDTs	1.82	0.30	0.77	0.27	1.72	1.20
PCBs						
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	0.06	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	1.94	bdl	0.21	bdl	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	0.04	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.00	1.94	0.00	0.21	0.10	0.00
moisture (%)	52.9	57.1	61.5	60	44.7	63.3

bdl - below detection limit (0.05 ng/g dry weight)

Table BK-1. Sediment sample collection sites at Bald Knob NWR, AR.

Site ID	Site Location
BK01	Overflow Creek - northern unchannelized end
BK02	Overflow Creek - southern unchannelized end
BK03	Swamp surrounding Overflow Creek
BK04	Ditches entering Overflow Creek
BK05	Pole Brake

Table BK-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Bald Knob NWR, AR (ng/g, dry weight).

Parameter	Sampling Site				
	BK01	BK02	BK03	BK04	BK05
Pesticides					
alpha BHC	bdl	0.09	0.10	0.04	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl
heptachlor	0.25	0.59	0.74	0.79	0.66
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.15	0.25	0.47	0.51	bdl
gamma chlordane	0.20	0.37	0.71	0.70	0.49
trans-nonachlor	0.10	bdl	0.16	0.11	bdl
aldrin	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	0.11	0.26	0.23	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	0.09	bdl	0.20	0.07	bdl
methoxychlor	0.17	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	0.07	bdl	bdl	bdl	bdl
4,4'-DDD	0.07	bdl	bdl	0.07	bdl
4,4'-DDE	0.36	0.20	0.53	0.24	0.28
4,4'-DDT	0.05	bdl	bdl	bdl	bdl
Sum of DDTs	0.55	0.20	0.53	0.31	0.28
PCBs					
PCB 8	bdl	0.15	0.30	bdl	0.25
PCB 18	bdl	bdl	bdl	bdl	bdl
PCB 28	bdl	0.35	0.52	0.53	0.25
PCB 44	bdl	bdl	bdl	0.19	bdl
PCB 52	bdl	0.25	0.34	0.42	bdl
PCB 66	0.07	bdl	0.15	0.10	bdl
PCB 77	bdl	0.39	0.44	bdl	bdl
PCB 101	bdl	0.12	bdl	0.26	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl
PCB 118	0.06	0.06	0.06	0.07	bdl
PCB 126	bdl	bdl	bdl	bdl	1.39
PCB 128	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	0.07	0.19	0.07	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.13	1.39	2.00	1.64	1.89
moisture (%)	38.5	47.7	53.3	39.3	30.0

bdl - below detection limit (0.05 ng/g dry weight)

Table BL-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Big Lake NWR, AR (ng/g, dry weight).

Parameter	Sampling Site								
	BL01	BL02	BL03	BL04	BL05	BL06	BL07	BL08	BL09
Pesticides									
alpha BHC	bdl	bdl	bdl	0.11	0.02	0.04	bdl	bdl	bdl
beta BHC	0.32	bdl	1.3	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	0.25	0.13	0.24	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	0.03	0.05	0.06	0.06	0.03	0.05	0.03	0.09	0.04
heptachlor epoxide	bdl	bdl	0.38	bdl	0.05	0.19	bdl	bdl	bdl
alpha chlordanes	0.07	0.11	0.25	bdl	0.07	0.08	0.06	0.05	0.06
gamma chlordanes	0.21	0.13	0.23	bdl	0.06	0.05	0.09	0.09	0.07
trans-nonachlor	bdl	0.24	0.14	bdl	0.07	bdl	bdl	bdl	bdl
aldrin	bdl	0.03	bdl	0.03	bdl	0.02	bdl	bdl	bdl
dieldrin	bdl	0.16	bdl	bdl	0.04	0.02	bdl	bdl	0.05
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.03
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	1.04	0.09	bdl	bdl	bdl	0.05	0.04	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	0.14	bdl	0.02	bdl	bdl	bdl	0.01
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	0.13	bdl	bdl	bdl	0.11	bdl	bdl	bdl
4,4'-DDD	bdl	0.2	0.43	bdl	0.08	0.1	bdl	bdl	0.04
4,4'-DDE	0.05	1.07	1.99	1.8	0.15	0.42	0.02	0.34	0.09
4,4'-DDT	bdl	bdl	bdl	bdl	0.17	bdl	0.03	bdl	bdl
Sum of DDTs	0.05	1.40	2.56	1.80	0.42	0.63	0.05	0.34	0.14
PCBs									
PCB 8	0.02	bdl	bdl	0.03	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 28	bdl	0.04	bdl	bdl	bdl	0.03	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	0.02	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	0.05	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	0.03	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	0.03	0.05	0.04	0.01	0.02	bdl	bdl	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	0.06	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	0.06	bdl	0.03	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.02	0.16	0.05	0.21	0.03	0.05	0.00	0.00	0.00
moisture (%)	30.9	51.0	59.2	55.0	25.9	46.8	27.6	55.3	38.5

bdl - below detection limit (0.05 ng/g dry weight)

Table CH-1. Sediment sample collection sites at Chickasaw NWR, TN.

Site ID	Site Location
CH01	Chisholm Lake
CH02	MSU at Headquarters
CH03	Dry Arm
CH04	Wardlow's Pocket
CH05	Cold Creek
CH06	Sloughs in center of Refuge
CH07	Middle Fork Forked Deer River
CH08	Old Bed Forked Deer River
CH09	Rush Slough
CH10	Ag ditch draining into Chisholm Lake

Table CH-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Chickasaw NWR, TN (ng/g, dry weight).

Parameter	Sampling Site									
	CH01	CH02	CH03	CH04	CH05	CH06	CH07	CH08	CH09	CH10
Pesticides										
alpha BHC	0.04	bdl	0.03	bdl	0.02	0.04	0.02	bdl	0.03	0.02
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	0.06	0.06	0.03	0.05	0.04	0.08	0.03	0.05	0.05	0.05
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.07	0.05	0.1	0.05	0.05	0.09	0.05	0.04	0.07	0.06
gamma chlordane	0.11	0.08	0.11	0.08	0.08	0.14	bdl	bdl	0.08	0.1
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	0.1	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	0.04	bdl	0.08	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	0.66	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	0.02	bdl	0.01	bdl	0.01
methoxychlor	bdl	bdl	bdl	bdl	0.02	bdl	0.02	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.03	bdl
4,4'-DDE	0.04	0.03	0.02	0.04	0.02	0.06	0.02	0.11	0.02	0.02
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	0.04	0.03	0.02	0.04	0.02	0.06	0.02	0.11	0.05	0.02
PCBs										
PCB 8	0.03	0.02	bdl	0.02	0.01	0.03	0.01	0.02	0.02	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 28	bdl	bdl	bdl	0.05	bdl	0.05	bdl	0.05	bdl	bdl
PCB 44	bdl	0.02	0.01	0.02	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	0.02	0.03	0.02	0.03	bdl	0.04	bdl	0.03
PCB 66	0.02	0.01	bdl	0.02	0.01	bdl	0.01	0.02	bdl	0.01
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	0.02	0.01	0.01	0.03	0.01	0.03	0.01	0.03	bdl	0.02
PCB 105	bdl	bdl	bdl	0.01	bdl	0.01	bdl	0.01	bdl	bdl
PCB 118	0.02	bdl	0.01	0.03	0.01	0.03	0.01	bdl	0.02	0.02
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	0.02	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	0.02	0.02	0.01	0.03	0.01	0.04	0.01	0.03	0.02	0.02
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	0.01	bdl	0.01	bdl	0.01	bdl	bdl
PCB 209	bdl	bdl	bdl	0.15	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.11	0.08	0.06	0.42	0.07	0.23	0.05	0.21	0.06	0.10
moisture (%)	53.7	43.48	53.57	47.62	33.33	51.85	34.29	50	48	34.62

bdl - below detection limit (0.05 ng/g dry weight)

Table CR-1. Sediment sample collection sites at Cache River NWR, AR.

Site ID	Site Location
CR01	Cache River north of Amagon
CR02	Cache River north of Hwy 33 to south of Hwy 17
CR03	Cache River 2 miles downstream and 2 miles upstream of Cache Bayou
CR04	Cache River ~ 5 miles north of White River confluence
CR05	Black Swamp - State Access Area south of Gregory; north of HQ near boat launch
CR06	Cache Bayou
CR07	Gum Flat Slough
CR08	Bayou Devieu
CR09	Locust & Cypress Creek Ditches
CR10	Overcup Ditch
CR11	Roaring Slough
CR12	Culotches Bay
CR13	Creek draining landfill north of Amagon
CR14	Black Swamp - State Access Area at Gregory 200M east and 50M south of Ramp
CR15	Black Swamp - east of Crutcher Cemetary ~70 M north of southern WMA boundary, NW of Dupree Lake
CR16	Black Swamp - east of Cache River, south end road heading west at Wivelle, ~ 75M west from end of field road

Table CR-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Cache River NWR, AR (ng/g, dry weight).

Parameter	Sampling Site									
	CR02	CR03	CR04	CR06	CR07	CR09	CR10	CR11	CR12	CR13
Pesticides										
alpha BHC	bdl	bdl	bdl	bdl	0.07	bdl	bdl	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	bdl	0.13	0.11	bdl	0.12	0.05	bdl	bdl	bdl	bdl
gamma chlordane	bdl	0.1	bdl	bdl	bdl	0.05	bdl	bdl	bdl	bdl
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.17	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	0.24	bdl	bdl	0.15	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	0.12	0.05	0.06	bdl	0.03	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	0.03	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	0.12	bdl	bdl	bdl	bdl	0.18	bdl	bdl	bdl
4,4'-DDD	bdl	0.08	bdl	0.25	bdl	0.11	0.22	bdl	0.56	0.06
4,4'-DDE	0.37	0.43	0.16	3.51	2.35	0.78	1.72	0.35	7.67	0.3
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	0.38	bdl	bdl	bdl	bdl
Sum of DDTs	0.37	0.66	0.16	3.76	2.35	1.27	2.12	0.35	8.23	0.36
PCBs										
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	0.46	0.27	bdl	bdl
PCB 28	bdl	bdl	bdl	bdl	0.17	bdl	bdl	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	0.23	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.23	0.00	0.00	0.00	0.17	0.00	0.46	0.27	0.00	0.00
moisture (%)	29.4	30.4	41.7	50.0	46.2	23.7	33.3	36.8	40.6	35.7

bdl - below detection limit (0.05 ng/g dry weight)

Table CT-1. Sediment sample collection sites on Catahoula NWR, LA.

Site ID	Site Location
CT01	Catahoula Lake at opening of Diversion Canal
CT02	Catahoula Lake at oil wells
CT03	Duck Lake Impoundment
CT04	French Fork Little River near oil tank battery
CT05	French Fork Little River north of Catahoula Refuge along River Road
CT06	Cowpen Bayou near oil wells
CT07	Catahoula Lake - Bird Refuge
CT08	Catahoula Lake - southwest end - Little River and creek inputs
CT09	Catahoula Lake - north end - Hemphill and Devils Creeks
CT10	Wildlife Drive - east side of Refuge - Ag ditch culvert
CT11	Cowpen Bayou excluding sites near oil wells
CT12	Hemphill Creek, north of Catahoula Lake

Table CT-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Catahoula NWR, LA (ng/g, dry weight).

Parameter	Sampling Site										
	CT01	CT02	CT03	CT04	CT05	CT06	CT07	CT08	CT09	CT10	CT11
Pesticides											
alpha BHC	bdl	bdl	0.1	0.06	bdl	bdl	bdl	bdl	bdl	0.03	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.05	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	0.05	0.06	0.09	0.03	0.05	0.07	0.11	0.05	0.06	0.07	0.04
heptachlor epoxide	bdl	bdl	bdl	0.05	bdl	bdl	bdl	0.05	0.07	bdl	0.1
alpha chlordane	0.03	bdl	bdl	0.08	bdl	bdl	0.16	0.05	0.07	0.06	bdl
gamma chlordane	0.07	bdl	bdl	bdl	bdl	bdl	bdl	0.08	0.06	0.07	bdl
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	0.03	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	0.07	bdl	bdl	0.01	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.04	bdl	bdl
mirex	bdl	0.05	1.14	bdl	0.03	0.1	bdl	0.03	0.03	0.07	0.07
2,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	0.1	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDD	bdl	bdl	0.78	0.15	0.07	bdl	bdl	bdl	bdl	0.02	bdl
4,4'-DDE	0.03	0.35	3.96	0.89	0.48	0.32	0.14	0.02	0.04	0.19	0.03
4,4'-DDT	bdl	bdl	bdl	bdl	0.24	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	0.03	0.35	4.84	1.04	0.79	0.32	0.14	0.02	0.04	0.21	0.03
PCBs											
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.02	0.03	0.03	0.02
PCB 18	0.02	0.02	bdl	0.03	0.02	bdl	bdl	0.02	0.02	0.02	bdl
PCB 28	0.02	0.06	bdl	0.05	bdl	0.02	bdl	bdl	bdl	bdl	bdl
PCB 44	bdl	0.02	bdl	0.02	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	0.02	bdl	bdl	bdl	bdl	bdl	bdl	0.02	0.02	bdl	bdl
PCB 66	bdl	bdl	0.03	0.01	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	0.03	0.06	0.03	0.02	bdl	bdl	0.02	0.02	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	0.03	bdl	0.03	bdl	0.01	bdl	bdl	bdl	0.02	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	0.01	0.02	0.11	0.04	0.02	0.02	bdl	0.01	0.01	bdl	0.01
PCB 170	bdl	bdl	bdl	0.02	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	0.01	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	0.03	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.07	0.18	0.24	0.23	0.06	0.05	0.00	0.09	0.10	0.07	
moisture (%)	47.92	37.17	59.52	39.86	36.43	41.73	58	41.88	51.67	48.33	31.67

bdl - below detection limit (0.05 ng/g dry weight)

Table DA-1. Sediment sample collection sites at Dahomey NWR, MS.

Site ID	Site Location
DA01	Stokes Bayou
DA02	Belman Bayou
DA03	Stillwater Bayou
DA04	Christmas Lake Branch
DA05	Bayou south of Stokes Bayou
DA06	Stokes Bayou SE of Belman Bayou confluence

Table DA-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Dahomey NWR, MS (ng/g, dry weight).

<u>Parameter</u>	<u>Sampling Site</u>					
	DA01	DA02	DA03	DA04	DA05	DA06
Pesticides						
alpha BHC	bdl	bdl	bdl	0.34	bdl	bdl
beta BHC	bdl	bdl	bdl	0.79	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.09	0.15	bdl	bdl	bdl	bdl
gamma chlordane	0.09	0.08	bdl	bdl	bdl	0.13
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	0.32	bdl	0.39	bdl	0.24
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	1.14	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	0.2	bdl	1.03	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	0.18	0.18
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	0.22	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	0.87	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	1.19	bdl	bdl
4,4'-DDD	0.26	0.53	bdl	2.67	bdl	0.46
4,4'-DDE	2.23	2.94	0.66	22.75	0.62	4.48
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	2.49	3.47	0.66	27.48	0.62	4.94
PCBs						
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	0.63	bdl	0.76	0.73	0.43
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	0.22	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	0.22
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	bdl	0.27	0.53	bdl	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	0.36	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.00	0.63	0.63	1.29	0.95	0.65
moisture (%)	36.8	40.0	47.1	46.4	50.0	37.5

bdl - below detection limit (0.05 ng/g dry weight)

Table DE-1. Sediment sample collection sites at Delta NWR, LA.

Site ID	Site Location
DE01	Active/Inactive oil wells within Chevron Field
DE02	Ponds off of Main Pass
DE03	Ponds off of Octave Pass
DE04	Ponds off of Raphael Pass
DE05	Independent oil well sites
DE06	Main Pass
DE07	Octave Pass
DE08	Raphael Pass
DE09	Chevron oil/brine pits
DE10	Texaco oil/brine pits
DE11	Active/Inactive oil wells within Texaco Field
DE12	Oil spill areas
DE13	Old Texaco barge

Table DE-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Delta NWR, LA (ng/g, dry weight).

Parameter	Sampling Site									
	DE01	DE02-1	DE02-2	DE03	DE04	DE05	DE09	DE10-1	DE10-2	DE11
Pesticides										
alpha BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.15
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.06	bdl	bdl	0.06	bdl	bdl	bdl	bdl	bdl	bdl
gamma chlordane	0.1	0.06	0.12	0.11	0.07	bdl	bdl	0.11	0.15	0.09
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	0.18	0.08	0.21	0.63	0.16	0.11	0.1	0.18	bdl	0.22
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.16	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDD	bdl	bdl	bdl	0.1	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDE	0.16	0.06	0.12	0.18	0.06	bdl	0.19	0.18	0.25	0.2
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	0.16	0.06	0.12	0.28	0.06	0.00	0.19	0.18	0.41	0.20
PCBs										
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl	0.61	0.44	bdl	bdl	1.32	bdl	1.08
PCB 28	0.11	bdl	0.1	0.09	bdl	bdl	0.1	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	0.07	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	0.09	bdl	bdl	bdl	bdl	bdl	0.17
PCB 66	bdl	bdl	bdl	0.06	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	0.24	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.1	0.11	0.11
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	0.08	bdl	0.08	0.1	bdl	bdl	0.16	0.11	0.17	0.18
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.19	0.00	0.18	0.95	0.44	0.00	0.57	1.53	0.28	1.54
moisture (%)	43.8	38.9	45.5	27.3	38.5	46.9	40.0	50.0	36.7	50.0

bdl - below detection limit (0.05 ng/g dry weight)

Table GC-1. Sediment sample collection sites at Grand Cote NWR, LA.

Site ID	Site Location
GC01	Crawfish Ponds
GC02	Coulee Des Grues - from Wooden Bridge heading east ~ 1 Mile
GC03	Sump Ditch and into sump - south end of Refuge
GC04	Choctaw Bayou - south of Dredge Channel confluence
GC05	Sump - dry areas - due south from Island Road
GC06	Sump - wet areas - due south of Island Road to Choctaw Bayou Levee Road
GC07	Dredged channel and creek on SE side of refuge
GC08	Rice field - west end of Refuge
GC11	Sump Ditch at bridge off of Island Road

Table GC-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Grand Cote NWR, LA (ng/g, dry weight).

Parameter	Sampling Site								
	GC01	GC02	GC03	GC04	GC05	GC06	GC07	GC08	GC11
Pesticides									
alpha BHC	0.05	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.23	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	0.07	0.05	0.07	0.07	0.12	0.07	0.04	0.06	0.07
heptachlor epoxide	bdl	bdl	0.13	bdl	bdl	bdl	bdl	0.17	bdl
alpha chlordane	0.05	bdl	0.05	bdl	bdl	bdl	bdl	bdl	bdl
gamma chlordane	bdl	bdl	0.1	bdl	bdl	0.1	0.08	bdl	bdl
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.15	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.02	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	0.05	0.19	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	0.22	bdl	bdl	0.09	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	0.01	0.01	bdl	bdl	bdl	bdl	bdl	0.05	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	0.03	0.26	bdl
mirex	0.13	0.12	0.2	0.1	0.99	0.08	0.05	2.09	0.1
2,4'-DDD	bdl	bdl	0.04	0.02	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDD	bdl	bdl	bdl	0.04	0.03	bdl	0.01	bdl	bdl
4,4'-DDE	0.2	0.16	0.21	0.35	0.67	0.04	0.05	0.6	0.1
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	0.20	0.16	0.25	0.41	0.70	0.04	0.06	0.60	0.10
PCBs									
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	0.03	bdl	bdl	0.03	bdl	bdl	0.02	bdl	0.03
PCB 28	bdl	bdl	bdl	bdl	bdl	0.03	bdl	0.04	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	0.02	bdl	bdl	bdl	bdl	0.01	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	0.02	0.01	bdl	0.02	0.03	bdl	bdl	0.02	0.02
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	0.02	bdl	0.01	bdl	0.03	bdl	bdl	0.03	0.01
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	bdl	bdl	bdl	0.07	bdl	bdl	0.05	0.02
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.03	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.07	0.03	0.01	0.05	0.13	0.03	0.03	0.17	0.08
moisture (%)	51.4	37.0	54.3	41.6	45.7	40.4	40.9	9.1	48.6

bdl - below detection limit (0.05 ng/g dry weight)

Table HB-1. Sediment sample collection sites at Handy Brake NWR, LA.

Site ID	Site Location
HB01	Handy Brake - north end
HB02	Handy Brake - center
HB03	Handy Brake - south end

Table HB-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Handy Brake NWR, LA (ng/g, dry weight).

<u>Parameter</u>	<u>Sampling Site</u>		
	HB01	HB02	HB03
Pesticides			
alpha BHC	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl
lindane	bdl	bdl	bdl
heptachlor	bdl	bdl	bdl
heptachlor epoxide	bdl	bdl	bdl
alpha chlordane	bdl	bdl	bdl
gamma chlordane	bdl	bdl	bdl
trans-nonachlor	bdl	bdl	bdl
aldrin	1.42	0.21	bdl
dieldrin	0.87	bdl	bdl
alpha endosulfan	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl
endrin	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl
mirex	bdl	bdl	bdl
2,4'-DDD	bdl	0.19	bdl
2,4'-DDE	bdl	bdl	bdl
2,4'-DDT	6.44	bdl	6.51
4,4'-DDD	bdl	0.45	bdl
4,4'-DDE	3.37	2.4	5.94
4,4'-DDT	bdl	bdl	bdl
Sum of DDTs	9.81	3.04	12.45
PCBs			
PCB 8	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl
PCB 28	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl
PCB 52	bdl	0.39	bdl
PCB 66	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl
PCB 153	bdl	bdl	bdl
PCB 170	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl
PCB 187	bdl	bdl	10.83
PCB 195	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl
Sum of PCBs	0.00	0.39	10.83
moisture (%)	63.6	65.6	72.7

bdl - below detection limit (0.05 ng/g dry weight)

Table HI-1. Sediment sample collection sites at Hillside NWR, MS.

Site ID	Site Location
HI01	Fannegusha Creek & Canal
HI02	Black Creek
HI03	Tipton Bayou
HI04	Willow stand with heavy siltation on north end of Refuge
HI05	Swamp south of Thornton Road
HI06	Creeks from hills south of Thornton Road
HI07	Alligator Brake
HI08	Creeks from hills north of Thornton Road
HI09	Parker Bayou

Table HI-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Hillside NWR, MS (ng/g, dry weight).

Parameter	Sampling Site							
	HI01	HI02	HI03	HI04	HI05	HI06	HI07	HI08
Pesticides								
alpha BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	bdl	bdl	bdl	bdl	0.05	bdl	0.05
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
gamma chlordane	bdl	bdl	0.1	bdl	0.15	bdl	0.09	bdl
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	0.07	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	0.1	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	0.09	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDD	0.15	bdl	0.09	0.08	bdl	bdl	bdl	bdl
4,4'-DDE	0.63	0.12	0.46	0.21	0.21	0.64	1.65	0.28
4,4'-DDT	bdl	bdl	bdl	bdl	0.12	bdl	bdl	bdl
Sum of DDTs	0.87	0.12	0.55	0.29	0.33	0.64	1.65	0.28
PCBs								
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 28	0.05	bdl	0.05	bdl	bdl	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	0.19	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	0.13	bdl	0.08	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	0.34	bdl
PCB 153	bdl	bdl	bdl	bdl	bdl	bdl	0.14	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	0.06	bdl	0.17	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.05	0.19	0.18	0.00	0.14	0.00	0.65	0.00
moisture (%)	20.0	27.3	32.4	23.1	43.3	23.5	50.0	17.6

bdl - below detection limit (0.05 ng/g dry weight)

Table LH-1. Sediment sample collection sites at Lower Hatchie NWR, TN.

Site ID	Site Location
LH01	Indian Creek
LH02	Hatchie River upstream of boat ramp
LH03	Hatchie River south of Indian Creek
LH04	2 ag ditches south of Hatchie River and 1 creek draining beaver swamp on south side of Refuge
LH05	Ag ditches north of Hatchie River
LH06	Hatchie River between boat ramp and Indian Creek
LH07	Champion Lake
LH08	MSU behind headquarters

Table LH-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Lower Hatchie NWR, TN (ng/g, dry weight).

Parameter	Sampling Site							
	LH01	LH02	LH03	LH04	LH05	LH06	LH07	LH08
Pesticides								
alpha BHC	bdl	bdl	bdl	bdl	0.04	bdl	0.19	0.05
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	0.04	0.04	bdl	0.07	0.04	bdl	0.07
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.04	0.04	0.04	0.05	bdl	0.03	0.10	0.05
gamma chlordane	0.07	0.04	0.09	0.14	0.10	0.03	bdl	0.09
trans-nonachlor	bdl	bdl	bdl	bdl	0.05	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	0.04	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	0.11	bdl
4,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDE	bdl	bdl	bdl	0.16	0.07	bdl	0.15	bdl
4,4'-DDT	bdl	bdl	0.08	bdl	0.10	bdl	bdl	bdl
Sum of DDTs	0.00	0.00	0.08	0.16	0.17	0.00	0.26	0.00
PCBs								
PCB 8	0.03	bdl	0.05	bdl	0.05	0.03	bdl	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.04
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.03	0.00	0.05	0.00	0.05	0.03	0.00	0.04
moisture (%)	39.7	36.4	40.0	35.0	35.5	35.7	56.0	52.0

bdl - below detection limit (0.05 ng/g dry weight)

Table RE-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Reelfoot NWR, TN (ng/g, dry weight).

Parameter	Sampling Site							
	RE01	RE02	RE03	RE04	RE05	RE06	RE07	RE08
Pesticides								
alpha BHC	bdl	0.62	bdl	2.26	bdl	bdl	bdl	1.55
beta BHC	bdl	0.36	bdl	1.28	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	0.08	bdl	1.33	bdl	bdl	bdl	0.07
heptachlor	0.03	0.12	0.08	0.28	0.06	0.12	0.17	0.10
heptachlor epoxide	bdl	0.15	bdl	0.54	bdl	0.24	bdl	bdl
alpha chlordane	0.04	0.11	0.06	0.40	0.04	bdl	bdl	0.10
gamma chlordane	0.08	0.12	0.14	0.50	0.06	bdl	bdl	bdl
trans-nonachlor	0.03	bdl	0.36	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	0.05	bdl	bdl	bdl
alpha endosulfan	bdl	0.09	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	0.10	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	0.09	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	0.13	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDE	bdl	0.30	0.20	0.78	0.19	0.70	0.45	0.75
4,4'-DDT	bdl	bdl	bdl	bdl	0.10	bdl	bdl	bdl
Sum of DDTs	0.00	0.30	0.20	0.78	0.42	0.70	0.45	0.75
PCBs								
PCB 8	bdl	bdl	bdl	0.14	bdl	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl	0.11	bdl	0.13	bdl	0.20
PCB 28	bdl	0.09	bdl	0.17	0.04	0.09	bdl	0.09
PCB 44	bdl	0.03	0.02	0.06	0.02	bdl	bdl	0.05
PCB 52	bdl	0.09	0.12	0.14	0.05	bdl	0.21	bdl
PCB 66	bdl	0.04	0.02	bdl	bdl	bdl	bdl	0.05
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	0.08	0.06	0.15	0.03	bdl	bdl	bdl
PCB 105	bdl	0.02	0.01	bdl	bdl	bdl	bdl	0.02
PCB 118	bdl	0.04	0.04	bdl	bdl	bdl	0.06	0.05
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	0.04	0.04	0.07	0.02	0.06	0.05	0.06
PCB 153	bdl	0.05	0.06	bdl	0.03	0.08	0.08	0.09
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	0.07	0.06
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.00	0.48	0.37	0.84	0.19	0.36	0.47	0.67
moisture (%)	38.5	67.7	63.2	67.3	55.5	65.0	74.3	68.3

bdl - below detection limit (0.05 ng/g dry weight)

Table SC-1. Sediment sample collection sites at Saint Catherine Creek NWR, MS.

Site ID	Site Location
SC01	Butler Lake
SC02	Old St. Catherine Creek - south of Butler Lake
SC03	New Era Slough
SC04	Gilliard Lake
SC05	Old St. Catherine Creek - north of Butler Lake
SC06	Oil production sites on Sibley Farm
SC07	Oil production sites on Sibley Farm
SC08	Oil production sites on Sibley Farm
SC09	Oil production sites on Sibley Farm

Table SC-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from St. Catherine Creek NWR, MS (ng/g, dry weight).

Parameter	Sampling Site							
	SC01	SC02	SC03	SC04	SC05	SC06	SC07	SC08
Pesticides								
alpha BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	bdl	bdl	bdl	bdl	bdl	0.09	bdl
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.07	0.07	0.09	0.14	0.06	0.06	0.06	bdl
gamma chlordane	0.15	0.12	bdl	bdl	bdl	0.16	0.09	bdl
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	0.53	bdl	bdl	bdl	bdl
4,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDE	0.15	0.15	0.26	bdl	0.15	0.09	0.09	bdl
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	0.15	0.15	0.26	0.53	0.15	0.09	0.09	0.00
PCBs								
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	0.47	0.81	bdl	bdl	0.61	0.63	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.16
PCB 44	0.10	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	0.11	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	0.06	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	0.20	bdl	bdl	bdl	bdl
PCB 153	bdl	0.07	bdl	bdl	bdl	bdl	bdl	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.10	0.60	0.92	0.20	0.00	0.61	0.63	0.16
moisture (%)	54.5	45.5	46.2	53.8	25.0	40.0	41.7	40.9

bdl - below detection limit (0.05 ng/g dry weight)

Table TA-1. Sediment sample collection sites at Tallahatchie NWR, MS.

Site ID	Site Location
TA01	Catfish ponds (North Unit)
TA02	Bayous - north end of Refuge (North Unit)
TA03	Bayous - south end of Refuge (North Unit)
TA04	Panola-Quitman Floodway (North Unit)
TA05	Tippo Bayou - north end (South Unit)
TA06	Swamps/ponds north end of Refuge (South Unit)
TA07	Tippo Bayou - south end (South Unit)
TA08	Long Bayou (South Unit)
TA09	Bayous - north end of Refuge - ditch at dirt road (North Unit)
TA10	Bayous - north end of Refuge - Bayou east of dirt road and ditch (North Unit)
TA11	Bayous - north end of Refuge - Bayou east of dirt road and ditch (North Unit)

Table TR-1. Sediment sample collection sites at Tensas River NWR, LA.

Site ID	Site Location
TR01	Tensas River - north end of refuge to Alligator Bayou
TR02	Tensas River - center of Refuge
TR03	Tensas River - south end of Refuge
TR04	Big Rainey Lake
TR05	Africa Lake
TR06	Little Bear Lake
TR07	Judd Lake
TR08	Lake Nick
TR09	Mill Bayou
TR10	Alligator Bayou into Mothinglam Bayou
TR11	Oil spill areas and well sites
TR12	Mack Bayou
TR14	Tank batteries - south end of Refuge
TR15	Oil spill areas and well sites

Table TR-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Tensas River NWR, LA (ng/g, dry weight).

Parameter	Sampling Site											
	TR01	TR02	TR03	TR04	TR05	TR06	TR07	TR08	TR09	TR10	TR11	TR12
Pesticides												
alpha BHC	bdl	bdl	bdl	bdl	bdl	1.51	bdl	bdl	bdl	bdl	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	0.16	bdl	bdl	bdl	1.73	bdl	0.38	1.89	bdl	bdl	bdl	2.22
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	2.96	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	bdl	0.49	0.36	2.59	bdl	bdl	bdl	bdl	bdl	0.34	bdl	bdl
gamma chlordane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
trans-nonachlor	bdl	0.16	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.26
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	0.30	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	1.01	bdl	bdl	bdl	bdl	1.03	bdl	bdl	0.36	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.54	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	0.07	0.05	bdl	bdl	bdl	0.10	0.30	bdl	bdl	0.10	0.16
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	0.04	0.50	bdl	bdl	bdl	bdl
mirex	0.65	0.29	0.18	bdl	bdl	bdl	bdl	bdl	0.11	0.18	bdl	bdl
2,4'-DDD	2.05	0.76	0.43	bdl	1.44	bdl	0.51	0.40	0.30	0.24	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	0.29	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	1.05	0.53	bdl	1.26	bdl	1.07	bdl	0.35	0.37	bdl	bdl
4,4'-DDD	9.16	3.70	2.00	bdl	5.42	bdl	3.29	0.67	1.48	1.60	bdl	bdl
4,4'-DDE	40.22	16.48	12.42	42.37	38.96	104.06	15.58	16.42	9.21	7.87	0.97	9.51
4,4'-DDT	4.23	1.37	1.34	bdl	bdl	bdl	bdl	bdl	1.08	1.35	bdl	bdl
Sum of DDTs	55.66	23.36	16.72	42.37	47.37	104.06	20.45	17.49	12.42	11.43	0.97	9.51
PCBs												
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	bdl	4.58	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	0.59	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	0.35	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.26	0.56	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	0.30	bdl	bdl	bdl	bdl	bdl	bdl	0.12	bdl	bdl	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	0.60	0.34	0.15	bdl	bdl	bdl	bdl	bdl	0.13	0.94	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.95	0.64	0.15	0.00	0.00	5.17	0.00	0.00	0.51	1.50	0.00	0.00
moisture (%)	47.1	38.7	37.0	91.2	66.7	96.2	50.0	77.8	34.2	41.7	50.0	58.8

bdl - below detection limit (0.05 ng/g dry weight)

Table WP-1. Sediment sample collection sites at Wapanocca NWR, AR.

Site ID	Site Location
WP01	Ditch 8 - Big Creek
WP02	Wapanocca Lake
WP03	Woody Ponds
WP04	MSUs
WP05	Ditches 1,2,4, at Refuge northern perimeter

Table WP-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Wapanocca NWR, LA (ng/g, dry weight).

No data in database at this time.

Table WR-1. Sediment sample collection sites at White River NWR, AR.

Site ID	Site Location
WR01	Lagru Bayou
WR02	Albert's Pond
WR03	Columbia, Prairie, Wolf Lakes
WR04	Dry Lake
WR05	Jacks Bay
WR06	Scrubgrass Bayou
WR07	Prairie Lake & surrounding swamp
WR08	Essex Bayou
WR09	Burnt Lake
WR10	Escronges Lake
WR11	Big Island Chute
WR12	Big Horseshoe Lake
WR13	Indian Bay & Moon Lake
WR14	Big Creek
WR15	Sandy Slough
WR16	Little Island Bayou
WR17	Swan Lake
WR18	Lambert Bayou, Upper Swan Lake, & Little Moon Lake
WR19	East Moon Lake

Table YA-1. Sediment sample collection sites at Yazoo NWR, MS.

Site ID	Site Location
YA01	Steel Bayou - from Bear Garden bridge to Hwy #1 bridge
YA03	WCS C Levee 3
YA04	Long Dump ag ditch
YA05	Ditch #9
YA06	Black Bayou - south of Surveillance Station Road
YA07	Swan Lake - west side
YA08	Swan Lake - east side
YA09	Sloughs in center of refuge
YA10	Deer Lake
YA11	Alligator Pond
YA12	GTR - Swan Lake
YA13	Catfish Ponds
YA14	Gin Slough
YA15	Ag ditch / creek on Cox Road north of Catfish Ponds
YA16	Swan Lake - center
YA17	WCS D Levee 4
YA18	WCS B Levee 2
YA30	Silver Lake Bayou

Table YA-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Yazoo NWR, MS (ng/g, dry weight).

Parameter	Sampling Site														
	YA01	YA03	YA04	YA05	YA06	YA08	YA09	YA10	YA11	YA12	YA13	YA14	YA16	YA17	YA30
Pesticides															
alpha BHC	bdl	0.08	0.09	0.03	0.05	bdl	0.17	0.40	4.05	0.09	0.40	0.17	0.35	0.21	0.33
beta BHC	0.13	0.09	bdl	0.04	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	1.61
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.68	bdl	0.07	bdl	0.11	bdl	0.23
heptachlor	bdl	bdl	bdl	0.04	0.05	0.12	0.24	0.17	0.31	0.06	0.09	0.16	0.11	0.12	0.07
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	1.57	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.11	0.08	bdl	0.04	0.03	bdl	0.11	0.12	bdl	bdl	0.07	bdl	0.86	bdl	bdl
gamma chlordane	0.06	0.05	bdl	0.07	0.05	bdl	0.19	0.25	0.67	bdl	0.13	0.01	bdl	0.16	0.41
trans-nonachlor	0.11	0.09	bdl	0.06	0.04	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	0.03	bdl	bdl	bdl	0.01	0.05	0.03	0.02	0.02
dieldrin	bdl	0.06	bdl	bdl	bdl	0.12	0.38	0.06	bdl	0.06	0.09	0.88	0.06	0.13	1.88
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	0.16	0.15	bdl	bdl	bdl	bdl	bdl	0.66	bdl	0.42	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	0.04	bdl	0.05	bdl	bdl	1.27	bdl	bdl	bdl	bdl	0.05	0.89
endrin aldehyde	bdl	bdl	bdl	bdl	0.03	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	0.02	0.03	0.05	bdl	0.15	0.05	0.07	0.08	0.02	0.02	0.15
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.06	bdl	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.16
2,4'-DDD	0.25	0.07	1.96	0.08	0.03	bdl	1.93	bdl	2.59	0.04	bdl	bdl	1.64	bdl	7.02
2,4'-DDE	0.02	0.01	0.16	0.01	0.01	0.13	0.03	bdl	0.84	bdl	bdl	0.74	0.13	bdl	1.45
2,4'-DDT	0.17	0.16	5.75	0.09	0.02	bdl	0.35	0.69	bdl	0.43	0.08	bdl	1.30	1.40	12.61
4,4'-DDD	0.66	0.43	3.66	0.07	0.03	bdl	2.85	0.14	3.44	0.16	0.06	bdl	7.00	0.85	20.97
4,4'-DDE	4.08	3.08	18.67	0.45	0.22	10.11	34.36	3.57	61.66	1.66	1.02	54.99	41.89	8.36	153.50
4,4'-DDT	0.23	0.43	10.62	0.25	0.25	bdl	1.95	bdl	3.59	bdl	0.15	bdl	2.29	bdl	153.76
Sum of DDTs	5.41	4.18	40.82	0.95	0.56	10.24	41.47	4.40	72.12	2.29	1.31	55.73	54.25	10.61	349.31
PCBs															
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	0.12	bdl	0.18	0.03	0.06	0.09	0.06	0.06	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	0.08	0.11	bdl	0.02	0.07	0.06	bdl	0.05	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.27	0.02	bdl	bdl	0.09	0.06	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	0.03	0.05	bdl	bdl	0.02	bdl	0.05	0.03	0.06
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl	0.14	0.26	bdl	bdl	0.07	bdl	0.16	0.04	0.17
PCB 66	bdl	bdl	bdl	bdl	bdl	bdl	0.02	0.04	bdl	bdl	0.01	bdl	0.05	0.02	0.10
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	0.06	bdl	bdl	bdl	0.02	bdl	0.17	bdl	0.32
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.03	0.05	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	0.04	bdl	0.15	0.02	bdl	0.07	0.12	0.05	0.31
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.07	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.03	0.02	0.08
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	0.05	0.02	0.11	0.01	0.01	0.07	0.13	0.04	0.37
PCB 153	bdl	bdl	bdl	bdl	bdl	bdl	0.06	0.03	0.13	0.01	0.02	0.08	0.14	0.05	0.42
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.05	bdl	0.07
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	0.01	bdl	0.24	bdl	bdl	bdl	0.02	0.01	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.03	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.01	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.51	1.15	0.11	0.28	0.40	1.16	0.43	1.90
moisture (%)	32.1	28.0	55.7	41.7	40.2	67.9	64.4	74.0	85.8	45.7	57.6	68.7	62.8	34.1	45.0

bdl - below detection limit (0.05 ng/g dry weight)

Table RE-1. Sediment sample collection sites at Reelfoot NWR, TN.

Site ID	Site Location
RE01	Reelfoot Creek from Hwy 22 bridge heading west ~ 1 mile
RE02	Reelfoot Lake at Spillway
RE03	Grassy Island
RE04	Reelfoot Lake - Carey Basin
RE05	Running Slough and ag ditch at north end of refuge
RE06	Upper Blue Basin
RE07	Long Arm
RE08	Reelfoot Lake - south end north of spillway - Champey Pocket

Table PS-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Panther Swamp NWR, MS (ng/g, dry weight).

<u>Parameter</u>	<u>Sampling Site</u>						
	PS01	PS02	PS03	PS04	PS05-2	PS06-1	PS07
Pesticides							
alpha BHC	bdl	bdl	bdl	bdl	bdl	0.08	0.10
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	0.05	0.08	0.07	0.08	0.27	bdl	0.11
heptachlor epoxide	bdl	bdl	0.17	bdl	bdl	bdl	bdl
alpha chlordane	bdl	bdl	bdl	bdl	bdl	0.16	bdl
gamma chlordane	bdl	bdl	bdl	bdl	0.67	0.11	0.15
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	0.01	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	0.25	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	0.01	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	0.10
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	0.34	0.50	0.07	2.77	0.23	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	0.55	bdl	0.10	bdl	bdl	0.17
4,4'-DDD	1.30	2.84	5.09	1.03	8.09	0.73	0.45
4,4'-DDE	3.39	7.75	10.79	2.07	15.56	1.66	2.45
4,4'-DDT	0.30	0.36	0.43	0.28	bdl	0.22	0.49
Sum of DDTs	4.99	11.84	16.81	3.55	26.42	2.84	3.56
PCBs							
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	0.01	bdl	0.04	bdl	bdl	bdl	0.04
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	0.37	bdl	0.05
PCB 66	bdl	bdl	bdl	bdl	0.17	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	0.01	bdl	bdl	bdl	0.22	bdl	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.02	0.00	0.04	0.00	0.76	0.00	0.09
moisture (%)	50.0	62.5	57.9	57.1	89.5	71.2	61.5

bdl - below detection limit (0.05 ng/g dry weight)

Table PS-1. Sediment sample collection sites at Panther Swamp NWR, MS.

Site ID	Site Location
PS01	Landside Ditch
PS02	Wade Bayou
PS03	Panther Creek
PS04	Deep Bayou
PS05	Sloughs east of levee (slough with culvert, Fish Lake / Tupelo Brake, Hamlin Brake)
PS06	Sloughs east of levee (Cockle Slough, Middle Slough, Little Tupelo Brake)
PS07	Johnson Bayou

Table OV-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Overflow NWR, AR (ng/g, dry weight).

<u>Parameter</u>	<u>Sampling Site</u>						
	OV01	OV02	OV03	OV04	OV05	OV06	OV07
Pesticides							
alpha BHC	bdl	bdl	bdl	bdl	0.09	bdl	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	0.10
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	0.13	bdl	bdl	bdl	0.13	bdl
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.13	0.12	bdl	0.34	bdl	bdl	0.09
gamma chlordane	0.14	0.15	bdl	0.43	0.14	0.10	0.06
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl	0.21
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	0.15	bdl	bdl	0.61	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	0.67	0.35	bdl	1.03	1.37	0.15	0.84
4,4'-DDD	0.53	0.12	bdl	1.62	1.79	0.24	bdl
4,4'-DDE	5.29	1.17	18.73	16.60	25.31	2.02	0.15
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	6.64	1.64	18.73	19.86	28.47	2.41	0.99
PCBs							
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	0.25	bdl	0.67	0.46	bdl	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 44	0.19	bdl	bdl	0.56	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	0.13	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	bdl	bdl	bdl	0.77	bdl	0.20
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	0.17	bdl	bdl	bdl	bdl	0.12	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.49	0.25	0.00	1.23	1.23	0.12	0.20
moisture (%)	57.1	50.0	53.3	64.3	50.0	46.2	33.3

bdl - below detection limit (0.05 ng/g dry weight)

Table OV-1. Sediment sample collection sites at Overflow NWR, AR.

Site ID	Site Location
OV01	Flat Slough
OV02	Overflow Creek - south of Flat Slough
OV03	Overflow Creek - north end of Refuge to Flat Slough
OV04	Gaines Slough
OV05	GTR
OV06	MSU east of Flat Slough
OV07	Beech Creek

Table MO-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Morgan Brake NWR, MS (ng/g, dry weight).

Parameter	Sampling Site					
	MO01	MO02-1	MO02-2	MO03	MO04	MO05
Pesticides						
alpha BHC	bdl	bdl	bdl	0.25	0.15	bdl
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	bdl	0.16	bdl	bdl	bdl	bdl
heptachlor epoxide	bdl	bdl	bdl	bdl	bdl	bdl
alpha chlordane	0.17	bdl	bdl	bdl	bdl	bdl
gamma chlordane	0.21	bdl	bdl	bdl	bdl	0.10
trans-nonachlor	bdl	bdl	bdl	bdl	bdl	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	0.68	bdl	bdl	bdl	0.54	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl
mirex	0.27	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	1.40	0.57	0.25
4,4'-DDD	0.95	bdl	bdl	bdl	1.02	0.38
4,4'-DDE	5.35	bdl	0.10	5.96	15.29	1.46
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	6.30	0.00	0.10	7.36	16.88	2.09
PCBs						
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	0.89	bdl	bdl	bdl	bdl	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	bdl
PCB 44	0.68	bdl	bdl	bdl	bdl	bdl
PCB 52	bdl	bdl	bdl	bdl	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	0.34	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	bdl	bdl	bdl	0.43	0.15
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	0.25	bdl	bdl	bdl	0.25	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	1.82	0.00	0.00	0.34	0.68	0.15
moisture (%)	63.6	63.6	38.1	68.5	53.8	48.8

bdl - below detection limit (0.05 ng/g dry weight)

Table LO-2. Concentrations of organochlorine pesticides and PCBs in sediment collected from Lake Ophelia NWR, LA (ng/g, dry weight).

Parameter	Sampling Site									
	LO01	LO02	LO03	LO04	LO05	LO06	LO07	LO08	LO09	LO10
Pesticides										
alpha BHC	0.04	bdl	bdl	bdl	bdl	0.05	bdl	0.07	0.04	0.03
beta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
delta BHC	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
lindane	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
heptachlor	0.04	0.16	0.09	0.03	0.05	0.04	0.08	0.04	0.04	0.04
heptachlor epoxide	0.14	bdl	0.20	bdl	bdl	bdl	bdl	bdl	bdl	0.03
alpha chlordane	bdl	bdl	0.23	bdl	0.06	bdl	bdl	0.06	0.05	0.05
gamma chlordane	0.22	bdl	0.36	0.04	bdl	bdl	bdl	0.06	0.05	0.04
trans-nonachlor	0.13	bdl	0.22	bdl	bdl	bdl	bdl	bdl	0.08	bdl
aldrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
dieldrin	0.47	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
alpha endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
beta endosulfan	bdl	bdl	bdl	bdl	bdl	bdl	bdl	0.08	bdl	bdl
endosulfan sulfate	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin aldehyde	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
endrin ketone	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
hexachlorobenzene	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
methoxychlor	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
mirex	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDE	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
2,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDD	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
4,4'-DDE	0.02	0.57	0.69	0.02	0.56	0.07	1.14	0.04	bdl	bdl
4,4'-DDT	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of DDTs	0.02	0.57	0.69	0.02	0.56	0.07	1.14	0.04	0.00	0.00
PCBs										
PCB 8	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 18	bdl	bdl	bdl	bdl	bdl	bdl	0.05	bdl	bdl	bdl
PCB 28	bdl	bdl	bdl	bdl	bdl	0.03	bdl	bdl	bdl	bdl
PCB 44	bdl	bdl	bdl	bdl	bdl	bdl	0.04	bdl	bdl	bdl
PCB 52	0.02	0.09	bdl	bdl	0.03	bdl	0.06	bdl	bdl	bdl
PCB 66	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 77	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 101	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 105	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 118	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 126	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 128	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 138	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 153	bdl	bdl	0.04	bdl	0.03	bdl	0.04	bdl	bdl	bdl
PCB 170	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 180	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 187	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 195	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 206	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
PCB 209	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl	bdl
Sum of PCBs	0.02	0.09	0.04	0.00	0.06	0.03	0.19	0.00	0.00	0.00
moisture (%)	43.5	75.0	68.1	39.1	55.6	39.3	70.0	53.9	44.0	50.0

bdl - below detection limit (0.05 ng/g dry weight)