

Oil Spill Health Effect Summary



MS Canyon 252 Oil Spill Surveillance Report

Week 27 From 07/04/2010 - 07/10/2010

The Oil Spill Surveillance Summary Report describes the results of the tracking done by the Louisiana Department of Health and Hospitals Office of Public Health (OPH) Section of Environmental Epidemiology & Toxicology (SEET). This report relies on data supplied by sentinel surveillance sites, including hospital emergency departments, outpatient clinics, physicians' offices and Louisiana poison control center.

SEET is tracking and evaluating all reported acute health effects related to the BP Oil Spill. Potential complaints include exposure to odors/fumes, skin contact with contaminated water or objects, heat stress, in addition to injuries such as lacerations/fractures resulting from clean-up or containment activities. This report is limited to exposures to odors/fumes, skin contact with contaminated water or objects and heat stress.

What to report	
Patient name and contact information, name of reporting facility, name and telephone number of person reporting event, and brief description of health complaint and treatment. OPH/SEET will follow-up if more information is needed.	
How to report	
Telephone	888-293-7020 (24/7)
Fax	225-342-8117
Database	
All human surveillance data are entered in a database maintained by SEET. The data include demographic characteristics about persons exposed, workers from the rigs, workers involved in clean up, other workers (EMS for example) and residents. Data are also collected on the nature of exposure, type of work, route of exposure and location of exposure. Clinical and health care utilization data are also collected.	

Summary

There have been 227 reports of health complaints believed to be related to exposure to pollutants from the oil spill. One hundred ninety-three (193) reports came from workers and 34 from the general population (see limitations of these data explained on page 2). Most frequently reported symptoms include headache, dizziness, nausea, vomiting, and upper respiratory irritation. The general population complaints were related to odors, and symptoms were considered mostly mild. Seventeen (17) individuals had short hospitalizations.

The syndromic surveillance system is monitoring emergency department visits in 7 hospitals in regions 1, 3 and 9 to determine if there are increases in upper respiratory illnesses (URI) and asthma increasing in the region. This year's weekly data (percentage of asthma and URI among emergency department visits) are compared with the past 3 years. There is no increase to report (see page 6).

Treatment information	Call the Louisiana Poison Center: 1-800-222-1222. The Poison Center is staffed 24-hours a day and can provide medical management advice.
Information on potential health risks related to the oil spill see	http://emergency.cdc.gov/chemical/oil_spill_gm_2010.asp

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| Page 1: Summary | Page 5: Illness and health care utilization |
| Page 2: Comments | Page 6: Syndromic surveillance |
| Page 3 : Demographics of persons exposed | Page 7: Air surveillance data |
| Page 4: Details about exposures | Page 8: Seafood surveillance data |

Data presented in this report is in aggregate form, there are no personal identifier and no individual line listing that could be used to identify individuals. This is a public document

Comments

On April 20, 2010, the Deep Water Horizon exploded and collapsed into the Gulf of Mexico on April 22 (CDC week 16). Four weeks later, the health surveillance system in place started to receive reports of human exposures.

Goal of the targeted surveillance

The goal of this surveillance is to monitor possible human health effects due to exposure to pollutants and heat stress resulting from the spill and clean up efforts. This report does not include injuries which are the primary conditions affecting the workers. It also does not include chronic disease (for example, it would not include hypoglycemia in a diabetic worker) or acute conditions that are not directly resulting from pollutants (for example, a foodborne outbreak), but it includes any exacerbations of a chronic condition that could be resulting from exposure to pollutants (mainly for pulmonary and dermatologic conditions resulting from inhalation or skin exposure).

A surveillance is a dynamic system

As reports are received, they are entered in a database. From this database, interviewers will collect additional information from the reporter and from the patient. This process may take several days. This report summarizes the status of the database at the time the report is compiled. Week to week comparisons are discouraged as data may change when new information becomes available.

Limitations of exposure histories and health complaints

Because of the nature of environmental exposures, the exact cause of symptoms or exposures cannot be confirmed. Health complaints are the symptoms and signs reported by the person affected. Some of these are objective (vomiting, for example), others are subjective (nausea, for example). There are large variations in how subjective symptoms are perceived and reported.

Syndromic surveillance

Syndromic Surveillance utilizes the detection of well-defined symptoms as an indicator of the possible presence of a public health problem. The Metro New Orleans Hospital Emergency Department Syndromic Surveillance Report is compiled from Emergency Department (ED) Chief Complaint data reported to LAOPH Infectious Diseases Epidemiology Section by Metro New Orleans hospitals (7 hospitals from Regions 1, 3 and 9). Text contained in the Chief Complaint data is analyzed by CDC-supplied software, and ED records are flagged when Chief Complaint data contain text indicative of a specific syndrome. Infectious Disease Epidemiology currently flags ED records when Chief Complaint data indicate specific syndromes. For the purpose of this surveillance, "Asthma" and "Upper respiratory symptoms" are of interest.

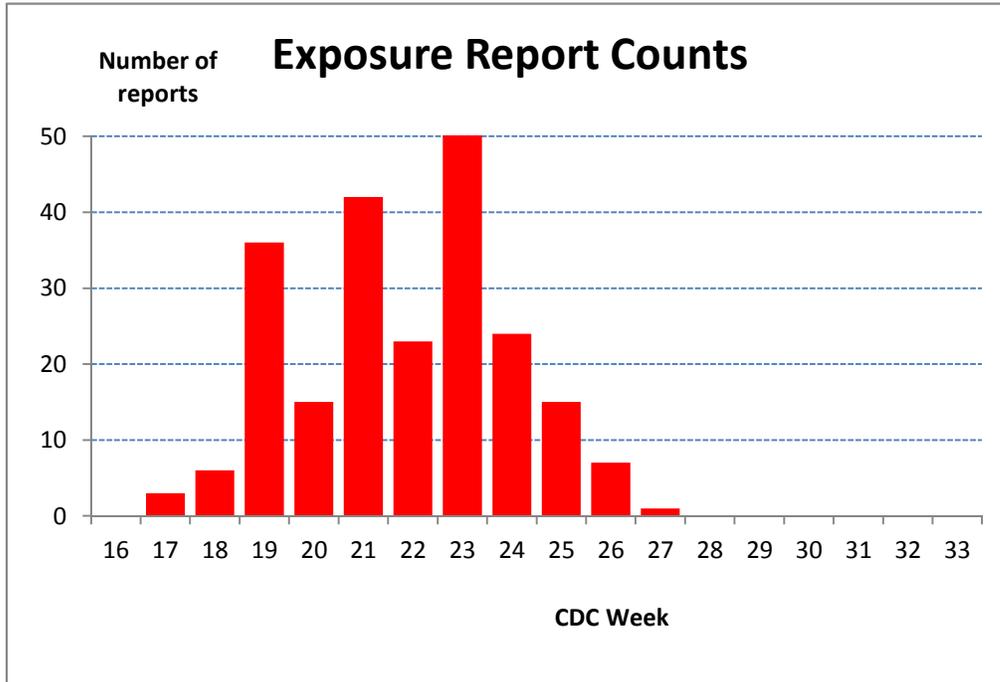
CDC Week

To facilitate the coordination of reporting, the Centers for Disease Control, assigns a number to each week of the year. The dates corresponding to each week in the report are explained on Page 3.

Oil Spill Exposure Demographic Information

This graph shows the number of reports for conditions perceived to be related to exposure to oil spill materials. This type of data is based on a patient's report and does not necessarily reflect a confirmed health effect from the oil spill. On the other hand, cases of exposures that did not warrant accessing medical care are not reported here.

Total numbers	Reports	227	Workers	193	Home	34
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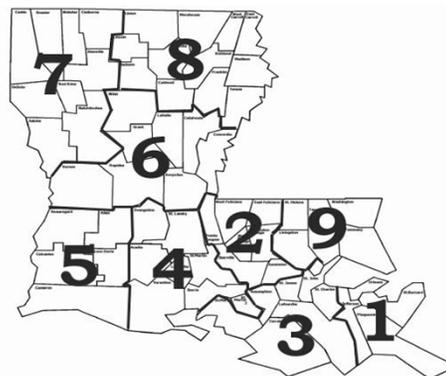
First day of the week	CDC Week	Report
04/18/10	16	0
04/25/10	17	3
05/02/10	18	6
05/09/10	19	36
05/16/10	20	15
05/23/10	21	42
05/30/10	22	23
06/06/10	23	55
06/13/10	24	24
06/20/10	25	15
06/27/10	26	7
07/04/10	27	1
07/11/10	28	0
07/18/10	29	0
07/25/10	30	0
08/01/10	31	0
08/08/10	32	0
08/15/10	33	0
08/23/10	34	0
08/30/10	35	0

Age and Gender distribution

	Gender		Age					Total
	M	F	0-17	18-44	45-64	65+	Unk	
Worker	172	21	2	141	42	3	5	193
General population	9	25	6	12	13	2	1	34
Total	181	46	8	153	55	5	6	227

Parish of residence

Region	Total
1: Greater NO	16
Orleans	16
Jefferson	16
Plaquemines	11
St. Bernard	6
2: Baton Rouge	4
3: Houma/Thibodaux	30
Lafourche	30
Terrebonne	20
Other	5
4: Lafayette	11
5: Lake Charles	2
9: North Shore	6
St. Tammany	6
Other	3
Other Louisiana	4
Out of State	27
Unknown	66
Total	227



**Illness
Health Care Utilization**

Illness Information		
	Work	Pop
Respiratory		
Nose irritation	9	3
Nose bleed	2	0
Throat irritation	30	15
Shortness of breath/difficulty breathing	17	5
Aggravation of existing asthma	1	5
Aggravation of existing respiratory illness (COPD)/other	1	2
Cough	24	7
Wheezing	3	3
Eye		
Eye irritation	13	14
Blurry vision	5	0
GI		
Nausea	63	10
Vomiting	41	0
Diarrhea	13	1
Cvasc		
Chest pain	17	0
Irregular beat/rapid beat	7	0
Skin		
Rashes	18	0
Other	8	3
Other		
Headache	73	15
Dizziness	44	3
Tremors	3	0
Syncope	6	0
Weakness	29	0
Fatigue	9	0
Fever	6	1
Diaphoresis	5	0
Altered Taste	5	1
Total Reported Symptoms	452	88
Patients	193	34
*Cases may be counted in more than 1 category		

Health care utilization

	Work	Pop
Type of health care obtained		
Call, no care delivered	5	23
Emergency department/Urgent care	106	5
Clinic /Physician office/EMS	82	6
Total	193	34
Hospitalization: All were short, generally 1 day	17	0

Clusters

01-05/13/10: Sixteen oil rig workers were exposed to fumes reported to be dispersant. They experienced nausea, vomiting and flu-like symptoms. They were sent to a Plaquemines Parish clinic. By the time they arrived most symptoms have been alleviated. They were examined, treated symptomatically and released immediately.

02-05/13/2010: Five offshore oil rig workers complained of irritative symptoms after being exposed to fumes thought to be dispersant. They were sent to Lafayette clinic, examined, treated symptomatically and released immediately.

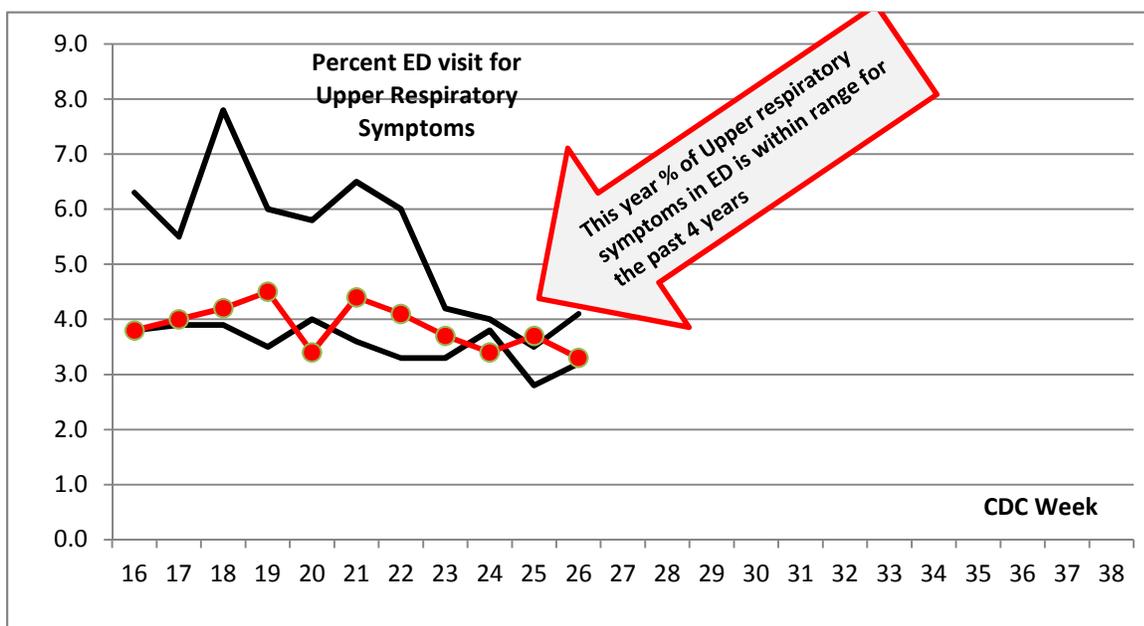
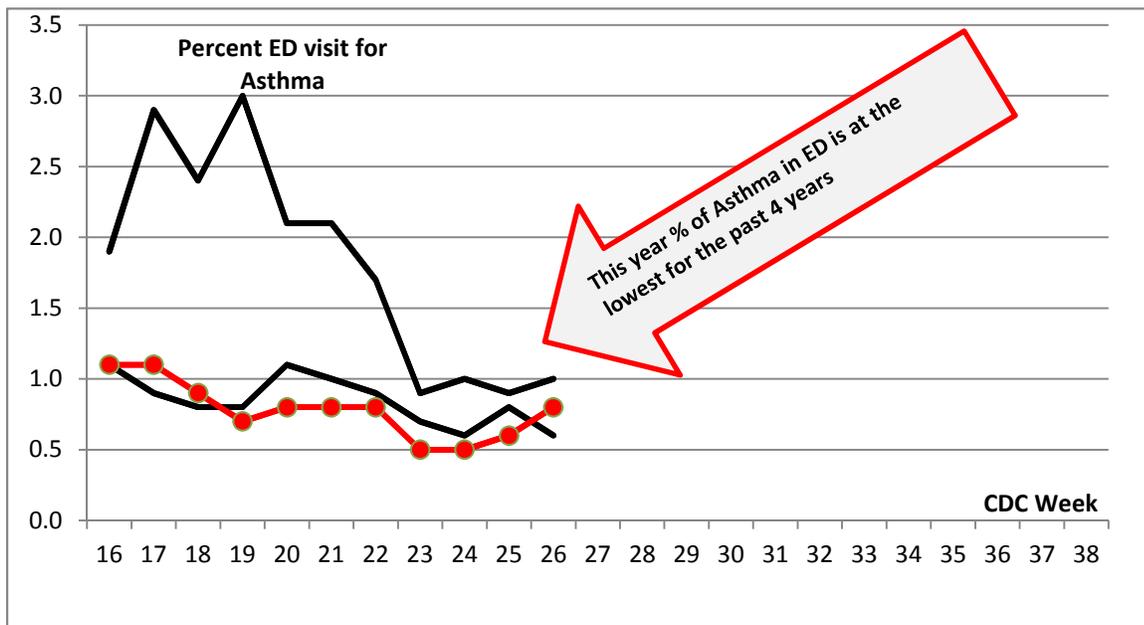
03-05/26/10 Seven clean-up workers had been working on a boat, busting oil sheen for two weeks. They experienced nausea, headaches, burning throat and chest pain. They were exposed to fumes they believed to be dispersant. They were transported to West Jefferson hospital. One was released the same day. Six others were hospitalized (5 for 1 day, 1 for 2 days). CDC/NIOSH conducted an investigation and information is available at <http://www.cdc.gov/niosh/topics/oilspillresponse/gulfspillhhe.html>

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Infectious Diseases Epidemiology currently flags ED records when Chief Complaint data indicate specific syndromes. For the purpose of this surveillance, "Asthma" and "Upper Respiratory" symptoms are of interest.

The black lines (smooth, no dots) represent the lowest and the highest percentages observed in the past 3 years. The red lines (with dots) represent the percentages observed this year. The syndromic surveillance does not show any higher rates in the GNO area.



Air surveillance

1- EPA

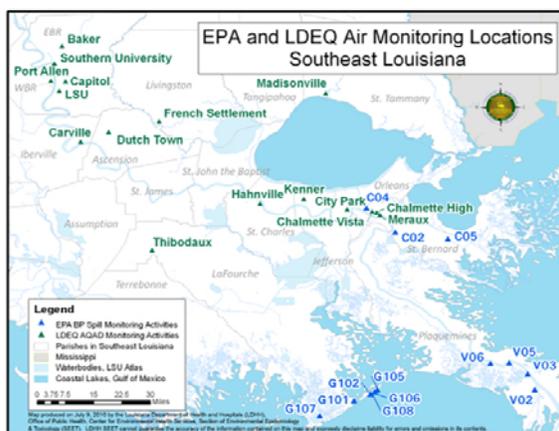
EPA performs 24-hour air sampling for volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and particulate matter (PM2.5) using stationary air monitors at 9 sites across Southeastern Louisiana (see map). These monitors are also used for continuous hourly monitoring of hydrogen sulfide (H2S), sulfur dioxide (SO2), and PM10. EPA's mobile TAGA (Trace Atmospheric Gas Analyzer) unit performs real-time episodic monitoring of H2S, SO2, benzene, toluene, xylene, and components of the dispersant being used on the oil spill.

2- Louisiana Department of Environmental Quality's (LDEQ) Air Quality Assessment Division (AQAD)

LDEQ monitors levels of H2S, SO2, total non-methane organic carbon (TNMOC), and PM2.5 using ambient air monitors located in a number of cities across Southeastern Louisiana (see map).

3- Center for Toxicology and Environmental Health, LLC (CTEH)

CTEH is a private company working with BP to monitor the effects of the oil spill. CTEH monitors VOCs, H₂S, SO₂, and particulate matter (PM2.5 and PM10) along the Gulf shores from Galveston, TX to Appalachee Bay, FL.



SUMMARY of EPA AIR DATA, June 29, 2010 – July 1, 2010

– PM10 exceedences occurred in Grand Isle, with the highest 1-hour average (491 ug/m³) occurring at Grand Isle G108 on June 29; the lowest PM10 reading that day was 14.8 ug/m³. Particulates have generally been present at normal levels for the Gulf coastline at this time of year. [NOTE: Particulate matter measurements are affected by humidity. Readings trend higher with higher humidity levels.]

– Levels of benzene exceeded screening values in two TAGA bus samples taken in New Orleans, LA. The twenty-five other benzene concentrations sampled at this time (15:45) were below the screening values.

– Hydrogen sulfide (H₂S) levels exceeded screening values but remained below concentrations observed to cause health problems. The lowest observable adverse effects level for H₂S is 2 ppm (or 2780 ug/m³) (from ATSDR Toxicological Profile for H₂S).

NOTE: News of EPA reporting that air quality in Grand Isle and Venice pose a slightly elevated health risk to sensitive populations appear to come from an LDEQ explanation about the Air Quality Index being at the "Moderate" level for particulate matter (PM) on July 7 (data file not yet posted). One day of elevated PM levels is not considered to be a public health concern, and no trend of elevated PM levels currently exists.

SUMMARY of LDEQ/AQAD AIR DATA REPORTS June 24, 2010 – July 7, 2010

– TNMOC and SO₂ readings were reported as normal for these sites.

– H₂S was present in ranges that could be detected by smell but are not considered health threatening.

– PM2.5 levels remained below the National Ambient Air Quality Standards

SUMMARY of CTEH's AIR DATA REPORTS, July 5, 2010 – July 6, 2010

– Oil spill-related VOCs were not detected between Galveston, TX and Appalachee Bay, FL.

Contaminants	Scr Value	Source	Particulate Matter (Louisiana)	
Volatile Organic Compounds (VOCs) (Louisiana)			PM10	150 ug/m ³ 24-hour Level of Concern
Benzene	29 ug/m ³	Acute MRL	PM2.5	35 ug/m ³
Ethylbenzene	43000 ug/m ³	Acute MRL	H2S	0.07 ppm Acute EMEG
Isopropylbenzene (Cumene)	4000 ug/m ³	HQ=10	SO2	0.01 ppm Acute EMEG
Naphthalene	30 ug/m ³	HQ=11	Dispersant Components (Louisiana)	
Toluene	3800 ug/m ³	Acute MRL	2-butoxyethanol	
m-, p-, or o-Xylene	8700 ug/m ³	Acute MRL		330 ppb RfC
PAHs (Gulf coastline, not measured in Louisiana)			1-(2-butoxy-1-methylethoxy)-2-propanol	7 ppb RfC (also known as Dipropylene Glycol Mono Butyl Ether)
Benzo (a) anthracene	8.7 ng/m ³	RBC	The Acute Minimal Risk Level (MRL), Hazard Quotient (HQ = 10), and 24-hour Level of Concern are EPA's primary Deep Water Horizon screening values for air. Risk-based Concentrations (RBC) are calculated by EPA Mid-Atlantic Risk Assessment. Acute Environmental Media Evaluation Guides (EMEGs) are calculated by the ATSDR and apply to acute (14 days or less) exposures. The screening value chosen by the EPA for 1-(2-butoxy-1-methylethoxy)-2-propanol is the reference concentration (RfC) for the most toxic glycol ether.	
Benzo (a) pyrene	0.87 ng/m ³	RBC		
Benzo (b) fluoranthene	8.7 ng/m ³	RBC		
Benzo (k) fluoranthene	8.7 ng/m ³	RBC		
Chrysene	87 ng/m ³	RBC		
Dibenz (a,h) anthracene	0.8 ng/m ³	RBC		
Indeno(1,2,3-cd)pyrene	8.7 ng/m ³	RBC		
These screening values are not indicators of potential health risks. They function as triggers for further evaluation when contaminant concentrations exceed the screening values.				

Seafood Surveillance

The Louisiana Department of Health and Hospitals (DHH) and Department of Wildlife and Fisheries (DWF) have been collecting seafood samples since 04/30/2010. Oysters, Shrimp, Crab and Finfish (e.g. Drum, trout, catfish, sheepshead, croaker) are collected by DHH and DWF personnel and brought to a laboratory to undergo analysis for PAH (Polynuclear Aromatic Hydrocarbons) and aliphatic (straight chain) hydrocarbon compounds.

SUMMARY OF SEAFOOD DATA, 04/30 to 06/28, 2010: Of 366 seafood samples (Figure 1) collected between April 30, 2010 and June 28, 2010 (Table 1), trace levels of PAHs were detected in 33 samples (Table 2). All compounds detected were below screening levels (Table 3), meaning that any chemicals detected were below levels that could potentially threaten the public's health. DHH personnel collect a water sample from Oyster Harvest Areas at the time oysters are collected. Between April 30, 2010 and June 28, 2010, 44 water samples were collected and analyzed for total petroleum hydrocarbons (TPH). TPH was not detected in any of the samples.

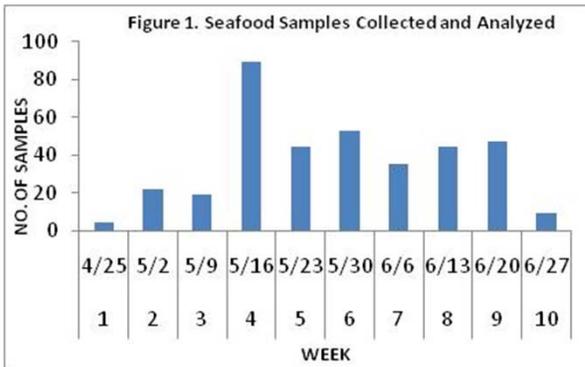


Table 1. Seafood Sample Count by DHH Oyster Harvest Area

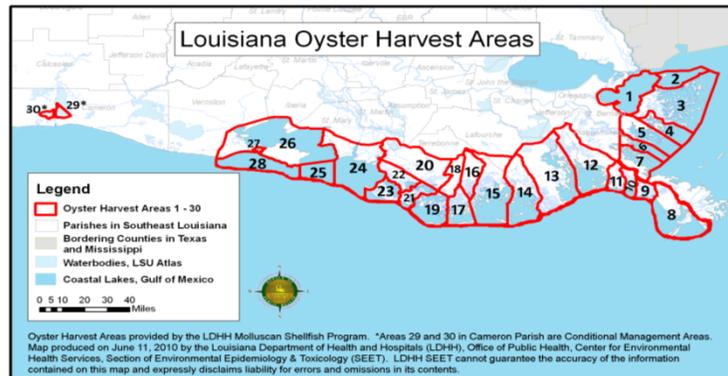
DHH Oyster Harvest Areas	Oysters	Shrimp	Crab	Finfish	All seafood
	1	2	0	0	6
2	6	0	0	0	6
3	15	13	1	7	36
4	2	0	0	5	7
5	5	1	1	9	16
6	7	6	1	12	26
7	10	11	0	14	35
9	3	0	0	0	3
10	1	0	0	0	1
12	1	10	1	10	22
13	18	5	3	9	35
14	2	2	0	2	6
15	4	4	4	5	17
16	2	1	5	3	11
17	3	1	0	1	5
19	9	5	3	6	23
21	4	1	0	4	9
23	0	1	1	2	4
26	5	9	6	10	30
27	1	0	0	0	1
28	9	4	4	8	25
Btw 28/29	0	1	0	1	2
29 & 30	7	13	2	16	38
All areas	116	88	32	130	366

Table 2. Seafood Sampling Results: 4/30 to 6/28

	No. of samples			Range (mg/kg)	Hydrocarbon compounds detected include Chrysene, Fluorene, Fluoranthene, Naphthalene, Phenanthrene, and Pyrene.
	Total	NOT detected	Detected		
Oysters	116	101	15	ND-0.020	
Shrimp	88	81	7	ND-0.062	
Crab	32	30	2	ND-0.012	
Finfish	130	121	9	ND-0.014	
All seafood	366	333	33	ND-0.062	

Table 3. Comparison Values for Hydrocarbon Compounds

Compound	Tissue Screening Levels ¹ mg/kg	Levels of Concern ² mg/kg
C12-C36 Aliphatics	233	--
PAH:		
Anthracene	700	490-2000
Benzo(a)anthracene	0.75	0.35-1.43
Benzo(a)pyrene	0.075	0.035-0.143
Benzo(b)fluoranthene	0.75	0.35-1.43
Benzo(k)fluoranthene	7.5	3.5-14.3
Chrysene	75	35-143
Dibenzo(a,h)anthracene	0.075	0.035-0.143
Fluoranthene	93	65-267
Fluorene	93	65-267
Indeno(1,2,3-CD)pyrene	0.75	0.35-1.43
Naphthalene	47	33-133
Phenanthrene	700	490-2000
Pyrene	70	49-200



¹ TSLs for fish/shellfish are based on the assumptions and methods presented in the draft Protocol for Issuing Public Health Advisories for Chemical Contaminants in Recreationally Caught Fish and Shellfish (January 2010)
² Protocol for Interpretation and Use of Sensory Testing and Analytical Chemistry Results for Re-opening Oil-impacted Areas Closed to Seafood Harvesting (FDA and NOAA 6/18/2010)