

UTMB NIEHS Center in Environmental Toxicology: Response to Environmental Health Impacts of Natural and Man-made Disasters

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Hurricanes Katrina, Rita, and Isaac

- Needs Assessments
- Relief and Response:
 - Collecting and delivering essential relief supplies
 - Partnering and assisting to provide clean-up materials, PPE, and safety protocols
- Planning and Response:
 - Year-long assessment of community resiliency and preparedness



Hurricane Ike

- Needs Assessments
- Relief and Response
- Community-Based Participatory Research:
 - Assessed post-Ike sediment sludge at request of local social service agency (sludge deposited in 75% of island residential and commercial buildings)
 - Collected and analyzed sediment samples for toxicants
- Education and Training:
 - Safety training sessions for college student volunteers and non-English speaking workers and families
 - Developed educational series on mold and lead paint



Deep Water Horizon Oil Rig Explosion and Fire / BP Oil Spill



NIEHS U19 Consortia Project: Gulf Coast Health Alliance: health Risks related to the Macondo Spill (GC-HARMS)

Where Oil Made Landfall on Gulf Coast



Map key

Amount of oil found on marshes and shores in federal surveys

■ Heavy ■ Moderate ■ Light

□ Oil locations reported by the National Park Service and by state and local officials in Mississippi, Alabama and Florida

■ Combined oil slick areas May 8 to June 12

■ Marshes ■ Urban areas

Consortium Partners

- UTMB
- University of Pennsylvania
- Texas A&M University at Galveston
- Louisiana State University (Lafayette, LA)
- Louisiana State University (Baton Rouge, LA)
- Louisiana Environmental Action Network (Baton Rouge, LA)
- Center for Environmental and Economic Justice (Biloxi, MS)
- Vietnamese Fisherfolk (Gulfport, MS)
- United Houma Nation (Houma, LA)
- Alabama Fisheries Cooperative (Codon, AL)
- Bayou Interfaith Shared Community Organizing (Thibodaux, LA)

Mission

- to explore the **health impacts** and **community resiliency** related to the DWH Disaster by fostering collaborative interactions amongst **multi-disciplinary, multi-institutional** basic and clinical investigators—supported by active participation of the **community partners**—to pursue both fundamental and translational research pertinent to the effects of the oil spill on human health

Goals and Objectives

- Assess PAH contamination of Gulf seafood
- Determine the toxicity of petrogenic PAH
- Evaluate exposure and health outcomes in a longitudinal cohort study involving community partners
- Disseminate findings to community stakeholders



Galveston Bay Bunker Fuel Spill

- Deployed team to obtain oil and water samples from affected areas
- Banked samples of shrimp, crabs, squid, oysters, and finfish
- Prepared R21 proposal for continued monitoring of spill effects on food web and humans who consume seafood potentially contaminated by oil



Problems and Challenges

- Difficult to get out into the field in a timely manner
 - Funding usually has to be repurposed or solicited.
 - Communications lack infrastructure and are thus fragmented and intermittent.
 - Everything takes too much time! (e.g., approved vendors)
 - Communities are rarely prepared for disasters. The least resilient are often the least prepared, lacking sufficient funding and/or community support.
- Emergency responders lack training on possible environmental exposures, e.g., Ike sediment sludge included sewage, VOC's, sulfur compounds, other chemicals from legacy pollutants.

More Problems

- Coordination among local, state, and federal agencies sometimes lacks infrastructure and thus impedes communication and integration of efforts
- Emissions or spills resulting from flooding or accidents are frequently not identified until much too late to protect public health, e.g., the Braithwaite chemical spills in the aftermath of Hurricane Isaac
- Tension between and among community members and groups, industry, science and government can intensify in emergent situations. e.g., the explosion of the BP facility in Texas City and the Galveston Bay spill

Technology is often a barrier—particularly in its absence:

- Phones:
 - Cell phone service is often interrupted
 - Towers can be knocked down or as in Hurricane Ike, commandeered by emergency services
 - Fewer and fewer individuals have land lines
- Internet Access:
 - Can be limited: power outages, cable interruption, cell tower disruption
 - Difficult for individuals to sign up for services online
 - Emergency materials (e.g., MSDS sheets) are often only available online which renders accurate communication of risks difficult if not impossible

Gulf Coast EH Disaster Response Network

- Developing partnership with Galveston County network of regional Emergency Management representatives
- Leveraging Emergency Management training to respond effectively to disaster situations and transition quickly to short-term recovery efforts
- Seeking complementary EH and Research Emergency Response plan with City and County Emergency Response Plans and integrating Center Resources:
 - Capture and analyze samples, provide training for employees and other responders, and provide results to the City and other affected community agencies and groups to drive dissemination, intervention, outreach, and education efforts
- Exploring the possibility of developing policies to enable rapid approval of disaster response research protocols

Questions?

