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

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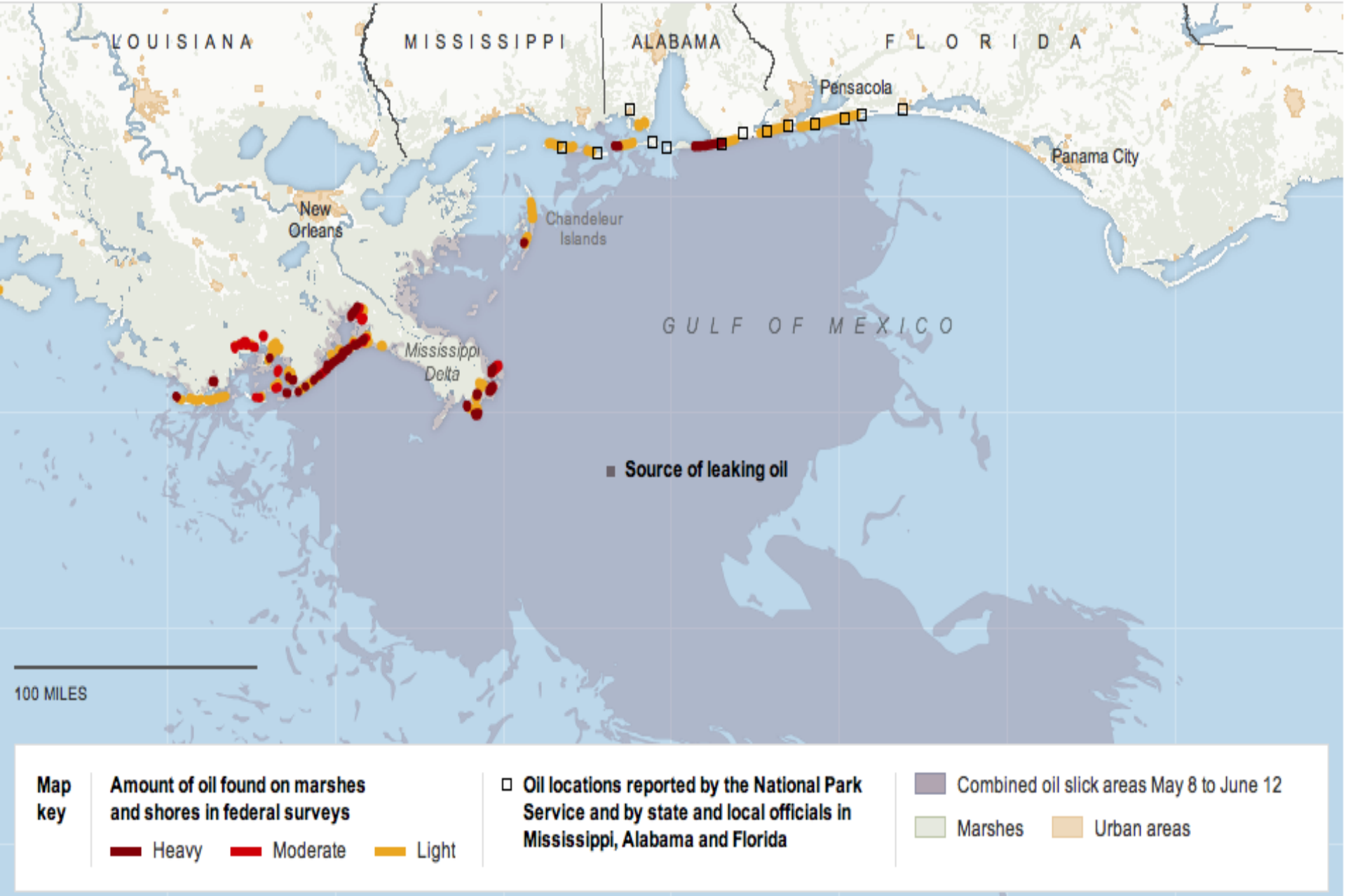
Where Oil Made Landfall on Gulf Coast



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 Fishers (Gulfport, MS)
- United Houma Nation (Houma, LA)
- Alabama Fisheries Cooperative (Coden, AL)
- Bayou Interfaith Shared Community Organizing (Thibodaux, LA)

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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

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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

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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 proposal for continued monitoring of spill effects on food web and humans who consume seafood potentially contaminated by oil

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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, funding proposals, IRB approval process)
  - 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

And yet MORE Problems

- Baseline data are largely non-existent in most cases regarding pre-existing pollution or for prevalence of disease or symptoms in the human population
- Those impacted by a disaster may be too profoundly affected to serve as first, second, or even third responders

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

Recommendations

- Develop partnerships with networks of regional Emergency Management representatives
- Develop capacity to 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
- Leverage Emergency Management training to respond effectively, immediately, and appropriately to disaster situations and transition quickly to short-term recovery efforts
- Explore the possibility of developing policies to enable rapid approval of disaster response research and IRB protocols
- Carry out environmental and environmental health risk assessments PRIOR to events

Recommendations

- Form a network of Board-certified Occupational and Environmental Doctors to:
  - Prepare implementation plans to serve as first responders
  - Adequately train health practitioners in recognizing environmentally associated symptoms and illnesses
  - Provide education and dissemination regarding actual and potential exposures resulting from a disaster and the appropriate measures to take to protect the public health

Questions?

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