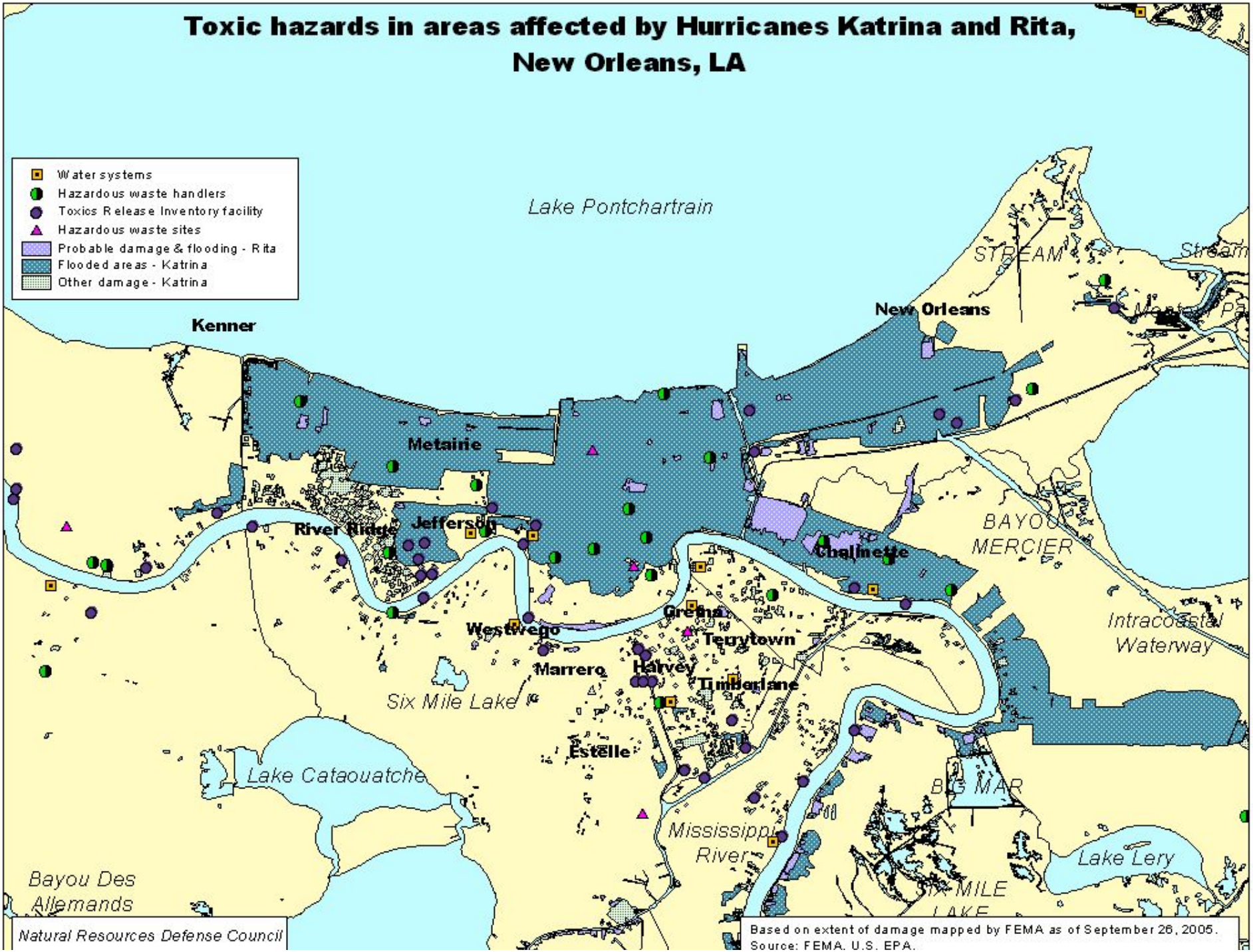
Soil Contamination in New Orleans: Impact of the 2005 Hurricanes

Miriam Rotkin-Ellman MPH, Natural Resources Defense Council (NRDC)

NRDC
THE EARTH'S BEST DEFENSE

ondaverde
nuestro planeta, nuestro futuro



Contaminated Floodwaters

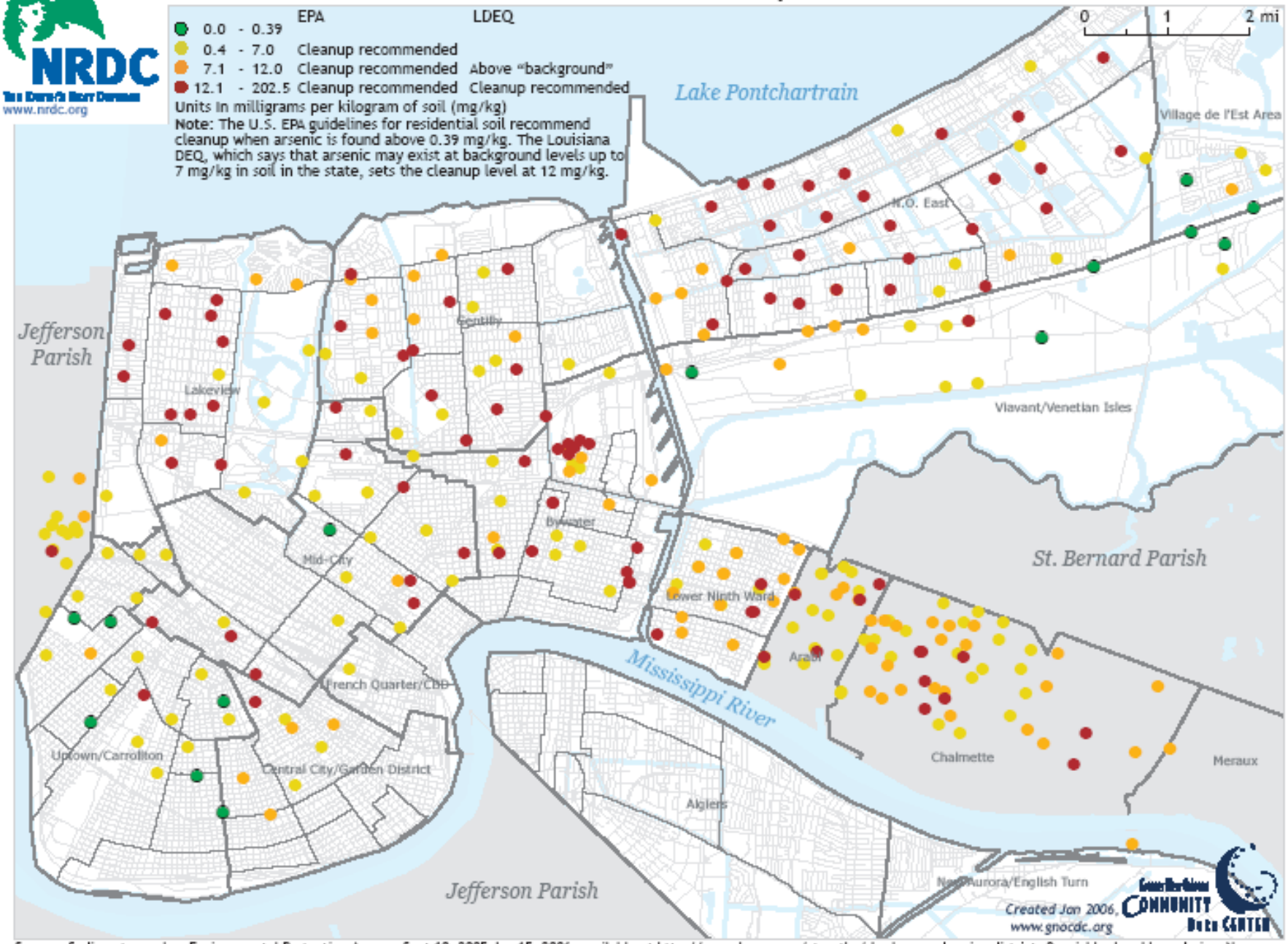
- Contaminated Sites
  - Superfund sites
  - Brownfield remediation
  - Lead impacted soils

- Chemical Spills
  - Fuels
  - Industrial Chemicals
  - Sewage

Contaminated Sediment

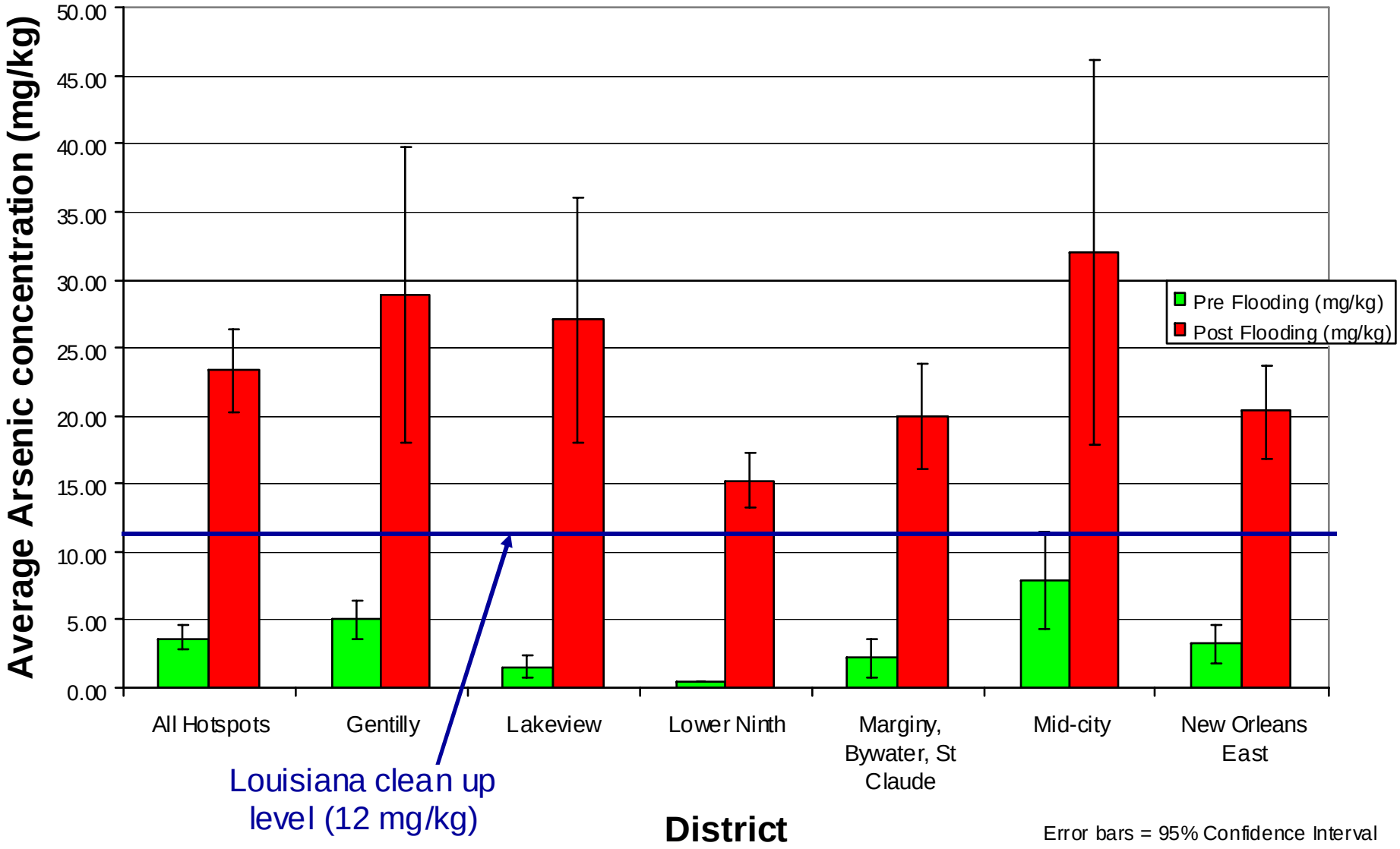
- Petroleum Products
- Polyaromatic Hydrocarbons (PAHs)
- Lead
- Arsenic

Arsenic Levels in New Orleans Area Sediment Samples



Source: Sediment samples, Environmental Protection Agency, Sept 10, 2005-Jan 15, 2006, available at http://oaspub.epa.gov/storetkp/dw_home; planning districts & neighborhood boundaries, New Orleans City Planning; streets & water, Census TIGER; data analysis, NRDC & GNOCDC.

Comparison of Arsenic Levels Pre & Post Flooding



Public Health Implications

- Short Term
  - Respiratory threat due to contaminated dust
  - Exposures during cleanup efforts
- Long Term
  - Residential soil contamination

Arsenic in New Orleans 1.5 Years Later

- Sampling Conducted in March 2007
- Results
  - Majority returned to pre-flood levels
  - Elevated locations remain
  - Schoolyards & Playgrounds

Sampling Location	Number of sites sampled	Average Arsenic (mg/kg)	Range Arsenic (mg/kg)	Percent of sites sampled that were above clean-up level (>12 mg/kg)
Residential Neighborhood	81	3.38	0.41 – 41.0	4.94%
Playgrounds	15	6.83	0.45 - 19.3	13.33%
Elem/Middle Schools	20	6.85	0.40 – 34.4	30.00%
Total	*116*	*4.43*	*0.40 - 41.0*	*10.34%*

Sources of Arsenic Contamination

- Arsenic (CCA) treated wood
- Arsenate pesticides
- Contaminated sediment from canals and Lake Pontchartrain.
- Trash incineration
- Leakage from industrial sites

What's Needed

- Further investigation of soil contamination
- Public education
- Community involvement in site assessments and cleanup
- Resources for soil cleanups where needed

Conclusions

- Elevated arsenic levels in floodwater sediment not solely due to preexisting contamination
- Threat of long term soil contamination with arsenic and future health risks
- Community involvement and participation in assessments and clean-up
- Multiple and complex environmental health impacts from Hurricane Katrina
- Action needed to prevent future environmental justice impacts

Acknowledgements

- Local Collaborators
  - Dr. Howard Mielke's lab, Tulane University
  - Dr. Agwaramgbo and students, Dillard University
  - Peoples Environmental Center
  - Deep South Center for Environmental Justice
- NRDC Katrina response team
- Funders
  - Anne and Greg Avis, Colleen Bell, Leslie and Walter Burlock, Frank Hatch, the Heinz Family Foundation, The Charles M. and Mary D. Grant Foundation, Sofie Barron Howard, Patricia Cox Hunckler, Jesse and Mary Tyler Johnson, Pamela Kohlberg, Gwen McCaw, Henry van Ameringen, and Dorothy Weaver.

More Information

- Natural Resources Defense Council (NRDC)-New Orleans Response
  - http://www.nrdc.org/health/effects/neworleans.asp
- Deep South Center for Environmental Justice-Community Soil Remediation Project
  - http://www.dscej.org/asafewayhome.htm
- Peoples Environmental Center
  - http://www.peoplesenvironmentalcenter.org/index1.html
- Dr. Mielke's work on soil contamination in New Orleans
  - http://www.cbr.tulane.edu/themes/Mielke_H.html