The Gulf of Mexico Research Initiative

From Response to Coordinated Research
Established 2011

www.gomri.org
GoMRI is not part of the National Academy of Science or NFWF

GoMRI is not part of NRDA or CWA
The mission of Gulf of Mexico Research Initiative (GoMRI) is to implement an independent research program that will

1. study the effect, and the potential associated impact, of hydrocarbon releases on the environment and public health

2. Develop improvements for spill mitigation, oil detection and characterization, and advanced remediation technologies.
Research Themes

1. Physical distribution and ultimate fate of contaminants associated with the *Deepwater Horizon* incident;
2. Chemical evolution and biological degradation of the contaminants;
3. Environmental effects of the contaminants on Gulf of Mexico ecosystems, and the science of ecosystem recovery;
4. Technology developments for improved detection, characterization, mitigation, and remediation of offshore oil spills; and
5. Impacts of oil spills on public health.
Research Board

- Rita Colwell – UMD & JHU
- Margaret Leinen – FAU
- Debra Benoit – Nicholls State
- Peter Brewer – MBARI
- Richard Dodge – NOVA SE
- John Farrington – WHOI
- Kenneth Halanych – Auburn
- David Halpern – NASA
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- Ciro Sumaya – Texas A&M
- Dennis Wiesenburg – USM
- Rick Shaw – LSU
- Dana Yoerger – WHOI
- Michael Carron – PD¹
- Chuck Wilson – CSO ¹

¹ Ex Officio
All Funded Research to Date

- **Year One Block Grants** – $45M, 149 Projects (some still in progress)

- **Summer 2011 Bridge Grants (RFP III)** – $1.5M, 17 Projects (completed)

- **Year 2 (2012)** – 8 Consortia Grants (RFP I) – $110 M, 8 RC (in progress)

- **Year 3–5 (2013) Investigator Grants (RFP II)** – $18.6 M, 19 projects (in progress)

- **In the past two years** (as of March 31, 2014)
  - @ 300 scientific peer-reviewed publications/book chapters
  - over 300 manuscripts in preparation or submitted for peer review
  - over 1600 presentations and poster sessions given at conferences and scientific meetings
  - >600 graduate students.
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<th>Count</th>
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<tr>
<td>21</td>
<td>Environmental Science &amp; Technology</td>
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<td>15</td>
<td>Marine Polution Bulletin</td>
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<td>PLoS ONE</td>
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<td>Langmuir</td>
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<td>Environmental Research Letters</td>
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<td>Journal of Geophysical Research Research</td>
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<td>Proceedings of the National Academy of Sciences</td>
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<td>Energy &amp; Fuels</td>
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Dispersion by physics and plankton, behavior and hydrocarbon transformation of deep oil spills, influences on fate and transport, environmental consequences, ecosystem impacts, oil plume fate, ecotoxicology, improved dispersants, modeling of fate, transport, and ecosystems
Initial Conditions:

- Gas and Oil Flowrate
- Bubble and Droplet Size
- Density of Gas and Oil

Complications from Chemistry:

- Gas Hydrate Formation
- Gas and Oil are Mixtures
- Gas and Oil Dissolution
- Oil may be at Effervescing some Gases
- Formation of Emulsions
CARTHE – Univ of Miami – Drifter study encounters Hurricane Isaac
GoMRI RFPI and RFPII research areas
Publications to date (N=300)
Confirms Methane-Eating Bacteria Contributed to Carbon Entering Food Web

Sugar Molecules Can Remove Crude Oil from Sand

PAHs in Mississippi Seafood below Levels of Concern

gulfresearchinitiative.org
Found Potential Oil Degradation Signal in Coastal Waters

Dispersant Increases Oil Compounds Entering Atmosphere via Bursting Bubbles

Clams are Oil Indicator Species for Gulf of Mexico Surf Zones

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Evaluated Synthetic Aperture Radar as Oil Spill Detection Tool

Storm Surge Predictions Less Cost without Sacrificing Accuracy

Gulf Killifish had Complex Genomic Response to Oil Spill Toxins

gulfresearchinitiative.org
Modeling Study Adds Evidence that Oil Compounds Traveled to West Florida Shelf

Jellyfish are Monitors for and Conveyors of Crude Oil Toxins

Dispersant, UV Radiation Increase Oil Spill Impacts on Zooplankton but Food Web Interactions may Reduce Them
(GRIIDC) is the vehicle by which is implementing the Research Database and will help to address the data and information needs of the GOMRI. The GRIIDC will serve the GoMRI by assisting researchers with data archiving and ensuring data interoperability among GoMRI and other datasets.

The mission of the GRIIDC is to ensure a data and information legacy that promotes continual scientific discovery and public awareness of the Gulf of Mexico ecosystem.
OUTREACH, EDUCATION AND COMMUNICATION

- WEBSITE
- PODCASTS
- MEDIA EVENTS
- FESTIVALS, AQUARIA AND OTHER PUBLIC VENUES
- NEWS STORIES
RFP–IV
2015–2017 GoMRI Research Consortia

- January 15, 2014 – Pre-proposal deadline
- January 16–March 15, 2014 – Pre-proposal review and feedback
- June 10, 2014 – Full proposal deadline
- November 14, 2014 – Award announcement
- January 1, 2015 – Award start date

RFPV – Will be released November 2015
2015 Gulf of Mexico
Oil Spill & Ecosystem Science Conference:
What have we learned, what does it mean, and
how are we going to use it?

2015 meeting Feb 16 – 20 Houston, Texas

Sponsors and Partners
GoMRI, NAS(Gulf of Mexico Program), NOAA, EPA,
USGS, FDA, GOMURC, GOMA, COL