About the Gulf of Mexico Research Initiative

The Gulf of Mexico Research Initiative is a 10-year, $500 million independent research program established by an agreement between BP and the Gulf of Mexico Alliance to study the effects of the Deepwater Horizon incident and the potential associated impact of this and similar incidents on the environment and public health.

Would you like to know more about the GoMRI-funded research?
Check out our Research page on the website:
http://research.gulfresearchinitiative.org/research-awards/

Capping Off the Decade of GoMRI

Ten years ago, July 15, 2010, the well below the Deepwater Horizon (DWH) oil rig was capped after discharging gas and light sweet crude oil into the Gulf of Mexico for 87 days. The Gulf of Mexico Research Initiative (GoMRI) was created in response to the disaster to improve society’s ability to understand the impacts of the oil on the ecosystem, learn new ways to mitigate oil in the environment, and understand how to be better prepared should a similar event arise in the future. This work has resulted in more than 1,400 peer-reviewed publications. Check out the full list here.

As GoMRI comes to a close, there have been several efforts to compile the novel findings from the program into products to help answer some larger questions about the spill and recovery in the Gulf:

- How should we respond to the next spill?
- Have our ecosystems recovered?
- What role did microbes play?
- And many more…

Some of these products are shared here, and many more can be found on the GoMRI website, including Synthesis products, as well as the websites of several collaborating organizations – Screenscope, Sea Grant, and the Smithsonian Ocean Portal. Individual research efforts can also be perused on the GoMRI Flickr page and YouTube channel. Also make sure to check out web stories of Science Highlights and the research conducted by our GoMRI Scholars.

*as of May 27, 2020

Dataset Hall of Fame

Most Downloads (92) & Publications (18)

Consortium: Consortium for Advanced Research on Transport of Hydrocarbon in the Environment (CARTHE) II
Title: GLAD experiment CODE-style drifter trajectories (low-pass filtered, 15-minute interval records), northern Gulf of Mexico near DeSoto Canyon, July-October 2012
DOI: 10.7266/N7VD6WC8

Largest (6.52 Terabytes)

Consortium: Gulf of Mexico Integrated Spill Response Consortium (GISR)
Title: ROMS-WRF: Regional Ocean Modeling System (ROMS) coupled with the Weather Research Forecasting (WRF) model forecasts for the Gulf of Mexico for the period July-Sept 2012
DOI: 10.7266/N7B8566B

Smallest (259 bytes)

Consortium: Aggregation and Degradation of Dispersants and Oil by Microbial Exopolymers (ADDOMEx)
Title: Test of Coastal water with coastal microbial concentrate (TeCOAST): Production of TEP as a function of oil
DOI: 10.7266/N7VT1QDW

Graphic Created by Jason Mallett, Consortium for Ocean Leadership, for the Gulf of Mexico Research Initiative.
What was known about oil spills prior to DWH? In 2017, a literature survey was published in which researchers examined over 1,200 oil spill studies conducted between 1968 and 2015 to characterize the field and describe breakthroughs. For example, research attention shifted dramatically to the Gulf of Mexico following DWH, rising from 2% of studies in 2004-2008 to 61% in 2014-2015, with the DWH spill ranking as the most studied oil spill. The analyses also provided insights into research trends and gaps, particularly a long-standing lack of human health studies (less than 1% of the surveyed oil spill literature).

Journal Special Issues
Several journal special issues provide synopses of DWH research and resources, such as the April 2020 special edition of the American Geophysical Union’s (AGU) Eos magazine, *Science from the Spill*. The issue’s *feature article* was authored by GoMRI researchers and describes breakthroughs in microbial genomics as a result of spill research. In 2019, a special issue of *Current: The Journal of Marine Education* produced by outreach coordinators from GoMRI consortia, synthesized oil spill science and shared educational resources that incorporate oil spill science into education curriculums. For more information on education efforts, check out the GoMRI Education Resources website. In 2018, a special issue of Marine Technology Society Journal, *Advancing Oil Spill Science: Beyond the Horizon*, focused on technology related to oil spill research. Lastly, in 2016, a special issue of Oceanography Magazine, *GoMRI: Descending Horizons*, synthesized oil spill science and highlighted scientific advances from the program ranging from how the spill affected marine ecosystems and the fate of oil in the marine environment, to data management, and education and outreach initiatives.

Books
A two-volume book series titled *Deep Oil Spills: Facts, Fate and Effects* and *Scenarios and Responses to Future Deep Oil Spills: Fighting the Next War* was published by the Center for the Integrated Modeling and Analysis of the Gulf Ecosystem (C-IMAGE) in 2019. This series provides a synthesis of oil spill science from GoMRI, the Natural Resource Damage Assessment (NRDA) process, and other agencies for use in future policy formulation, disaster response, and damage assessments. It was the effort involving over 150 researchers (representing academia, oil industry, and government scientists and contractors) who authored the 63 chapters. C-IMAGE also recently published a *booklet* and *corresponding website* to provide a less technical overview of findings related to oil spill impacts on fisheries, the processes involved with oil sinking to the seafloor, and subsea dispersant use.

Public-Focused Resources
For more public-focused resources, check out the [Gulf of Mexico Sea Grant Oil Spill Science Outreach Program](https://www.gomsea.com) publications. In 2019, they updated their *Top 5 Frequently Asked Questions (FAQs)* about DWH and have several resources focused on human impacts, including *mental health* and *fisheries*. Similarly, the Smithsonian Ocean Portal has several *articles* about GoMRI research topics along with an interactive infographic titled *The Anatomy of an Oil Spill: Source from the Gulf of Mexico*. An NSF story map titled *Where Did the Oil Go in the Gulf of Mexico?*

Targeted Summary Publications and Reports
In addition to these two book synopses, there have been several targeted summary publications and reports, including the following topics:

- **Oil-Eating Microbes**: A 2020 report titled *Microbial Genomes of the Gulf Ocean: Genomes* discusses advancements in marine microbiology and explains how microbial communities in the Gulf of Mexico played a critical role in the oil spill cleanup by contributing core hydrocarbon bioremediation services. The report is a joint effort of the American Academy of Microbiology, AGU, and GoMRI, who convened an *April 2019 colloquium*.

- **MOSSFA (Marine Oil Snow Sedimentation & Flocculent Accumulation)**: In a 2013 workshop, researchers discussed the fate of oil and its ecological impacts on deep-sea environments and made recommendations for future marine oil spill research. Their findings have been summarized in this *report*. In addition to the 2013 workshop and report, a symposium effort on MOSSFA was recently completed in 2019, resulting in this *report*.

- **Photo-Oxidation**: Scientific advancements in how sunlight alters floating surface oil are described in a feature article in *Eos* titled *Why Sunlight Matters for Marine Oil Spills*. The article summarizes a two-year synthesis effort that began at a 2018 workshop.

- **Dispersants**: Published in 2019, a *Proceedings of the National Academy of Sciences (PNAS) News Feature* highlights GoMRI researchers as they seek to understand what happens when chemical dispersants are used in a real-world setting for oil spill response. The National Academies of Science, Engineering, and Medicine released a 2019 *report* that assessed the effects and efficacy of dispersants as an oil spill response tool. It also included a comparison of the fate and effects of chemical dispersants, untreated oil versus untreated oil and a review of dispersant use during actual spill events, such as DWH. A GoMRI synthesis effort is currently underway to complement the National Academies’ study and further evaluate GoMRI-funded research related to dispersants within the context of what was known prior to GoMRI, what has been learned during GoMRI, and what are the important gaps in knowledge in need of research.

Targeted Summary Publications and Reports

- **Ray-Fin Fish**: Scientists from the Relationships of Effects of Cardiac Outcomes in Fish for Validation of Ecological Risk (RECOVER) consortium synthesized data from 53 peer-reviewed laboratory studies that investigated how DWH oil may affect 20 ray-fish species in this *article*.

- **Deep-Sea Fish**: Results of a 10-year (2007-2016) assessment study by scientists in C-IMAGE and the Deep Pelagic Nekton Dynamics in the Gulf of Mexico (DEEPEND) consortia on the vulnerability of deep-sea fishes to oil exposure are summarized in this *article*.

- **Marine Mammals**: The National Marine Mammal Foundation, who leads the Consortium for Advanced Research on Marine Mammal Health Assessment (CARMMAH), published a special *article* in 2020 that summarized what we have learned over the decade about the impact of the spill on dolphin and whale populations.

- **Salt Marshes**: A *synthesis workshop* was held in April this year to discuss the effects of the spill on coastal wetlands, focusing on ecosystem-component interactions and feedbacks. Once complete, the report will be posted on the *Synthesis Products* page. In 2019, an eight-year study of oil quantity and quality in 1,200+ samples from continental shelf, estuarine waters, and marsh sediments in the Gulf of Mexico was summarized in this *article*. It discusses how the initial oiling at the marsh edge gradually moved inland, affecting the entire marsh within two years, suggesting that the total area oiled was larger than the visible initial distribution when the spill first occurred.

- **Corals**: Researchers analyzed high-definition imagery of over three hundred deep-sea coral colonies from 2011-2017 to quantify their recovery from the oil spill. After seven years, the effects of the spill on those coral are still visible compared to reference sites. For more information about corals, another great resource is this [set of educational videos](https://www.gomsea.com/coral-conservation) on the subject.

- **Human Health**: A *2018 publication* summarizes the results of a 2016 survey of 2,500 U.S. Gulf Coast residents to learn how their lives have been affected since DWH and assess the long-term health and well-being of these communities. One of the key findings of the study was that fishing households experienced depressive symptoms despite social support after oil spill. For more information on public health impacts, check out the resources available on the Consortium for Resilient Gulf Communities (CRGC) website.

When the well was capped 10 years ago, the immediate threat of spilling oil was abated, but that was just the beginning for Gulf ecosystems as they began to recover and for GoMRI as it began a decade-long journey to better understand impacts, recovery, and future preparedness. There were many questions and not much could be drawn from previous established protocols for research and the dedications of the researchers funded by the program to understand the impacts has contributed significantly to advancing understanding of the Gulf. These examples are just a few of the countless publications and resources that have been developed to share scientific results from the program. As we know all too well, the journey is not over for the Gulf as it recovers from this spill and waits for the next. Our hope is that GoMRI’s legacy of research and researchers will serve as the foundation on which new discoveries, technologies, models, and management practices can be built for years to come.
GoMRI takes the challenge of training the next generation of Gulf of Mexico and oil spill scientists very seriously! GoMRI has funded more than 1,200 Ph.D. candidates and master’s degree students, with over 300 graduate students being recognized as GoMRI Scholars. To be considered a GoMRI Scholar, graduate students must have participated in a GoMRI-funded project for at least one year, be primarily funded by GoMRI, and be working on a thesis or dissertation based on GoMRI-funded science. The first GoMRI Scholar website article was published in July 2014 and focused on University of South Florida student Susan Snyder and her work on fish bile. Since then, the GoMRI website has profiled almost a third of the GoMRI Scholars. Check out the top ten most read GoMRI Scholar’s articles below.

Top 10 Most Read GoMRI Scholar’s Website Articles*

1. Investigate Oil in the Water
   How Grad Student Shi Uses Chemical Fingerprinting to Inform Oil Spill Remediation
   (Nov. 2017)

2. River Diversion Models to Resolves Statistical Conflict
   Grad Student Pearson
   in Submesoscale Ocean Processes
   (Jan. 2019)

3. Investigate Oil in the Water
   How Grad Student Cui Uses Morphological Patterns to ID Young Tuna in Submesoscale Ocean Processes
   (Dec. 2016)

4. Investigate Oil in the Water
   How Grad Student Diamante Investigates How PAHs Affect Fish Development
   (Feb. 2017)

5. Investigate Oil in the Water
   How Grad Student Parks Assesses How Disasters and Social Factors Influence Human Health
   (Jul. 2017)

6. Investigate Oil in the Water
   How Grad Student Pruzinsky Uses Morphological Patterns to ID Young Tuna
   for Population Assessments
   (Aug. 2019)

7. Investigate Oil in the Water
   How Grad Student Jaggis Seeks Solution to World’s Clean Water Shortage
   (May 2016)

8. Investigate Oil in the Water
   How Grad Student Kerthikkeyan Uses Genetics to Uncover How Oil Deposition
   in Beach Sands
   (Sep. 2016)

9. Investigate Oil in the Water
   How Grad Student Mahmud Makes Acoustics and Tracking Marine Mammals "Click"
   (Jun. 2017)

10. Investigate Oil in the Water
    Grad Student Novotny
    Uses Morphological Patterns to ID Young Tuna
    in Submesoscale Ocean Processes
    (May 2016)

*As of July 1, 2020

At the GoMRI Synthesis Symposium in February, several GoMRI Scholars took part in a panel focused on the future, representing all of the students who have served as essential team members for GoMRI research and have brought curiosity and energy to the GoMRI scientific program. Below are excerpts from that panel discussion.

How did involvement with GoMRI (and GoMRI-funded researchers) shift your perspective related to research and future jobs/application of your research?

Kathryn Keating, Understanding Resilience Attributes for Children, Youth, and Communities (RCYC) in the Wake of the Deepwater Horizon Oil Spill (RFP-V): “This experience has sharpened my focus, illuminating a path in work related to Gulf issues and coastal communities. It provided opportunity and access to mentorship within the RCYC project through my advisor. Dr. Tim Slack and the RFPs on our project, Dr. Jessica Beedle and Dr. Thomas Chandler, and also within the larger GoMRI community. Coming to the Gulf of Mexico Oil Spill & Ecosystem Science Conference (GoMoseS) to present my research gave me my first experience in communicating research to an interdisciplinary audience. I continue to learn new ways to engage in interdisciplinary conversations as a social scientist, working to weave my social work perspectives into these discussions as well. One of the things that my involvement with the RYC project led me to better understand, as a social worker and someone who is deeply interested in the policy implications of research related to the spill, was how I could potentially blend my macro-level social work skills with the skills I was developing as a sociological researcher. This led me to apply for the National Academies of Science, Engineering, and Medicine Gulf Research Program Science Policy Fellowship. I received the fellowship and worked from 2018-19 in an applied policy position with the Gulf Coast Ecosystem Restoration Council, based in New Orleans. It was an excellent experience that clarified my thinking around the ways in which my sociology and social work backgrounds might contribute meaningfully to the ongoing interdisciplinary restoration and monitoring work in the Gulf.”

Cheng Li, DROPPS: “I am now working at the National Energy Technology Lab, part of the Department of Energy (DOE). My future research, as of now, is on multiphase flow, which is a very important subject of fluid dynamics. Not only for oil spill dispersion at sea, but people also study multiphase flow processes like rain formation, agricultural sprays, and combustion. For my PhD research, I was more focused on oil as the dispersed phase, and seawater as the continuous phase. For example, particle-laden flows, where solid particles are the dispersed phase and gas acts as continuous phase, and this is used extensively in the field of chemical engineering. For my current and future research, I will be working on different oil-spill-related problems. My GOMRI experiences have well prepared me for my current research role at DOE, studying particle-laden flow, multiphase flows, and multiphase flow systems. With the development of better computational and experimental research resources, we are going to understand better and predict what is happening in a complicated multiphase flow systems. I am very grateful for GoMRI.”

Kaitlin Frasier, C-IMAGE: “Involvement with GoMRI researchers and research questions helped shape my understanding of research as a fundamentally interdisciplinary activity. GoMRI allowed me to meet a wide range of scientists not just from academia, but also from industry, government institutions, and non-profits, as well as people with scientific training who subsequently moved into roles that I had not previously considered. I realized that successful scientific careers can come in many shapes.”

What are the future research directions that you hope to move? What are you most excited about related to future research?

Cheng Li, Dispersion Research on Oil: Physics & Plankton Studies (DROPPS): “I started my PhD study at Johns Hopkins University in 2015, the exact year when Deepwater Horizon oil spill happened. My initial research was on studying breakup dynamics of oil droplets. During a one month field trip, I was amazed by how beautiful and powerful the ocean wave is. The Deepwater Horizon oil spill in the Gulf gave that beautiful image additional meaning, and the necessity of oil spill research and recovery became more personal. I am so thrilled to become part of it. From scratch, I built my wave tank specially designed for oil spill research. The objective of this research is to generate high quality of droplet size distribution data for models to accurately model the oil spill processes. One thing special about the DWH oil spill is that the response included application of an unprecedented amount of oil dispersant, COREXIT 9505A. The actual effects of dispersant on the droplet size distribution is critical in modeling accurately. For example, when you have large droplets, because of inertia, it will not follow the ocean flow and for generation of small droplets, one might argue that more surface area is exposed for faster biodegradation. The data generated through the research is being used by models to develop oil spill ‘models.’”

Kaitlin Frasier, C-IMAGE: “I am excited about the increasing feasibility of large scale interdisciplinary oceanographic research through remote sensing, autonomous technology and big data.”

What could GoMRI have done differently to better engage students?

Cheng Li, DROPPS: “It’s a very tough question. The GoMRI community is highly interdisciplinary. We are always on a steep learning curve trying to understand different aspect of the research. When you understand more about the research and begin to appreciate its breadth, you are likely to engage more. In general, to better engage students requires flexibility in the way you work on various topics. To better engage students, presumably from various backgrounds, it will be beneficial to have a clear big picture, to identify key problems, and to connect students from various backgrounds. The establishment of consortia is a great practice to engage students from different backgrounds. More work can be done to better engage students through consortia or community-wise seminars, 101 lectures, or outreach activities.”

Kaitlin Frasier, C-IMAGE: “In my experience as a student within one of the GoMRI consortia (C-IMAGE), there was a constant, dedicated effort from GoMRI to engage students, however there was limited interaction between students across the various disciplines. Involvement with GoMRI researchers and research questions helped shape my understanding of research as a fundamentally interdisciplinary activity. GoMRI allowed me to meet a wide range of scientists not just from academia, but also from industry, government institutions, and non-profits, as well as people with scientific training who subsequently moved into roles that I had not previously considered. I realized that successful scientific careers can come in many shapes.”
The GoMRI partnership with the Smithsonian Ocean Portal has not only yielded amazing web-based content over the years, such as their recently released interactive explaining What Are Fossil Fuels? and an ArcGIS story map on Where Did the Oil Go In the Gulf of Mexico?, but also allowed for some really cool events! One of these took place on March 6, 2020 at Denizens Brewing Co. in Silver Spring, Maryland, as a joint event between GoMRI, the Smithsonian National Museum of Natural History, and Nerd Nite DC. Three members of the GoMRI research community, Laura Bracken Chaibongsai (CARTHE), Lela Schlenker (RECOVER), and Laura Timm (DEEPEND), told their engaging research stories of the failure-lined road to innovation and technology, the bedroom antics of mahi-mahi, and barcoding shellfish, respectively, to a sold-out audience! And speaking of really cool web content, the Ocean Portal recently released this piece on oil degrading microbes!

Zack (left) and Molly (right) in “The Adventures of Zack and Molly.” Credit: Jim Toomey; provided by ECOGIG.

**Education Spotlight**

The Consortium for Simulation of Oil-Microbial Interactions in the Ocean (CSOMIO) created a middle school science curriculum called “Modeling the Gulf” to help students make connections between the theoretical nature of science and real-world applications. The curriculum includes five lessons plans related to ocean modeling, including the fields of biogeochemistry, fluid dynamics, and microbiology. “As someone with experience in both K-12 and informal education, I understand the desire for teachers to have innovative, real-world curricula and materials. By creating them with [Next Generation Science Standards] in mind, my goal was to make it easy to incorporate into a practicing educator’s classroom. ‘Modeling the Gulf’ takes a relevant phenomenon and uses it as a launch point to familiarize students with both physical science concepts and the basics of mathematical/computer modeling,” described Carolyn Burns, a science educator who developed the curriculum on behalf of CSOMIO. The Ecosystem Impacts of Fluid and Gas Inputs from the Geosphere (ECOGIG) consortium released the fourth episode of The Adventures of Zack and Molly, an award-winning animated series created in partnership with Jim Toomey to introduce children to the deep ocean. The latest episode describes mysterious hydrothermal vents and the superhero Beggiatoa, bacteria that live and thrive in the extreme and toxic conditions surrounding the vents. You can find the entire film series, along with learning guides connected to the Next Generation Science Standards, here!

Looking for more Gulf of Mexico- and oil spill-related educational content? You’re in luck! The GoMRI website houses a collection of the wide variety of education and education-related materials developed through funding from GoMRI. Find it all here!

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**Note from the Research Board Chair**

Dr. Rita Colwell, University of Maryland & Johns Hopkins University

Nearly 10 years ago, I received a phone call from Dr. Ellen Williams, then chief scientist at BP, who informed me of a research program being launched that was to be dedicated to understanding impacts of the Deepwater Horizon oil spill and would be unprecedented in scope. This program would become the Gulf of Mexico Research Initiative (GoMRI). When asked by Dr. Williams to consider serving as leader of the program, I readily accepted. Of course, I, as well as the members of the GoMRI Research Board, did not know exactly what the future would bring but we believed that with dedicated effort and in partnership with our Management Team and outstanding research scientists, we could succeed. In fact, the program has, by far, exceeded all our expectations.

Today, I look back on the past 10 years of GoMRI with tremendous pride and great admiration for the dedication of the scientists and the discoveries arising from the entire GoMRI research community. As you read this farewell issue of the GoMRI newsletter, I am certain you will appreciate the relentless pursuit of knowledge exhibited by members of the GoMRI Research Board, Research Consortia, Individual Investigators, and our critical outreach partners. As of this date, the GoMRI community has produced 1,434 peer-reviewed journal articles, created 3,222 valuable sets of data, and contributed significantly to the education and training of more than 1,200 graduate students. These impressive numbers compress the legacy of GoMRI, but the sum is more than statistics. The legacy of GoMRI includes the community, the network, the family of researchers of all ages, representing many different institutions and reaching across a variety of research disciplines. The GoMRI program has set a new precedent of how collaborative research can be done, and perhaps more importantly, how it should be done if the complex challenges of the world today are to be met.

We learned a great deal during these 10 years, including the amazing role of microorganisms in responding to oil spills, what effects the chemical components of oil have on living systems, "why" sunlight matters, what MOSSFA is and what it does, and how all of the information gained from every discipline fits together in oceanographic and operational models. And so much more! Many activities and events that had been organized to present results of GoMRI’s scientific research in the format of interdisciplinary synthesis have had to be rescheduled because of pandemic COVID-19. However, you can stay informed of dates, times, and locations of the rescheduled events by following the GoMRI Synthesis and Legacy page of the website, here. Speaking of the website, GoMRI plans to keep www.gulfresearchinitiative.org available and active for the next 10 years. At the end of 2020, you will notice a new design for the homepage, but you will be able to find all your trusted resources! These include the entire list of publications, datasets, Synthesis products, and the amazing library of educational materials.

It is traditional to look back and reflect when a major and influential activity comes to an end. While GoMRI has, in total, gathered a significant amount of new information and amassed extensive and useful sets of data, we also know there is still so much more work to be done and to be incorporated into what has been done to date. Therefore, I am excited for the future of the Gulf of Mexico and the utility of the oil spill research we have done… knowing that it more still is needed. High-impact publications of the Gulf of Mexico Research Initiative will continue to be released over the next several years and will serve to guide future Gulf scientists. Graduate students who grew up in GoMRI will become leaders in their fields and the knowledge gained from GoMRI research will inform decisions in the future. I look forward to all that is ahead and thank each of you for your role in GoMRI over the past 10 years!”
The Gulf of Mexico Sea Grant Oil Spill Science Outreach team hosted a seminar on March 12, 2020, in Metairie, Louisiana, in conjunction with the Southeastern Louisiana Area Committee meeting, that discussed surface oil collecting agents (SCAs) – compounds that can be used to herd oil during emergency response operations. Speakers covered the history, science, and logistics of using SCAs during an oil spill. Complementary oil spill response techniques, as well as advances in developing the next generation of chemical herders, were also discussed. Click here to see the agenda and here to view the slide presentations.

The team’s most recent publication focuses on mangroves, which are extremely productive and beneficial coastal ecosystems. Read about how mangrove forests protect and stabilize shorelines here. Read all of the Gulf of Mexico Sea Grant Oil Spill Science Outreach Program publications here.

The team also recently issued three workshop-related reports:

- **Evaluation of a national workshop series to minimize health, social, and economic disruptions from oil spills:** In 2018 and 2019, seven Sea Grant programs (including the Gulf Sea Grant Oil Spill Science team) received support from the National Academies of Science, Engineering, and Medicine’s Gulf Research Program and GoMRI to conduct workshops around the country focused on public health, social disruption, and economic impacts of oil spills. This report summarizes a follow-up evaluation sent to everyone involved in the project six months after it concluded. Access this report here.

- **Fostering emergency responder and university researcher collaboration: Workshop summary report:** Beginning in 2015, team members hosted five workshops around the Gulf of Mexico to give emergency responders and oil spill science researchers an opportunity to network and learn from one another. To read the report and learn attendees’ ideas on ways researchers and responders can collaborate during future spills, please click here.

- **Oil in the Bay: 15 years after the Athos I spill:** The Gulf of Mexico Sea Grant Oil Spill Science Outreach team, in partnership with the Sea Grant grants of Delaware, New Jersey, and Pennsylvania, held a special session at the Delaware Estuaries Science and Environmental Summit in January of 2019. The workshop aimed to highlight oil spill-related needs and resources in the Delaware Bay, as well as strengthen networks. This report details workshop proceedings. Learn more here.

During the coronavirus pandemic, the team continues to share important science with the community through webinars. The first in a three-part series of webinars on detecting the true, potential, and perceived impacts to human health following an oil spill was held on June 8, 2020, and focused on impacts of oil spills on air quality. Parts two and three of this series will focus on water quality and dispersions, with dates yet to be announced. The team also recently began a seminar series on oysters with the first part of the seminar held on June 26, 2020. Dates and times for other topics, including marine snow, will be announced in the coming days and weeks. To keep updated on the latest developments, please click here. Finally, during the upcoming month or so, the team will be producing outreach publications that summarize the work of the Synthesis core areas and supporting state events that highlight GoMRI’s activities.

As GoMRI comes to an end, the Gulf of Mexico Sea Grant Oil Spill Science Outreach team will continue to maintain the oil spill website that features presentations from GoMRI-supported and other researchers and outreach publications. Moving forward, the team will be sharing information beyond oil spill science, to include additional topics through a partnership with the National Oceanic and Atmospheric Administration’s (NOAA) National Centers for Environmental Information.

**Dispatches from the Gulf**

Together, the suite of Dispatches products examine science, innovation, community, and recovery in the Gulf of Mexico following the Deepwater Horizon oil spill. Digital versions of the three Dispatches can be requested here.

**Over three years ago, in April of 2017, a small group of GoMRI Research Board members got together to begin considering how to synthesize all we have learned during GoMRI. Utilizing the five GoMRI Research Themes as a guide, this group identified a number of critical questions and subject areas which would serve as the backbone for what eventually turned into the eight Core Areas and five key questions that shaped the entire Synthesis and Legacy effort.**

Even from those early days, the goal of documenting scientific achievements and advances to lead to new understanding and improved practices remained consistent. As each Core Area developed and more scientists, practitioners, and community leaders were brought in, the initial scope expanded to fill in gaps and explore emerging questions more comprehensively – for example, how many people knew what allostatic load was at that time?

Synthesis guidelines soon evolved into flexible instructions, encouraging leaders to capitalize on the immense collection of GoMRI knowledge and data to make each workshop their own. These individual and creative approaches have driven results far past expectations – not even a global pandemic could slow down this effort as recent workshops have continued as scheduled by quickly and cleverly adapting to run virtually. What was initially envisioned as a series of five or six workshops, turned into a much larger and even more ambitious undertaking. Synthesis leaders have now completed 20 unique workshops, 10 conference special sessions, and collected input from nearly 600 different experts.

While the thrust of the GoMRI-funded research was focused in the Gulf of Mexico, the Synthesis and Legacy efforts were instructed to take a broader view. Lessons learned from these workshops and conferences were identified as applicable to research in different parts of the country. The Synthesis knowledge exchange was not only far-reaching geographically, but has involved many subgroups of the user community, including oil spill responders, NGOs, industry, and federal entities.

A critical aspect of the Synthesis and Legacy effort has been that each workshop is designed to be a working session with specific outputs – the products of which are open access for all to learn from. Thus far, over 50 new products have stemmed from workshop, cross-consortia collaboration, and Research Board-led efforts. The products have taken a variety of forms, including books, special journal issues, peer-reviewed publications, workshop reports, recorded webinars, professional diagrams, and conference sessions. This immense collection of outstanding Synthesis papers and reports will undoubtedly continue to shape the way we understand and respond to any future oil events.

The final piece of this effort will be a GoMRI Special Issue in Oceanography magazine, coming out in Spring 2021. This issue is intended to be a high-level overview, synthesizing new knowledge for a broad and general audience and represents the culmination of the entire GoMRI Synthesis and Legacy effort pulling together what was known, what was learned, what questions still remain, how this knowledge is applied, and where to go next.

Please continue to visit the Synthesis and Legacy website for more information, especially the Products page, as many developing products will be published in the coming year.

We would like to sincerely thank all of our Research Board members, Core Area leaders, and Synthesis participants. This effort could not have blossomed into the expansive project it is today without each and every one of you.
Frequently Asked Questions

For this farewell newsletter issue, we asked a group of individuals from across GoMRI a few Frequently Asked Questions (FAQs) about their experience as part of the program. We thank these individuals for taking the time to provide such thoughtful responses. And yes, we will miss the people most of all.

Question: What has GoMRI meant to you and your career?

Steve Sempler, Oil Spill Science Outreach Manager, Sea Grant:
“I cannot express how grateful I am that GoMRI supported the Gulf of Mexico Research Initiative (GoMRI) Science Program. It allowed us to create a brand new extension team that allowed us to engage with the public and expand our reach. Personally, it was a tremendous opportunity to work with the Sea Grant team and engage with the broader GoMRI-supported community. It was certainly gratifying to work with people that are passionate about what they do and willing to collaborate. In addition, it was helpful to work directly with a Research Board that was comprised of preeminent scientists and administrators that shared the same vision.”

Tracey Ippolito, Outreach Team, Program Manager, CGSOMIO & Deep C-IMAGE:
“Being part of the GoMRI program through two GoMRI-funded consortia (DeepC and CGSOMIO) has been nothing short of transformative, in terms of my career. As a communication specialist, it allowed me to explore how communication can meaningfully contribute to the impact and legacy of a scientific research initiative. I joined the DeepC consortium in 2011 as a project coordinator, but my role expanded to include public information and outreach because I had a background in public relations and communication. That said, as a non-scientist, I didn’t have more than just a little acclimation to the breadth and depth of DeepC’s scientific goal. My consortium’s research team consisted of dozens of millions of dollars, and I’ve only been a number of months in one unit. It was a numerical molote - all of whom had an important role to play (and was a little daunting at first), but I thrived in this multidisciplinary setting. Moreover, I discovered an aptitude and, somewhat surprisingly, an enthusiasm for science communication. I both embraced and capitalized on the abundance of data into comprehensible and actionable information. That has now become a skillset I continue to focus on the focus of continued studies, as I plan to go back to school in the fall to pursue a Ph.D. with an emphasis on science communication.”

Question: What do you think is the biggest question about recovery in the Gulf that is still left unanswered?

Tracey Sutton, Director, DEEPEND:
“Our perspective is admittedly biased, but our findings suggest that the DWH disaster has had a lasting effect on marine life in the Gulf of Mexico (GoM). Yet, the extent of the damage is not fully known or understood. We have yet to see what the long-term impacts will be. Future research is needed to fully understand the effects of the DWH disaster on Gulf of Mexico marine life.”

Scleractinian Corals (RFP-VI):
“Sensitivity Assessment of Petroleum Hydrocarbon Toxicity to Scleractinian Corals (RFP-VI):
“What do you think is the biggest question about recovery in the Gulf that is still left unanswered?

Amy Renegar, Principal Investigator, Coral-Tox: A Species-Sensitivity Assessment of Petroleum Hydrocarbon Toxicity to Scleractinian Corals (RFP-VI):
“The biggest question about recovery in the Gulf that is still left unanswered is how is recovery assessed? Despite significant progress over the last decade as a result of GoMRI research, there is still no consensus on how to define recovery or recovery metrics. It is essential to identify the baseline conditions and the recovery metrics that will be used to determine if there has been recovery. This is a critical step in understanding the impact of the DWH disaster on the Gulf of Mexico’s marine life.”

Sherryl Gilbert, Assistant Director, C-IMAGE:
“My tenure with GoMRI has undoubtedly been a career-defining experience. GoMRI provided me with the opportunity to work with a diverse team of scientists, engineers, resource managers, administrators, and educators. Weaving all of these expertise together into a cohesive picture that can help people take action and improve the health of the Gulf of Mexico is likely a once-in-a-life time experience. I’m glad I got to be a part of it!”

Question: What did you do for the first time with GoMRI?

Abby Renegar, Principal Investigator, Coral-Tox: A Species-Sensitivity Assessment of Petroleum Hydrocarbon Toxicity to Scleractinian Corals (RFP-VI):
“The first thing I did with GoMRI was to submit a proposal to investigate the sensitivity of Scleractinian corals to petroleum hydrocarbons. This project was funded, and I was able to work on it for several years. It was the first time I worked on a project that was funded by GoMRI.”

Sherryl Gilbert, Assistant Director, C-IMAGE:
“My first experience with GoMRI was as a member of the GoMRI Research Board. I was appointed to the Board in 2012 and served on it for five years. It was an opportunity to work closely with the GoMRI Board and learn more about the program.”

Question: What made GoMRI unique, compared to other programs/research you have been a part of?

Amy Renegar, Principal Investigator, Coral-Tox: A Species-Sensitivity Assessment of Petroleum Hydrocarbon Toxicity to Scleractinian Corals (RFP-VI):
“GoMRI is unique in that despite the thousands of people that make up its community—each with diverse backgrounds, experiences, and perspectives—everyone is able to organize around a single mission: Use science to address the cascading effects of an oil spill on the Gulf of Mexico and ensure that knowledge is diverse and applied in the world at large.”

Chris Hale, Program Manager, Harte Research Institute for Gulf of Mexico Studies:
“GoMRI is unique in that it provides a unifying thread that links leading researchers and scientists across the Gulf of Mexico. It has fostered additional collaborations. I will miss the opportunity to see many people that have grown with the program over the years. I hope that our paths will cross on new projects and opportunities in the future.”

Emily Frost, Smithsonian Ocean Portal:
“GoMRI was unique in that the program was holistic—focusing on not only the importance of research and science but outreach and community engagement. The diversity of expertise was really standing across the board.”

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Tracey Sutton, Director, DEEPEND:
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Steve Sempler, Oil Spill Science Outreach Manager, Sea Grant:
“In my role, I've benefited from GoMRI’s ability to pay attention to relationships among scientists, collaborators, and the communities that shared a research agenda with the GoMRI family. The ability to work with a program that has the capacity to foster new collaborations and build bridges to existing efforts has been a key strength of GoMRI.”

What was most miss about GoMRI?

Tracey Sutton, Director, DEEPEND:
“Most missed about GoMRI is the education and outreach component of the program. I was able to work on a number of projects and initiatives that were focused on engaging the public and increasing awareness about the importance of scientific research.”

What was most miss about GoMRI?

Emily Frost, Smithsonian Ocean Portal:
“The people! After working with the GoMRI Community since its inception, I met so many wonderful people that I hope to continue collaborations and friendships with for years to come.”

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Steve Sempler, Oil Spill Science Outreach Manager, Sea Grant:
“In short, GoMRI’s ability to take the science community’s responsibilities, and projects and change them in a way that the program family will likely become less frequent and may be related to other topics and interests. The face-to-face interactions at GoMSESS, science seminars, and community networking opportunities that allowed us to connect with other scientists and listen to other scientists’ stories will be missed. In addition, the knowledge that we have gained from the experiences and lessons learned will be missed.”

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Editor’s Note - Farewell Issue

I am Katie Fillingham, and for the past five and a half years I have had the honor of writing, editing, and designing the GoMRI Quarterly Newsletters. Working on these issues has truly been one of the most rewarding experiences of my career thus far, and I have been grateful for the opportunity. I am proud of the legacy they leave behind, telling the story of how this program has evolved over the seven years since we started publishing them.

The creation of these newsletters has been a massive team effort, however, and I would be remiss if I didn’t give credit to and thank the many, many people who have been critical to their publication. Heather Mannix and Megan Gibney were instrumental in the generation of the early issues. Jason Mallett, the Consortium for Ocean Leadership’s graphic designer, designed all the issues prior to 2017. In 2017, he provided me with the opportunity to learn how to design and lay out the newsletters myself. He has been a wonderful teacher as I learned the process and gained confidence in my design abilities. I will always be grateful for the chance to learn from him.

On the GoMRI Management Team, Chuck Wilson, GoMRI’s Chief Scientific Officer, has been involved in every single issue’s Frequently Asked Questions and Notes from the Research Board pieces. He was always willing to listen to and share ideas, and I will cherish those opportunities we had to work together. Through Chuck, I had the pleasure of working with Dr. Rita Colwell, GoMRI’s Research Chair, in generating the Notes from the Research Board articles. I am endlessly grateful to her for her keen interest in participating in every single issue. Maggie Dannreuther was always willing to talk with me about ideas for stories and ways to coordinate the newsletters with the GoMRI website stories. Leigh Zimmermann shared her time and experience to provide new authors and readers ideas and re-read every single issue ever produced. They were infinitely better because of her support. Jesie Swenson began to take on the generation of an issue when our communications team was in a transition phase, and she produced an excellent issue. Once GoMRI’s Synthesis and Legacy effort began moving forward, we wanted to integrate regular updates on those activities into the issues, and I am extremely grateful to Callan Yanoff for writing and providing those summaries. Lastly, Leslie Smith led the development of this final issue as I moved on to new programs at the Consortium for Ocean Leadership; we thank her for producing this wonderful farewell issue!

Thank you to the GoMRI researchers, outreach coordinators, and program managers who worked with us to produce articles over the years. It was an honor to work with them and share their stories. Thank you to GoMRI’s external communications partners, Sea Grant, Scripps, and Smithsonian Ocean Portal, who worked with us to coordinate content and produce articles. Being able to share information and updates across our individual platforms enhanced our overall communications program and undoubtedly increased awareness of GoMRI’s activities.

And finally, thank you to you, the readers of these newsletters. We produced them with you in mind, and it has been a pleasure sharing the program’s stories and successes with you. As we said in our publication announcements, we hope you found them a useful way to keep up with the GoMRI research communities’ activities. While this year marks the end of 10 years of research through the GoMRI program to understand the impacts of the Deepwater Horizon oil spill, much of the work done by the researchers funded by GoMRI and with our external communications partners will continue. We hope you will continue to stay engaged in their efforts as a legacy of the incredible work of this program.

Tracy Ippolito, Outreach Team, Program Manager, CSOMIO & Deep-C: “I have decided to pursue a Ph.D. in Communication and Practice in the Applied context. I am anxious to continue my work as a communication specialist, but my doctoral studies will enable me to contribute as a researcher, as well. Helping fit critical knowledge gaps about the most effective ways to diffuse scientific knowledge/expertise (science communication) to targeted audiences.”

Credit: Katie Fillingham.