

Upcoming Events:

Gulf of Mexico Oil Spill and Ecosystem Science (GoMOSES) Conference

February 5-8, 2018
New Orleans, Louisiana

Registration for GoMOSES is now open.



Photo Caption: A Seaside Sparrow (*Ammodramus maritimus*) in the salt marshes. Image provided by Andrea Bonisoli Alquati. Read more in the Science Corner section of this issue and [here](#).

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/>

GoMRI Announces RFP-VI Awardees

The Gulf of Mexico Research Initiative and the GoMRI Research Board are pleased to announce the awardees from the RFP-VI proposal process. RFP-VI called for proposals from both consortia and individual investigators, focused on the five GoMRI research themes, as well as “data integration, scientific synthesis across themes and consortia, and/or overarching scientific and technological products exploiting the GoMRI scientific legacy.” Research through RFP-VI will be funded for GoMRI Years 9 and 10 (2018-2019). Thirty-one projects were selected for funding, including twenty-three individual investigators and eight research consortia, totalling \$50 million over the next two years. GoMRI congratulates the awardees and looks forward to the scientific contributions these researchers will make in the coming years!

RESEARCH CONSORTIA AWARDEES

Buskey, Edward lead investigator, University of Texas at Austin Marine Science Institute:

Dispersion Research on Oil: Physics and Plankton Studies III (DROPPS-III)

Chassignet, Eric lead investigator, Florida State University:

Consortium for Simulation of Oil-Microbial Interactions in the Ocean (CSOMIO)

Grosell, Martin lead investigator, University of Miami:

Relationship of Effects of Cardiac Outcomes in Fish for Validation of Ecological Risk (RECOVER II)

Murawski, Steven lead investigator, University of South Florida:

The Center for the Integrated Modeling and Analysis of Gulf Ecosystems III (C-IMAGE-III)

Özgökmen, Tamay lead investigator, University of Miami:

Center for Advanced Research on Transport of Hydrocarbon in the Environment III (CARTHE-III)

Quigg, Antonietta lead investigator, Texas A&M University at Galveston:

Towards a Synthesis of Processes and Pathways of Marine Oil Snow Formation (ADDOMEx 2)

Rabalais, Nancy lead investigator, Louisiana Universities Marine Consortium:

Oil Spills as Stressors in Coastal Marshes: The Legacy and the Future (CWC)

Schwacke, Lori lead investigator, National Marine Mammal Foundation:

Consortium for Advanced Research on Marine Mammal Health Assessment (CARMMA)

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INDIVIDUAL and SMALL TEAM AWARDEES

Beazley, Melanie lead investigator, University of Central Florida:

Biodegradation of “Hidden” High Molecular Weight Polycyclic Aromatic Hydrocarbons: Closing Critical Research Gaps

Diercks, Arne lead investigator, University of Southern Mississippi:

Resuspension, Redistribution and Deposition of DWH Recalcitrant Hydrocarbons to Offshore Depocenters

Englehardt, James lead investigator, University of Miami:

Inferential/Parametric Forecasting of Subsurface Oil Trajectory Integrating Limited Reconnaissance Data with Flow Field Information for Emergency Response

Graham, Sean lead investigator, Nicholls State University:

Synthesis of Long-Term Wetland Impacts, Recovery, and Resilience Following the Deepwater Horizon Oil Spill: Comprehensive Meta-Analyses and Supporting Resiliency Experiments

Griffitt, Robert lead investigator, University of Southern Mississippi:

Integrating Teleost Transcriptomes to Identify Ecologically Meaningful Responses Following Oil Exposure

Hernandez, Frank lead investigator, University of Southern Mississippi:

Deep-Pelagic Plankton Communities of the Northern Gulf of Mexico: Tropic Ecology, Assemblage Dynamics, and Connectivity with the Upper Ocean

Hou, Aixin lead investigator, Louisiana State University and A&M College:

A Decade-Long Study on Impact, Recovery, and Resilience in Louisiana Salt Marshes: The Evolution of Oil Transformation Compounds and Plant-Soil-Microbial Responses to the Deepwater Horizon Oil Spill

Iungo, Giacomo Valerio lead investigator, University of Texas at Dallas:

Transport of Aerosolized Oil Droplets in Marine Atmospheric Boundary Layer: Coupling Wind LiDAR Measurements and Large-Eddy Simulations

Kourafalou, Vassiliki lead investigator, University of Miami:

Southeastern Gulf of Mexico Processes Affecting Basin-Wide Connectivity and Hydrocarbon Transport: The Role of Mesoscale Eddies and Upwelling Near Cuba

Liang, Junhong lead investigator, Louisiana State University:

Effects of Turbulence and Waves on the Dispersion, Transport and Fate of Oil Droplets in the Upper Ocean: A Large Eddy Simulation Study

Liang, Xinfeng lead investigator, University of South Florida:

Effects of Mesoscale Eddies on Three-Dimensional Oil Dispersion: Data Integration, Interpretation and Implications for Oil Spill Models

Liu, Di lead investigator, Tulane University:

Impact of Oil Spill to Human Lung Health – Next Generation Sequencing and Mouse Model Based Analyses

McDonald, M. Danielle lead investigator, University of Miami:

The Impact of DWH Oil Exposure on the Vertebrate Stress Response

Peterson, Richard lead investigator, Coastal Carolina University:

Release of Radium Isotopes from Oil Degradation: Toward Development of an ‘Oil Clock’

Polidoro, Beth lead investigator, Arizona State University:

A Comprehensive Petrochemical Vulnerability Index of Improved Decision-making

Renegar, Abigail lead investigator, Nova Southeastern University:

Coral-Tox: A Species-Sensitive Assessment of Petroleum Hydrocarbon Toxicity to Scleractinian Corals

Rodgers, Ryan lead investigator, Florida State University:

Molecular Understanding of Emulsion Formation in Environmentally Photo-Oxidized Crude Oils: In Situ Generation of Interfacially Active Species and Their Impact on Emulsification

Savin, Daniel lead investigator, University of Florida:

Designing Nanoparticle-Based Dispersants with Improved Efficiency and Biocompatibility

Solo-Gabriele, Helena lead investigator, University of Miami:

Beach Exposure and Child Health Study (BEACHES)

Tejada-Martinez, Andres lead investigator, University of South Florida:

Turbulent Vertical Mixing and the Formation of Oil Particle Aggregates: LES, Measurements and Modeling

Wang, Binbin lead investigator, Texas A&M University:

Synthesis of the Physical Processes in Subsea Bubble Plume to Connect Natural Seeps and Oil Spills

Wang, Wanjun lead investigator, Louisiana State University:

Development of Portable Lab-on-CD Instrument for In-Situ and High Precision Detection of Spilled Oil Particles in Coastal Water Systems

Zheng, Yangxing lead investigator, Florida State University:

Modeling Modification of Surface Oil Transport by Air/Sea Interactions and Tropical Storms

Note from the Research Board Chair

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

The GoMRI Research Board is pleased to announce the awardees of the [RFP-VI](#) proposal process. RFP-VI awards will fund research in GoMRI Years 9 and 10.

Thirty-one proposals were selected for funding, including eight consortia and twenty-three individual investigator or small research team awards (see page 1 for the complete award list), totaling approximately \$50 million. The findings from these studies benefit society by informing new strategies to prevent and mitigate any negative effects of an oil spill in the Gulf of Mexico, or elsewhere. The goals of RFP-VI are to continue research in the areas of GoMRI's five major research themes. Additionally, because significant science has been accomplished and the GoMRI program will sunset in 2020, RFP-VI is focused on integrating existing data and synthesizing research findings.

Through RFP-VI, we welcome both previously funded researchers and new investigators to the GoMRI community. As we move into the final years of the program, the Research Board is excited to see these RFP-VI projects unfold and the results that will be produced, adding to the body of knowledge on oil spill science and contributing to GoMRI's legacy.



Photo Credit: CC 4.0, no changes made.

Science Corner

Published Science Highlights from the GoMRI Program

[Study Assesses How Chemical Dispersant Affects Oil Plume Behavior](#)

D.W. Murphy, X. Xue, K. Sampath, J. Katz
Journal of Geophysical Research: Oceans, 2016, Vol. 121(6), pgs. 4264-4281

[Study Characterizes Effects of Corexit Components on Oil Aerosolization](#)

Z. Zhang, P. Avij, M.J. Perkins, T.P. Liyana-Arachchi, J.A. Field, K.T. Valsaraj, F.R. Hung
The Journal of Physical Chemistry A, 2016, Vol. 120(30), pgs. 6048-6058

[Study Analyzes Metabolic Pathways of Oil-Degrading Bacteria](#)

N. Dombrowski, J.A. Donaho, T. Gutierrez, K.W. Seitz, A.P. Teske, B.J. Baker
Nature Microbiology, 2016, 1, Article Number: 16057

[Study Identifies Key Species that Influence Marsh Ecosystem Responses to Oiling](#)

M.J. McCann, K.W. Able, R.R. Christian, F.J. Fodrie, O.P. Jensen, J.J. Johnson, P.C. Lopez-Duarte, C.W. Martin, J.A. Olin, M.J. Polito, B.J. Roberts, S.L. Ziegler
Frontiers in Ecology and the Environment, 2017, Vol. 15(3), pgs. 142-149

[Study Finds UV Exposure Late in Mahi-Mahi Embryo Development Enhances Oil Toxicity](#)

L.E. Sweet, J. Magnuson, T.R. Garner, M.M. Alloy, J.D. Stieglitz, D. Benetti, M. Grosell, A.P. Roberts
Environmental Toxicology and Chemistry, 2017, Vol. 36(6), pgs. 1592-1598

[Study Develops Method to Quantify DOSS in Gulf of Mexico Sediments](#)

M.J. Perkins, S.B. Joye, J. A. Field
Analytical and Bioanalytical Chemistry, 2017, Vol. 409(4), pgs. 971-978

[Study Identifies Oil Carbons Associated with Deepwater Horizon in Terrestrial Birds](#)

A. Bonisoli Alquati, P.C. Stouffer, R.E. Turner, S. Woltmann, S.S. Taylor
Environmental Research Letters, 2016, Vol. 11(11)

[Study Describes Response from Distinct Bacterial Groups to Marine Oil Snow](#)

T. Yang, K. Speare, L. McKay, B.J. MacGregor, S.B. Joye, A. Teske
Frontiers in Microbiology, 2016, Vol. 7, Article 1384

[Study Expands Analytical Window for Marine and Oil Spill Chemistry](#)

J.R. Radovic, R.C. Silva, R.W. Snowden, M. Brown, S. Larter, T.B.P. Oldenburg
Rapid Communications in Mass Spectrometry, 2016, Vol. 30(11), pgs. 1273-1282

To see all GoMRI publications, please visit the [GoMRI Publication Database](#).

GoMRI Newsmakers

The *R/V W.T. Hogarth*, Florida Institute of Oceanography's (FIO) newest coastal class research vessel, has been [named in honor](#) of GoMRI Research Board Member Dr. William "Bill" T. Hogarth. The state-of-the-art ship will be used for research across Florida's institutions and universities for refined bottom mapping, metal tracing, surveying, collecting samples, and more. GoMRI congratulates Dr. Hogarth on this special honor and recognition!

NASA's Jet Propulsion Laboratory (JPL) has been working on developing DopplerScatt, a new technology to improve the ability to measure both ocean currents and wind. In April 2017, JPL partnered with the Consortium for Advanced Research on Transport of Hydrocarbon in the Environment (CARTHE) during their Submesoscale Processes and Lagrangian Analysis on the Shelf (SPLASH) field expedition, which provided an opportunity to independently validate DopplerScatt. The collaboration proved to be extremely valuable; in addition to validating the new technology, CARTHE researchers were able to use its data to decide where to launch their drifters. Going forward JPL plans to use CARTHE's data to improve their modeling. Read more about this exciting partnership [here](#).

GoMRI extends its congratulations to [Dr. Mandy Joye](#) and [Dr. Wei-Jun Cai](#) for being selected as [2017 American Geophysical Union Fellows \(AGU\)](#). Each year, AGU recognizes scientists for their leadership and excellence in Earth and space sciences. Dr. Joye and Dr. Cai will be honored along with the rest of the [2017 Fellows Class](#) at the

2017 AGU Fall Meeting in New Orleans, Louisiana. Congratulations to Dr. Joye and Dr. Cai on this recognition.

GoMRI researchers [Dr. Christoph Aeppli](#) and [Dr. David Murphy](#) have been selected as [2017 Early-Career Research Fellows](#), awarded through the National Academies' Gulf Research Program. The fellowship supports the development of early-career scientists, engineers, and health professionals "to work at the intersections of oil system safety, human health and well-being, and environmental stewardship in the Gulf of Mexico and U.S. outer continental shelf regions." Fellows receive a grant to support research expenses and professional development opportunities and also obtain guidance from a senior faculty member at their institution who serves as a mentor. [GoMRI congratulates](#) Dr. Aeppli and Dr. Murphy on receiving these awards.

[Aprami Jaggi](#), Ph.D. candidate at the University of Calgary, GoMRI Scholar with the Center for the Integrated Modeling and Analysis of Gulf Ecosystems (C-IMAGE), and recipient of the James. D. Watkin's Award for Excellence in Research, recently won first place in the University of Calgary's [Three Minute Thesis](#) competition. Her presentation was titled *The Ultimate Fate of Oil in the Marine Environment Following Spillage*, and she talked about the research she is doing for her Ph.D., which is funded through C-IMAGE and GoMRI. Read more about Ms. Jaggi [here](#), and see a video of her winning presentation [here](#). Congratulations Ms. Jaggi!



DISPATCHES

From the Gulf

Don't forget to check out Screenscope's weekly podcast series, *GulfCast*, based on the *Dispatches from the Gulf* documentary. Podcasts are available on SoundCloud [here](#).



In April 2017, GoMRI researchers collaborated on a field experiment focused on better understanding how oil movement and transport is impacted by river fronts. Led by RFP-V investigator [Dr. Villy Kourafalou](#) (University of Miami (UM)) and [Dr. Tamay Özgökmen](#) (UM and principal investigator of the Consortium for Advanced Research on Transport of Hydrocarbon in the Environment (CARTHE)), the experiment featured satellites, drones, research vessels, and drifters working together to track how leaking oil from the former Taylor Energy Site interacts with the open ocean and the Mississippi River Delta, called the Mississippi-Taylor-Ocean Convergence Zone. Findings from the experiment are improving scientists' ability to more accurately track transport and oil thickness near river fronts. The field study was led by WaterMapping LLC, who, with contributions from the University of South Florida and the Norwegian Meteorological Institute, produced

a video describing the experiment. Check it out [here](#).

CARTHE also recently released another video in partnership with Waterlust. *Motion of the Ocean* describes the forces that move water around the planet and the variety of tools scientists use to understand and track that movement. Watch it [here](#).

In June 2017, ECOGIG researchers embarked on a 12-day *Jewels of the Gulf* expedition to study the impacts of oil, methane, and chemical dispersants on deep sea coral ecosystems. The team, led by [Dr. Iliana Baums](#) from Pennsylvania State University, collected both high resolution images of the corals to document changes over time and live coral samples to study back in the lab. During the expedition, a live ROV camera feed was broadcast so the public could view what the scientists were seeing in real time. Now, that amazing footage is available on ECOGIG's YouTube channel [here](#). To learn more about the *Jewels of the Gulf* expedition, meet the scientists, and more, visit ECOGIG's Cruise Blogs [here](#).

Don't forget to check out GoMRI's YouTube Channel [here](#).

The Gulf of Mexico Sea Grant Oil Spill Science Outreach Team attended the Crude Move Symposium from June 8-9, 2017 in Cleveland, Ohio. The symposium was hosted by the Sea Grant Network, the Great Lakes Commission, and the International Joint Commission and included participation from members of the U.S. and Canadian governments, industry, academia, and non-governmental organizations who came together to discuss crude oil movement in northern basins. The meeting included three panels, *Different Perspectives of Risk*, *Relevant Lessons Learned from the Deepwater Horizon Oil Spill*, and *Lessons Learned from the Great Lakes-St Lawrence River Basin*, as well as keynote and opening presentations. The agenda and copies of the presentations and videos can be found [here](#).



Texas • Louisiana • Florida
Mississippi-Alabama

The Sea Grant Oil Spill Science Outreach Team hosted a series of workshops in partnership with the Caribbean Regional Response Team and the University of Puerto Rico Sea Grant College Program on August 10 and 11, 2017, in Puerto Rico and the U.S. Virgin Islands. The workshops were focused on "oil spill science for healthy communities," sharing oil spill impacts relevant to the Caribbean region, including the impacts to corals, wildlife, seafood, fishing, and tourism. More information on these workshops is available [here](#).

The team has also recently released several new publications. [Predicting the Movement of Oil](#) describes how scientists utilize models to understand the fate and transport of oil following a spill. [A Boater's Guide to Handling Oil and Fuel Spills](#) is the first one-pager released by the Sea Grant Oil Spill Science Outreach Team that shares pertinent information for boaters on how they can be prepared should they come across or come in contact with an oil spill. It is even printed on waterproof paper for safe storage on a vessel! A second one-page fact sheet shares an overview of the oil spill science outreach team and their program's goals. It can be viewed [here](#).

CARTHE Concludes Year One of Bay Drift Citizen Science Project

The Consortium for Advanced Research on Transport of Hydrocarbon in the Environment (CARTHE) recently concluded a year-long citizen science project called the Biscayne Bay Drift Card Study (or Bay Drift), which began last September to better understand the marine debris problem in Biscayne Bay. CARTHE partnered with local organizations including the Vizcaya Museum and Gardens; Frost Science; the University of Miami; and several other nonprofits, government agencies, and local schools, to launch quarterly deployments of drift cards and GPS-equipped biodegradable drifters to track currents and to provide information to resource managers on circulation patterns in the bay. A full list of the project partners can be found [here](#).

Over 20 CARTHE drifters and 1,200 small wooden drift cards were released throughout the year, in September 2016, December 2016, February 2017, and April 2017. Nearly 100 cards were recovered and reported via email or Instagram using the hashtag #BayDrift. The vast majority of GPS drifters remained inside the bay with only a few leaving and entering into the Gulf Stream. This indicated that there is a long residence time for material inside the bay and few opportunities for escape. The drift cards and drifters clearly showed the tidal impact on debris, looping back and forth in certain areas and landing on different beaches based on the tides during the time of the release. More research needs to be done to identify possible sources of the debris.

Through this work, CARTHE provided drifters and information to the Miami Dade County's Department of Environmental Resource Management (DERM) when a [sewer pipe broke](#) and began leaking on June 20, 2017. CARTHE's drifters provided the county with data on where the contamination from the leak may be going so they could test the waters and issue the appropriate advisories to the community.

“One of the most important aspects of this project is that it is a true community collaboration. We were surprised and delighted with the positive response we have received from the citizen scientists who now understand how important this research is,” said Laura Bracken, CARTHE Program and Outreach Manager.

By collaborating with 12 organizations and enlisting the help of 12 local school groups, the study has reached over 1,000 individuals, teaching them about the importance of studying and protecting the local environment. Students helped by drawing pictures or writing poems on the cards (which makes them more likely to be picked up and reported) and by launching the drifters and drift cards from designated areas across the bay.

The Bay Drift Project was so successful that CARTHE and their partners will be continuing it for another year! At an event on August 13 at the Vizcaya Museum and Gardens, all involved celebrated their successes, shared what was learned in the first year of the project, and kicked off the second year. Photos from that event can be found on CARTHE's Facebook page [here](#).

More information on the Bay Drift Project can be found [here](#), [here](#), and [here](#).

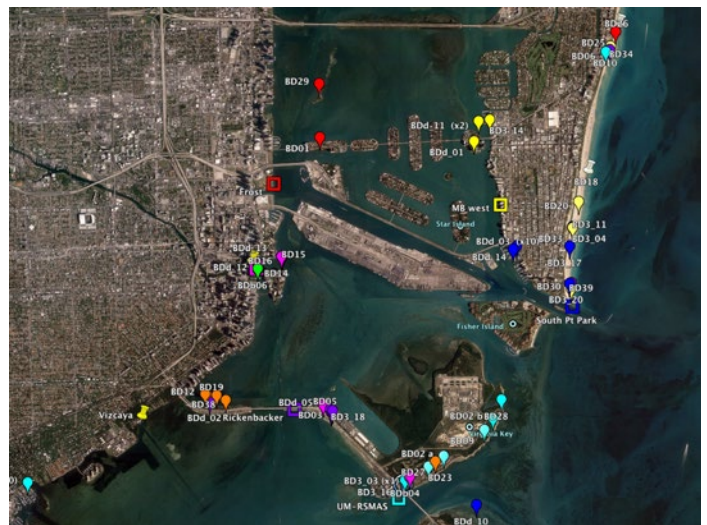


Photo Caption: Squares indicate launch sites from the Bay Drift Project. Corresponding dots are the locations of recovered drift cards. Photo Credit: Laura Bracken, CARTHE.

Education Spotlight

GoMRI Outreach Coordinators Lauren Bracken, from the [Consortium for Advanced Research on Transport of Hydrocarbon in the Environment \(CARTHE\)](#), and Jessie Kastler, from the [Consortium for Oil Exposure Pathways in Coastal River-Dominated Ecosystems \(CONCORDE\)](#), attended the 2017 National Marine Educators Association (NMEA) Annual Conference from June 25-29 in Charleston, South Carolina. This year's theme was *Seas of Change: Lowcountry Lessons in Resiliency*. More information about the conference, including the program, can be found [here](#) and [here](#).

The [Dispersion Research on Oil: Physics and Plankton Studies Consortium \(DROPPS\)](#) recently participated in a summer camp in partnership with the UT Summer Science Program at the University of Texas Marine Science Institute in Port Aransas, Texas. The camp is geared toward elementary and middle school-aged kids. In June, students participated in an all-day activity called *Floating Habitats: A Balancing Act*. The kids viewed sargassum and the animals that live in it under the microscope, played Jenga as a way to understand the delicate balance of ecosystems and their response to perturbations such as oil spills, and finished the day by releasing the animals they viewed in the microscopes back into the water. View pictures [here](#).

The [Environmental Science Journal for Kids](#) recently adapted a publication, funded in part by GoMRI, on how [oil spills impact fiddler crabs](#). The goal of *Environmental Science Journal for Kids* is to share peer-reviewed journal articles with children and educators. Each paper featured in the journal highlights information from the original article, including the abstract, methods, discussion, and conclusions but modifies it using age-appropriate language. The papers also include an accompanying lesson plan, videos, vocabulary words, and questions for discussion in the classroom. The article, co-authored by Scott Zengel, Steven Pennings, Brian Silliman, Clay Montague, Jennifer Weaver, Donald Deis, Michelle Krasnec, Nicolle Rutherford, and Zachary Nixon, was funded in part through the RFP-II project [Accelerating Recovery after the Deepwater Horizon Oil Spill: Response of the Plant-Microbial-Benthic Ecosystem to Mitigation Strategies Promoting Wetland Remediation and Resilience](#) and the RFP-V project [Long-Term Impact, Recovery, and Resilience: Wetland Plant-Microbial-Benthic Ecosystem Responses to the Deepwater Horizon Oil Spill and Mitigation Strategies Promoting Sustainability](#). This research was also highlighted on the GoMRI website, which can be found [here](#).

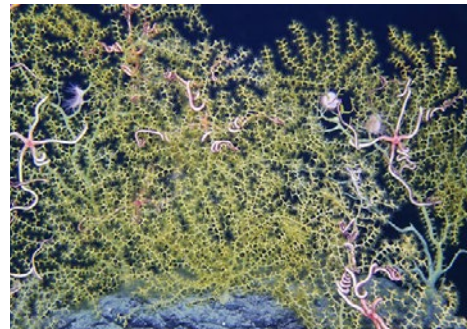


Photo Caption: CARTHE Outreach Coordinator Laura Bracken dressed up as a fiddler crab at the 2017 NMEA Annual Conference. Photo Credit: CONCORDE.



Smithsonian's [Ocean Portal](#) recently released a new article in partnership with the [Ecosystem Impacts of Oil and Gas Inputs to the Gulf \(ECOGIG\)](#) consortium called *A Brittle Sea Star May be a Coral's Best Friend*. Following the Deepwater Horizon oil spill, ECOGIG researchers began studying the impacts of oil on deep sea corals. They noticed a particular type of brittle sea star, *Asteroschema clavigerum*, gathering on healthy portions of the octocoral *Paramuricea*

biscaya. Scientists wondered if the brittle sea stars were avoiding damaged portions of the coral or if they were protecting them from contamination. Further investigation into this interesting discovery is indicating to ECOGIG researchers that, in fact, the brittle sea stars are helping to protect corals from the impacts of oil by eating descending materials, including oil contaminants, so that they don't accumulate on the corals' branches. Find out more [here](#).



Brittle sea stars cling to deep sea coral. Photo Credit: ECOGIG.

GoMRI Researcher Interview

Dr. Vijay John, from Tulane University, is principal investigator of the RFP-V project [The Design of Synergistic Dispersant and Herding Systems using Tubular Clay Structures and Gel Phase Materials](#). His research team involves three other PIs: Dr. Diane Blake (Tulane), Dr. Yuri Lvov (Louisiana Tech), and Dr. Donghui Zhang (LSU), and uniquely includes four GoMRI scholars: Marzhana Omarova, Abhishek Panchal, Lauren Swientoniewski, and Tianyi Yu. Below, Dr. John and his team's graduate students share more about their research interests and discuss their work on this project.

Dr. Vijay John

The four students collaborate extensively with each other. Tianyi has expertise in polymer synthesis and synthetic organic chemistry. She takes the lead in efforts to attach polymers onto clays. Lauren's focus is on the biological aspects of the work, and she takes the lead in all aspects related to bacterial growth characteristics and the design of biochemical methods to analyze growth and metabolism. Abhishek and Marzhana are the physical chemists and chemical engineers on the project. They work on stabilizing oil emulsions with functionalized particles and understanding the details of biofilm attachment to particles and to the oil-water interfaces. Detailed electron microscopy is an intrinsic aspect of the research. The group holds a video conference call with all PIs every two weeks. The students communicate with each other on a routine basis, exchanging information and learning techniques from each other, and sending samples to one another for analysis.

Lauren Swientoniewski

Ph.D. Student with Diane Blake (Tulane)

Lauren received her Bachelor of Science degree in biochemistry and cellular and molecular biology with a minor in chemistry at the University of Tennessee, Knoxville in 2014. After graduation, she interned in a proteomics laboratory at Oak Ridge National Laboratory before attending Tulane University School of Medicine to pursue her Ph.D. in biomedical sciences. Her current work on the project mainly focuses on the ubiquitous marine bacteria, *Alcanivorax borkumensis* and *Cycloclasticus pugetii*, that degrade straight-chain hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) in crude oil, respectively. She studies the results of applying various nanostructures that aid in the emulsification of crude oil on bacterial mechanisms, such as growth, biodegradation, and biosurfactant

production. After graduation, Lauren would like to expand her research involving nanostructures to their usage and development in the medical and pharmacological fields.

Abhishek Panchal

Ph.D. Student with Yuri Lvov (Louisiana Tech)

In the small town of Ruston, Louisiana, Abhishek Panchal works on emulsifying crude using silane grafted halloysite tubes, simultaneously working on the proliferation of hydrocarbonoclastic species like *Alcanivorax borkumensis* and *Cycloclasticus pugetii*. Abhishek relies on the materials and chemistry expertise of Marzhana and Tianyi and the support of Lauren in biological studies to combine his deftness with halloysite nanotubes into practical and eco-friendly formulations. Abhishek has completed his Bachelor's Degree in pharmaceutical technology from the Institute of Chemical Technology, Mumbai (India). Motivated by the need to create technologies that are feasible to be scaled-up and would be available to the masses, Abhishek came to the United States and joined the lab of Professor Yuri Lvov for his doctoral studies. Professor Lvov's extensive work with halloysite clay, an inexpensive and widely available material, aligned with Abhishek's motivation. Currently, Abhishek is working on a bacterial encapsulation technique inspired by the delectable Raffaello candy employing halloysite clay and formation of biofilm by marine bacterial species.

Tianyi Yu

Ph.D. Student with Donghui Zhang (LSU)

Tianyi Yu is currently a third-year graduate student working in Dr. Donghui Zhang's group at the Department of Chemistry at Louisiana State University. The goal of this research is to investigate whether and how polymer-modified clay nanotubes

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(halloysites) can enhance the oil remediation effort. The hypothesis is that the polymer-modified halloysites will support the growth and proliferation of oil-degrading bacteria, in addition to serving as an oil-water emulsion stabilizer. Tianyi's work is focused on making the biocompatible polypeptoids polymer-functionalized halloysites and characterizing their effects as oil-water emulsion stabilizers. She works closely with Marzhana Omarova from Dr. Vijay John's lab in Tulane's Chemical and Biomolecular Engineering Department and Abhishek Panchal from Dr. Yuri Lvov's lab at Louisiana Technology University to characterize the structure and interfacial behaviors of these polypeptoid-functionalized halloysites. She also collaborates with Lauren Swientoniewski from Dr. Diane Blake's lab to characterize the cytotoxicity of these new colloidal particles and investigate their effect on the growth and activity of the oil-degrading bacterial.

Marzhana Omarova

Ph.D. Student with Vijay John (Tulane)

Marzhana is a second-year graduate student from Kazakhstan pursuing a Ph.D. in chemical engineering. Research in her lab aims at understanding the role of particle stabilized emulsions as a surfactant-free method for oil spill remediation, specifically interactions between particle armored oil droplets and oil degrading bacteria in the context of oil spills. They want to investigate particle stabilized emulsions from the aspects of not only emulsion stability, but its role in biodegradation and oil transport. Their approach is based on visually resolving microbial attachment to oil droplets, formation of microbial biofilm, and the structure of the produced exopolymer. Experimental techniques available such as cryo-SEM (scanning electron microscopy) and cryo-TEM (transmission electron microscopy) yield high resolution images of biofilm and bacterial attachment to oil droplets, thus contributing to and complementing the information obtained by their collaborators. Marzhana's interest lies in pursuing an academic career, and being involved in a GoMRI project is a perfect position to be in for an aspiring academic researcher. The collaboration provides her with great mentorship from several experienced academics, and interaction with fellow graduate students is an excellent opportunity for brainstorming and fruitful discussion.

Learn more about Dr. John and his team's research [here](#). Learn more about the GoMRI Scholars program [here](#).

Keep up with the Consortia Blog Roll and Social Media

Some of the Consortia have updated their blogs. Check them out!

ACER: [News](#)

CARTHE: [Measure, Model, Mitigate](#)

C-IMAGE: [Blog \(Including highlights of their recent One Gulf Expedition to Cuba\)](#)

CONCORDE: [Concordia Blog](#)

CRGC: [News \(Including their recently launched Database of Potential Sources on Fisheries, Tourism, and Oil Spill Claims\)](#)

DEEPEND: [Blog](#)

ECOGIG: [Cruise Blog \(Including updates and ROV video feeds from their recent *Jewels of the Gulf: Deepwater Expedition*\)](#)

LADC-GEMM: [News](#)

The Story Collider has created a podcast called "Oil: Stories from the Deepwater Horizon Oil Spill," which features two of the presenters, Estelle Robichaux and Robert Campo, from the Story Collider event that was hosted in New Orleans, Louisiana in February 2017. Listen to their stories [here](#).

Many Consortia are active on social media, including Twitter, Facebook, and Instagram. Follow along!

ACER: [Facebook](#), [Instagram](#)

ADDOMEx: [Facebook](#), [Twitter](#), [Instagram](#)

CARTHE: [Facebook](#), [Twitter](#)

C-IMAGE: [Facebook](#), [Twitter](#)

CONCORDE: [Facebook](#), [Twitter](#), [Instagram](#)

CRGC: [Facebook](#)

CWC: [Facebook](#), [Instagram](#)

DEEPEND: [Facebook](#), [Twitter](#), [Instagram](#)

DROPPS: [Facebook](#), [Twitter](#)

ECOGIG: [Twitter](#), [Instagram](#)

RECOVER: [Facebook](#), [Twitter](#)

LADC-GEMM has joined Facebook. Check them out [here](#).

RFP-V Researcher Dr. Sunshine Van Bael Hosts Workshops for Elementary and Middle School-Aged Kids

Dr. Sunshine Van Bael, principal investigator of the RFP-V project [Chemical Evolution and Plant-Microbe Degradation of Petroleum in Saline Marsh Plants and Soil](#), and her colleagues recently hosted a series of workshops in Louisiana for nearly 140 elementary and middle school-aged kids. The workshops were part of Dr. Van Bael's outreach efforts to teach students about the coasts and the challenges facing them due to global changes and oil spills.

Dr. Van Bael's RFP-V project focuses on bacteria and fungi that live in salt marsh grasses called endophytes (specifically *Spartina alterniflora*). She is working to understand what happens to these endophytes when they are exposed to oil, including if they play a role in helping degrade it. The project has two components: a field effort to collect samples and analyze them in the lab to improve understanding of the bacteria and fungi and a modeling effort to better predict how endophytes move in water.

The first workshop, called "My Pet Endophyte," relates to Dr. Van Bael's RFP-V research. The kids participated in a nature walk where they learned about fungi, bacteria, *Spartina*, and endophytes. They each collected a leaf or a flower during their walk, which they took back to the lab where they learned to isolate the endophytes and plate them, just like scientists do. They then got to take their "pet" endophyte plate home and watch what happened over the course of a week or two. Check out Dr. Van Bael's [blog post](#) and pictures to find out more.

The second workshop focused on coastal ecology and decision making. The activity is modeled after the state of Louisiana's Master Plan for Coastal Protection and challenged the students to make their own "Kid Master Plan for Coastal Management." They were split into groups of three, each acting as either a city planner, an engineer, or a marsh ecologist. The teams had to build their own Mississippi River Delta, including levees, out

of Play-Doh, sand, sponges, rocks, and sticks they collected. They also had to decide where to place the city of New Orleans and Grand Isle to protect it in the event of sea level rise, river flooding, and a hurricane. Throughout each of the three challenges, the kids, acting in their roles as city planner, engineer, or marsh ecologist, discussed what they saw happening to their cities and how they might adjust their designs to protect them. In the end, the winning team was selected by one of the students acting as the governor. The curriculum for this workshop was developed by Dr. Van Bael, Dr. Emily Farrer, Dr. Kim Mighell, and Emma Tower. Contact [Dr. Van Bael](#) if you would like a copy of the activity.

Dr. Van Bael and her colleagues host similar workshops for elementary and middle school-aged kids each fall and spring. Her goal is to teach kids about the challenges facing the coasts and show them that all kinds of people are needed to help solve them. For more information about Dr. Van Bael's research, and to follow along with her outreach activities, please visit her Lab Website [here](#).



Photo Caption: Dr. Van Bael talks with students during one of her summer workshops. Photo Credit: Sunshine Van Bael.

GoMRI Scholars in Action

GoMRI recognizes the graduate students whose vital research contributes to improving understanding about the damage, response, and recovery of the Deepwater Horizon oil spill. Candidates for this program must be graduate students who have participated in a GoMRI-funded project for at least one year, whose work is primarily funded by GoMRI, and who are working on a dissertation or thesis based on GoMRI-funded science.

Learn more about the scholars' research and career paths on the GoMRI website!

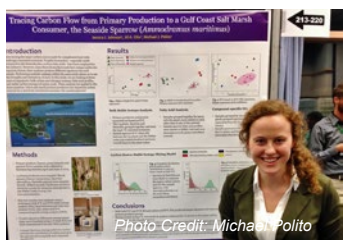


Photo Credit: Michael Polito

[Grad Student Johnson Uses Amino Acids to Demystify Salt Marsh Food Webs](#)



Photo Credit: Vanessa Parks

[Grad Student Parks Assesses How Disasters and Social Factors Influence Human Health](#)



Photo Credit: Natalia Sidorovskaia

[Grad Student Mahmud Makes Acoustics and Tracking Marine Mammals "Click"](#)

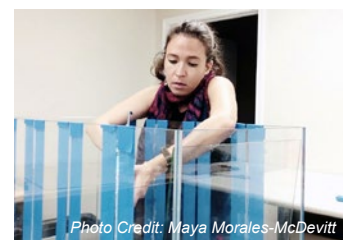


Photo Credit: Maya Morales-McDevitt

[Grad Student Morales-McDevitt Explores How Nutrients Influence Marine Snow Formation](#)

Frequently Asked Questions: Thematic Workshops

Dr. Rick Shaw and Dr. John Shepherd of the Gulf of Mexico Research Board and Co-Chairs of the Research Board's Synthesis and Legacy Committee answer a few frequently asked questions about the program.

Question: GoMRI will be holding a series of workshops as a part of the program's synthesis and legacy efforts. What will the workshops focus on?

Answer: The GoMRI Research Board is currently planning to hold eight synthesis workshops. The current topics are listed below, but others may be added as plans develop. There will also be subsets of these led by some consortia under RFP-VI.

1. Operational Gulf of Mexico Circulation, Observations, and Modelling
2. Fate of Oil and Weathering (biological and physical-chemical degradation)
3. Metagenomics and Bioinformatics
4. Ecological/Ecosystem Impacts, Adequate Baselines, and Observational Needs
5. Human Health, Social and Economic Impacts, Adequate Baselines, and Observational Needs
6. Ecosystem Services, Human Health, and Socioeconomics
7. Integrative Modelling Across All Themes
8. Knowledge Exchange with Users

Question: What are the goals and anticipated outcomes of the workshops?

Answer: All of these workshops will offer a forum for the synthesis of GoMRI-funded research results and other research relevant to oil spills in the Gulf of Mexico. Their focus will be on bringing together results reported in peer-reviewed research publications and ensuring that this is presented in a form readily accessible to the user community (researchers, regulators, responders, industry, and NGOs). Each workshop will result in a 20 to 25-page synthetic review/summary of that field. These will include a review of relevant science and identify remaining research gaps.

Question: Who will be involved in the workshops?

Answer: Workshops will be open (subject to space constraints) to appropriate GoMRI-funded and other researchers, practitioners, and regulators. Further announcements will be posted in due course.