Oil in the Sea IV: Inputs, Fates, and Effects

Committee Meeting 6 – Guest Speaker Bios

February 11-12, 2021

Sandro Galea is a physician, epidemiologist, author, and dean and Robert A. Knox Professor at Boston University School of Public Health. He previously held academic and leadership positions at Columbia University, the University of Michigan, and the New York Academy of Medicine. He has published extensively in the peer-reviewed literature, and is a regular contributor to a range of public media, about the social causes of health, mental health, and the consequences of trauma. He has been listed as one of the most widely cited scholars in the social sciences. He is chair of the board of the Association of Schools and Programs of Public Health and past president of the Society for Epidemiologic Research and of the Interdisciplinary Association for Population Health Science. He is an elected member of the National Academy of Medicine. Galea has received several lifetime achievement awards. Galea holds a medical degree from the University of Toronto, graduate degrees from Harvard University and Columbia University, and an honorary doctorate from the University of Glasgow.

Maureen Lichtveld, a member of the National Academy of Medicine, has over 35 years of experience in environmental public health. She is the Dean of the Graduate School of Public Health, the Jonas Salk Chair in Population Health, and Professor of Environmental and Occupational Health at the University of Pittsburgh. Dr. Lichtveld previously served as Chair, Professor, and Freeport McMoran Chair in Environmental Policy, Department of Global Environmental Health Sciences, Tulane University, School of Public Health and Tropical Medicine. Her research focuses on environmentally-induced disease, health disparities, climate and health, environmental health policy, disaster preparedness, public health systems, and community resilience. Lichtveld's track record in community-based participatory research includes the impact of chemical and non-chemical stressors on communities facing environmental health threats, disasters, climate vulnerability, and health disparities. As Director, Center for Gulf Coast Environmental Health Research, Leadership, and Strategic Initiatives, she is the PI of several Gulf Coast-associated environmental health research projects. Dr. Lichtveld is a member of the NAS Board on Global Health, the One Health Action Collaborative, NAM's planning committee on Climate and Health, NAS Committee on Best Practices for Assessing Mortality and Significant Morbidity Following Large-Scale Disasters, and the Advisory Committee for the NASEM-wide Climate Communications Initiative. She serves on the Board of the Consortium of Universities for Global Health and co-chairs the Caribbean Expert Panel on Climate and Health. Dr. Lichtveld received her MD degree from the University of Suriname and an MPH in environmental Health Sciences from Johns Hopkins University, School of Public Health. Honors include: Johns Hopkins' Society of Scholars and CDC's environmental health scientist of the year.

Mace G. Barron is a senior research toxicologist at the U.S. EPA's Office of Research and Development. He is responsible for directing ecological effects research to predict risks and impacts of environmental contaminants and oil spills. Dr. Barron obtained B.S. and M.S. degrees in Fisheries Science, and a Ph.D. in Pharmacology/Toxicology.

Dr. Barron has published over 150 peer reviewed journal articles and book chapters on chemical bioaccumulation, ecological risk assessment, and the toxicity and risks of oil and PAHs. He has served as an expert for the U.S. Department of Justice and EPA, and conducted research on numerous pipeline, wellhead, and tanker spills, including Guadalupe, Colonial Pipeline, Exxon Valdez, Deepwater Horizon,

and Greka. He was a member of EPA's Deepwater Horizon Science Team, and testified as the U.S. Government's expert on oil and dispersant toxicology. Dr. Barron has been invited to speak on oil spill ecotoxicology at conferences in the U.S., Canada, Europe, and Korea. He currently serves as a member of EPA's Risk Assessment Forum composed of the Agency's senior scientists, and is assisting EPA in revising the Subpart J of the U.S. National Contingency Plan.

Adriana C. Bejarano is a Senior Ecotoxicologist with Shell Health – Americas. She holds a B.A. in Marine Biology from Universidad del Valle, Colombia, and a M.S. in Marine Science and a Ph.D. in Aquatic Toxicology from the University of South Carolina. Dr. Bejarano is an environmental scientist with expertise in computational toxicology, environmental statistics, and applied eco-toxicology. Her research has focused on the integration of scientific knowledge into user-friendly tools for use in spill response and is a Subject Matter Expert on issues related to dispersants and oil toxicity. Prior to joining shell, she served as a member of the National Academies of Sciences, Engineering, and Medicine during the drafting of the consensus report "Evaluation of the Use of Chemical Dispersants in Oil Spill Response."

Lori Schwacke currently serves as Chief Scientist for Conservation Medicine at the National Marine Mammal Foundation (NMMF), supporting NMMF efforts to improve the health and conservation of marine mammal populations worldwide. She led a consortium of researchers under grants from the Gulf of Mexico Research Institute to investigate the long-term impacts of the *Deepwater Horizon* oil spill on the health of marine mammal populations. In the 16 years prior to coming to NMMF, Dr. Schwacke worked for the National Oceanic and Atmospheric Administration (NOAA), where she led efforts to assess and quantify injuries to dolphin populations following the *Deepwater Horizon* spill. While at NOAA, she also led interdisciplinary research to understand the connections of human, animal, and environmental health under the NOAA Oceans and Human Health Initiative. Dr. Schwacke holds a PhD in Biostatistics, Epidemiology, and Systems Science from the Medical University of South Carolina and a BS in Computer Science from Florida State University.

Steve Murawski is a fisheries biologist and marine ecologist involved in understanding the impacts of human activities on the sustainability of ocean ecosystems. He has developed approaches for understanding the impacts of fishing on marine fish complexes exploited in mixed-species aggregations. Additionally, his work on impacts of marine protected areas and other management options has formed the scientific basis for regulation. Such assessments can help inform investments to rebuild the Gulf of Mexico from effects of the oil spill, loss of juvenile nursery areas, nutrient enrichment, overfishing and other factors.

Dr. Murawski currently serves as Director of the Center for Integrated Analysis and Modeling of Gulf Ecosystems (C-IMAGE), which is funded by a grant from the Gulf of Mexico Research Initiative. Additionally, he is applying advanced technology solutions to the next generation of marine ecosystem surveys through a joint program with the Center for Ocean Technology to develop towed video systems for fish and habitat assessments. In addition to his science activities, Dr. Murawski is a USA Delegate and formerly a vice-president of the International Council for the Exploration of the SEA (ICES), a 20-nation organization dedicated to increasing understanding of ocean ecosystems in the convention area, which includes the United States, Canada and 18 European countries. He is also a member of the National Academy of Sciences' Ocean Studies Board, and USA Committee for the International Institute for Advanced Systems Analysis. In 2013, Dr. Murawski was also appointed a committee member for the Decadal Survey of Ocean Sciences 2015. This survey, managed by the National Academies, will set the

science priorities for the next decade in the context of the current state of Knowledge, ongoing research activities, and resource availability.

Edward Wirth has expertise in environmental toxicology and chemical analysis. After completing his thesis and dissertation at the University of South Carolina in 1999, he began working for the Ecotoxicology Branch in NOAAs National Centers for Coastal Ocean Science. His previous efforts have developed a broad background in environmental sciences, with specific training and expertise in ecotoxicology focused on invertebrate responses to contaminant exposures. He now serves as the Program Lead for the Chemical Contaminants Research program in Charleston, SC where his efforts are focused on leading projects that link contaminant monitoring and assessment with laboratory and mesocosm toxicology testing. These multi-disciplined and collaborative efforts highlight the Ecotoxicology Branch's evolving expertise in contaminants associated with persistent organic pollutants, trace elements and emerging contaminants. The effects of oil on coastal ecosystems research has been a particular area of research over the past decade.

John Incardona is the principle investigator leading the Conservation Medicine Group within the Ecotoxicology Program at NOAA's Northwest Fisheries Science Center in Seattle. This group focuses on how aquatic pollutants impact fish health, with the ultimate goal of understanding how these impacts influence the conservation and recovery of at-risk fish populations. With the goal of developing diagnostic indicators of chemical impacts in fish habitat, the group uses an interdisciplinary and integrated approach to the problem of pollution and fish health, employing the viewpoint and advanced technologies associated with human biomedicine. A major emphasis is the impacts of non-point source pollution, such as stormwater runoff, and broad classes of contaminants including pesticides, metals, and hydrocarbons from fossil fuels. Pacific herring, gadids, and zebrafish are the focus of ongoing investigations, with the latter used primarily as an experimental model for studying specific mechanisms of developmental and physiological toxicity in fish. The group is particularly focused on high latitude forage fish species in circumpolar areas as high-risk targets for oil pollution impacts. Our work is conducted in laboratories at the NWFSC and Alaska Fisheries Science Center (Newport, OR), at field stations, and also in local watersheds and coastal embayments. We collaborate extensively with national and international partners addressing related problems globally. Dr. Incardona's personal expertise is in the area of chemical impacts on fish early life history stages, and has carried out a series of studies identifying mechanisms of petroleum toxicity in fish embryos. He was co-lead on designing and implementing a Natural Resource Damage Assessment focusing on herring early life history stages following the *Cosco Busan* oil spill in San Francisco Bay, with academic collaborators (Dr. Gary Cherr) at the UC-Davis Bodega Marine Laboratory. John has established a similar collaborative effort with Dr. Barbara Block (Stanford Hopkins Marine Station) to use a molecular genetic approach to assess the impacts of Deepwater Horizon oil on the early life history stages of bluefin tuna and other pelagic species potentially impacted by the oil spill. John has a BS with Honors in Biology from Indiana University (1987), and a PhD in Genetics (1995) and MD degree (1996) from Case Western Reserve University. From 1996 to 2002, he did a fellowship in Birth Defects at the Children's Hospital and Medical Center in Seattle, and post-doctoral research in developmental biology in the Department of Biological Structure at the University of Washington. He joined the NWFSC in January 2002.