

**Herding oil at the surface:
Surface collecting agents in oil spill response**

*Jefferson Parish Library – East Bank Regional Library
Metairie, LA*

March 12, 2020 | 12-3 PM Central



<https://gulfseagrant.org/oilspilloutreach/presentations/herding-oil-at-the-surface/>

- 9 AM – 12 PM **Southeastern Louisiana Area Committee Meeting** (open to the public)
- 12:00 PM **Welcome & Networking Lunch**
Emily Maung-Douglass – Louisiana Sea Grant at LSU
- 12:45 PM **Introduction**
Emily Maung-Douglass – Louisiana Sea Grant at LSU
Steven Woodard – U.S. Coast Guard
- 1:00 PM **A brief history of herders**
David Cooper – S.L. Ross Environmental Research Ltd.
- 1:20 PM **Surface Collecting Agent operations for In situ burning & oil skimming**
James Hanzalik – Clean Gulf Associates, Inc.
- 1:40 PM **Advances in In situ burning – Surface Collecting Agents (aka Herders)**
Tim Nedwed – ExxonMobil Upstream Research Company
- 2:00 PM **Use of Herders for In-situ burning - Lessons from Experiments in the Arctic and Beyond**
Srijan Aggarwal – University of Alaska Fairbanks
- 2:20 PM **Ecofriendly Chemical Herders – BioDerived Oil Collecting Agents**
George John – The City University of New York
- 2:40 PM **Question & Answer Panel Discussion**
Nedwed, Hanzalik, Cooper, Aggarwal, John
- 3:00 PM **Closing, Evaluations, Adjourn**

About the guest speakers & presentations

Advances in In situ burning – Surface Collecting Agents (aka Herders)

Description: Presentation describes the basics of ISB, basics science behind herders, the history of herder development, a summary of recent testing, and a description of next-generation herder delivery and slick ignition systems.



Timothy J. Nedwed, Ph.D., has led the Oil Spill Response Research Program at ExxonMobil Upstream Research Company for 15 years. Currently he is ExxonMobil's Oil Spill Response Senior Technical Professional. Dr. Nedwed earned a Bachelor of Science in Chemical Engineering from the University of Kansas in 1987 and M.S. and Ph.D. degrees in Environmental Engineering from the University of Houston in 1992 and 1996, respectively.

He joined ExxonMobil in 1998 in Houston. As team lead for the Upstream Research Company's oil spill response research program, Dr. Nedwed supports several joint industry research efforts on oil spill fate and effects, and he conceives and develops novel oil spill response techniques. He has published over 60 papers related to his research and has over 18 patents.

Dr. Nedwed is a registered professional engineer in the state of Texas.

Surface Collecting Agent operations for In situ burning and oil skimming

Description: An example of use of Surface Collecting Agents (SCA) for in situ burning or enhancing skimming oil on the surface of the water. It identifies the logistical challenges of burning or skimming oil offshore and how SCAs can assist in that effort.

James Hanzalik is currently serving as the Vice President of Clean Gulf Associates, Inc. one of the largest oil spill cooperatives in the Nation. He has been with CGA since 2011. James is a retired veteran of 24 years with the United States Coast Guard. James' most recent USCG assignments included as the Chief of Response and Chief, Incident Management at the Eighth Coast Guard District. During the recent Deepwater Horizon oil spill, he served as the Federal On Scene Coordinator, Deputy Area Commander for Pollution Response and the Incident and Deputy Incident Commander for the Incident Command Post in Houma, LA.



A Brief History of Herders

Description: A review of the past decade looking at the development of a herder effectiveness protocol, and the testing of herders to determine impacts on mechanical recovery, possible use of herders to clear slicks from salt marshes, and as a pre-cursor to in-situ burning.

David Cooper, P.Eng. of S.L. Ross Environmental Research, Limited has been researching oil and chemical spill clean-up since 1990. He worked for Environment Canada for eight years where he helped design then manage EC's Oil Engineering Test Facility in Ottawa, which encompassed multiple laboratories and a large flume tank. He then spent thirteen years with Science Applications International Corporation, Canada (now *Leidos*) continuing research related projects including topics such as technical evaluations of response equipment, and the development of new protocols and countermeasures for biological and chemical attacks. Since joining S.L. Ross in 2011, Mr. Cooper has conducted extensive research on Herding and Burning, Boom Containment in Waves, Flume-Tank Inter-calibration Testing, Behaviour of Diluted Bitumen Spills, Performance Evaluations of Off-Shore Skimmers, and is actively involved with the development of new international standards as an officer of the ASTM F20 Committee on Hazardous Substances and Oil Spill Response.



Use of Herders for In-situ burning - Lessons from Experiments in the Arctic and Beyond

Description: Surface collecting agents or herders have become increasingly popular in the last decade or so for their potential use to aid in-situ burning efforts during an oil spill response. Several successful field demonstrations of herders have also shown promise. There are several questions regarding the fate of herders, their operability, and their limitations. In this presentation, I will talk about what we know about herders from past studies and what we have learned from our experiments in Alaska.

Srijan Aggarwal, Ph.D. is an environmental engineer by training and a faculty member in the Department of Civil and Environmental Engineering at the University of Alaska Fairbanks. Dr. Aggarwal's research interests include fate and transport of oil spill response chemicals, drinking water treatment and distribution, and urban air quality. His research has been published in leading environmental engineering/science journals. He is a recipient of the National Academies of Science, Engineering, and Medicine's Early Career Research Fellowship for his work on oil spills. He is also a recipient of the prestigious National Science



Foundation CAREER award for his research on biofilms in drinking water. Dr. Aggarwal currently also serves as an associate editor for the Springer journal Biodegradation.

Ecofriendly Chemical Herders – BioDerived Oil Collecting Agents

Description: This talk discusses an emerging model of generating new chemicals, intermediates and soft materials in a 'biorefinery'. We have developed building blocks-to-assembled materials viz environmentally benign antibacterial paints, oil spill recovery materials, energy storage devices, vegetable oil structuring agents and cancer detecting gels.

George John, Ph.D., is recognized for his active research in the field of functional molecular materials from renewable resources and their potential utility in food materials/energy technologies and materials science. Currently he is a Professor of Chemistry and Biochemistry at CCNY. The research in John's laboratory is highly interdisciplinary, and is focused on molecular design of synthetic lipids (biobased), membrane mimics, soft matter, trans fat alternatives and organic materials chemistry. His group has successfully developed environmentally benign antibacterial paints, oil spill recovery materials, molecular gel technologies, vegetable oil thickening agents, and trans-fat alternatives. He is a Fellow of the Royal Society of Chemistry (FRSC), a senior Fulbright Scholar to India. He holds several patents on inventions related to value-added chemicals/surfactants from renewable resources and their potential utility in food and biomaterials.

