



UAA College of Engineering
UNIVERSITY of ALASKA ANCHORAGE



UAA Professional Development Seminar Series

**Use of Herding Agents for In-situ burning:
Lessons from Experiments in the Arctic and
Beyond**

Presented by Srijan Aggarwal, Associate
Professor of CE, UAF

In the event of a marine oil spill in the Arctic, government agencies, industry, and the public have a stake in the successful implementation of oil spill response. Because large spills are rare events, oil spill response techniques are often evaluated with laboratory and meso-scale experiments. The experiments must yield scalable information sufficient to understand the operability and effectiveness of a response technique under actual field conditions. 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. Since in-situ burning augmented with herders is one of the few viable response options in ice infested waters, we conducted a series of oil spill response experiments in Fairbanks, Alaska to evaluate the use of herders to assist in-situ burning and the role of experimental scale. We compared the burn efficiency and herder application for three experimental designs for in-situ burning of Alaska North Slope crude oil in cold, fresh waters with ~ 10% ice cover. The experiments were conducted in three project-specific constructed venues with varying scales (surface areas of approximately 0.09 square meters, 9 square meters and 8,100 square meters).

Srijan Aggarwal is an environmental engineer by training and an associate professor in the department of Civil and Environmental Engineering at UAF since fall 2013. Dr. Aggarwal's research interests include fate and transport of oil spill response chemicals, water quality and treatment, environmental biofilms, drinking distribution systems, and urban air quality. Before coming to Alaska, he completed his doctoral and post-doctoral work at the University of Minnesota, Twin Cities. He has a bachelor's in civil engineering from Indian Institute of Technology, Delhi (IIT-Delhi), India. Apart from teaching undergraduate and graduate courses in environmental engineering, he maintains an active research program and advises several graduate and undergraduate students. 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 (2018) for his work on microbial biofilms in drinking water and was recently awarded an NSF NNA (Navigating the New Arctic) grant to investigate the impact of climate change on Arctic water quality.

Friday, October 16th, 2020

11:45 am-12:45 pm

Online Via [YouTube Live](#)