

## ISCO & THE ISCO NEWSLETTER

The International Spill Control Organization, a not-for profit organization dedicated to raising worldwide preparedness and co-operation in response to oil and chemical spills, promoting technical development and professional competency, and to providing a focus for making the knowledge and experience of spill control professionals available to Intergovernmental, Governmental, NGO's and interested groups and individuals

ISCO holds consultative status at the International Maritime Organisation and observer Status at International Oil Pollution Compensation Funds

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## INTERNATIONAL NEWS

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## “MARPOL AT 50 – OUR COMMITMENT GOES ON” HAS BEEN CHOSEN AS THE IMO WORLD MARITIME THEME FOR 2023.

MARPOL at 50 – Our commitment goes on' has been selected as the upcoming theme for the International Maritime Organization's 2023 World Maritime Theme, which will culminate in a World Maritime Day celebration on 28 September next year. The theme reflects the organization's long history of protecting the environment from the impact of shipping via a robust regulatory framework and emphasizes its ongoing commitment to this important work.

MARPOL 73/78 is the most important international instrument covering prevention of pollution of the marine environment by ships from operational or accidental causes. In 1997, a Protocol addressing prevention of air pollution from ships was adopted and entered into force on 19 May 2005

Today, MARPOL covers pollution of the sea by oil, noxious liquid substances in bulk, harmful substances in packaged form, sewage from ships and garbage from ships, air pollution from ships, and regulation of energy efficiency. It also allows for the adoption of special areas with even stricter controls on operational discharges. IMO / [Read more](#)



**ISCO AMBASSADORS**

(Members with special responsibilities in specified geographical areas)

- Carlos Sagrera Latin America (Spanish speaking)
- Matthew Sommerville UK London
- John Noble UK London & South'ton
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- [Benefits of Membership](#)
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Click on the link below –

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Here is the link for joining this group –

<https://chat.whatsapp.com/KMxdW7Eal79namyNibVqg>

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Professional recognition is a visible mark of quality, competence and commitment, and can give you a significant advantage in today's competitive environment. All who have the relevant qualifications and the required level of experience can apply for Professional Membership of ISCO. The organization offers independent validation and integrity. Each grade of membership reflects an individual's professional training, experience and qualifications. You can apply for MEMBERSHIP (MISCO) or FELLOWSHIP (FISCO)

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**ISCO NEWS**

**MEMBERS & VOLUNTEERS ZOOM MEETING ON 21<sup>st</sup> JULY 2022**

The Meeting took place as planned with a focus on the development of the nascent Students Group. Attendance at the meeting was lower than expected. Mary Ann Dagleish chaired the meeting and she apologized to anyone who had trouble accessing the meeting. There was a problem with ZOOM and the access information.

The attendees were: Dan Sheehan, Matthew Sommerville, Tim Gunter, Jane Delgado, Rubert Bravery, Merv Fingas, Peter Balogun Kayode, Helena Rowland, Mark Ceaser, John McMurtrie and Mary Ann Dagleish. Apologies were received from John Noble, Mike Watson and Carlos Sagrera.

Currently ISCO has 34 Student Members in countries that include USA, Nigeria, UK, Canada India and Brazil. Peter has set up a dedicated student working group (WG) communications platform on WhatsApp but he reported that, so far, only 11 of the Student Members have joined WhatsApp. This raised the question that this might not be the best choice of communications platform.

Peter expressed his thanks to members who had sent him details of internship positions that would be of interest to students. He has relayed this info to his group members via WhatsApp.

The majority of the meeting focused on how we can assist the student members in their studies. Some of the suggestions put forth were:

1. A page on the web site where questions can be asked and members can reply with answers. This would be good for all members, not just students. A kind of student's forum could be created.
2. Mentors for individual students. After discussion it was thought this would be difficult to implement.
3. Internships with member companies.
4. A section where members can offer their assistance to students. Members interested in helping students could provide details of their specific areas of expertise, contact details and preferred language for communications.
5. A Program where students can receive college credit for internships or projects with member companies.

Peter Kayode is the head of the student group. Mary Ann Dagleish, Membership Director will meet with Peter to discuss ways to contact students.

Already ISCO is providing a facility for students to publish their dissertations and is encouraging student members to interact with each other on matters of mutual interest.

Dr Tim Gunter (National Spill Control School, Texas A&M University) expressed his willingness to support the Students' WG. He has already introduced his students to ISCO and several have joined as new student members. He also mentioned that he is finding the ISCO Newsletter to be a useful resource in his teaching programmes.

Dr Gunter advised that Texas A&M and many other universities provided internship opportunities for students. Other organisations and companies interested in environmental protections also offer internships for students – it would therefore be good if all our Members watch out for internship opportunities and relay details to the student group.

During the Zoom meeting the link with Peter Balogun in Nigeria was subject to some disruptions, probably due to local conditions. Because of potential signal problems members sending emails to Peter are recommended to also cc Mary Ann Dagleish. Mary Ann will in any case be reaching out to all of our Student Members in the near future.

Mary Ann Dagleish, Membership Director.





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For information contact  
Mike Watson at  
[spillcontrol@mwadigital.com](mailto:spillcontrol@mwadigital.com)

### EUROPEAN COMMISSION UNVEILS NATURE RESTORATION LAW TO PROTECT AND RESTORE ECOSYSTEMS

July 18 - Last month, the European Commission revealed new legislation designed to protect and restore Europe's ecosystems. The first-of-its kind proposal sets an ambitious target to repair 80% of European habitats – from forest, marine and freshwater ecosystems to urban and agricultural land – and to bring nature back to all ecosystems.

[The proposal for a Nature Restoration Law](#) which would set legally binding targets for nature restoration, will build on work that is already being done to restore nature, such as the large-scale efforts that cities are carrying out as part of the [Green City Accord](#). The Commission aims to restore 20% of ecosystems by 2030, in line with cities' delivery of their Green City Accord commitments. European Commission / [Read more](#)

### IPIECA MEMBERSHIP PRINCIPLES PROVIDING A SHARED AMBITION

July 20 - Ipieca is pleased to announce new membership principles for its corporate and associate members.

Setting sustainability expectations for members, the Ipieca Principles reinforce Ipieca's role to inspire action and lead the global oil, gas and alternative energy industry through a sustainable energy transition. Grouped under Ipieca's four strategic pillars of climate, nature, people and sustainability, the eight principles provide a shared ambition for members in support of Ipieca's vision. Each thematic area includes two principles: the first provides support for a United Nation's convention or initiative; the second is designed to advance the environmental and social performance of Ipieca member companies' operations. IPIECA / [Read more](#)

## NEWS REPORTS FROM AROUND THE WORLD

### BRAZIL: NAVY BROADENS STUDIES IN MARINE BIOTECHNOLOGY

July 18 - In a large area of Anjos beach, in the coastal city of Arraial do Cabo, in Rio de Janeiro state, the Brazilian Navy's (MB) Marine Biotechnology Department set up five new laboratories within the Almirante Paulo Moreira Institute for Sea Studies (IEAPM), a science, technology, and innovation institution under the Navy Technology Center.

Eliane Gonzalez Rodrigues is the director of IEAPM, a science and technology institution of the Brazilian Navy. (Photo: Nelza Oliveira/Diálogo)

IEAPM's research is essential for the MB to develop strategies to comply with international conventions, such as the International Convention for the Prevention of Pollution from Ships, known as MARPOL 73/78, and reach environmental goals, such as preventing and responding to oil spills or other hazardous substances in Brazilian jurisdictional waters, which may also affect the region.

The Marine Biotechnology Department focuses on different areas of marine biology and enjoys many partnerships with national and foreign institutes and universities, allowing visiting researchers and students to conduct their work.

The new laboratories' main studies focus on monitoring the impact of oil spills on the marine environment and health. A practical example of the importance of this research was MB's work in the analysis of the 2019 northeast Brazil oilspill, which, between August and November, affected 130 municipalities along the coast, killing marine life, polluting beaches, and harming thousands of fishermen. Dialogo Americas / [Read more](#)

### CANADA: EXPANSION OF PRINCE EDWARD POINT NATIONAL WILDLIFE AREA COMPLETE

July 21 - Biodiversity is declining at an unprecedented rate in Canada and around the world. It is threatening the foundations of our economy, food security, health, and quality of life. Canada's network of protected areas plays a vital role in conserving and restoring healthy, resilient ecosystems, which helps halt and reverse biodiversity loss, and contributes to the recovery of species at risk.

Today, the Honourable Steven Guilbeault, Minister of Environment and Climate Change, announced the successful expansion of the Prince Edward Point National Wildlife Area (NWA) along the shores of Lake Ontario.

Prince Edward Point NWA now consists of 546.3 ha of forest, grassland, and wetland habitats. It was first designated as an NWA in 1978. Environment & Climate Change Canada / [Read more](#)

## **CANADA: GOVERNMENT DESIGNATES BIG GLACE BAY LAKE AS THE NEWEST NATIONAL WILDLIFE AREA**

July 21 - Today, the Honourable Steven Guilbeault, Minister of Environment and Climate Change, announced that the Government of Canada has designated Big Glace Bay Lake as Canada's newest National Wildlife Area.

The newly designated National Wildlife Area (NWA) in Cape Breton, Nova Scotia, comprises 392 hectares of estuary and marsh waters enclosed by a barrier beach. The site also includes mixed woodland, shallow coastal water, and eelgrass flats and encompasses the Big Glace Bay Lake Migratory Bird Sanctuary (MBS) plus an additional 14 hectares. Government of Canada / [Read more](#)

## **CHILE: CAPTAINCY OF THE PORT OF PUERTO MONTT CARRIES OUT AN EXERCISE IN RESPONSE TO POLLUTION**

July 14 - On July 12, the Captaincy of the Port of Puerto Montt and the Port Company of Puerto Montt, carried out a pollution response exercise simulating fictitiously a minor spill produced by a Pilot Boat, which was docked at site number 1 of the port area.

During the exercise, which was evaluated at all times by personnel of the Department of Maritime Interests of the Maritime Government of Puerto Montt, the activation of the contingency plan of the empormontt company was tested, as well as actions carried out by CELCONPMO, deploying land and maritime means, which allowed to verify the correct functioning of the equipment that the Maritime Authority has, to face this type of emergency. Armada de Chile Directemar / [Read more](#)

## **CHINA: CHINESE CHIEF OFFICER TO RECEIVE IMO BRAVERY AWARD**



July 19 - The chief officer of a Chinese tanker will be given the International Maritime Organization award for exceptional bravery at sea for his efforts to rescue two individuals from a liferaft during severe weather last year.

Bo Xu, a Chinese national, was nominated for the award by China and impressed judges with his heroism in the rescue, going as far as jumping into the freezing water to help save the two survivors.

The [IMO Award for Exceptional Bravery at Sea](#) is the IMO's highest honor for bravery. IMO / [Read more](#)

## **NIGERIA: BUHARI UNVEILS NEW NNPC LTD, ASSURES NIGERIANS OF ENERGY SECURITY**

July 19 - President Muhammadu Buhari has unveiled the new Nigerian National Petroleum Company Limited (NNPC Limited), affirming that the company is mandated by law to ensure that Nigeria's National Energy Security is guaranteed.

Speaking at the historic occasion at State House Conference Centre, the President said Africa's largest National Oil Company (NOC) would also support sustainable growth across other sectors of the economy as it delivers energy to the world. NAN / [Read more](#)

## **NIGERIA: Ogoniland CLEAN-UP: FG PROMISES TO RESTORE 1,416 HECTARES OF MANGROVE**

July 23 - The Federal Government of Nigeria has commenced the restoration of mangroves covering an area of about 1,416 hectares in Ogoniland.

Dr Ferdinand Giadom, Project Coordinator, Hydrocarbon Pollution Remediation Project (HYPREP) made this known at a two-day workshop on environmental remediation organised by HYPREP in Port Harcourt on Friday. World Stage News / [Read more](#)

## **UK STEPS UP SUPPORT TO PREVENT MAJOR OIL SPILL OFF THE COAST OF YEMEN**

July 18 - Efforts to prevent a major oil spill in the Red Sea have been boosted by a further £2 million announced by the Minister for the Middle East Amanda Milling today.

The FSO Safer tanker is moored off Yemen's Red Sea coast and contains more than a million barrels of oil. The tanker is beyond repair, and it is feared that it could soon break apart or explode, destroying the environment around it and potentially exposing communities in Yemen to life-threatening toxins.

The UN has been coordinating international efforts to prevent a disastrous oil spill from the tanker. The £2 million announced by the UK for the UN appeal today is in addition to £4 million pledged in May, making the UK one of the leading donors. At a meeting with counterparts from Oman, Saudi Arabia, the United Arab Emirates and the US today, Minister Milling called on the international community to step up its support. Gov. UK / [Read more](#)

### USA: LATEST NEWS REPORTS FROM NOAA OR&R

July 18 – Please click on the links below to download and read the latest news reports from NOAA OR&R

#### [OR&R Staff Participate in Spill of National Significance Seminar and Exercise](#)



*Photo: Pollution boom around a vessel. The Current Buster system in action. Image credit: NOAA/Faith Knighton.*

On June 22, 2022, the Federal Emergency Management Agency, U.S. Coast Guard District 13, and Regional Response Team 10 held a Spill of National Significance Seminar in Astoria, Oregon.

This event was designed to foster a collaborative dialogue and promote partnerships through a unified review of the National Recovery Framework, National Response System, National Oil and Hazardous Substances Pollution Contingency Plan, and other plans and policies applicable in the wake of a catastrophic Cascadia Subduction Zone rupture and SONS incident.

Presentations and discussions covered how to increase interagency coordination, information management, resource allocation, best practices, and lessons learned, with an emphasis on creating an inclusive, whole-community approach and improving equity in emergency management.

On June 23, the regional response team hosted a “Current Buster” exercise aboard the Coast Guard Cutter Elm, with participants also observing from a charter vessel. The Current Buster is a towable air-inflated boom system designed to collect, separate, and contain oil at speeds ranging from 0.5 up to 3 knots in calm, sheltered waters.

#### [Marine Debris Program Meets with the Embassy of the Republic of Korea](#)

On July 6, 2022, the NOAA Marine Debris Program director, Nancy Wallace, joined colleagues from the U.S. Environmental Protection Agency and virtually met with representatives of the Embassy of the Republic of Korea. The meeting ended with a discussion of the upcoming 7th International Marine Debris Conference, which will be held in Busan, Korea, in September.

#### [Marine Debris Program Presents at the Office of National Marine Sanctuaries Resource Protection and Permitting Cross-cut Meeting](#)

On July 6, 2022, the National Oceanic and Atmospheric Administration Marine Debris Program California Regional Coordinator Christy Kehoe presented at the July Office of National Marine Sanctuaries Resource Protection and Permitting Cross-cut Meeting. The cross-cut meeting brought together over 15 Sanctuaries staff from across the country to focus on marine debris conversations impacting our sanctuaries.

#### [Marine Debris Program Joins Partners for Seabin Announcement](#)

On July 9, 2022, National Oceanic and Atmospheric Administration Marine Debris Program staff joined Congressman Brian Higgins, Buffalo Niagara Waterkeeper, Council of the Great Lakes Region, and New York State Parks at Buffalo Harbor State Park to announce the deployment of Seabin technology in their marina.

#### [Marine Debris Program Presents at Rutgers Marine Extension Program Seminar Series](#)

On June 30, 2022, Katie Morgan on behalf of the National Oceanic and Atmospheric Administration Marine Debris Program was invited to participate in the Rutgers Marine Extension Program Seminar Series (MEPSS).

## PEOPLE IN THE NEWS

### ALAN LOVELL APPOINTED AS UK ENVIRONMENT AGENCY CHAIR



July 19 - Environment Secretary George Eustice has today confirmed Alan Lovell DL as the new Chair of the Environment Agency.

Environment Secretary George Eustice said:

“Alan will bring a wide range of experience, enthusiasm and leadership to the role and I am delighted he will be the next Chair of the Environment Agency”.

Mr Lovell will take up the post on 26 September 2022. Emma Howard Boyd’s CBE second term as Environment Agency Chair will end in September 2022.

Department for Environment, Food & Rural Affairs and Environment Agency / [Read more](#)

## PROFESSOR DAVID ATTARD TO RECEIVE INTERNATIONAL MARITIME PRIZE

July 15 - Professor David Joseph Attard (Malta) is to receive the International Maritime Prize for his contributions to the objectives and work of IMO.

Outgoing Director of the IMO International Maritime Law Institute (IMLI) Professor David Joseph Attard has been selected by the IMO Council (at its 127th session) to be the recipient of the International Maritime Prize for 2021. Professor Attard was nominated for the prestigious award by the Republic of Malta.

Professor Attard currently serves as President of the Chamber for Marine Environment Disputes (since October 2020) and is a judge for the International Tribunal for the Law of the Sea since 2011, having been Vice-President of the Tribunal (2017-2020). He has helped to establish a close cooperation between IMLI and the World Maritime University, another global training institution established by IMO. IMO / [Read more](#)



## RECENT INTERESTING PEER-REVIEWED OIL SPILL PUBLICATIONS



### A COLUMN CREATED BY DR. MERV FINGAS, MEMBER OF ISCO COUNCIL

This is part of a weekly column which provides the references and abstracts of new peer-reviewed scientific publications on oil spills. These references are selected on the basis of those papers that provide new insights into the fate, effects and control of oil spills. Readers may choose to obtain the full publications and to do so, one of three methods is suggested; contact your library, search the internet with the DOI (digital object identifier) provided, or search the internet for the exact title. These are given in the order of likely success in obtaining the article. Merv Fingas, ISCO Colleague.

#### 78. A general method to combine environmental and life-safety consequences of Arctic ship accidents

Browne, T., Taylor, R., Veitch, B., Helle, I., Parviainen, T., Khan, F., Smith, D., (2022)  
Safety Science, 154, art. no. 105855,  
DOI: 10.1016/j.ssci.2022.105855

**ABSTRACT:** Risk aggregation is the process of combining multiple individual risks to develop a better understanding of the overall risk on a system. Different risks can have different consequences and different units of measure. This study contributes to the process of risk aggregation by presenting a general method to combine multiple consequences posed by an Arctic ship accident. The method considers ecological and socio-economic consequences of a potential oil spill, and life-safety consequences of a potential ship evacuation. Existing models for each consequence type are adopted. Individual consequence types are monetized and combined to quantify total consequence cost for a given accident scenario. A framework is proposed to assign a qualitative rating for total consequence severity. The qualitative scales of the framework are established using the quantitative method. Total consequence severity is evaluated for different ship types and regions in the Canadian Arctic. Results indicate that Arctic ship accidents involving oil tankers in environmentally sensitive regions and cruise ships in regions associated with long response times are worst-case scenarios, with similar total consequence severity levels. Implications for safe Arctic shipping are that on the basis of total consequence severity, mitigating the potential consequence severity of Arctic cruise operations is of near equal priority to that of Arctic tanker operations. Evaluating total consequence severity of potential Arctic ship accidents provides decision-makers and risk analysts with a data-driven tool to integrate multidisciplinary knowledge for the assessment, management, and communication of Arctic shipping risks.

#### 79. Nitrogen dependence of rhamnolipid mediated degradation of petroleum crude oil by indigenous *Pseudomonas* sp. WD23 in seawater,

Goveas, L.C., Selvaraj, R., Vinayagam, R., Alsaiani, A.A., Alharthi, N.S., Sajankila, S.P. (2022)  
Chemosphere, 304, art. no. 135235,  
DOI: 10.1016/j.chemosphere.2022.135235

**ABSTRACT:** Effect of oil spills on living forms demands for safe, ecofriendly and cost-effective methods to repair the damage. *Pseudomonads* have exceptional tolerance to xenobiotics and can grow at varied environmental conditions. This study aims at biosurfactant mediated degradation of petroleum crude oil by an indigenous *Pseudomonas* sp. WD23 in sea water. *Pseudomonas* sp. WD23 degraded 34% of petroleum crude oil (1.0% v/v) on supplementation of yeast extract (0.05 g/L) with glucose (1.0 g/L) in seawater. The strain produced a biosurfactant which was confirmed as a rhamnolipid (lipid: rhamnose 1:3.35) by FT-IR, LCMS and quantitative analysis. Produced rhamnolipid had low CMC (20.0 mg/L), emulsified petroleum oils (75–80%) and had high tolerance



to varied conditions of pH, temperature and ionic strength. OFAT studies were performed to analyse the effect of petroleum crude oil, glucose, inoculum, yeast extract, pH, agitation speed and incubation time on degradation by *Pseudomonas* sp. WD23. Petroleum crude oil and glucose had significant effect on biodegradation, rhamnolipid production and growth, further optimized by central composite design. At optimum conditions of 3.414% v/v PCO and 6.53 g/L glucose, maximum degradation of  $81.8 \pm 0.67\%$  was observed at pH 7.5, 100 RPM, 15.0% v/v inoculum in 28 days, with a 3-fold increase in biodegradation. GCMS analysis revealed degradation (86–100%) of all low and high molecular weight hydrocarbons present in petroleum crude oil. Hence, the strain *Pseudomonas* sp. WD23 can be effectively developed for management of oil spills in seas and oceans due to its excellent degradation abilities.

### 80. Applying finite-time lyapunov exponent to study the tidal dispersion on oil spill trajectory in Burrard Inlet

Zhong, X., Wu, Y., Hannah, C., Li, S., Niu, H. (2022)  
 Journal of Hazardous Materials, 437, art. no. 129404,  
 DOI: 10.1016/j.jhazmat.2022.129404

**ABSTRACT:** This study used a combination of Finite-Time Lyapunov Exponent (FTLE) values, residual currents, and tidal excursion lengths to systematically investigate the effects of tidal dispersion on oil spill trajectories in Burrard Inlet, BC, Canada, which is a tidally dominated estuary. The FTLE analysis results showed that tidal type and tidal phase significantly influenced the FTLE fields because the flow structure and the location of saddle points varied as a function of the tidal type and tidal phase. Some transport barriers formed in the Inner Harbour, which blocked the water exchange between the western and eastern parts of the inlet. Moreover, tidal mixing in the wider regions of Burrard Inlet (i.e., the western Outer Harbour) was relatively weak than in the narrower areas (i.e., First Narrows and Second Narrows). The observations from the FTLE analysis agreed well with the residual currents and tidal excursion results. The drifter trajectories were consistent with the Lagrangian coherent structure lines extracted from the FTLE analysis. To verify the tidal dispersion impact on an oil spill trajectory in the inlet, the FTLE fields were compared with a real oil spill that occurred in Burrard Inlet in 2015 (the M/V Marathassa oil spill). The FTLE fields reasonably explained the spilled oil's trajectories from the real event. In addition, a set of stochastic oil spill models were run in this study and found that the FTLE analysis was a reliable tool for oil spill tracking. Overall, the FTLE method would be a valuable addition to practical oil spill response planning.

### 81. Bioremediation by oil degrading marine bacteria: An overview of supplements and pathways in key processes

Ganesan, M., Mani, R., Sai, S., Kasivelu, G., Awasthi, M.K., Rajagopal, R., Wan Azelee, N.I., Selvi, P.K., Chang, S.W., Ravindran, B. (2022)  
 Chemosphere, 303, art. no. 134956,  
 DOI: 10.1016/j.chemosphere.2022.134956

**ABSTRACT:** Oil spillage is one of the most common pollutants which brings greater economic loss and damage to the environment. The intensity and amount of the damage may vary depending on factors such as the type of oil, the location of the spill, and the climatic parameters in the area. As for any pollution management, the guidelines are Reduce, Re-use, Recover and Disposal. Amongst the other remediation processes, Bioremediation is amongst the most significant environmentally friendly and cost-effective approaches for marine biological restoration because it allows complex petroleum hydrocarbons in spilt oil to decompose completely into harmless compounds. Mainly, the necessity and essence of bioremediation were talked about. This review discussed the bacteria identified which are capable of degrading various oil related pollutants and their components. Also, it covered the various media components used for screening and growing the oil degrading bacteria and the pathways that are associated with oil degradation. This article also reviewed the recent research carried out related to the oil degrading bacteria.

### 82. Hydrocarbon bioremediation on Arctic shorelines: Historic perspective and roadway to the future

Góngora, E., Chen, Y.-J., Ellis, M., Okshevsky, M., Whyte, L. (2022)  
 Environmental Pollution, 305, art. no. 119247,  
 DOI: 10.1016/j.envpol.2022.119247

**ABSTRACT:** Climate change has become one of the greatest concerns of the past few decades. In particular, global warming is a growing threat to the Canadian high Arctic and other polar regions. By the middle of this century, an increase in the annual mean temperature of  $1.8\text{ }^{\circ}\text{C}$ – $2.7\text{ }^{\circ}\text{C}$  for the Canadian North is predicted. Rising temperatures lead to a significant decrease of the sea ice area covered in the Northwest Passage. As a consequence, a surge of maritime activity in that region increases the risk of hydrocarbon pollution due to accidental fuel spills. In this review, we focus on bioremediation approaches on Arctic shorelines. We summarize historical experimental spill studies conducted at Svalbard, Baffin Island, and the Kerguelen Archipelago, and review contemporary studies that used modern omics techniques in various environments. We discuss how omics approaches can facilitate our understanding of Arctic shoreline bioremediation and identify promising research areas that should be further explored. We conclude that specific environmental conditions strongly alter bioremediation outcomes in Arctic environments and future studies must therefore focus on correlating these diverse parameters with the efficacy of hydrocarbon biodegradation.

### 83. Machine-Learning Classification of SAR Remotely-Sensed Sea-Surface Petroleum Signatures—Part 1: Training and Testing Cross Validation

Carvalho, G.A., Minnett, P.J., Ebecken, N.F.F., Landau, L. (2022)  
Remote Sensing, 14 (13), art. no. 3027,  
DOI: 10.3390/rs14133027

**ABSTRACT:** Sea-surface petroleum pollution is observed as “oil slicks” (i.e., “oil spills” or “oil seeps”) and can be confused with “look-alike slicks” (i.e., environmental phenomena, such as low-wind speed, upwelling conditions, chlorophyll, etc.) in synthetic aperture radar (SAR) measurements, the most proficient satellite sensor to detect mineral oil on the sea surface. Even though machine learning (ML) has become widely used to classify remotely-sensed petroleum signatures, few papers have been published comparing various ML methods to distinguish spills from look-alikes. Our research fills this gap by comparing and evaluating six traditional techniques: simple (naive Bayes (NB), K-nearest neighbor (KNN), decision trees (DT)) and advanced (random forest (RF), support vector machine (SVM), artificial neural network (ANN)) applied to different combinations of satellite-retrieved attributes. 36 ML algorithms were used to discriminate “ocean-slick signatures” (spills versus look-alikes) with ten-times repeated random subsampling cross validation (70-30 train-test partition). Our results found that the best algorithm (ANN: 90%) was >20% more effective than the least accurate one (DT: ~68%). Our empirical ML observations contribute to both scientific ocean remote-sensing research and to oil and gas industry activities, in that: (i) most techniques were superior when morphological information and Meteorological and Oceanographic (MetOc) parameters were included together, and less accurate when these variables were used separately; (ii) the algorithms with the better performance used more variables (without feature selection), while lower accuracy algorithms were those that used fewer variables (with feature selection); (iii) we created algorithms more effective than those of benchmark-past studies that used linear discriminant analysis (LDA: ~85%) on the same dataset; and (iv) accurate algorithms can assist in finding new offshore fossil fuel discoveries (i.e., misclassification reduction).

### 84. Fluorescence-estimated oil concentration (Foil) in the Deepwater Horizon subsea oil plume

Conmy, R.N., Hall, A., Sundaravadivelu, D., Schaeffer, B.A., Murray, A.R. (2022)  
Marine Pollution Bulletin, 180, art. no. 113808,  
DOI: 10.1016/j.marpolbul.2022.113808

**ABSTRACT:** Tracking the subsea oil plume during the 2010 Deepwater Horizon Oil Spill (DWH) was conducted using in situ fluorescence via vertical profilers (n = 1157) and discrete sample chemical analyses (n = 7665). During monitoring efforts, discrete samples provided a coarse picture of the oil plume footprint, but the majority of the samples were below standard analytical detection limits for petroleum hydrocarbons. In situ fluorescence data improved the spatial and temporal resolution of the subsea oil plume characterization. Here we synthesized millions of continuous fluorescence data points from hundreds of contemporaneously discrete samples collected to demonstrate how fluorescence could serve as a proxy for Benzene-Toluene-Ethylbenzene-Xylene (BTEX) concentration. Data mined from Gulf Science Data repository were well correlated, and geographically and temporally aligned to provide direct comparisons. Described here are the methods used to calibrate the fluorescence data and to spatially approximate the three-dimensional geographic extent of the oil plume.

## EXERCISE REPORT



Maritime &  
Coastguard  
Agency

## EXERCISE PHOENIX: UK MARITIME AND COASTGUARD AGENCY AND OFFSHORE PETROLEUM REGULATOR FOR ENVIRONMENT AND DECOMMISSIONING, EXERCISES THE NATIONAL CONTINGENCY PLAN FOR MARINE POLLUTION

Last month, the Maritime and Coastguard Agency (MCA) and the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED), in collaboration with Harbour Energy, were put through their paces to test their response to an incident of national significance.

The exercise brought together over 200 participants from more than 30 organisations internationally, spanning government departments, shoreline authorities, environmental bodies, and private industry, to respond to an ongoing pollution incident over a 36 hour incident timeline. Journalism students from the Robert Gordon University in Aberdeen and Lawson Media also participated, with two Press Conferences held over the two days.





The exercise scenario? A platform support vessel had collided with an offshore installation in the SOLAN field, 70nm west of the Shetland islands, and subsequently sank following the safe evacuation of the crew.

During this process, containers lost from the vessel sank damaging a subsea offload storage tank of 41000cbm capacity, releasing crude oil into the marine environment.

In such an incident, the importance of prompt action to manage the source of pollution and mitigate its effects to the marine environment and preparing for shoreline impact is clear to see.

Various operational, tactical, and strategic teams are set up to conduct the myriad of tasks required to bring the situation under control, communicate key messages to the press and public, and to manage the consequences of any pollution released.

Harbour Energy mobilised teams in Aberdeen and London and hosted the exercise command team.



Aside from being an essential test of the UK's capability to respond to a national incident, it is also a powerful learning opportunity for all involved to have in-depth discussions on various technical matters -

- How do you stop the flow of oil from a storage tank?
- What are the timescales for such an operation?
- How and where will response vessels be decontaminated prior to returning to port?
- What will be done with oiled wildlife and how will these efforts be co-ordinated?
- How will the logistical flow of equipment and personnel to a remote Scottish island be maintained?
- What is the effect of the incident on the supply of oil to the national market?

Such questions morph quickly from the realms of academic thought experiments, into urgent requirements during an incident.

At the announcement of ENDEX, the atmosphere from the exercise participants was a proud and positive one; the various teams and response cells reporting what they felt were their respective successes and learning points during the exercise's 'wash-up' meeting and expressing a renewed confidence in the UK's combined effort to manage a significant pollution incident, as it should be!

Exercise Director Lisa McAuliffe said "It is vitally important for us to carry out these exercises to test our resilience, our collaboration and to learn how each organisation responds during an emergency. While we hope the day will never come, we must and have to be prepared for it." A full report with recommendations will be released in due course and available on [www.gov.uk](http://www.gov.uk).

[Thanks to Jayne Ede, Counter Pollution and Salvage Officer, Maritime and Coastguard Agency]

## NEWS FROM ISCO MEMBERS

Corporate Members and Industry Partners of ISCO can submit news about new products and services in the “News from ISCO Members” section of the ISCO Newsletter. This is a free facility for Corporate Members. Given that the ISCO Newsletter has a large and highly targeted readership in over 50 countries, it’s a cost-effective way to promote your organisation.

If you have some news you would like to share with readers of the ISCO Newsletter, send it to [John.McMurtrie@spillcontrol.org](mailto:John.McMurtrie@spillcontrol.org)

## RIVER CLEAN-UP WORK PROGRESS CONTINUES IN INDIA



Captain D. C. Sekhar of AlphaMERS has been busy with the latest installation of his company’s river clean up device in the popular tourist state of Puducherry. The installation was flagged off by the state PWD minister and sponsored by the oil public sector company Bharat Petroleum Corporation Ltd.

## NEW WEBINAR – TOP INDUSTRIAL STORMWATER POLLUTANTS AND SIMPLE WAYS TO CAPTURE THEM

ISCO Member, HalenHardy invites you to join this webinar on Wednesday 10<sup>th</sup> August 2022 at 10 am EST. For more info please visit <https://spillcontrol.org/upcoming-events/> or <https://www.halenhardy.com/stormwater-pollutants/>

## TRAINING COURSES

### USEFUL LINKS

- INTERNATIONAL – IMO E-LEARNING PLATFORM [e-learning platform](#)
- AUSTRALIA – AMOSC - <https://amosc.com.au/training/>
- AUSTRALIA & NEW ZEALAND – ALGA - <https://landandgroundwater.com>
- EUROPE – [EMSA Academy 2022. Courses Catalogue](#)
- FRANCE - CEDRE - Click on these links [training catalogue](#) and [2022 calendar](#).
- UK & WORLDWIDE – OIL SPILL RESPONSE LTD. - <https://www.oilspillresponse.com/training/courses/>
- UK & WORLDWIDE – BRIGGS ENVIRONMENTAL SERVICES LTD. - <https://www.briggsmarine.com/services/training/>
- UK – NCEC HAZMAT ACADEMY – [More info](#)
- USA – TEXAS A&M UNIVERSITY – NATIONAL SPILL CONTROL SCHOOL <https://www.tamucc.edu/research/nscs/>
- USA – MPC, DETROIT - <https://marinepollutioncontrol.com/services/training-and-compliance>
- USA – ALLIANCE OF HAZARDOUS MATERIALS PROFESSIONALS - [https://www.ahmpnet.org/events/event\\_list.asp](https://www.ahmpnet.org/events/event_list.asp)

Members who would like to be listed here, please contact your editor – [john.mcmurtrie@spillcontrol.org](mailto:john.mcmurtrie@spillcontrol.org)

### CERTIFICATE IN COMBATting MARINE & AIR POLLUTION FROM SHIPPING

From Lloyds Maritime Academy - over 12 weeks (Part-time), Starting 23 August 2022. [More info](#)

### CERTIFICATE IN MARITIME SAFETY MANAGEMENT & THE ISM CODE

From Lloyds Maritime Academy - Course commences 28th September 2022. [More info](#)

## TRAINING COURSES (CONTINUED)

### USA: OHMSETT - OIL SPILL RESPONSE STRATEGIES & TACTICS TRAINING

September 20 - 23, 2022 - Tuesday - Thursday: 8:00 AM - 4:00 PM Friday: 8:00 AM - 1:00 PM; [Register](#)

### FREE ONLINE SPCC TRAINING

HalenHardy's Oil Handler Annual Refresher Training is divided into six easy-to-digest microlearning modules. [More info](#)

## UPCOMING EVENTS

**TO VIEW UPCOMING EVENTS PLEASE CLICK ON** <https://spillcontrol.org/upcoming-events/>

To see ALL of the posted events you will need to click on "LOAD MORE" at the foot of each opened "upcoming events" page. Event organisers are requested to notify ISCO immediately if a listed event is cancelled or postponed. Your Editor does his best to keep the listing up-to-date but it should not be assumed that listed events have not been cancelled or postponed. It is recommended that you check with event organisers before finalising your attendance plans.

Please advise the Editor if any of the entries require correction or updating. If you are holding an event you would like to be featured here, please send details to [John.mcmurtrie@spillcontrol.org](mailto:John.mcmurtrie@spillcontrol.org)

**Newly added to the Upcoming Events page – Newfoundland & Labrador, Econext Conference 2022**

**Recently added to the Upcoming Events Page – Cedre: Sea Tech Week 2022 Marine Science & Technology Conference, 26 – 30 September, Brest, France; The Pacific States / British Columbia Task Force 2022 Annual Meeting, Online Nov. 2, 2022; Introduction to the Transport of Hazardous Goods by Road, Online, 26-27 July 2022; Italy – ECOMONDO Green Technology Expo. November 8-11, 2022, Rimini, Italy.**

## UPCOMING WEBINARS, SEMINARS & PODCASTS

**TO VIEW THESE UPCOMING SHORT EVENTS PLEASE CLICK ON** <https://spillcontrol.org/upcoming-webinars/>

To see ALL of the posted webinars you may need to click on "LOAD MORE" at the foot of the opened "upcoming webinars" page.

Webinar organisers are requested to notify ISCO immediately if a listed webinar is cancelled or postponed. Your Editor does his best to keep the listing up-to-date but it should not be assumed that listed webinars have not been cancelled or postponed. It is recommended that you check with webinar organisers before finalising your attendance plans. Please advise the Editor if any of the entries require correction or updating. **If you are holding a Webinar, Seminar or Podcast you would like to be featured here, please send details to [John.mcmurtrie@spillcontrol.org](mailto:John.mcmurtrie@spillcontrol.org)**

**Newly added to this page – HalenHardy - Top Industrial Stormwater Pollutants and Simple Ways to Capture Them, Webinar on Wednesday 10<sup>th</sup> August 2022 at 10 am EST; ExxonMobil Oil Spill Response Knowledge Transfer Webinar Series -The Value of Long Term Studies of Oil Spills – The Tropics Project in Panama – A Purposeful Spill, Wednesday 2<sup>nd</sup> August 2022, 10.00 – 11.15 am Houston Time.**

## MESSAGES FROM EVENT ORGANISERS

### INDIA: OIL SPILL INDIA CONFERENCE & EXHIBITION, 4–5 AUGUST 2022

Taj Palace, New Delhi, India. International Conference & Exhibition on Spill, Salvage, Wreck Removal: Prevention, Preparedness, Response & Restoration systems. Global stakeholder forum for best practices, technologies & experiences on disaster Management & Mitigation. Theme: Commitment, Synergy, Excellence. For ISCO Members a 15% discount on Registration Fee. <http://www.oilspillindia.org/>

### USA: CLEAN PACIFIC – AUGUST 23-24

A full, printable program is now available for this year's CLEAN PACIFIC Conference, taking place August 23-24 at the Hyatt Regency Lake Washington just outside of Seattle, WA. Check out all that we have planned for CLEAN PACIFIC! Inside the brochure, you will find: Overview of the conference + Schedule of events + All sessions and speakers + Networking events + List of exhibitors and sponsors + Code to access a \$50 registration discount [Download the brochure](#) [Registration](#) [networking-oriented sponsorship opportunities](#)

### INDIA: SPILLTECH CONFERENCE & EXHIBITION, 21-23 SEPTEMBER, 2022

The Spilltech Conference provides a vital forum for professionals from the international spill response community, private sector, government, and non-governmental organizations to come together to tackle the greatest challenges facing us with sound science,



## MESSAGES FROM EVENT ORGANISERS (CONTINUED)

practical innovation, social engineering, global research, and imagination. For ISCO Members a 10% discount on Registration Fee. <http://spilltech.org/>

### FRANCE: SEA TECH WEEK 2022

Sea Tech Week®, Marine Science & Technology Conference - 26-30 September 2022, Brest, France – More info - <https://www.seatechweek.eu/>

### CANADA: INTERNATIONAL OIL SPILL SCIENCE CONFERENCE 2022 – OCTOBER 4-7

[Preliminary Conference Programme](#) [Registration](#)

### BAHREIN: RECISO ENVIROSPILL CONFERENCE & EXHIBITION, 11-13 OCTOBER 2022

<https://www.recsoenvirospill.org/>

### USA: CLEAN GULF CONFERENCE & EXHIBITION – NOVEMBER 8-10, 2022

#### PRELIMINARY CONFERENCE AGENDA

Check out this year's program and commit to joining your peers in spill prevention and response this November. **Early Bird Discounts Expire on Friday 12<sup>th</sup> August** [View Exhibition Contract](#) [View Conference Sessions](#) [Register for Clean Gulf](#)

### ALGA GROUNDWATER FATE & TRANSPORT SYMPOSIUM

CALL FOR ABSTRACTS IS NOW OPEN! Submission Deadline: 31 July 2022 - ALGA's Groundwater Fate & Transport Special Interest Group (SIG) is pleased to announce the 2022 Groundwater Fate & Transport symposium will be held in Melbourne on 18 November 2022. The symposium aims to share the latest insights, developments and applications for improving our understanding of contaminant behaviour in the environment. <https://www.cvent.com/c/abstracts/e9e34139-c7a0-4969-88b9-e2cfb510baab>

### NORWAY: NOSCA SEMINAR 2023: MARCH 20-24, 2023

The green shift challenges: New oils and new energy carriers. Marine littering. Biological threats [Registration](#)

### AUSTRALIA: SPILLCON 2023: 11-15 SEPTEMBER 2023

We are delighted to announce that Spillcon 2023 has been confirmed for 11–15 September 2023 at the Brisbane Convention and Exhibition Centre, Queensland, Australia. For more information contact Spillcon Event Team, Nicky Reading, GPO Box 279, Canberra ACT 2601, Australia; Phone +61 417 244 355, Email [spillcon@aip.com.au](mailto:spillcon@aip.com.au)

## CONTRACTS, TENDERS AND BUSINESS OPPORTUNITIES

### INTERNATIONAL OPEN TENDER NOTIFICATION SERVICE

This is a subscription service. <https://www.tender247.com/keyword/oil+spill+tenders+global>

### OTHER OPPORTUNITIES: USA & EUROPE

US Government solicitations are frequently posted in Technology Innovation News Survey <https://clu-in.org/products/tins/> US EPA Tech Direct <https://clu-in.org/techdirect/archive/> and USA Federal Contracts Update <https://clu-in.org/Federal-Contract-Opportunities>

European Maritime Safety Agency invitations to tender are often posted in The EMSA Newsletter <https://www.emsa.europa.eu/newsroom/newsletters.html>

## LINKS FOR DOWNLOADING AND READING OTHER PUBLICATIONS

### TO VIEW LINKS FOR DOWNLOADING AND READING OTHER PUBLICATIONS PLEASE CLICK ON

<https://spillcontrol.org/2021/10/19/links-for-downloading-and-reading-other-publications/>

As a service to its Members ISCO provides a listing of publications that may be of interest to our community. This page provides details and links for downloading more than 40 publications most of which can be accessed at no cost. This page is frequently updated. ISCO depends on regular receipt of updated URL links for listed publications. If these are not received, relevant entries will be discontinued. Publishers are kindly requested to advise the editor [john.mcmurtrie@spillcontrol.org](mailto:john.mcmurtrie@spillcontrol.org) if any links are not up-to-date. ISCO is currently looking for a volunteer to take care of maintaining, improving and updating this page.

## JOB OPPORTUNITIES

### IPIECA IS LOOKING FOR A SUSTAINABILITY RESEARCH INTERN

Title: Sustainability Research Intern

Location: Ipieca London office, Basinghall Street, London EC2V 5DE (with agile working available)

Duration: 6 months For more info visit <https://spillcontrol.org/job-vacancies/>

## INCIDENT REPORTS

### NIGERIA: EROTON ANNOUNCES CONTAINMENT OF OIL SPILL FROM OML 18

July 19 - Eroton Exploration & Production Company Limited has announced that it has successfully shut-in CAWC015 Well and contained CAWC047 wild well spill.

Following the Oil Spill incident in Cawthorne Channel Well 15 (CAWC015L/S) that occurred on June 15 2022, the indigenous oil producer confirmed that the spill has been successfully contained and the well brought under control. Guardian NG / [Read more](#)

### BAHAMAS: SHIP SPILLS 30,000 GALLONS OF FUEL

**July 20** - Some 30,000 gallons of fuel has spilled from a vessel in The Bahamas, a government official said Wednesday. The oil spill took place at the world-famous resort island of Great Exuma, the largest island in the Exuma island chain known for its white sand beaches and swimming pigs. gCaptain / [Read more](#)

**July 21** - Some 30,000 gallons of oil have reportedly spilled into the ocean in The Bahamas from a ship delivering fuel, government officials reported on Wednesday. The environmental disaster occurred in Exuma waters overnight on Tuesday, according to Acting Prime Minister Chester Cooper. Mr Cooper said that the spill was caused by The Arabian, a vessel contracted for Sun Oil, as it was offloading fuel at the Old Navy Base in George Town, The Nassau Guardian reported. "We are advised at the moment that the oil is contained in the bay the area of the Exuma Sailing Club," the acting PM said. MSN / [Read more](#)

### SOUTH AFRICA: HOUT BAY OIL SPILL FOUND TO BE ENGINE OIL FROM ONE OF THE BOATS IN THE HARBOUR

July 20 - An investigation is under way into an oil spill which occurred in Hout Bay a week ago. This comes after several wildlife species, including two yearling seals, were soiled with diesel oil.

Cape of Good Hope SPCA chief inspector Jaco Pieterse said: "We had to wash two yearling seals. However, the wild population was also affected. Operations director at Hout Bay Seal Rescue and Rehabilitation Centre (HBSRC), Kim Krynauw, said the animals living in the harbour were still being monitored. She said the Department of Forestry, Fisheries and the Environment, with the Department of Public Works and Infrastructure, were investigating the incident.

HBSRC and the SPCA confirmed that the engine oil spill was immediately contained by SpillTech.

After monitoring the seals, Krynauw said the washing appeared to have distressed them. She said they were working out the correct protocols for the situation as no one in South Africa had protocols regarding oiled seals. IOL / [Read more](#)

## FOR YOUR INFORMATION

In the Maritime Bulletin, Mikhail Voytenko regularly advises on vessel abandonments, groundings and sinkings – several every week – but, unless there is an immediate and significant release of oil or chemicals, spillages are not reported. However many of Mikhail's reports cover incidents that may have potential to cause pollution. To view all of his reports, visit <https://www.maritimebulletin.net/>

Many significant spills are not reported in media your editor is able to access. He is looking for more help from Members, and especially Members of Council, for receipt of spill reports for publication in the ISCO Newsletter.

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Legal disclaimer: Whilst ISCO takes every care to ensure that information published in this newsletter is accurate unintentional mistakes can occur. No liability for consequences of errors is accepted but, if an error is brought to our attention, a correction will be printed in a following issue of this newsletter. Products and services featured in the ISCO Newsletter and/or the ISCO website, including the International Directory of Spill Response Supplies and Services, have not been tested, approved or endorsed by ISCO. Any claims made by suppliers of products or services are solely those of the suppliers and ISCO does not accept any liability for their accuracy. It should not be assumed that views and opinions expressed in linked reports, articles and other content reflect the views of the organization. Subscription is subject to acceptance of ISCO's Terms and Conditions as published on the website [www.spillcontrol.org](http://www.spillcontrol.org) and your acceptance of ISCO's Data Protection and Privacy Policy.

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