

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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SAD NEWS FOR THE INTERNATIONAL SPILL RESPONSE COMMUNITY



April 8 – ISCO is saddened to have to report the death at age 92 of its President – David Usher

He was well known and respected worldwide. David Usher, was founder and president of Marine Pollution Control which is headquartered in Detroit, Michigan. He was a true pioneer of oil spill response and one of the world's leading experts in oil and hazardous material spill control. Amongst his many achievements he was a Founding Member and President of the International Spill Control Organization and had a key role in the response to many of the world's largest oil spills. He will be greatly missed – Neil Marson, Secretary-General, ISCO.

IMO LAUNCHES E-LEARNING PLATFORM

April 7 - IMO is adding e-learning to its portfolio of services. The first free to access course was launched during an online event (7 April), in the margin of its Pollution Prevention and Response (PPR) Sub-Committee meeting.

IMO has developed a number of e-Learning courses with the purpose of increasing the capacity of Member States to effectively implement IMO instruments. Some courses are also available to anyone interested in maritime issues wishing to enhance their maritime knowledge.

The first such course is: "An Introduction to Oil Pollution Preparedness, Response and Cooperation", designed to provide a basic introduction to those involved in, or that have an interest in, matters related to oil pollution preparedness and response, whether from within the oil spill response community or the maritime sector. The series of e-Learning courses is being developed in collaboration with the World Maritime University. Distance learning has become key in meeting the changing educational needs in the maritime industry and IMO is offering students and maritime professionals around the world the possibility to boost their understanding of key maritime issues. Click here to visit the [e-learning platform](#).

ISCO AMBASSADORS

(Members with special responsibilities in specified geographical areas)

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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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INTERNATIONAL NEWS (CONTINUED)

ISCO NEWS

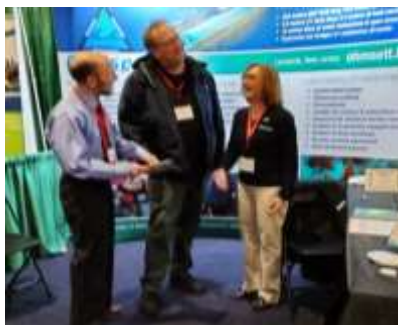
DAVID USHER – APOLOGY FOR FUNERAL NOTICE ERROR

ISCO VP Mary Ann Dagleish has just advised that there was an error in the advice sent to ISCO members on Friday. David's funeral will take place on Sunday, April 10 at 1 pm at Kaufman Funeral Chapel, 18325 W. 9 Mile Road, Southfield, MI 48075. Also, please note that Dave's age was 92, not 94 but he had a good innings.

Many members responded to yesterday's email expressing their sadness at David's death and sending condolences to his family. Your editor thanks everyone for their kind messages. He will not be individually responding to the large number of messages received but will ensure that all the expressions of sympathy are passed onto Dave's family.

An obituary is being prepared and will be published in the next ISCO Newsletter.

CLEAN WATERWAYS PHOTOS FROM HELENA ROWLAND



Above left: ISCO members Kurt Hansen, Bill Hazel and Jane Delgado interacting at the Ohmsett booth. Above right: ISCO representative Helena Rowland (on left) presenting Laphroaig scotch whisky to Denise Dzurenka (on right), lucky winner of the ISCO raffle. Denise is an Environmental Scientist with the Department for Environmental Protection in the US state of Kentucky.

MARCH 2022 MEETING OF THE IOPC FUNDS' GOVERNING BODIES

April 1 - The governing bodies of the IOPC Funds held sessions from Tuesday, 29 to Wednesday, 30 March 2022 via the e-conferencing platform KUDO. These were the first sessions since the new Director, Gaute Sivertsen, had taken up his post.

Sixty-nine States, representing 64 Member States of the 1992 Fund, 25 Member States of the Supplementary Fund and five observer States, as well as 18 observer organisations, attended sessions of the 1992 Fund Administrative Council, the 1992 Fund Executive Committee and the Supplementary Fund Assembly. [Read more](#)

NEW GLOBAL INDUSTRY ALLIANCE LAUNCHED TO TACKLE SEA-BASED MARINE PLASTIC LITTER

April 1 - UN entities and the private sector have joined forces to tackle sea-based marine plastic litter through the GloLitter Partnerships Project.

A ground-breaking Global Industry Alliance (GIA), led by the UN Global Compact, was launched in the Port of Oslo, Norway (24 March).

The GIA will help tackle one of the most pressing issues in marine ecosystems of our time - plastic entering the ocean.

Collecte Localisation Satellites (CLS), Wilhelmsen Ships Service Marine Products, Vow ASA, Aker Biomarine, and Container Overboard System (COBS) will work together with the GloLitter Partnerships Project, an International Maritime Organization (IMO) project with the Food and Agricultural Organization (FAO) as an implementing partner, to support developing countries in identifying opportunities for the prevention and reduction of marine litter. IMO / [Read more](#)

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IMO AWARD FOR EXCEPTIONAL BRAVERY AT SEA - DEADLINE FOR NOMINATIONS: FRIDAY, 15 APRIL 2022

April 4 - This is to kindly remind you that the deadline for submission of nominations for the 2022 IMO Award for Exceptional Bravery at Sea is this week on Friday, 15 April 2022. Please do not hesitate to contact us should you have any query about the nominating process. ERO / e: ERO@imo.org | w: www.imo.org

MILLION MILE CLEAN – HOW TO GET STARTED

April 4 – LET’S MAKE THE UK ONE MILLION MILES CLEANER!

Our aim is to make the UK a cleaner, greener place for everyone to enjoy. That’s why we’ve created our biggest ever beach clean campaign: the Million Mile Clean. We’re mobilising 100,000 people each year to get out there and protect the areas they love.

Beach, street, river or mountain, the Million Mile Clean is open to everyone, no matter where you live. Whether you’re an individual beach cleaner, a group of friends, a team of colleagues, a school or community group, every piece of rubbish you collect brings us one step closer to stopping plastic pollution. [Read more](#)

JOIN A CLEAN - Fresh air, community spirit, and a tangible difference to your local beach. Find an upcoming clean in your area and get stuck in. <https://beachcleans.org.uk/get-involved/join-a-clean/>

RUN A CLEAN - Are you ready to organise your own clean? Bring your community together and help us clean a million miles. <https://beachcleans.org.uk/get-involved/run-a-clean/>

EUROPE: EMSA - BLACK AND CASPIAN SEA PROJECT TO CONTINUE WELL INTO 2022 AS EXTENSION GRANTED

April 7 - On 31 March, the ‘Maritime safety, security, and marine environmental protection in the Black and Caspian Sea Regions’ (BCSEA) Project, was extended for a further six months until 30 September. The project started on 1 February 2017 with a total budget of 4,000,000 EUR and had been previously extended twice by the contracting authority, the European Commission’s DG NEAR, due to operational restrictions posed by the Covid-19 pandemic.

This has allowed EMSA to make the best use of the funds allocated to the project and meet, as much as possible, the expectations of its Beneficiary Countries – Azerbaijan, Georgia, Iran, Kazakhstan, Moldova, Ukraine, Turkey, and Turkmenistan – while increasing budget execution. The latest extension mainly acts as a financing mechanism for targeted activity to purchase oil pollution response equipment for countering the potential impact of the ongoing war in Ukraine into the region’s marine environment. Such specialised anti-pollution equipment will be delivered to EMSA’s stockpile in the region, situated in Varna, Bulgaria, and earmarked for Georgia and Ukraine, readily available for any pollution response operation in the Black Sea.

The extension is in line with the EU’s long-standing Eastern Partnership Policy, aimed at strengthening and deepening the political and economic relations between the EU, its member states and eastern partner countries. [Read more in the EMSA April 2022 newsletter](#)

NEWS REPORTS FROM AROUND THE WORLD

CANADA AND NEWFOUNDLAND AND LABRADOR WORK TOGETHER ON PROTECTED AREAS ON LAND AND AT SEA

April 6 - Conserving and restoring nature is vital to Canada’s efforts to combat climate change; protect biodiversity and species at risk; and rebuild a strong, sustainable economy. The governments of Canada and Newfoundland and Labrador have committed to collaborate on accelerating the creation of new protected areas in the province.

The Government of Canada has committed to protecting 25 percent of lands and oceans by 2025 while working toward 30 percent by 2030. As of December 2021, about 13.5 percent of terrestrial and almost 14 percent of ocean areas have been conserved or protected in Canada.

Canada has made tremendous progress in protecting the oceans, having moved from approximately 0.9 percent protection in 2015 to today’s current total of almost 14 percent. Under Budget 2021, the Government of Canada made a historic investment to protect the health of oceans, including \$976.8 million in funding over five years.

The creation of new protected areas in Newfoundland and Labrador will be funded in part through the additional \$460 million over five years announced last November to protect and expand twenty-two of Canada’s national wildlife areas and to create ten new national parks, ten new national marine conservation areas, and four new freshwater marine conservation areas.

Government of Canada / [Read more](#)

ECUADOR: INDIGENOUS COMMUNITIES IN ECUADOR STRUGGLE WITH THE AFTERMATH OF ANOTHER OIL SPILL

March 18 - The January spill wasn't the first to wrack the area. On Apr. 7, 2020, erosion reportedly caused the OCP to rupture, as well as the Trans-Ecuadorian Oil Pipeline System (SOTE) and a third gas pipeline. More than 15,000 barrels of oil were spilled into the Coca River. More than 27,000 members of downstream Indigenous communities were affected.

Since the 2020 oil spill, the company OCP Ecuador and one of its contractors, Welding, have built seven more pipelines – but all have collapsed. Residents say the erosion that contributed to the pipeline burst has also destroyed the road from Quito to Lago Agrio, isolating communities. Environmental groups and organizations, as well as human rights activities, claim that Ecuador's government has prioritized oil production while ignoring the inhabitants of affected communities. Mongabay / [Read more](#) [Thanks to John Wardrop, Member of ISCO Council for Australia]

ISRAEL MYSTERY SPILL WAS 'TANK WASHING NOT TERRORISM', SAYS IOPC HEAD



Photo: The 2021 oil spill was described as Israel's worst ecological disaster in decades, depositing some 1,360 tonnes of tar balls over more than 100 miles of Mediterranean coastline. Source: Israeli incident report

April 6 - 'There is nothing that suggests terrorism ... It is clear that the damage was caused by a tanker. But we are unable to identify the ship,' confirms Gaute Sivertsen.

Director Gaute Sivertsen made his remarks as part of a wide-ranging interview with Lloyd's List on Wednesday, discussing the work of the oil-industry body that acts as the top-level insurer for tanker spills.

Sessions of the IOPC Funds' governing bodies held on 29 and 30 March officially accepted that the incident constituted a so-called 'mystery spill'. Under the 1992 Civil Liability and Fund Conventions, that conclusion obliges the funds to pick up Israel's tab for clean-up costs and economic damage, up to a maximum of \$295m. Lloyds List / [Read more](#)

KUWAIT: MEETING OF THE MINISTERS RESPONSIBLE FOR ENVIRONMENTAL AFFAIRS IN THE GCC

April 3 - On Sunday, April 3, 2022, the 24th meeting of the ministers in charge of environmental affairs in the Gulf Cooperation Council (GCC) countries was held through visual communication. The delegation of the state of Kuwait was led by his excellency Dr. Mohammed Abdullatif al Faris, Deputy Prime Minister, Minister of Oil and Minister of State for cabinet affairs. Several recommendations of his excellency the agents responsible for environmental affairs were discussed on the topics raised and he thanked the state of Kuwait for establishing the Gulf Environmental Gate. EPA Kuwait / [Read more](#)

NIGERIA: BODO REMEDIATION PROJECT PROJECT UPDATE. 1ST QUARTER 2022

This is the 18th summary report to the public by the Bodo Mediation Initiative (BMI) on the Bodo Remediation and Revegetation Project and covers activities undertaken since the start of 2022. Currently, these activities encompass the largest ongoing oil spill cleanup worldwide involving roughly 1000 participants, the largest cleanup ever undertaken in the Niger Delta (1000 ha), and the largest attempted restoration of mangroves damaged by spilled oil with the scheduled planting of ~2 million seedlings.

This second phase of the Project began in 2019 and is expected to actively continue to late 2022 to early 2023, with mangrove monitoring continuing for an additional five years.

The BMI has the role to mediate and oversee the execution of the Bodo Project by working closely with all stakeholders including representatives of the Bodo Community, the Centre for the Environment and Human Rights and Development (CEHRD) and other Civil Society Organizations (CSOs), Nigerian State and Federal regulatory agencies and The Shell Petroleum Development Company of Nigeria (SPDC).

Content of this update include info on project activities, progress made, work verifications, knowledge transfer and much more. The Report is well illustrated with photos, schematics, etc. For more details download full report [here](#).

NORWAY: HOLD NORGE RENT-CONFERENCE AND NTNU OCEAN WEEK, MAY 3, 2022

April 5 - Together with NOSCA Clean Oceans, in the field of ocean space technology, the Ocean Autonomy cluster will take part in the Hold Norge Rent conference and NTNU Ocean Week on May 3. from 12.00-14.00. This is to showcase the existence of exciting ocean space technology, especially technology that approaches autonomous and remote-controlled operations, from our cluster members. They are going to demonstrate and present their product and services live at the Brattørkaia. We aim to fill the area around the Brattørkaia with an audience during these hours, with participants from the Hold Norge Rent-conference and NTNU Ocean week as well the man and woman in the street. There will also be one or more food trucks on the site so the public can get some food between and during the demonstrations.

Furthermore, we will participate in the NTNU Ocean Week academic program from 14.00-16.00 inside Rockheim, where Ocean Autonomy Cluster and NOSCA Clean Oceans have been asked to contribute with relevant content. The program is set up according to NOSCA's "value chain": Detection – Classification – Collection – Disposal. Each section is filled with a presentation from the industry and supplemented with a presentation from ongoing research from NTNU NOSCA / [Read more](#)

PERU: OIL SPILL CONTAMINATES WILDLIFE, BEACHES AND PROTECTED AREAS

March 25 - Oil-covered birds and seals, among other marine species, were some of the evidence of the magnitude of the environmental disaster, which occurred along the coast of Ventanilla district in the port of Callao outside Lima, where the refinery is located. The effects of the oil spill have even spread to the protected area known as the Guano Islands, Islets, and Capes National Reserve System.

The photos of the wild animals during the first days of the spill showed some of the devastating impacts. There were seals covered in oil crawling through the sand, and birds practically immobilized by black oil blanketing them from head to toe. Many of them were rescued by people who found them on beaches in Ventanilla, like Costa Azul Beach, Bahía Blanca Beach, and Cavero Beach.

Specialists from Peru's National Forest and Wildlife Service (SERFOR in Spanish) traveled to the beaches to tend to the wildlife affected by the oil spill. Over the first month, they rescued more than 70 birds. They also logged more than 300 dead animals, nearly all of them birds but also one sea lion. Mongabay / [Read more](#) [Thanks to John Wardrop, Member of ISCO Council for Australia]

UK: SWAN SANCTUARY TO RETURN 46 BIRDS COATED IN OIL FOLLOWING SPILL IN RIVER MEDWAY AT WATERINGBURY



Photo: Swans covered in oil at the Swan Sanctuary facility. Picture: Swan Sanctuary.

March 22 - The Swan Sanctuary from Shepperton, Middlesex came to the rescue and escorted all the birds back to safety in what was described as a "mammoth task".

A spokesman from the Environment Agency said: "We identified that up to 300 litres of oil had been fly tipped into a culverted watercourse from a roadside manhole.

"Officers acted quickly to lay a boom across the channel at Hampstead Lock, which successfully contained the majority of the oil.

"Inevitably, some oil was lost downstream beforehand, and this unfortunately impacted the swans, which were later rescued by the Swan Sanctuary

and taken away to be cleaned-up."

Steve Knight, trustee of the swan charity, said: "After we got all of the swans back to our facility they were taken to our oils spill unit". They were then then moved to an outdoor water area where they continued their full recovery in comfort.

One month on and the swans are healthy enough to be returned to their home, now cleared of any oil. KentOnline / [Read more](#)

USA: LATEST NEWS FROM NOAA OR&R

April 1 - Please click on the links below to download and read the latest news reports from NOAA OR&R.

[Assessment of Sunken Liberty Ship Completed in Gulf of Mexico](#)

U.S. Coast Guard (USCG) Sector Mobile recently completed the assessment operations for the WWII Liberty ship, Thomas Heyward, located in about 79 feet (24 meters) of water, four miles south of the Okaloosa Island Fishing Pier just north of the Pensacola-Panama City shipping lane. The vessel was intentionally sunk on April 14, 1977 off of Destin, Florida as an artificial reef structure.

[Marine Debris Program Presents at Workshop on Marine Debris Monitoring in Asia Pacific Economic Cooperation Region](#)

On March 24, the Marine Debris Program's Monitoring Coordinator Hillary Burgess presented virtually at a "Workshop on Capacity Building on Marine Debris Monitoring by Using Innovative Technologies in the Asia Pacific Economic Cooperation Region" hosted by the APEC Oceans and Fisheries Working Group and the Ocean Affairs Council of Chinese Taipei.

[Marine Debris Program Presents at Virtual 2022 Ocean Science Meeting](#)

Staff from the NOAA Marine Debris Program (MDP) attended and gave presentations at the virtual 2022 Ocean Sciences Meeting, co-sponsored by the American Geophysical Union, the Association for the Sciences of Limnology and Oceanography, and The Oceanography Society, held Feb 28 - March 4.

USA: EPA RELEASES FY 2023 CONGRESSIONAL BUDGET JUSTIFICATION

April 5 - Following last week's release of the President's Budget for fiscal year 2023, today the EPA announced the detailed FY 2023 Congressional Justification. These materials include further details on proposed funding across all EPA programs and descriptions of individual investments. The Budget makes historic investments to advance key priorities in the FY 2022-2026 EPA Strategic Plan, including tackling the climate crisis, advancing environmental justice, protecting air quality, upgrading the Nation's ageing water infrastructure, and rebuilding core functions at the Agency. EPA / [Details of Funding Allocations](#)

USA: BSEE AND CALIFORNIA OSPR STRENGTHEN COLLABORATION TO IMPROVE OIL SPILL PREVENTION AND RESPONSE

April 4 - To strengthen collaboration and oil spill prevention and response offshore California, the Bureau of Safety and Environmental Enforcement recently renewed an agreement with California's Department of Fish and Wildlife, Office of Spill Prevention and Response to protect California's coast from oil spills. Ratification of the new memorandum terminates a 1995 agreement between the two agencies. Similar agreements are to be signed with other coastal states in the coming months.

The goal of the updated memorandum is to promote oil spill response planning and preparedness, maximize oil spill response efficiency, and promote protection of human health and the environment by:

- Fostering communication and cooperation between the parties.
- Promoting compliance with applicable regulations.
- Optimizing use of expertise and resources.
- Coordinating efforts with respect to oil spill planning, preparedness, and response.
- Coordinating oversight and regulatory enforcement actions.

BSEE / [Read more](#)

PEOPLE IN THE NEWS

SEA ALARM BIDS FAREWELL TO CHRISTOPHE BLAZY



April 1 - Technical Adviser Christophe Blazy has recently resigned from his position at Sea Alarm to join the Regional Activity Centre for Specially Protected Areas and Wildlife of the Caribbean (SPAW-RAC) in Guadeloupe as Marine Ecosystems and Protected Areas Project Officer.

In his role at SPAW-RAC, Christophe will provide technical support to the Contracting Parties to the SPAW Protocol, as well as international networks of experts, regarding the conservation and sustainable management of marine ecosystems and protected areas in the Wider Caribbean.

We wish Christophe all the best in his new job and look forward to any further collaboration we may have in the future across the Atlantic. Sea Alarm / [Read more](#)

MILES OREN HAYES 1934 – 2022

Sad news received from Dr Jacqueline Michel.

“My dear husband of 46+ years, Miles O. Hayes, passed on 30 march 2022. He was such an innovator in oil spill science, having created the concept of Environmental Sensitivity Index (ESI) shoreline classification, the first Tidal Inlet Protection Strategies (TIPS), understanding of oil fate and persistence in gravel beaches, and the leader of many oil spill training courses”.

Miles' company, Research Planning Inc , focused on applied research related to the search for oil, oil spill science, spatial analysis, and coastal restoration. The quality of RPI's work continues under Jacqui's leadership since 2000. The text of Miles' Obituary can be downloaded here -

<https://www.legacy.com/us/obituaries/legacyremembers/miles-hayes-obituary?id=33943756>

RECENT INTERESTING PEER-REVIEWED OIL SPILL PUBLICATIONS**CONTINUING THIS NEW COLUMN CREATED BY DR. MERV FINGAS**

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. We hope that this provides useful information. Merv Fingas, ISCO colleague.

8. A TRADEOFF BETWEEN PHYSICAL ENCOUNTERS AND CONSUMPTION DETERMINES AN OPTIMAL DROPLET SIZE FOR MICROBIAL DEGRADATION OF DISPERSED OIL (2022)

Fernandez, V.I., Stocker, R., Juarez, G. Scientific Reports, 12 (1), art. no. 4734,
DOI: 10.1038/s41598-022-08581-7

ABSTRACT: Immiscible hydrocarbons occur in the ocean water column as droplets of varying diameters. Although microbial oil degradation is a central process in the remediation of hydrocarbon pollution in marine environments, the relationship between droplet size distribution and oil degradation rates by bacteria remains unclear, with a conflicting history of laboratory studies. Despite this knowledge gap, the use of chemical dispersants in oil spill response and mitigation is based on the rationale that increasing the surface-area-to-volume ratio of droplets will enhance net bacterial biodegradation rates. We demonstrate that this intuitive argument does not apply to most natural marine environments, where the abundance of oil droplets is much lower than in laboratory experiments and droplet-bacteria encounters are the limiting factor. We present a mechanistic encounter-consumption model to predict the characteristic time for oil degradation by marine bacteria as a function of the initial oil concentration, the distribution of droplet sizes, and the initial abundance of oil-degrading bacteria. We find that the tradeoff between the encounter time and the consumption time leads to an optimal droplet size larger than the average size generated by the application of dispersants. Reducing droplet size below this optimum can increase the persistence of oil droplets in the environment from weeks to years. The new perspective granted by this biophysical model of biodegradation that explicitly accounts for oil-microbe encounters changes our understanding of biodegradation particularly in the deep ocean, where droplets are often small and oil concentrations low, and explains degradation rate discrepancies between laboratory and field studies.

9. STRUCTURED PATHWAYS IN THE TURBULENCE ORGANIZING RECENT OIL SPILL EVENTS IN THE EASTERN MEDITERRANEAN (2022)

García-Sánchez, G., Mancho, A.M., Ramos, A.G., Coca, J., Wiggins, S. Scientific Reports, 12 (1), art. no. 3662,
DOI: 10.1038/s41598-022-07350-w

ABSTRACT: The chaotic nature of ocean motion is a major challenge that hinders the discovery of spatio-temporal current routes that govern the transport of material. Certain material, such as oil spills, pose significant environmental threats and these are enhanced by the fact that they evolve in a chaotic sea, in a way which still nowadays is far from being systematically anticipated. Recently such an oil spill event has affected the Mediterranean coast of several Middle Eastern countries. No accidents were reported for these spills previous to their arrival at the coast, and therefore there was no hint of their origin. Modelling such an event, in which uncertainties are increased due to the lack of information on where and when the spills was produced, stretches available technologies to their limits, and requires the use of novel ideas that help to understand the essential features of oil and tar transport by ocean currents. In this regard Lagrangian Coherent Structures enable us to find order within ocean chaos and provide powerful insights into chaotic events and their relationships over different locations and times like the one addressed. Using the observed locations of the oil impacting the coast at specific times, we seek to determine its original location and the time it was released in the

open ocean. We have determined both using a combination of earlier satellite observations and computational modelling of the time evolution. The observed agreement between modeled cases and satellite observations highlights the power of these ideas.

10. OIL SPILL CAUSES MASS MORTALITY OF SEA SNAKES IN THE GULF OF OMAN

Yaghmour, F., Els, J., Maio, E., Whittington-Jones, B., Samara, F., El Sayed, Y., Ploeg, R., Alzaabi, A., Philip, S., Budd, J., Mupandawana, M. (2022) *Science of the Total Environment*, 825, art. no. 154072, DOI: 10.1016/j.scitotenv.2022.154072

ABSTRACT: Oil spills in the marine environment inflict significant impacts on a wide diversity of marine fauna. Despite the abundance of literature describing these impacts on numerous species, no studies describe the impacts on sea snakes. In this study we report, for the first time, details of an oil spill which caused mass mortality of sea snakes. In this study, 39 sea snake mortalities from the Gulf of Oman, in particular, the coast of Kalba, Sharjah, UAE, were examined. The investigated sea snakes belong to four different species (*Hydrophis platurus*, *H. lapemoides*, *H. spiralis* and *H. ornatus*). The majority (84.6%) of sea snakes were observed to have oil covering 75–100% of their bodies. The majority (91.4%) of sea snakes were also observed with oil covering their snouts and eyes. A large proportion (25.8, 41.4 and 34.5%) of sea snakes were observed with oil in their mouth, esophagus and stomach.

11. RECENT ADVANCE IN UNDERSTANDING PHOTOOXIDATION OF HYDROCARBONS AFTER OIL SPILLS (2022)

Aeppli, C.
Current Opinion in Chemical Engineering, 36, art. no. 100763,
DOI: 10.1016/j.coche.2021.100763

ABSTRACT: Oil photooxidation is increasingly recognized as an important process that affects the fate of crude oil in the environment, especially after marine oil spills. Research conducted in the aftermath of the 2010 Deepwater Horizon oil spill improved our understanding of oil photooxidation but also pointed to existing knowledge gaps related to formation mechanisms the formation mechanism, composition, and fate of oil photoproducts. This article summarizes recent studies that address these issues. Furthermore, perspectives for further research are discussed.

12. AN OPTIMIZED METAMODEL FOR PREDICTING DAMAGE AND OIL OUTFLOW IN TANKER COLLISION ACCIDENTS (2022)

Das, T., Goerlandt, F., Tabri, K.
Proceedings of the Institution of Mechanical Engineers Part M: Journal of Engineering for the Maritime Environment, 236 (2), pp. 412-426.
DOI: 10.1177/14750902211039659

ABSTRACT: Society is concerned about maritime accidents since pollution, such as oil spills from ship accidents, adversely affects the marine environment. Operational and strategic pollution preparedness and response risk management are essential activities to mitigate such adverse impacts. Quantitative risk models and decision support systems (DSS) have been proposed to support these risk management activities. However, there currently is a lack of computationally fast and accurate models to estimate oil spill consequences. While resource-intensive simulation models are available to make accurate predictions, these are slow and cannot easily be integrated into quantitative risk models or DSS. Hence, there is a need to develop solutions to accelerate the computational process. A fast and accurate metamodel is developed in this work to predict damage and oil outflow in tanker collision accidents. To achieve this, multiobjective optimization is applied to three metamodeling approaches: Deep Neural Network, Polynomial Regression, and Gradient Boosting Regression Tree. The data used in these learning algorithms are generated using state-of-the-art engineering models for accidental damage and oil outflow dynamics. The multiobjective optimization approach leads to a computationally efficient and accurate model chosen from a set of optimized models. The results demonstrate the metamodel's robust capacity to provide accurate and computationally efficient estimates of damage extents and volume of oil outflow. This model can be used in maritime risk analysis contexts, particularly in strategic pollution preparedness and response management. The models can also be linked to operational response DSS when fast, and reasonably accurate estimates of spill sizes are critical.

13. TIME-DEPENDENT MOLECULAR PROGRESSION AND ACUTE TOXICITY OF OIL-SOLUBLE, INTERFACIALLY-ACTIVE, AND WATER-SOLUBLE SPECIES REVEALS THEIR RAPID FORMATION IN THE PHOTODEGRADATION OF MACONDO WELL OIL (2022)

Chen, H., McKenna, A.M., Niles, S.F., Frye, J.W., Glatke, T.J., Rodgers, R.P.
Science of the Total Environment, 813, art. no. 151884,
DOI: 10.1016/j.scitotenv.2021.151884

ABSTRACT: Photodegradation is a significant weathering process that transforms spilled oil, yet, the fate, degradation rate, and molecular transformations that occur through photoinduced pathways remain relatively unknown. The molecular complexity combined with the increased polarity of photoproducts challenges conventional analytical techniques. Here, we catalogue the molecular progression of photochemical transformation products of Macondo Well Oil by negative-ion electrospray ionization (ESI) Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR MS). We track the molecular compositions of oil-soluble, interfacially-active, and water-soluble oil species formed at varying time intervals in photomicrocosm experiments. Short

RECENT INTERESTING PEER-REVIEWED OIL SPILL PUBLICATIONS (CONTINUED)

photoirradiation periods (<24 h), not previously reported, are included to reveal rapid photooxidation of native oil components. Surface oil films exposed to solar irradiation were shown to increasingly contribute to the dissolved organic carbon pool as a function of increased irradiation time. FT-ICR MS analysis of acidic species of each fraction identifies tens of thousands of oil-soluble, interfacially-active, and water-soluble phototransformation products, including Ox, NOx, and SOx species. Oil-soluble species incorporate oxygen as a function of irradiation periods. After 96 h of irradiation, ~14 wt% of the photooxidized oil film was interfacially active and contained phototransformed species with up to 12 oxygen atoms per molecule. Water-soluble species correspond to highly oxygenated compounds. Importantly, photochemical oxidation is shown to occur within the first hour. Beyond 24 h, photoproducts remain compositionally similar, highlighting the rapid effect of photodegradation to transform oil species into water-soluble compounds. Molecular fingerprints provided by FT-ICR MS highlight the oxygen dependence on oil/water solubility. Microtox® analysis indicates that the toxicity of water-soluble photoproducts rapidly increases at early irradiation time points (first 24 h) compared to the dark control and reaches a maximum at 6 h of irradiation. Results highlight the temporal, molecular progression of photoproducts as they partition from oil-soluble to oil-soluble interfacially-active, and finally to water-soluble species.

14. FROM SURFACE WATER TO THE DEEP SEA: A REVIEW ON FACTORS AFFECTING THE BIODEGRADATION OF SPILLED OIL IN MARINE ENVIRONMENT (2022)

Bacosa, H.P., Ancla, S.M.B., Arcadio, C.G.L.A., Dalogdog, J.R.A., Ellos, D.M.C., Hayag, H.D.A., Jarabe, J.G.P., Karim, A.J.T., Navarro, C.K.P., Palma, M.P.I., Romarate, R.A., II, Similatan, K.M., Tangkion, J.A.B., Yurong, S.N.A., Mabuhay-Omar, J.A., Inoue, C., Adhikari, P.L. *Journal of Marine Science and Engineering*, 10 (3), art. no. 426, DOI: 10.3390/jmse10030426

ABSTRACT: Over the past century, the demand for petroleum products has increased rapidly, leading to higher oil extraction, processing and transportation, which result in numerous oil spills in coastal-marine environments. As the spilled oil can negatively affect the coastal-marine ecosystems, its transport and fates captured a significant interest of the scientific community and regulatory agencies. Typically, the environment has natural mechanisms (e.g., photooxidation, biodegradation, evaporation) to weather/degrade and remove the spilled oil from the environment. Among various oil weathering mechanisms, biodegradation by naturally occurring bacterial populations removes a majority of spilled oil, thus the focus on bioremediation has increased significantly. Helping in the marginal recognition of this promising technique for oil-spill degradation, this paper reviews recently published articles that will help broaden the understanding of the factors affecting biodegradation of spilled oil in coastal-marine environments. The goal of this review is to examine the effects of various environmental variables that contribute to oil degradation in the coastal-marine environments, as well as the factors that influence these processes. Physico-chemical parameters such as temperature, oxygen level, pressure, shoreline energy, salinity, and pH are taken into account. In general, increase in temperature, exposure to sunlight (photooxidation), dissolved oxygen (DO), nutrients (nitrogen, phosphorous and potassium), shoreline energy (physical advection—waves) and diverse hydrocarbon-degrading microorganisms consortium were found to increase spilled oil degradation in marine environments. In contrast, higher initial oil concentration and seawater pressure can lower oil degradation rates. There is limited information on the influences of seawater pH and salinity on oil degradation, thus warranting additional research. This comprehensive review can be used as a guide for bioremediation modeling and mitigating future oil spill pollution in the marine environment by utilizing the bacteria adapted to certain conditions.

15. MARINE SNOW-OIL INTERACTION AFFECTS N-ALKANE BIODEGRADATION IN SEDIMENT (2022)

Rahsepar, S., van Eenennaam, J.S., Radović, J.R., Oldenburg, T.B.P., Rijnaarts, H.H.M., Murk, A.J., Foekema, E.M., Langenhoff, A.A.M. *Water, Air, and Soil Pollution*, 233 (3), art. no. 84 DOI: 10.1007/s11270-022-05557-1

ABSTRACT: During the Deepwater Horizon (DwH) oil spill, an excessive production of marine snow was observed, and it was estimated that as much as 14% of the oil was transferred to the ocean floor by MOSSFA (Marine Oil Snow Sedimentation and Flocculent Accumulation). MOSSFA is an important pathway of transferring oil to the ocean floor. We performed experiments at laboratory scale in 15 aquaria, representing 5 exposures of marine snow with or without oil, only oil, and controls with only clay or sediment. We developed a method to produce artificial marine snow, which resembles the natural marine snow. Results showed 40% less biodegradation of alkanes in “marine snow with oil” compared to “only oil.” Most probably, this is due to preferred biodegradation of marine snow organics comparing to oil alkanes. Biodegradation of marine snow reduces the dissolved oxygen concentration, which might result in anaerobic conditions in the sediment layer. This finding can be projected to a potential ocean floor effect.

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USEFUL LINKS

- 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/>

TRAINING COURSES (CONTINUED)

- 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
<http://nscs.tamucc.edu/schedule-2020-2021.html>
- USA – MPC, DETROIT - <https://marinepollutioncontrol.com/services/training-and-compliance>
- USA – ALLIANCE OF HAZARDOUS MATERIALS PROFESSIONALS - https://www.ahmpnet.org/events/event_list.asp

Members who would like to be listed here, please contact your editor – john.mcmurtrie@spillcontrol.org

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Recently added to the Upcoming Events page – 44th AMOP Technical Seminar on Environmental Contamination and Response from June 7 to 9, 2022; INTERTANKO AGM 11th May; 2022 UN Ocean Conference, Lisbon, 27th June – 1st July.

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Recently added – Informational Webinar on National Resources Canada’s \$10 million Oil Spill Response Challenge

MESSAGES FROM EVENT ORGANISERS

USA: CLEAN GULF CONFERENCE & EXHIBITION – REGISTRATION OPEN

Registration has officially opened for the CLEAN GULF Conference & Exhibition, taking place November 8-10 in New Orleans. We are currently offering loyalty registration rates, which are the lowest rates we will offer all year! Rates expire on May 13th and will increase by \$150

Later this month, the CLEAN GULF planning committee will gather in New Orleans to plan the conference session for this year’s program. The committee is made up of a group of operators, state and federal regulators, consultants, service companies and OSROs. The sessions will be announced by end of May. [Register for Clean Gulf](#)

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

IOSSC 2022 REGISTRATION IS OPEN - Attendees will be able to connect with the oil spill response community, government, industry, and academia to work together to deal with the challenges in the field of oil spill response. The conference will bring experts from around the world to present their latest research in the field of oil spill science including spill prevention, contingency planning, and environmental rehabilitation. [About IOSSC 2022](#) [Call for Abstracts](#) [Registration](#)

EUROPE: INTERSPILL DELEGATE REGISTRATION IS NOW OPEN

Please [CLICK HERE](#) to register to attend this event at RAI Exhibition and Convention Centre, Amsterdam on 21-23 June. There is a form to fill in which will prompt a request for payment for the options you select.

USA: CLEAN PACIFIC CONFERENCE & EXHIBITION: AUGUST 23-24 - PRELIMINARY CONFERENCE AGENDA

[View the preliminary agenda](#) [Register for Clean Pacific](#) ISCO Members should register with VIP Code ISCO

MESSAGES FROM EVENT ORGANISERS (CONTINUED)

CANADA: 44th AMOP TECHNICAL SEMINAR ON ENVIRONMENTAL CONTAMINATION AND RESPONSE

The 44th AMOP Technical Seminar on Environmental Contamination and Response will take place from June 7 to 9, 2022. On behalf of Environment and Climate Change Canada, we are announcing that the 44th AMOP Seminar will be a virtual-only format Seminar. The Seminar provides a forum for professionals working in the field of oil and hazardous materials spills. The forum facilitates the transfer of scientific results and is intended to link research and the operational community. All submitted papers are peer-reviewed by scientific and technical experts.

<https://www.canada.ca/en/environment-climate-change/services/science-technology/arctic-marine-oilspill-program.html>
Registration form: [44rd AMOP technical seminar on environmental contamination and response - Canada.ca](#)

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NEW PUBLICATIONS

EUROPE: EMSA'S APRIL 2022 NEWSLETTER

In this issue: Highlights of the 63rd EMSA Administrative Board meeting; THETIS-EU to support animal welfare inspections; Steering Committee takes stock of substantial achievements made under SAFEMED IV as project draws to a close; Black and Caspian Sea project to continue well into 2022 as extension granted; Increased cybersecurity advised for EU agencies aided by 'THOR'; CleanSeaNet service results for 2021 show decrease in detections as outlined at user group meeting; THETIS-EU to support animal welfare inspections; Geographical analysis of marine accidents gets easier thanks to enhanced EMCIP; Bringing together drift models for greater maritime safety; CISE stakeholder meeting takes note of steady progress; EMSA holds workshop on the monitoring of Recognised Organisations. <http://www.emsa.europa.eu/newsroom/latest-news/item/4678-newsletter-april-2022.html>

JOB SEEKERS

ISCO STUDENT MEMBER MARKO DORDEVIC



Marko is looking for a company to challenge him and grow his skill set in oil spill response, environment, and new technology.

"So far, I have published two scientific research papers entitled: "Oil Pollution of the Mediterranean as a Result of Maritime Accidents"; in the International Journal of Maritime Science & Technology "Our Sea." Another scientific research paper is entitled: "The Presence and Danger of Microplastic in the Oceans"; in the multidisciplinary scientific journal Maritime. My expertise is the risk assessment of sea pollution with oils. I also participate in drafting or supplementing National Marine Pollution

Plans. I participate in the development of manuals education related to the pollution of rivers and lakes". Marko's CV and contact info can be found at <https://spillcontrol.org/job-seekers/>

CHINA: VLCC RUNS AGROUND IN QINGDAO

March 30 - A very large crude carrier (VLCC) that had previously been linked to alleged Iranian oil trades was reported to have run aground at the Chinese port of Qingdao. Mooring ropes were broken while the 2002-built, Panama-flagged Arzoyi (IMO: 9248473) was unloading at Qingdao Haiye Mercuria Terminal on March 21st, according to local port sources. As a result the petroleum loading arm snapped, causing oil to leak into the sea. Insurance Marine News / [Read more](#)

USA: VIRGINIA - IN A CHANGE OF PLAN, SALVORS WILL LIGHTER CARGO OFF OF EVER FORWARD

April 4 - After multiple attempts to tow the grounded container ship Ever Forward to deeper water, salvors have decided to give up the attempt and lighter off cargo to reduce the ship's displacement.

The 1,100-foot Ever Forward grounded on March 13 while transiting south in the Chesapeake Bay towards Norfolk, Virginia. Donjon Smit was appointed to undertake the salvage, with the U.S. Coast Guard supervising a unified command for the response. An initial assessment determined that it would be a challenging refloat operation because the vessel had driven her bow deep into the mud when she left the shipping channel.

The salvage team has determined that they are not able to overcome the ground force of the Ever Forward in her current loaded condition, even with half a dozen tugs and two pulling barges at their disposal, the Coast Guard said in a statement Monday. They will continue a dredging operation to dig out around the ship to a depth of 43 feet, and they will bring in two crane barges to hoist off containers from Ever Forward's decks. The Maritime Executive / [Read more](#)

USA: HAWAII - ANOTHER SPILL AT RED HILL

April 5 - The latest leak, first reported to the Navy on Friday, consisted of a release of about 30 gallons of fuel and water near two of the facility's giant underground storage tanks. The incident occurred during dewatering maintenance work, the service said in a statement. The spill has since been cleaned up, but it has added to the growing list of public concerns about environmental safety at the site.

The Red Hill Bulk Fuel Storage Facility was a unique asset for Navy operations in the Pacific. Between 1940 and 1943, miners carved 20 giant tanks out of a solid basalt ridge outside Honolulu, then connected them by pipeline to the piers at Pearl Harbor. It is among the largest facilities of its kind, containing 250 million gallons of fuel needed to power the Navy across the expanse of the Pacific Ocean. The Maritime Executive / [Read more](#)

ITALY: IMAGES FROM SPACE SHOW HOW A LAKE WAS DYED RED

April 9 - The satellites of the European space observation program Copernicus captured how the color of a lake's water changed. The Averno water mirror located near Naples, in the Campania region (south of Italy), went from a dark blue color to an intense red in the satellite images that were captured on March 1 and April 5, and that were published yesterday by Copernicus. However, far from being an accident or an unprecedented phenomenon, experts from the country led by Mario Draghi assure that it is something cyclical and completely natural: algae are responsible. California18 / [Read more](#)

OIL & CHEMICAL POLLUTION IN UKRAINE

As we watch the continuing tragedy of the war in the Ukraine and the terrible suffering of families – the loss of human life, the destruction of homes and despair at the total disruption of normal life, we share a heartfelt hope that the conflict will soon come to an end.

Amongst the horrific images of the wanton destruction of the country's infrastructure, we can't help but be aware of the serious pollution that is arising from attacks on oil installations, tank farms, pipelines and shipping. In the context of human suffering, pollution is not the first consideration but those of us with a special interest in protecting the environment are very much concerned.

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