

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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UKRAINE IS IN AN ENVIRONMENTAL CRISIS TOO

Russia's attack is literally tearing the country apart, polluting air and water. Ukrainians will suffer long after the conflict ends.

In the Donbas region of eastern Ukraine, the ground has been behaving strangely. In some places, it is sinking; elsewhere it "heaves"—bulging upward, according to satellite data. Before it became a conflict zone, the Donbas has long been Ukraine's coal country, and the earth is riddled with hundreds of miles of tunnels underneath cities, factories, and farms, many of them abandoned. Recently, those shafts have been flooding, causing the surface to shift and carrying toxic chemicals that now threaten the region's water supply

Not that issues like pollution are top of mind while air raid sirens are ringing across the country, notes Andriy Andrushevych, an environmental lawyer based in Lviv, Ukraine. The country is currently flying blind in terms of watching industrial emissions, he adds, since pollution monitoring systems are largely offline or going unchecked.

In Ukraine, observers say the destruction to the environment is likely to get worse before it gets better, especially as Russian efforts to take the country's major cities escalate. The attacks on civilian infrastructure "indicate that these conditions will exponentially worsen," says Kristina Hook, a professor of conflict management at Kennesaw State University who has conducted extensive research in eastern Ukraine.

In the midst of war, environmental damage is difficult to track and measure. Andrushevych, the Ukrainian lawyer, notes that the conflict has already raised acute concerns, like at Chernobyl, where the status of monitoring and maintenance is uncertain after sensors recorded high gamma radiation levels there. He also points to explosions at an oil reservoir in the town of Vasylykiv, just outside of Kyiv, which has been spewing unknown toxicants into the air. The government is working on identifying key environmental issues and re-establishing air pollution monitoring systems, he adds. The full toll will likely only become clearer in the aftermath of the war. And then the question is what will be done about it. [Wired / Read more](#)

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INTERNATIONAL NEWS (CONTINUED)

ISCO NEWS

ISCO'S STRATEGY, MANAGEMENT SYSTEM & BUSINESS PLAN

Secretariat Member John Wardrop, has been doing further work regarding the draft Action Plan for implementing ISCO's 2021 Revised Constitution. These additional documents will be of assistance in implementing the Action Plan and will be submitted to the Executive Committee after final revisions have been completed.

PLANS FOR A SERIES OF ISCO PODCASTS

A working group has been progressing the creation of the first of a planned series of ISCO podcasts. The initial podcast will focus on marine plastics pollution and is expected to be soon ready for release. Further podcasts will follow and the Secretariat is looking to members for suggestions on suitable topics for development. Members are invited to contact Mark Shaye shayemk@aol.com and Capt. D. C. Sekhar sekhar@alphamers.com with their ideas and possible interest in contributing to this initiative.

IOPC – ISCO CO-OPERATION

ISCO's General Secretary was delighted to be informed by the Gaute Sivertsen Director of the International Oil Pollution Compensation Funds (IOPC) that following a review of international non-governmental organisations having observer status with the 1992 and supplementary Funds, that continuance of observer status of ISCO with the IOPC Funds is confirmed.

Neil Marson General Secretary of ISCO said that this re-confirmation of ISCO status demonstrates the professional standing of ISCO within the environmental area, ISCO is looking forward to being a positive contributor and supporter to the Funds over the coming period through active co-operation between the two organisations

MORE INTERNATIONAL & REGIONAL NEWS

GISEA: UPDATE - REMOTE LEGAL ASSISTANCE

April 2022 - GISEA, with the assistance of the IMO and key technical partners, launched the 'Remote Legal Assistance to ASEAN Member States on the Effective Implementation of IMO Conventions Relating to Oil Pollution and Liability and Compensation' last October.

Two international consultants, each representing the administration and academia, have lent their expertise and experience to support the legal review for 8 participating ASEAN Member States. [Read more in GISEA Newsletter](#)

SOUTH-EAST ASIA - OIL SPILL PREPAREDNESS AND RESPONSE

From GISEA – Regarding existing [sub-regional arrangements](#) which pre-date the regional framework, and remain significant to the countries involved; this would be understood against the disparate geography of the region. Attention is paid to following long-standing arrangements: Sulu-Sulawesi Seas Oil Spill Response Network (SSRN) Plan; Standard Operating Procedure (SOP) for Joint Oil Spill Combat in the Straits of Malacca and Singapore (SOMS); and Joint Statement on Partnership in Oil Spill Preparedness and Response in Gulf of Thailand (GoT).

The SSRN Plan was first mooted in 1981 under the auspices of the IMO (then Inter-Governmental Maritime Consultative Organization, IMCO) and UNEP, and initially agreed between Malaysia, Indonesia and the Philippines.

While the substance of the Plan has evolved over time, it instituted the the series of biennale Marine Pollution Exercises (MARPOLEX) to validate and strengthen interoperability between the Philippine Coast Guard (PCG) and the Sea and Coast Guard, Directorate General of Sea Transportation (DGST), Indonesia, to respond to major oil spill incidents in the territorial waters of Indonesia and the Philippines.

[Read more in GISEA Newsletter](#)

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PEMSEA - DEVELOPMENT OF AN ADVANCE MANDATORY SHIP WASTE MANAGEMENT MANUAL AND NOTIFICATION SYSTEM IS UNDERWAY

April 25 - The program supports the transition towards a circular economy for plastics in seven countries in East and Southeast Asia—namely China, Indonesia, Japan, Philippines, Singapore, Thailand, and Viet Nam—to contribute to a significant reduction of marine litter. The program aims to facilitate dialogue on plastic and waste between the EU, regional organizations such as ASEAN, and partner countries, especially in terms of the environment, shipping, and industry. It seeks to improve plastic waste management such as by encouraging extended producer responsibility and promote sustainable consumption and production of plastics, especially through packaging design and standards. PEMSEA / [Read more](#)

INTERNATIONAL SPILL ACCREDITATION - ISAS RAISING THE STANDARD

Now that we have seen the ending of all COVID-19 restrictions the ISAS Audit Team are now able to fully engage in working with both new and existing companies to complete their accreditations and re-accreditations respectively. During the COVID

restriction period ISAS has taken the opportunity to review and update the accreditation process, companies now seeking accreditation or re-accreditation will go through a three-stage process which involves starting with:-

- (a) Qualifying criteria, which involves a due diligence process, moving onto the
- (b) Assessment which consists of a visit to the operational site, and requires the completion of a standard set of questions, based upon the categories applied for, and finally the
- (c) award of the accreditation, which is normally given for three-years, but is subject to interim site visits by our Auditors during the three-year period.

These changes will help to raise and maintain the high standard which is expected from ISAS accredited companies, and who in turn can deliver a quality service to their end-users.

During this period ISAS has had the opportunity in welcoming into the Scheme a number of new members covering land and marine operations. Lerwick Harbour Authority, Shetlands, has recently successfully being accredited to provide its own emergency response, in addition EnQuest, Sullom Voe, has completed its re-accreditation, increasing the number of ISAS Marine accredited companies to ten, with a further two companies awaiting auditing; Of the Land-based companies we welcomed the Ideal Response Group and Compass Environmental as newly certified companies, and the re-accreditation of AES Marconi and MEL Environmental. Overall the scheme membership is steadily increasing and now stands at sixty-two with a further four land-based companies currently going through the qualifying criteria stage.

All the latest information relating to the ISAS Scheme can be found on our newly revamped ISAS website www.isasaccreditation.org

You can also find ISAS on LinkedIn. So, if you have not heard from our Audit Team yet, you will do so shortly, and if you're a company thinking of joining the Scheme, then we will be happy to hear from you.

NEWS REPORTS FROM AROUND THE WORLD

AUSTRALIA: GHOST FISHING – NEW INITIATIVE

The Australian Government has launched a Ghost Nets Initiative to address the issue of ghost nets and marine debris littering northern Australian waters and beaches. This initiative will be delivered by Parks Australia over the next three years to improve our ocean and reduce threats to our marine life. To find out more visit the [Parks Australia website](#).

CHILE: CAPTAINCY OF THE PORT OF IQUIQUE CARRIED OUT AN EXERCISE TO COMBAT POLLUTION

April 25 - Within the framework of what was agreed in previous coordination meetings between Maritime Terminals of the Jurisdiction and having as its main objective to prepare to face an emergency, on Thursday, April 21, the first pollution response exercise of the year was carried out, an activity that had the participation of the personnel of the Port Captaincy, Gobernación Marítima de Iquique and LSG Iquique, Terminal Marítimo Copec and Esmax, as well as the company Corpesca.

For the above and considering that it was the first exercise of the year, coordination meetings were held with the participants in

which common work procedures were standardized and the established communication channels were updated, highlighting at all times the interest present in all those involved in order to act quickly, safe and orderly in the face of real events.

The exercise simulated a medium oil spill as a result of a failure to transfer fuel from a moored ship to a Maritime Terminal, such as those usually operating in the bay. Faced with this scenario, the contingency plan coordinated between the terminals, the Corpesca company present in the area and the Maritime Authority was activated. Armada de Chile Directemar / [Read more](#)

INDIA: OVERSEAS MARITIME AGENCIES UNDERGO COAST GUARD TRAINING IN TN ON OIL SPILL CONTROL

April 29 - Delegates from maritime agencies of various countries underwent training on oil spill response techniques and shoreline clean-up as part of oil spill pollution control course, the Coast Guard said on Friday.

The **Coast Guard** conducted the two-week long course on oil pollution preparedness, response and cooperation technique, shoreline clean-up methods and air surveillance for 42 delegates from **Iran, Thailand, Comoros, Mauritius, Myanmar, Kenya, Oman, South Africa, Vietnam, Nigeria** among others. Deviscourse [Read more](#)

NIGERIA: UNEP – MARCH 2022 HYREP NEWSLETTER



Photo: The team on their visit to the mangrove sites with BMI (Photo credit: Bariton Lezabbey (BMI))

Apoorva Bose, UNEP Communications Expert, along with HYPREP's Community Development Officers (CDOs), met with the Paramount Ruler of Barako community to understand the ongoing work at the Barako water project. This was followed by visits to remediation sites in Gokana and Eleme. The objective of this field visit was to attain a better understanding of the conflict resolution mechanism followed by the CDOs, relationship between the CDOs and the community, and the grassroot level implementation of engaging with various stakeholders. Apoorva facilitated a full-day training for HYPREP's Communications and Community Engagement Unit at Echelon Heights Hotel on 24th March 2022. The training was on documentary storytelling wherein the team was divided into three groups and were tasked with different activities.

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NIGERIA: OIL THEFT - NAVY SEIZES 6 MILLION LITRES OF STOLEN CRUDE FROM ILLEGAL REFINERS

April 26 - Following the alarming increase of crude oil theft, the president had directed the Minister of State, Petroleum Resources, Mr. Timipre Sylva, the Group Managing Director of the Nigerian National Petroleum Company (NNPC), Mallam Mele Kyari as well as the Chief of Defence Staff, Gen. Lucky Irabor, to ensure that the criminal activity was brought to a halt. Buhari's directive had followed public outrage against the massive stealing of Nigeria's crude oil, which had hobbled the country's ability to meet the quota allocated by the Organisation of Petroleum Exporting Countries (OPEC). All Africa / [Read more](#)

PHILIPPINES: REMOTE NATIONAL WORKSHOP ON MANAGING OIL SPILL INCIDENTS

April 2022 - GISEA supported the Philippine Coast Guard (PCG) in the delivery of a national workshop on incident management, between 14 and 16 Mar; this marked the first national activity held under the auspices of the Project during the COVID-19 Pandemic.

With an overarching objective to support the implementation of recently published guidelines and standing procedures on the mobilisation of the National Strike Force (NSF) to respond to Tier-2 and Tier-3 oil spill incidents, the event brought together, some 40 participants from different coast guard districts and the Department of Environment and Natural Resources.

The programme spanned 3 half-days, comprised of a mixture of presentations and group activities designed to strengthen and refresh the knowledge of incident commanders, planners and responders on the principles of planning for, and responding to oil spill incident. [Read more in GISEA Newsletter](#)

SINGAPORE: ITOPF ATTENDS MARITIME WEEK 2022

April 25 - Transformation for Growth was the theme of Singapore Maritime Week (SMW) 2022, hosted and driven by the Maritime and Port Authority (MPA) Singapore.

In collaboration with industry stakeholders, research, and educational institutions, SMW brought together industry leaders through a series of conferences, forums, and exhibitions.

Although the 16th iteration of the event was hosted in a hybrid format, ITOPF attended in-person with Oli Beavon, Richard Johnson, David Cooper and Alex Hunt making the trip. ITOPF / [Read more](#)

USA: LATEST NEWS REPORTS FROM NOAA OR&R

April 28 – Please click on the links below to download and read the latest news reports from NOAA OR&R

[NOAA Experts Attend RESTORE Science Workshop on Marine Mammal Health](#)

Last week experts from OR&R's Assessment and Restoration Division (ARD) participated in a workshop held by the National Marine Mammal Foundation and NOAA's Restore Science Program.

[OR&R Volunteers at National Ocean Science Bowl](#)



Photo: As green turtle populations continue to recover globally, grazing by green turtles plays an important role in regulating the growth and productivity of seagrass meadows, including those at Buck Island (pictured). All work is conducted under proper permit. Image credit: NPS / Alexandra Gulick

This week two experts from OR&R's Assessment and Restoration Division, Bryand Duke and Ken Finkelstein, participated in the 25th annual National Ocean Science Bowl.

[OR&R Hosts University of Maryland Eastern Shore Intern Symposium](#)

On April 21, Office of Response and Restoration (OR&R) team members gathered for the first ever Intern Symposium, presented by three undergraduate interns from the University of Maryland Eastern Shore.

[Marine Debris Program Presents to Salish Sea Stewards](#)

On April 19, NOAA Marine Debris Program (MDP) staff presented to the Salish Sea Stewards on marine debris and the [NOAA Marine Debris Monitoring and Assessment Project](#) (MDMAP).

[Marine Debris Program and Oregon CoastWatch Train Community Members for Citizen Science](#)

The NOAA Marine Debris Program and Oregon Shores Conservation Coalition's CoastWatch trained coastal community members to participate in the [NOAA Marine Debris Monitoring and Assessment Project](#). MDMAP engages NOAA partners and volunteers around the world to survey and record the amount and types of marine debris on shorelines.

[Marine Debris Program Presents at French-American International Plastic Pollution Summit](#)

On April 5, staff from the NOAA Marine Debris Program (MDP) gave a virtual presentation at the hybrid [International Plastic Pollution Summit](#)([link is external](#)) hosted by Long Island University (LIU) and co-sponsored by the Global Council for Science and Environment and the Office for Science and Technology of the Embassy of France. The MDP's Chief Scientist, Amy V. Uhrin, provided an overview of MDP-funded research projects and the [NOAA Marine Debris Monitoring and Assessment Project](#).

[A Christmas 'Gift' to Louisiana Wetlands](#)

OR&R's Emergency Response Division works very closely with our state and federal natural resource trustees in southern Louisiana, often coordinating very closely during oil spills that threaten trustee resources and determining the cleanup strategies that offer the best protection for the environment. Occasionally, ERD receives the very special opportunity to go beyond our oil spill response role and we are invited to assist our partners with restoration of their important parks and refuges.

[OR&R Attends Spills Advisory Group at American Petroleum Institute](#)

OR&R Director Scott Lundgren was joined by OR&R science and emergency representatives Lisa DiPinto, Aaron Parker, and LT Steven Wall for the biennial Spills Advisory Group hosted by the American Petroleum Institute. This meeting brings together representatives of state and federal government, nongovernment organizations, academia, petroleum industry, and cleanup organizations for information sharing on spill preparedness and response.

NEWS REPORTS FROM AROUND THE WORLD (CONTINUED)

[NOAA Provides Guyana With First SCAT, ESI, and Responding to Oiled Wildlife Training](#)

In order to meet the need for effective management during a potential oil spill, the U.S. Department of State partnered with the U.S. Coast Guard to provide oil spill response training to Guyana's Civil Defense Commission and its interagency partners in support of Guyana's activation and evaluation of its first National Oil Spill Contingency Plan.

USA: HISTORIC SHIPWRECKS

April 30 - In 2010, Congress appropriated \$1 million to NOAA to prioritize the potential pollution impacts of individual shipwrecks. Under this project, known as the Remediation of Underwater Legacy Environmental Threats (RULET), NOAA and the U.S. Coast Guard set out to identify the most ecologically and economically significant potentially polluting wrecks in U.S. waters.

The agencies began by looking into about 20,000 known shipwrecks. They narrowed their search down by the age of the vessel and the incident, the type of vessel, and the circumstances that led to the vessel's demise. World War II wrecks, especially tankers such as the Coimbra, were prioritized for their large cargo volumes. The results of the study produced a database of the names and locations of the most potentially environmentally hazardous wrecks — zoning in on 87 high level risk wrecks. Those sites are routinely monitored by the NOAA Satellite and Information Service Satellite Analysis Branch using high resolution visible satellite imagery and synthetic aperture radar. When a satellite report shows possible oiling near one of these wrecks, the Office of Response and Restoration works with the Coast Guard and other partners to monitor, assess, and respond as needed for cleanup and remediation. [NOAA Source Document](#)

NEWS FROM ISCO MEMBERS

Corporate Members 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 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 company. If you have some news you would like to share with readers of the ISCO Newsletter, send it to John.McMurtrie@spillcontrol.org

DRAINING STORMWATER FROM SECONDARY CONTAINMENT SUMPS

From ISCO Member, HalenHardy - Draining stormwater from secondary containment sumps shouldn't eat up hours of your technician's time.

Join us on Wednesday, May 25, 2022 at 10am EST, to learn how to automate this maintenance task with passive oil-water separators that allow clean water to drain while capturing oily sheen and preventing oil and fuel discharges. Watch our March Webinar, Changes and Additions to the 2022 Construction General Permit (CGP), with Karen Hamel from HalenHardy and Luke Owen from NPDES Stormwater Training Institute. [Watch: March 2022 Webinar](#) [Download: 2022 EPA NPDES Permit Changes](#) (from NPDES Stormwater Training Institute)

[More info about the May 25th Webinar](#)

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

25. IDENTIFICATION OF BILGE OIL WITH LUBRICANT: RECENT OIL SPILL CASE STUDIES

Lee, D., Seo, J.M., Kooistra, K., Lee, H. (2022)
Environmental Research, 212, art. no. 113325,
 DOI: 10.1016/j.envres.2022.113325

ABSTRACT: Oil spills have many adverse effects on the marine environment. Bilge oil spills occur frequently in the sea as a result of maritime accidents or illegal discharge. It is difficult to unambiguously identify the specific sources of such spills because bilge oil contains a mixture of fuel oil and lubricant. In this study, bilge oils with different fuel oil/lubricant ratios were prepared and analyzed using a modified version of the CEN/TR methodology (European Committee for Standardization, 2012). As the lubricant content of bilge oil increased, the intensity of the C20–C24 group, which is the commonly-used normalization compound group for fuel oil in the percentage weathering (PW) plot, also changed. Therefore, the mean area of the C15–C18 group, which was affected by the lubricant content, was used instead. Although heavy fuel oil is usually normalized to a hopane, bilge oil with a high lubricant content cannot be analyzed based on a mass spectrometry (MS)–PW plot; thus, heavy fuel oil-based bilge oil was normalized to a phytane in this study. Although hopanes and styrenes are unsuitable comparison compounds for heavy fuel oil-based bilge oil analysis, for light fuel oil-based bilge oil, hopanes and steranes could be applied as diagnostic ratio comparisons when the lubricant peak was clearly detected in the chromatograms of the spilled and suspected oil samples. By applying the CEN/TR methodology according to this approach, the similarities between spilled and suspected oil samples were more easily revealed. In addition, the field applicability of the proposed method was tested for four actual oil spills.

26. DILUTED BITUMEN-INDUCED ALTERATIONS IN AEROBIC CAPACITY, SWIMMING PERFORMANCE, AND POST-EXERCISE RECOVERY IN JUVENILE SOCKEYE SALMON (*ONCORHYNCHUS NERKA*)

Lin, F., Ni, L., Kennedy, C.J.(2022)
Aquatic Toxicology, 247, art. no. 106150,
 DOI: 10.1016/j.aquatox.2022.106150

ABSTRACT: The transportation of heavy crudes such as diluted bitumen (dilbit) sourced from Canadian oil sands through freshwater habitat requires the generation of information that will contribute to risk assessments, spill modelling, management, and remediation for the protection of aquatic organisms. Juvenile sockeye salmon (*Oncorhynchus nerka*) were exposed acutely (96 h) or subchronically (28 d) to the water-soluble fraction (WSFd) of Cold Lake Blend dilbit at initial total polycyclic aromatic compound (TPAC) concentrations of 0, 13.7, 34.7, and 124.5 µg/L. A significant induction (>3-fold) of hepatic liver ethoxyresorufin-O-deethylase (EROD) activity was induced by 96 h in fish exposed to [TPAC] ≥ 34.7 µg/L and at ≥13.7 µg/L for a 28 d exposure. Exposure resulted in a typical physiological stress response and disturbance of ion homeostasis; this included elevations in plasma [cortisol], [lactate], [Na⁺], and [Cl⁻], and significant reductions in muscle [glycogen]. Critical swimming speed (Ucrit) was significantly reduced (28.4%) in the acute exposure at [TPAC] 124.5 µg/L; reductions of 14.2% and 35.4% were seen in fish subchronically exposed at the two highest concentrations. Reductions in Ucrit were related to significant reductions in aerobic scope (24.3–46.6%) at [TPAC]s of 34.7 and 124.5 µg/L, respectively. Exposure did not impair the ability to mount a secondary stress response following burst exercise, however, the time required for biochemical parameters to return to baseline values was prolonged. Alterations in critical systems supporting swimming, exercise recovery and the physiological stress response could result in decreased salmonid fitness and contribute to population declines if a dilbit spill occurs.

27. EXPERIMENTAL INVESTIGATIONS ON THE VERTICAL DISTRIBUTION AND PROPERTIES OF OIL-MINERAL AGGREGATES (OMAS) FORMED BY DIFFERENT CLAY MINERALS

Yu, Y., Qi, Z., Xiong, D., Li, W., Yu, X., Sun, R. (2022)
Journal of Environmental Management, 311, art. no. 114844,
 DOI: 10.1016/j.jenvman.2022.114844

ABSTRACT: After oil spills, the floating oil may interact with suspended minerals to form the oil-mineral aggregates (OMAs) in turbulent environments. In this work, a flume was used in conjunction with a settling device to investigate the vertical distribution and properties of OMAs formed by different clay minerals. The density and size of OMAs depend on the density and surface properties

of the constituent particles, which also affect the vertical distribution of dispersed oil. Density of oil-montmorillonite aggregates increased from 1165 to 1897 kg/m³ within 6 h test. Among the four minerals, montmorillonite displayed the highest affinity with dispersed oil and the most significant modification of oil-water interfacial tension. Oil dispersion efficiency was significantly greater and reached 39.3% in the presence of montmorillonite at 300 mg/L compared with the control group (17.6%). Particle concentration is the most important factor for the capture of oil and participation of particles during the OMA formation, while the zeta potential and hydrophobicity have nonsignificant effect on the two processes. Cation exchange capacity has a moderate effect on the sunken oil formation, which is also the second main factor governing the particle participation. Particle size plays a second leading role in governing the sunken oil formation but with a minor contribution of the particle participation.

28. A PERSPECTIVE ON THE STATE OF DEEPWATER HORIZON OIL SPILL RELATED TARBALL CONTAMINATION AND ITS IMPACTS ON ALABAMA BEACHES

Clement, T.P., John, G.F. (2022)
Current Opinion in Chemical Engineering, 36, art. no. 100799,
DOI: 10.1016/j.coche.2022.100799

ABSTRACT: The Deepwater Horizon (DWH) accident spilled over 785 million liters of crude oil into the Gulf of Mexico (GOM). A substantial fraction of the spilled oil impacted the northern GOM shoreline, including Alabama beaches. The beached oil was in the form of brownish-orange, water-in-oil emulsion, commonly known as mousse. Although significant remediation efforts were undertaken to clean the contaminated beaches, oil residues in the form of tarballs continue to contaminate various GOM beaches. This study reviews recent literature related to the DWH tarball contamination problem and its impacts on GOM beaches, primarily focusing on the beaches located in Alabama. Though the DWH oil spill is an unfortunate disaster, for researchers it constitutes a large-scale experiment conducted on a natural system. This anthropogenic experiment has taught scientists numerous useful lessons and has also posed several challenging questions, some of which are discussed in this review.

29. ESTIMATION OF DERMAL EXPOSURE TO OIL SPILL RESPONSE AND CLEAN-UP WORKERS AFTER THE DEEPWATER HORIZON DISASTER

Stewart, P.A., Gorman Ng, M., Cherrie, J.W., Jones, A., Kwok, R.K., Blair, A., Engel, L.S., Sandler, D.P., Stenzel, M.R. (2022)
Annals of work exposures and health, 66 (1), pp. i234-i246.
DOI: 10.1093/annweh/wxab073

ABSTRACT: The GuLF STUDY is investigating health outcomes associated with oil spill-related chemical exposures among workers involved in the spill response and clean-up following the Deepwater Horizon disaster. Due to the lack of dermal exposure measurements, we estimated dermal exposures using a deterministic model, which we customized from a previously published model. Workers provided information on the frequency of contact with oil, tar, chemical dispersants applied to the oil spill and sea water, as well as the use of protective equipment, by job/activity/task. Professional judgment by industrial hygienists served as a source of information for other model variables. The model estimated dermal exposures to total hydrocarbons (THC), benzene, ethylbenzene, toluene, xylene, n-hexane (BTEX-H), polycyclic aromatic hydrocarbons (PAHs), and dispersants in GuLF DREAM units (GDUs). Arithmetic means (AMs) of THC exposure estimates across study participants ranged from <0.02 to 5.50 GDUs for oil and <0.02 to 142.14 GDUs for tar. Statistical differences in the estimates were observed among the AMs of the estimates for some broad groups of worker activities over time and for some time periods across the broad groups of activities. N-Hexane had ranges similar to THC for oil exposures (e.g. AMs up to 2.22 GDUs) but not for tar (up to 5.56 GDUs). Benzene, ethylbenzene, toluene, and xylene, in contrast, were characterized by higher exposure levels than THC for oil (AMs up to 12.77, 12.17, 17.45, and 36.77 GDUs, respectively) but lower levels than THC to tar (AMs up to 3.69, 11.65, 42.37, and 88.18 GDUs, respectively). For PAHs, the AMs were as high as 219.31 and 587.98 for oil and tar, respectively. Correlations of these seven substances to each other were high (>0.9) for most of the substances in oil but were lower for some of the substances in tar. These data were linked to the study participants to allow investigation of adverse health effects that may be related to dermal exposures.

30. LINEAR RELATIONSHIPS BETWEEN TOTAL HYDROCARBONS AND BENZENE, TOLUENE, ETHYLBENZENE, XYLENE, AND N-HEXANE DURING THE DEEPWATER HORIZON RESPONSE AND CLEAN-UP

Groth, C.P., Huynh, T.B., Banerjee, S., Ramachandran, G., Stewart, P.A., Quick, H., Sandler, D.P., Blair, A., Engel, L.S., Kwok, R.K., Stenzel, M.R. (2022)
Annals of work exposures and health, 66 (1), pp. i71-i88.
DOI: 10.1093/annweh/wxab064

ABSTRACT: OBJECTIVES: Our objectives were to (i) determine correlations between measurements of THC and of BTEX-H, (ii) apply these linear relationships to predict BTEX-H from measured THC, (iii) use these correlations as informative priors in Bayesian analyses to estimate exposures. METHODS: We used a Bayesian left-censored bivariate framework for all 3 objectives. First, we modeled the relationships (i.e. correlations) between THC and each BTEX-H chemical for various overarching groups of measurements using linear

RECENT INTERESTING PEER-REVIEWED OIL SPILL PUBLICATIONS (CONTINUED)

regression to determine if correlations derived from linear relationships differed by various exposure determinants. We then used the same linear regression relationships to predict (or impute) BTEX-H measurements from THC when only THC measurements were available. Finally, we used the same linear relationships as priors for the final exposure models that used real and predicted data to develop exposure estimate statistics for each individual exposure group. RESULTS: Correlations between measurements of THC and each of the BTEX-H chemicals (n = 120 for each of BTEX, 36 for n-hexane) differed substantially by area of the Gulf of Mexico and by time period that reflected different oil-spill related exposure opportunities. The correlations generally exceeded 0.5. Use of regression relationships to impute missing data resulted in the addition of >23 000 n-hexane and 541 observations for each of BTEX. The relationships were then used as priors for the calculation of exposure statistics while accounting for censored measurement data. CONCLUSIONS: Taking advantage of observed relationships between THC and BTEX-H allowed us to develop robust exposure estimates where a large amount of data were missing, strengthening our exposure estimation process for the epidemiologic study.

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 <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

UPCOMING EVENTS

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

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Recently added to the Upcoming Events page – CISE Hybrid Workshop at European Naritime Day, 19th May, Ravenna, Italy; UN Stockholm +50 Meeting, 2nd to 3rd June, 2022, Stockholm, Sweden

UPCOMING WEBINARS & PODCASTS

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From ISCO Member, HalenHardy - Draining stormwater from secondary containment sumps shouldn't eat up hours of your technician's time. Join us on Wednesday, May 25, 2022 at 10 am EST to learn how to automate this maintenance task with passive oil-water separators that allow clean water to drain while capturing oily sheen and preventing oil and fuel discharges. Watch our March Webinar, Changes and Additions to the 2022 Construction General Permit (CGP), with Karen Hamel from HalenHardy and Luke Owen from NPDES Stormwater Training Institute. **Watch: March 2022 Webinar**
Download: 2022 EPA NPDES Permit Changes (from NPDES Stormwater Training Institute) [More info about the May 25th Webinar](#)

From ExxonMobil - Please join the ExxonMobil Oil Spill Response Knowledge Transfer Webinar series – Webinar 8 on May 3rd, 2022. Note there is still room for more participants so feel free to forward invite to others but ask that potential attendees RSVP me to get on the distribution list: lin.zhao@exxonmobil.com. Wildlife response has become increasingly recognized globally as an essential aspect of oil spill preparedness and incident management. In this session, Dr. Michael Ziccardi (University California, Davis),

UPCOMING WEBINARS & PODCASTS (CONTINUED)

Paul Kelway (Oil Spill Response Ltd) and Rich Davi (ExxonMobil Biomedical Sciences Inc.) will provide an overview of scientific and technical developments in oiled wildlife response and rehabilitation and explore how these have shaped global good practice, tiered preparedness, and international response systems. Webinar 8 on May 3rd, 2022. 10 – 11:15 am US Houston time.

Please click this URL to join. <https://exxonmobil.zoom.us/j/95652855033?pwd=b1NiN1F6bTRlY2hxOGJsMUZOdkd2QT09>

Newly added to the Upcoming Webinars Page - From ISCO member HalenHardy “Draining Stormwater from Secondary Containment Sumps” 10 am EST 25th May; Interspill Inform Clean Seas Webinar Series: Coastal Darkening 1400hrs (BST) 4 May; Marine Debris and Plastic Pollution 1400hrs (BST) 31 May; Emerging Pollutants 1400hrs (BST) 8 June; PEMSEA Ocean & Climate Dialogue, 8th June, 9am to 3pm UTC+8.

Recently added to the Upcoming Webinars page – UNEP Webinar on Environmentally Sensitive Mapping for Oil Spill Preparedness and Response 24th May 2022; UNEP Webinar on Oil Spill Response Methods and Strategies in Environmentally Sensitive Areas, 22 September 2022

MESSAGES FROM EVENT ORGANISERS

AUSTRALIA & NEW ZEALAND – ECOFORUM 2022

The papers submission deadline is May 16, 2022 5:00 PM. [More info](#)

TUNISIA: REGIONAL WORKSHOP ON THE ROLE OF VOLUNTEERS IN POLLUTION RESPONSE ALONG THE COAST AND IN THE SHORELINE – AGENDA RELEASED

The agenda of the regional workshop on the role of volunteers in pollution response along the coast and in the shoreline has been released in both French and English versions; that will be held on 10-11 May 2022; at The Russelior Hotel in South Hammamet-Tunisia. [Editor- No URL for downloading the agenda found. To request copy contact houcine.mejri@moig.org.tn] [Registration](#)

USA: CLEAN GULF CONFERENCE & EXHIBITION – REGISTRATION OPEN

Last week, this group of industry and government professionals met in New Orleans to plan the conference sessions for the 2022 CLEAN GULF Conference & Exhibition. 32 sessions were planned, covering topics such as natural resource assessments and payments, U.S. response case studies, external drills and exercise influences, spill response research, unique hazards, safety and emergency response, and much more. The full session line-up will be announced next month. [Register for Clean Gulf](#)

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

Call for Abstracts - Topics include, but not limited to:

- Contingency planning, preparation, and prevention
- Emerging oil spill response challenges
- Spill identification, detection/surveillance, visualization and monitoring
- Response technologies and countermeasures
- Breakdown and transport of hydrocarbons
- Consequences of oil spill and clean-up operations
- Restoration and recovery
- Case studies and lessons learned
- Science communications and out

The deadline to submit an abstract is June 17, 2022. [About IOSSC 2022](#) [Call for Abstracts](#) [Registration](#)

EUROPE: INTERSPILL WEMINARS AND CLEAN SEAS SECTOR-THEMED DAYS

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.

Interspill Inform Clean Seas Webinar Series - We are running a series of Interspill Inform webinars to support the Sector Themed Days. More details on the Sector Themed Days at Interspill are available at <https://www.interspill.org/about-interspill/industry-sector-working-group-webinars-and-themed-days/clean-seas/>

Dates of the Interspill Inform Clean Seas Webinar series: Coastal Darkening 1400hrs (BST) 4 May, Marine Debris and Plastic Pollution 1400hrs (BST) 31 May, Emerging Pollutants 1400hrs (BST) 8 June These webinars enable these subjects to be discussed in detail with academics, industry and responders involved in presenting. Each webinar will explain the problem, its causes, possible solutions, what actions can be taken and the support industry and governments need to deliver to enable solutions. Attending these webinars is free but involves registration through Eventbrite using the links available on the Upcoming Webinars page at -

<https://spillcontrol.org/upcoming-webinars/>

USA: FULL CONFERENCE AGENDA NOW AVAILABLE FOR CLEAN PACIFIC 2022

We are excited to announce that the official conference agenda, with speakers, is now available for [CLEAN PACIFIC 2022](#)! The conference sessions we have planned are led by experts from industry, government and First-Nations and focus on strategies and solutions for spill prevention and response in the Pacific region. [View full conference programme](#) [Registration](#)

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](#)

THE NETHERLANDS – 5th PREMIAM CONFERENCE

5th Premiam Conference 2022 – book your place! Registration is now open. It is our pleasure to announce after previous years delays due to COVID we can announce that the 5th Premiam conference will be held on the 22 June 2022 at the RAI, Amsterdam as part of the larger Interspill Conference running between 21-23 June. [More info](#)

CONTRACTS, TENDERS AND BUSINESS OPPORTUNITIES

INTERNATIONAL OPEN TENDER NOTIFICATION SERVICE

This is a subscription service. [Have a look to see examples of open tenders.](#)

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/td012022.htm> 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. (Look in “Links for other publications” for the current issue of this publication)

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 if any links are not up-to-date.

Readers wishing to recommend the addition of additional publications should contact the editor.

INTERESTING NEW PRODUCT

GAMIFIED OIL SPILL CONTINGENCY EXERCISE

Effective Spill response and management is a key component in today's global industrial operations. We are a software company focused on the development of industrial expert systems built around the concept of gamification that can enhance the preparedness of companies operating in spill prone areas. We have gamified the Oil Spill Contingency Exercise and would be willing to provide them for free to student and professionals in your organization to enhance their preparedness for spill. Kindly reach out to us via the provided email, info@industrialgames.net

NEW PUBLICATIONS

CONCAWE REPORT 6/22: EUROPEAN CROSS-COUNTRY OIL PIPELINES

April 2022 - Concawe has collected 50 years of spillage data on European cross-country oil pipelines. At nearly 36,000 km the current inventory includes the majority of such pipelines in Europe, transporting some 615 million m³ per year of crude oil and oil products. This report covers the performance of these pipelines in 2020 and a full historical perspective since 1971. The performance over the whole 50 years is analysed in various ways, including gross and net spillage volumes, and spillage causes grouped into five main

NEW PUBLICATIONS (CONTINUED)

categories: mechanical failure, operational, corrosion, natural hazard and third party. The rate of use of in-line inspection tools is also reported. A total of 8 spillages were reported for 2020, 4 of which were theft-related. The other 4 incidents correspond to 0.12 spillages per 1000 km of line, equal to the 5-year average and well below the long-term running average of 0.43 spillages per 1000 km per year, which has been steadily decreasing over the years from a value of 1.1 in the mid-70s. 2 incidents were due to mechanical failures, 1 to corrosion and 1 to (accidental) third party activity. There were no fires, fatalities or injuries connected with these spills. https://www.concawe.eu/wp-content/uploads/Rpt_22-6.pdf

UK & IRELAND SPILL ASSOCIATION – NEW ISSUE OF “SPILL ALERT” MAGAZINE

Contents include - Following FSO Trinity Spirit catching fire and burning out, ongoing concerns about the integrity of FSO Safer off Yemen are these Fuel Storage Vessels linked to terminals or oil fields a blessing, curse or just an operational necessity? We also take an initial look at the Peru Oil Spill – where will liability lie and was the tsunami really a contributory factor? We continue to cover Plastic and discuss the scale of the problem and why we need to act sooner rather than later as plastic production is forecast to grow considerably and not reduce for some time! There are some member case studies from Vikoma, Briggs and A&S International. Launch of a new dispersant application system from Ayles Fernie. <https://ukeirespill.org/publications/spill-alert-issue-23/>

PEMSEA: RELEASE OF THE ATSEA ANNUAL REPORT 2021

April 25 - The ATSEA-2 Programme has published its Annual Report for the year 2021. This Programme is designed to enhance collaboration and coordination in the Arafura and Timor Seas (ATS) region, with a mandate to support the implementation of the endorsed ATS regional Strategic Action Programme (SAP) 2014-2024 and pursue its long-term objective and vision: “to promote sustainable development of the Arafura-Timo Seas region to improve the quality of life of its inhabitants through restoration, conservation and sustainable management of marine-coastal ecosystems”. PEMSEA serves as executing agency for the Programme. <http://www.pemsea.org/news/release-atsea-annual-report-2021>

ITOPF HANDBOOK 2022 JUST PUBLISHED



April 27 - ITOPF has just published its annual Handbook for 2022/23. This contains a wealth of valuable information and guidance for those likely to be involved in spills of oil, chemicals or other substances from ships.

The new edition includes updated oil spill statistics and a revised section on different types of marine spills, as well as regular features on ITOPF's staffing and services; the fate and effects of oil; clean-up techniques; and pollution liability and compensation.

The Handbook is currently being sent out to ITOPF Members and contacts. If you would like to be added to our mailing list (for a printed or electronic copy), please email [us](mailto:us@itopf.org). A PDF version can be downloaded from our [Publications](https://www.itopf.org/news-events/news/itopf-handbook-2022-just-published/) page or below. <https://www.itopf.org/news-events/news/itopf-handbook-2022-just-published/>

INCIDENT REPORTS

ECUADOR: SUNKEN DIVE VESSEL SPILLS DIESEL INTO GALAPAGOS' ACADEMY BAY

April 24 - Officials in Ecuador's Galapagos Islands say that a speedy spill-response effort has prevented environmental harm from the sinking of a tour vessel at Academy Bay, Santa Cruz Island.

The recreational diving boat Albatros went down in Academy Bay on Saturday. No passengers were on board, and all four crewmembers were safely rescued, but the sinking left a light sheen on the water in parts of the bay. The boat had an estimated 2,000 gallons of diesel on board. The Maritime Executive / [Read more](#)

USA: ARKANSAS - DIVERS PLUG HOLES IN THE HULL OF MUSEUM SHIP USS THE SULLIVANS

April 25 - Efforts to save the WWII-era museum ship USS The Sullivans are starting to pay off, according to the salvage team. Multiple holes in the hull have been patched, and the vessel's condition is believed to be stable.

The museum ship USS The Sullivans experienced flooding on her starboard side and took on a heavy list on April 13. A joint effort involving the U.S. Coast Guard, T&T Salvage, local first responders and the museum operator have succeeded in keeping the ship afloat and stable at its berth. The Maritime Executive / [Read more](#)

TUNISIA: MORE BACKGROUND INFO ABOUT SINKING OF TANKER XELO

April 25 - See Report in MOIG Newsletter 50 - <http://www.medoilgroup.org/index.php/publications>

INCIDENT REPORTS (CONTINUED)

USA: MISSOURI - BIG RIG HAULING HAZARDOUS WASTE WRECKS ON HIGHWAY 36, SPILLS CHEMICALS IN CREEK

April 27 - A tractor-trailer hauling hazardous waste wrecked Wednesday morning on Highway 36 in northern Missouri. The big rig ended up in the ditch and remained upright, but the trailer broke open and dumped several 55-gallon barrels of various types of chemical waste along the highway. About six of those drums broke open and spilled into Clarks Creek. KTVO / [Read more](#)

USA: CALIFORNIA - SEMI CRASH ON HIGHWAY 199 SPILLS TAR INTO THE SMITH RIVER

April 29 - On Thursday afternoon, a semi truck hauling 2,000 gallons of tar overturned on Highway 199 in the Six Rivers National Forest, spilling the tar onto the roadway and eventually into the nearby Smith River. The spill will likely cause damage to the Smith River ecosystem, but according to national forest officials, it may not be as bad as it initially seemed. Active / [Read more](#)

HISTORY

THE ENVIRONMENTAL DISASTER THAT INSPIRED EARTH DAY'S CREATION

April 21 - This past January and February marked the 53rd anniversary of one of the country's worst environmental disasters. At the same time, it also gave birth to an annual celebration that takes place around the world.

On Jan. 28, 1969, [a massive oil spill started in the Pacific Ocean near Santa Barbara, California](#) The spill kept going into February and at the time was the largest oil spill ever in U.S. waters, but has since been surpassed by the 1989 Exxon Valdez (Alaska) and 2010 Deepwater Horizon (Gulf of Mexico) spills.

The source was a blowout on Union Oil's Platform A in an offshore oil field that saw between 80,000 and 10,000 barrels of crude oil spilled over a 10-day span. Nearly 4,000 birds died and numerous other marine mammals and other wildlife perished in the disaster. News 4 Jax / [Read more](#)

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There are lots of positive advantages in joining this organisation which has a worldwide membership in over 50 countries –

Being part of a worldwide community of professionals who share a common interest + Receive rapid advice of emergency spill response supply requirements from governments, responsible parties and others arising from major spills and have the opportunity to offer support services, equipment and materials + Receiving ISCO's weekly newsletter keeping you up-to-date on events, developing technologies, new legislation and other matters of mutual interest + Access to a comprehensive online Technical and Reference facility for oil and HNS - spill response tools, guidelines, manuals and other information + Identifying opportunities for providing new products and services needed in domestic and overseas markets + Practical help in building incident response capacity and competence enhancement + Through ISCO, having a voice in the drafting of new legislation that will affect your area of interest + Opportunities to participate in ISCO work groups developing new ideas and projects + Through the International Offers of Assistance initiative opportunities to have a role in the response to major oil spill events + Networking with other members, sharing experiences, discussing problems and helping find good solutions + Free listing in ISCO's International Directory of Supplies and Services with your entry hyperlinked to your own website.

[Download the Joining Form](#)

You can also advance your career by gaining Professional Recognition - 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). [All about Professional Membership](#) [Application Form](#)

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