

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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HEADLINE INTERNATIONAL NEWS

FOCUS ON SOLUTIONS CONCLUDES COP27'S THEMATIC DAYS PROGRAM

Sharm El-Sheikh, Egypt, 18 November 2022 – A focus on solutions closed out COP27's thematic days program with COP27 President H.E. Sameh Shoukry urging all Parties to go the extra mile and take the necessary steps to reach much-needed conclusions and agreements.

Joined by UN Secretary General Antonio Guterres, COP President Shoukry said: "While progress has been achieved on many issues, it is evidently clear that at this late stage of the COP27 process, there are still a number of issues, where progress remains lacking with persisting divergent views amongst Parties. While some of the discussions are constructive and positive, others do not reflect the expected recognition of the need to move collectively to address the gravity and urgency of the climate crisis. The world has become a stage for a continuously running show of human misery and pain. This needs to end now, not tomorrow."

Earlier in the day, the agenda featured several sessions that drew attention to urbanization and climate change and ensuring that cities around the world are part of climate solutions to accelerate multi-level action and bolder leadership to meet our goal of 1.5 Celsius degrees target by 2030. To this end, the COP27 Presidency, with the support of UN-Habitat, convened the first-ever Ministerial Meeting on Urbanization and Climate Change at a UN Climate Change Conference of Parties (COP). The Ministerial Meeting reinforced the commitment of the Paris Agreement and committed to accelerated climate change mitigation, climate change adaptation action and local climate finance, and focused on housing, urban development, and multi-level action in relation to climate change.

The meeting took place on "Solutions Day", which concluded the thematic programming at COP27; a day when four initiatives were launched including Sustainable Urban Resilience for the Next Generation Initiative, Friends of Greening National Investment Plans in Africa and Developing Countries Initiative, Low Carbon Transport for Urban Sustainability Initiative and Global Waste Initiative 50 by 2050.

The Methane Ministerial Meeting took place today, almost a year after the initial launch of the Global Methane Pledge at COP26. The meeting highlighted the crucial efforts needed to address methane emissions. The Global Methane Pledge comes as a welcomed initiative in this regard, with an ambitious aim of achieving at least a 30 percent reduction in global methane emissions by 2030, based on 2020 levels.

The Global Methane Pledge Energy Pathway provides an important platform for countries that have signed up to the pledge to share experiences and best practices, showcase commitments, and benefit from enhanced access to finance and technical support through bilateral and multilateral arrangements.

During the session, COP27 President H.E. Sameh Shoukry said: "Without fast, concrete, and concerted action to tackle methane emissions, achieving the temperature goal of the Paris Agreement will remain far from reach. Read more at www.cop27.eg

ISCO AMBASSADORS

(Members with special responsibilities in specified geographical areas)

Carlos Sagrera Latin America (Spanish speaking)
Matthew Sommerville UK London
John Noble UK London & South'ton
Wu Yue China

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<https://chat.whatsapp.com/KMxdW7IEal79namyNlbV9q>

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ISCO NEWS

ISCO NEWS

ISCO 2022 ANNUAL GENERAL MEETING POSTPONED

We regret to announce that due to unforeseen circumstances the ISCO AGM which was planned to take place on 15th December 2022 will be postponed until early in 2023.

This has become necessary to make some significant changes to the draft Agenda and Meeting Papers. The revised documents will be circulated by email to members as soon as possible and the new date will be posted in the ISCO Newsletter when available.

This postponement will also allow additional time for Members to put forward items for discussion at the AGM. Please forward these to info@spillcontrol.org

Members are also reminded that they can, at any time, propose discussion topics for the monthly Members Meeting (contact Nary Ann Dagleish at mrydetroit@aol.com) and also request topics for inclusion in the ISCO Newsletter (contact the Editor at johm.mcmutrie@spillcontrol.org).

CLEAN GULF 2022 - MORE NEWS FROM THE ISCO TEAM

More news received from ISCO Team Member, Dr Larissa Montas, at the 31st annual Clean Gulf Conference and Exhibition 2022, held November 8-10, 2022.



Photo: Two Members of ISCO Council at the ISCO booth – On the left, Flavio P. de Andrade (Brazil) and on the right, Carlos Sagrera (Panama)

Days 2 and 3- Wednesday 9th and Thursday 10th November –

Three domestic U.S. Case Studies were presented, highlighting large-scale responses off the Pacific Coast (Huntington Beach Oil spill in California), Gulf of Mexico (Black Lake Spill in Louisiana), and Atlantic Coast (MV Golden Ray Salvage in Georgia). In addition, emerging trends and concerns were addressed in various sessions. One session comprised of talks on how the spill response community can support the Environmental Social Governance (ESG) goals of the

broader industry. Another session provided updates and recommendations for regulation developments in perfluoroalkyl substances (PFAS), or "Forever Chemicals" as these substances are widely known.

ISCO member CEDRE, provided an overview of CEDRE facilities in a session tackling oil spill response facilities capabilities and Future Opportunities held on Wednesday November 9th.

Many conference participants visited the ISCO stand during Wednesday's networking break in the exhibit hall. Helena Rowland and Larissa Montas welcomed ISCO members attending the conference and answered queries from prospective members regarding the organizations objectives and membership benefits.

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During the succeeding Keynote presentation, the U.S. Bureau of Safety and Environmental Enforcement (BSEE), informed on its expanding mission to include regulatory oversight of renewable energy and carbon sequestration offshore. The Keynote speech underscored the organization's commitment to safety and environment sustainability, as well as opportunities and challenges in light of climate change.

A session providing U.S. State and Federal government updates had wide participation on the last day of the event. Clean Gulf attendees learned important updates directly from federal and state regulators who are responsible for proposing new rules and regulations.

The Clean Gulf Conference ended successfully, and once again served as a venue for the spill response community and wider industry, facilitating the open exchange of ideas, case studies presentations and current best-practices for stakeholders.

Two international Case Study panels were held. One highlighted the case of the X-Press Pearl in Sri Lanka, the FSO Safer in Yemen.

In addition, an entire Special Session was devoted the case of the spill in Peru in January 2002. This Session was the first specialized event outside Peruvian borders that covered both regulatory and technical challenges of the response.

More than 100 exhibitors were present, including several corporate members of ISCO, who were identified with accreditation placards. For the first time, ISCO provided brochures in both the Spanish and English languages, expanding multi-national outreach to professionals who inquired about the objectives and services of the organization.



Photo above: Helena Rowland (on right) and Dr Larissa Montas (on left) welcomed visitors to the ISCO Stand.

INTERNATIONAL & REGIONAL NEWS

Editor: In an effort to reduce the size of the newsletter and create more space for interesting articles, the amount of detail in some news reports is being curtailed. To access more information you should make use of the provided links to news items that are of interest.

FROM SEA ALARM – “EXPERTS WHO STOP LEARNING, STOP BEING EXPERTS”

November 13 - It is 20 years ago today that the Prestige incident (Galicia, Spain) took over the headlines in Europe and the rest of the world. Articles like [this one](#) will be published in the days and weeks to come. Incredible advances have been made during the two decades since the incident. The probability of such type of incidents has gone down drastically thanks to multiple measures that helped to make marine transportation safer, including measures that the sector took itself. Sea Alarm / [Read more](#)

COUNTRIES PLEDGE ADDED SUPPORT TO GEF FUNDS FOR URGENT CLIMATE ADAPTATION

November 15 - In an important injection of support to countries facing the worst effects of climate change, eight donor governments pledged new funding for the Least Developed Countries Fund (LDCF) and Special Climate Change Fund (SCCF) during the COP27 climate summit and several others backed the funds' ambitious goals for meeting the most urgent adaptation needs. The GEF / [Read more](#)

FROM IOPC FUNDS – “TWENTY YEARS SINCE THE PRESTIGE INCIDENT”

November 15 - This week marks the 20th anniversary of the Prestige incident, which remains one of the most significant oil pollution incidents that the 1992 Fund has had to deal with. The high amounts claimed in compensation, which were well above the amount available under the 1992 Fund Convention, highlighted to States the risk and potential financial impact of such incidents. This accelerated the entry into force of the Supplementary Fund Protocol, increasing the compensation available under the international liability and compensation regime. IOPC Funds / [Read more](#)

FROM REMPEC - MEETING | ADRIATIC SUB-REGIONAL MARINE OIL POLLUTION CONTINGENCY PLAN – 8 & 9 NOVEMBER 2022



November 15 The 8-9 November 2022 took place two-days meeting on the development of the Adriatic Sub-regional Marine Oil Pollution Contingency Plan between Albania, Bosnia and Herzegovina, Croatia, Italy, Montenegro and Slovenia taking place in Durrës Port Authority in Albania, with the MiTE financial support. REMPEC / [Read more](#) Photo provided by REMPEC

FROM UNEP – “TOWARDS A NEW PLAN FOR BIODIVERSITY”

November 16 – SPEECH DELIVERED BY [Inger Andersen](#)

“Let us commit here in Sharm el Sheikh, the place where we met for CBD COP14, that we will come together, settle long-standing issues, especially concerning finance, so that at COP 15 we lean in towards the centre, understanding the critical need for equity and the differences amongst countries so that COP15 in Montreal will be a success”. UNEP / [Read more](#)

FROM EUROPEAN COMMISSION - MODELLING A MICROPLASTIC-FREE BLACK SEA: STRATEGIES TO LOWER WASTE FROM FEEDER RIVERS

November 16 - This research aims to find the most effective strategy to lower microplastic (MP) pollution in the sea, by modelling different riverine MP pollution-reduction scenarios for 2050. These scenario insights can inform policy development, to aid realisation of a zero-pollution future for the Black Sea. European Commission / [Read more](#)

FROM UNEP - HOW COASTAL PLANS BOLSTER ADAPTATION TO CLIMATE CHANGE

November 16 - In addition to hosting critical natural habitats, Mediterranean coastal zones underpin crucial blue economy activities. As biologically active interfaces where complex land-sea interactions are at play, the coasts are hotspots of climate change vulnerability. Coastal communities must grapple with a wide array of climate-related risks: from sea-level rise and havoc-wreaking extreme weather events to the salinization of river deltas and aquifers. UNEP / [Read more](#)

MEPC 79 PREVIEW: WHAT TO EXPECT AT THE IMO'S UPCOMING MARINE ENVIRONMENTAL PROTECTION COMMITTEE MEETING

November 16 - The next meeting of the International Maritime Organization's (IMO) Marine Environmental Protection Committee (MEPC), designated as MEPC79, is coming up in mid-December. Though this gathering will not be the venue for adjusting the IMO's overall strategy on decarbonization that is expected to be finalized at MEPC80 in Summer 2023, the agenda includes a number of important items. The IMO is now set up for hybrid meetings, with virtual attendees complementing the in-person sessions held at IMO headquarters on the Thames River. gCaptain / [Read more](#)

IPIECA UPDATES FROM COP27

November 18 - As a non-lobby organization with UNFCCC observer status, an Ipieca delegation has been present at COP27 to listen to the negotiations. We have also used our time on site at Sharm el-Sheikh to host, participate in, and listen to a number of events, workshops and meetings; exploring collaborative pathways to deliver a sustainable energy transition which leaves no one behind. IPIECA / [Read more](#)

NEWS REPORTS FROM AROUND THE WORLD

Editor: *Many of these reports are gleaned from news provided on the websites of Environment Agencies and other national organisations, some of which are not being well maintained. ISCO does not have the resources to monitor multiple social media platforms. Your editor is grateful to those organisations that directly send him their national news reports of interest to the spill response community.*

CANADA WRAPS UP ITS PARTICIPATION AT COP27 MORE COMMITTED THAN EVER

November 18 - Canada wraps up its participation at COP27 more committed than ever. The Honourable Steven Guilbeault, Minister of Environment and Climate Change, supported by Catherine Stewart, Canada's Ambassador for Climate Change, and Steven Kuhn, Canada's Chief Negotiator for Climate Change, and a strong team, met with colleagues from more than 190 countries in Sharm El-Sheikh, Egypt. Government of Canada / [Read more](#)

EGYPT: COP27 PRESIDENCY CONNECTS CLIMATE AND BIODIVERSITY

November 16 - The COP27 Presidency connected climate and biodiversity today, marking the opening of Biodiversity Day at COP27. The day kicked off with a High-Level opening on "Connecting Climate and Biodiversity" that set the agenda to address the urgent need for integrated responses at scale. The day also saw the launch of the ENACT initiative for nature-based solutions, along with Germany and the International Union for Conservation of Nature (IUCN). COP27 Presidency / [Read more](#)

MONTENEGRO: A NEW INTEGRATED WILDLIFE RESPONSE PLAN



November 16 - Sea Alarm successfully completed its project with the Montenegrin authorities to develop a national oiled wildlife response plan. Over the last year and a half, Sea Alarm has been working hard alongside the Montenegrin authorities to prepare a new Integrated Wildlife Response Plan (WRP) and to train local stakeholders for an emergency response.

An effective and professional response to oiled wildlife emergencies can significantly improve the survival rate of oiled animals and reduce the overall impacts of an oiled emergency.

Sea Alarm / [Read more](#) Photo courtesy of Sea Alarm

NEWS REPORTS FROM AROUND THE WORLD (CONTINUED)

SINGAPORE: SUPPORTING OIL SPILL PREPAREDNESS AND RESPONSE IN SOUTHEAST ASIA

November 11 - Enhancing the capacity of countries in Southeast Asia to prepare for, and effectively respond to oil spills, is the focus of an in-person regional workshop on oil spill incident response and cost recovery in Singapore, Singapore (9-11 November). Delivered through the Global Initiative for Southeast Asia (GISEA) Project, the workshop brought together national focal points from the target countries* to address challenges in the operationalisation of the Regional Oil Spill Contingency Plan (ROSCP).

IMO / [Read more](#)

USA: EPA HIGHLIGHTS IMPORTANT PROGRESS IN PROTECTING COMMUNITIES FROM PFAS

November 17 - Today, the U.S. Environmental Protection Agency (EPA) released "[A Year of Progress Under EPA's PFAS Strategic Roadmap](#)," which underscores key actions taken by the agency during the first year of implementing the PFAS Roadmap. EPA is implementing a whole-of-agency approach, advancing science, and following the law to safeguard public health, protect the environment, and hold polluters accountable. EPA / [Read more](#)

OBITUARIES

ANNOUNCEMENT ON THE PASSING OF BRIAN FAY



November 17 - The Spill Control Association of America (SCAA) lost a long-time supporter, colleague and friend when Brian Fay passed away after a courageous battle with interstitial lung disease. For those of you who knew the outgoing "B-Fay", you likely knew the guy that always seemed to provide a constant stream of one-liners and comments that only someone like him could pull off. But as is often the case, a person's outward personality and demeanor can disguise hidden characteristics and strengths. Brian Fay was deeply passionate and committed to the industry in which he worked. He devoted nearly his entire working life to this business, and he truly loved the emergency response aspect of it. Over so many years, Brian would always be one of the first people putting "boots on the ground" in the aftermath of a spill or other catastrophic event. SCAA / [Read more](#)

NEWS FROM ISCO MEMBERS

Corporate Members of ISCO can by submitting 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

HUMPHREY LAU NAMED AS CEO OF DESMI



November - After more than 26 years as DESMI CEO, Henrik Sørensen has made the personal decision to step back and hand over the responsibility for the daily operation and further strategic development of DESMI to Humphrey Lau who will become CEO effective, December 1, 2022.

Henrik Sørensen, 65, has been CEO at DESMI since October 1, 1996, and a shareholder since 2003. "It has been an amazing journey leading this company for more than 26 years, and I am proud to hand over the keys to Humphrey as the company is in good shape and has considerable potential. I am looking forward to continuing this journey as a shareholder and member of the Board of Directors," said Henrik Sørensen.

Crucial to the decision of naming a new CEO has been Humphrey's global experience, strong results, leadership qualities, and values. Humphrey has the strong profile and global mindset from many years of international experience required for the planed further

NEWS FROM ISCO MEMBERS (CONTINUED)

growth organically supported by acquisitions of DESMI. He worked for 16 years with Novo Nordisk and Novozymes and 14 years with Grundfos where he most recently held the position of Group Senior Vice President, Global Industry Business. Among his global experience, he established Novo Nordisk in China from green field in 1994, at Novozymes he was in charge of several global business units and responsible for the biofuel's development in 2005, and in various roles with Grundfos, including CEO of Grundfos China and Regional Managing Director of Western Europe Grundfos, he grew the business significantly by building organizations with strong customer orientation. DESMI / [Read more](#)

A FINAL APPEAL FROM NIGEL BENNETT OF AQUA-GUARD IN CANADA

To those that have kindly given, thank you so much for your kind support. For those that have yet to support this remarkable cause this will be my last and final ask (for this year).

On the night of Nov 17th, I was sleeping outside for one cold and foggy night so youth facing homelessness don't have to. I'm working hard to raise awareness and funds for Covenant House Vancouver and we so close to my goal.

Covenant House provides food, clothing, shelter, counselling, and most of all, a place of stability, trust, non-judgement, kindness and home for vulnerable young people. Today, I'm asking for your help... please donate to Covenant House and help me reach my fundraising goal:

<http://support.covenanthousebc.org/goto/NigelBennett>

SCIENCE & TECHNOLOGY

If you are interested in new technology you may find it useful to visit Technology Innovation News Survey at <https://clu-in.org/products/tins/> and Tech Direct at <https://clu-in.org/techdirect/archive/>

CONTAINER SHIP ACCIDENTS ARE A LITTLE UNDERSTOOD BUT EMERGING THREAT TO MARINE ECOSYSTEMS

November 16 - Chunjiang An's team of researchers identify significant shortcomings in maritime cargo safeguards. Source: Concordia University. Researchers review the state of marine pollution from container ship accidents. The study investigates the risks they pose, the current policies and strategies around them and the regulations that cover reporting and cleanups. They found that despite the existence of international protocols, risks are often overlooked, and existing regulations around maritime cargo have significant deficiencies.

An estimated 80 per cent of the world's cargo is transported via ship-borne containers -- a method that has soared in use in the decades after World War II. The efficient, cost-effective method of packaging and moving goods across the world's oceans boomed with the globalization of trade, experiencing a near 20-fold increase in container tonnage in the past 40 years. An estimated 100 million tons were shipped by container in 1980. In 2020, that number has reached a staggering 1.85 billion tons.

However, not all this cargo makes it to market. Fires, collisions, groundings and other seaborne accidents can lead to containers spilling overboard and sinking to ocean floors where they and their contents pollute the marine environment.

In a new paper published in the Journal of Cleaner Production, a group of Concordia researchers under the supervision of Chunjiang An review the state of marine pollution from container ship accidents. The study investigates the risks they pose, the current policies and strategies around them and the regulations that cover reporting and cleanups. They found that despite the existence of international protocols, risks are often overlooked, and existing regulations around maritime cargo have significant deficiencies. Science Daily / [Read more](#)

RECENT INTERESTING PEER-REVIEWED OIL SPILL PUBLICATIONS



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

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

202. Impact of Physically and Chemically Dispersed Crude Oil on the Antioxidant Defense Capacities and Non-Specific Immune Responses in Sea Cucumber (*Apostichopus japonicus*)

Li, X., Zou, Y., Xuan, H., Yang, W., Liao, G., Wang, C., Xiong, D.
(2022) *Journal of Marine Science and Engineering*, 10 (10), art. no. 1544,
DOI: 10.3390/jmse10101544

ABSTRACT: Currently, oil spill pollution is one of the major environmental concerns for sea cucumber (*Apostichopus japonicus*) aquaculture. During oil spills, spraying chemical dispersants is generally considered an efficient oil spill response. However, the impact of chemical dispersant deployment during oil spills on sea cucumbers is still less known. In this study, we treated sea cucumbers with physically and chemically (by GM-2 chemical dispersant) dispersed Oman crude oil for 24 h. For antioxidant defense capacities, our results showed that physically dispersed crude oil caused a significant elevation on superoxide dismutase (SOD) and catalase (CAT) activities, and glutathione (GSH) content, while chemically dispersed crude oil caused a significant decrease in SOD activity and GSH content with no apparent change in CAT activity. As for non-specific immune responses, our results indicated that physically dispersed crude oil up-regulated acid phosphatase (ACP) and lysozyme (LZM) activities but had no obvious impact on alkaline phosphatase (ALP) activity. Differently, chemically dispersed crude oil down-regulated ACP and LZM activities while up-regulating ALP activity. Based on the integrated biomarker response analysis, the overall impact of chemically dispersed crude oil on antioxidant defense capacities and non-specific immune responses of sea cucumbers was more severe than physically dispersed crude oil.

203. Using Biological Responses to Monitor Freshwater Post-Spill Conditions over 3 years in Blacktail Creek, North Dakota, USA

Farag, A.M., Harper, D.D., Cozzarelli, I.M., Kent, D.B., Mumford, A.C., Akob, D.M., Schaeffer, T., Iwanowicz, L.R.
(2022) *Archives of Environmental Contamination and Toxicology*, 83 (3), pp. 253-271.
DOI: 10.1007/s00244-022-00943-6

ABSTRACT: A pipeline carrying unconventional oil and gas (OG) wastewater spilled approximately 11 million liters of wastewater into Blacktail Creek, North Dakota, USA. Flow of the mix of stream water and wastewater down the channel resulted in storage of contaminants in the hyporheic zone and along the banks, providing a long-term source of wastewater constituents to the stream. A multi-level investigation was used to assess the potential effects of oil and brine spills on aquatic life. In this study, we used a combination of experiments using a native fish species, Fathead Minnow (*Pimephales promelas*), field sampling of the microbial community structure, and measures of estrogenicity. The fish investigation included in situ experiments and experiments with collected site water. Estrogenicity was measured in collected site water samples, and microbial community analyses were conducted on collected sediments. During the initial post-spill investigation, February 2015, performing in situ fish bioassays was impossible because of ice conditions. However, microbial community (e.g., the presence of members of the Halomonadaceae, a family that is indicative of elevated salinity) and estrogenicity differences were compared to reference sites and point to early biological effects of the spill. We noted water column effects on in situ fish survival 6 months post-spill during June 2015. At that time, total dissolved ammonium (sum of ammonium and ammonia, TAN) was 4.41 mg NH₄/L with an associated NH₃ of 1.09 mg/L, a concentration greater than the water quality criteria established to protect aquatic life. Biological measurements in the sediment defined early and long-lasting effects of the spill on aquatic resources. The microbial community structure was affected during all sampling events. Therefore, sediment may act as a sink for constituents spilled and as such provide an indication of continued and cumulative effects post-spill. However, lack of later water column effects may reflect pulse hyporheic flow of ammonia from shallow ground water. Combining fish toxicological, microbial community structure and estrogenicity information provides a complete ecological investigation that defines potential influences of contaminants at organismal, population, and community levels. In general, in situ bioassays have implications for the individual survival and changes at the population level, microbial community structure defines potential changes at the community level, and estrogenicity measurements define changes at the individual and molecular level. By understanding effects at these various levels of biological organization, natural resource managers can interpret how a course of action, especially for remediation/restoration, might affect a larger group of organisms in the system. The current work also reviews potential effects of additional constituents defined during chemistry investigations on aquatic resources.

204. Lagrangian coherence and source of water of Loop Current Frontal Eddies in the Gulf of Mexico

Hiron, L., Miron, P., Shay, L.K., Johns, W.E., Chassignet, E.P., Bozec, A.
(2022) *Progress in Oceanography*, 208, art. no. 102876,
DOI: 10.1016/j.pocean.2022.102876

ABSTRACT: Loop Current Frontal Eddies (LCFEs) are known to intensify and assist in the Loop Current (LC) eddy shedding. In addition to interacting with the LC, these eddies also modify the circulation in the eastern Gulf of Mexico by attracting water and passive tracers such as chlorophyll, Mississippi freshwater, and pollutants to the LC-LCFE front. During the 2010 Deepwater Horizon oil spill, part of the oil was entrained not only in the LC-LCFE front but also inside an LCFE, where it remained for weeks. This study assesses the ability of the LCFEs to transport water and passive tracers without exchange with the exterior (i.e., Lagrangian coherence) using altimetry and a high-resolution model. The following open questions are answered: (1) How long can the LCFEs remain Lagrangian coherent at and below the surface? (2) What is the source of water for the formation of LCFEs? (3) Can the formation of Lagrangian coherent LCFEs attract shelf water? Strong frontal eddies leading to LC eddy shedding are investigated using a 1-km resolution model for the Gulf of Mexico and altimetry. The results show that LCFEs are composed of waters originating from the outer band of the LC front, the region north of the LC, and the western West Florida Shelf and Mississippi/Alabama/Florida shelf, and potentially drive cross-shelf exchange of particles, water properties, and nutrients. At depth (≈ 180 m), most LCFE water comes from the outer band of the LC front in the form of smaller frontal eddies. Once formed, LCFEs can transport water and passive tracers in their interior without

exchange with the exterior for weeks: these eddies remained Lagrangian coherent for up to 25 days in the altimetry dataset and 18 days at the surface and 29 days at depth (≈ 180 m) in the simulation. LCFE can remain Lagrangian coherent up to a depth of ≈ 560 m. Additional analyses show that the LCFE involved in the Deepwater Horizon oil spill formed from water near the oil rig location, in agreement with previous studies. Temperature-salinity diagrams from a high-resolution model and aircraft expendable profilers show that LCFEs are composed of Gulf of Mexico water as opposed to LC water. Therefore, LCFE formation and propagation actively modify the surrounding circulation and affect the evolution of the flow and the transport of oil and other passive tracers in the Eastern Gulf of Mexico.

205. Exposure methodologies for dissolved individual hydrocarbons, dissolved oil, water oil dispersions, water accommodated fraction and chemically enhanced water accommodated fraction of fresh and weathered oil

Wade, T.L., Driscoll, S.K., McGrath, J., Coolbaugh, T., Liu, Z., Buskey, E.J.
(2022) Marine Pollution Bulletin, 184, art. no. 114085,
DOI: 10.1016/j.marpolbul.2022.114085

ABSTRACT: Characterizing the nature and effects of oil released into the marine environment is very challenging. It is generally recognized that “environmentally relevant” conditions for exposure involve a range of temporal and spatial conditions, a range of exposure pathways (e.g., dissolved, emulsions, sorbed onto particulates matter), and a multitude of organisms, populations, and ecosystems. Various exposure methodologies have been used to study the effects of oil on aquatic organisms, and uniform protocols and exposure methods have been developed for the purposes of regulatory toxicological assessments. Ultimately, all exposure methods have drawbacks, it is impossible to totally mimic field conditions, and the choice of exposure methodology depends on the specific regulatory, toxicological, or other research questions to be addressed. The aim of this paper is to provide a concise review of the state of knowledge to identify gaps in that knowledge and summarize challenges for the future.

206. Using high-resolution imagery from 2013 and 2020 to establish baseline vegetation in oil-damaged mangrove habitat prior to large-scale post-remediation planting in Bodo, Eastern Niger Delta, Nigeria

Gundlach, E.R., Bonte, M., Story, N.I., Iroakasi, O.
(2022) Remote Sensing Applications: Society and Environment, 28, art. no. 100831,
DOI: 10.1016/j.rsase.2022.100831

ABSTRACT: The study area encompasses the largest remedial effort ever undertaken in oil-contaminated mangrove habitats (~ 1000 ha) and includes planting of ~ 2 million mangrove seedlings to initiate the restoration process. To establish a reference point for both the initial planting and long-term monitoring, and to investigate the longer-term effects of numerous oil spills, mangrove distribution (with minor quantities of nipa palm) was determined using 0.1 and 0.5 m resolution imagery from 2013 and from 2020, supported by numerous ground surveys and low-altitude overflights. A review of pre-spill mangrove location and elimination of pipeline and road corridors determined that 829 ha of former mangrove habitat was suitable for restorative planting. After testing each method, existing vegetation was classified using a supervised object-based classification method (Support Vector Machine) and mean shift segmentation, trained with ten manually classified plots of 1 ha and validated against seven additional plots. Initial classification errors occurred due to false positives caused by surface algae, which were manually removed. The accuracy assessment to determine overall mangrove cover (ha) and ability to encounter mangroves at a specific location within randomly selected 0.785 m² circles increased to $\geq 95\%$ within validation plots. In contrast to losses found in other areas of the Niger Delta, vegetation increased in the core area of study (15.6 ha–40.2 ha) but represented only 4.8% of the total 829 ha to be planted. To the west, a 10% vegetation gain was found; to the east where oil theft activities were common, there was a 16% loss. A comparison to a West Africa 20-m data set shows comparative values within 5%, with notable differences when reviewed in detail. Monitoring of the area as it is replanted is expected to continue to 2027 and will use these results as a comparison. This study serves as guidance for analysis and monitoring of future mangrove restorations in the Niger Delta.

207. Assessment of the Brazilian Coast Oil Spill Impact in the fish eggs and larvae development from the Tropical Continental Shelf

de Souza, C.S., de Oliveira Mafalda, P., Jr., de Kikuchi, R.K.P., Dominguez, J.M.L.
(2022) Regional Studies in Marine Science, 56, art. no. 102635,
DOI: 10.1016/j.rsma.2022.102635

ABSTRACT: The response of ichthyoplankton assemblage to the oil spill in the coastal region of Brazil Northeast on August 2019 was investigated using data of before and after spill from plankton survey off the coast of Salvador. Differences in fish egg and larvae density was evident in all samples collected in the continental shelf of Salvador, after oil spill (Oct/2020 and Feb/2021). In general larvae larger than 5 mm tended to occur predominantly before oil spill, while smaller larvae (1–3 mm) occurred predominantly after oil spill, mainly in October/2020. Abnormalities in embryonic development, deformity in the spine and yolk sac edema were found in fish eggs and larvae sampled in the Salvador continental shelf. Rate of abnormalities in embryonic development were significantly

RECENT INTERESTING PEER-REVIEWED OIL SPILL PUBLICATIONS (CONTINUED)

increased after oil spill (Oct/2020, Feb/2021) compared to before oil spill period (Oct/2013, Feb/2014) and high incidence of larvae with spinal deformities was observed after oil spill, about 65% of the larvae sampled in the BA 2 station on October 2020 presented deformity in the spine. The fluid accumulation in the yolk sac (edema) were observed only after oil spill on October 2020. The results of this study indicate negative impact of oil spill in the coastal region of Brazil Northeast on structure of ichthyoplankton assemblages in the continental shelf of Salvador.

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>
- CHINA - <http://www.sioetc.com>
- EUROPE – EMSA Academy 2022. Courses Catalogue
- FRANCE - CEDRE - Click on these links [training catalogue](#) and [2022 calendar](#).
- UK & WORLDWIDE – OIL SPILL RESPONSE LTD. - <https://www.oilspillresponse.com/training/courses/>
- UK & WORLDWIDE – BRIGGS ENVIRONMENTAL SERVICES LTD. - <https://www.briggsmarine.com/services/training/>
- UK – NCEC HAZMAT ACADEMY – [More info](#)
- USA – TEXAS A&M UNIVERSITY – NATIONAL SPILL CONTROL SCHOOL <https://www.tamucc.edu/research/nsccs/>
- 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

TRAINING COURSE: CLASSIFICATION AND LABELLING OF CHEMICALS AND POISON CENTRE NOTIFICATIONS

From Chemical Watch – “Our online training course, Classification and Labelling of Chemicals and Poison Centre Notifications, will be taking place on 2 December”. [More info](#)

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

NEWLY ADDED TO THE UPCOMING EVENTS PAGE

- France: Oceanwise Project Final Meeting, Online, 29th November 2022, 2 pm (GMT+1)
- India: Waste to Worth Conference, New Delhi, 30th November 2022
- UK: Seatrade Maritime Salvage & Wreck, London, 30th November – 1st December
- Webinar: ExxonMobil Oil Spill Knowledge Transfer – “50 Years of Dispersants Development and (occasional) Use”. 6th December, 10.00 – 11.15 am, Houston time.
- India: World Oil Spill Conference, New Delhi, 7th - 8th December, 2022

RECENTLY ADDED TO THE UPCOMING EVENTS PAGE

- Malta: First Coordination Meeting on the Mediterranean Strategy for the Prevention of, Preparedness, and Response to Marine Pollution from Ships (2022-2031), Nov 29, 2022 to Dec 01, 2022
- UK: Hazmat 2023 Conference, 24-25 May 2023

WHEN YOU OPEN THE UPCOMING EVENTS PAGE YOU WILL SEE MANY MORE UPCOMING EVENTS

USA: CALIFORNIA - 10TH BIENNIAL OIL SPILL RESPONSE TECHNOLOGY WORKSHOP FEBRUARY/MARCH 2023

California Department of Fish and Wildlife Office of Spill Prevention and Response (OSPR) and Chevron 10th Biennial Oil Spill Response Technology Workshop February/March 2023 in California (TBD). Email or request more info: TechWorkshop2023@wildlife.ca.gov

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

NOSCA will arrange the next NOSCA Seminar in week 12/23 (20-24.03.23) in Bodø/Norway. Our main topic will be "Tomorrow's challenges and solutions within oil spill response". Beside of two conference days, the seminar participants will be able to observe the large scale exercise "D1H" which will be carried out by NOFO and OKEA. For more information and registration please read <https://www.nosca.no/nosca-seminar/>

USA: COLORADO - CLEAN WATERWAYS 2023: 11-13 APRIL, 2023

Clean Waterway takes place at the Hilton Denver City Center Hotel in Denver, CO, on April 11-13. [More News re conference & abstract submission](#) [Registration](#) [Introduction to the Planning Committee](#) [EXHIBIT SPACE AND SPONSORSHIPS ARE AVAILABLE](#) [Agenda](#)

Full Conference Agenda Now Available for CLEAN WATERWAYS 2023 - We are excited to announce that the official conference agenda, with speakers, is now available for CLEAN WATERWAYS 2023! The conference sessions we have planned are led by experts in both industry and government and offer practical information on prevention and response challenges for oil and hazardous materials spills and other incidents specific to inland waterways. [Agenda](#)

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

Spillcon 2023 has been confirmed for 11–15 September 2023 at the Brisbane Convention and Exhibition Centre, Queensland, 417 244 355, Email spillcon@aip.com.au

The Spillcon team is delighted to announce that a number of entities have been confirmed as Sponsors of Spillcon 2023. Full details are available on our [website](#).

Sponsors are essential for the success of Spillcon 2023 and we greatly appreciate the commitment of all these organisations. Additional [sponsorship opportunities](#) are still available. If you would like more information please contact [Nicky Reading](#).

CONTRACTS, TENDERS AND BUSINESS OPPORTUNITIES

INTERNATIONAL OPEN TENDER NOTIFICATION SERVICE

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

OTHER OPPORTUNITIES: USA & EUROPE

US Government solicitations are frequently posted in Technology Innovation News Survey <https://clu-in.org/products/tins/> US EPA Tech Direct <https://clu-in.org/techdirect/archive/> and USA Federal Contracts Updates <https://clu-in.org/Federal-Contract-Opportunities> European Maritime Safety Agency invitations to tender are often posted in The EMSA Newsletter <https://www.emsa.europa.eu/newsroom/newsletters.html>

DEVELOPING AND DEMONSTRATING NANOSENSOR TECHNOLOGY TO DETECT, MONITOR, AND DEGRADE POLLUTANTS

Environmental Protection Agency, Funding Opportunity EPA-G2023-STAR-A1, 2022

EPA is seeking projects with expected results that can be practically applied in real-world settings and potentially transform environmental monitoring and management, not proof-of-concept or bench-scale projects. While this RFA solicits original nanotechnology projects, applicants should not propose a new prototype but rather a system that can be demonstrated to detect and degrade contaminants in the relevant environment. This RFA solicits applications that address both of the following research areas. Applications that only address one research area may not be rated as highly as those that address both.

- **Research Area 1:** Develop and demonstrate nanosensor technology to detect and monitor pollutants.
- **Research Area 2:** Develop and demonstrate nanosensor technology with functionalized catalysts to degrade selected contaminants

It is anticipated that a total of ~\$1.5 million will be awarded under this announcement, depending on the availability of funds, quality of applications received, and other applicable considerations. The EPA anticipates funding approximately 1 award under this

CONTRACTS, TENDERS AND BUSINESS OPPORTUNITIES (CONTINUED)

RFA. Requests for amounts in excess of a total of \$1,500,000 per award, including direct and indirect costs, will not be considered. The total project period requested in an application submitted for this RFA may not exceed three years. Applications must be received by 11:59 pm ET on December 7, 2022. <https://www.grants.gov/web/grants/view-opportunity.html?oppld=344112>

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<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. ISCO depends on regular receipt of updated URL links for listed publications. If these are not received, relevant entries will be discontinued.

NEW PUBLICATIONS

CANADA: SHIP-SOURCE OIL POLLUTION FUND – ANNUAL REPORT

The 2021-2022 Annual Report is now available at: https://sopf.gc.ca/?page_id=309#AnnualReport

This report highlights the work of the Fund over the course of the last fiscal year.

"CHALLENGES IN THE MARINE SECTOR: 2023 AND BEYOND" - A NEW REPORT PUBLISHED BY THE IMarEST



A new report from the IMarEST identifies the skills gap as one of the major challenges the marine sector faces over the coming decade. The report; 'Challenges in the Marine Industry: 2023 and beyond', is based on short, medium and long-term challenges identified by over 700 IMarEST professional members in a survey. Responses show that concerns broadly align along the themes of people (skills), technology, and the environment.

"The findings reflect the daily experiences of our members and provide a valuable insight into the challenges our sector faces over the next decade. It is clear to see that the themes and challenges are deeply interconnected and reinforce the need for continuing collaboration between marine scientists, engineers, and technologists to find solutions and secure the future of the sector." - Gwynne Lewis, Chief Executive of the IMarEST <https://www.imarest.org/reports/1239-imarest-industry-challenges-report>

INCIDENT REPORTS

OMAN: EASTERN PACIFIC TANKER STRUCK BY SUSPECTED IRANIAN DRONE OFF OMAN

November 16 - A product tanker sailing near Oman suffered minor damage in what multiple officials are calling a drone strike by Iranian forces. Singapore-based Eastern Pacific Shipping, owned by Israeli shipping magnate Idan Ofer, issued a brief statement confirming that its vessel had been "hit by a projectile," while saying the crew was safe and there had been no leaks. If confirmed, it would be the second drone attack by Iran on an Israeli-owned tanker with a similar incident in July 2021 that killed two crewmembers on a crude oil tanker Sweden Finds Explosive Traces Calling Nord Stream "Gross Sabotage" nker also sailing near Oman.

The Maritime Executive / [Read more](#)

EUROPE: SWEDEN FINDS EXPLOSIVE TRACES CALLING NORD STREAM "GROSS SABOTAGE"

November 18 - Swedish authorities released statements confirming that the explosions at the Nord Stream pipeline were acts of "gross sabotage." The Swedish Security Service and the prosecutor's office released separate statements, both announcing that they have found evidence of sabotage, confirming the earlier reports that the explosion and damage to the gas line from Russia to Germany was neither accidental nor the result of a natural failure.

"In the crime scene investigations carried out on site in the Baltic Sea, the extensive damage to the gas pipelines resulting from detonations has been thoroughly documented. Several seizures have been made, including foreign items," the Swedish Security Service said in a statement released this morning. The Maritime Executive / [Read more](#)



Danish authorities released pictures of the gas escaping from the pipeline after four explosions in September (Photo courtesy of Danish Defence Command)

INDONESIA: FERRY SINKS WITH WITH 270 PEOPLE ON BOARD ON FIRE OFF BALI

November 18 - Ferry MUTIARA TIMUR I sank in the afternoon Nov 17 after major fire, with 115 vehicles on board, mostly trucks. All people on board, including 237 passengers and 25 crew, were rescued. The ship actually, capsized and is resting on bottom by one of her side. There was an active firefighting before capsizing, with massive volumes of water poured onto ferry, so probably, she lost stability because of this water and vast areas of cargo deck or decks, with a lot of free surface. Ship's hull remains partially above waterline. Maritime Bulletin / [Read more](#)

HISTORY

20 YEARS AGO, THE "PRESTIGE" OIL SPILL SOILED THE COAST OF SPAIN

November 20 - 20 years ago, the oil tanker "Prestige" sank off the coast of Galicia, in northwestern Spain, with 77,000 tonnes of fuel oil on board. The beginning of one of the worst oil spills in the history of Europe, which also had repercussions in Brittany.

"It was off the coast of this town of 4,000 souls, located west of A Coruña, that the Liberian oil tanker launched a distress call on 13 November 2002, after the appearance of a breach several meters long on its right flank during a storm. "The boat was in bad shape, with waves six to eight meters high," says Blanco, who remembers rushing to shore as soon as the accident was announced to see the damage. The ship "was very close to the coast, the situation was serious."

Le Telegramme / [Read a detailed account with several photos.](#)

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