



ISCO NEWSLETTER

The Newsletter of the International Spill Response Community

Issue 602 11 September 2017

info@spillcontrol.org

<http://www.spillcontrol.org>



ISCO & THE ISCO NEWSLETTER

The ISCO Newsletter is published weekly by the International Spill Control Organisation, a not-for-profit organisation supported by members in 45 countries. ISCO has Consultative Status at IMO, Observer Status at IOPC Funds and is 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 IMO, UNEP, EC and other organisations.

ISCO COMMITTEE & COUNCIL

ISCO is managed by an elected executive committee members of which are **Mr David Usher** (President, USA), **Mr Matthew Sommerville** (Secretary, UK), **Mr Marc Shaye** (USA), **Mr Dan Sheehan** (USA), **M. Jean Claude Sainlos** (France), **Mr Kerem Kemerli** (Turkey), **Lord Peter Simon Rickaby** (UK), **Mr Li Guobin** (China), **Captain Bill Boyle** (UK) and **Mr John McMurtrie** (UK)

The Register of ISCO Members is maintained by **Ms Mary Ann Dalgleish** (Membership Director). She is also responsible for collecting membership dues.

The Executive Committee is assisted by the non-executive ISCO Council composed of the following national representatives – **Mr John Wardrop** (Australia), **Mr Osman Tarzumanov** (Azerbaijan), **Mr John Cantlie** (Brazil), **Dr Merv Fingas** (Canada), **Captain Davy T. S. Lau** (China, Hong Kong), **Mr Li Guobin** (China, Mainland), **Mr Darko Domovic** (Croatia), **Eng. Ashraf Sabet** (Egypt), **Mr Torbjorn Hedrenius** (Estonia), **Mr Pauli Einarsson** (Faroe Islands), **Prof. Harilaous Psaraftis** (Greece), **Captain D. C. Sekhar** (India), **Mr Sanjay Gandhi** (Kenya), **Chief Kola Agboke** (Nigeria), **Capt. Chris Richards** (Singapore), **Mrs Fatima B. Shaik** (South Africa), **Dr Ali Saeed Al Ameri** (UAE), **Mr Kevin Miller** (UK), **Dr Manik Sardessai** (USA), **Mr Dennis van der Veen** (The Netherlands) and **Mr Carlos Sagrera** (Panama)

For more info on Executive Committee and Council Members go to www.spillcontrol.org

INTERNATIONAL DIRECTORY

Click on these links to view websites

[EQUIPMENT & MATERIALS](#)

[RESPONSE ORGANISATIONS](#)

[TRAINING PROVIDERS](#)

[CONSULTANTS](#)

International news

For more information on the events featured below, click on the banners



SHIPPING COMPANIES URGED TO STOP USING HEAVY FUEL OIL IN THE ARCTIC

Shipping companies are under pressure to phase out use of heavy fuels ahead of a potential ban on their use in the Arctic in the coming years.

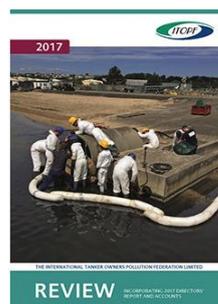
The International Maritime Organisation has approved an environmental review of the use of heavy fuel oil (HFO) by ships in the Arctic. Already banned in Antarctica, HFO is a dense and viscous by-product of fuel refining processes.

Oil spills or leaks would be severely toxic, and devastating to flora, fauna and indigenous communities because of the long time the oil takes to break down in cold water. The risks to fragile Arctic ecosystems could soar as more polar sea lanes become accessible because of climate change.

A Canadian proposal unanimously adopted at the IMO's marine environmental protection committee mandates a review of mitigating measures for HFO use, to begin in April 2018. No calls for a ban on HFOs have been formally put on the agenda but "at this early stage, nothing can be ruled in or out," an IMO spokesperson said.

The Guardian [Read more](#)

ITOPF ANNUAL REVIEW 2017 PUBLISHED



In the latest edition of the ITOPF Annual Review, Chairman, Paddy Rodgers, highlights the activities of the team during the last financial year. ITOPF responded to 20 incidents on-site, of which about a third involved tankers. The most common cause of the incidents was grounding, with the majority of cases involving heavy fuel oil being carried as bunkers.

The experience that staff gained from real incidents was shared at many training and educational assignments around the world. The team was also regularly called upon to give technical advice remotely and to provide an assessment of the technical merit of claims for compensation arising from incidents. *ITOPF* [Read more](#)

PROFESSIONAL MEMBERSHIP

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 Student Membership, Associate Membership (AMISCO), MEMBERSHIP (MISCO) or FELLOWSHIP (FISCO)

[All about Professional Membership Application Form](#)

To receive the free ISCO Newsletter

Go to <http://www.spillcontrol.org> and enter your name and email address in the Registration Form (located on the right hand side of the home page) then click on "subscribe" right hand side of the home page) then click on "subscribe"

International news (continued)

NEW PRESIDENT FOR INTERNATIONAL SALVAGE UNION

The Annual General Meeting of the International Salvage Union (ISU) was held in Singapore 07 September 2017 and the meeting elected Ms Charo Coll as the new President of the ISU.

Ms Coll succeeds Mr John Witte, who will continue as a member of the ISU Executive Committee.

Ms Coll is General Manager of the Offshore and Salvage Division of Spanish company Boluda Corporación Marítima. She has more than 25 years' experience in the industry coordinating the salvage division of Boluda Corporation. In this role she coordinated the Boluda Tugs engaged with the Spanish Maritime Safety Agency for 15 years.

At the same meeting, Mr Richard Janssen was elected as vice President of the International Salvage Union.

Mr Janssen is Managing Director of Smit Salvage and has 20 years' experience of the marine salvage, towage, offshore and energy sectors.

It includes involvement in many well-known salvage and wreck removal cases such as Kursk, Tricolor, MSC Chitra, Troll, PN6 and Modern Express. MarineSalvage.com [Read more](#)

IMO NEWS - AUTUMN ISSUE - 2017

The Autumn 2017 issue of the IMO News Magazine has just been published and can be viewed at

https://issuu.com/imo-news/docs/imo_news- autumn issue - 2017

Incident reports

REPORTS ON HURRICANE DAMAGE AND POLLUTION – HARVEY, IRMA AND JOSE

Editor: Because of the very large number of news reports only a selection is given below. Click on titles of publications to read reports, some of which include photos, video, maps and movement predictions.

September 3 - Houston faces sewage overflow, toxic chemical spill after 'Harvey' [Interaksyon](#)

September 4 - Environmental concerns persist across Harvey-ravaged Texas cities [The Texas Tribune](#)

September 5 - After Oil Refinery Is Damaged by Harvey, Benzene Is Detected in Houston Area [Wall Street Journal](#)

September 6 - The Latest: EPA says Houston-area oil spill cleaned up [Star Tribune](#)

September 7 - Florida Braces for Another Fuel Supply Hit as Hurricane Irma Approaches [qCaptain](#)

September 7 - How Irma Became Irma: A Monster Storm Six Months in the Making [qCaptain](#)

September 7 - Hurricane Irma Tears Through Caribbean on Track for U.S. Landfall [qCaptain](#)

September 8 - Hurricane Jose is now a major Category 4 storm with 150-mph winds [Business Insider](#)

September 9 - Hurricane Jose: storm nearly 'category five' as it follows Irma's destructive path [The Guardian](#)

UK: CHEMICAL LEAKS IN RIVER WINDRUSH COULD HAVE 'DEVASTATING CONSEQUENCES'

September 2 - PEOPLE and pets were urged to stay out of a Witney stream after a second environmental incident hit the town's waters in the space of a week. The Environment Agency urged people to avoid Queen Emma's Dyke on Wednesday after an officer noticed discolouration of the water. Though believed to be unrelated, the warning followed an earlier incident in which a chemical leak affected the dyke and the River Windrush over the bank holiday weekend.

Five fire engines were sent along with a specialist hazardous materials vehicle to help identify the chemicals, stop the leak and protect the area. [Oxford Times](#) [Read more](#)

Incident reports (continued)

AUSTRALIA: OIL SEEPAGE INTO TASMANIA'S BLYTHE RIVER

September 3 - Residents of a town on the north-west coast of Tasmania are "disgusted" and "frustrated" about an "oily sludge" that is seeping into a nearby river and bushland. *ABC News* [Read more](#)

SRI LANKA: NAVY ASSISTS TO CONTROL OIL SPILL AT INGIRIYA

September 3 - Naval personnel attached to the Sri Lanka Coast Guard took swift action to prevent the fuel oil spill caused by a Ceylon Petroleum Corporation fuel bowser, which had toppled at Madala in Ingiriya on Friday (01 September 2017), states Navy media.

Measures were taken to block the drain which had led the spilled fuel to seep into the Kalu Ganga. In spite of the inclement weather, efforts were made to remove the spilled fuel from the river. Round-the-clock clean-up operations were carried out by a team of SLCG personnel comprising two officers and 28 sailors to arrest any further water contamination. *Ministry of Defence* [Read more](#)

GREECE: VIDEO: TUGS ATTEMPT TO FREE GREEK FERRY FROM THE ROCKS

September 4 - The effort to refloat the grounded passenger vessel Blue Sky Patmos continues near the island of Ios, Greece. Three salvage tugs from Spanopoulos Group have pulled her stern about fifty yards off the rocks, but her bow remains stuck.

Over the weekend, salvors pumped her bunkers off in order to reduce her weight and to limit the risk of a spill. No pollution has been reported. *The Maritime Executive* [Read more and watch video](#)

USA: LOUISIANA - SMALL OIL SPILL IN MISSISSIPPI RIVER NEAR BRAITHWAITE

September 4 - A small spill of high sulphur diesel oil was reported to have occurred in an anchorage on the West Bank of the Mississippi River, across from Braithwaite. Much of the anchorage is adjacent to the English Turn Wilderness Park, but separated from it by the river's levee.

"The U.S. Coast Guard will be overseeing the operations," the news release said. "USCG conducted a preliminary investigation, ensured the source was secure, notified the waterways warning network, and issued an information bulletin to warn traffic near the site for the cleanup crews' safety." *The Times Picayune* [Read more](#) Related report in [The Maritime Bulletin](#)

DENMARK: DANES TO INVESTIGATE OIL SPILL NORTH OF GERMAN BORDER

September 8 - Danish police say they have opened an investigation into the spilling of some 200,000 liters (52,00 gallons) of diesel fuel into a harbor in southwestern Denmark.

Local police in Aabenraa, north of the German border, say the oil spill came from a tank at the harbor belonging to hydrocarbon storage and shipping company Dan-Balt, from where it spread into the harbor and the fjord. *ABC News* [Read more](#)

News reports from around the world (countries listed in alphabetical order)

BELIZE: WHAT'S IN GOVERNMENT'S OIL SPILL PLAN?



Photo: Janelle Chanona, Vice-President, OCEANA (Belize)

September 1 - In environmental news, members of the Coalition to Save our Natural Heritage have written Chief Environmental Officer Martin Alegria to raise concerns on the scope of a planned consultancy intended to strengthen prevention, preparedness, and coordinated emergency response in the event of an oil spill in terrestrial, aquatic and marine environment. An outgrowth of this effort is a meeting set for next Tuesday, September fifth, to participate in an update to the country's oil spill contingency plan. Coming on the heels of the Prime Minister's announcement in the House of Representatives meeting on August eighteenth that as of October Belize will institute in law a moratorium on offshore oil exploration, OCEANA's Janelle Chanona says Belizeans deserve to know where this plan is going. *Channel 5 Belize* [Read more](#)

News reports from around the world (continued)

CANADA: HOW MAPPING COASTAL AREAS COULD PREPARE FOR AN OIL SPILL



In the picture: Tim Webster is a research scientist at the Applied Geomatics Research Group of NSCC. (Shaina Luck/CBC)

September 8 - A team of researchers is mapping part of Nova Scotia's South Shore coastline in an effort to understand how to protect vulnerable ecosystems if an oil spill ever happened in the province's waters.

Webster and his team are using LIDAR, a laser sensor mounted on a plane, to build a model of underwater elevations near shore. The model will show how the coastal water moves around those reefs and shoals.

Underwater elevation mapping, or bathymetry, is typically done from boats using sonar. However, Webster said that means there is no bathymetric data for any areas that are too shallow for boats, leading to a so-called "white ribbon" of blank information along the shorelines of hydrographic charts. *CBC News* [Read more](#)

SOUTH KOREA: NEW OIL SPILL RESPONSE REGULATIONS

September 4 - Members of UK P&I Club have been advised that the Korea Coast Guard (former the Ministry of Public Safety and Security) issued a notification stating that on June 30th they had amended the regulations on the imposition and collection of oil spill response costs, effective September 1st 2017. The Korea Coast Guard hope to strengthen the polluter pay principle and help reduce the amount of marine pollution incidents.

The details of the amendment are:

- The costs for Oil Spill Response (OSR) following a marine accident was adjusted to meet the international level (IOPC Fund Guidelines) which will take effect as of 1st September 2017.
- With the introduction of the revised regulations, OSR costs claimable by the Coast Guard are expected to rise to approximately three times what was previously charged. Operating costs (usage fee, waiting fee, and fuel costs) of patrol ships, aircrafts, machinery & equipment mobilised for the response and clean-up operation as well as labour costs (wages) will be charged to the polluter. *Insurance Marine News* [Read more](#)

MALAYSIA: THAI TANKER MGT 1 HIJACKED, CARGO OF DIESEL OIL STOLEN

September 7 - Thai tanker MGT 1 was attacked by a group of 13 armed pirates, on two small boats, at around 2100 LT Sep 6 in South China sea in vicinity 5 09N 104 17E, some 80 nm east of Kuala Terengganu, Malaysia. Tnaker was en route from Rayong Thailand, Gulf of Siam, to Phuket Island, Andaman sea. Pirates took tanker under control and forced crew to siphon some 900 tons (out from some 2000 tons being on board) of diesel oil into pirates' mother ship, details of mother ship unknown or not revealed. During the hijack crew or bridge watch most probably, managed to activate SSAS, alerting Malaysian Malaysia Maritime Enforcement Agency (MMEA). Tanker was boarded by MMEA forces at around 0400 LT Sep 7, MMEA also managed to seize 10 pirates. *The Maritime Bulletin* [Read more](#)

NIGERIA: EDUN: FG IS FUNDING GOVERNANCE STRUCTURES NEEDED FOR Ogoni CLEAN-UP

September 7 - The Chairman of the Board of Trustees (BoT) of the Hydro-Carbon Pollution Restoration Project (HYPREP) in Ogoniland, Mr. Wale Edun, has stated that the federal government has properly funded both the governing council and BoT of HYPREP, the two key elements of the governance structures required for the clean-up of Ogoniland and other impacted sites.

The two structures were set up by President Muhammadu Buhari in line with his promise to implement the UNEP Report, which recommended the setting up of \$1 billion fund to clean up the oil pollution and ensure the environmental remediation to Ogoniland. *This Day* [Read more](#)

UK: MARINE VHF CHANNEL CHANGES COMING – ARE YOU READY?

August 22 - Boat owners, shipping companies and anyone who puts out to sea need to make sure they're ready for the changeover of some VHF channel numbers used to contact UK Coastguard.

The changes to Appendix 18 (Marine VHF) of the Radio Regulations mean that existing channels will no longer be used for either Maritime Safety Information (MSI) or Radio Medical Advice.

News reports from around the world (continued)

From 6th September 2017, channels to use will be VHF 62, 63 and 64. The use of VHF Channel 10 for MSI and pollution control (back up) is unchanged.

Mark Lawson from the Maritime & Coastguard Agency said: 'We've been putting information out about the changes for some months now and will continue to do so in the weeks running up to the changeover.'

'This is an absolute changeover so people do need to be ready to start using the channels from 10am on 6th September. Although the MCA will keep the existing channels for about a year, they will not be routinely monitored. Your existing VHF radios should already have the new channels, but owners should check.' *H.M. Coastguard*
[Read more](#) [Thanks to ISCO Secretary, Matthew Sommerville]

UK: MAIB PUBLISHES INVESTIGATION REPORT INTO TRANSOCEAN WINNER GROUNDING

Photo: Transocean Winner aground on the Isle of Lewis in Scotland in this photo released by the UK Maritime and Coastguard Agency on August 18, 2016.

September 7 - The UK Marine Accident Investigation Branch (MAIB) has released its [investigation report](#) into the August 2016 grounding of semi-submersible drilling rig [Transocean Winner](#) on the Isle of Lewis following the loss of tow.

The Marshall Islands registered rig grounded on the morning of August 8, 2016 on the north coast of the Isle of Lewis, Scotland following the loss of tow from the Dutch registered tug ALP Forward. The tug and tow was on passage from Stavanger, Norway to Valletta, Malta, where the 30-year-old rig was due to be decommissioned or sold for scrap, when it encountered severe weather west of the Hebrides, located to the west of mainland Scotland.



The MAIB report said the effect of the wind and waves on Transocean Winner led to the loss of ALP Forward's ability to control the direction and speed of the tug and tow. After being dragged backward by the tow for over 24 hours, the tow line parted and the tug was unable to pick up the emergency towline. The MAIB reported noted that the tow line was already in a deteriorated condition before the tow commenced, and it was further weakened during the heavy weather prior to the accident. *gCaptain* [Read more](#)

USA: OIL SPILL HIGHLIGHTS RISKS OF PHILLIPS 66'S PLAN TO DOUBLE TANKER TRAFFIC IN SAN FRANCISCO BAY

September 6 - An oil spill reported this week in San Pablo Bay near a Phillips 66 refinery is raising new questions about the company's plans to dramatically increase the number of ships carrying oil through the bay to the facility. The oil apparently leaked from a pipeline on Monday, creating a 20-by-20-foot sheen on the bay. The Phillips 66 proposal, currently under review by the Bay Area Air Quality Management District (BAAQMD), would more than double the number of ships carrying oil through the bay to the marine terminal at the company's refinery in the town of Rodeo in Contra Costa County. *Center for Biological Diversity* [Read more](#)

USA: DEEPWATER HORIZON OIL SPILL IMPACTS ON GULF OF MEXICO SHORELINES AND NEARSHORE AREAS

August 25 - The 2010 [Deepwater Horizon oil spill](#) resulted in significant environmental harm over a large area of the Gulf of Mexico and adjacent shorelines. A special issue of [Marine Ecology Progress Series](#) ([link is external](#)) published August 3, 2017, features 9 scientific articles summarizing the impacts of the oil spill on northern Gulf of Mexico shorelines and nearshore areas. The scientific studies, conducted by National Oceanic and Atmospheric Administration authors and partners, document four key findings based on five years of data collection and study: (1) organismal level effects were documented across the full range of trophic levels in areas that experienced heavy oiling; (2) degradation or loss of habitat-forming species represents a pathway to long-term direct and indirect effects; (3) the loss and degradation of these habitats result in a wide range of ecosystem service losses; and (4) response actions designed to mitigate the effects of oil often result in ecological injury. *NOAA OR&R* [Read more](#)

VOC REDUCTION AND OTHER CONSIDERATIONS IN THE APPLICATION OF OIL SPILL DISPERSANT

Part 1 of an article in 2 parts



Alun Lewis is an authority on oil spill dispersants and other technical aspects of oil spills such as oil 'weathering' and the fate and behaviour of spilled oil and aerial surveillance of oil spills. A graduate chemist, he worked at the BP Research Centre from 1967 until 1992, specializing in oil spill dispersants and other aspects of oil spill response from 1979 onwards. In 1993 he worked at the UK Government's Warren Spring Laboratory and then at SINTEF in Trondheim, Norway until 1997, continuing studies on oil weathering of the use of oil spill dispersants. Alun returned to the UK and worked for AEA Technology until becoming an independent oil spill consultant in 1998. Alun has worked with many organizations, both commercial and government, throughout the world, including IPIECA and OSPRI. He has presented on numerous oil spill response / dispersant training courses over the years.

Foreword by Matthew Sommerville, Secretary of the International Spill Control Organization

ISCO as an organisation has an objective to share knowledge and one key tool in that is the ISCO news. The approximately 3000 people registered to receive ISCO news represent a wide range of organisations, interests, backgrounds and experience. As a result, while for some issues may be new, for others they see issues they long have strived to advance only continuing to revolve around polarised positions based on belief and imagination. While that might be good for those who enjoy pointless debate it does little to move the world on or to disseminate the knowledge that is already available from past incidents, experiments and the application of wider scientific principles. Linked to this, ISCO recently in newsletter 601 drew attention to a report related to dispersants. Based on the response from readers we saw again the potential for debate being generated by polarised pro- and anti-dispersant factions. Rather than respond to this and publish the comments we chose in the interest of providing knowledge to ask Alun Lewis, an internationally well-known and recognised Dispersants and Chemicals expert, to provide some input and knowledge for our readers. We hope this will help us move on from the 50 year old polarised debate on this tool, first used in the Torrey Canyon, and by applying knowledge allow us to plan to use it effectively, efficiently and where appropriate.

A. THE ROLE OF SUBSEA DISPERSANT INJECTION IN REDUCING VOC CONCENTRATION IN AIR AND SOME DISPERSANT BASICS

An article published in the ISCO Newsletter 601, "DID DISPERSANTS HELP RESPONDERS BREATHE EASIER AT DEEPWATER HORIZON?" by Christopher M. Reddy and J. Samuel Arey of the Woods Hole Oceanographic Institution (WHOI). The unabridged article is available at: <http://www.whoi.edu/oceanus/feature/did-dispersants-help-responders-breathe-easier-at-deepwater-horizon>. The authors concluded that "*dispersant injection dramatically improved the air quality for the courageous emergency responders.*"

The article explains that a mathematical model had been used to simulate some of the processes that had occurred to the oil released at 1500 metre (5,000 feet) water depth at the *Deepwater Horizon* incident. Subsea dispersant injection (SSDI) caused the oil to be converted into very small oil droplets that were dispersed as a low oil concentration plume at a water depth of around 1200 metres. The long retention time in the water column and the large oil/water contact area) due to the small size of the oil droplets allowed the rapid transfer of the partially water-soluble aromatic compounds in the oil, such as benzene and toluene, into the water. These same chemical compounds are also potentially volatile and, if the oil had reached the sea surface, would have evaporated into the air. This would have increased the concentration of VOC (Volatile Organic Compounds) in the air which could have posed a health risk to responders on ships above the release. Dispersing the oil at depth reduced the concentration of VOC in the air, compared to what it would have been had dispersants not been used.

This conclusion appears to be correct on the basis of the information presented in the articles and is an additional justification for SSDI. The authors consider that this "*new evidence reveals this as an unexpected benefit.*"

The information presented is not really new, although the quantified estimates from the mathematical modelling are. Are mathematical modelling results evidence? Whether or not this benefit was expected depends on your experience of oil spill response and the use of dispersants.

B. A REMINDER OF SOME DISPERSANT USE BASICS

It might be timely to remind ourselves of what dispersant use is all about. A great deal has been written about the use of dispersants in recent years, but a lot of what has been written is not very accessible to the general public. The US NAS (National Academy of Science) 2005 publication "Oil Spill Dispersants: Efficacy and Effects" was intended to encapsulate the state of knowledge at that time, but it was nearly 400 pages long and full of technical language.

Contributed article (continued)

The NAS has just convened another panel of experts and an up-to-date version of almost the same thing will be produced.

Recent publications about dispersants intended for non-specialists include EMSA's (European Maritime Safety Agency) updated version of their "Manual on the Applicability of Oil Spill Dispersants", 2012 (available at <http://www.emsa.europa.eu/technical-ppr/item/719-manual-on-the-applicability-of-oil-spill-dispersants.html>) and IPIECA published a revised "Dispersants: surface application. Good practice guidelines for incident management and emergency response personnel" (Available at <http://www.ipieca.org/resources/good-practice/dispersants-surface-application/>) in 2016. Anyone who is sufficiently interested is encouraged to download these publications for more details about dispersant use.

The following is intended as a brief reminder of the basic principles of dispersant use.

Purpose of dispersant use

The aim of using a dispersant in a 'conventional' oil spill response to an oil spill from a tanker is to remove the spilled oil from the sea surface by transferring it into the water column. The aim of the other feasible at-response methods of containment and recovery (booms and skimmers) and ISB (In-Situ Burning) is the same; to remove the spilled oil from the sea surface. The reason for doing this is to prevent the oil from becoming persistent and drifting at sea before eventually drifting into shallow water or ashore, where it could contaminate sensitive resources such as mud-flats of salt-marshes.

The initial dispersion of oil into the water column is only the first stage of the three-step **DISPERSE**, **DILUTE** and **DEGRADE** sequence that constitute effective oil spill response using dispersants.

1. The **DISPERSE** step requires that the spilled oil is still in a condition that can be dispersed, i.e. not a highly viscous water-in-oil emulsion formed after days of oil 'weathering' on the sea surface. If a dispersant response has been delayed too long, it might not be effective.

This initial **DISPERSE** step is the most active step for responders. It requires that the dispersant is added to the spilled oil at the recommended treatment rate. This is not a fixed value and varies with oil type and prevailing conditions, but a DOR (Dispersant to Oil Ratio) of 1:20 or 1:25 for a dispersant spraying operation is the usual recommendation. Light, freshly spilled crude oils can be dispersant with a lower treatment rate of a DOR of 1:50, 1:100 or lower. Spraying systems in ships or aircraft are used to achieve this. Accurate targeting of the thicker areas of oil on the sea surface is the critical part of this step and is not easy to achieve.

And finally, the dispersant-treated oil needs some mixing or agitation so that it becomes dispersed into the top layer of the water column as small oil droplets. In the open sea this agitation is most often supplied by wave action. In very calm sea conditions, additional mixing might be added by vessels.

2. The second step of **DILUTE** is a very important consideration in dispersant use. It is not a step that is under the responders' control and is dependent on water depth, water circulation and the prevailing conditions. Dispersant use should only be considered by the responders if these conditions make rapid dilution of dispersed oil most likely.

A frequent criticism of dispersant use is that it is just transferring the problem (the spilled oil) from one environmental compartment (the sea surface) to another (the water column). This portrays dispersant use as a 'zero sum game'; the damage that is not done to coastal resources by using dispersants is instead done to marine organisms by the dispersed oil. This simplistic view is wrong for several reasons, the principle one being to have ignored dilution.

Why should the dispersed oil being diluted to low concentrations in the water column make any difference to the outcome? It is necessary to briefly consider what oil consists of and the potential effects of oil dispersed in water to answer that question.

It is well-known that oils consist of thousands of individual chemical compounds, almost all of them hydrocarbons. Most of these hydrocarbons are alkanes (paraffins), but some are aromatic hydrocarbons with a wide range of molecular weight. The low-molecular weight of aromatic hydrocarbons such as the single-ring BTEX (Benzene, Toluene, Ethylbenzene and Xylenes) (and to a lesser extent the 2-ring substituted naphthalenes) are:

- Slightly water-soluble
- Volatile
- Able to exert toxic effects to a wide variety of organisms

Toxicity is a complex topic and is easily misunderstood. The severity of any toxic effect caused to an organism depends on many factors. These including the organism (type and life stage), the exposure route and the concentration of the contaminant and the duration of exposure. Exposure to low concentration of contaminant for long durations is known as chronic exposure and exposure to high concentrations for brief durations is known as acute exposure. The severity of toxicity depends on concentration and, in the case of spilled oil dispersed at sea, the concentration of oil in the water will depend on dilution.

A typical oil slick is often said to have an average thickness of 0.1 mm. In reality, a typical oil slick has a thickness that varies between 0.04 microns and up to several millimetres or more and this cannot be accurately mapped by any remote sensing technique. However, to illustrate the role of dilution in dispersant use, we will continue to assume that the average oil slick has an average thickness of 0.1 mm. In a moderate sea state, the dispersed oil will be rapidly distributed in the top 5 to 10 metres of water depth. A 0.1 mm thick oil layer is 100mls of oil per square metre. Diluting 100 ml of oil into 5 or 10 cubic metres of seawater would produce a concentration of 1 or 2 parts per million of oil in water. Horizontal mixing would further dilute the dispersed oil into the water. At the *Deepwater Horizon* incident, the vast majority (84%) of the 20,000 water samples taken had oil concentrations below 1 part per billion.

One aspect of this need for adequate dilution of the dispersed oil, and aromatic compounds from the oil, is the minimum water depth restriction for dispersant use. In most countries around the world where dispersant use regulations have been developed, a minimum water depth for dispersant use on oil is specified. In the UK, this minimum depth was specified as 20 metres in the late 1970s.

Dispersing oil into water of sufficient depth causes a localized and transient increase in the concentration of dispersed oil and the aromatic compounds that have dissolved from the oil and into the water, such as the BTEX. This 'spike' of concentration then rapidly decreases as the dispersed oil and dissolved compounds are diluted into the surrounding water. Any marine organisms in the water in the close vicinity of the 'pulse' of dispersed oil caused by a breaking wave passing through a dispersant-treated slick will be exposed to a spike of concentration. This concentration may be sufficiently high to cause negative effects, but the affected water volume will be small and the duration of high concentration will be brief. The measurable effects of this 'spiked concentration' of dispersed oil and aromatic compounds have been studied for 25 or 30 or more years - long, long before *Deepwater Horizon* incident.

The dissolution of the low-molecular weight aromatic compounds from the oil and into the water is precisely the effect that has been modelled and described in the Reddy and Arey article. They have chosen to concentrate on the subsequent reduction of VOC concentration in air at the sea surface and the therefore beneficial effect for the responders. Most of the very large amount of previous work conducted over many years has chosen to concentrate on the potential for negative effects to be caused by dissolved aromatic compounds from the oil to marine organisms. The underlying process is the same, but the selected outcome is different.

3. The third and final stage of the dispersant use process is the **DEGRADE** step. The term 'degrade' has been used by some people to include the loss of some oil compounds by dissolution as well as the biodegradation of the majority of the chemical compounds of the oil. In this article, it is understood to mean biodegradation. A common misconception is that oil released into the environment will persist and continue to exert toxic effects for a prolonged period. This is - in general - not true.

Biodegradation of oil by marine microorganisms has been studied for many years. Biodegradation of dispersed oil while it is in the water column is particularly effective because the small oil droplet size presents a large oil surface area to the microorganisms in the water. Hydrocarbon-degrading organisms have been found to occur in all oceans, although at low population densities unless a release of oil occurs.

The different chemical compounds that make up oil degrade in different ways and at different rates. The biodegradation pathways of most of the broad classes of hydrocarbons are reasonably well understood. Low molecular weight straight chain alkanes (paraffins) are biodegraded most rapidly, within days or weeks. Larger hydrocarbon molecules are biodegraded more slowly. Some Polycyclic Aromatic Hydrocarbons (PAHs) can be persistent and are very slow in being biodegraded.

Not all of the oil can be biodegraded. Once the majority of the hydrocarbons of an oil have been degraded, a recalcitrant residue remains. This can represent up to about 10% or 15% of the original oil volume. This is a material that resembles a soft bitumen. It will be present in the water column as very small specks - the remnants of the dispersed oil droplets, diffusely distributed at low concentration.

These specks of this recalcitrant residue might be deposited on the seabed, widespread over a very large area at a very low, diffuse concentrations. Being heavily biodegraded and at very low localised concentration, the deposited recalcitrant residue is not very bio-available and poses little risk of causing toxic effects to the benthos (creatures living in or on the seabed sediment). The recalcitrant residue rapidly becomes indistinguishable from the organic residues of other decomposition processes that are found in all marine sediments.

Very accurate analytical chemistry methods were employed by some researchers in the aftermath of the *Deepwater Horizon* incident to detect and determine extremely low concentrations of hydrocarbons on the seabed. The presence of these highly weathered, heavily biodegraded, recalcitrant residues has been interpreted by some academic researchers as an indicator of the previous presence of large quantities of fresh oil on the seabed. Transport mechanisms for oil to the seabed involving marine snow have been invoked and "dirty blizzards" of oil conjectured. The available reliable information points to a much more mundane explanation.

Contributed article (continued)

In summary, using dispersants on spilled oil on the sea surface will cause the oil to be dispersed into the upper water column. The total volume of dispersant-treated oil is not monolithically transferred into the sea as one event. Instead, localised plumes of dispersed oil are produced at the scattered locations where breaking waves pass through the oil. The dispersed oil concentration in water (and the water-soluble aromatic compound concentration in water) increases and then rapidly decreases as the dispersed oil is diluted into the surrounding water. It is advisable that the oil is not dispersed into very shallow water because a toxic concentration of oil might be maintained for a long period of time.

Any toxic effects that might be caused to marine organisms by oil dispersed in reasonably deep water (more than 10 metres depth) in the water will be localized and of short duration. This low degree of damage may be acceptable as the degree of damage to coastal resources avoided by dispersant use is greater. Assessing these relative effects is known as NEBA (Net Environmental Benefit Analysis) or SIMA (Spill Impact Mitigation Assessment).

Dispersed oil is further diluted into the water column and the very small oil droplets will be biodegraded by naturally-occurring organisms. Most, but not all, of the hydrocarbons in oil will be biodegraded to leave a recalcitrant residue. This is a bitumen-like residue that is at very low area concentration and present as widely scattered specks on the seabed. It will exert only minimal effects of the benthos.

The concluding part of this article will be in next week's ISCO Newsletter

Science and technology

USA: ABOVE DEVASTATED HOUSTON, ARMIES OF DRONES PROVE THEIR WORTH



Photo: Residential neighborhoods near Interstate 10 sit in floodwater in the wake of Hurricane Harvey on August 29, 2017 in Houston, TX. Marcus Yam/Los Angeles Times/Getty Images

September 4 - Less than a week after the last drops of Hurricane Harvey fell, Houston is just beginning to assess the damage. At least 46 people have died. More than 30,000 houses are flooded and as many as a million vehicles waterlogged. Early estimates suggest the hurricane has inflicted \$120 billion in damage on the region, making it the most expensive natural disaster in the country's history.

"This is going to be a massive, massive cleanup process," Texas governor Greg Abbott told ABC's Good Morning America on Friday. "This is going to be a multiyear project for Texas to be able to dig out of this catastrophe."

Which means the drones' work has just begun. Responding to the disaster provides a major test—and opportunity—for the country's fast-growing network of professional UAV operators, almost exactly one year after the Federal Aviation Administration began to hand out licenses for commercial drone operation. (There are at least 2,000 licensed pilots in the Houston area alone, and some 20,300 nationwide.) [Wired.com](#) [Read more](#)

CANADA: OIL SPILL RESPONSE UNDERWATER DRONE

September 5 - Following a spill, WCMRC uses the DTG2 to quickly assess what is going on beneath the surface.

It can also be used to collect water samples at various depths, vegetation and sediment samples. This enables WCMRC to make informed tactical decisions and continually evaluate the ecosystem's health.

Outside of a spill, WCMRC utilizes the underwater drone to conduct inter-tidal and sub-tidal assessments. The data collected from these assessments are used to develop their various response plans, including prioritizing certain zones that may be particularly at risk during a spill. [Deeptrekker.com](#) [Read more](#)

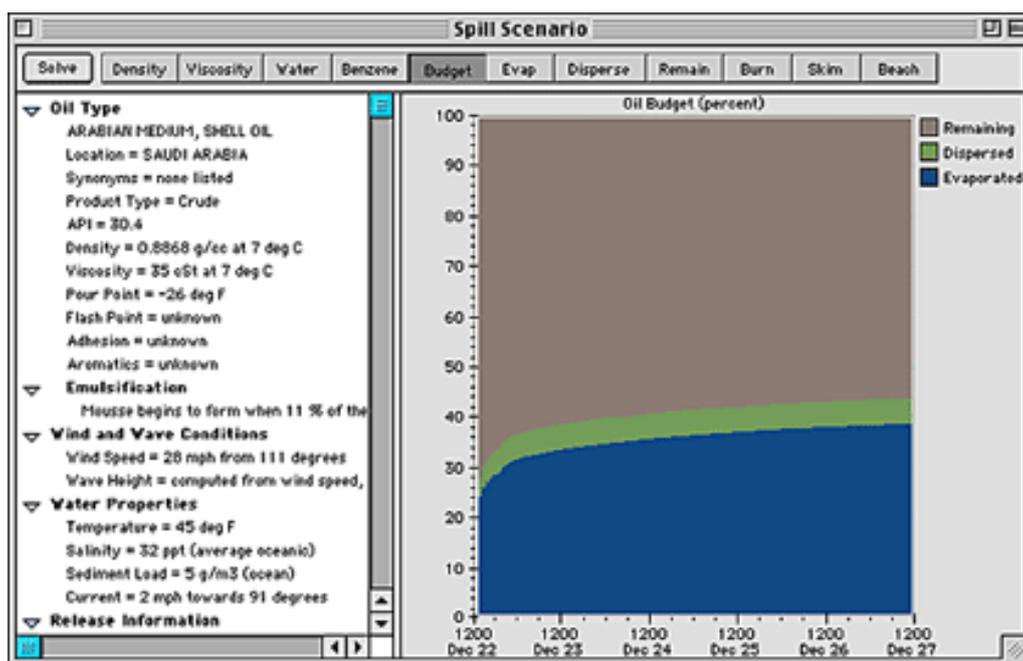


UK: PETROLEUM HYDROCARBONS IN GROUNDWATER: GUIDANCE ON ASSESSING PETROLEUM HYDROCARBONS USING EXISTING HYDROGEOLOGICAL RISK ASSESSMENT METHODOLOGIES (2017).

September 1 - This document provides guidance on assessing the risks to groundwater and surface water from petroleum hydrocarbon compounds. It complements the Environment Agency's guidance given in the Remedial Targets Methodology and should be read alongside that report and Groundwater Protection: Principles and Practice (GP3, Environment Agency, 2013). The objective of this guidance is to establish an effective, reliable and consistent approach to petroleum hydrocarbon assessment within hydrogeological risk assessments. This guidance has been prepared by a steering group led by Shell Global Solutions and has kindly been reviewed and supported by the Environment Agency, Natural Resources Wales and the Northern Ireland Environment Agency, an agency within the Department of Agriculture, Environment and Rural Affairs.

View or download at www.claire.co.uk/phg USA EPA Tech Direct [Read more](#)

USA: ADIOS® (AUTOMATED DATA INQUIRY FOR OIL SPILLS)



A view of an ADIOS spill scenario, showing what has happened to spilled oil over time.

ADIOS® (Automated Data Inquiry for Oil Spills) is NOAA's oil weathering model. It's an oil spill response tool that models how different types of oil weather (undergo physical and chemical changes) in the marine environment.

Working from a database of more than a thousand different crude oils and refined products, ADIOS quickly estimates the expected characteristics and behavior of spilled oil.

Its predictions are designed

to help decision-makers develop cleanup strategies based on estimates of how long spilled oil will remain in the environment.

For example, if the people responding to an oil spill want to know:

Can the spilled oil still be dispersed with chemical dispersants? ADIOS can help answer this by predicting changes in an oil's viscosity (resistance to flow) over time.

If 1,000 gallons of crude oil have spilled, will more than 1,000 gallons of oil-and-water mixture need to be cleaned up and disposed of? If so, how many more gallons? ADIOS can offer an answer by predicting how quickly a particular type of oil's water content will increase over time. NOAA OR&R [Read about how it works](#)

[Download the latest version of ADIOS.](#)

UK: CHANGES TO POCKET CHEMDATA IOS APP

An update to the iOS [Pocket Chemdata](#) app was released on 31 July. Pocket Chemdata subscribers using iOS devices will now need to log in within the app to see their data.

The old device code + activation key security model has been removed. The login screen can be accessed from the app's menu. Each subscribing organisation has its own unique Organisation ID which has been provided to the organisation's main Chemdata contact. Individual users should obtain this from their local contact who will also advise them of their preferred Device Reference format. If your local contact is unavailable users can contact us directly at ncec@ricardo.com with Pocket Chemdata query in the subject line. Please ensure emails include your organisation's name and are sent from a work rather than personal email address.

Technical support (continued)

When a user first logs in, the Organisation ID is verified on our server and the device reference is logged. Error messages are returned if the Organisation ID is not valid or if all licenced installations are already in use. Once logged in the app will perform periodic silent authentication checks when an internet connection is available. The user will remain logged in unless they log out. Once logged out users will only be able to see a restricted set of data.

There will be no need to enter codes annually as the app will periodically check its login validity with our server. Your login screen can be accessed at any time from the menu. NCEC.com [Find out more](#)

Events

REMINDER - CLEAN GULF \$50 DISCOUNT FOR ISCO MEMBERS

The web page <https://l.feathr.co/v0/clean-gulf-2017-isco-c> includes a unique VIP code that members can use to access their \$50 discount as well as information on what benefits come with their conference pass. For more info about Clean Gulf, click on [Clean Pacific Conference and Exhibition](#)

Upcoming events summary

COUNTRY	2017	TITLE OF EVENT	LOCATION
For more information click on Title of Event			
FRANCE	Sept. 12-14	Cedre Mariner Project Workshop	Brest
UK	Sept. 13-14	8th Maritime Salvage & Casualty Response	London
GABON	Sept. 19-22	National workshop on waste management	Libreville
UK	Sept. 20-21	The Emergency Services Show	Birmingham
NORWAY	Sept. 25-29	International Oil Spill Exercise SCOPE 2017	Grenland Area
UK	Sept. 26-28	Industry Technical Advisory Committee (ITAC) Mtg.	Plymouth
EQUATORIAL GUINEA	Sept. 26-29	National Workshop on Contingency Planning	Malabo
UK	Sept. 27-28	Contamination Expo Series 2017	London
FRANCE	Sept. 28	CEDRE Information Day – “Spills in Ports”	Paris
USA	Oct. 2-4	Elastec Inland Spill Workshop (Focus on Rivers)	Carmi, IL
CANADA	Oct. 3-5	40th AMOP Technical Seminar	Calgary
TUNISIA	Oct. 10-11	Oiled Shoreline Clean-up W'shop & Tier1 Exercise	Sfax City
NORWAY	Oct. 17-19	NOSCA Seminar 2017	Horten
CANADA	Oct.30-Nov.1	Arctic Shipping North America Forum	Montreal
UK	Oct.30-Nov.2	IOPC Funds Meetings	London
UK	Nov. 1-2	Offshore Decommissioning & Operations Seminar	London
CHINA	Nov. 1-3	Oceanology International China	Qingdao
IVORY COAST	Nov. 6-9	GI WACAF Regional Conference	Abidjan
UK	Nov. 11	UK Spill Spill Seminar	Southampton
UAE	Nov. 13-16	Abu Dhabi Int'l Petroleum Exhibition & Conference	Abu Dhabi
AZERBAIJAN	Nov. 20-22	Oil Spill Control Caspian – Onshore & Offshore	Baku
UK	Nov. 29-30	11th Arctic Shipping Summit	London
USA	Dec. 5-7	Clean Gulf Conference and Exhibition	Houston, TX
UK	Dec. 6-8	Salvage & Wreck Removal Conference	London
2018			
CANADA	Feb. 21-22	12th Arctic Shipping Summit	Montreal
UAE	Feb 28 – Mar 1	Offshore Arabia Conference & Exhibition	Dubai
UK	March 13-15	2018 INTERSPILL Conference and Exhibition	London
UK	March 13-15	Oceanology International 2018	London
USA	April 4-5	Clean Waterways Conference	St. Louis, MO
FINLAND	April 17-20	Arctic Shipping Forum	Helsinki
UK	May 23-24	HAZMAT 2018	Stratford on Avon
USA	June 19-21	Clean Pacific Conference and Exhibition	Portland, OR
INDIA	July 5-6	Oil Spill India 2018 Conference & Exhibition	New Delhi
To request posting of an event of interest to the Spill Response Community please send details to the Editor			

Publications

2017 INTERNATIONAL OIL SPILL CONFERENCE (IOSC) PROCEEDINGS

September 5 – Capt. Gregory J. Hall, Ph.D, Editor at IOSC writes “I am happy to announce that the 2017 International Oil Spill Conference (IOSC) Proceedings are now available [online](#). The 2017 edition represents the second time we have made the proceedings available online and integrated them into the conference from the beginning of the planning process. Thank you to the thousands of conference supporters for their enthusiasm and interest, and to our sponsors who make this conference possible. The IOSC’s success and the publication of our proceedings would not be possible without the hard work and dedication from our countless volunteers and professional management team. Thank you to all those who reviewed abstracts, papers, and posters. Most importantly thank you to all who have published in the IOSC Proceedings this year. Your work and passion, along with your enthusiasm to share your knowledge, are crucial to improving our profession and industry.

The IOSC body of knowledge, dating back to the inception of IOSC in 1969, is available free of charge online. Every article and poster in our collection has its own electronic identity and can be cited and searched for through the online databases. The archives of the Proceedings are replete with manuscripts and posters from the most prominent authors in our profession, as well as the work of the quickest rising stars.

As we tackle new challenges in the future, it is crucial that we capitalize upon the large body of knowledge already existing about oil spill response, prevention and restoration science, policy, techniques and technology. The IOSC Proceedings, with its 45 years of knowledge, is a good first stop for anyone trying to learn what has gone before or is who is doing research in this area. Please spread the word about this outstanding resource”.

EVALUATION ON THE IMPLEMENTATION OF THE REGULATION (EC) NO 1406/2002 ESTABLISHING EMSA - FINAL REPORT

The final; report and appendices were published on 30th August 2017. Links for downloading are –

 [Evaluation of EMSA Final report.pdf](#)

 [Evaluation of EMSA Appendices.zip](#)

[Read more...](#)

Links for recent issues of other publications (in alphabetical order)

AMSA Aboard	News from the Australian Maritime Safety Authority	December 2016
ASME EED EHS Newsletter	News and commentary on HSE issues from George Holliday	Most recent issue
Bow Wave	Sam Ignarski’s Ezine on Marine & Transport Matters	Current issue
Cedre Newsletter	News from Cedre in Brittany, France	June 2017
CROIERG News	Canberra & Regions Oil Industry Emergency Response Group	Current issue
EMSA Newsletter	News from the European Maritime Safety Agency	August 2017 issue
Environmental Technology Online	Environmental Monitoring, Testing & Analysis	August 2017 issue
IMO News Magazine	News from the International Maritime Organization	Autumn 2017 issue
IMO Publishing News	New and forthcoming IMO publications	August 2017
Intertanko Weekly News	International news for the oil tanker community	September 8, 2017
JOIFF “The Catalyst	Int’l Organisation for Industrial Hazard Management	Q3 2017 issue
Maritime Executive Magazine	Often contains articles of interest to the spill response community	July-August 2017
MOIG Newsletter	News from the Mediterranean Oil Industry Group	July 2017 issue
NOWPAP Quarterly	News from the North West Pacific Action Plan	Quarter 1, 2017 issue
Ocean Orbit	Newsletter from the International Tanker Owners Pollution Federation	August 2017
OCIMF Newsletter	News from the Oil Companies International Marine Forum	August 2017 issue
Pollution Online Newsletter	News for prevention & control professionals	September 9, 2017
Safe Seas, Clean Seas	Quarterly Newsletter from Maritime New Zealand	August 2017 issue
Sea Alarm Foundation Newsletter	Oiled wildlife Preparedness and Response news from Sea Alarm	Spring 2017 issue
Technology Innovation News Survey	News from US EPA – Contaminated Site Decontamination	July 16-31, 2017
Transport Canada Newsletter	News and articles re transport of dangerous goods in Canada	December 2016 issue
UK NCEC	News from the National Chemical Emergency Centre	July 2017 issue
USA EPA Tech Direct	Remediation of contaminated soil and groundwater	Sept. 1, 2017
USA EPA Tech News & Trends	Contaminated site clean-up information	Spring 2016 issue
WMU Newsletter	News from the World Maritime University	December 2016

Your editor depends on regular receipt of updated links for listed publications. If these are not received, relevant entries may be discontinued

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