



Ocean Orbit 2024



PROMOTING EFFECTIVE
SPILL RESPONSE

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Managing Director's Review

Welcome to the latest issue of our newsletter **Ocean Orbit**, where I'm delighted to share news of our recent activities and developments.

2023 was another busy and eventful year for ITOPF. Our new office in Singapore became fully operational and we relocated to smaller premises in London which support our fluid hybrid working practices. These changes have brought about exciting opportunities for ITOPF in how we work and operate and are explored more inside this issue.

We topped off the year with the 55th anniversary of our founding on Christmas Eve, December 1968. We didn't think many would turn up to our anniversary if we held a party on 24th December, so we waited a little and were able to host friends and colleagues in our new London office space in March 2024.

For those of you who came and for those who missed out, it was brilliant evening as we celebrated our milestone anniversary with colleagues and partners old and new. We reflected on how we built the strong foundations of our working relationships across the past five and a half decades.

ITOPF was originally established to administer the now defunct TOVALOP, a voluntary scheme set-up to ensure compensation was available to those affected by oil pollution from tankers, and since then our services have grown to now include spill response, claims analysis and damage assessment, contingency planning and advisory work, training and education and information services for a wide range of pollutants. We remain ready and available to respond to spills 24/7.

No organisation can afford to remain static. Working with partners across the globe to share knowledge and exchange experiences keeps us moving forward and ensures we are ready and able to respond to emerging issues and changing practices.

Later in this issue we'll take a brief trip down memory lane looking back at our history since inception in 1968, and we'll be looking into what the future may hold for us. Standing still is not an option for any organisation, and we are constantly seeking to challenge ourselves to be better and ready for new ventures and challenges ahead.

You'll also find details on our work creating tools to embrace Environmental, Social and Governance (ESG) in spill response



OLI BEAVON, ITOPF'S
MANAGING DIRECTOR

and how we're reviewing our processes within the company holistically, to always have ESG considerations in mind when making decisions and embarking on new and existing projects.

Since our previous issue we have provided technical expertise for numerous incidents worldwide both on site and remotely, and shared our knowledge and experience at training events and during advisory assignments. Some examples of these are presented inside.

An incident in the Philippines last year highlighted our use of satellite imagery in spill response activities. The spill resulted in around 100 km of contaminated shoreline

and our team routinely uses satellite imagery and the latest modelling software to aid the quality of our advice when responding onsite or remotely to spills. You'll hear more about both these topics later on.

Before I begin to close out this section, I believe it's essential to recognise and celebrate the achievements of the past year, and acknowledge the efforts of the team, who are crucial to every single activity you'll read about in this issue. I'd like to thank all those involved with and who contributed to the successful opening of the new office and the smooth relocation in London, as well as our colleagues who continue to represent ITOPF from Singapore and across the world wherever, and whenever we may travel.

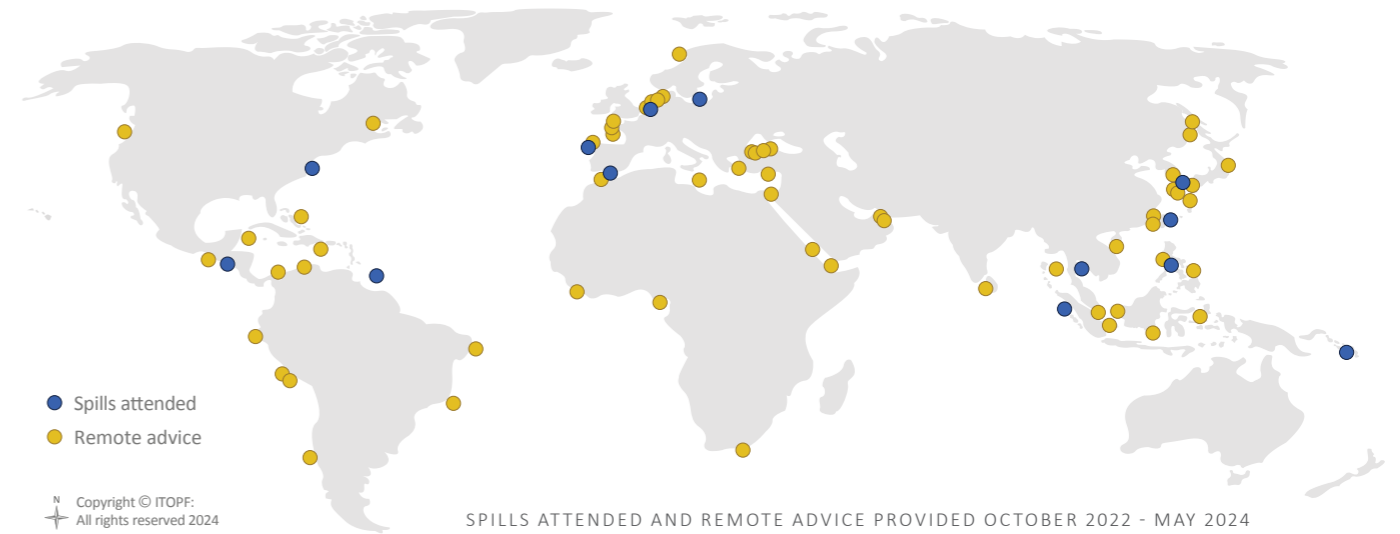
I hope you enjoy reading this issue of **Ocean Orbit**. We would love to hear your feedback or ideas for future articles.



CELEBRATING OUR 55TH ANNIVERSARY IN MARCH

FRONT COVER IMAGE: CLEAN-UP OPERATIONS IN TOBAGO

COLLABORATION | INTEGRITY | OBJECTIVITY | RESPECT | DILIGENCE



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SPILLS ATTENDED AND REMOTE ADVICE PROVIDED OCTOBER 2022 - MAY 2024

Promoting Effective Spill Response

ITOPF has attended 13 new incidents since the last issue of Ocean Orbit in October 2022*. Five incidents involved tankers, while the remaining eight involved a mix of container ships, general cargo vessels, one ro-ro vessel and a bulk carrier. The substances spilled were primarily oils, carried both as bunkers and cargo; there was also one spill of plastic pellets, and one involving palm kernels.

Remote advice from the office was provided for a further 64 cases. These involved a range of cargoes and fuels, including soya beans, sulfuric acid, nickel ore, containers, crude oil, and traditional and low-sulfur fuel oils.

At the time of writing, ITOPF is currently on-site attending a tanker incident in Singapore – read more about it in our next issue.

ITOPF's Role

ITOPF's role on-site varies depending on the circumstances of the incident, but it is always advisory. Responsibility for decision-making usually lies with the relevant government authorities. ITOPF's technical advice and support is available

* Up to May 2024

to all parties involved in a response – including government authorities – as well as to the P&I insurer, IOPC Funds, shipowner, national and international contractors, surveyors, port authorities, salvors and other interested stakeholders. As early decisions may have a lasting impact, ITOPF usually aims to integrate itself into the command centre as quickly as possible.

ITOPF's objective advice is based on scientific principles and the extensive collective experience gained attending spills in a wide range of ecological and socio-economic systems globally over the last 55 years.

Since the last edition, ITOPF's on-site activities have included mapping the extent of contamination via extensive aerial, boat and shoreline surveys, guided by modelling and satellite imagery; assisting in the mobilisation of resources to mount effective shoreline response; providing objective advice on appropriate clean-up techniques and end-points to appointed contractors; helping design waste evacuation and disposal plans; and extensive work gathering information for claims assessments for several cases reported on, including but not limited to fisheries and clean-up operations. A selection of the cases attended are briefly outlined overleaf.

How to Report a Spill

To report a spill of oil, chemicals or other substance, please call us on the numbers on the right for advice and/or to mobilise us to site.

It will be helpful to have as much information as possible. However, please don't wait to get this before calling as early notification is important.

Find out more:

<https://www.itopf.org/contact/emergency-contact/>

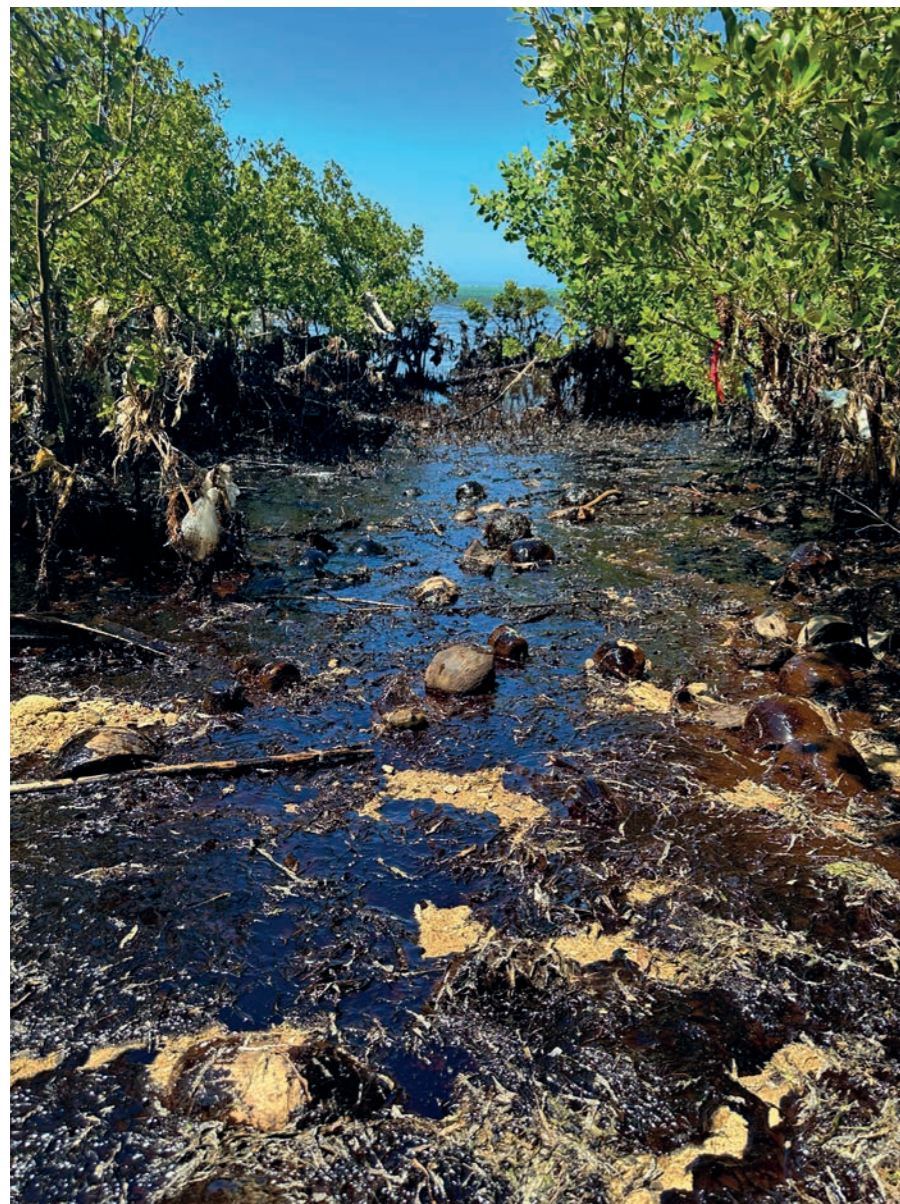
PLEASE DO NOT RELY ON NOTIFICATION OF EMERGENCIES TO ITOPF BY E-MAIL.

**9 AM – 5 PM
(UK BUSINESS HOURS)
+44 (0) 20 7566 6999**

This is our office number.
Please ask to speak to a member
of the technical team.

**OUTSIDE UK BUSINESS HOURS
(spill emergencies only)
+44 (0) 20 7566 6998**

Your call will be forwarded
to the member of the
technical team on duty.



OILING OBSERVED IN MANGROVES, PHILIPPINES

Heavy Fuel Oil Spill, Philippines ▶

One of the most significant cases ITOPF attended last year involved a 508 GT tanker which sank off the Philippines, spilling approximately 800 MT of HFO over a period of several months. An at-sea response was mounted immediately, involving initial dispersant application and subsequent containment and recovery activities. The spill resulted in contamination of around 100 km of shoreline to varying degrees and comprised of a variety of habitats, including rocky shores, mangroves and seagrass beds. Shoreline clean-up operations were carried out from two operational centres in Pola, Oriental Mindoro and Semirara, Caluya. The main techniques used were high pressure washing of oil coatings on rocks, low-pressure high-volume flushing to remove trapped

oil, concrete mixers to wash pebbles and stones, and manual techniques, such as scrapping and wiping. In some inaccessible areas exposed to wave energy, oiling was left to naturally weather. Following sign-off surveys, all active clean-up was terminated by September 2023. In total, ITOPF spent 283 days on-site, with a team of eight colleagues rotating through two locations in the Philippines from March through to July, and additional staff supporting from the office.

Plastic Pellets Spill, Spain ▶

ITOPF attended its fifth significant spill of plastic pellets at the end of 2023. This followed the loss of containers from a vessel off the coast of Portugal which resulted in the contamination of shoreline in northern Spain with packaged and

loose pellets. ITOPF's early attendance involved extensive shoreline surveys to determine the overall extent of contamination. In January 2024, clean-up teams were mobilised to remove bulk contamination to prevent the remobilisation of pellets over a wider geographical area.

Containership Incident, Thailand ▶

In February 2023 ITOPF attended an incident involving a containership which spilt approximately 0.5 m³ of oily water mix during ballasting operations at a commercial port in Thailand. Some of the spilt oil became trapped within the port structures and remobilised with subsequent tidal movements, causing successive re-oiling of a number of vessels. Response measures included using specialist divers to survey the port structure and clean oil caught within gaps and crevices; containment and recovery for floating oil using boom and sorbents; manual techniques and high-pressure washers (HPWs) for cleaning walls and other infrastructure.

Ferry Grounding, Sweden ▶

ITOPF attended a passenger ferry incident in October 2023. The vessel ran aground near a port in Sweden, spilling around 45-75 MT of residual marine fuel oil. It was refloated, drifted and re-grounded during bad weather a week later, leading to a second oil release. An extensive at-sea response was launched and ~20 km of shoreline was impacted, including beach meadows and rocky/sandy shorelines. Shoreline clean-up techniques primarily involved manual recovery.



PLASTIC PELLETS OBSERVED IN SPAIN



CONTRACTORS USING HIGH PRESSURE WASHING TO CLEAN SIDE OF PORT, THAILAND



MANUAL CLEAN-UP ON SHORELINE, SWEDEN

Bitumen Tanker Grounding, Indonesia ▶

ITOPF's Singapore office mobilised to Indonesia in August 2023 following contamination concerns from a wrecked bitumen tanker which had grounded six months previously. Some clean-up activity had taken place following the initial incident, but widespread though patchy contamination remained along shorelines. ITOPF recommended clean-up measures, including waste management from the previous response, to mitigate damage arising from the pollution.



BITUMEN OBSERVED ON THE SHORELINE IN INDONESIA

Bridge Allision, USA ▼

In March 2024 a containership suffered a loss of power while leaving port and was involved in an allision with the Francis Scott Key Bridge in the Patapsco River, Baltimore. As a result of the incident the bridge collapsed, with part of the structure falling on the bow of the vessel. ITOPF was mobilised to site the day after the incident and was integrated into the Incident Management Team's (IMT) Environmental Unit. Immediately following the incident priorities were focused on search and rescue and securing the vessel. Precautionary containment boom was deployed around the vessel and an oil spill contingency plan was developed based on the pre-existing contingency plan for the area. Following low levels of pollution observed and low risk of further pollution, ITOPF demobilised from site.



DALI VESSEL UNDER THE FRANCIS SCOTT KEY BRIDGE, USA

Fuel Oil Spill, Gibraltar ▶

In August 2023 a Liquefied Petroleum Gas (LPG) tanker spilled an unknown volume of very-low sulfur fuel oil (VLSFO) off the coast of Gibraltar due to an overflow during bunkering operations. ITOPF was mobilised, arriving the day after the spill occurred and met with port authorities and conducted shoreline surveys with Gibraltar's Department of the Environment (DOE). Some sheen was observed following remobilisation of oil from the short length of affected shorelines, with the majority of contamination being observed across four sites along the western coast of Gibraltar. Response measures included, but were not limited to, low-pressure flushing, high-pressure washing, pumping away pooling oil, removal of contaminated rubble and manual recovery techniques.



MANUAL CLEAN UP ON SHORELINE IN TOBAGO

Barge Capsize, Tobago ▲

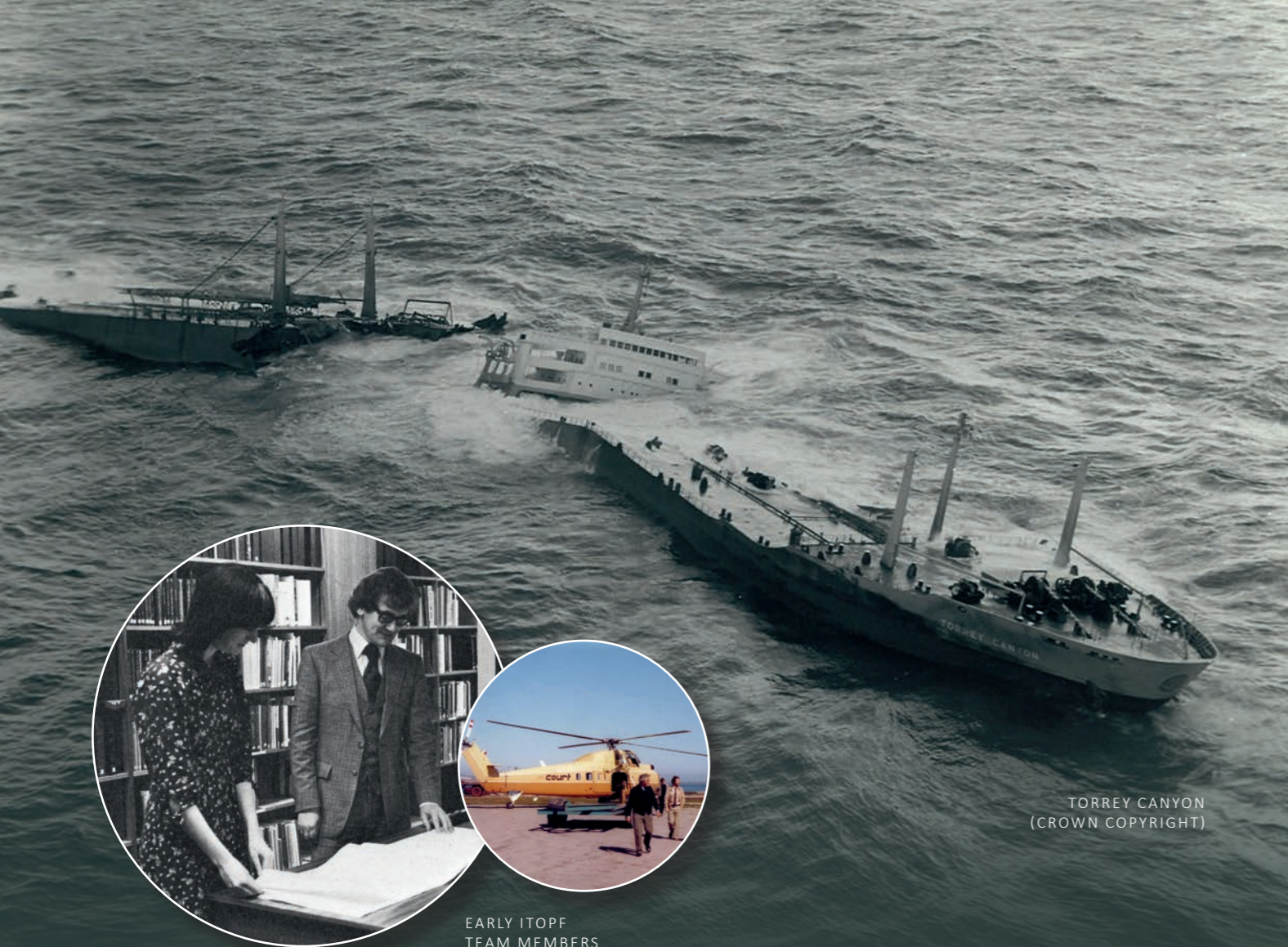
In February 2024 a barge capsized and subsequently grounded in the

south-west part of Tobago spilling an unknown quantity of oil (estimated to be over 1,000 MT), approximately 150 metres from the shoreline.



HULL CLEANING OF VESSEL OFF THE COAST OF GIBRALTAR

ITOPF was mobilised to site by the IOPC Funds at the end of February on a proactive basis to assist the Tobagonian authorities as the case was only confirmed to be eligible for compensation under the 1992 Fund Convention in May 2024. ITOPF focused on providing advice on suitable clean-up techniques, appropriate equipment and also advice on waste management operations. Widespread shoreline clean-up operations in the early stages of the response involved bulk recovery from areas of heavy oil contamination primarily using vacuum trucks. As the incident progressed, regular Sargassum stranding and buried layers of oil were the main challenges for operations. As at May 2024, the main concerns and focus of ITOPF's work were issues surrounding waste management. The long-term storage options on the island are very limited and the final waste treatment and disposal location is yet to be decided. Following sign-off surveys across the majority of clean-up sites at the end of April, ITOPF demobilised from site and later returned to support the process of claim submissions in May.



TORREY CANYON
(CROWN COPYRIGHT)

EARLY ITOPF
TEAM MEMBERS

Celebrating 55 Years

ITOPF was set up in 1968 with the primary function of administering an oil spill compensation scheme. Since then, it has grown into much more, developing a range of technical services covering Spill Response, Claims Analysis and Damage Assessment, Contingency Planning and Advisory Work, Training and Education, and Information Services. In December 2023, we celebrated 55 years of promoting effective spill response.

Our Story

The pollution damage and publicity following the TORREY CANYON incident provided the catalyst for the world's tanker owners to create a voluntary scheme (TOVALOP) to ensure that compensation was available to those affected by oil pollution.

In the 1970s, the high incidence of major tanker spills underlined the need for a specialised group to provide advice on the fate and effects of oil spills and response techniques. ITOPF filled that role, establishing a team of well qualified scientists able to offer around the clock technical support to tanker owners, their P&I insurers and other groups. This work also included objectively assessing the technical reasonableness of clean-up measures and claims for compensation.

Our experience on the ground also led to a broadening of our work to include advisory services (such as assisting governments and industry with contingency planning), training and education, and the provision of information, including tanker spill statistics, technical publications and films.

1967

TORREY CANYON, ONE OF THE WORLD'S FIRST SUPERTANKERS, GROUNDED OFF SW ENGLAND, SPILLING 119,000 TONNES OF CRUDE OIL. THIS WAS THE LARGEST OIL SPILL TO DATE AND FOCUSED WORLD ATTENTION ON THE PROBLEMS ASSOCIATED WITH MAJOR TANKER INCIDENTS.

**LEARN MORE ABOUT
ITOPF IN OUR 55 YEAR
CELEBRATORY VIDEO**

Not Just Tankers

During the 1990s the growing awareness of oil pollution from container ships, general cargo ships and other non-tank vessels, plus the development of the Bunkers Convention, led to a change in our structure and funding. From February 1999, owners of ships other than tankers were eligible to become Associates of ITOPF and also have access to our technical services.

Not Just Oil

At the turn of the millennium, the pollution potential of substances other than oil, primarily chemicals, led to an increase in demand for our expertise in these areas. Over recent years, we have also provided advice on spills of vegetable oils, cereals, coal, containerised cargoes, and – the current pollution hot topic – plastic pellets.



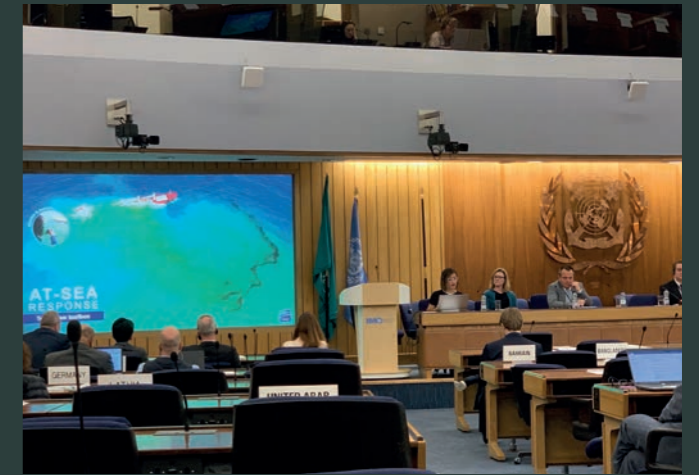
NURDLES ON THE SHORELINE IN SRI LANKA

Technological Advances

Our team routinely uses satellite imagery and the latest modelling software to aid the quality of our advice when responding onsite or remotely to spills. Our in-house Geographic Information System (GIS) has grown with technological advancements, and most recently been used to create shoreline survey apps to inform decision-making on-site. We have also embraced Virtual Reality (VR) and Mixed Reality (MR), having developed our own VR and MR apps. Our VR experience takes users on virtual aerial surveillance flights for training purposes and our MR app places users into different mock oil spill response scenarios, where they plan a response and manage clean-up resources.



AERIAL SURVEILLANCE VR IN ACTION AT INTERSPILL 2022



ITOPF AT IMO'S HNS CONVENTION WORKSHOP

Supporting R&D

Over the years, we have supported many research and development projects, setting up our own annual R&D Award in 2010. This provides financial support for PhD or short-term projects which have the potential to lead to improvements in our knowledge and understanding of issues related to accidental marine pollution from ships. To date, more than £600,000 has been distributed to R&D projects worldwide on behalf of our shipowners and their P&I insurers.

New Offices

In 2022, we opened our first branch office in the global maritime hub of Singapore. This has allowed us to respond ever more effectively in the region, as well as engaging with local stakeholders and attracting new talent to the organisation. We have recently relocated to new premises in London to a building with a high environmental, social and economic sustainability rating, which we have designed around activity-based working.



A POTENTIAL HYDROGEN POWERED VESSEL

What Next?

Over our history we've seen many trends in spill response. Our team keeps a keen eye on new developments related to fuels, cargoes, response techniques and environmental monitoring. We work with partners across the globe to share knowledge and exchange experiences, ensuring that we are ready and able to respond to emerging trends or changing industry practices. We look forward to what the next 55 years brings for us.

ESG & Spill Response

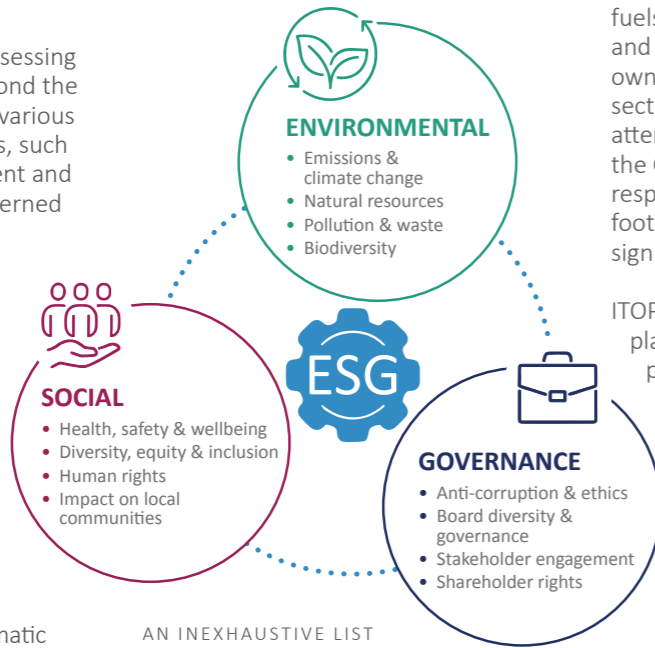
The spotlight on sustainability in the shipping industry and the increasing importance for organisations to integrate environmental, social and governance (ESG) considerations into their operations, has led ITOPF to explore options for providing objective, technical services for ESG matters relating to spill response.

What is ESG?

ESG provides a structure for assessing a company's performance beyond the merely financial, by looking at various sustainability and ethical issues, such as its impact on the environment and society, as well as how it is governed and regulated.

ESG & Spill Response

ESG is not a new concept for spill responders – a successful response operation has always involved identifying (and mitigating) the negative environmental and social impacts of an incident. What has been largely absent, however, is a framework for recording these impacts so that they can be assessed in a systematic and holistic way and aid operational decision-making. ESG impacts can be identified and mitigated at all stages of a spill response – from contingency planning, through initial incident assessment, to establishing response operations, the identification of end-points, and damage assessment. As well as facilitating operational decision-making on the ground, the development of a framework for recording ESG impacts would also support other stakeholders involved in a response – including P&I insurers and national authorities – who are now increasingly required to report on the ESG impacts of large casualties and pollution events.



AN INEXHAUSTIVE LIST OF ESG CONSIDERATIONS

ITOPF's Involvement

ITOPF has unprecedented spill experience, over 50 years of spill data and a vast network of contacts across the globe, making it ideally positioned to collect consistent and reliable information relating to ESG.

ITOPF is developing two tools to facilitate the recording of spill-specific ESG impacts. Once up and running, it is hoped that these tools will provide decision makers with more holistic advice and, in the longer-term, a

valuable opportunity for the consistent collection of data, knowledge sharing and trend analysis.

The two tools are:

Greenhouse Gas Emissions (GHG) Calculator

While there is currently momentum for large ships to switch to alternate fuels to limit greenhouse gas emissions and for ports to minimise their own emissions, the spill response sector has not yet received specific attention in terms of GHG. However, the GHG contribution of an incident response, relative to the expected GHG footprint of a vessel's single voyage, is significant.

ITOPF has developed an Excel-based platform to quantify the GHG produced by response operations, in partnership with a life cycle analysis (LCA) external consultant. This will enable quantification of the GHG emissions associated with mobilising and deploying all people, equipment and consumables involved in a response, plus the removal and disposal of all waste. The aim of this tool is to help provide additional information to the decision-making process, and identify methods that can reduce impacts on climate change whilst meeting response objectives.

ESG Impact Assessment (ESG IA) App

ITOPF is also in the early stages of developing a web-based ESG scoping tool to identify and categorise ESG impacts related to an incident and its surrounding operations, using relevant guidance from international frameworks (e.g. the UN Sustainable Development Goals). The tool will be used to manage wider ESG impacts throughout a response, tracking relevant decisions and monitoring outcomes. It will involve web-based survey forms which could be completed on site (or remotely) by ITOPF. The outputs would be shared with key stakeholders to help guide strategic decision-making and for use in their own reporting, if required.

For further information on our work in this area, see the following paper presented at the International Oil Spill Conference in May 2024: **A case for incorporating environmental social & governance (ESG) into spill response.**

LEFT: GREENHOUSE GAS EMISSIONS (GHG) CALCULATOR

Women in ITOPF Group

ITOPF recognises the importance of fostering a diverse and inclusive workplace for long-term success and sustainability. We are keen to promote a welcoming and supporting culture where all employees can be who they are and feel included and valued. In 2022, members of the team established an internal Women in ITOPF group as a platform for sharing ideas and encouraging fresh perspectives in this important area.

Here we talk to Amy Jewell, Lauren Fearenga and Sue Ware about why the Women in ITOPF group was set up, and its aims and achievements to date.

What was the impetus behind setting up this initiative?

Amy: During a Personal Risk Assessment Briefing meeting, women's safety issues were specifically raised in the context of travelling for work and it was apparent that there was an interest – and need – to set aside some time at ITOPF to explore these, and related points, further. This led to us holding a Travel Safety Workshop facilitated by travel safety company, Maiden Voyage, with a focus on women's safety in particular. We followed this session with ITOPF's first ever 'Women's Group' meeting in January 2023, where discussions



LAUREN FEARENGA AT IPIECA EVENT

understanding if any further actions can be undertaken to improve the policies for ITOPF and its employees.

The second priority that the group identified related to communication and, specifically, the lack of structured or formalised opportunities for providing feedback after attending a spill or completing a project. 'Hot-wash' sessions are now routinely conducted following spill mobilisations to identify weaknesses that need improvement or strengths that should be sustained. We are also looking at ways to build in non-technical 'wash-ups' at regular intervals to provide a forum for other issues to be voiced and communicated across the team.

Any other activities?

Sue: Safety was one of the primary topics that launched the initial women's group, and ITOPF is currently



DR SUE WARE & AYUMI THERRIEN AT THE MARITIME ROADSHOW FOR GIRLS

reviewing self-defence providers with the aim of providing training across the organisation for anyone who is interested. It is also investigating training for situational awareness and allyship. We also discussed the importance of outreach and networking opportunities. We held a 'lunch and learn' event for International Women's Day in March 2023 with guest speakers talking about their career journeys and obstacles they have faced as women in the workplace. As part of the event, the team also collected hygiene products to donate to The Hygiene Bank, a company working towards eradicating hygiene poverty – an initiative we have maintained. For International

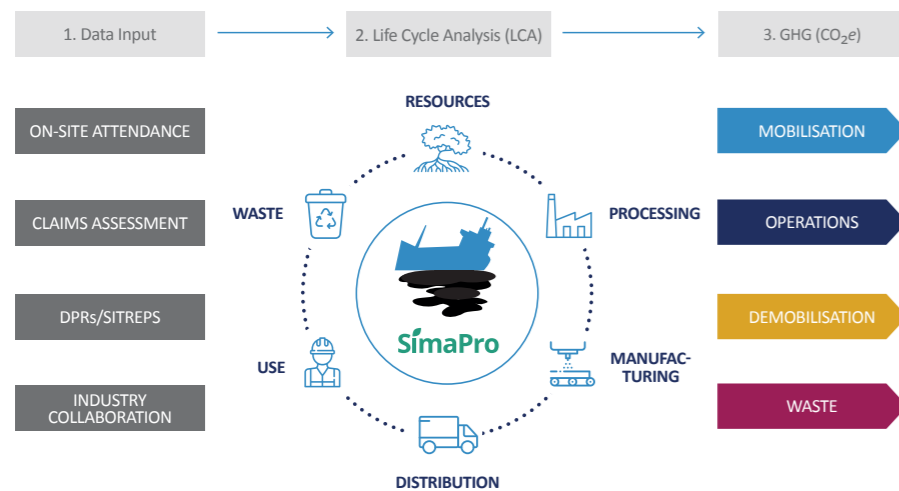


DR AMY JEWELL WITH ANTARCTIC FIRE ANGELS

Women's Day this year we had George and Rebecca from the Antarctic Fire Angels speaking to us about their experiences as they prepared and executed an unsupported expedition to the South Pole. We have also identified opportunities for participating in professional events and contributing to STEM (Science, Technology, Engineering and Mathematics) educational initiatives particularly in support of girls considering a career in these fields.

What else is in the pipeline?

Amy: We live in a fast-changing world, and our discussions are on-going. Anything that will help us champion wellbeing, opportunities and fairness is on the agenda!



ITOPF News

ITOPF has had a packed programme of training events and outreach activities in the last year and a half as part of its mission to promote effective spill response. A selection of these – and other news – is presented below.



PLASTIC PELLETS USED IN NURDLETRACK PROJECT

ITOPF R&D Awards 2023 & 2024 Fund Projects on Plastic Pellets

PLASTOIL

The beneficiary of the 2023 ITOPF Research and Development (R&D) Award was the PLASTOIL project, with funding granted to Cedre.

The winning project is researching how a mixture of low-density polyethylene (LDPE) plastic pellets (nurdles) and propulsion fuel behaves and interacts in the marine environment, using two types of fuel oil: one low sulfur fuel oil (LSFO) and one gasoil.

The goal of the project is to produce guidelines on response techniques and to provide an overview of the waste treatment options available when responding to spills of this type.

NURDLETRACK

The 2024 R&D Award was granted to the NurdleTrack project, submitted by SINTEF and the Norwegian Coastal Administration.

The project aims to develop and validate an analytical toolbox for source identification and hazard assessment of plastic pellets spilled at sea.

A further goal is to develop a fast way to evaluate the toxicological hazards of plastic pellets, to assist decision-makers when selecting appropriate actions during a response to a spill.

ITOPF Assists with IMO's Plastic Pellets Guidelines

ITOPF has supported the development of the draft IMO guidelines on best practice relating to clean-up of plastic pellets from ship-source spills, led by Norway and submitted to the IMO Pollution Prevention & Response Subcommittee (PPR10). ITOPF drafted much of the text for the sections on response, drawing on its first-hand experience of plastic pellet incidents, and collaborating with CEFAS and the IGP&I Clubs on other chapters. A further correspondence group has been established to develop the document further for submission to PPR11 in 2024.

ITOPF Tours Stakeholders in Japan

In October 2023, ITOPF embarked on a whistle-stop tour of Japan, visiting a number of key stakeholders to discuss ideas for future collaboration and providing updates on our recent work. This included visits to the Japan Coast Guard, Marine Disaster Prevention Centre (MDPC) and Petroleum Industry Marine Association of Japan (PIMA), as well as P&I Clubs, shipowners, surveyors and a salvage company. ITOPF also attended a joint Japan Maritime Centre / IOPC Funds seminar, presenting on ITOPF's role and industry challenges and joining a panel discussion on responding to spills of HNS and transboundary pollution events.



ITOPF PRESENTING AT A JOINT JAPAN MARITIME CENTRE / IOPC FUNDS SEMINAR



ITOPF Signs MoU with the Brazilian Navy

In April 2023, ITOPF formally signed a Memorandum of Understanding (MoU) with the Brazilian Navy at a ceremony at the offices of the Directorate of Ports and Coasts (DPC) in Rio de Janeiro. The MoU was signed by Technical Director, Richard Johnson, on behalf of ITOPF, and the Director of DPC, Admiral Sérgio Renato Berna Salgueirinho.

The MoU had been finalised after many months of discussions between the two parties and it aims to formalise and strengthen cooperation in promoting effective spill response in the marine environment in Brazilian waters. It is also a recognition of the support that ITOPF has provided the Brazilian government over several years and, most notably, our role in advising the government during the very large-scale shoreline oiling event in 2019.

The MoU commits ITOPF to continuing our capability-building work with the government agencies in Brazil for the next five years.

All Hands Training at Cedre

As part of our commitment to continual personal development, a technical and non-technical, all-women cohort travelled to Cedre's facilities in Brest, France for a week of training, experience exchange and team building in September 2023.

The week comprised a mixture of classroom and practical training in spill response operations, culminating with a mock spill scenario in Cedre's contained facility. It was an excellent opportunity for all team members to gain an understanding of the practicalities of spill response and to strengthen our working relations with one of our key partners.



DR CONOR BOLAS AT SPILL PREPAREDNESS WORKSHOP, SRI LANKA

Preparedness Activities in Sri Lanka

We joined other pollution response experts to deliver a four-day workshop in Sri Lanka in November 2023. 'Working towards proactive environmental preparedness in Sri Lanka' was a partnership between the UK-government led Ocean Country Partnership Programme (OCPP) and the Sri Lankan Marine Environmental Protection Agency (MEPA). Key Sri Lankan stakeholders including government, non-governmental organisations (NGOs) and academia were in attendance. We gave sessions on waste management, crisis communications and an insight into our role in pollution response from case studies in the Asia-Pacific region. We also contributed towards the table-top exercise on the final day of the workshop. Attendees also shared their experience from recent pollution incidents and discussed key legislation and preparedness principles to ensure an effective and timely response to marine pollution incidents in the future.

Indian Coast Guard National Response Exercise

Members from our Technical Team spent time in India with the Indian Coast Guard as part of the ninth annual National Response Exercise – NATPOLREX IX. While there, our team delivered a table-top pollution

event exercise, including a Virtual Reality aerial surveillance flyover. A presentation on response and preparedness for HNS incidents was also delivered. The event was an excellent chance to observe the oil spill response equipment and capability of the Indian Coast Guard as it included a live at-sea demonstration.



Hazardous Noxious Substances (HNS) Manual Published

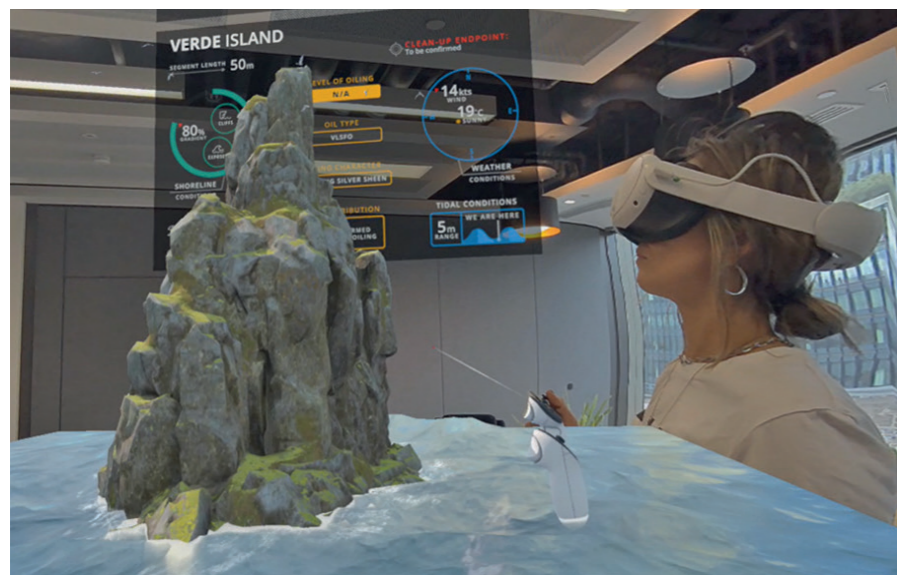
ITOPF, with partners Cedre and ISPRA, developed the Marine HNS Response Manual to provide state of the art information on HNS pollution preparedness and response. This was implemented at the request of the Secretariat of the Bonn Agreement, HELCOM and REMPEC under the framework of the West MOPoCo project. The Manual provides operational guidance for first responders and decision-makers during a maritime incident at sea or in port involving HNS, and specifically addresses relevant offshore and onshore response techniques.

Piraeus Roadshow

We spent a week in Piraeus to meet with key stakeholders in the region and deliver a symposium – 'A new era of spill response risks and challenges'. The symposium focused on the lessons we've learned from attending spills of plastic pellets, our experience in dealing with spills of low sulfur fuel oils (LSFOs) and considerations to be made in measuring greenhouse gas emissions during a marine pollution event.

While in the area, we were pleased to deliver a pollution response table-top exercise to NorthStandard and discuss our recent attendance to marine pollution events and the role we play while on site to several more P&I Clubs including, Britannia P&I Club, The Swedish Club, Gard AS, West P&I, Skuld, and The American P&I Club.





Mixed Reality Shoreline Response App Launched

Following on from the success of our aerial surveillance virtual reality app, launched in 2021, our team have continued to work on the development of interactive tools and materials to optimise the delivery of training events. Most recently, the team completed the development of Response MR, a Mixed Reality (MR) shoreline clean-up application for the Meta Quest 3 headset.

The app allows users to manoeuvre around shorelines overlaid onto their real surroundings. Faced with a number of spill scenarios, the user is tasked with deploying the appropriate response resources onto the shorelines to meet specific clean-up end points.

The app has been tailored to maximise interaction between workshop participants and can be deployed in single-player or multiplayer modes, making it adaptable to a variety of training settings.

SpillCon 2023

We participated in Spillcon 2023 in Brisbane, Australia, one of the triennial series of international spill events, attracting around 400 governmental and industry delegates, largely from the Asia-Pacific region.

A key take-home from the event was that the industry is entering a period of uncertainty with the pending fuel transition and the need for diversification of response to a risk-based tool kit was highlighted. We presented on a range of topics including cost recovery, alternate fuels and a recent case history.



IOSC 2024

The International Oil Spill Conference (IOSC) 2024 took place in New Orleans in May with more than a thousand delegates from across the global spill response community attending.

ITOPF contributed to a significant number of events across the week, kicking off with our short course titled 'The Fundamentals of Oil Spills' followed by seven papers, three session chairs, and a second short course on Aerial Surveillance co-hosted with NOAA. We also presented two posters during the event which looked at scientifically

robust post-spill monitoring and the increased digital adaptability in spill response.

New Technical Information Paper (TIP)

We have just published the first in our new series of Technical Information Papers (TIPs), providing advice on planning and conducting an effective aerial surveillance strategy. It covers the three main types of platforms available: manned aircraft, satellites and unmanned aircraft. Copies can be downloaded from our website.



ITOPF & Korea Coast Guard Workshop

We spent time in Yeosu, South Korea for a joint ITOPF and Korea Coast Guard (KCG) training workshop for oil spill preparedness and response, followed by an international cooperation conference in marine pollution incident response.

Over the three-day training workshop, we covered various topics of spill response to participants from KCG representing different districts in Korea and attendees from the Northwest Pacific Action Plan Marine Environmental Emergency Preparedness and Response Regional Activity Centre (NOWPAP MERRAC).

The international cooperation conference followed with presentations from the Korean, Philippines and US Coast Guards on recent case studies and highlighted the importance of international support during oil spill events.



Office Move

Last summer we moved our London office location from Oliver's Yard, Old Street to Dashwood House, Liverpool Street.

During the 20 years in our previous office, we grew into the space and then shrank out of it with the introduction of hybrid working and the digitisation of our files.

As the team's needs changed over this time, we found ourselves in need of a tailored office to suit our working style and practices in 2023.

Dashwood House is located just outside of Liverpool Street, a stone's throw from our earlier location of Houndsditch, nestled in among our colleagues in the P&I Clubs and insurance sector of the City of London.

Dashwood House was more than a choice of location however, the building has the highest possible BREEAM rating. BREEAM standards provide a framework to deliver high performing, and sustainable, newly built assets creating positive environmental and social impact. A building certification which aligns closely with our values and reflects our conscience of environmental impacts.

Beyond the environmental impact accreditations, the move offered an opportunity for us to reflect on how we use the space in which we work. Assessing the diverse needs of the team and planning how to create a space in which these needs are met, was an opportunity we wanted to seize.

We were able to design and plan the layout of our new space to match our needs entirely, with internal consultations held from the start of the process, ensuring we brought every one of our team along for the journey.

Part of these consultations were held to understand what it is that makes us tick when we are in the office, as well as the things we would love to see – honourable mention to the new coffee machine. Our 'New Office Champions' volunteered to be the go-to team for frequently asked questions (FAQs) during the process and regularly held briefings for all team members to ensure all were on board with the latest information, and to make sure voices were heard.

The physical move itself was spearheaded by a gargantuan effort from our Office Administration and Travel (OAT) Team, as well as our IT team who were instrumental throughout the project both working with our team internally and with external providers.

Now we are settled in, our staff have been working wherever is suited best for the needs of the day. From silent working areas with ergonomics at the forefront of furnishings, to touchdown areas for group work on large communal desks, we've adapted our previous workstations to focus on activity-based working.

The layout follows a noise gradient around a J-shape footprint, with more social areas for collaboration at the louder end, and focused, quieter areas for concentration at the other. The middle ground provides a space for ergonomic desk working, with space to cooperate freely without impeding on others' focus.

We encourage movement around the office, often with team members

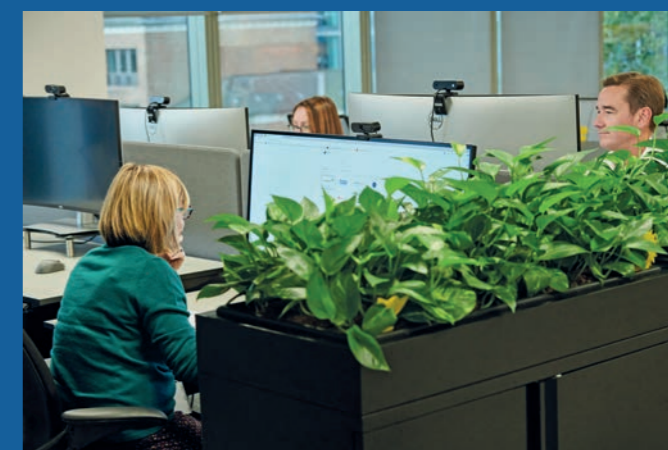


finishing the day in a different place to where they started it, while still having the option to knuckle-down when needed.

Each of these spaces were keenly thought out, to serve the purpose of the activity best, whether this is collaborative or concentrated work, as well as connectivity. Microsoft Surface Hubs enable us to keep in touch between our locations in Singapore and London.

Since then, our team has been enthusiastically using each working space, emboldening our values of Respect, Collaboration, Diligence, Integrity and Objectivity.

Managing Director, Oli Beavon had this to say on the move: "I am immensely proud of the time and effort put in by our teams to make this move happen, and to make the most out of the opportunity to tailor our new working space. Seeing the team tackle its work in different ways using the new spaces we all had input in creating has been extremely energising for us all and myself included. I look forward to us continuing our great work in this space for years to come."



Satellite Imagery and Spills: How the Eye in the Sky Helps to Tackle Marine Pollution

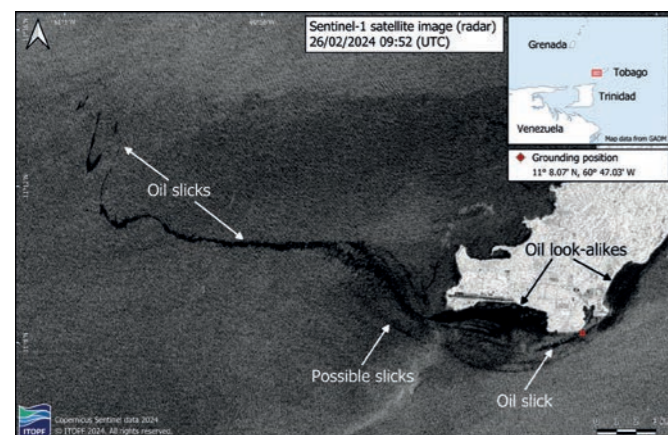
Satellite imagery has become an invaluable tool for the Technical Team at ITOPF. Responding to spills of oil and other substances requires timely and accurate information on the location, extent, and movement of the substance, as well as its potential impact on coastlines and marine ecosystems. Satellite imagery provides an aerial view of the spill situation over large areas and in remote regions. In this article, we will explore how we use satellite imagery in our work, what types of imagery are available, and the benefits and challenges of using them.

How ITOPF Uses Satellite Imagery

ITOPF has been using satellite imagery as one of its tools to monitor, detect, and assess oil spills on the marine environment since the 1990s. The first known case where ITOPF worked with satellite imagery was AEGEAN SEA, Ukraine, 1992. Today, it is used in almost all cases that ITOPF responds to. With the increasing availability of high-resolution free satellite imagery, the reduction in the cost of commercially acquired imagery, and the ever-faster delivery of acquired images, often one of our first actions is to quickly obtain and analyse satellite images of the incident area to have a comprehensive picture of the developing situation.

Key Uses of Satellite Imagery:

- **Identify the Source of a Spill:** Determine the origin of the spill
- **Monitor Slick Movement:** Track the movement of oil slicks
- **Natural Dissipation Monitoring:** Observe how slicks naturally dissipate over time
- **Data Extraction for Models:** Extract data to run trajectory models
- **Direct Aerial Surveillance:** Guide aerial surveillance efforts
- **Wreck Site Monitoring:** Keep an eye on wreck sites for new releases
- **Response Efficiency Assessment:** Evaluate the efficiency of response operations



RADAR SATELLITE IMAGE OF TOBAGO COASTLINE FOLLOWING A SPILL

- **Sensitive Area Assessment:** Identify economically and environmentally sensitive areas
- **Container Tracking:** Track lost containers
- **Reef Damage Assessment:** Assess reef damage following groundings

All the information gathered from satellite imagery helps ITOPF to better advise shipowners, responders, authorities, and other stakeholders on optimal response strategies and preventive actions to minimise the environmental and economic impacts of spills.

Peacetime Activities

Beyond emergency response, satellite imagery is valuable in non-emergency situations. For example, these images can greatly help with writing contingency plans, particularly during the identification of areas at risk, their vulnerability to a hypothetical incident, and the sensitive resources in those areas. This helps in recommending appropriate response strategies and resources, which can then be included in the contingency plans.

Types of Imagery Available and Their Usefulness for Oil Spill Response

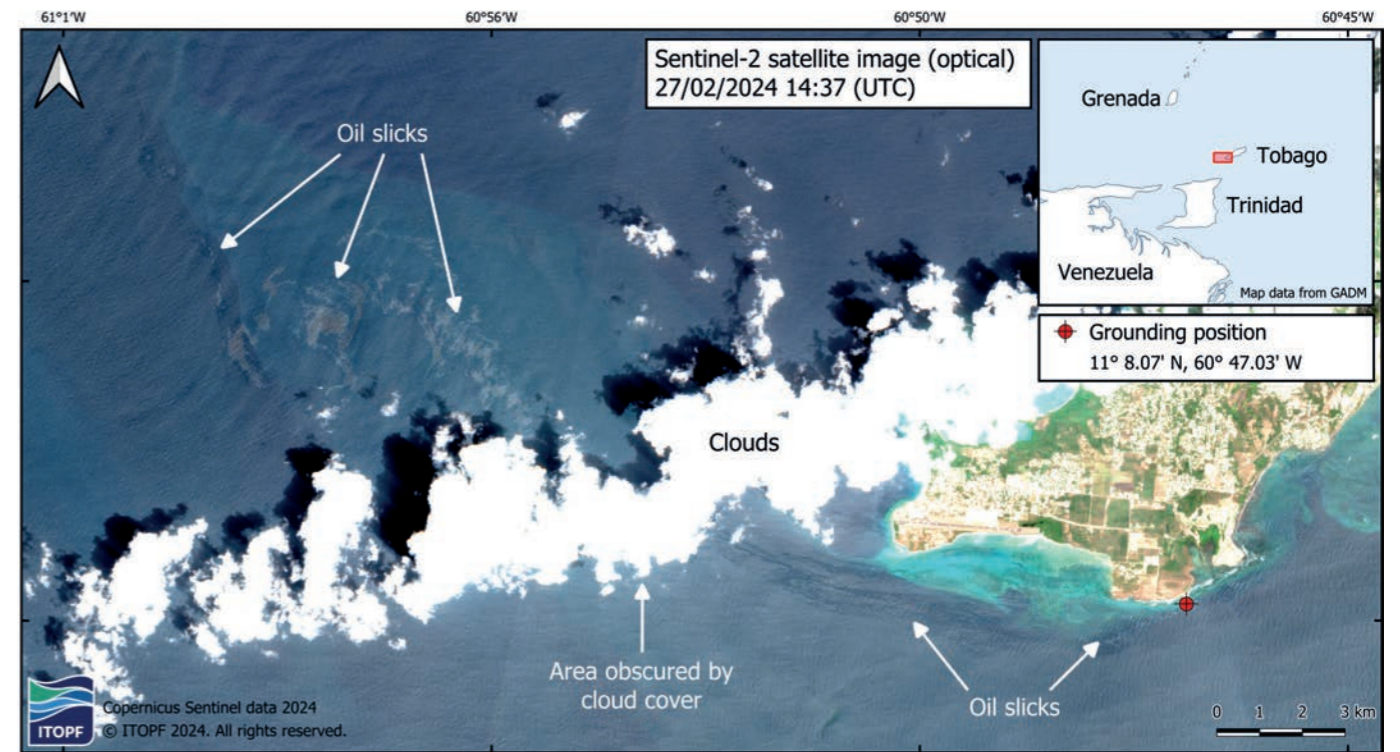
ITOPF uses publicly accessible satellite imagery, such as from Sentinel satellites via the Copernicus program (ESA) and Landsat images (NASA), and commercially acquired imagery from various providers.

It is essential to understand the two main types of satellite sensors used in detecting oil and other substances in water: optical and Synthetic Aperture Radar (SAR). Optical sensors capture images by detecting sunlight reflected from the sea surface, distinguishing floating substances based on their spectral signatures. In contrast, radar sensors emit and receive microwave signals, identifying oil based on the roughness contrast between the slick and surrounding waters.

Issues with Optical and Radar Imagery

Despite satellite imagery being a valuable tool for oil spill response and assessment, it does have some challenges and limitations:

- **Image acquisition-related issues:** Satellite imagery is not always available or accessible when needed due to factors such as satellite orbit paths, coverage, recurrence, resolution, and data transmission. Atmospheric interference like haze, fog, wind, rain cells, or smoke can also reduce image quality and usefulness for spill response.
- **Lookalikes:** Natural or anthropogenic features that have similar spectral or radar signatures as oil can cause false positives, complicating image interpretation and validation.



OPTICAL SATELLITE IMAGE OF TOBAGO COASTLINE FOLLOWING A SPILL

- **Cloud cover:** Completely obscures the view of the sea surface and prevents detection and monitoring of oil spills.

Aside from these challenges, commercial satellites can be tasked with passing over specific areas of interest, helping to solve some of these issues by providing radar images in areas impacted by cloud cover or collecting a higher frequency of images than publicly available sources.

In Summary

Satellite imagery is a powerful and useful tool for ITOPF in our work to tackle marine pollution. It provides information on the location, extent, and movement of pollution over large areas and in remote regions, guiding and evaluating spill response. It also supports ITOPF's other services,

such as contingency planning, training, and information dissemination.

However, satellite imagery is not a standalone tool and has challenges and limitations that need to be overcome. It requires expert interpretation and validation by trained personnel or through ground-truthing methods like aerial observation or vessel reports.

ITOPF is committed to maintaining and enhancing its use of satellite imagery and continuously improving its services and performance. We are keen to share and exchange our knowledge and experience with other organisations and individuals involved in marine pollution issues. We welcome any suggestions on how to improve our use of satellite imagery and invite anyone interested to visit our website or contact our staff.

FEATURE	OPTICAL SENSORS	SYNTHETIC APERTURE RADAR (SAR)
DATA SOURCE	DETECTS AND MEASURES SUNLIGHT REFLECTED FROM THE SEA SURFACE	EMITS AND RECEIVES MICROWAVE SIGNALS REFLECTED ON THE SEA SURFACE
DETECTION MODE	CAN DISTINGUISH FLOATING SUBSTANCES BASED ON SPECTRAL SIGNATURES	DETECTS OIL BASED ON SURFACE ROUGHNESS CONTRAST
RESOLUTION	VERY HIGH-RESOLUTION IMAGES (BELOW 1 METRE SQUARED PER PIXEL)	MODERATE TO HIGH RESOLUTION, TYPICALLY LOWER THAN OPTICAL SENSORS
IMAGE ASPECT	CAN CAPTURE NATURAL COLOUR OF OIL SLICKS	DOES NOT CAPTURE COLOUR, IMAGES USUALLY PRESENTED AS GREYSCALE
OPERATIONAL CONDITIONS	REQUIRES CLEAR SKIES AND DAYLIGHT	OPERATES IN ALL WEATHER CONDITIONS AND ANY TIME OF DAY OR NIGHT
LIMITATIONS	LIMITED BY CLOUD COVER AND DAYLIGHT, IMAGE CONTRAST ISSUES IN SOME CONDITIONS	OFTEN DETECTS FEATURES THAT MAY BE MISTAKEN FOR OIL (LOOK-ALIKES) LIKE ALGAE OR WIND STREAKS
DETECTION SENSITIVITY	LIMITED DETECTION CAPABILITY IN LOW CONTRAST CONDITIONS	IDEAL WIND SPEED FOR DETECTION: 2 M/S TO 12 M/S (DEPENDENT ON OIL TYPE)

OPTICAL SENSORS VS. SYNTHETIC APERTURE RADAR (SAR)



MARIE LEE, DAVID CAMPION & LAUREN FEARENGA

Responding in the Asia-Pacific Region

In the last 10 years more than a third of spills ITOPF has attended have been in the Asia-Pacific region.

Singapore was identified as a strategic hub where ITOPF's inaugural satellite office would be best positioned to provide our core technical services to our stakeholders, building stronger relationships with a wide variety of different organisations, responding more rapidly to spills, and facilitating our involvement in wide ranging preparedness initiatives in the region. It has now been 18 months since ITOPF's office in Singapore opened in December 2022 and earlier this year, we took time to sit down with Alex Hunt, Asia-Pacific Team Manager and David Campion, Head of Singapore Office and Senior Technical Adviser.

The ITOPF office in Singapore is now a little older than a year. Does it look as planned one year on?

Alex: The pieces have been coming together over the course of the first year and the picture is definitely clearer now that we have the structure of the team in place. In that time we have attended four spills in the region, with staff mobilising rapidly to site from our new office. Getting to site more quickly than we otherwise would have done from London has allowed us to contribute to the critical initial 24-48 hrs of a response, and to gain trust early on with government authorities and other organisations present on site. We've also been able to build even stronger relationships with government agencies and other key regional stakeholders in-between spills through a range of initiatives that would have been difficult for us to contribute to at the same level from London.

Have you managed to settle in quickly, and if so, how?

David: ITOPF's history of working in the region has expedited the learning curve, both for ourselves and those we work with. To be honest, we've been pushing on an open door for

engagement in the region, whereby more frequent, shorter visits are easier than longer mobilisations from the UK. For spills, for two of the cases we've attended, we arrived after a 90-minute flight to the first and for the second we were onsite 12 hours after the incident was first reported. This early attendance helps to speed up the process by which we can provide support and advice, reducing potential impacts from a pollution event.

Alex: And being able to arrive on site quickly helps to establish ITOPF's presence as international experts from the outset of a response, engaging quickly with the relevant stakeholders cements our position within the response effort. We've attended four spills in total since opening our office in Singapore, and we are now meeting weekly with key stakeholders in the region, more than ever before. The support from the Maritime & Port Authority (MPA) has also been instrumental in establishing ITOPF in the region. I'd like to thank Beng-Tee Tan, with Singapore Maritime Foundation, who has provided us with emphatic support from the beginning.

Beyond spill response, what else has ITOPF achieved since opening an office in the region?

David: As planned, we've been engaging regularly and directly with our new neighbours in Indonesia, Thailand, Vietnam and Malaysia, and we've been able to build on these relationships more easily than ever before, as well as with the major maritime nations in the region in Japan, India and China. Our relationships with local government organisations have been particularly key in the region, engaging frequently with the Revolving Fund Committee (RFC), which is comprised of representatives of Singapore, Malaysia and Indonesian governments. We're working to provide advice on developing marine pollution response within the remit of their work. Furthermore, we've continued to build on the relationships we share with the International P&I Clubs operating in the region, forging stronger relationships by being present and local.

Can you tell us about the team in Singapore?

Alex: Although it has only been one year, it feels like much more time has passed since we set up due to the concentration of work we have achieved in the area, and this can be attributed to the individuals we have working there. From here in the UK, it is fantastic to witness the amount and quality of work our team in Singapore can produce. They have been incredibly productive for such a small team. And while we are just small in number in Singapore, there is a bigger team behind them supporting from London.

David: We've had new team members joining as well as rotating team members from London which have been a bonus to our capacity. We have also benefitted from having a high level of technical support from across the company including people from our Technical Support Team, People and Culture, and IT team all providing invaluable input to ensure the office was set up and runs smoothly. There have been bumps in the road, as with every journey, but everyone's help has made sure these have been pretty smooth.

Alex: I'd like to give an honourable mention to our Office Manager, Marie Lee (right), who has been vital in getting our contingent in Singapore on its feet. She quickly got to grips with her role, and has been essential in making things happen for us in the area, as well as having the local knowledge and assisting the logistics of settling the new team members in and those who have been rotating out from London. This expertise includes fantastic local knowledge of how to make the most of the amazing eateries of Singapore! I'd like to also extend great thanks and praise to our in-house staff stepping into their new roles, Dave Campion as Head of Office and Senior Technical Adviser, and Lauren Fearenga as Senior Technical Adviser now in the year-long rotation role. As well as all the individuals who have already and will soon rotate to Singapore from London.



Has it exceeded expectations in any way?

David: I think Singapore has certainly exceeded the expectations we had before starting here, as has our ability to build stronger networks in the Asia-Pacific region. The efficacy to respond to spills in the region has surpassed our hopes and is one of the clear measures of the benefit we can have being based here. Working consistently in the same time zone as case handlers from P&I Clubs with whom we can meet face-to-face has vastly exceeded the opportunities available to progress work more quickly than before.

What challenges have arisen since office opening, and how have they been tackled?

Alex: One challenge we've encountered is the office has become a victim of its own success, we have needed more people to do the work we have rapidly taken on and provided. While the workload has increased rapidly, we have also needed to train new team members internally. For us to do this effectively and overcome this challenge, we positioned a Technical Adviser in Singapore for one year, in addition to our rotating three-month position from London. And while we're still building the capacity of the team, we have exceeded expectations in many areas, we are where we thought we would be a year on.

Aside from the work, what has Singapore been like for you?

David: For me, the change has been great, different atmosphere and change of pace. The attitude here is great, light-hearted and friendly. Obviously being near to the beach definitely helps! But overall, I'm enjoying the diversity of what Singapore has to offer and the opportunity of travel to the wider region. However, I'm still adjusting to the Singaporean appetite (as is my waistline)!

Alex: While I'm based in the UK, from the time I have spent out there I can agree with Dave on this! The people, the food, the atmosphere are all wonderful. I'd like to say on record how massively proud I am of the team, it feels like longer than a year we've been going, we've settled in so quickly, operating so effectively, and formed a really great team. As someone who is looking after the team from my position – the team out there has made it easy for me to manage and for that I am grateful!



RICHARD JOHNSON, ALEX HUNT, DAVID CAMPION, ERIK HÄNELL & OLI BEAVON AT THE OFFICIAL OPENING OF OUR NEW SINGAPORE OFFICE

Staff Changes

We have welcomed a number of new members of staff to the team and currently have a complement of around 45, split between our London and Singapore offices. Since the last edition of Ocean Orbit we have also said goodbye to a few team members and wish them all well in their new endeavours.

Executive Team



We were delighted to welcome **Jenny Edwards** as Company Secretary and Director of Governance in September 2023. Jenny holds a first-class honours degree from Newcastle University in classics, is a qualified primary school teacher and has been a practising solicitor in England & Wales since 2003. Her main responsibilities at ITOPF are ensuring ITOPF follows good governance standards and the smooth operation of its administrative functions.

Technical Team

In the London office, we have recruited two new Technical Advisers:



Dr Sue Ware is a marine ecologist and previously worked for Cefas, where she provided advice on post spill monitoring and assessment, both in the UK and overseas. Sue has a BSc in zoology, an MSc in marine and fisheries science and a PhD in essential fish habitat.

Marta Panero has a BSc in marine biology and an MPhil in marine ecology and conservation. She has previously worked in Australia for the NGO

CoralWatch and as a Marine Technician conducting ballast water sampling; as a Marine Scientist in Saudi Arabia; and on various other coral reef and conservation projects.



In the Singapore office we have welcomed one new Technical Adviser, **Khalish Ideris**. Khalish is a biologist and ecologist from Brunei Darussalam and has spent the past five years working in environmental consulting with international firms DHI and ERM in Malaysia and Brunei. Prior to that, she worked in research in Singapore.

Administration/Support Staff

Marie Lee joined as Singapore's Office Manager in February 2023. She had previously worked in the tourism, education and real estate sector as well as with a UK chartered professional body.

In the London Office Administration Team, we welcomed **Amanda Cini** as Team Coordinator, Travel and Events in May 2023. She has previously worked in corporate travel, the fashion industry and recruitment. We also have two new Workplace Coordinators who are responsible for facilitating an inspiring and efficient workplace environment for visitors and colleagues. **Kim West** (left) joined in November 2023, having previously worked in childcare, the leisure industry and for a company of transcribers. **Milena**



NEW STAFF MEMBERS: MARTA PANERO, MILENA DEVINE, AMANDA CINI & JARRELL DUGGAN

Devine joined in December 2023. She previously held positions in hotel and office administration.

On the IT side, we welcomed **Jarrell Duggan** as IT Support Engineer in June 2023. He brought with him over six years' experience and knowledge from working in the IT industry in a variety of sectors, including charity, healthcare, food tec, and consultancy.



For our People & Culture Team, we have welcomed **Lynn Leslie**, who joins us as Payroll & Benefits Adviser. Lynn previously worked in payroll and benefits and a broader role in Human Resources.

Promotions

We are also delighted to announce three promotions since our last edition of Ocean Orbit, **Dr Angela Pinzón** and **Lauren Fearenga** were promoted to Senior Technical Advisers and **Naa Sackeyfio** was promoted to the position of Senior Data & GIS Specialist.

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