

## FEATURE: In Situ Burning (ISB)



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### RESPONSE

*Ulysse/CSL Virginia*  
collision

### FEATURE

In situ burning

### Cedre NEWS

- Cedre/IOWater Framework Agreement
- Cedre granted IOPC Funds observer status

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## EDITORIAL

On 24<sup>th</sup> April 1979, Cedre's Board of Governors met for the first time. This official protocol marked the arrival on the scene of a key player in the field of spill response in marine and river environments, set to play a prominent role during the numerous incidents which followed in the subsequent four decades.

Cedre quickly rose from its humble beginnings to enjoy both national and international renown, for both offshore and inland waters, consolidated by the many spills in which it was regularly involved. A few major spills can be cited: at sea, the *Erika* in 1999 and the *Prestige* in 2002; in estuarine environments, *Donges* in 2008. Cedre went on to expand its scope by gaining skills in chemical spill response and more recently, in 2014, venturing into chronic pollution related to the invasion of microplastics and litter on the shoreline.

Given the surge in shipping, the emergence of new maritime threats generated by today's colossal ships (carrying capacity of 21,000 TEU for the latest container ships built), the risks related to this drive for ever-larger vessels, Cedre's work is crucial for preparedness and response to future disasters. Public and private decision-

makers are well aware of this. When an incident occurs, Cedre's expertise is systematically called upon. Thanks to our know-how which we are continually updating and developing, together with the strong networks to which we belong, we are constantly improving incident response while ensuring environmental protection remains at the forefront of our concerns.

Yet Cedre also strives to disseminate the information gathered to benefit the widest possible audience. Cedre regularly takes part in national and international events devoted to environmental protection while transferring knowledge on spills to a wider audience.

This is the background to the release of this new version of the Information Bulletin. Driven by the desire to reach a broader audience, its graphic design has been entirely revamped, allowing more space for images and an easier reading experience thanks to more learning-oriented content tailored to the needs of all readers.

The editorial team hopes that this redesigned bulletin will find favour among its loyal readership but also with a wider audience with an ever-increasing environmental awareness.

Nicolas Tamic,  
for the editorial team.

# n°39

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^ Cedre based at the port of Brest



# In Situ Burning (ISB)

^ Fire-resistant boom deployed in the Gulf of Mexico

By **Ronan Jézéquel**, Engineer, Research Department, Cedre.

When oil is spilled in the natural environment, one response technique is to contain the slick and recover the oil using specialised skimmers. In some cases, recovery can prove difficult due to the oil's viscosity, the sea and weather conditions or the need for considerable storage capacities. Other response techniques such as dispersant

application or in situ burning of the oil may therefore be put forward to the authorities in charge of operations. However, the deliberate burning of oil slicks is an offshore response technique that remains rarely used, or even prohibited, in certain countries such as France. This situation is due to difficulties in implementing this procedure as well as to the multitude of technical parameters to be taken into con-

sideration in order to ensure a successful operation and responder safety. Furthermore, the environmental impact of burning oil slicks in the open sea is still a hotly debated topic, in particular in terms of the characterisation and fate of atmospheric emissions (gases, soot) and burn residues, whether floating or sinking.

## Background

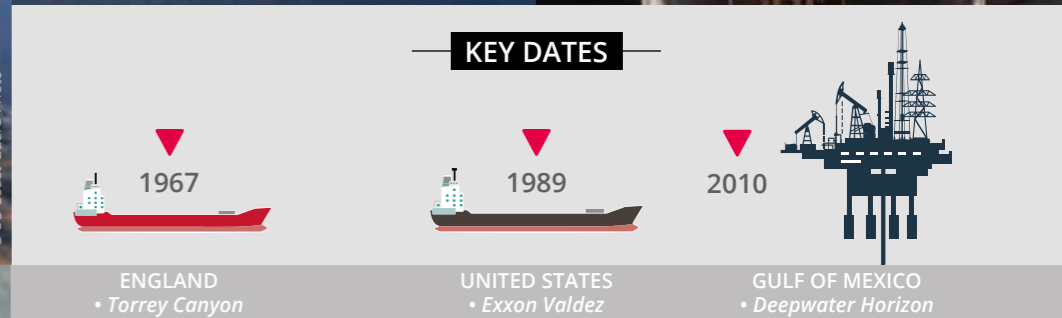
A large share of the oil transported by sea (cargo or bunker fuel) is intended to be used as fuel. As soon as the first oil spills occurred, there was a strong temptation to ignite the slicks spilt at sea or let the ship burn, or even set it on fire. The first attempt to implement burning operations was made in 1967 following the *Torrey Canyon* spill (England) but proved unsuccessful (ITOPF, 2013). This nonetheless triggered the study and development of processes and equipment liable to effectively burn oil slicks. Thereafter, the single burn attempt implemented during the *Exxon Valdez* spill (United States, 1989) was more promising, and led the way to specialised research programmes on this technique. These lab-based and in situ studies focused on Arctic conditions, a particularly well suited environment to in situ burning: low temperatures and the presence of ice slow down the evaporation of the most flammable fractions and naturally contain the slicks. In 2010, during the *Deepwater Horizon* oil spill in the Gulf of Mexico, in situ burning was conducted, this time intensively:



^ Deepwater Horizon on fire



^ Small scale burn trial



411 burns were conducted for a total of 40 days and proved the technique's effectiveness in real conditions, promoting the development of new techniques and tools (Allen, 2011).

## The burning technique

### Prerequisites

Once approval has been granted, several parameters must be taken into account before launching operations. Thus, to ignite an oil slick and, what's more, to ensure propagation of the combustion and efficient burning over time, the two main conditions are the oil's flammability (sufficient proportion of flammable fractions) and the need for a sufficient quantity of oil to burn (the slick thickness forms a barrier against heat loss from the ignited slick surface into the water column).

The following table summarises a few of the main prerequisites found in the literature. These data should however be refined on a case-by-case basis according to the exact chemical composition of the oil.

CONDITIONS REQUIRED		
Slick thickness	<ul style="list-style-type: none"> <li>&gt; 2 mm for fresh oil (ASTM, 2003)</li> <li>~2 - 5 mm for weathered oil (Buist et al., 1994)</li> </ul>	Oil
Emulsion	<ul style="list-style-type: none"> <li>Water content &lt; 12.5 % water (Buist, 2004)</li> </ul>	
Weathering	<ul style="list-style-type: none"> <li>Evaporation &lt; 20 - 35 %</li> <li>Time at sea &lt; 48 hours</li> </ul>	
Wave height	<ul style="list-style-type: none"> <li>&lt; 1 m (Nordvik, 2003)</li> </ul>	Weather
Wind	<ul style="list-style-type: none"> <li>&lt; 2 - 10 m/s (Buist, 2004)</li> </ul>	
Current	<ul style="list-style-type: none"> <li>&lt; 0.4 m/s</li> </ul>	

^ Conditions required for in situ burning

## Equipment

A burn operation requires the use of specialised equipment suited to this technique. This comprises aerial detection means, boats for equipment storage (oil spill response vessels), deployment and towing of fire-resistant booms (vessels of opportunity) and slick ignition (light-weight workboats).

The deployment of fire-resistant booms is crucial for in situ burning so as to:

- concentrate and thicken the slicks prior to ignition
- control the fire's intensity by increasing/decreasing towing speed
- control slick movements during burning
- control the quantities of oil fuelling the fire by guiding it towards or away from slicks drifting near the burn.

Two types of fire-resistant boom are available on the market: rigid boom composed of heat-resistant materials and inflatable water-cooled boom

Once the slick has been contained, it is set alight using igniters. These devices generally contain a light refined oil in gel form and can comprise a hand-held flare. They can be placed directly on the slick or directly applied to the slick from an aircraft (helicopter equipped with a helitorch system or by drone). Once ignited, the igniter generates a heat flow which locally accelerates the evaporation of light fractions and promotes the rapid propagation of the flames across the whole of the slick's surface. For light products, the use of igniter fluid is not indispensable due to the presence of flammable vapours generally in sufficient quantities above the slick. For heavy products such as heavy fuel oil or weathered oil, in which light flammable compounds are less abundant, a larger quantity of igniter fuel is required.

## Advantages and disadvantages of in situ burning

+	-
Effective treatment: 90% of oil disappears from water surface	Very short window of opportunity due to rapid evaporation of flammable fractions
Rapid slick treatment from 1 to 4.5 mm/min	Secondary pollution due to atmospheric emissions (gases and soot)
Less water column contamination compared to chemical dispersion	Risk of losing control of ignited slicks (boom rupture)
Burn residue is less toxic than initial oil	Need for ISB-specific logistics and trained personnel
	No (or little) residue recovery

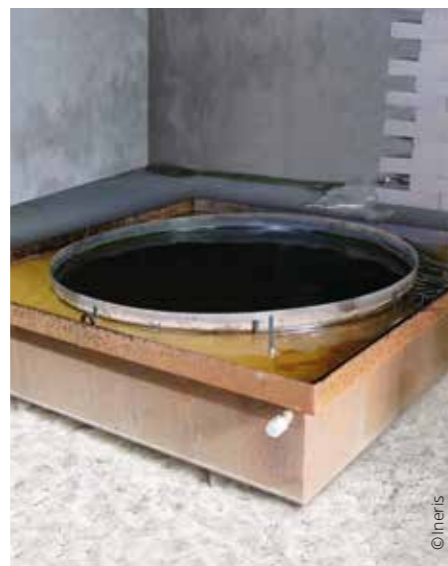
## Recent developments

The 411 burns conducted during the *Deepwater Horizon* spill provided a considerable volume of data and experience which has been the focus of scientific publications as well as major updates to guides on burning. In the wake of this spill, new research focuses have gradually emerged and the issue of herding agents is the main development in which the Arctic Response Technology JIP (2012-2017) has played an essential role by promoting progress in this field.

Herding agents, or herders, are composed of surface active molecules characterised by a very high spreading coefficient. When released onto water, they spread out into a very thin (monomolecular) layer, leading to a major decrease in the water's surface tension. When around oil, these chemical agents repel the oil mole-

cules and thus "herd" the oil, hence increasing the thickness of the slick, a key parameter for initiating burning. Typically, a dosage of 150 µl/m<sup>2</sup> is sufficient to contract an oil slick (SL Ross and DCE, 2015).

In addition to studies on herders' effectiveness and limits of use, research has also been undertaken on the persistence of the agent in the environment, its toxicity for marine organisms as well as its potential impact on birdlife. The main interesting developments made and currently in progress concern the use of aerial drones for applying herders. The University of Alaska has conducted pilot-scale experiments with drones transporting herder as well as an igniter. This concept was also tested in real conditions during the 2016 NOFO (Norwegian Clean Seas Association for Operating Companies) exercise.



▲ Pilot-scale burn set-up



▲ Releasing oil

## Work on ISB at Cedre

In 2011, Cedre updated its knowledge in this field (which dated back to the 1990s) by conducting a state-of-the-art review as part of its technical programme. One of the conclusions of this study pointed to the lack of data on the effectiveness of this technique. After some initial experiments, a burn test bench was built in 2012.

This tool was developed in order to conduct small-scale burns while ensuring complete operator safety. The burn test bench is composed of a forge hood which recovers soot and a burn enclosure designed to burn 100 ml of oil. These burn trials are generally conducted on oil samples which have undergone a weathering study in the Polludrome®. In this case, the aim of the burn trial is to assess the influence of weathering processes on the ignitability of the oil and the burn efficiency.

Alongside these routinely conducted trials, new research projects have also been conducted in the field of burning. In 2014, trials were conducted at Cedre and INERIS at pilot scale on a North Sea crude oil as part of an IOGP\* project to study the fate and impact of oil in an Arctic environment. More recently, in 2018, numerous burn trials were performed at Cedre and INERIS through a project funded by Total. This study aimed to assess the variability of compositions and the impact of burn residues and atmospheric emissions according to the type of crude oil. To do so, burns were conducted on 6 oils (2 light, 2 inter-



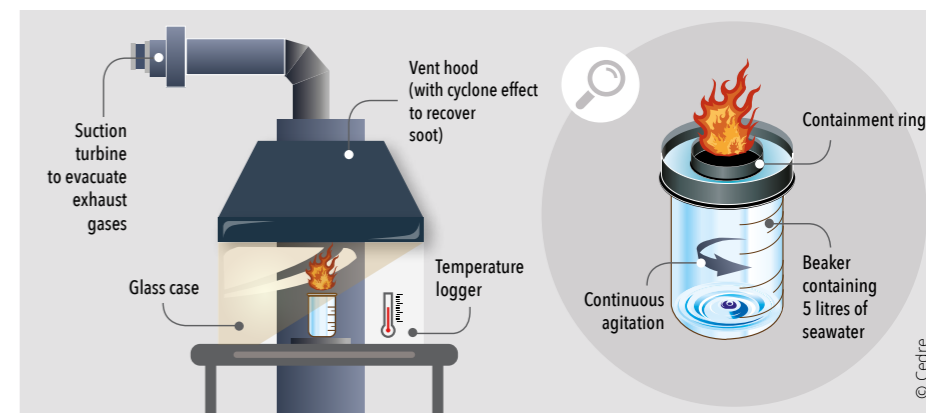
▲ Pilot-scale burn trial



▲ Cedre's burn test bench

mediate and 2 heavy) which had been artificially pre-weathered in the laboratory. After each burn, the residues were recovered, quantified and characterised (density, viscosity, distribution of families of saturates/aromatics/resins and asphaltenes, concentrations of n-alkanes and PAHs). The second phase consisted in assessing

the fate of these residues in the environment (emulsification potential, dispersibility and biodegradability) as well as their impact. Their impact was measured with 2 marine organisms: one bacterium (*Vibrio fischeri*) and one alga (*Phaeodactylum tricornutum*). ■



▲ Diagram of Cedre's burn test bench and containment ring

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\*IOGP: International Association of Oil and Gas Producers



# Ulysse / CSL Virginia collision

RESPONSE
IN SHORT
7<sup>TH</sup> OCTOBER 2018: COLLISION OFF CAP CORSE
RESPONSE

Cyprus-registered container ship • CSL Virginia

Tunisian ro-ro vessel • Ulysse

Approx. 550 m<sup>3</sup> of fuel oil spilt

Oil IFO 180

150 responders mobilised

^ Ulysse / CSL Virginia collision

A Cyprus-registered container ship (300m long), unladen, at anchor in waters 100m deep. A 160 m-long Tunisian ro-ro ship cruising at 19 knots.

These two protagonists were poised to stage the incredible collision which occurred on Sunday 7<sup>th</sup> October 2018 in international waters, 15 nautical miles north of Cap Corse (Corsica), and which caused 550m<sup>3</sup> of oil to spill into the sea. Despite the resources deployed at sea, thanks to which some of the oil was recovered offshore, the fuel oil reached the Mediterranean shoreline, in particular in the Var area. Cedre was called out to be involved in both onshore and offshore operations.

By **Nicolas Tamic**, Operations Manager at Cedre & **Anne Le Roux**, Emergency Response Coordinator.

**O**n 7<sup>th</sup> October 2018, at 07:04 local time, the Tunisian ro-ro vessel *Ulysse* rammed into Cyprus-flagged container ship *CSL Virginia*, at anchor north of Cap Corse in international waters, at a speed of 19 knots. Following the collision, a spill of bunker oil occurred, which then drifted north-westwards.

On 8<sup>th</sup> October, the Maritime Prefect for the Mediterranean in Toulon activated the French maritime contingency plan 'ORSEC' at its highest level: crisis management system for the maritime environment. Against this backdrop, two teams were set up: a crisis management team (EGC) in charge of the strategic crisis response and a response management team (EGI) in charge of operations at sea. Cedre was called upon to join the crisis management team. A member of the personnel was sent on-site on Monday 8<sup>th</sup> October to provide the Maritime Prefect with Cedre's expertise in handling marine pollution incidents. Meanwhile, from its headquarters in Brest, Cedre mobilised Météo-France, who ran their slick drift forecast model, MOTHY. Based on these predictions, the authorities were able to adjust the

position of the recovery vessels and prepare the government services and local authorities in case oil should wash up onshore.

Initially, Cedre used a mathematical model, ADIOS (NOAA) to predict the behaviour of the oil spilt at sea. When oil samples taken at sea arrived at Cedre, these initial calculations were able to be confirmed and fine-tuned. The incriminated bunker fuel analysed by Cedre was identified in the vessel's documents as an MFO 380. Analysis showed it to in fact be closer to an IFO 180. This fuel oil has very fluctuating behaviour which requires quick action as its weathering process involves very rapid evaporation of part of the oil, rapid emulsification (up to 50% water in the final mixture) and drift, sometimes subsurface, making recovery operations more difficult. The numerous spill response vessels deployed (French Navy, Italian authorities and European Maritime Safety Agency) were able to recover the majority of the oil, with support from drones and guided by French Navy and Customs aircraft. Despite the considerable resources deployed on site, a share of the oil unfortunately washed up on the Mediterranean shores of France. The

Var area was most heavily hit. The Bouches-du-Rhône, Gard, Hérault and no doubt other areas were affected by strandings of tarballs which, to the best of our knowledge, were not analysed.

This marked the beginning of the second response phase, this time on the shoreline. Cedre's experts took to the shores of the Var area. Initially, they assessed the extent of the pollution by conducting surveys of the oiled sites. In addition to beaches, numerous rocky shores, which were sometimes difficult to access, were also affected by the pollution. Once the surveys had been conducted, technical recommendations were drawn up and delivered to the responders by Cedre. These recommendations covered personnel safety measures, collection and clean-up procedures, waste management and site restoration. Cedre took part in meetings and situation reviews at the Prefecture or incident command post in Ramatuelle. The Var Prefect also commissioned Cedre to monitor the progress of clean-up operations.

Faced with the emergency situation, local authority personnel, military civil protection personnel and sometimes volunteers conducted the initial clean-up operations. The work was

slow, fastidious and had to be carried out carefully to prevent causing greater harm to the environment.

These first responders were then replaced by a spill response company contracted by the P&I Clubs of the vessels involved. Operations were pursued using a broad array of techniques ranging from manual clean-up to pressure washing, sometimes with the use of helicopters to deliver equipment and evacuate the collected waste. Locally recruited workers were employed (around 150 responders).

A number of factors slowed the progress of clean-up operations: the type of sites affected (some were classified Natura 2000), the scattering of slicks along an often very steep shoreline with difficult access, the winter season with its strong easterly winds and floods carrying with them large quantities of litter and debris. Operations are expected to be completed by early April.

The focus will then be on drawing the lessons learnt from both offshore and onshore operations and managing any disputes arising from the damage suffered. ■



^ Clean-up operations



▲ 1992 IOPC Fund meeting in London, April 2019

## Cedre granted IOPC Funds observer status



On 30<sup>th</sup> November 2018, the governing bodies of the International Oil Pollution Compensation Funds (IOPC Funds) decided to grant Cedre observer status with the 1992 Fund and the Supplementary Fund. Cedre's observer status strengthens its position as an international technical expert recognised by intergovernmental bodies specialised in marine pollution incidents.

By **Nicolas Tamic**, Operations Manager at Cedre.

Often mentioned in the wake of major oil spills, the IOPC Funds are two intergovernmental organisations (the 1992 Fund and the Supplementary Fund) which provide compensation to victims of oil pollution. Historically, the funds came into being due to the absence of an international agreement on liability and compensation, an issue which came to light following the *Torrey Canyon* spill in 1967. The funds operate under the auspices of the International Maritime Organization (IMO) which itself is a specialised agency of the United Nations.

The 1992 Fund Convention, which is supplementary to the 1992 Civil Liability Convention, establishes a regime for compensating victims when the compensation under the applicable Civil Liability Convention is inadequate. Salvage and clean-up operations are thus covered independently of the flag of the tanker responsible for the spill and of the nationality of the owners of the oil.

The Supplementary Fund was established following the *Erika* and *Prestige* spills. It provides additional compensation over and above that available under the 1992 Fund Convention. Membership of the Supplementary Fund is optional.

The IOPC Funds are financed by levies on certain types of oil carried by sea.

**"The aim is to provide compensation to victims of oil pollution"**

On 31<sup>st</sup> December 2018, 115 States (including France) were Parties to the 1992 Fund and 32 States were Parties to the Supplementary Fund (again including France). Since their establishment, the IOPC Funds have been involved in 150 incidents of varying sizes all over the world. In the great majority of cases, all claims have been settled out of court.

Cedre joined the ranks alongside the 16 other non-governmental organisations granted observer status with the IOPC Funds, including the International Tanker Owners Pollution Federation (ITOPF), Sea Alarm and the European Chemical Industry Council (Cefic), with which Cedre regularly collaborates.

In a letter dated 30<sup>th</sup> November 2018, José Maura, Director of the IOPC Funds, states that he hopes for valuable collaboration between the two organisations and is convinced that Cedre will be able to contribute actively to the work of the Funds. During the meeting in London in April 2019, Cedre's Director Stéphane Doll presented the range of technical contributions Cedre is able to offer the Funds. ■



▲ Cedre's first attendance at the 1992 IOPC Fund meeting in London, April 2019

### IN SHORT

**10<sup>th</sup> MARCH 2019: FIRE ONBOARD CARGO SHIP *Grande America***  
**NATIONALITY:** Italian  
**TYPE:** Ro-ro cargo ship  
**DIMENSIONS:** 213m long and 32m wide, 27,965 tonnes  
**ORIGIN:** Hamburg  
**DESTINATION:** Casablanca  
**CARGO:** 365 containers and 2,000 vehicles

## SINKING of the *Grande America*

On 10<sup>th</sup> March 2019, the Italian ro-ro cargo ship *Grande America*, bound for Casablanca (Morocco) from Hamburg (Germany), suffered major damage. The ship was around 140 nautical miles from the French coast, south-west of the tip of Penmarc'h in Brittany, when a fierce fire broke out and could not be brought under control. The vessel ultimately sank to a depth of 4,600 metres on the abyssal plain of the Bay of Biscay.

By **Nicolas Tamic**, Operations Manager at Cedre.

Against this backdrop, the SAR (*Search And Rescue*), ANED (assistance to a vessel in distress) and POLMAR (marine pollution) components of the maritime emergency organisation ORSEC were activated by the MRCC Etel and the Maritime Prefecture for the Atlantic to handle this incident. Very soon after a mayday was issued, the crew were evacuated from the stricken vessel by a Royal Navy frigate which was passing nearby and which took all members aboard to Brest safe and sound.

Despite intense efforts by the French Navy and the *Abeille Bourbon* salvage tug, the fire could not be controlled, and the vessel sank with its cargo onboard on the afternoon of 12<sup>th</sup> March.

The following day, oil leaked from the wreck's bunker tanks, causing the French authorities to mobilise the *Argonaute*, a specialised oil spill response vessel. Other vessels provided by the French Navy, the Spanish authorities and the European Maritime Safety Agency (EMSA) soon joined the spill response set-up.

Cedre was rapidly included in the crisis management process implemented by the Maritime Prefecture for the Atlantic, to provide the authorities with expert advice and decision support. Cedre analysed numerous samples of the fuel oil in the vessel's bunker tanks to determine its

**"The *Grande America* was carrying 2,200 m<sup>3</sup> of IFO 380 in its bunker tanks as well as a cargo of over 2,000 vehicles and 365 containers, including 45 of hazardous goods."**

components and predict its weathering. To do so, Cedre's flume tank, known as the Polludrome®, and its analysis laboratory played a key role. The French authorities also activated the drift committee, which comprises representatives of Ifremer, Météo-France, SHOM and Cedre, in order to forecast the drift of the oil slicks at sea. Finally, Cedre was involved in analysing the impacts of the chemicals transported by the *Grande America* on the marine environment.

In addition to the offshore response, Cedre was also activated in relation to the shoreline response in anticipation of strandings of oil on the French coastline. Working in close collaboration with the French Ministry for the Ecological and Inclusive Transition (MTES), decentralised State services and the Prefecture for the South-West Defence Zone, Cedre took part in preparing the relevant local stakeholders to handle oil pollution on their shores.

At the time of writing, offshore operations are now completed but vigilance is still called for. An in-depth review will be provided in Cedre Information Bulletin n°40. ■



# BALEX DELTA 2018

## Operational marine pollution response exercise, Sweden 27 - 30<sup>th</sup> August 2018

The annual HELCOM<sup>1</sup> operational marine pollution response exercise BALEX DELTA was held in Karlskrona (southern Sweden) in the last week of August 2018. This large-scale exercise involved 19 ships, one plane and one helicopter as well as over 450 participants, stakeholders and observers involved in the different aspects of the operational marine pollution response exercise.

<sup>1</sup>Convention on the Protection of the Marine Environment of the Baltic Sea Area, also known as the Helsinki Convention.

By **Heli Haapasaari**,  
Chair of the HELCOM  
"Response" Working Group,  
Expert in marine pollution response,  
Finnish Border Guard.



### \*ATRAC

Adriatic Training and Research Centre

### \*HNS

Hazardous and Noxious Substances

### \*ITOPF

International Tanker Owners Pollution Federation

### \*MAR-ICE

Marine Intervention in Chemical Emergencies Network,

### \*POLREP

Pollution Report

### \*SAR

Search And Rescue

more info [balexdelta2018.helcom.fi](http://balexdelta2018.helcom.fi)

[www.atrac.hr](http://www.atrac.hr)

The Baltic Sea coastal states participate in the BALEX DELTA exercises with recovery vessels and often send observers to the exercise. Thanks to EU DG-ECHO funding, BALEX DELTA 2018 was scaled up, for instance with the possibility of inviting a greater number of observers from all over Europe. A dedicated observer program included seminars, site visits and equipment demonstrations. The organisers also invited pollution response experts from different organisations such as ITOPF<sup>\*</sup>, ATRAC<sup>\*</sup> and Cedre to observe but also to participate as expert panellists in the observer seminars.



Observers' seminar, panel session, 29<sup>th</sup> August

The BALEX DELTA 2018 scenario comprised a leak of both oil and chemicals from the grounded vessel, as well as drifting and sunken containers of HNS\*. The Helsinki Convention was recently amended to include cooperation in shoreline pollution response. The importance of sea-shore coordination was therefore highlighted as the HELCOM procedures for sea-shore cooperation are still being developed. The onshore response and oiled wildlife response aspects took the form of a table-top exercise.

This exercise also included elements that are not part of HELCOM cooperation such as diving for hull inspection, evacuation of injured crew members, SAR\* onboard a chemically contam-



EMSA oil spill response vessel, the Norden, implementing oil recovery

inated ship etc. The next HELCOM Response Group meeting will be invited to discuss how to define which operational procedures to follow if these elements are included in the upcoming BALEX DELTA exercises.

The exercise also included an alarm exercise which was conducted in two phases. In the first phase the POLREP\* format developed by IMO was used. In the second alarm phase, a combination of EMSA's SafeSeaNet and DG-ECHO's Common Emergency Communication and Information System (CECIS) was used. The MAR-ICE\* network was also activated. A pre-exercise



Handling a casualty

report was compiled to compare the alarm exercise results of the two phases.

The BALEX DELTA exercises always have an Exercise Evaluation Team (EET) that consists of pollution response experts from the HELCOM Contracting Parties. BALEX DELTA 2018 had, in addition to the EET, a very comprehensive evaluation work package Project Evaluation Team (PET). The role of the EET was to evaluate the operational and technical fulfilment of the exercise while the PET evaluated how well the exercise objectives were fulfilled and how well the procedures defined in the HELCOM Response Manual



The Norwegian response team on the deck of the Turva



The Gunnar Seidenfaden (Denmark)

were followed. The PET evaluation was based on self-evaluation forms, an online questionnaire as well as observations made during the exercise. The lessons identified and final seminar of the BALEX DELTA 2018 project was held in Helsinki, Finland on 9<sup>th</sup>-10<sup>th</sup> April 2019. The findings of the evaluation teams will be discussed during the seminar and will be developed into concrete proposals on how to enhance the HELCOM exercise framework or the operational framework. Similar proposals will be put forward to EU DG-ECHO. ■



The Finnish vessel Turva during the exercise in the course of response team transfer



"In my role as chair of the HELCOM "Response" Working Group I would like to congratulate the Swedish Coast Guard, MSB (Swedish Civil Contingencies Agency), the County Administrative Board of Skåne, the HELCOM Secretariat, the Polish Maritime Search and Rescue Service, and SYKE (Finnish Environment Institute) for the successful exercise and well conducted project!

I wish also to thank all the participants of BALEX DELTA 2018 in the command centres, recovery vessels, aircraft, helicopter, as well as those involved in the table-top exercise and the observer program.

2019 will be a special year as, at BALEX DELTA 2019, we will be celebrating the 30<sup>th</sup> HELCOM operational exercise."

### Heli Haapasaari

Chair of the HELCOM "Response" Working Group.

## ABOUT

For Cedre, BALEX DELTA began with a MAR-ICE activation by the Polish authorities during the alarm phase. We were then involved as observers in the operational phase. On Day 1 of the exercise, we were invited by our Finnish colleagues (SYKE and Border Guard) onboard the response vessel Turva, whose response capacities in hazardous atmospheres were explained and demonstrated. Cedre briefly set aside its role as an observer to discuss response measures following the loss of containers at sea with other experts and the crew. The following day, Cedre was involved in a panel session about lessons learnt from the exercise. Cedre wishes to thank SYKE, the Finnish Border Guard and the Swedish Coast Guard.

Anne Le Roux,  
Emergency Response Coordinator, Cedre

## HazRunoff study

"Integration of sensing and modelling technologies for early detection and follow-up of hazmat and flood hazards in transitional and coastal waters."



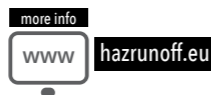
Funded by  
European Union  
Civil Protection  
and Humanitarian Aid

By Florence Poncet, Engineer, Research Department, Cedre.

### Project launch in Lisbon

The kick-off meeting for the European project HazRunoff was held in Lisbon on 28th February 2018. It was organised by the project leader, IST (Instituto Superior Técnico) which belongs to the University of Lisbon. This DG-ECHO-funded project draws together scientific and operational partners from 5 countries: modellers from IST's mechanical engineering department (Maretec) and nuclear technology department (CTN) as well as the company Bentley Systems and representatives of the municipality of Loures, bordering the Tage estuary, for Portugal; CETMAR for Spain; representatives of the Department of Health and Social Care for the UK; the German company EOMAP specialised in satellite data processing; and Cedre, in charge of chemical behaviour analysis, response protocol development and training material production, for France. This project aims to improve prepared-

ness and the response capacity in case of flood conditions and pollution in rivers and estuaries, in particular through the use of new detection tools (drone, remote sensing) combined with the development of behaviour models in order to identify the risks and reduce alert and response times. Four pilot areas have been selected to test the tools developed.



### Coordination meeting in Seefeld

The second coordination meeting for the European project HazRunoff was held on 11<sup>th</sup> and 12<sup>th</sup> July 2018 in Seefeld near Munich (Germany). Over these two days, the project partners reviewed the progress in each of the tasks and planned upcoming activities. This second project meeting was organised by the partner EOMAP, the leading global service provider of satellite-derived aquatic information in maritime and inland waters, notably in the fields of bathymetry and water quality monitoring. In this project, EOMAP is responsible for testing different remote sensing tools liable to allow early warning and detection of an emergency (water level/flooding, turbidity, slicks, chemicals, etc.). ■

## WestMOPoCo project

By Arnaud Guéna, Production Manager at Cedre.

Funded by the EU Civil Protection Mechanism (DG ECHO), the two-year project WestMOPoCo (Western Mediterranean region Marine Oil & HNS Pollution Cooperation) began on 2<sup>nd</sup> January 2019 under the coordination of the *Secrétariat Général de la Mer*. This project also involves IMO (REMPEC), ITOPF, the OSPAR Commission, the HELCOM Commission, Cedre, ISPRA (*Istituto Superiore per la Protezione e la Ricerca Ambientale*, Italy), the *Commissariat National du Littoral d'Algérie*, Transport Malta, the Secretariat of State in charge of Sustainable Development under the Ministry of Energy, Mines and Sustainable Development (Morocco), the Spanish *Ministerio de Fomento*, and the Tunisian National Agency of Environment

Protection, as well as the Principality of Monaco which will also contribute to the project. The WestMOPoCo project aims to strengthen international cooperation in the Western Mediterranean region mainly through: the development and update of pollution response support tools (HNS response guidelines, tools such as REMPEC's MIDSIS-TROCS and MedERSys), the assessment of the national contingency plans of the countries involved and, if necessary, the establishment of recommendations to improve them, the study of international cooperation mechanisms for emergency procedures in this area and the reinforcement of synergies between countries in the event of a spill and the organisation of various subregional workshops.



Cedre will be more specifically, in collaboration with ITOPF and ISPRA, tasked with drafting the HNS response manual, defining the specifications for improving the REMPEC tools and for the development of a new assessment tool for national contingency plans. We will also be assisting the different partners in organising and running the subregional workshops. ■

## Cedre HOSTS TWO EUROPEAN PROJECT MEETINGS IN BREST

### OceanWise European project meeting



^ Participants at an OceanWise project meeting held at Cedre

From 9<sup>th</sup> to 11<sup>th</sup> October 2018, Cedre hosted the second coordination meeting for OceanWise, a 3-year project co-funded by the European INTERREG Atlantic Area programme. OceanWise, led by the Portuguese DGRM, is dedicated to expanded polystyrene (EPS) and extruded polystyrene (XPS) marine litter. It is particularly focused on concrete solutions to reduce the impact of EPS and XPS in the Atlantic Area marine environment. The consortium of 13 Irish, British, French, Spanish and Portuguese partners seeks to develop best practices and more sustainable policies among professionals across a range of sectors (EPS use, manufacturing, recycling and uptake) based on the concepts of more efficient resource use, the circular economy and participatory methods. This second coordination meeting was the opportunity for partners to take stock of how the different actions were moving forward and in particular: capitalisation, knowledge of EPS

and its alternatives (in terms of production, use and impact), identifying stakeholders, policies and regulations, evaluation of the sustainability and circularity of alternative solutions, research into the ageing and impact of EPS and its alternatives in marine environments and lastly,

awareness-raising and involvement of stakeholders, including industry professionals, to put forward alternative materials and/or reduce their impact. ■

### CleanAtlantic European project meeting



Cedre also hosted the third coordination meeting from 3<sup>rd</sup> to 5<sup>th</sup> December 2018 for the 3-year CleanAtlantic project, co-funded by the European INTERREG Atlantic Area programme. This project, led by CETMAR (*Centro Tecnológico del Mar*,

Spain), is dedicated to reducing marine litter in the Atlantic Area. This project brings together 13 partners and 5 associated partners with an aim to protect biodiversity and ecosystem services in the Atlantic area by strengthening preventative

capability, monitoring and marine litter disposal. The first two days were dedicated to the semi-annual project partner meeting to review the progress of the different CleanAtlantic project actions. The meeting was followed by a local stakeholders workshop that was exclusively for project partners and select local stakeholders invited by Cedre. The objectives for this day were to raise awareness and to encourage discussion between project partners and French stakeholders on some of the themes tackled by the project, such as: waste management in the maritime sector (ports and ships, including industrial, fishing and leisure vessels), measures to reduce litter in marine environments (collection, reuse etc.) and lastly, waste upcycling in a circular economic context. ■



^ Partners of the CleanAtlantic project





## IOWater-Cedre FRAMEWORK AGREEMENT

On 12<sup>th</sup> June 2018, Eric Tardieu, Director General of IOWater and Stéphane Doll, Director of Cedre, signed a framework agreement outlining the scientific and technical cooperation between the two organisations in the fields of water, aquatic environments, biodiversity and waste. This agreement is expected to foster synergies between the two organisations.

By **Arnaud Guéna**, Production Manager at Cedre.

^ Signing of the IOWater agreement

### Two highly complementary organisations

The International Office for Water (IOWater) and Cedre, both non-profit associations, have complementary missions, know-how and expertise.

IOWater has at its disposal:

- ▶ a national water training centre comprising technological and pilot facilities and equipment, specially designed to rapidly build know-how and technical knowledge, as well as to conduct pilot trials on processes and materials,
- ▶ extensive experience and references in leading international projects,
- ▶ considerable capacities in information system management, running of stakeholder networks and international promotion of water management methods and techniques.

### A broad array of fields

The framework agreement lays out the collaboration arrangements between the two structures and details the specific focuses of this agreement, including:

- ▶ training of professionals,
- ▶ expert assessment and advisory missions,
- ▶ R&D programmes involving trials relating to technologies and processes,
- ▶ contributions to national and international recommendations in terms of documentation and data management systems
- ▶ participation in EU and international projects and promoting networking among players in the global water sector,
- ▶ design and provision of tools boosting the visibility of the water and biodiversity sectors.

### Initial concrete actions

This partnership has already been put into action through:

- ▶ the hosting by IOWater of Cedre's e-learning platform and cooperation in creating a module on chemical pollution,
- ▶ drafting by IOWater of an article on GEMAPI for Cedre Information Bulletin n°38,
- ▶ support from Cedre in the organisation of an "IOWater Day" on the theme of accidental pollution of surface waters, held on 13<sup>th</sup> November 2018 in Paris,
- ▶ the joint promotion of IOWater and Cedre training courses in our respective catalogues. ■

more info  
www iowater.org

#### About IOWater



The International Office for Water (IOWater) is a non-profit association under French law declared to be in the public interest by the Decree of 13 September 1991. The Association's objectives in the field of water and related activities are

to facilitate exchanges between the various decision-makers, designers, managers, industrialists, trainers, researchers, users concerned, to better solve together their problems, coordinate their actions, disseminate their information and to pool their skills and develop partnerships between French and foreign public

and private organizations and to carry out projects and programs of common and collective interest in order to better respond to the requests and needs requiring the multiple and more and more complex know-how of the "International Water Community". Source: IOWater

"The conclusion of this agreement is expected to develop collaboration in terms of the exchange of information and good practices, promotion of activities and involvement in regional, national and international projects."

## MARINER project wins Atlantic Project Award



By **William Girauld**, Engineer, Research and Training Department at Cedre

^ Response demonstration on drums of chemicals at Cedre's facilities

All the partners in the MARINER project (Enhancing HNS preparedness through training and exercising) won recognition when the project received an Atlantic Project Award in the International Cooperation category. The award ceremony was held on the 23<sup>rd</sup> October 2018 alongside the 5<sup>th</sup> Atlantic Stakeholder Platform Conference. With this prize, the European Union recognised the relevance of the project and its numerous outputs, which are now available on the MARINER website. As a reminder (see Cedre Information Bulletin n°35), the MARINER project was funded by DG-ECHO and led to close collaboration between research centres in four European countries: France (Cedre), Spain (CETMAR, the project's coordinator and INTECMAR,

University of Vigo), the United Kingdom (Public Health England) and Portugal (CIIMAR and Bentley Systems).

The running theme of the project was to improve cooperation in terms of planning, preparedness and response to HNS spills. Cedre brought experience and expertise to different stages of the project. We participated in the compilation and transfer of knowledge and existing response protocols. We then contributed to preparing training documents which were supplemented with a training package on modelling by the Portuguese partners and a tool to generate exercise scenarios by the English partners. All the training materials were tested during a workshop at Cedre in September 2017. The 35 participants

from 12 different nations as well as experts in pollution response unanimously recognised the usefulness of the training materials developed through the project. This occasion was the chance for the project partners to fine-tune the training materials as well as for Cedre to highlight its strong links with the Finistère Fire and Rescue Service. All the project deliverables are available free of charge on the MARINER project website with the aim to raise awareness and encourage information sharing. ■

more info  
www mariner-project.eu



^ Atlantic Project Award Trophy  
© Cedre



^ Participants at a MARINER project workshop in September 2017.

NEW HORIZONS



Christophe Rousseau

After 10 months as an officer on the ocean minesweeper *Ouistreham*, Christophe was assigned to Cedre as a representative of the French Navy in September 1979. In January 1980, a few months after the organisation was created, he was hired as an engineer. He was one of the founding directors who launched and nurtured this wonderful venture! Since then, his career and professional responsibilities have been focused on all forms of spill preparedness and response. Beginning as deputy, he took over responsibility for the Response and Training Department in 1986. Two years later, he became manager of the Training, International Cooperation and Public Relations Department. In 1995, as Deputy Director, he was placed in charge of the Co-ordination of Training, Planning, Auditing and Information/Documentation Division. In the early 2000s, he managed crisis communication during the *Erika* and *Prestige* spills. In the 2010s, he worked tirelessly to enable Cedre to obtain ISO 9001 and 14001 certifications. With 40 years of unanimously recognised expertise, Christophe showed an unfailing devotion to the marine environment cause, acknowledged as much by the scientific community as the media and the maritime and terrestrial authorities alike, in France and internationally. He is now set to enjoy his retirement, spending time with family and friends, and indulging in his lifelong hobbies of fishing and DIY but above all, passing on to his grandchildren his passion for the ocean, which forges great men.



Annie Tygréat

After two years in England, Annie began her career as an assistant salesperson in the automotive industry. She then ran a restaurant in Brest for 5 years. A few years later, with a diploma specialised in office tools in hand, Annie joined Cedre in 1991 as an assistant in the Training then the Information Department. She completed her training in 2007 with a specialisation in scientific and technical graphical design, a technical diploma in business communication and a technical diploma in secretary to management skills. Annie was then able to put her creative skills to use at Cedre, broadly contributing to the graphic creation of documents such as the bulletin, guides, catalogues, brochures, the logo and more. She also handled organisation for communication events, such as Information Days and Open Days as well as creating and managing 273 editions of Cedre's monthly newsletter! In late 2018, she decided to set sail for new professional horizons. We thank her and wish her every success for the future.



Christine Ollivier

In 1976, after a year in Edinburgh, Christine joined Prieur jewellers in Brest. Thanks to her excellent level of English, she was then recruited by Brittany Ferries, where she worked for 8 years as a ship stewardess. After 4 years as a personal assistant at CEDEM in Quimper, with a diploma in desktop publishing in hand, she joined Cedre in 1993 as the Training Department's assistant. In her 25 years with Cedre, she assisted 4 Department Managers and saw a near three-fold increase in the department's workload. She was responsible for producing training and logistical materials for some 350 training courses at Cedre. Her dedication to a job well done and her kind manner in welcoming and tending to trainees contributed to Cedre's good reputation internationally and will be fondly remembered! She is now able to enjoy her newfound free time to garden and spend time with those close to her.



Michel Mellaza

Michel began his career in a chartered accountancy firm in Brest in 1979, before going on to become Administration and Accounting Manager in the super-market sector in the Brest area for 10 years. It was in 1994 that he joined Cedre as the Administrative and Financial Manager. He greatly contributed to Cedre's administrative and financial organisation during the construction of its headquarters in Brest, which was funded within the State-region planning contract. He was also heavily involved in preparing and processing compensation claims after the *Erika* and *Prestige* oil tanker catastrophes. 25 years on, the budget has doubled, and the workforce has risen from 35 to 55 staff. This new chapter of his life will be the opportunity for him to pursue his travels around the world and to fully devote himself to photography and the Saint-Renan photography club.

NEW RECRUITS



Alma Chambord

After a technical diploma in management, Alma completed her training with a level II diploma in business management and organisation. With the experience she gained from working as an administration and accounting manager in the industrial sector in the Paris area, she set off for Brittany, joining CER in Lesneven then KPMG in Brest as a senior account manager. In 2010, she was appointed as Administrative and Financial Manager for the Bretagne Vivante association, with a portfolio of 300 projects per year. She began her role as Administrative and Financial Manager at Cedre in June 2018, also joining the Management Committee.



Nicolas Tamic

After obtaining a Master's in public law in Brest, Nicolas went on to graduate from Paris V with a Master's in crisis management in 2008. He has 22 years of experience in the French Navy, with half of it as a marine stationed at the Lorient naval base and the other half devoted to law enforcement at sea, in Brest and in Martinique where he worked in the fight against drug trafficking, marine pollution response and sea rescue. Nicolas joined Cedre last September as Operations Manager, Deputy Director and a member of the Management Committee.



Agnese Diverres

After a technical diploma in Management and the equivalent of a Master of Business Administration, Agnese began her career in an auditing and technology assessment firm in Switzerland. She then returned to Finistère, where she worked for 18 years for the agricultural cooperative Coopagri Bretagne, then Triskalia, in the successive roles of micromarketing manager, deputy IT manager in the procurement division, manager for NITC (New information and communications technologies) and lastly as a web manager in the communications department. She was then appointed IT Research Manager at the Cogedis group, a post she held for 3 years. In June 2018, Agnese joined the team at Cedre as the Information Department Manager.

NEW PUBLICATIONS



Operational Guide: Spill Response in Ports (111 pages) French only

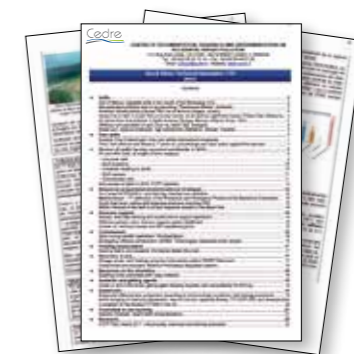
FREE DOWNLOAD from our website

www cedre.fr

► Resources/Publications section

In December 2018, we published an operational guide targeting operators involved in spill response in ports. This guide acts as a toolbox for professionals in ports, fisheries, trade, pleasure boating, cruises and military sectors. Produced through cooperation between Cedre, the Loire-Brittany Water Agency and the French Ministry for the Ecological and Inclusive Transition, this document is both a decision support tool for decision-makers in incident

management centres and a response manual for field teams. Regulatory aspects are addressed then recommendations are made based on the expertise of Cedre, the Loire-Brittany Water Agency and numerous partners in terms of methods, analysis and response to spills in both river and marine environments. This guide is currently available in French only. An English version is scheduled to be released in the near future.



Cedre Technical Newsletters

AVAILABLE IN ENGLISH

FREE DOWNLOAD from our website

www cedre.fr

► Resources/Publications section

Our biannual "Sea & Shoreline" and "Inland Waters" Technical Newsletters, available in both French and English, are a gold mine of information. They provide a summary of our technology intelligence activity on past and recent spills in marine and inland waters around the world. They include data on past incidents, a review of spills around the world, statistics, information on response

preparedness, oil recovery, response techniques, response products, compensation, environmental impacts, lessons learnt and slick drift, as well as details of recently published guidelines and recommendations.

AMOCO CADIZ "Avis de... Flash Black"



This 64-page book is an original compilation produced through a collective effort in the wake of the event marking the 40<sup>th</sup> anniversary of the *Amoco Cadiz* disaster. Entitled "Avis de... Flash Black", this richly illustrated publication showcases 40 years of change(s) since the *Amoco Cadiz* oil spill on the coast of Brittany. It offers a combination of editorials, witness accounts and artistic creations. Behind this book "like no other", there

are two goals: to unite and to share. Many of Cedre's partners, together with known or anonymous artists, took up our invitation to contribute to this project, producing unique works of art and texts.

€12 minimum at the donor's discretion. French only

Order online at www cedre.fr



▲ Extracts from the compilation

## Cedre AT A GLANCE



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### INTERNATIONAL SCOPE



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