

INTERSPILL 2009 AND IMO R&D FORUM CONFERENCE PLATFORM PAPERS ABSTRACTS

Abstracts have been edited to a limit of some 250 words by the Conference committee Chair

<p>Dr Ezio Amato Senior Scientist ISPRA Italy Date: Tuesday, 12 May Session: 1.3 Transportation of HNS, identification and assessment Time: 14:30 Location: Callelongue room</p>	<p>Oil and other hazardous and noxious substances seaborne trade pollution risks: a pilot study in Italian ports A pilot study was carried out in two Italian harbours, with the aims to analyse data collection forms and existing databases used by the Italian Guardia Costiera (GC), to assess the existing bias, to suggest solution and/or strategy to minimize the bias and to propose a quantitative risk analysis. Authors have chosen Porto Torres and La Spezia because both are in the Tyrrhenian Sea, in the Cetacean Sanctuary protected area PELAGOS and have medium/small volume of HNS traded. Porto Torres is close to an Italian Marine Protected Area (Asinara Island) and seaborne traffic is mostly represented by HNS traded in bulk. La Spezia is near Cinque Terre National Park, intensive shellfish cultivations are very close, and HNS are principally traded in containers. Data collection about traffic is detailed and on time but shows some lacks with respect to the possibility of carrying out risk analysis. An exhaustive number of information is collected but no standard data entry is available. Local offices register only the number of ship accident divided in three categories and the number of marine pollution accidents grouped into two categories. No electronic database is today available. The pilot project results suggest how to implement and standardize the existing data collection forms and databases in order to be in condition of utilising them for risk analysis and to fit EMSA SaveSeaNet standard. With data collected from 2000 to 2007, we propose an evaluation on the accident risk through a Harbour Risk Factor and a Harbour Marine Pollution Index</p>
<p>Mr Laurent Aprin Researcher LGEI France Date: Tuesday, 12 May Session: 2.3 HNS detection and monitoring Time: 16:00 Location: Callelongue room</p>	<p>Design of an operational decision aid software to model chemical pollution in the Mediterranean A littoral affected by a pollution of chemicals or hydrocarbons generates a disturbance of the ecosystems and important risks for the population. In this context of crisis management occurs the project CLARA II, to jointly simulate the evolution of the coastal hydrodynamics and the physicochemical behaviour of the pollutants. This tool will make it possible to evaluate the potential environmental risks in the short area on fauna and the marine flora and to provide information on the potentials long-term effects. It will also inform about the capacities of bio-accumulation in the food chain (fish, shellfish, and shells) of the poured substances and a preliminary approach of the toxicological risks in terms of effects on the man will be proposed in the event of atmospheric pollutant gas dispersion. The probable consequences for the coastal ecosystems and the economic uses will be evaluated starting from a spatial index of sensitivity/vulnerability of the territory. This index will be an atlas organized hierarchically with the sensitivity of the littoral zones to marine pollution according to the specific features for each coastal sector. The combination of this index with simulations results from various scenarios will make it possible to evaluate and classify a priori the vulnerability of each zone. The 4 years project CLARA II, implemented by proposed by a consortium of academic research laboratories, industrialists, firemen and SMEs, mobilizes the whole chain of the scientific community in this sector, from scientists, practitioners, and stakeholders to industrialists.</p>
<p>Mr Nick Bailey HNS Business Manager Braemar Howells United Kingdom Date: Wednesday, 13 May Session: 4.3 HNS Case Studies and Lessons Learnt Time: 14:30 Location: Callelongue room</p>	<p>Dealing with the HNS Tanks and Containers from the Napoli. The salvage operation of the Napoli offloaded the containers to a barge which arrived in Portland Port every 24-36hrs. Temporary bunds for containers in a remote area of the port were designated for dealing with HNS. There, the containers were opened and the contents assessed against what was expected and a plan for dealing with them formulated. Some had to be dealt with immediately to avoid the possibility of uncontrolled polymerisation or other incident occurring. This was the case when epichlorohydrin had to be transferred from two damaged tank containers. The product is flammable, highly toxic, carcinogenic, corrosive and a marine pollutant. It is also highly reactive with other products and contaminants and for transport and storage needs to be kept under nitrogen to ensure >8% O₂. A method statement was drawn up and validated, transfer tanks ready purged with nitrogen were sourced, PTFE lined hose and stainless steel connections were used and a gravity transfer was undertaken at night to minimise any effect of mixing possible contamination from seawater that may have been in the tanks. The main lesson learnt is that a dedicated and preferably remote area for dealing with HNS is vital. This area ideally</p>

	<p>should have facilities such as hardstand, water, electricity and good lighting. This avoids having to bring in tanks and generators and temporary floodlights etc. An area of that kind, available within the port on a temporary basis, would have been be highly efficient . But it was impossible to find one</p>
<p>David Baker Policy Adviser International Group of P&I Clubs United Kingdom Date: Thursday, 14 May Session: 6.3 Compensation of Damage caused by Oil and HNS Time: 10:00 Location: Callelongue Room</p>	<p>Implementation of the International Convention on Civil Liability for Bunker Oil Pollution Damage (2001) The Bunkers Convention, modelled on the International Convention on Civil Liability for Oil Pollution Damage, 1969 (1969 CLC), to ensure that effective compensation is available to persons who suffer damage caused by spills of oil, when carried as fuel in ships' bunkers, entered into force on 21/11/08. As of 12//02/09, it is in force in 34 States. Developing liability and compensation regimes at the international level ensures uniform, harmonised international rules and procedures. As an international business, shipping should be regulated and legislated for at the international level, to provide uniformity, certainty and a level playing field for those engaged in it. With this in mind, perhaps one of the more pertinent issues to re-visit now is whether the decision taken during the drafting stages to include a Flag State certification regime as a fundamental component of the Convention has been justified. Indeed, the Convention requires that every ship that is registered in a State Party or enters or leaves a port in the territory of a State Party, and has a gross tonnage greater than 1, 000 (gt), maintains insurance or other financial security in accordance with the provisions of the Convention and obtains a certificate issued by a State Party attesting that such insurance or financial security is in force. This is an important administrative burden. A further issue relating to certification is the mutual recognition requirement of State certificates by State parties. The intention of this paper is to assess the questions surrounding these issues</p>
<p>Dr Carl E Brown Manager Chief Emergencies Science and Technology Section, Environment Canada Canada Date: Thursday, 14 May Session: 6.1 Oil Slick Detection and Monitoring Time: 10:00 Location: Main Auditorium</p>	<p>The latest developments in remote sensing technology for oil spill detection Oil spills are inherently dynamic in nature, as the oil is affected by the physical environment into which it is spilled and its own changing chemical composition. Prompt information about the location and extent of the spill are required to effectively direct spill countermeasures. When responding to major oil spills, there are requirements for both long-term and short-term information. In terms of remote sensing capabilities, the tactical or short-term needs have traditionally been addressed by airborne sensors. This paper will assess remote sensors for oil spill detection and review recent developments. This assessment will include a discussion of airborne and satellite-borne sensors, their inherent benefits and operational shortfalls. Satellite sensors have typically provided a strategic overview of marine oils spills. The state-of-the-art capabilities of several new space-borne sensors might provide responders with information that can be used in a tactical oil spill response role.</p>
<p>Fanch Cabioch Head of Response Service CEDRE France Date: Wednesday, 13 May Session: 4.3 HNS Case Studies and Lessons Learnt Time: 13:30 Location: Callelongue room</p>	<p>The Galerne Project. Liquefied gas transported at sea: hazards and behaviour in case of transport accident The Galerne project started in 2006 and to end in September 2009, is composed of 3 tasks Task 1 was the selection of representative liquid gases, their way of transport, accidents and accident scenarios. Selection included Butane, Propane, Ammonia, Vinyl Chloride, Ethylene, Propylene, Benzene and Xylenes. 15 scenarios are described. Many uncertainties are still present concerning the behaviour of the products when spilled at sea. In some cases cold explosions may occur. Experimentations were carried out in Ineris (Institut National de l'Environnement et des RISques). Task 2 consisted of simulations, undertaken at Ineris, with the PHAST model, while Gaz de France - Suez used its own GNL behaviour models, LSMS and EVOLCODE. The MétéoFrance long distance model (PERLE) was been twinned with the surface transport modelMOTHY. Task 3 consists of a mid-scale experimentation, undertaken in June 2008 in the military harbour of Brest to validate remoted vapour detection and real time transmission of gas concentrations to a station located a mile away from the spill site, figuring the rescue ship. The scenarios described the panel of major accidental events at sea. Notwithstanding the fact that experimentations with dangerous chemicals are delicate to carry on, simulations with appropriate and sophisticated software gives an idea of the areas affected by the cloud.</p>
<p>Dr James Clark Senior Engineering Advisor</p>	<p>Assessing the Dispersibility of Heavy and Viscous Oils This paper reviews research addressing dispersion of heavy and viscous oils and documents the complexity involved</p>

<p>ExxonMobil Research & Engineering United States Date: Wednesday, 13 May Session: 3.2 Dispersants Time: 11:00 Location: Endoumes room</p>	<p>in understanding and explaining results from tests conducted in laboratory systems, wave basins, and field trials. Thirty years of research have resulted in the development of improved dispersants that possess lower toxicity and increased effectiveness. In recent years, dispersant formulations have been enhanced to be effective in dispersing highly viscous heavy oils as well as weathered and emulsified oils which were previously believed to be undispersible. Oils with viscosities ranging from 2000 to 8000 cP have been effectively dispersed in simple laboratory and wave basin tests, and some field trials have shown that oils with viscosities greater than 12,000 cP may be dispersible as well.</p> <p>Research carried out has not been conclusive in providing a simple answer regarding a viscosity limit for successful dispersion. Some heavy oils have been shown to be readily dispersible while others with similar characteristics have not. It not simply the viscosity of the oil that determines its dispersibility, but an array of factors. I</p> <p>Because cooler temperatures increase the viscosity of oils, there is a high level of interest in whether oils can be dispersed in very cold environments. Dispersants can be effective in even the coldest waters (even below 0°C) and should not be ruled out based on low temperature considerations alone. However, their use is likely to be a greater logistical challenge than in temperate and tropical regions because of the difficulties of keeping application equipment functioning at very low temperatures.</p> <p>The overall conclusion that is reached is that many heavy and viscous oils may be amenable to dispersion under a certain suite of conditions.</p>
<p>Miss Sara Coates Response Specialist Oil Spill Response UK United Kingdom Date: Tuesday, 12 May Session: 2.1 Oil pollution legislation and policies Time: 16:00 Location: Main auditorium</p>	<p>Are we ready? Implementation of the Environmental Liability Directive within the UK with implication on oil spill liability and cleanup</p> <p>The Environmental Liability Directive (ELD), establishing a framework aimed at preventing and remedying environmental damage, was adopted by the European Commission (EC) in April 2004 and Member States should have implemented it no later than 30th April 2007. This paper focuses on the implications of the ELD in oil spill scenarios for the UK and the differing levels of protection and remediation afforded to the environment compared to the existing domestic legislation. Additionally it will look at the implementation progress within the UK.</p> <p>The ELD covers damage to the aquatic environment and to species and habitats as specified in the Birds Directive 1979 and the Habitats Directive 1992. The ELD also covers the contamination of land.</p> <p>Liability under the ELD is strict for those activities which are considered dangerous, such as oil based operations. Therefore, the response to any oil spill scenario, whether marine or inland, could be influenced by the Directive's protection and remediation measures. Under the ELD, unlike now, a successful prosecution for an oil spill is not needed before the competent authority can force the spiller to carry out remediation. However, in some instances the thresholds for the ELD to be invoked are higher than current UK legislation meaning that not all oil spills will automatically activate such measures under the ELD.</p> <p>The ELD does not require insurance to be taken, nor has a compensation scheme been created, therefore all costs incurred as a result of the Directive's measures will be borne directly by the operator. It allows the Civil Liability and Fund Conventions (1992) to take precedence.</p> <p>At time of writing, the UK draft guidelines for the implementation of the ELD were still out for public consultation.</p>
<p>Kevin Colcomb Counter Pollution and Response Maritime & Coastguard Agency United Kingdom Date: Wednesday, 13 May Session: 5.2 Heavy Fuel Oil Versus Crude Oil Aspects Time: 16:30 Location: Endoumes room</p>	<p>Dealing with spilled oils that sink or are submerged at sea</p> <p>Some refined oil products are dense enough to sink in full salinity seawater and a greater number will sink in brackish or freshwater. In some circumstances a spilled oil that is less dense than seawater can be submerged below the sea surface for a large proportion of the time. Spilled oils that are not on the sea surface obviously present a series of challenges for responders: which ones might sink, what are the processes that can cause them to sink or be part time submerged, can they be incorporated into existing oil spill models, how can they be detected and located, what response methods would be effective ?</p> <p>A review of the current knowledge and past incidents was conducted to identify the key processes that could lead to spilled oil sinking or being submerged. This review concluded that only 'slurry oils' from catalytic cracking have densities greater than that of seawater, but these oils can be used as blend components in other oil products, such as Heavy Fuel Oil.</p> <p>Where oil may have sunk its potential impact must then be evaluated and where this is significant and taking account of NEBA recovery may be required. Sunken oil may remain mobile on the sea bed and detection and fixing of</p>

	<p>sunken oil has historically proven problematic. A variety of novel methods have been tried and combinations of sonar and optical sensors may develop into usable systems in the future.</p> <p>The fate of sunken and submerged oils, modelling, detection and recovery all require further study and development before they can be relied upon to deal with sunken and submerged oils.</p>
<p>Mr Pierre Daniel Head of Drift Modelling Unit Météo-France France Date: Tuesday, 12 May Session: 2.3 HNS detection and monitoring Time: 16:30 Location: Calleslongue room</p>	<p>ATMOSPHERIC DISPERSION OF XYLENE EVAPORATING FROM A DRIFTING SLICK</p> <p>The French research project Galerne deals with marine accidents which involve containers transporting hazardous evaporating chemical substances. Within this project, Météo-France is in charge of evaluating the transport of the slick of pollution at the sea surface and the atmospheric dispersion of the chemical substance linked to its evaporation. A modelling system has been settled, which consists of the coupling of two models: MOTHY, a trajectory pollutant model coupled with a hydrodynamic ocean model and PERLE, a meso-scale atmospheric dispersion modelling system used in accidental releases of pollutant into the atmosphere.</p> <p>The coupling essentially consists in evaluating the moving surface source term for PERLE associated with the simulated drift forecasted by MOTHY and with the evaporation rate using the results obtained by other partners within the project working on the evaluation of evaporation rates depending on the considered pollutant.</p> <p>Based on various accidental scenarios, different simulations have been performed in order to evaluate the potential impact in terms of atmospheric concentration related to critical thresholds. The simulations consider various meteorological conditions to assess the impact in more or less favourable conditions for evaporation and dispersion in the atmosphere. The results will help to prepare recommendations for emergency units approaching the accidental site and to give indications of the potential exposure of nearby populations depending of their distance to the drifting pollution slick. In case of accident, the system could be activated integrating real time accidental scenario information and meteorological data.</p>
<p>Mrs Michela De Dominicis PhD Student Istituto Nazionale di Geofisica e Vulcanologia (INGV) Italy Date: Thursday, 14 May Session: 6.1 Oil slick detection and monitoring Time: 11:30 Location: Main Auditorium</p>	<p>Oil spill detection and forecasting using MOON real time data</p> <p>MOON (Mediterranean Operational Oceanography Network) is an operational distributed system ready to provide quality controlled and timely marine observations and environmental analyses and predictions for management of oil spill accidents. MOON systems are based upon an integrated system composed of the Real Time Observing system, the regional, sub-regional and coastal forecasting systems and a products dissemination system. All products and service of MOON are available at www.moon-oceanforecasting.eu. The observed data, the forecast and analysis products are available in real time to both an internal and external community of users.</p> <p>MOON community has been able to provide through the integrated satellite monitoring system and through MFS coupled with MEDSLIK Oil spill model timely information on the oil spill detection and evolution forecasting during several emergency cases, such as the Lebanon crisis (2006), the Gibraltar (2007) and Und Adryiatik (2008) accidents. During this oil pollution crisis MOON successfully assisted the decision makers in Europe and the Eastern Mediterranean, such as REMPEC and the Lebanese Ministry of Environment.</p> <p>The hydrodynamic model output from MFS has been coupled operationally with the 3D oil spill model MEDSLIK, designed to predict the transport, fate and weathering of an oil spill. MEDSLIK incorporates evaporation, emulsification, viscosity changes, dispersion in water column, adhesion to coast.</p> <p>In this work, the oil spill monitoring and forecasting system will be shown and sensitivity experiments to model parameters will be compared with observations from buoy trajectories in real accidents.</p>
<p>Ridha Dhaoui Chairman MOIG Tunisia Date: Thursday, 14 May Session: 6.2 Regional Preparedness 2 Time: 11:30 Location: Endoumes room</p>	<p>The Mediterranean Oil Industry Group (MOIG)</p> <p>There are several treaties and agreements for international cooperation in the Mediterranean Sea region, some with support from the IMO (International Maritime Organization), EU (European Union) and other agencies. One of the most significant events in way of regional cooperation was the formation of the Mediterranean Oil Industry Group (MOIG), initiated by the International Petroleum Industry Environmental Conservation Association (IPIECA) following the IMO/IPIECA Oil Spill Response Seminar in Cairo in 1992, MOIG provides a regional oil industry forum concentrating on oil spill preparedness and response for the Mediterranean Region with direct cooperation links to the REMPEC (Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea) and close ties to EMSA (European Maritime Safety Agency)</p> <p>The MOIG, officially and independently institutionalized in Tunisia in 2004 has developed its membership and now</p>

	<p>has representation in a majority of countries bordering the Mediterranean Sea. Cooperation only works affectively if those willing to cooperate are also willing to participate therefore all oil and gas companies small, medium or large are actively encouraged to participate in MOIG activities, allowing for the continuing development of a network of industry country coordinators.</p> <p>This paper describes the importance of national, regional and international co-operation. In this regard, the paper aims to outline the mechanisms for data collection to facilitate co-operation amongst industry in this field. The paper shall focus on industry and government-relevant partnerships in order to achieve a better understanding on industry expectations in relation to preparedness and response. In this connection, an overview of the Mediterranean Regional Workshop on Preparedness for and Response to Marine Pollution which will be organized by REMPEC in collaboration with the (MOIG) at the opportunity of Interspill 2009,</p>
<p>Dr Merv Fingas Research Scientist Spill Science Canada Date: Wednesday, 13 May Session: 5.3 Health and Safety Time: 16:00 Location: Callelongue room</p>	<p>Protective Equipment for Spill Situations: A North American Research Perspective</p> <p>Personal protective equipment is very important in HNS spill situations because the user faces a exposure to chemicals that could result in serious injury or illness. These hazards are accentuated by the unknown nature of the spill site and the random nature of spills. Those in spill response cannot always predict which chemicals they will encounter, what the concentrations might be and what other hazards may be present. Responders entering a site are not only subject to the hazards of chemical exposure, but also to the dangers posed by the unknown and disorderly physical environment of a spill site. There is also a notable lack of standards and guidelines for the selection and operation of spill emergency equipment.</p> <p>The most common categories of protection equipment necessary for spill response are clothing and respirators. Totally-encapsulated or gas-tight suits are used when the contaminant is unknown or when a skin-permeating or skin-attacking chemical is present. The SCBA or selfcontained breathing apparatus is the most commonly-used form of respiratory protection in the initial phases of a spill and provides the highest protection against the inhalation of chemical contaminants. The use of equipment at a spill scene is summarized in this paper.</p> <p>Each of these aspects requires research, development and testing. Research needs are reviewed with respect to each of the protection aspects noted above. Research needs are compared to knowledge in each area to provide an assessment of priorities for further research or testing.</p>
<p>Mr Stéphane Grenon Manager, Environmental Emergencies Section, Environmental Protection Operations Division Environment Canada Canada Date: Tuesday, 12 May Session: 1.2 Shoreline response Time: 13:30 Location: Endoumes room</p>	<p>Lessons learned of Canada SCAT team during the Hebei Spirit Incident, Republic of Korea</p> <p>On December 7, 2007, the very large crude-oil carrier, the Hebei Spirit was struck by a barge in heavy seas and lost over 10,000 tonnes of medium crude oil into the Yellow Sea off the north-west coast of the Republic of Korea. Despite a vigorous on-sea response effort, more than 200 km of shoreline were affected by oil and emulsified product. A particular problem identified by a United Nations assessment was a methodology to evaluate the extent of oil contamination and the penetration of oil into subsurface sediments.</p> <p>At the request of the South Korean government, a Canadian team was deployed to implement training and begin the process of shoreline clean-up assessment. The Canadian team instructed approximately 40 volunteers from non-governmental organizations, academia, and national and local governments, in the shoreline cleanup assessment technique (SCAT). Challenges in the instruction of the Korean SCAT teams and the necessary period of calibration are discussed.</p> <p>The new Korean SCAT teams, each lead by a Canadian advisor, surveyed over 100 km of affected shoreline. The affected coast is heavily-used for aquaculture, has an active off-shore fishery and is the habitat for many species of migratory birds. In addition, the many sand beaches of the area make it a popular tourist destination. The contamination touched all kind of shoreline and we found the penetration of oil in two kinds of shoreline.</p> <p>We discuss the challenges of training and implementing the SCAT methods in a new language, during a large-scale, on-going spill event and without preparedness. Training materials, equipment needs and data management functions are examined in the context of the Canadian environmental emergencies programs. Logistical and coordination issues are discussed. The successes of the SCAT approach in the Korean context and the lessons learned are presented.</p>
<p>Mr Stéphane Grenon Manager, Environmental Emergencies Section,</p>	<p>HNS toxicity assessment</p> <p>When responding to a marine HNS incident, health and safety issues are one of the most significant concerns for the</p>

<p>Environmental Protection Operations Division Environment Canada Canada Date: Wednesday, 13 May Session: 5.3 Health and Safety Time: 15:30 Location: Callelongue room</p>	<p>authorities in charge of the response. Key decisions for the protection of responders, the crew and of the population will need to be taken. These decisions must be based on a proper assessment of the dangers that these substances represent. However, because of the wide variety of substances that can be involved in an HNS incident, it is often very challenging to evaluate the risks for responders and population. A number of key physico-chemical properties, toxicity thresholds and tools can be used to conduct a preliminary assessment and to identify adequate protection measures for those potentially expose. This presentation will suggest a methodology to conduct such an assessment and illustrate its usefulness with a recent incident involving benzene.</p>
<p>Mr Joselito L Guevarra Senior Consultant Oil Spill Response Singapore Date: Wednesday, 13 May Session: 3.1 Regional Preparedness Time: 10:00 Location: Main auditorium</p>	<p>The integration of regional response regimes in the Asia Pacific There are a number of regional response regimes operating in the Asia Pacific region focused on oil spill preparedness and response. The majority are government-led initiatives started by a number of countries which share the same risks by activities passing within their national borders. Although each country has its own national plan to respond to oil spills, the regional response regime ensures that large spills with cross-boundary implications are dealt with effectively and shared resources are available when and as needed. In the Gulf of Thailand, for example, Thailand, Vietnam and Cambodia have agreed in principle to help each other out if a spill occurs within the Gulf and threatens to impact any of the three countries. Other examples of response arrangements are the Tripartite Technical Experts Group (TTEG) on the Safety of Navigation in the Malacca and Singapore Straits by Indonesia, Malaysia and Singapore and the ASEAN-OSRAP (Oil Spill Response Action Plan), which was set up in 1993 by six ASEAN countries, namely Brunei Darussalam, Indonesia, Malaysia, the Philippines, Thailand and Singapore. Similarly four countries (Russia, Korea, Japan and China) have established mutual aid cooperation arrangements under the North-West Pacific Action Plan (NOWPAP). Within this patchwork of regional arrangements there are certain overlaps with some countries belonging to more than one regime and there are also some gaps which the regimes do not cover. This paper will explore the possible synergies of the different major response regimes and will also take into account the larger framework of international or multilateral environmental agreements looking at how they are organized and work together.</p>
<p>Paul Gunter Consultant United Kingdom Date: Wednesday, 13 May Session: 5.2 Heavy Fuel Oil Versus Crude Oil Aspects Time: 15:30 Location: Endoumes room</p>	<p>The particularities of heavy oil response Emulsified fuels are likely to occupy a niche position within the power generation and heavy industry markets in the years ahead. The current paper provides an update on work that has been undertaken and outlines intended future developments that may have implications for the spill response community. The Environmental Studies Programme (ESP) for MSAR® was instigated in 2006. The purpose was to gain an understanding of spill behaviour, potential impacts and appropriate mitigation measures. Several in-house studies were subsequently followed by a number of 3rd party studies undertaken by organisations that had previously gained knowledge and experience from working with ORIMULSION®, a former emulsified fuel product used globally from the late 1980s until the end of 2006. Most of the MSAR® formulations tested were “ORIMULSION®-like” in terms of fate and behaviour. Based on testing a range of different MSAR formulations we are starting to understand the subtle differences observed. A study to determine the potential environmental consequences of MSAR® spills on land has also been undertaken. Guidelines on behaviour and clean up techniques for spill responders will be developed in due course. Preliminary ecotoxicological data has also been generated for several MSAR® formulations. However, technological developments and commercial opportunities are likely to see MSAR® based on much heavier feedstock types in the future. The hydrocarbon particles in these formulations are much harder and may not undergo coalescence in the same way, which could result in differences in fate and behaviour as well as having potential implications in terms of spill response.</p>
<p>Mr Kurt Hansen Project Manager US Coast Guard R&D Center United States Date: Wednesday, 13 May Session: 4.2 Rigs, wrecks and sunken oil Time: 14:00</p>	<p>Research Efforts for Detection and Recovery of Submerged Oil For spills of submerged oil, current methods are inadequate to find and recover the oil. Many of the detection approaches are ad-hoc and the recovery techniques very labor intensive. The Coast Guard R&D Center has embarked on a multi-year project to develop a complete approach for spills of submerged oils. This paper describes the preliminary assessment of using sonar, laser fluorometry, real-time mass spectrometry and in-situ fluorometry to locate oil sitting on the bottom. Evaluation of proof-of-concept devices was conducted at Ohmsett between November 2007 and February 2008. Preliminary data and assessments are provided. Future tests are planned for early 2009</p>

<p>Location: Endoumes room</p>	<p>using sonar and laser fluorometry and additional work on recovery starting late in 2009.</p>
<p>Dr James Harrison Lecturer in International Law University of Edinburgh United Kingdom Date: Thursday, 14 May Session: 6.3 Compensation of damage caused by oil and HNS Time: 11:00 Location: Callelongue Room</p>	<p>Promoting the integrity of the international regime on oil pollution compensation and liability One of the central purposes of the international regime on oil pollution compensation and liability is to provide uniform international rules and procedures for determining questions of liability and providing adequate compensation in such cases. It follows that a uniform interpretation of the treaty provisions by the courts of all contracting parties is vital to the fair and equitable functioning of the regime. Yet, courts in several jurisdictions have refused to follow interpretations adopted by the international institutions responsible for overseeing the regime. This trend potentially threatens the integrity of the international regime. It is suggested that current policies of the contracting parties to counter this threat have proved to be unsuccessful. It is therefore necessary for the contracting parties to devise a new strategy to combat this threat. This paper will explore two possible strategies to promote the integrity and uniformity of the international regime within the existing treaty framework. Firstly, it will consider the extent of the current powers of the parties to adopt authoritative interpretations of the treaties and how these powers can be best utilised. Secondly, it will consider the question of state responsibility in cases where interpretations adopted by the contracting parties to the international regime are not followed. The paper will assess how far these two approaches can together contribute to promoting the integrity of the international regime for oil pollution compensation and liability.</p>
<p>Mr Frédéric Hébert Director REMPEC (Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea) Malta Date: Wednesday, 13 May Session: 3.1 Regional Preparedness Time: 09:30 Location: Main auditorium</p>	<p>Regional Mediterranean action plan against pollution from shipping The foundations for co-operation in the Mediterranean Sea area in the field of prevention of, preparedness for and response to marine pollution are laid in the Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea, 2002, to the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean Sea. The Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), based in Malta since 1976, which is administered by the International Maritime Organization (IMO) and operates within the framework of the Mediterranean Action Plan (MAP) of the Regional Seas Programme of the United Nations Environment Programme (UNEP), co-ordinates the activities of the Mediterranean coastal States related to the implementation of the Prevention and Emergency Protocol to the Barcelona Convention. One of the objectives of REMPEC is to strengthen the capacities of the coastal States in the Mediterranean region with a view to preventing pollution of the marine environment, implementing the recognised rules, and combating / eliminating pollution. This presentation describes the risks related to maritime traffic in the Mediterranean and highlights the importance of international and regional co-operation. In this regard, the legal, institutional and financial mechanisms existing in the region to facilitate co-operation amongst Mediterranean coastal States in this field will be recalled. The presentation will address the added value and sustainability of a dedicated regional Centre in this regard and will focus on the issue of government-relevant industries partnerships in order to achieve at regional level a better level of preparedness.</p>
<p>Dr Thomas Hoefler (<i>this paper will be presented by Ken McDonald from IMO on Thomas' behalf</i>) Safe Transport and Coordination REACH Germany Date: Tuesday, 12 May Session: 1.3 Transportation of HNS, identification and assessment Time: 13:30 Location: Callelongue Room</p>	<p>Hazard assessment for chemicals carried by ships The safety and pollution hazards of noxious substances transported by ships are evaluated and classified according to regulations and procedures developed by the International Maritime Organization (IMO). For noxious liquid substances shipped under regulations of MARPOL Annex II and the "chemical tanker code" a scientific evaluation by GESAMP, a group of United Nations' experts, is mandatory. The principles, the rationale and the results of GESAMP's hazard assessment procedure will be presented. The biological accumulation and degradation in the environment, the aquatic toxicity, the acute and long-term hazards for humans and the behaviour of the substances in the sea are evaluated. The resulting classifications are used for assigning carriage requirements for bulk liquids. The hazards of packaged dangerous goods are often classified by the producer alone. However, the rules are given by the IMO and this organization assigns emergency schedules for fire and spillage for all cargoes. Assessments, classifications and guidance documents are updated and published as IMO documents on a regular basis. The potential use of these IMO documents for risk assessments and risk communication during an accident or a spill involving chemicals will be outlined. Some background knowledge can help to use the scientific and technical</p>

	information for early advice and a first risk assessment during response at sea.
<p>Mark W Howard US Environmental Protection Agency, Office of Emergency Management, Regulation and Policy Development Division United States Date: Wednesday, 13 May Session: 5.1 Inland water pollution from production and transport Time: 15:30 Location: Main auditorium</p>	<p>EPA's inland oil spill prevention regulations and review of oil spill incidents reported to the National Response Center from onshore oil production facilities The paper/presentation discusses considerations for prevention requirements under the Spill Prevention, Control, and Countermeasure (SPCC) regulation (40 CFR part 112) of onshore oil production facilities. The paper summarizes findings from a recent review of oil spill incidents reported to the National Response Center (NRC) during the period of 2000 through 2005. The analysis covers the relative frequencies and magnitudes of reported oil discharges from onshore oil production facilities by material discharged, source, and cause. The findings are complemented by findings from reviews of spill data obtained for selected states (Arkansas, Colorado, Kansas, and Oklahoma) and by field observations of EPA inspectors. The paper/presentation will end with a policy overview of EPA's regulations for the production sector. This will include the new regulatory changes for this sector expected to be finalized in October of 2008. The paper is targeted to those who develop and implement regulatory provisions for the production sectors as well as stakeholders in the production sector.</p>
<p>Marc Journal Satellite Based Monitoring Services Unit European Maritime Safety Agency (EMSA) EU Date: Thursday, 14 May Session: 6.1 Oil Slick Detection and Monitoring Time: 09:30 Location: Main Auditorium</p>	<p>CleanSeaNet: The EU remote sensing based monitoring system for marine oil spill detection and surveillance in European waters Oil discharges from ships, platforms or other sources cause significant damage to the marine environment. The European Marine Safety Agency (EMSA) was tasked to develop an operational satellite service for monitoring European waters and supporting Coastal States response to illegal discharges and to accidental pollution. CleanSeaNet supplies Synthetic Aperture Radar (SAR) analysed images from data provided by the European Space Agency's ENVISAT and Canada's RADARSAT satellites. The acquisition, processing and analysis of the data and the provision of the resulting images are carried out by a consortium of European companies. Images are planned and ordered by EMSA according to European Coastal States coverage requirements. A network of receiving stations in Norway, Italy and the Azores allows downloading, processing and analysing satellite data in less than 30 minutes. Results of the oil detection analysis chain which include identifying the possible source of the pollution are then distributed simultaneously to both the national authorities in the affected European Coastal States and to EMSA. Currently 24 EU coastal states have joined the service, and some 3200 SAR scenes have been ordered in the first 18 months of the service, with a successful delivery rate of more than 90%. 227 spills reported by CleanSeaNet were confirmed as being mineral oil. The paper will illustrate the technical setup of the service, provide results of the service after 18 months of operation, and describe EMSA's role for emergency response within the international cooperation scene.</p>
<p>Mr Mark Kirby Team Leader - Ecotoxicology & Chemical Risk Assessment CEFAS United Kingdom Date: Tuesday, 12 May Session: 1.3 Transportation of HNS, identification and assessment Time: 14:00 Location: Callelongue room</p>	<p>Pollution Response in Emergencies – Marine Impact Assessment and Monitoring (PREMIAM) A fully integrated and effective response to an oil or chemical spill incident must also include a well planned and executed post-incident assessment of environmental contamination and damage. Some national authorities have well formulated national contingency plans and environmental advice mechanisms which provide strategic planning and response frameworks with, often, a stated commitment to initiate relevant monitoring, research and environmental impact. While salvage and rescue operations are well considered, including regular reviews and exercises, the expertise, resources, networks and logistical planning that are required to achieve prompt and effective impact assessment and monitoring are not formally in place. The arrangement and co-ordination of post-incident monitoring and impact assessment needs to consider sampling programme design, biological effects, chemical contaminant analysis and collection/interpretation of expert local knowledge. Cefas have wide experience of providing this co-ordination, most recently with the MSC Napoli incident off the south coast of England, and it is clear that this response would benefit from a more pre-considered, co-ordinated and standardised approach. This paper describes need for and early development of the PREMIAM (Pollution Response in Emergencies – Marine Impact Assessment and Monitoring) concept in the UK. This programme would aim to address two key elements: i) the development of Expert Guidelines to set out sampling and logistics options, methods, considerations and essential information required for impact assessment in the short, medium and long-terms. ii) the development of a network of national and regional experts, samplers, fisheries contacts, analytical providers and facilities that may be</p>

	required at short-notice.
<p>Xavier Kremer Pollution Response Adviser Cedre France Date: Wednesday, 13 May Session: 4.2 Rigs, wrecks and sunken oil Time: 13:30 Location: Endoumes room</p>	<p>Operators views on their contribution to the subjects</p> <p>Only recently been added to the programme, abstract will be sent shortly.</p>
<p>Dr Kenneth Lee Executive Director Research Scientist Center for Offshore Oil and Gas Environmental Research Canada Date: Wednesday, 13 May Session: 4.1 Oil pollution impacts and restoration Time: 14:30 Location: Main auditorium</p>	<p>In Situ Remediation of Oil Spills in Ice-infested Waters</p> <p>Marine traffic in the arctic is expected to increase due to climate change (e.g., extension of open water season for the Northwest Passage) and industrial operations (e.g., offshore oil and gas exploration/production activities). As a result, the public, industry and regulatory resource managers have identified an urgent need for improvements in oil spill countermeasures for use in cold regions and ice-infested waters. A novel remediation technique of oil spill in ice-infested waters has been proposed based on spraying clay mineral particles and the application of mixing energy from propeller-wash to promote the formation of oil-mineral aggregates (OMA). Field and laboratory studies have shown that the formation of OMA is associated with enhanced oil degradation and dispersion. To evaluate the feasibility of this in situ bioremediation/enhanced oil dispersion strategy in ice-infested waters, a field study was conducted with a Canadian Coast Guard ice-breaker in St. Lawrence Estuary (offshore of Matane, Quebec, Canada). The effectiveness of the proposed treatment strategy was evaluated by monitoring the temporal and spatial dynamic changes of petroleum hydrocarbon concentrations and investigating the biodegradation rate and extent of the petroleum hydrocarbons. Field samples were recovered to set up microcosms in the laboratory to monitor biodegradation of petroleum hydrocarbons in a Micro-Oxymax Respirometer and Gas Chromatography Mass Spectroscopy (GC/MS) analysis of the depletion of major petroleum hydrocarbon compounds. The results indicated that oil degradation related oxygen consumption rate was significantly higher in microcosms prepared with the OMA samples than those oil-only but without mineral fines. The GC/MS data shows that with hopane normalization, more than 60% total petroleum hydrocarbon, 75 – 88% of total alkanes, and 55 to 65% total PAHs were degraded after 50 days incubation at low temperature (0.5oC). The alkylated PAH was degraded to a greater extent in the presence of clay minerals than in their absence. These field and laboratory studies suggest that the proposed remediation strategy may be an environmentally acceptable and cost-effective means to combat oil spill in ice-infested waters. The results from this field trial support the need for further research to evaluate the feasibility of this technique in various environmental conditions and to determine the fate and effects of the petroleum hydrocarbons entrained in OMA in the aquatic environment.</p>
<p>Dr Stéphane Le Floch Coordinator in HNS activities in the Research and Development Dept. CEDRE France Date: Tuesday, 12 May Session: 2.3 HNS detection and monitoring Time: 15:30 Location: Callelongue room</p>	<p>HNS detection and monitoring in recent incidents</p> <p>Marine pollution caused by HNS differs from oil pollution in having a much wider range of potential fate and behaviour once released into the marine environment. The selection of the appropriate response option to an HNS incident requires detailed knowledge of the involved substance's physical and chemical properties. In fact, before starting any detection or monitoring operation it is important to have an idea on what could happen with the substance in relation with its chemical properties. The SEBC code, established by the European Union, provides a set of criteria for evaluating a predicted behaviour. With this information, then it is possible to define a detection and monitoring plan well adapted to the atmospheric, sea surface, water column and or sea bottom compartments. The proposed invited presentation will illustrate this on the basis of the experience acquired in recent incidents in which Cedre was involved, namely the levolfi Sun, the Ece and the Princess of the stars.</p>

	<p>The levoli Sun sank with a cargo of Styrene, Methyl-ethyl-keton and isopropylic alcohol. As styrene could be a danger, a sampling plan around the wreck was defined. The Ece sank with a cargo of phosphoric acid. Detection and monitoring operations weren't on the acid as such but on the phosphate which is its degradation product. In addition, environmental data on the area where the accident occurred were needed to better define the potential impacted area. The Princess of the Stars, sank in a storm, in an area where no information concerning environmental parameters, a matter underlining the difficulty to set an adequate monitoring plan.</p>
<p>William Lerch Chairman Oil Spill Working Group IPIECA United Kingdom Date: Thursday, 14 May Session: 6.2 Regional Preparedness 2 Time: 10:00 Location: Endoumes room</p>	<p>Tiered preparedness and response</p> <p>The international oil industry has for over thirty years espoused the principles of tiered response to facilitate a structured integration of resources to combat oil spills. The original "concept of tiered response" required risk managers to consider the size of potential spills in combination with the proximity of available response resources, to determine an escalating capability that would match the size of the spill. Every risk location would have a relatively small capability to respond immediately to operational spills whilst a few strategically positioned industry-controlled stockpiles would provide response to the much rarer catastrophic events at the other extreme. In this model, regional interim solutions are normally required for spills that exceed the local on-site capability that also plug the gap before remote international assistance can be integrated into the response.</p> <p>In 2007 the new IPIECA Guide to Tiered Preparedness and Response sought to redefine the model and it reinforced the need for a risk-based approach to establishing appropriate capacity to respond to spills. The Guide encourages other factors such as operational and setting considerations together with the availability of appropriate resources and the applicable legislative framework to be duly considered.</p> <p>This paper will examine the organisational and practical implications of this focused approach, and will assert the industry view that whilst the principles which underpin the tiered philosophy still hold true, building capacity to respond effectively is perhaps more about organisational preparedness rather than pure provision of equipment. The paper will therefore examine the added-value that response organisations must provide to create an integrated and efficient response and preparedness service.</p>
<p><i>This paper was due to be presented by Mark Reed from SINTEF but he could not attend.</i></p> <p>Alun Lewis Oil Spill Consultant UK Date: Wednesday, 13 May Session: 5.2 Heavy fuel oil versus crude oil aspects Time: 16:00 Location: Endoumes room</p>	<p>Natural dispersion of heavy oil products and crude oils spilled at sea</p> <p>Laboratory meso-scale studies in wave tanks have been carried out with crude oils and heavy petroleum products to support the development of new algorithms for modelling natural dispersion of spilled oil at sea. Fresh, relatively low viscosity crude oils disperse as clouds of droplets driven into the water column by breaking waves, whereas heavier, more viscous and elastic oils tend to form large globules or even mats such that over-wash or temporary submergence occurs. The dimensions of the parameter space have been increased to include emulsification, interfacial tension and rheological characteristics, in addition to viscosity and turbulent energy, as parameters in the equations. Including into the analysis the non-Newtonian nature of these heavier oils has allowed for the development of algorithms describing dispersion over a much wider range of viscosities than was previously possible.</p> <p>This work has been carried out in laboratories at SINTEF SeaLab in Trondheim, Norway, and was made possible by a research grant from NOAA's Coastal Response Research Center (CRRRC) at the University of New Hampshire in the United States.</p>
<p>Mr Alun Lewis Oil Spill Consultant United Kingdom Date: Thursday, 14 May Session: 6.1 Oil slick detection and monitoring Time: 11:00 Location: Main Auditorium</p>	<p>The Development and Use of the Bonn Agreement Oil Appearance Code (BAOAC)</p> <p>Visual observation of spilled oil on the sea surface remains one of the most important elements of oil spill monitoring and response. Aerial surveillance employing SLAR (Side-Looking Airborne Radar) is routinely used to locate spilled oil from illegal discharges or from accidental releases on the sea surface. Visual observation, sometimes augmented by the use of UV (Ultra-Violet) and IR (Infra-Red) cameras, is then used to estimate the amount of spilled oil. Accurately quantifying the amount of spilled oil at sea by visual observation is difficult. Different spilled oils behave in different ways; spilled distillate fuels spread out rapidly to form very thin oil layers which then evaporate or disperse, crude oils generally spread out to form slicks with a large range of thickness from sheen (less than 1 micron thick) to emulsified oil that is several millimetres thick, and bunker HFOs (Heavy Fuel Oils) and cargo RFOs (Residual Fuel Oils) can form layers that are many (50+) centimetres thick. Some characteristics of the appearance of spilled oil can give an indication of spilled oil thickness, mainly in the region when the oil layer is thin enough to interfere with the</p>

	<p>light transmission process. The Bonn Agreement Colour Code was found to be difficult to use in several respects. The Bonn Agreement Oil Appearance Code (BAOAC) was developed to replace the Colour Code on the basis of thorough examination of the fundamentals of the visual perception of oil on the sea, an extensive set of laboratory investigations, field trial work in a fjord and observations from aircraft and ships This paper describes the development, implementation and results of the BAOAC.</p>
<p>Mariantonia Lo Prete Phd student The French National Institute for Transport and Safety Research (INRETS) Production Systems, Logistics and Transport Organisation (SPLOT) France Date: Tuesday, 12 May Session: 1.1 Oil production and transport at sea Time: 14:30 Location: Main auditorium</p>	<p>Harmonization from global to local legislations against oil spill pollution: the case of the Mediterranean maritime transport and port activities This research study focuses on the problem of the effectiveness of international, regional and national laws regarding oils spills in the Mediterranean Sea. It considers both the multi-factor impacts (legal, economic, geographical, governance) on seaport development and the seaport's impact on the marine environment, especially oil spill pollution. The analysis of French and Italian jurisprudences underlines many problems in the enforcement of the laws: the difficult passage from the global to local level, the complex relationship between international laws and EU and the unilateral nature of EU acts, different national legal and technical capacities emphasising the importance of the national state jurisdiction as condition "sine qua non" for the effectiveness of this multilevel oil spill legal system, the lack of normative instruments for the high sea and the right of transit passage through straits used for international navigation. The complexity of the question and the heterogeneous character of the rules involved make their solution difficult, General rules of international law will have to applied and specific sectoral rules reconciled. There is a need for harmonisation of legal and technical actions and sanctions against oil pollution in all Mediterranean Countries, identification of instruments used by national jurisdiction to realize the abovementioned harmonisation; assessment of the impacts of the respect of all legislation in the competitiveness of ports.</p>
<p>Dr Emina Mamaca PhD Chemistry IFREMER France Date: Wednesday, 13 May Session: 5.3 Health and Safety Time: 16:30 Location: Callelongue room</p>	<p>Fears and facts regarding human health and safety hazards There have been many reports of headache, skin irritation and other temporary and reversible impacts of oil on responders health. There has been also considerable speculation about potential long term carcinogenic effects of exposure to oil, particularly in the Erika incident, when volunteers left in mass the beaches after a private laboratory dramatically pretended that the authorities had voluntarily hidden spill responders were exposed to a high cancer hazard. Finally there were more bruises and cuts than cancers among coastline responders. But the question of up to what point different oils and oil products are carcinogenic in spill response conditions remains open. On another hand, it is commonly accepted that a number of chemicals are highly dangerous for human health and safety. And there are undeniable facts to support that acceptance. As an example, when the question arose, a few years ago, to enter or not in the port of Brest, France, a cargo vessel loaded with ammonium nitrate, wet from seawater contact, the local authorities couldn't but argue that the explosion, in the bay of Brest, of a liberty ship loaded with the same product, had caused 5 decades earlier several deaths and hundreds of house destructions. When wheat spilled in Corsica, rotting in water, generated hydrogen sulfide, producing sulfuric acid, or when styrene seeped from a ship sunk in the Channel, the response authorities couldn't but consider the known neurotoxicity of those chemicals and equip their personnel accordingly. Building on those examples, the present paper will comparatively review the known fears and facts regarding immediate to long term human health and safety hazards related with oil, oil products, and those chemicals Cedre has experience of.</p>
<p>Hervé Martin Head of Unit DG ENV, Civil Protection Unit, European Commission Belgium Date: Tuesday, 12 May Session: 2.1 Oil pollution legislation and policies Time: 15:30 Location: Main auditorium</p>	<p>Marine pollution preparedness and response: the role of the Community Civil Protection Mechanism in the frame of the European oil pollution legislation The European Community has played an important role in the field of response to marine pollution since the establishment of an action programme on the control and reduction of pollution in 1978. Over the last decade, in particular since the oil-spill accidents of ERIKA and PRESTIGE, the EU has continuously developed measures aimed at improving maritime safety and prevention of and response to marine pollution. This led to a significant strengthening of the safety requirements throughout Europe and reduction of particular risks. Under the first two maritime safety packages (known as Erika I and Erika II), the EU adopted substantive legislation which provided for ship inspections in ports, banned the use of single-hull vessels to transport oil and created the European Maritime Safety Agency. The third maritime safety package intends to improve efficiency of existing measures and is</p>

	<p>structured around two major themes: improved accident and pollution prevention and dealing with the aftermath of accidents. Preparedness and response mechanisms have been reinforced by a Community framework for co-operation and by the Community Civil Protection Mechanism established in 2001. The general purpose of the Mechanism is to provide support in the event of major emergencies inside and outside the EU and to facilitate reinforced cooperation.</p> <p>Alongside these measures integrated maritime policy was endorsed in 2007 to help find the right balance between shipping safety, security, and environmental protection. Environmental pillar of this policy is the Marine Strategy Framework Directive of 2008</p>
<p>Gary Mauseth President Polaris United States Date: Wednesday, 13 May Session: 4.1 Oil pollution impacts and restoration Time: 13:30 Location: Main auditorium</p>	<p>Getting to expeditious and equitable restoration following oil spills</p> <p>Establishing the degree of environmental injury and restoration of injured natural resources following oil spills has become an objective of several nations. Several regulatory schemes have been, or will be, used as a means to evaluate injury and achieve appropriate restoration when warranted. Achieving expeditious and equitable restoration benefits the responsible parties, governmental authorities, and most importantly, impacted resources.</p> <p>The current scheme in the United States defined by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Oil Pollution Act of 1990 (OPA), has experienced a range of outcomes regarding restoration. The European Union has recently developed the Environmental Liability Directive which has many commonalities to the OPA and CERCLA schemes including compensation for interim lost use resulting from petroleum releases. The International Oil Pollution Compensation Fund of 1992 has well established protocols to compensate for spills of persistent oil from tankers worldwide. All of these methods are intended to establish non-punitive compensation.</p> <p>Attributes of successful cases are reviewed in this paper. Benefits of focusing on resource management, as opposed to resource advocacy, as well as the value of collaborative injury assessment to responsible authorities and responsible parties, is discussed. Because the assessment of environmental injury and restoration is fundamentally a scientific endeavor, the paper addresses the difficulties, complexities, and constraints in applying the scientific method to real-time pollution events such as oil spills. The value of data from prior incidents and the construction of theoretical hypotheses and models are addressed. The balance of the need for certainty in data and value to restoration scaling is examined</p>
<p>Francois Xavier Merlin Responsible for Research and Development CEDRE France Date: Wednesday, 13 May Session: 3.2 Dispersants Time: 10:00 Location: Endoumes room</p>	<p>Discobiol Program: Investigation of Dispersant use in Coastal and Estuarine Waters</p> <p>Dispersants are known to be an appropriate solution for offshore spill response where dilution conditions are high and dispersed oil concentrations decrease rapidly below levels that could potentially harm the environment. In coastal areas, however, where dilution can be restricted due to limited depth and vicinity to various coastal resources, dispersant use should be limited. In contrast, for certain cases, the use of dispersants could be of benefit to these regions. In response to these situations, it is necessary to analyse and assess the advantages and potential risks of dispersing oil in these sensitive regions.</p> <p>The Discobiol work program aims to acquire comparable and robust information on the impact of mechanically and chemically dispersed oil on different habitats and resources, most notably estuaries and/or close bays. Information regarding lethal and sub-lethal effects will be analyzed for several organisms in water column, mudflat, and salt marsh communities.</p> <p>The information gathered in this work program will be used to make recommendations for the use of dispersants in such areas.</p> <p>This paper presents the program of the study and the preliminary results of the current phase of this study: The assessment of lethal and sub-lethal effects of dispersed oil towards organisms in pelagic and benthic communities. These tests involve the comparative assessment of the effects from mechanically and chemically dispersed oil, and, in order to reflect estuarine conditions, suspended particulate matter.</p>
<p>Paul Meyer Mechanical Engineer MAR Inc./Ohmsett Facility United States Date: Tuesday, 12 May</p>	<p>Development of an American Society of Testing and Materials (ASTM) Stationary Skimmer Test Protocol – Phase 2 Development</p> <p>The development of a simple and inexpensive standard test protocol to determine a realistic nameplate capacity for oil skimmers is underway within the American Society of Testing and Materials (ASTM); however, there are differing opinions on how these tests should be conducted. A significant point of contention has been whether to test</p>

<p>Session: 2.2 Response at Sea Time: 16:00 Location: Endoumes room</p>	<p>skimmers using oil only or using an oil layer on water. A test protocol using both methods was drafted and the United States Minerals Management Service (MMS) funded a series of experiments to 'test the tests' in July and August 2007 at Ohmsett - National Oil Spill Response Test Tank Facility.</p> <p>The data and results from the Ohmsett tests allowed stakeholders within an ASTM F-20 subcommittee on skimmers to reach a consensus on a general test methodology and the draft protocol is currently being finalized and balloted as a new ASTM standard. This paper discusses the test series that was conducted at Ohmsett during July and August 2007.</p>
<p>Fionn Molloy Project Officer on Oil Pollution Response EMSA Europe Date: Thursday, 14 May Session: 6.2 Regional Preparedness 2 Time: 09:30 Location: Endoumes room</p>	<p>European Maritime Safety Agency (EMSA) activities in European co-operation and co-ordination</p> <p>The European Maritime Safety Agency (EMSA) was created in 2002 following the Erika disaster as one of several European level initiatives to improve maritime safety in the European Community. Its goals are to reduce the loss of human lives at sea, marine pollution from ships and the risk of maritime accidents. Since 2004, EMSA also has operational tasks in the field of pollution preparedness and response, which are implemented through the "Action Plan for Oil Pollution Preparedness and Response" and its annual Work Programmes. Under the Action Plan heading of 'co-operation and co-ordination', EMSA undertakes a number of activities in support of Member States and Regional Agreements. These include holding round table meetings with the secretariats of the Regional Agreements as well as with Member States experts' through the Consultative Technical Group (CTG) for Marine Pollution Preparedness & Response. Both CTG and Inter-Secretariat provide forums for exchanging information and promoting best practice in pollution preparedness and response. The consultative nature of the CTG also means that Member States play an active role in determining which projects and activities will be undertaken.</p> <p>The findings of an inventory of pollution preparedness and response training centres are summarised. The inventory also provides a reference point for the CTG to consider further work in this area, potentially looking towards a more formal European framework for training. The database of training expertise within the inventory is also linked to EMSA's EMPOLLEX (marine pollution exchange of experts) programme, in which national experts can visit Centres of Expertise in participating States. Additional training needs are often identified when evaluating the response to a pollution incident or analysing 'lessons learned'. A CTG project is considering the possibility to establish a methodology which could be applied across Europe for analysing incidents and drawing out common lessons learned. A standard framework for this analysis could provide useful information in identifying trends in accidents, response capability and levels of preparedness in Europe, thereby potentially helping to shape future activities for EMSA in this field and providing added value at European level. Bringing together European experts in civil protection and marine pollution will improve co-operation between the different combating authorities, with key themes of effective communications and integrated contingency planning being explored.</p>
<p>Mr Alexander Nicolau Technical Advisor Oil Spill Response Singapore Date: Thursday, 14 May Session: 6.3 Compensation of damage caused by oil and HNS Time: 11:30 Location: Callelongue Room</p>	<p>Damage Assessment for HNS Incidents – Yes, but how?</p> <p>The OPRC-HNS Protocol 2000 entered into force in June 2007, extending the provisions of the OPRC Convention on preparedness, response and cooperation to HNS incidents. When in force, the HNS Convention will enable a comprehensive system with considerable compensation limits for ensuring prompt and effective compensation for damage caused by maritime transport of HNS, including both loss of life or personal injury on board or outside the ship, and damage by contamination of the environment.</p> <p>In the recent years, preliminary work focused essentially on establishing tools and guidelines for potential member states to facilitate the calculation of their contributing cargo. Looking into the future and assuming the convention becomes applicable, it appears essential to consider how the claims will be assessed and under which criteria. Contrary to oil pollution damage, HNS is more likely to inflict damage to human health due to their hazardous properties such as explosiveness, toxicity, reactivity or corrosiveness.</p> <p>One particular aspect that needs to be considered when assessing loss of life or personal injury - human health dimension - and the associated compensation, is to make sure there is a very clear and transparent system in place. Assessing these types of claims can cause a lot of controversy. Furthermore, life and injuries are usually protected under various company or private insurance systems that may already be in place. It appears appropriate to compare them with what would be available with the compensation offered under the HNS regime and for example if cumulating regimes would be allowed.</p>

<p>Dr Walter Nordhausen Senior Project Officer European Maritime Safety Agency (EMSA) Europe Date: Wednesday, 13 May Session: 3.2 Dispersants Time: 09:30 Location: Endoumes room</p>	<p>Overview of national policies regarding the use of oil spill dispersants in the European Union The European Maritime Safety Agency (EMSA) is an Agency of the European Community, created to support with technical and scientific advice the Member States of the European Union (EU) and the European Commission in the field of maritime safety, prevention and response to pollution by ships. These objectives are addressed through specific tasks, including operational tasks in the field of oil pollution preparedness and response. Within the EU, the decision to use dispersants during an incident response operation lies entirely with the affected coastal Member State(s). EMSA first published in 2005 an "Inventory of national policies regarding the use of oil spill dispersants in the EU Member States", with the aim of collecting and disseminating on regular basis information regarding dispersant usage policies and operational capabilities across the EU. The inventory contains information, as validated by the respective national maritime administrations with respect to policies regarding dispersant use as a response option, dispersant testing and approval procedures; Stockpiles, means and equipment available for application. The paper details some conclusions which can be drawn from the inventory regarding developing trends, product testing and approval procedures, operational capabilities, gaps and challenges of usage in the EU area. Furthermore, it is a base for comparisons not only within the various regions of Europe, but also worldwide. Lastly, the paper outlines EMSA's dispersant-related actions, linked to continuous evaluation of the inventory's conclusions.</p>
<p>Dr Walter Nordhausen Senior Project Officer Pollution Preparedness and Response Unit, EMSA Europe Date: Wednesday, 13 May Session: 3.3 HNS response strategies Time: 11:30 Location: Callelongue room</p>	<p>EMSA activities in the field of HNS marine pollution The European Maritime Safety Agency (EMSA) is a specialised Agency of the European Community created in 2002 to support the EU Member States and the European Commission in the field of maritime safety, prevention and response to pollution by ships. Initially, EMSA focused its activities in the field of pollution preparedness and response on oil pollution, with actions in the field of HNS pollution being phased in gradually, parallel to the Agency's growth. Accordingly, in 2007, EMSA developed its "Action Plan for HNS Pollution Preparedness and Response". Within the framework of its HNS Action Plan EMSA aims to further develop its role in offering assistance to the Member States and the Commission. EMSA's actions aim to complement national preparedness and response capabilities already in place and not to create new ones. EMSA regularly addresses pollution preparedness and response issues through workshops with the EU/EFTA Member States national experts and representatives from international organisations and industry. Such workshops help identify gaps while providing useful recommendations for ways forward. In 2008 EMSA developed an inventory of existing capacities for responding to marine pollution incidents involving HNS in all coastal EU and EFTA Member States. Comprehensive information on the level of preparedness in the different EU countries was established. Furthermore, it appeared that the type of equipment commonly used in marine incidents involving HNS is not as straightforward as in oil pollution response. Due to the particular nature of HNS incidents the need is apparent for additional scientific and technical information in case of marine HNS spills. EMSA's actions are being developed to assist Member States in their efforts to provide authorities with valuable information on which to base risk assessments and set priorities for contingency planning covering HNS marine pollution.</p>
<p>Dr Michael O'Brien Senior Technical Advisor ITOPF United Kingdom Date: Tuesday, 12 May Session: 2.2 Response at sea Time: 16:30 Location: Endoumes room</p>	<p>The Oil Spill Response to the SEA DIAMOND Incident While approaching a mooring off the cliffside tourist town of Thira on Santorini Island (Greece) on April 5, 2007, the cruise ship SEA DIAMOND came into contact with an uncharted extension of rocky reef, suffered hull damage, took on water and began to slowly sink. An emergency evacuation of the 1156 passengers and 391 crew members was carried out. Tragically, two French passengers did not survive. The vessel went down with nearly 600m3 of oil, including heavy fuel oil, diesel, and lube oil. The rapid decompression of the tanks as she sank would have forced these to implode, releasing the contents. A significant instantaneous oil spill occurred, which transformed over the following, days, weeks, and months into a small, but continual release. Even before the sinking, the vessel owners and insurers teamed up with Environmental Protection Engineering (EPE) of Piraeus to respond to the oil spill. Working together with the International Tanker Owners Pollution Federation Ltd. (ITOPF), EPE initiated and carried out a multi-faceted response operation. The operations successfully dealt with the immediate issues of floating bulk oil and contaminated shoreline on the one hand, and the longer term issues of the continuing release on the other. In addition to the challenge of delicately handling an oil spill response operation on the doorstep of a world-famous tourist destination, responders had to deal with the logistics of working at the isolated</p>

	<p>foot of soft cliffs hundreds of meters high. The situation with the wreck itself threw up numerous problems. Nonetheless, some 300m³ of oil were successfully recovered; the shores were cleaned within 3 months of the initial release, the continuing release was well-contained. Neither the tourist trade nor the environment seem to have suffered.</p> <p>The paper reviews the methods and results of the response operations.</p>
<p>Hector Ochoa Solutions Development of Industrial Security and Environmental Protection Manager PEMEX Petroleos Mexicanos - Exploración y Produccion Mexico Date: Tuesday, 12 May Session: 1.1 Oil production and transport at sea Time: 14:00 Location: Main auditorium</p>	<p>Response to an oil spill from an offshore rig : working together in the KAB 121 incident On October 23rd 2007, Extreme weather conditions were encountered due to the passing of a cold front with wind gusts of up to 120 km / h from the North and wave heights of 6 to 8 meters it was a situation that has never been experienced in the "Sonda de Campeche" before.</p> <p>The described situation caused the Usumacinta drilling rig to tilt onto the Kab-101 platform where the cantilever landed on top of the valve assembly of the Kab-121 well, causing an instant loss of well control subsequently leaking oil and gas into the surrounding environment.</p> <p>Consequently the Local Contingency Plan was activated with participation of the government authorities, PEMEX response personnel from other states and various international companies were involved, as Alpina Briggs from Brazil, Briggs Marine from the UK, Clean Caribbean Americas, NRC, and a captain from Chilean oil spill response organization, a multinational team was created where we were "working together" with experienced oil spill response professionals.</p> <p>With experience from drills such as ARIETIS 1 2006, we decided to use the Incidents Command System (ICS) which, in this case, was organized as following:</p> <p>Among the most important activities were:</p> <ul style="list-style-type: none"> Surveillance flights to monitor and track the spill. Containment and recovery operations of oil offshore. Shoreline clean up and inspections. Environmental Beach evaluation. Offshore sea survey. <p>Result and conclusions:</p> <ul style="list-style-type: none"> Team work led by Secretaría de Marina (SEMAR) enabled success of shoreline and offshore operations. Being prepared with the Local Contingency Plan (PLC) and Regional Oil Spills Response Plan for Gulf of Mexico was really helpful for attending the emergency. Incidents Command System (ICS) allowed to meet emergency in an organized way and at the lowest costs. Selection of Services Providers with human and technical capacity allowed for a prompt and efficient response.
<p>Willem Oosterveen Director International Oil Pollution Compensation Funds (IOPC Funds) United Kingdom Date: Thursday, 14 May Session: 6.3 Compensation of damage caused by oil and HNS Time: 09:30 Location: Callelongue room</p>	<p>The IOPC Funds: What has been achieved and what will be the main challenges for the future? This presentation will, after a general introduction to the international regime governing liability and compensation for oil pollution damage based on the 1992 Civil Liability Convention and the 1992 Fund Convention, provide an overview of recent developments, both those within the international regime and those external to, but concerning or affecting, it. Issues such as the results of the Working Group on non-technical measures to promote quality transportation of oil, the functioning in practice of the STOPIA and TOPIA agreements, the admissibility of claims for the costs of preventive measures, guidelines for the assessment of (subsistence) fishery claims and a Protocol to the 1996 HNS Convention will be dealt with. In addition, recent major incidents, such as the Hebei Spirit and Volgoneft 139, as well as major on-going Fund cases, will be outlined. After taking stock of what has been achieved over the years, some issues regarding the future of the Organisation and the international regime as laid down in the Conventions will be addressed. An attempt will be made to identify the main challenges that lie ahead for the Organisation and how they may successfully be met.</p>

<p>Ms Heather Parker Principal Sound Enterprises and Associates, LLC United States Date: Tuesday, 12 May Session: 2.1 Oil pollution legislation and policies Time: 16:30 Location: Main auditorium</p>	<p>Spill Response Planning in the Philippines: 3-Tier Interaction between Government and industry In the wake of the M/V Solar I oil spill in the Philippines in August 2006, the Philippines Coast Guard (PCG) recognized the need to reorganize response activities within the country at all levels, and the revised Philippines National Oil Spill Contingency Plan (NOSCP) was completed in 2008. A key objective of the reorganization was to ensure compatibility between government agencies and the oil industry, including the national oil company, Petron Corporation. For Tier 1 spills each facility or vessel is expected to implement their internal response plan, with potential for some government oversight from the PCG. For Tier 2 spills, the facility or vessel will implement their response plan and the local PCG District will in most cases assume a direct management role of the response, and utilize their government equipment. For Tier 3 spills, the PCG would likely manage the spill on a national level, while executing international cooperative agreements and conventions as needed. Industry also recognized the need to revise and improve oil spill planning standards and, in 2007, Petron, through a U.S. Trade and Development Agency grant, engaged in the development of a comprehensive, corporate-wide oil spill contingency plan that exceeded the PCG planning standards. This Corporate Response Plan met the PCG government requirements to demonstrate the ability for Petron to respond to Tier 1 spills at each facility, and also exceeded compliance standards by demonstrating Petron's ability to respond to Tier 2 and Tier 3 incidents. Petron's comprehensive plan thoroughly describes the response system and equipment systems to be employed during each of the three possible Tier level spills, then outlines how Petron corporate management would integrate seamlessly with the government management systems at the Tier 2 and Tier 3 levels.</p>
<p>Melinda Pascale Project Manager Kymenlaakso University of Applied Sciences Finland Date: Tuesday, 12 May Session: 1.2 Shoreline Response Time: 14:00 Location: Endoumes room</p>	<p>Shoreline response for the worst case oil spill developed as a joint effort in Finland (SOKO project) Finland is the neighbouring country of one of the world's top crude oil producer Russia, and over the past few years the transportation of oil has significantly grown in the Baltic Sea. Thus, the oil combating authorities in southern Finland are enforcing preparedness for oil spills with the help of the SOKO project. The project produces comprehensive plans for oil spill management for the Regional Rescue Services, the Regional Environmental Centres and the Response Commander. The SOKO plan provides detailed information on how to conduct oil combating when oil reaches the shores after a worst case oil spill. The SOKO project is innovated and administered by a vocational education institute of seafaring and logistics in Kotka, Finland. The work is carried out in close co-ordination with the local oil combating authorities including the organisations and individuals who would naturally come together to respond to a worst case oil spill. The SOKO plan is an action plan complementary to the regional statutory contingency plans and is referred to in governmental oil spill preparedness recommendations. The SOKO plan seeks to enhance response logistics with an aim of reducing the time required to implement oil spill response and thus minimising environmental damage and response costs.</p> <p>The results of the project are presented in regional guidebooks achieved as a joint effort between oil combating authorities, educational institutes, civic organisations and businesses. The first guidebook was accomplished in 2007 for the eastern fire and rescue service region in Finland (Kymenlaakso). Three new guidebooks are to be produced by the year 2011 including regional updates along new topics. Overall, the SOKO plans are looking for a consistent and balanced level of preparedness across Finland as well as for flexibility so as to meet diverse regional needs.</p> <p>The subjects discussed will include the risk of the potential worst case spill, organisations involved and their roles and responsibilities, human resources and finally, communication and financing issues. In addition, the range and volume of waste, waste types and local end-disposal options will be estimated. The plan will also cover the cleaning operations, oil combating equipment and temporary storage sites in mainland and archipelago, as well as construction specifications. Transportation of oily wastes, including the methods for loading and discharging, will also be examined. Waste disposal routes will be pre-defined for road and railway transportation, and a database created for estimating economic routes from the archipelago to the mainland. In addition, detailed operative charts will be produced, with indications of the cleaning sectors and the oil waste transportation spots. Furthermore, some contract formats will be developed among other details.</p> <p>Most studies have been accomplished by adult students. In the projects, the role of the oil combating authorities and project personnel has been to identify unresolved issues in preparedness, collect data, supervise and evaluate the</p>

<p>Georges Peigné Deputy Director Cedre France Date: Tuesday, 12 May Session: 2.2 Response at sea Time: 15:30 Location: Endoumes room</p>	<p>result. Working together transparently and openly has been the clue ingredient in the success of the SOKO project.</p> <p>Heavy oil recovery at Sea - Evolution since the Erika and the Prestige Spills Debriefings and technical analysis of the operations carried out during the Erika and Prestige spills pointed out interesting lessons about the efficiency, limitations and potential improvements of techniques and means deployed to recover very heavy fuel oil (VHFO) at sea. Before and between these spills, other spills and also the analysis of the traffic evolution encouraged the improvement of response techniques and means adapted to VHFO. Therefore efforts have been devoted to improve preparedness and response capacity in the field of recovery at sea, and better adapted to VHFO spills and severe weather conditions, at least in Europe, both by EMSA and by countries feeling much concerned by the risk of VHFO spills. Most of these efforts have addressed the chartering or purchasing of oil spill recovery vessels (OSRV) fitted with equipment suited for VHFO spills, in terms of recovery, storage and transfer of very viscous products, and also in terms of detection of the oil. They mainly made use of pre-existing techniques and means, whose efficiency had been proven during actual spills. In parallel, efforts devoted worldwide to the research and development of new techniques and means have been limited, due probably to a lack of funding but also to a lack of proposals. Some efforts have been devoted to the testing and improvement of existing means and techniques, including e.g. annular water injection, mechanical feeder skimmers and trawl nets. As a consequence, the capacity to recover VHFO spills has significantly improved since the Erika spill, but there is still much room for improvement and R&D in this particular field should be encouraged.</p>
<p>Mr Robin Perry Vice President, Training and Consultancy Seacor Environmental Services United Kingdom Date: Thursday, 14 May Session: 6.4 From The Past to The Future Time: 13:30 Location: Callelongue Room</p>	<p>From Torrey Canyon to Today: How spill response has progressed in the last 42 years The aim of this paper will be to review how spill response has progressed in the intervening 42 years and especially to update and amend as necessary the findings of my IOSC 1999 issue paper "Myths and Realities of Oil Spill Planning and Response the Challenges of a Large Spill". The paper will review strategies and techniques for spill response both at sea and on the shorelines and discuss whether these have improved over the years. It will see how the various oil spill compensation arrangements have grown out of the disasters in different jurisdictions with comment; not only on how these have improved, but also looking at changes that might be considered. Planning issues will be considered, observing that not even all rich countries have adequate plans in place. It will look at co-operation in its many forms: in local areas; in Government and Industry co-operation and in Inter-Governmental agreements. It will also consider how developing countries can be assisted, as oil spills may be much lower on their lists of priorities than reducing poverty, and improving education and housing. It will emphasise that, however much equipment may be present, ultimate success will depend upon people. Do we always ensure that competent management teams are in place? Can they react with initiative to the unexpected? Is there a well trained response team to operate the equipment, for without that the equipment will be virtually useless? Finally it will review how attitudes to spills have changed. Has the public realised that spills will continue to happen as the price of hunger for oil, hopefully less frequently, but happen they will? Conclusions will be drawn with recommendations for the way ahead over the next 10 years.</p>
<p>Dr Karen Purnell Managing Director International Tankers Owners Pollution Federation Date: Tuesday 12th May Session: Opening Ceremony Time: 10:00 – 12:15 Location: Main Auditorium</p>	<p>White Paper – Are HNS spills more dangerous than oil spills? Instinctively, there is greater concern about spills of Hazardous and Noxious Substances (HNS) from ships than from spills of oil. But is this concern misplaced? What makes an incident more or less dangerous? With forecasts of increasing volumes of HNS being transported by sea globally are there lessons that can be learnt from past incidents to help us prepare better? The dramatic reduction in oil spills from tankers over the last four decades demonstrates the effectiveness of the various Conventions and safety measures that have been put in place to address ship safety and management, and preparedness and response to oil spills. These Conventions and safety measures could serve as useful models to assist governments, industry and responders in the event of a spill of HNS, provided that the obligations contained in these 'instruments' are understood and adhered to. This paper recalls the progress that has been made in preparing for and responding to spills of HNS and highlights lessons that have been learnt from spills of both oil and HNS worldwide. Factors that make HNS</p>

	<p>spills more or less dangerous are discussed and examples are provided from real incidents; additional case studies have been provided in a separate appendix to complement the examples used in this paper. Areas where more information is needed have been identified and some suggestions for possible R&D investment have been made.</p> <p>In many references oil is also referred to as HNS but for the purpose of the White Paper, oil has been discussed and compared as a separate substance.</p>
<p>Ms Quek Qihui Spill Response Specialist Duty Manager Oil Spill Response Singapore Date: Wednesday, 13 May Session: 3.2 Dispersants Time: 11:30 Location: Endoumes room</p>	<p>Key Issues and Operational Challenges in the Use of Dispersants</p> <p>In the Torrey Canyon incident, chemicals with highly aromatic solvents were used in large quantities. These were highly detrimental to enforce regulations on the use of oil spill treatment chemicals. Usage of dispersant poses certain operational challenges. Dispersants may pose health and safety hazards to responders during handling or during spray operations. Sprayed dispersant may be blown back on board, resulting in slippery decks. Dispersant has a degreasing effect on mechanical parts and there is a need for cleaning and rehabilitation of equipment after operations. Some precautions like donning of PPE and having a first aid station ready are part of the safe working procedures. Additional challenges such as staging and working areas that would offer the shortest possible time must be taken into account. These include distance to the spill site and transit time for the replenishment of dispersant stockpile. Deployable equipment and trained personnel are often logistically challenging.</p> <p>Dispersant remains marred by a negative image. To gain governmental approval modern, concentrated dispersants must be proven to be less toxic than dispersed hydrocarbons. The other perception is that oil will disperse naturally given enough time and there is no need to use dispersants. The reality is that rapid and total removal of oil is never possible. Dispersants can assist to accelerate natural biodegradation, inhibit sedimentation and diminish the impact of oil stranding onto the shoreline.</p> <p>This paper will discuss the key issues and challenges faced during an oil response using dispersant spraying strategy with the aid of case studies from spill response operations in Libya, Korea and Pakistan.</p>
<p>Dr Jean Francois Rebor Manager France P&I France Date: Wednesday, 13 May Session: 5.1 Inland water pollution from production and transport Time: 16:30 Location: Main auditorium</p>	<p>Seine river carriage developments and prevention of accidental pollutions: Is there a need for improvement?</p> <p>For the last ten years in France, the inland water/river carriage of all types of goods has tremendously increased. The crucial issue with this new development is the increase of the risk of a serious pollution which would have a negative impact on all the industry. The purpose of this presentation is to prospectively asses the needs which will derive from these developments. It will review the factors of aggravation of the threat of pollution. It will show that the hypothetical spill may not be limited to oil substances but could also encompass any HNS</p> <p>As regards authorities, it will expose that we benefit of a quite large number of authorities who may have the powers to intervene depending of the exact location of the event: the Maritime Prefect, the various Regional and District Prefects, the various mayors of the different concerned town, the elected Regional council, the elected District council, the Seine Normandy water agency. Contingency plans have been elaborated.</p> <p>Could it be considered that all these facilities and arrangements are sufficient? In theory and until the occurrence of a catastrophe, it may be reasonably contemplated that the reply would be most likely “yes, but ...”</p> <p>A simple scenario will illustrate this “but”: a barge loaded with about 60 containers whilst manoeuvring on the Seine River between Nanterre and Genevilliers enters into collision with a river passenger vessel, a fire starts on both units and few minutes after the passengers river vessel sinks...</p>
<p>Mr Ruben Reyna ENGINEER Ocean Pollution Control Panama Date: Wednesday, 13 May Session: 4.3 HNS Case Studies and Lessons Learnt Time: 14:00 Location: Callelongue room</p>	<p>Chemical Spill in Latin America port areas: Lessons learned in Panama with the Spill of the Chlorovipaloyl Chloride</p> <p>Monday July 8, 2008, Cortes Port, Honduras. A toxic cloud emerges from the port area. Minutes after thousands of neighbors residents of the port area wake up with breathing problems. Streets are full of Smoke. Hysteria. The cause is a spill of sodium hydrosulphite, commonly used for a textiles bleaching, a flammable and combustible material (IMDG). An inappropriate storage allowed moisture to penetrate the container with the season heavy rains. Such situations are not new in Latin America. Bureaucratic disorganization, responsible ignorance, actors and interests multiplicity, inadequate budgets, priorities misguided by the authorities, the reasons are many and effective response is still slow in many ports.</p> <p>However, there are valid background and experience in the region. March 2006, Balboa port, Panama, a container ship presents a spill in his deck and alerts the port authorities who comes with their firefighter’s team, and they throw</p>

	<p>water. Typical error. The product, Chlorovipaloyl Chloride did not allow contact with the water; which produces burns to several laborers, who were not complying with the adequate safety standards. Since then, the decisions are untied, and the responsible agency (MOL Panama) decides to call a specialized company in handling chemicals; which, it has a contract with the Panama Maritime Authority (OPC SA), an unique case in the region. We all know that handling chemicals is a specialization, and not in vain The paper that is presented is introduced into the reality of the developing world, in this case, Latin America, noting the need for progressing in effective responses to these situations that are no longer eligible by public opinion.</p>
<p>Dr Dagmar Schmidt Etkin Principal Consultant Environmental Research Consulting United States Date: Wednesday, 13 May Session: 4.2 Rigs, wrecks and sunken oil Time: 14:30 Location: Endoumes room</p>	<p>Risk Assessment Model for the Prioritization of Oil Removal from Sunken Wrecks An international survey indicated that there are at least 8,569 sunken shipwrecks, including 1,583 tank vessels² and 6,986 non-tank vessels that may contain as much as 2.5 to 20 million tonnes of oil. Sporadic or continuous leakages, or potential sudden massive spillages from these wrecks, many of which stem from World War II, pose a continual risk across the globe. Yet, it is impractical and economically unfeasible to remove oil from all these vessels. Each wreck presents a unique situation with regard to the probability of leakage and the potential impacts of oil leakage. This paper presents a strategic modeling approach to prioritizing the wrecks with regard to their risk potential. The model takes into account both aspects of oil pollution risk – the probability that leakage will occur and the potential consequences or impacts of that leakage. The probability of leakage depends on a number of factors, including the vessel type, its structural integrity, its condition with regard to breakage and damage, the depth at which it lies, water temperature and salinity, and exposure to currents. The potential range of scenarios of leakage present a range of potential consequences. The impacts of oil spills, including environmental and socio-economic damages, as well as response costs, vary tremendously depending on oil type, amount, timing, and duration, and, most importantly, location. A great effect on the costs and damages may result. Combining leakage probability assessment and spill impacts results in a comprehensive risk assessment approach that can be applied to prioritize wrecks for oil removal based on estimated risk.</p>
<p>WJ (Ivan) Skibinski General Manager Australian Marine Oil Spill Centre Australia Date: Thursday 14th May 2009 Session: 6.4 From the Past to the Future Time: 14:00 Location: Main Auditorium</p>	<p>HOT TOPIC: The Pacific Adventurer Spill off Queensland, Australia Gale force winds and seas at 5-6m were hampering progress of the container ship Pacific Adventurer when early in the morning of 11 March 2009, 31 containers (ammonium nitrate) were lost overboard. On route from Newcastle to Brisbane the vessel was approximately 7 miles east of Moreton Island when the incident occurred, the falling containers damaged two fuel oil bunker tanks and subsequently about 270 tonnes of fuel oil were lost into the sea. Within 24 hours the oil had contacted some 60kms of shoreline affecting sandy beaches, rocky coast and near shore waterways. To date several hundred personnel from local and national agencies have been deployed to assist in the response. The response arrangements, affected areas and strategies will be presented and discussed during the presentation</p>
<p>Mr Bernt Stedt Deputy Head of the Response Department Swedish Coast Guard Sweden Date: Wednesday, 13 May Session: 3.3 HNS response Strategies Time: 09:30 Location: Callelongue Room</p>	<p>Response to HNS by the Swedish Coast Guard The Swedish Coast Guard (SCG) is responsible for surveillance and environmental response at sea. This includes response to oil and hazardous and noxious substances (HNS). The Swedish Maritime Administration is responsible for search and rescue. The SCG contingency plan covers both oil and HNS. The SCG has 12 oil recovery vessels and 2 multi-purpose vessels. These vessels might be used in case of a HNS-incident, depending on the substance/es. The SCG has about 70 response divers, trained to deal with fire, HNS and scuba diving. 20 of them are trained as On Scene Commander/Emergency Responders. In case of an HNS incident there will not be enough responders available within the SCG. Because of this the SCG and the Swedish Maritime Administration have an agreement with six municipal fire brigades. In case of an incident personnel from these fire brigades are available for the SCG and Maritime Administration. The staffs of the fire brigades are trained concerning boarding from ship and helicopter, orientation on board a ship and firefighting. They also participate in exercises with the SCG. Sweden is a member of HELCOM, the Bonn agreement and the Copenhagen agreement. Response to HNS is part of these agreements and, in 2009/2010 a specialized vessel for HNS response will be delivered to the SCG. This will ensure a platform which can be used during HNS incidents. But there remains today a lack of knowledge of the substances transported and identification of suspected spills. The countries within HELCOM have applied for partial funding of a project, within Interreg IV, to identify the amount and number of chemicals transported in the Baltic Sea and to identify the risk of these chemicals.</p>

<p>Toby Stone Head of Counter Pollution and Response Maritime and Coastguard Agency United Kingdom Date: Wednesday, 13 May Session: 3.3 HNS response strategies Time: 10:00 Location: Callelongue room</p>	<p>Progress made by the United Kingdom in developing a methodology for implementation of new planning and response requirements for HNS</p> <p>The current International Convention on Oil Pollution Preparedness Response & Co-operation, 1990 (OPRC) identifies, among other things, planning requirements for ports and harbours handling crude oil and refined petroleum products. The Protocol on Preparedness, Response and Co-operation to pollution incidents by Hazardous and Noxious Substances, 2000 (HNS Protocol) will extend this planning requirement to HNS. The HNS Protocol was formally adopted by States already party to the OPRC Convention at a Diplomatic Conference held at IMO headquarters in London in March 2000. The UK is presently considering legislation to achieve the objectives stated in the HNS Protocol 2000. In order to facilitate accession to the Protocol and introducing relevant legislation, the U K has drafted a methodology for planning for and responding to HNS incidents. The framework identifies three levels of response according to the severity of the incident.</p> <p>In the UK there are currently approximately 200 ports and harbours with comprehensive oil spill contingency plans which have been approved by the Maritime and Coastguard Agency (MCA). This is a statutory requirement under the Statutory Instrument OPRC Regulations 1998. It will be necessary for the regulatory authority (MCA in the United Kingdom) to identify which ports and harbours will fit the criteria for HNS Protocol compliance and produce guidance for incorporating HNS into current response plans and response procedures. A framework attached to this paper is intended to be a first draft to establish exactly what measures should be put into place by individual ports and harbours.</p>
<p>Captain Lincoln D Stroh Captain US Coast Guard Commander United States Date: Wednesday, 13 May Session: 5.1 Inland water pollution from production and transport Time: 16:00 Location: Main auditorium</p>	<p>Pollution response to an oil spill in the Mississippi</p> <p>On July 23, 2008, the tankship Tintomara collided with the tankbarge DM932 in New Orleans, Louisiana. The collision resulted in the tankbarge DM932 buckling in half and spilling 268,000 gallons of no. 6 fuel oil into the Mississippi River. The oil spill closed this economically vital marine transportation system for five days. The rapid cleanup of the oil was complicated by a falling river, high currents, a continuously leaking barge, a complex barge lightering and salvage operation, sinking oil, at-risk water intakes, twelve-hundred oiled vessels, a hundred miles of impacted river banks, a sensitive wildlife refuge, weather interruptions, dredged oil, and numerous other challenges. Federal, State, Parish and industry responders unified their efforts to mitigate the spill, marshal a massive response force, salvage the barge, clean the impacted vessels and ultimately remove the oil from the river's waters, battures and levees. The Incident Commanders effectively coordinated all participation by government agencies and industry to manage the two-thousand, three-hundred responders involved in this clean-up. A Marine Transportation System Recovery Unit was also deployed by the U.S. Coast Guard to prioritize cargo and vessel movement upon reopening of the river to meet the urgent needs of the nation. In that the operator of the towing vessel pushing the tankbarge DM932 was not properly licensed, the spill prompted renewed interest in tighter regulation of the towing vessel industry in the United States.</p>
<p>Amalia Supino Naval Architect Castalia Ecolmar S.C.p.A Italy Date: Wednesday, 13 May Session: 3.3 HNS Response Strategies Time: 11:00 Location: Callelongue Room</p>	<p>Conversion of a multipurpose vessel to a chemical recovery vessel</p> <p>With reference to the "Protocol on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances, 2000 (HNS Protocol)" it's essential to identify the crucial resources in terms of marine units and equipment available to face such type of accidents. For the Countries having response fleets based on multipurpose vessels, the question is whether it is possible and profitable to convert existing marine units in order to adequate them to an HNS response capability or to built new vessels. In addition it is necessary to verify the HNS substances on which it is currently possible to intervene without substantial modifications of the structures of the existing ships and the limits of the possible response in terms of type of HNS substances.</p> <p>To reach such targets a feasibility study has been carried out on the vessel "BLU", currently under construction. She will make part of the Castalia Ecolmar fleet employed for the antipollution service, on behalf of the Ministero dell'Ambiente e della Tutela del Territorio e del Mare. The feasibility study has been carried out in cooperation with the Classification Society RINA to evaluate the technical requirements which are to be complied with in order to obtain the classification as Chemical Recovery Vessel. The said technical requirements for the chemical recovery vessel refer to increased Gas dangerous area, overpressure protection of accommodation and engine rooms, filtered air for engine and accommodation, chemical cargo tanks, gas detection equipment, cargo handling equipment,</p>

	discharge pumping and piping system for chemical products and fire fighting
<p>Claudine Tiercelin Caribbean delegate of Cedre Cedre France Date: Thursday, 14 May Session: 6.2 Regional Preparedness 2 Time: 11:00 Location: Endoumes room</p>	<p>Oil spill preparedness and response in the French West Indies The French West Indies (Martinique, Guadeloupe, Saint Barthélemy and Saint Martin) have experienced oil landings from ship incidents taking place both far away (ex: Vistabella) and on their coastline (ex: Dolly). Their preparedness and response are defined in the “Plan Polmar Mer” of the Antilles maritime area which is a responsibility of the Prefect, delegate of the Government, in close cooperation with the Commander of the Navy in charge of the area. The “Plan Polmar Mer” has to be drilled every alternate year. The two last exercises were organized in 2006 in Guadeloupe and in 2004 (postponed to early 2005) in Martinique, with the cooperation of the regional cooperative Clean Caribbean and Americas in the framework of its MOBEX triennial exercise. The 2008 drill took place in the waters of the two northern islands, Saint Martin and St Barthélemy, where it had never taken place before. The first aim was to test the reactivity of the Navy to send to the area its specialized evaluation team and its equipment, located in Martinique, at a distance of 250 Nm. Cooperation with the Netherlands Antilles was discussed, in relation with a recent update of the Caribbean OPRC plan by a French adviser seconded to the RAC/REMPEITC. And a workshop on the improvement of regional mechanisms for responding to oil spills, supported by UNEP and IMO was implemented in Sint Maarten, with participation of 12 Caribbean island states. Many lessons were learnt from the exercise and workshop. They are presented in this paper. They demonstrated that the French authorities will need the help of the Netherlands Antilles through their agreement with the oil industry for a tier 1 incident in the first hours after the spill.</p>
<p>Ms Violeta Velikova Pollution Monitoring and Assessment Officer The Black Sea Commission Turkey Date: Wednesday, 13 May Session: 3.1 Regional Preparedness Time: 11:00 Location: Main auditorium</p>	<p>Government and industry cooperation in the development of oil spill preparedness Governments have recognized the importance and value of cooperation for oil spill preparedness. At the global level this is manifest through the International Maritime Organization’s International Convention on Oil Pollution Preparedness, Response and Cooperation 1990, which is further enhanced through a series of region-specific agreement or Conventions and their related Protocols. These Governmental efforts also encourage partnership with the oil and shipping industries in developing preparedness. At the regional level, OSPRI has been supporting development of Governments’ cooperation mechanisms under the Bucharest Convention and its Emergency Protocol (for the Black Sea) and the Tehran Convention and its draft Oil Pollution Incident Protocol (for the Caspian Sea). The Black Sea framework was first established in 1992 and implementation has received enhanced focus from 2004 onwards. A regional oil spill exercising programme has been underpinned by a series of workshops, training and seminars. This programme culminated in a major regional exercise in September 2007 (Exercise SULH, hosted by Turkey) and the programme is planned to continue into the future representing a sustainable effort. The improvements in communication and potential for effective cooperation between Black Sea littoral States and industry in case of major oil spill are demonstrable. This paper introduces the regional exercise programme for the Black Sea and indicates how this programme and related preparatory activities were targeted in the months leading to Exercise SULH – including the lessons learned and challenges remaining.</p>
<p>Mr Tim Wadsworth Technical Support Manager ITOPF Ltd United Kingdom Date: Tuesday, 12 May Session: 1.2 Shoreline Response Time: 14:30 Location: Endoumes room</p>	<p>A Comparison of Shoreline Response Techniques in Significant Incidents The aim of any shoreline clean-up should be to remove the oil in as short a period as possible, in an effective manner whilst causing minimal damage to the substrate and preventing recontamination of surrounding areas. However, the method by which these aims are achieved can vary widely and cleaning is invariably dependant on many factors. The level of contamination and quantities of material for disposal, the nature of the shoreline, the type and number of available resources and the composition of established contingency plans all have a bearing. These factors can themselves vary according to the social, political and legislative environments in which the response is undertaken. As a consequence, the effort and duration of the response is likely to be influenced by the location of the spill, rather than technical criteria. The shoreline clean-up activity arising from three significant oil spills is compared. For each incident a common oiled shoreline type has been identified. The clean-up methods undertaken are compared to determine the level of effort required. Where available, the numbers of workers and plant involved over the period of response have been</p>

	<p>considered to determine how the shoreline response was effected. The factors affecting the techniques will then be considered to determine the basis for any differences the incidents to gauge which may be considered as the more effective and efficient.</p> <p>For this exercise, we have looked at the shoreline clean-up undertaken in response to three significant tanker incidents SEA EMPRESS, PRESTIGE and HEBEI SPIRIT.</p>
<p>Dr Zhendi Wang Senior Research Scientist Environment Canada Canada Date: Wednesday, 13 May Session: 4.1 Oil pollution impacts and restoration Time: 14:00 Location: Main auditorium</p>	<p>Forensic identification of biodiesel and petroleum diesel/biodiesel blends The decline in global oil production and rising energy demand calls for the development of new renewable energy alternatives in global scope. Biodiesel has been gaining worldwide interest as a transportation fuel replacement because it derives from renewable agricultural sources, has near net-zero greenhouse gas emissions and comparable fuel characteristics to conventional diesel. Though a natural substitute for diesel, the environmental implications of production, management, distribution, storage, and end use of these emerging alternative fuels are not well understood. A need exists to proactively develop techniques and technologies that can be used in to characterizing biofuel releases into the environment, evaluating remedial action options, and identifying best management practices for this alternative fuel. To this end, a “chemical fingerprinting” methodology and the selection of relatively stable “molecular markers” for biodiesel is essential for any further study of their environmental impacts due to their use.</p>
<p>Claire Wright Consultant Lloyds MIU United Kingdom Date: Tuesday, 12 May Session: 1.1 Oil production and transport at sea Time: 13:30 Location: Main auditorium</p>	<p>Seaborne crude oil transport: Patterns and trends An assessment of locations vulnerable to oil spills and the adequacy of current spill response resources needs to be informed by knowledge of the quantity of oil transported by sea, the routes used and the profile of the fleet transporting the oil. In this paper the author draws on Lloyd’s MIU’s Analysis of Petroleum Exports (APEX) database, which focuses on seaborne oil trade and tanker activity and records all laden crude oil voyages in tankers over 10,000 dwt. This data is used by the author to examine how patterns of seaborne oil transport have changed significantly in the last ten years, even though the quantity of crude oil transported by sea globally has increased by only 15%. Looking at the patterns of crude oil trade in 1998 and 2008 we can understand more about the characteristics and density of oil transport in particular geographic areas. The deployment of single-hulled tankers has decreased significantly on some trades, but remained constant on others. The use of double-hulled tankers to transport crude oil has increased in all areas. We can see how increases in oil exports by sea from areas such as the Baltic and West Africa and decreases from other areas have changed the density of laden oil tankers on certain routes. An examination of casualty incidents involving crude oil tankers can also give us an indication of any geographic concentrations and an idea of patterns in the characteristics (age, flag etc) of vessels involved in such incidents.</p>
<p>Guo Xiubin Director Shenzhen Maritime Safety Administration China Date: Wednesday, 13 May Session: 3.1 Regional Preparedness Time: 11:30 Location: Main auditorium</p>	<p>The Oil Spill Emergency Cooperation and the Enforcement of OPRC 1990 in the Outfall of the Pearl River The delta of the Pearl River is one of the most important economic areas in China. There are many vessels carrying dangerous goods, particularly oil, sailing in the area, and at this marine crossroads, accidents have been happening frequently. Three different law regimes co-exist: Guangdong MSA and Shenzhen MSA carry out the law of PRC, Hong Kong MSA implements the law of Hong Kong Special Administration Area and Macao obeys the law of Macao Special Administration Area. However, the four MSAs are dominated by the PRC, which has spent a lot of money in the Emergency Cooperation Plan (ECP) in the Outflow of the Pearl River. The main purpose of the ECP is to set down the regional plan of oil spill preparedness, response and cooperation. The ECP is written according to the OPRC1990. All of the essential contents of the convention relating to implementation of regional cooperation are included basically in the plan. At the same time, the cooperation in the outflow of the Pearl River is actualized in a single sovereignty; the parties are independent to make choices. A secretariat is established to coordinate the works effectively, in Guangdong MSA. The institution is able to dispatch the personnel and material resources. The four parties should have regular meetings, once a year at least. Although the plan is effective, some shortcomings need to be improved. Firstly, the plan should be more detailed, especially relating to the means and procedures to assist reimbursement. Secondly, the plan can further precise each party’s rights, obligations, and responsibilities relating a cooperating action. Thirdly, each party should do more research on the high technology relating combating oil spill incidents.</p>