

## What has Europe learned after the Deepwater Horizon/Macondo Incident?

### Mr. Bernd Bluhm

Head of Unit Pollution Response Services

[Bernd.Bluhm@emsa.europa.eu](mailto:Bernd.Bluhm@emsa.europa.eu)

European Maritime Safety Agency

Praca Europa No 4, 1249-206

Lisbon, Portugal

### Ms. Lito Xirotyri

Senior Project Officer

Cooperation and Information

Pollution Response Services

[Lito.Xirotyri@emsa.europa.eu](mailto:Lito.Xirotyri@emsa.europa.eu)

European Maritime Safety Agency

Praca Europa No 4, 1249-206

Lisbon, Portugal

### ABSTRACT 299162:

The Deepwater Horizon (DWH) incident and the response thereto generated significant interest in Europe, in particular with regard to the safety of offshore oil and gas operations, existing oil spill response arrangements, and the potential impacts of surface and subsurface dispersant application. This paper will present the main relevant developments and actions undertaken in Europe in the years following the Macondo incident, focusing primarily on the work of the European Commission, European Maritime Safety Agency (EMSA), and European Union (EU) Member States, as well as the work undertaken within the established Regional Agreements in Europe.

The following topics will be addressed in more detail:

1) It has been considered critically important *to review and enhance the regulatory arrangements* in Europe relevant to the safety of oil and gas operations and to strengthening the effective response to marine oil pollution. This is being implemented at the national level by several European countries. At the level of the EU Institutions, this is being addressed by:

- Issuing the Directive of the European Parliament and of the Council on safety of offshore oil and gas operations and amending Directive 2004/35/EC. The main elements of this Directive will be presented.
- Amending the Regulation (EC) 1406/2002 establishing a European Maritime Safety Agency (EMSA) by Regulation (EU) 100/2013 of the European Parliament and of the Council. The new Regulation expands EMSA's mandate to assist EU countries in the response to oil spills from oil and gas installations and to also support in such cases other countries sharing a regional sea basin with the EU. EMSA's Action Plan in implementing its newly assigned tasks will be presented.

2) EMSA provides a forum at the EU level for Member States' experts to address issues contributing to the preparedness for and response to accidental and deliberate marine

pollution, including the use of dispersants and the experience gained from the DWH incident. Actions undertaken in this regard and their outcome will be presented.

3) The review of *the potential oil spill response options and techniques* has revitalised the discussion of mechanical recovery of oil versus the application of dispersants in such a way that nowadays more and more EU States consider the use of dispersants as a possible oil spill response option. The main elements of this discussion in Europe will be presented in more detail, also within the context of the *multinational cooperation in Europe* executed primarily by the Regional Agreements that are in place.

## INTRODUCTION:

The Deepwater Horizon (DWH) / Macondo incident (hereinafter referred to as the ‘Macondo incident’) and the subsequent oil spill response operations generated significant interest in Europe in particular with regard to improving the safety of offshore oil and gas operations, strengthening existing oil spill response arrangements and addressing the potential impacts of both surface and subsea dispersant application.

There are currently over 1,000 oil and gas offshore exploration and production installations operating in European waters and shared sea basins that serve the constantly rising demand for oil, with some more being planned in the near future. The majority of these installations are located in the North Sea (United Kingdom (UK), Norway, Netherlands), while others are located in the Adriatic Sea, around the Mediterranean Sea, the Iberian Peninsula, and the Black Sea, as shown in the Figure 1 below. Most of these offshore installations operate in shallow waters of less than 300 metres depth.

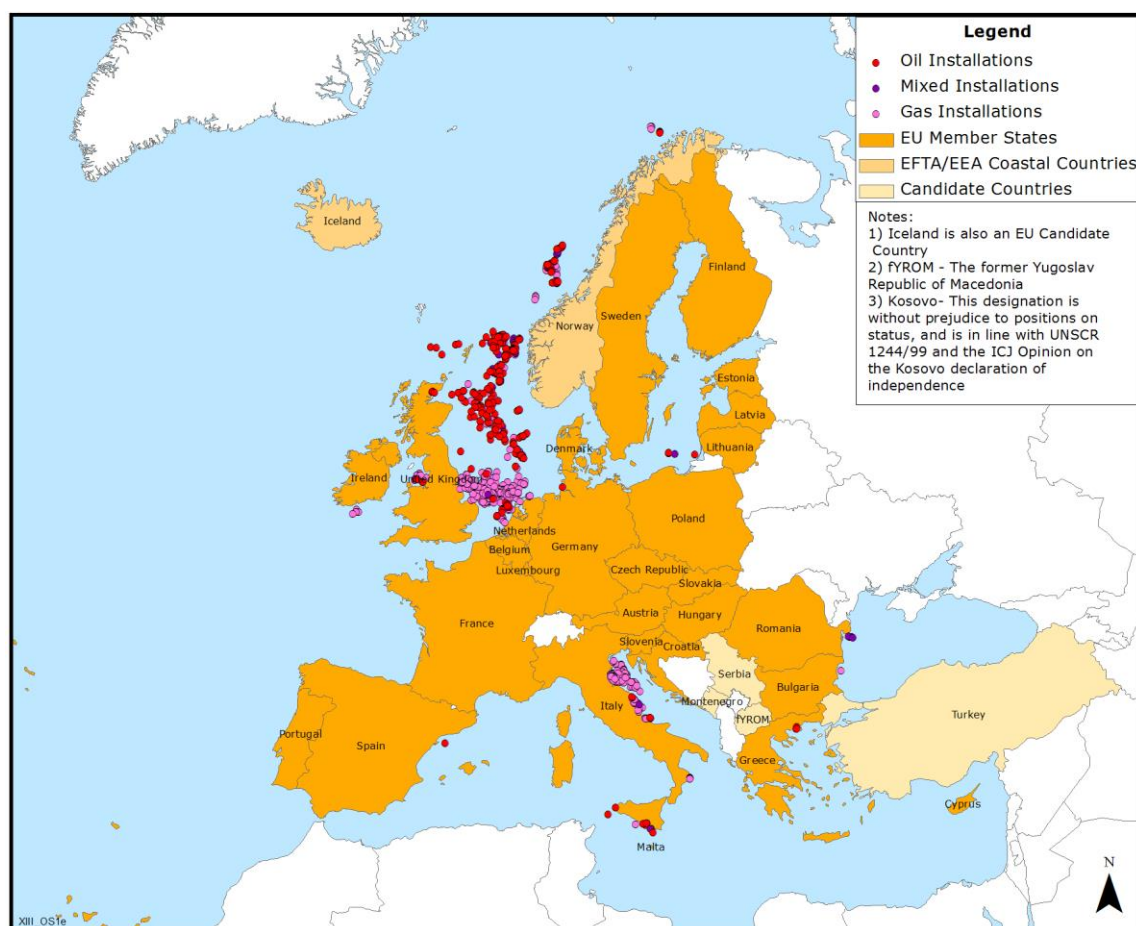


Figure 1 – Map of offshore installations across Europe<sup>1</sup>

However, given the increasing demand for resources in the recent years, more deep water projects are starting to be developed in the European waters and the shared sea basins. Since the beginning of offshore oil and gas operations in Europe more than 40 years ago, several oil spills originating from offshore installations have already been recorded in Europe and the shared sea basins. A table with the most relevant spills either in European waters or with the potential to affect European waters are presented below.

Name	Date	Location	Spilled oil (tonnes)
Statfjord A	12.12.2007	Off Bergen, North Sea	4,000
Production well D-103	08.01.1980	800 km southeast of Tripoli, Libya	142,860
Ekofisk B	22.04.1977	300 km south-west of Ekofisk oil field, North Sea	32,000

Table 1 – Relevant spills from offshore installations in Europe and shared sea basins<sup>2</sup>

<sup>1</sup> Source: EMSA Action Plan for Response to Marine Pollution from Oil and Gas Installations (<http://emsa.europa.eu/publications/technical-reports-studies-and-plans.html>)

<sup>2</sup> Source: EMSA Action Plan for Response to Marine Pollution from Oil and Gas Installations (<http://emsa.europa.eu/publications/technical-reports-studies-and-plans.html>)

**MAIN DEVELOPMENTS IN EUROPE FOLLOWING THE MACONDO INCIDENT:**

Even though the water depth, sea temperature, meteorological, and environmental conditions may differ in Europe compared to the Gulf of Mexico, there are lessons to be learned and important aspects to consider from the Macondo incident and the subsequent oil spill response operations. Important actions targeting to improve the safety of the offshore oil and gas operations and to enhance oil pollution prevention, preparedness, and response were initiated by the EU Member States, the European Commission, and EMSA following the Macondo incident. Such actions include the following:

- Controversial discussions in the public, within the political scene, among the regulatory authorities, as well as within the industry began right after the accident happened.
- Acknowledgement by the EU regulators that although the offshore oil and gas operations in Europe were considered to be safe in principle and well regulated, further improvements are required to enhance the safety of such operations and to ensure a more uniform implementation of existing requirements at the EU level.
- The general attitude towards the safety of drilling operations and the prevention of accidents has improved significantly within all sectors, especially considering that a number of installations already present in European waters are ageing, and consequently up-grading, overhauling, and replacement is deemed necessary.
- A number of different initiatives were discussed at the EU level shortly after the incident happened; one of the most significant being the introduction of a European directive for the safety of the offshore oil and gas operations. However, such initiatives, in their initial proposed format, were challenged by various stakeholders (e.g. some EU Member States, the oil and gas industry) given the fact that they might interfere with and/or affect existing arrangements in some parts of Europe where offshore oil and gas operations are strictly regulated (e.g. North Sea). Accordingly, such initiatives required extensive consultations with relevant stakeholders in order to identify the best way forward.
- Industry associations launched comprehensive programs for assessing the current situation, and subsequently improving the prevention aspects and enhancing the preparedness and response to pollution incidents (e.g. the Global Industry Response Group (GIRG), established by the International Association of Oil and Gas Producers (OGP); the Oil Spill Response Joint Industry Programme (OSR-JIP), managed by the International Petroleum Industry Environmental Conservation Association (IPIECA); and the Oil Spill Prevention and Response Advisory Group (OSPRAG), established by Oil & Gas UK). In this context it shouldn't be neglected that an extensive programme for the development of new pollution response capabilities and enhancement of existing ones was launched by the industry for enabling worldwide response capabilities, in particular with regard to oil well blow-out scenarios. Amongst the most important developments are the new well intervention tools such as the well capping, and cap and flow devices, and the equipment for sub-sea application of dispersant. In parallel, industry cooperatives for pollution response are planning to enhance the current capabilities by purchasing and stockpiling significant additional quantities of dispersant, and by establishing new dispersant application capabilities.
- With regard to the response to the oil spill from the Macondo loss of well control, the prime focus of the EU Member States' initial concerns seemed to be on the new element of sub-sea dispersant application, as well as on the potential impacts of such large-scale use of dispersants. This interest has been expressed at various fora hosted by EMSA and attended by EU Member States' marine pollution experts (e.g. workshops and meetings).

- Directly comparing the experiences gained in the Gulf of Mexico to European seas is neither feasible nor desired, not only because of the differences in the environmental and natural conditions, but also and even more so, because of the different regulatory backgrounds of the United States (U.S.) and the European countries with regard to oil spill response options and procedures.
- During the Macondo experience, subsea dispersion was used for the first time and it appears that such an approach could be a valid response option for a similar subsea blowout scenario in Europe. The novelty in the rationale for injecting dispersant at the spill source where high energy results in a high rate of dispersion, is that it also makes the operational areas safer by reducing the amount of volatile organic compounds (VOCs) on the sea surface. This ancillary effect of subsea dispersant use has been recognised in Europe and is considered an important advantage of sub-sea dispersion. However, there is also a clear need for further scientific and technical documentation and information regarding the subsea dispersant application operations, efficacy and long-term environmental impacts.
- The need to update existing National Contingency Plans for oil pollution response and to achieve a better understanding of all of the relevant issues involved in the sub-sea application of dispersants for offshore oil spills has been clearly recognised in Europe.

#### **RECENT REGULATORY ARRANGEMENTS IN EUROPE:**

Relevant regulatory developments and legislative documents have been introduced in the past five years in Europe, and were either ongoing when the Macondo incident happened or were initiated as a result of the accident and subsequent spill. These new legislative initiatives aim to address concerns raised at the EU level regarding whether Member States' administrations and industry are operating, maintaining, monitoring, and regulating these activities in such a way that the probability of incidents is minimised, accidental spills are prevented, and the effective response to such spills is enhanced. Such new legislation includes:

#### **Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on Safety of Offshore Oil and Gas Operations and amending Directive 2004/35/EC<sup>3</sup>**

Directives are EU legislative acts binding in their entirety, obliging Member States to achieve certain goals. National authorities have to take action to incorporate these in their national laws, but they are free to decide how to do so.

Directive 2013/30/EU "...establishes minimum requirements for preventing major accidents in offshore oil and gas operations and limiting the consequences of such accidents..." and must be implemented at the national level by July 2015. Its objectives include ensuring a consistent use of best practices for major hazards control by the industry's offshore oil and gas operations potentially affecting EU waters or shores through the regulated cooperation between the industry and competent authorities (Annex IV of the directive); strengthening the preparedness and response capacities for pollution originating from offshore activities; and improving and clarifying existing liability and compensation provisions.

<sup>3</sup>Official Journal of the European Union:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:178:0066:0106:EN:PDF>

More specifically, EU Member States are required to perform a thorough assessment, through the appointed competent authority, of the operators' capability to ensure that all suitable measures (e.g. corporate major accident prevention policy, safety, and environmental management system applicable to the installation, report on major hazards, or any other proportionate measures that the competent authority considers necessary for ensuring compliance) are taken for preventing major accidents from offshore oil and gas operations and for covering liabilities should an accident occur. Such assessment is mandatory and shall be performed before any license for operation is granted. According to the directive's provisions, this assessment shall be performed by the national competent authority and the operators have to provide suitable documentation.

The European Commission, in close cooperation with the EU Member States, shall promote cooperation and exchange of information between Member States with offshore oil and gas operations and third countries that undertake offshore oil and gas operations in the same marine regions as Member States, without prejudice to relevant international agreements, in order to promote preventive measures and regional emergency response plans.

It is expected that the emergency response and the contingency planning for major offshore accidents will be made more effective by a systematic and planned cooperation between Member States and between Member States and industry, as well as by the sharing of compatible response assets, including expertise. Where appropriate, those arrangements should also make use of the existing resources and assistance available in the EU, such as through the EMSA and the EU Civil Protection Mechanism. Article 10 of the directive foresees concrete tasks for EMSA with regard to assisting the European Commission and the Member States in detecting and monitoring the extend of an oil or gas spill, as well as assisting with the preparation and execution of emergency response plans upon request by a Member State.

#### **Regulation (EU) 100/2013 of the European Parliament and of the Council of 15 January 2013 amending Regulation 1406/2002 establishing a European Maritime Safety Agency<sup>4</sup>**

Regulations are legislative acts of the EU fully binding in their entirety and directly applicable in all EU Member States. Regulation 100/2013, which amends EMSA's founding regulation, provides the EMSA (as the most suitable body) with an enhanced mandate to assist the European Commission and the EU Member States responding to oil spills originating from oil and gas installations.

The Agency is tasked to "...support with additional means and in a cost-efficient way, pollution response actions in case of pollution caused by ships, as well as marine pollution caused by oil and gas installations..." upon request by an affected Member State. More specifically, it tasks EMSA to provide extended satellite coverage via its European satellite-based oil spill and vessel detection service CleanSeaNet (CSN) and to utilise the response capabilities of the comprehensively equipped EMSA contracted Stand-by Oil Spill Response Vessels (SOSRVs) in case of an oil spill. EMSA may also provide assistance in case of marine pollution caused by ships and oil and gas installations affecting third countries sharing a regional sea basin with the EU.

In order to effectively implement its new tasks, EMSA has prepared an "Action Plan for Response to Marine Pollution from Oil and Gas Installations"<sup>5</sup>, which establishes the

<sup>4</sup> Official Journal of the European Union:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:039:0030:0040:EN:PDF>

<sup>5</sup> <http://emsa.europa.eu/publications/technical-reports-studies-and-plans.html>



framework for its pollution response activities in the context of the amended regulation and in line with its technical and operational capabilities and financial resources. This Action Plan was adopted by EMSA's Administrative Board in November 2013 and its implementation began in 2014. In line with this newly adopted Action Plan, EMSA intends to develop additional pollution response capabilities primarily for pollution incidents caused by offshore installations, such as aerial and seaborne dispersant application capabilities, as well as limited quantities of dispersant stockpiles to be made available in case of a request. To this effect, public procurement has already been launched by EMSA.

### **Decision No 1313/2013/EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism<sup>6</sup>**

Decisions are another form of binding EU legislation, which can be applicable to one or some or all Member States or to other specific addressees. Decision No 1313/2013/EU on the European Union Civil Protection Mechanism came into force in January 2014 and is addressed to the EU Member States. It aims to further strengthen cooperation and facilitate coordination in the field of civil protection and the response to major man-made and natural disasters. The main role of the Union Civil Protection Mechanism is to facilitate cooperation within the EU in civil protection assistance interventions in the event of major emergencies which may require urgent response action, including marine pollution.

This new legislation foresees the creation of a voluntary pool of Member States' assets pre-committed for EU operations, enabling the planning and prediction of the response capabilities during an emergency (currently assistance is offered at an ad-hoc basis) and thus intends to enhance at the EU level the availability and predictability of resources for the provision of assistance within the EU and internationally. To this effect, a European Response Coordination Centre (ERCC) was established in May 2013 in Brussels with coordination and 24/7 operational tasks, operated by the Commission's Directorate General for Humanitarian Aid and Civil Protection (DG ECHO). The European Commission, EMSA and the EU Member States work closely together in addressing the implementation of this new legislation for marine pollution emergencies.

### **REVIEW OF POTENTIAL OIL SPILL RESPONSE OPTIONS:**

Besides the many research and cooperative projects initiated by the industry and the private sector following the Macondo incident, governmental and public initiatives at national and regional level were also undertaken, aiming to better understand the risks and address the knowledge gaps in Europe in regard to the response to similar spill scenarios.

Issues such as updating oil spill response contingency plans, conducting region-wide risk assessments, and re-assessing marine pollution response resources, while looking into existing arrangements and capabilities in place were addressed. "Alternative" oil spill response options, like application of dispersants and/or in-situ burning, were also reviewed in nearly all governmental and non-governmental fora.

From the information in the EMSA "Inventory of the EU Member States' national policies regarding the use of oil spill dispersants"<sup>7</sup> (which is regularly updated) and from

<sup>6</sup> Official Journal of the European Union:  
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:347:0924:0947:EN:PDF>

discussions at relevant fora (EMSA workshops, technical meetings) it is clear that the use of dispersants is not common in Europe. Currently, only one European country (UK) is using dispersants as the primary tool for responding to marine pollution. All other countries either accept the use of dispersants only under strict and well-defined criteria as a secondary or ultimate response option when everything else has failed, or forbid dispersant use, as shown in the table below.

Member State*	Dispersant Use					
	First response option	Secondary response option	Last response option	Not allowed	Included in NCP**	Not included in NCP**
Belgium		●			●	
Bulgaria			●		●	
Croatia		●			●	
Cyprus		●			●	
Denmark			●		●	
Estonia			●			●
Finland			●		●	
France		●			●	
Germany			●			●
Greece		●			●	
Iceland			●			●
Ireland		●			●	
Italy			●		●	
Latvia			●		●	
Lithuania			●		●	
Malta		●			●	
Netherlands		●			●	
Norway		●			●	
Poland			●		●	
Portugal		●				●
Romania			●			●
Slovenia				●		●
Spain			●			●
Sweden			●			●
UK	●				●	

\*Only coastal Member States / \*\*NCP – National Contingency Plan

Table 2 – Dispersant use policies among coastal EU/EFTA/EEA Member States<sup>8</sup>

<sup>7</sup> The EMSA inventories are published at:

<http://emsa.europa.eu/publications/guidelines-manuals-and-inventories.html>

<sup>8</sup> Source: EMSA Action Plan for Response to Marine Pollution from Oil and Gas Installations (<http://emsa.europa.eu/publications/technical-reports-studies-and-plans.html>)



Several EU countries have reviewed their oil spill response policies. Some are now more willing to consider the use of dispersants and to plan for it in advance at the national level (e.g. Portugal, Cyprus, Romania) and others are considering or have already undertaken regulatory changes regarding dispersant approval and usage schemes (e.g. France's ongoing revision of its dispersant approval scheme and dispersant usage policy, which may result in updating the geographical limits where dispersants can be used in French waters; Italy's recently developed Protocol of "Best Practices for the use of sorbents and dispersants during an oil spill response"; Norway's ongoing evaluation of the use of dispersants and consideration of including dispersant stockpiles in governmental depots (supplementary to the industry's existing stockpiles); Portugal's ongoing work in developing a list of approved dispersant products; UK's 2011 public consultation and review of its approval scheme for oil spill treatment products, including dispersants).

Such national developments were presented and discussed at the EMSA workshop on "The use of oil spill dispersants following the Deepwater Horizon incident" held in November 2012 with the aim of facilitating the exchange of knowledge and information regarding the dispersant usage during the Macondo incident response operations. Interesting discussions were held among the workshop participants (EU Member States' marine pollution response authorities, representatives from the U.S. Coast Guard, British Petroleum (BP) and industry experts), in particular with regard to better understanding the operational aspects of the Macondo spill dispersant applications; the large data collection and data analysis efforts to assess the spill's environmental impact; the subsequent regulatory developments regarding dispersant use in the U.S. and Europe; and the many research initiatives on sub-sea dispersant application initiated post-incident. Among the key points highlighted at this workshop and included in the workshop's report<sup>9</sup> are:

- A lot of scientific and operational data already exist on dispersant usage; what is less known is their use, effectiveness, and environmental impacts in deep-water releases;
- The long-term environmental impacts of such large scale unprecedented dispersant applications (surface and sub-sea) may never be fully understood;
- Dispersant application and sub-sea dispersant injection close to the wellhead can be considered as an important response tool for responding to deep-sea spills;
- Sub-sea dispersant application is a potential response option in case of a well blow-out also in European waters. Whereas the industry is now technically prepared for sub-sea dispersant applications in Europe, most European countries still need to discuss, prepare, and adapt their regulations.
- Mechanical recovery has limitations, especially in such large scale offshore spills with long duration.

Another platform recently established by EU Member States experts to address the use of dispersants is the Technical Correspondence Group on Dispersants (TCG Dispersants), which was set up in June 2012 under the framework of the Consultative Technical Group for Marine Pollution Preparedness and Response (CTG MPPR). The CTG MPPR provides, at the EU level, a platform between EU Member States experts, contributing to the preparedness for and response to accidental and deliberate marine pollution from ships and oil and gas installations. It meets annually and is hosted by EMSA. The TCG Dispersants is comprised of European experts in the field of oil spill dispersants (from France, Norway, the UK, Germany, Spain, Portugal and the Netherlands) and was tasked by the CTG MPPR to conduct

<sup>9</sup> The Report from the workshop on "The use of oil spill dispersants following the Deepwater Horizon incident" held in Lisbon on 26-27.11.2012 is published on EMSA's website: <http://www.emsa.europa.eu/workshops-a-events/188-workshops.html>

a literature review of publicly available documents (technical reports, studies, articles and commentaries) addressing varied aspects of the dispersants applications during the Macondo incident. The group compiled a list of and reviewed 50 documents which were publicly available on the internet and drafted a report<sup>10</sup> with some recommendations when considering dispersant applications in Europe, especially in deep water environments. While it was emphasised that a direct meaningful comparison of the experience obtained in the Gulf of Mexico to European seas is not entirely possible, some of the points made in the report include the following:

- From the reviewed documentation, information concerning Net Environmental Benefit Analysis (NEBA) and what is the effective dispersant-to-oil-ratio (DOR) for dispersant applications in deep-sea environments is not sufficient, and considerable concerns remain in several European countries regarding the release of big amounts of dispersants in sensitive areas.
- While it may be considered that the dispersant applications during the Macondo incident response were an ad hoc solution for that specific incident and its concrete circumstances, adaptations and revisions of oil spill contingency planning, dispersant testing procedures, and dispersant application methods are expected also in Europe.
- More comprehensive documentation and information on the (long-term) environmental impact assessment and on the sub-sea dispersant application technologies is required if such dispersant use is to be repeated in Europe.

Given the great number of highly volatile components of hydrocarbons and other toxic elements during an offshore installation spill or well blowout, the necessary and recommendable safety precautions must be considered in more detail and suitable improvements must be initiated. These include *inter alia* the up-grade of oil recovery vessels and equipment to handle, transport, and recover oil and oil-water-mixtures with a flashpoint lower than 60°C, as well as comprehensive Occupational Safety and Health (OSH) measures for marine pollution responders at sea.

In regard to the latter, an EU workshop<sup>11</sup> on this issue, jointly organised by EMSA and DG ECHO was held in February 2013 in Lisbon. It was attended by EU Member States' civil protection and marine pollution experts and representatives from other relevant organisations, such as IPIECA, the European Agency for Safety and Health at Work (EU OSHA) and the U.S. Occupational Safety and Health Administration (U.S OSHA). The role of the U.S. OSHA during the Macondo incident response was described and discussed. The workshop identified the lack of clear guidance and technical support in regard to OSH-issues for marine pollution responders in Europe. Following this workshop, the EU OSHA, in close cooperation with EMSA, intends to look into the feasibility of developing EU-wide guidance for OSH of marine pollution responders at-sea, on the basis of existing best-practices and with the involvement of the competent national and EU authorities, as well as relevant industry organisations.

Special marine pollution response modules and (stand-alone equipment) stockpiles as well as dedicated emergency communication and mobilisation procedures including the rapid

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<sup>10</sup> The report from the literature review of the TCG Dispersants is currently being prepared for publication and will be published shortly on EMSA's website. The list of 50 documents reviewed by the TCG Dispersants is included in the report.

<sup>11</sup> The Report from the "3<sup>rd</sup> Joint Workshop between DG ECHO and EMSA on coordinated at-sea and shoreline pollution response", held in Lisbon on 12-13.02.2013 is published on EMSA's website: <http://www.emsa.europa.eu/workshops-a-events/188-workshops.html>

transport of pollution response assets are in the process of being established at the European level, in order to provide suitable and fast support to all countries in case of spills which go beyond the national response capacity and where international assistance is needed. It is relevant noting here that a “Lessons Learnt” meeting on the oil spill emergency in the Gulf of Mexico took place in December 2010 on the initiative of the European Commission (DG ECHO). The meeting was held in Brussels with representatives from the EU Member States’ marine pollution and civil protection authorities, the U.S. Federal Emergency Management Agency (FEMA), and relevant services of the European Commission. The meeting’s objectives were to identify lessons from the coordination of the emergency response efforts undertaken at the EU level, during the assistance provided from Europe to the U.S., and to highlight areas for further improvement.

Besides these developments at the EU level, the European Commission and EMSA are actively involved in the IMO initiative regarding the development of the “International Offers of Assistance” paper, initiated by the U.S. Coast Guard and other parties, under the IMO MEPC OPRC-HNS Technical Group, following the Macondo incident.

The assessment and evaluation of in-situ burning (ISB) as a potential oil spill response option started anew in Europe, taking the new developments and the obviously successful ISB application during the Macondo incident into account. ISB application is hardly an option for European countries due to environmental concerns, the close vicinities to populated areas, and the prevailing unfavourable weather conditions; however, studies assessing the in situ burning effectiveness are being conducted in some countries, such as those by the Centre of Documentation, Research and Experimentation (Cedre) in France. EMSA may organise a workshop on ISB in 2015 to address the knowledge and views in Europe on this issue; however, a change in the existing policies with regard to the use of ISB does not seem likely in the near future.

### MULTINATIONAL COOPERATION IN EUROPE:

The European Union is a contracting party to four international legal instruments establishing regional organisations (Regional Agreements) in Europe, whose activities and objectives cover strengthening marine pollution preparedness and response at the regional level through inter-governmental cooperation (see Figure 2 below). These include: the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention<sup>12</sup>); the Convention for the Protection of the Mediterranean Sea against Pollution (Barcelona Convention<sup>13</sup>); the Agreement for cooperation in dealing with pollution of the North Sea by oil and other harmful substances (Bonn Agreement<sup>14</sup>); and the Cooperation Agreement for the protection of the coasts and waters of the north-east Atlantic against pollution (Lisbon Agreement<sup>15</sup>), which just entered in force in February 2014. The EU is also an observer to the work undertaken under the scope of the Convention on the Protection of the Black Sea Against Pollution (Bucharest Convention<sup>16</sup>). Besides these Regional

<sup>12</sup> The text of the Convention is available at:

[http://www.helcom.fi/Documents/About%20us/Convention%20and%20commitments/Helsinki%20Convention/1992\\_Convention\\_1108.pdf](http://www.helcom.fi/Documents/About%20us/Convention%20and%20commitments/Helsinki%20Convention/1992_Convention_1108.pdf)

<sup>13</sup> The text of the Convention is available at:

<http://www.unepmap.org/index.php?module=content2&catid=001001004>

<sup>14</sup> The text of the Agreement is available at: <http://www.bonnagreement.org/eng/html/welcome.html>

<sup>15</sup> The text of the Agreement is available at: [http://www.dgpm.mam.gov.pt/Pages/CILPAN\\_UK.aspx](http://www.dgpm.mam.gov.pt/Pages/CILPAN_UK.aspx)

<sup>16</sup> The text of the Convention is available at: <http://www.blacksea-commission.org/convention.asp>

Agreements, a large number of sub-regional and bilateral agreements are established in Europe covering marine pollution preparedness and response. Within these Regional Agreements (with the exception of the Baltic Sea where the use of dispersants is not considered as a potential oil spill response option) intensive discussions about the use of dispersants and also about the risk originating from offshore activities started and, where appropriate, new measures were incorporated in the national, sub-regional, and regional contingency plans.

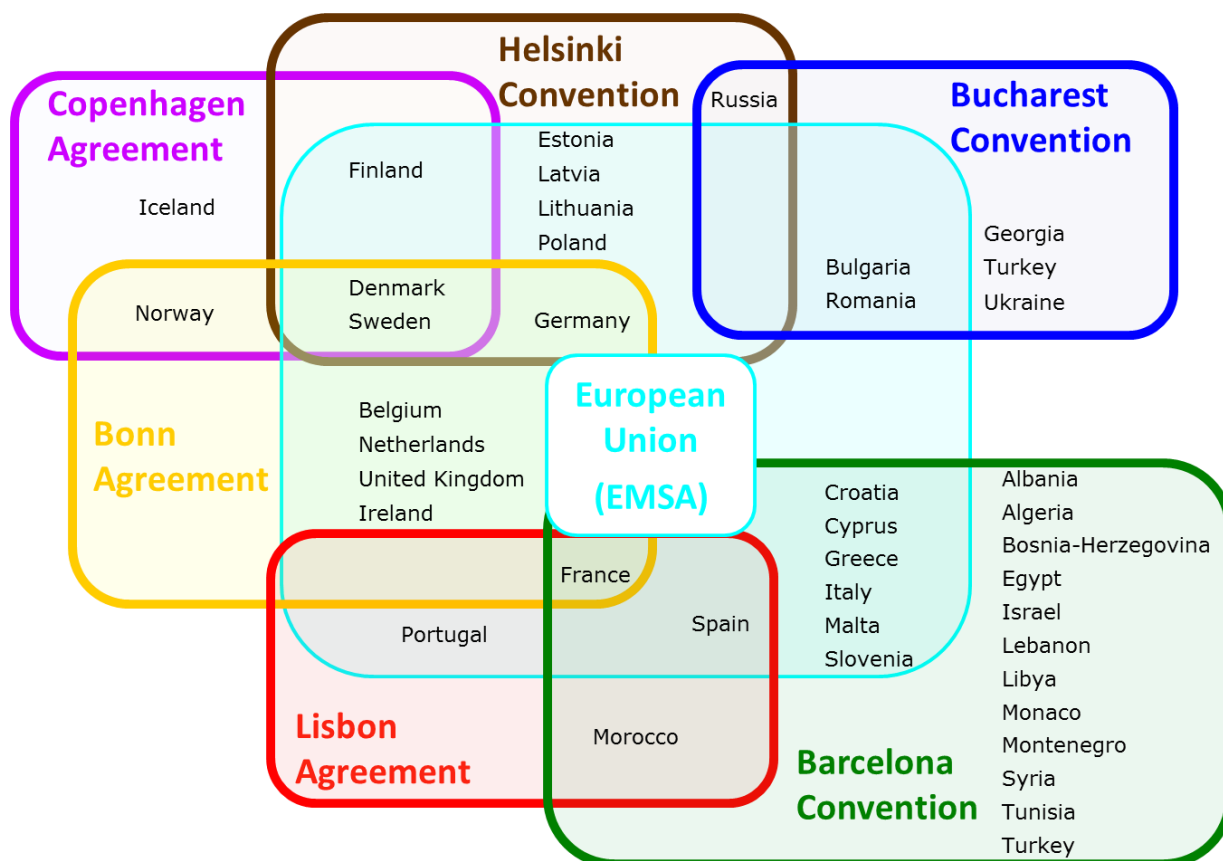


Figure 2 - Regional Agreements in Europe

In the Baltic Sea, the Greater North Sea, and the Mediterranean Sea, special projects part-funded by the EU, of relevance to the post-Macondo discussions were either ongoing or initiated after the incident. Such projects, aiming to assess the pre-dominant risks in the various regions, to strengthen maritime safety and to increase the regional preparedness to respond to marine pollution from oil and hazardous and noxious substances (HNS)), include:

- The project “Sub-regional risk of spill of oil and hazardous substances in the Baltic Sea” (BRISK), which ran from 2009 to 2012. The overall aim of the BRISK was to increase the preparedness of all Baltic Sea countries to respond to major spills of oil and hazardous substances from shipping. The project deliverables comprise model results for risk of spills of oil and hazardous substances, suggestions for investment plans for each sub-region in the Baltic, and an overview of the existing bilateral and trilateral agreements for joint response actions across national borders in the region (source: <http://www.brisk.helcom.fi>).
- The “Bonn Agreement Area-wide Assessment of Risk Evaluations” (BE-AWARE) project aims at conducting a risk assessment of marine pollution in the Greater North Sea and

its wider approaches by using a common methodology that allows the risk to be mapped and compared under different scenarios. The project's overall objective is to clearly understand the regional risk of marine pollution in the area and to compare the effectiveness of different strategies with the goal of optimising marine pollution prevention. The project is being implemented in two phases (phase I run from 2012 to 2014 and phase II runs from 2014 to 2016) (source: <http://beaware.bonnagreement.org>).

- The "Mediterranean Decision Support System for Marine Safety" (MEDESS-4MS) Project" started in 2012 for a 3-year period, aiming to strengthen maritime safety by mitigating the risks and impacts associated to oil spills through the use of forecasting and support decision tools. MEDESS-4MS aims to deliver an integrated operational multi model oil spill system in the Mediterranean by gathering and analysing met-ocean data as well as data related to ship traffic, ship operations, response equipment, and sensitivity mapping (source: [www.medess4ms.eu](http://www.medess4ms.eu)).

### SUMMARY AND CONCLUSIONS:

The Macondo incident has triggered without any doubt a number of initiatives and activities both in the public and private domain, not only in the U.S. but also in Europe. After a comprehensive assessment and controversial discussions at EU fora, various legal acts have been issued and appropriate measures regarding prevention, precaution, and preparedness on all levels were initiated. Based on the common understanding that neither a single country nor an offshore facility operator can handle a spill of the magnitude of the Macondo incident alone, the formation of mutual assistance societies and associations were fostered.

Taking the lessons learned from the Macondo incident into account, a number of previously predefined strategies have been or are being reviewed in Europe especially regarding enhancing the safety of oil and gas operations and strengthening the response to oil spills, including re-addressing the use of dispersants as an oil spill response option. The stringent focus on mechanical recovery of oil is no longer as dominant as it was before. Other response options are also considered by many as valid methods and should be included in the "toolbox" of the responsible party to optimise the pollution response measures as appropriate.

However, there are still some important aspects which require more attention. These are the safety issues of at sea response operations, the cooperation of private and public entities, the mutual use/access of available resources, and last but not least the complex issues of risk assessment, the environmental impacts of dispersant usage, and the compensation/insurance of all legitimate actions and damages.

Consequently, it is our hope that the recognition of the need for constant improvements in the safety of the offshore installations and the interest in continuously reviewing and enhancing marine pollution prevention, preparedness, and response measures, at national, regional and EU levels, and internationally, will not be diminished in the coming years, when the memories of the Macondo incident are not as fresh anymore.

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