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Instrument for Pre-Accession Assistance

# EXERCISE EMERGENCY MANAGEMENT OF SPILL AND STRANDING HYDROCARBONS AFTER SPILL AT SEA

MAY 2015



**Apulia Region**  
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## INTRODUCTION

### TYPE OF EXERCISE APULIA REGION (ITALY)

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**2. ARPA Puglia:** Monitoring planning for environmental emergencies at sea and along the coast in the Apulia Region: the case of an oil spill event



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## INTRODUCTION

The Apulia Region, LP of the Project IPA Adriatic "Hazadr" according to the Application Form of the Project, intends to organize an exercise with the project partners and with the participation of all stakeholders involved in the management of "oil spill" events.

The results of the project will be disclosed, shared and made available to create international and local synergies aiming to achieve greater effectiveness in all those possible actions to prevent and manage incidents at sea with oil spill.

In the last ten years the traffic in the Adriatic Sea is increased because of the traffic of large vessels, carrying oily substances, hydrocarbons, toxic substances, that are dangerous for the environment in general and for the health, but also because of the large volumes of materials and also because of the large cruise ships.

The increase in the distance of sea routes inevitably brings an increased risk inherent in sea transport and consequently an increase in exposure of the sea, coasts and seabed as well as of all those productive activities and environmental closely related to the life of the sea.

The rules and laws for the defense of the marine environment are clearly identified and assigned to the Port Authority (or Harbor Master), with functional dependence from the Ministry of Environment and Protection of the Sea (MATTM), which works in close coordination with the Chairmanship of the Council of Ministers - Department of Civil Protection, depending on the type of event.

As confirmed by the results of the analysis carried out in WP3 act. 3.2 within the Project Hazadr, these structures operate in accordance with national plans and protocols constantly tested, but there isn't an equally prompt operational response by local authorities despite having jurisdiction over the coast.

In particular, while the existing rules give some powers to local authorities (in particular regions, provinces and municipalities) that, in the case of civil protection activities have generally produced legal and operational effects with the implementation of plans of civil protection, identification and analysis of risks in the area and the constant monitoring of the operational exercises by the local and national level, the same cannot be said for all those specific activities related to both regulatory and operational risk resulting from oil spills and toxic substances, and especially to coastal pollution: "hazard identification coastal pollution in the planning of Civil Protection, the provision of equipment and the training etc...".

Often in the civil protection plans, in fact, particularly for municipalities bordering the Adriatic, the risk of coastal pollution within the planning of Civil Defense, the provision of equipment and the training activities are not identified, recognizing therefore a certain lack of preparation to manage that risk.

So it's more important to increase the forecasting activities, the "early warning" and the prevention through the use of powerful tools for modeling and decision support that allow to achieve greater



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effectiveness of the prevention, management and monitoring of the event and at the same time to operate a specific and widespread diffusion of the project results, in particular the use of the Atlas system to collect and manage information layers useful in the management of type events "Oil-Spill".

This is important both in terms of the effectiveness of the coordination of the activities of the Oil-Spill containment at sea, and for the coordination and organization of the activities to be carried out on the ground. In particular these are more complicated because they involve multiple biotic and abiotic factors with different approaches and time of intervention which can influence the integrity of ecosystems, the costs of intervention and the economic losses of the activities.

This exercise aims **to verify the state of art of the capacity of the system of Civil Protection to react on the ground on the Adriatic coast**, starting from the Puglia Region, on the other hand **to identify and fill the gaps in the planning and operational tools, in the materials and equipments** useful to face similar events.

A further objective is **to use the tools created by the project Hazadr: System Atlas**.

## TYPE OF EXERCISE

The proposed exercise is a simulation of a critical situation potentially verifiable on the Adriatic coast that determines a large spill of oily substances into the sea and involves one or more lines of the coast of the Adriatic Sea.

The exercise, which falls within the territory of the province of Brindisi, will involve the coasts of the Municipality of Brindisi in the locality *Apani*, Coordinates 40.6960 North 17.8264 East. In this area there is a succession of sandy and rocky coast formed by considerably fractured and eroded limestone.

In this scenario territorial different approaches are needed for the defense of the coastline and the containment of the oil spill which approaching the coast as well as for the eventual reclamation of the involved coast.

To focus our energy and resources on aspects closely related to the defense and safety of the coast from the oil spill and bring out the actions to be implemented, all the typical activities of civil protection for which there are procedures and operating methods already thoroughly tested in other scenarios exercise sessions (eg. waiting areas and setting up shelter, tent cities for the reception of any people involved, preparation of an Advanced Medical Post, preparation of an Advanced Coordination, Coordination Centres) will be limited only to the communications. Therefore, the exercise will start directly from the operation on the coast, considering all the stages leading from the time of the accident until the start of remediation on the coast have already occurred. In particular the exercise will not come within the scope of D.P.C.M. 4.11.2010 (G.U. n.271 del 19 novembre 2010) e del D.M. A.T.T.M. 23.01.2013



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## TARGET IN APULIA REGION (ITALY)

The targets expected by exercise can be divided into four categories according to the different levels involved:

### LOCAL AND REGIONAL AUTHORITIES: LEVELS OF REGIONAL, PROVINCIAL AND MUNICIPAL COORDINATION

#### MUNICIPAL LEVEL

The municipalities including part of the coast test their contingency plans, the operation of the related municipalities / COC and the ability to react to an event.

#### PROVINCIAL LEVEL

For this level, the exercise represents a check to:

- Test the operational capability and adequacy of resources (vehicles and equipments) of the local system of Civil Protection;
- Check the specific operational capacity of the human resources that can be used on the event;
- Test the ability to interact with the other structures over the provincial Civil Protection and structures with specific expertise (ARPA, CNR, ASL, etc.).

#### REGIONAL LEVEL

- Verify the potentialities in relation to instrumental resources, material and human resources to address the critical issues in action;
- Check the specific level of connection and support to other organizations with specific expertises (ARPA, CNR, etc.).

#### REGIONAL LEVEL: TECHNICAL STRUCTURES

- Check the level of response of structures, with specific skills and capabilities, of the tools developed in the project Hazadr to improve the response and effectiveness of the technical regional, and international structures
- Check the arrangements for monitoring in real time and in a long period till the permanence of the dangerous effects.

#### GEOGRAPHIC REFERENCE

The Apulia Region covers an area of 19.358 sq. km, with 834 km of coastline. From the administrative point of view is divided into 6 provinces (Bari, Barletta-Andria-Trani, Brindisi, Foggia, Lecce and Taranto) and 258 municipalities: 43 directly overlooking the Adriatic Sea, 1



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(Castrignano del Capo) in which is located the famous village of S. Maria di Leuca is halfway between the Adriatic Sea and the Ionian Sea and 21 bordering the Ionian Sea.



Along the perimeter of the Adriatic sea, from the geological point of view, there are different types of coast from the sandy beach to the rocky limestone with high fronts even several tens of meters. Under the environmental aspect instead there are the port areas, the industrial areas near the sea with installations using as raw material and/or derivatives, crude oil and substances derived from it and other toxic and chemicals substances.

There are also the major destinations for trade and travel such as Rodi Garganico, Manfredonia, Barletta, Bisceglie, Bari, Monopoli, Brindisi, Taranto and Gallipoli.

Therefore as you can see from the map shows below, in recent years the traffic in the Mediterranean has greatly increased in term of quantity and quality of materials (including hazardous) transported.

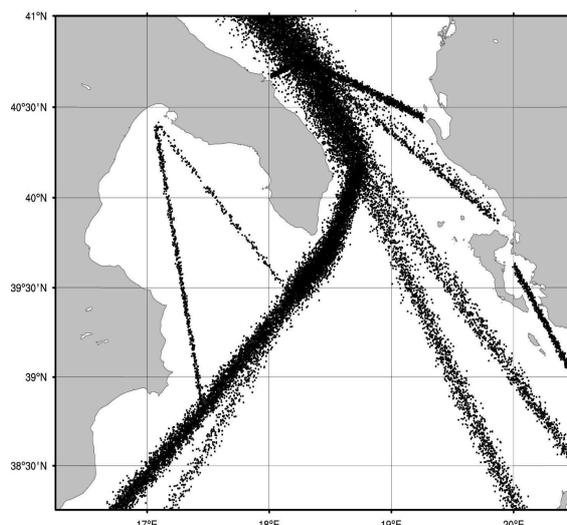
In particular, it is easy to verify that the maximum density of routes taken by ships crossing the Adriatic falls within precisely in the area of sea that laps the shores of the Province of Brindisi.



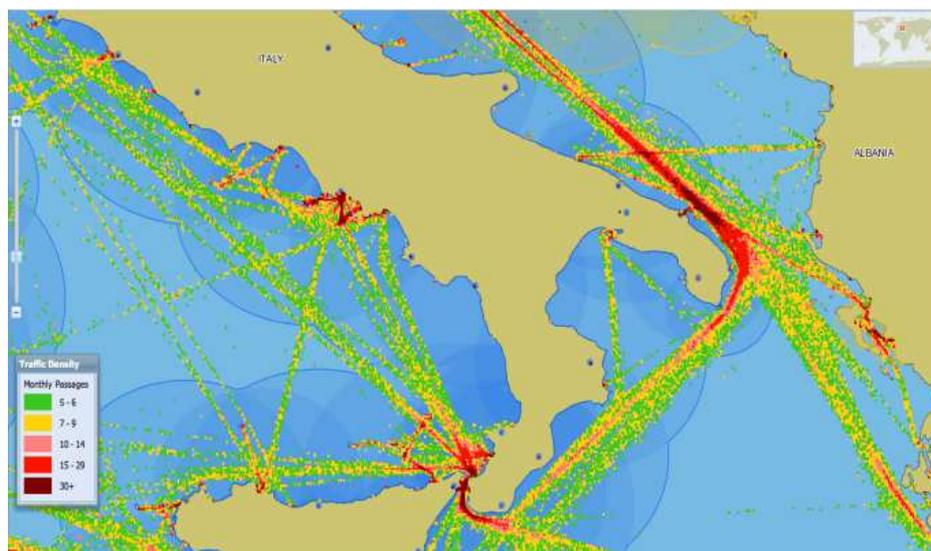
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Density of the traffic routes in the Adriatic in the last 10 years



### SIGNIFICANT EVENTS OCCURRED IN THE WORLD AND IN APULIA REGION

- 1) Amoco Cadiz - North France - March 1978 - 223.000 tons of oil spilled;
- 2) Exxon Valdez - Alaska - March 1989 40 mln liters oil spilled;
- 3) Haven - Italia, Genova - April 1991 - 144.000 tons of oil into the sea;
- 4) Braer - Shetlands - 1993, 85.000 tons oil spilled at sea;
- 5) Erika - Britain - December 1999 - 20.000 tons oil spilled;
- 6) Prestige, Spain . 13 Novembre 2002 - 63.000 tons spilled;
- 7) Hanife-Ana - 7 February 2006 ran aground on the coasts of Ostuni (BR)
- 8) **Norman Atlantic - 28 Dicembre 2014 a circa 26 mi da Otranto (LE)**



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In 2006, near Ostuni - Costa Merlata, which is a place of environmental and tourism value, a vessel of 120,000 registered tonnage ran aground off the sandy/rocky coast releasing significant amounts of hydrocarbons at sea, due to on various factors.

## DEFINITION OF THE SCENARIO

In the afternoon of 11<sup>th</sup> May 2015, about at 16:00 p.m, a large ship-type "Oil / Chemical Tanker" while sailing to the Ancona Harbor about 20 miles north from the Brindisi coast, has an accident (unspecified) and produces a spill of pollutants in the sea.

The weather conditions are prohibitive: the sea in squall, strong wind, storm, heavy and incessant rain and this prevent the immediate dispatch for the containment of the oil spill at sea, and therefore the area continues to expand and divides following two main directions according to the trend of the currents.

The Harbour, which first receives the alarm directly from the vessel, activates the Local Operating Plan (POL) but the time arrival on the area of patrol boats operating in such weather conditions in not well defined at the moment.

In the main time all operating structures and the bodies to be involved in the management of this type of incident as provided in POL.

Looking forward to having more precise information and due to the weather condition, in order to prepare in time any preventive measures on the coast, the SOIR of Puglia Region, through the use of the ATLAS system acquires more information on the characteristics of accident area (distance from the coast, wind conditions, wave, current direction, wave height, territorial jurisdiction of the nearest coasts etc.) and on the nearest coasts potentially affected.

At the same time the SOIR prepares the activation of the FSS (Forecast Support System), a mathematical model integrated in the Atlas, which allows (anywhere in the Adriatic and with resolution 500 meters), to predict the movement of pollutants spilled in a known point in the sea and indicate the range of costs which might be affected by the oil spill, estimating the time arrival of " black wave ".

Always through the ATLAS also displays the location on the regional and national means and equipment useful for the emergency management of the coast.

The model, after a few minutes provides a series of useful information to understand the event, including a map of the spread of the spill with its projected movement in hours / days, the localization on the coastal area, and the times of arrival of the "black wave". These data are superimposed to the other information layers in the Atlas including the vulnerability of the coastline affected from the spill, its geomorphology, bathymetry, roads to reach the coast, etc.. This information is immediately shared with the Harbour and with the Maritime Directorate to support all the strategies to be put in action.

The Harbour as a result of the information acquired from its structures and following the acquisition of the predictions of the model (FSS) provided the Atlas, alert the Local Authorities as expected in Local Operating Plan (P.O.L.)

The Harbour implements all procedure expected in Local Operating Plan (P.O.L.).

The operations continued until emergency ends.



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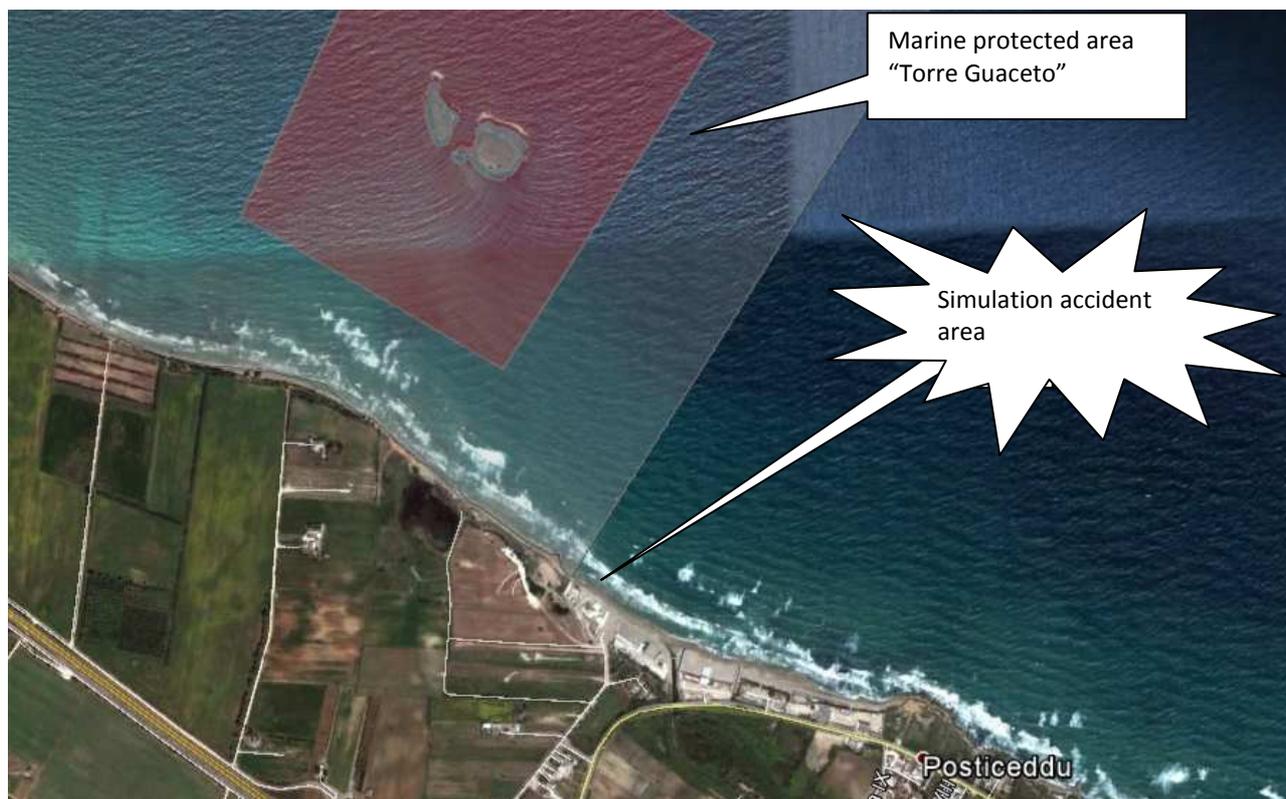
## OPERATIONAL AREA



General overview

The operational area is enclosed in a strip of coast about 150 meters (coordinates 40.6955 North, 17.8271 East.)

The identified area lies entirely in the town of Brindisi and about half in the marine reserve of Torre Guaceto.



Exercise area overview



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## SUBJECTS TO BE INVOLVED IN APULIA REGION (ITALY):

- Harbour Master Brindisi
- Civil Protection Service of Apulia Region
- Brindisi Prefecture
- Fire Brigades Brindisi municipality
- C.F.S. - Coordination State Forestry
- Brindisi Province Civil Protection Service
- Brindisi Municipality Civil Protection Service
- Consorzio area R.N.S. Torre Guaceto
- ARPA - Regional Agency for Prevention and Environment Protection
- Voluntary Civil Protection (*Attachment n. 2*)

## OBSERVERS

- National Department of Civil Protection
- ISPRA (Institute for the Protection and Environmental Research)
- Hazadr partners

## ENVIRONMENTAL AND MONITORING ASPECTS: ARPA - Regional Agency for Prevention and Environment Protection

Particular emphasis will be given to the analysis and monitoring of the waters covered by the oil substances in the sea but also the way and the level of warning messages between ARPA and the level of command and control.

ARPA has produced a specific protocol of activation to develop and test.

## THE EMERGENCY COMMUNICATIONS IN APULIA REGION (ITALY):

During the emergency it's advisable the use of the radio for communication. The Regional Operations Centre will be responsible for managing and ensuring the connection of the radio communications between the operational area and other operational forces in situ.

## DEBRIEFING IN APULIA REGION (ITALY):

At the end of the exercise, a debriefing at the Provincial Operations Centre of Civil Protection will be organized to assess the development of the exercise and the achieved targets.

## INTERNATIONAL OBSERVERS

Technical and institutional representatives of Albania, Croatia, Slovenia, Montenegro, Italia (Regioni Emilia Romagna e Marche) will participate to the exercise, in order to promote a cultural exchange comparing the different approach to the theme of "oil-spill".



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ATTACHMENT N.1  
TIMELINE OF EXERCISE

11- 16 May, 2015

Phases of the exercise of Oil-spill		Sea	Landside
Date /hour			
11.05.2015 - 15:15	The accident of an Oil-Tanker occurs	Monitoring phase	
11.05.2015 - 15:30	The vessel communicates the coordinates and the alarm is sent to the Harbour (CP) about the event: the news is still fragmentary	Pre-alarm phase (acquisition of information and choice of operational)	Monitoring phase
11.05.2015 - 15:31	The CP implements its operating procedures and emergency (P.O.L.) and alerts the operational structures according to P.O.L., including the (S.O.I.R.) "Sala Operativa Integrata Regionale" of Civil Protection of Apulia Region. Waiting for further information.	Alarm phase	Attention phase
11.05.2015 - 15:50	Due to the bad weather condition the CP communicates that it's not possible to reach the accident area with suitable boats to verify and operate. Time of intervention will be not short.		
11.05.2015 - 16:00	The SOIR of Puglia Region, through the ATLAS, acquires more information on the characteristics of the area of the incident and of the coast potentially affected. SOIR plans the activation of FSS (Forecast Support System) of the ATLAS, to have a first simulation of the displacement of the oil spill and get information on the band of coast probably affected and the time of arrival of the " wave black ".		
11.05.2015 - 16:50	The ATLAS provides the following data: a first simulation indicates the displacement of oil spill reaching the coast of Brindisi in loc. Torre Guaceto - Apani on the early morning of Tuesday, 12 <sup>th</sup> May, with a possible second oil spill, according to the currents, in the direction of Albania and expecting to reach the Albanian coast in the early hours of Friday, 15 <sup>th</sup> May.		
			Pre-alarm phase



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11.05.2015 - 17:30	The SOIR shares with the CP the obtained data from the Atlas and the possible strategies to be put in action but at the moment the prediction ATLAS seems to be confirmed.	Allarm phase	
11.05.2015 - 17:45	The CP confirms the progress of the emergency situation and activates the Chain of Command and Control and the Operating Structures that will manage the possible intervention on the coast: Brindisi Prefecture, CFS, VVF, Puglia Region SOIR		
11.05.2015 - 18:00	The SOIR activates the Local Authorities (City and Province) and the Voluntary of Civil Protection to prepare defense preventive actions and remediation of the coastline affected by spill.		
12.05.2015 - 08:30	The evaluation team arrives on the identified site of the coast (C.P. VV.F., CFS, Prefecture, REGION, Prov., Municipality, ARPA, ISPRA, ..... ) and also equipments and means		
12.05.2015 - 09:30	Operations of safety measures on the coast line and then the first clean-up operations begin with staff of CP, VVF, CFS, Region, Province, Municipality, Consorzio Torre Guaceto and Voluntary of Civil Protection)		
12.05.2015 - 10:30	Sampling of the water and the land to check the level of pollution and the effectiveness of implemented interventions are held (ARPA Puglia). Arpa makes a report of the situation to CP e Region.		
12.05.2015 - 13:00	SOIR communicates to CP and Prefecture the end of the operations of defense and remediation of the coast.	Attention phase	
12.05.2015 - 13:30	The Chain Of Command And Control is activated to close the operations and to give communications. The debriefing is fixed with all the actors of the scenario for 15:30 pm.		
12.05.2015 - 15:00	The SOIR notifies to the Ministry of Infrastructure and Transport of the Albanian Government the prediction providing by the Atlas for the reaching of the Albanian coasts of a part of the spill, due to the incident of the previous day.	Monitoring phase	Attention phase
12.05.2015 - 15:15	The Ministry of Infrastructure and Transport of the Albanian Government takes note of the information and will provide all the needed tools to face the expected emergency, following the evolution through the ATLAS system.		
12.05.2015 - 15:30	Debriefing	Monitoring phase	Monitoring phase
12.05.2015 - 17:00	End of the exercise on Italian side, announced by CP, Prefecture, Region. Waiting the end of the contingency on the Albanian coast.		



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