

Oil Spill in the Kerch Strait Ukraine Post-Disaster Needs Assessment



European Commission United Nations Environment Programme

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Table of contents

Introduction	1	3
Context		6
Bio-physical se	etting of the Kerch Strait and adjacent marine areas	6
Trade significa	Ince of the Kerch Strait	8
The role of the	Black Sea Commission	
UNEP activities	In the region	8
EU and EC eng	Jagemenis in the Black Sed region	
Council of Euro		
Post-Disaste	er Needs Assessment	10
Objectives and	d scope	
Emergency ph	nase monitoring and remote sensing analysis	10
Field work and	J reporting	11
		1.
Costal and M	Marine Assessment	12
Focus and me	inod of assessment	
The methodolo	oav of the assessment	
Site description	ns	
The impact of	the Volgoneft-139 oil spill in Kerch Strait	
Results of sam	ples analysis and discussion	
Summary of th	ie main conclusions	21
Coastal Sen	sitivity Mapping	23
Focus and me	thod of assessment	
Description of	sensitivity mapping	
	existing data – Pemote sensing studies over the Kerch Strait	
Assessment of	existing data – Ground-truthing over the Kerch Strait	30
Summary of fir	ndings	
	·	
Institutional	Assessment	33
Focus and me	thod of assessment	
Data collectio	n	
Legal and Poli	cy Context, Institutional Roles	
Organizational Structures and Policy Implementation		
International o	and Regional Agreements	
Overview of th	ie institutional emergency response	
The Situation in	n July 2008	
Threats and Oi	il Spill Source	
Resources avo	xilable for Oil Spill response	44
Physical Resou	JrCes	
Human Resour	(Ces	
Financial Reso		
Stratogic Polici	Iuligs	
Pesponse Mo	pitoring and Information Management for Environmental Pisks	
Monitoring and	d Assessment	
Waste Manag	ement	
Economic A	ssessment	50
Focus and me	thod of assessment	50
The assessmer	It of direct costs	50
The assessmer	IT OT INDIFECT COSTS	51
Tourism		
Analysis of the	official tourist flow	
totels, resorts, and pensions survey		
Summary of fir	ndings – Limitations and constraints	
	-	
Consolidate	d Needs Assessment and Recommendations	59
Matrix Sunth	pasis of Bacommandations	60
watin-Syriti	iesis vi nevolililiciluativiis	03
Appendix 1:	List of acronyms, abbreviations and units	64
Appendix 2:	List of references	65
Appendix 3:	Bibliography and Internet Sources	
Appendix 4:	Institutions consulted auring the institutional assessment mission	
Appendix 5:	List of contributors	
, ppondix o.		

Introduction

On 11 November 2007, a strong storm in the Kerch Strait (which connects the Sea of Azov with the Black Sea and separates Ukraine from the Russian Federation) blew winds of up to 35 m/s and waves of up to five meters. The storm resulted in thirteen vessels being sunk, stranded, or damaged and the incident caused loss of life, of property, and environmental harm. The four vessels that sank were: motor tanker Volgoneft-139 (Russian Flag), motor vessel Volnogorsk, motor vessel Nahichevan (Russian Flag), and motor vessel Kovel (Russian Flag).¹ Russian motor vessel Volgoneft-139 initially leaked approximately 1,300 tonnes of fuel oil into the sea. Treacherous weather conditions at sea (18-20 m/s wind, 2.5 m waves), hampered any clean-up efforts in the sea during the initial 24 hours, resulting in oil being transported to the shorelines on both sides of the Kerch Strait.

By 21 November 2007 more than 500 people from the Ukrainian Ministry of Emergencies and civilian volunteers were involved in shoreline clean-up operations on Tuzla Island – situated north of the shipwreck in the middle of the Strait and one of the main affected areas. Seventeen technical units were engaged in clean-up efforts and fifteen ships performed oil spill contingency operations in the Kerch Strait. The European Commission (EC) immediately offered assistance for "preparing the environmental assessment as to the magnitude of the catastrophe as well as allocation of technical and financial resources to remediate its impact."

On 16 November 2007, the Government of Ukraine accepted the EC's offer of assistance. From 18-24 November 2007, the EC Monitoring and Information Centre (MIC)² deployed a mission. A team of five experts was deployed [to Ukraine] immediately; this team included a representative from the Joint UNEP/OCHA Environment Unit to "assist the Ukrainian authorities in assessing the environmental impact of the disaster; to observe the development of the pollution and to advise on immediate remediation needs." To undertake this rapid assessment mission, the MIC team conducted site visits to affected



Figure 1. Image acquired during monitoring of the oil slick in the Kerch Strait in November 2007



Industry in Kerch

areas and held numerous meetings with ministries at national and local levels. In the report of the MIC team, the situation observed on the field was described as follows:

The motor tanker "Volgoneft-139" with 3,463 tonnes of residual oil (heavy fuel oil type M-100 which corresponds to IFO 280-600) broke into two parts, leaving the front part anchored at 45° 13'01"N; 36° 31' 06" E. The back part drifted to the position 45° 15' 06" N; 36° 30' 07" E causing an oil spill of about 1,300 tonnes coming from its tanks. The motor vessel "Volnogorsk" sank at 45° 11' 05" N; 36° 31' 07" E. It is now at a depth of 10.6 m with 2,436 tonnes of sulphur on board. There is no observed leakage of bunker oil i.e. marine diesel fuel. The motor vessel "Nahichevan" sank at 45 ° 12' 00" N; 36° 33' 05" E. It is now at depth of 9.5 m with 2,365 tonnes of sulphur on board. The motor vessel "Kovel" sank almost in the middle of the channel and has drifted to near the Ukrainian shoreline at 45° 09' 02" N; 36° 26' 06" E. It is now at a depth of 9.3 m with about 2,100 tonnes of sulphur on board. Divers surveying the vessel observed a slight marine diesel fuel leak due to the destruction of the engine compartment.

According to the data provided by the Ukrainian Ministry of Transport, as of 20 November 2007, the total amount of the immediate spillage was 1,300 tonnes of heavy fuel oil, 2.3 tonnes of oil lubricants, 25 tonnes of marine diesel fuel oil and 5.5 tonnes of heating oil.³

At the launch of the MIC report, *Ukraine Oil Spill in Kerch Strait, Black Sea*, in December 2007, Commissioner Benita Ferrero Waldner, External Relations and European Neighbourhood Policy, and Commissioner Stavros Dimas, Environment and Civil Protection, EC, jointly stated: "Our cooperation with Ukraine is beneficial for both parties. The Black Sea is one which we both share and manage. It is in our mutual interest as well as that of other littoral countries to continuously strive not to unbalance its delicate ecosystem and the livelihood of all those that benefit from it."⁴

Following the MIC report and adoption of Resolution P6_TA, On shipping disasters in the Kerch Strait in the Black Sea and subsequent oil pollution, by the European Parliament on 13 December 2007⁵, the EC, through its Directorate General for External Relations (RELEX), invited UNEP to coordinate a joint EC-UNEP comprehensive multi-sectoral Post-Disaster Needs Assessment (PDNA). In addition to the scientific assessment of the damages caused to the coastal and marine environment, the EC was keen to understand the institutional and economic mid to long-term needs of Ukraine related to the oil spill incident, as well as to review existing data on costal sensitivity mapping for the region. Thus, the Ukraine PDNA was divided into the following four assessment categories: scientific, coastal sensitivity mapping, economic and institutional.

Thereafter, UNEP assembled a broad multi-disciplinary international team of experts to undertake the scientific, technical, and institutional assessments for the Ukraine PDNA. To assess the economic valuation of the environmental impacts of the oil spill UNEP initiated a partnership with a local Ukrainian university, Kyiv-Mohyla Academy.

The EC-UNEP PDNA team, supported by the Government of Ukraine (thereafter referred to as the PDNA team), was composed of the following four sub-teams:

- Coastal and Marine Assessment team
- Coastal Sensitivity Mapping team
- Institutional Assessment team
- Economic Assessment team.

The coastal and marine assessment team and the coastal sensitivity mapping team undertook the

fieldwork component of a mission from 15-26 July 2008 in the Kerch Strait. Their aim was to identify the nature, extent, and location of remaining damages to the environment from the oil spill. From 1-17 July 2008, the institutional assessment mission was undertaken to review existing legal provisions and institutional mechanisms in Ukraine for oil spill emergency situations. The assessment objective was to ensure lessons learned from this incident would be incorporated into Ukrainian legislative and institutional systems, in order to facilitate a more effective emergency situation response in the future. The team engaged and consulted with a range of national, regional, and local stakeholders (see Appendix 4: List of Institutions consulted during the institutional assessment mission). The economic assessment team from Kyiv-Mohyla Academy conducted its field work in Kerch from 7-17 July 2008. Extensive secondary data gathering, field surveys, and interviews were conducted by the team during this period.

This report summarizes the findings of the PDNA team and provides a set of concrete recommendations for recovery and disaster risk reduction in Ukraine. It has been prepared by the EC-UNEP team with the participation of the Government of Ukraine.



UNEP experts collecting samples from contaminated materials found on the shoreline

Context

Bio-physical setting of the Kerch Strait and adjacent marine areas

The Kerch Strait is a shallow sound, 41 km long and 4.5-15 km wide, connecting the Black Sea with the Azov Sea. The depth of the Strait ranges between 5 to 13 meters and the seabed consists primarily of sand; occasionally it is covered with a layer of organic sediment and often is covered with sea grasses such as eelgrass (*Zostera maritima*). The direction of the currents in the Strait depends on the season and the weather. Frequently the surface currents go in one direction and the currents along the bottom in the opposite.

In the middle of the Kerch Strait is the island of Tuzla. It is a low and sandy island with littoral vegetation. There are no marine protected areas on the Ukrainian side of the Strait, with the exception of two smaller protected coastal areas, located on the coast facing the Azov Sea (see figure 10 on page 31).

The European anchovy (*Engraulis encrasicolus*) migrates on a seasonal basis between the Black Sea and the Azov Sea and is the main target for the fishing in the Strait. The anchovy population suffers from high fishing pressure both in the Azov Sea and in the Black Sea. In addition the invasive comb jellyfish (*Mnemiopsis leidyi*), originating from western Atlantic, preys on the eggs and juveniles of the anchovy. Since the oil spill incident the Government of Ukraine has prohibited fishing in the area (Order no. 320).⁶

The Azov Sea is a shallow marginal sea that connects to the Black Sea. The area of the sea is 37.600 km². The maximum depth is a mere thirteen meters and most of the Azov Sea is less than ten meters deep. The water of the Azov Sea is brackish with fluctuating salinity levels of 1-15 percent. The prevailing current is counter-clockwise. Formation of sea ice can occur temporarily at any time from late December to mid-March. The water mass of the Azov Sea is characterized by oxygenated surface water and anoxic bottom waters, with the anoxic waters forming a layer 0.5-4 meters above the seabed. The anoxic conditions are the result of heavy inflow of organic matter, nutrients, and sediments from nearby rivers such as the Don and Kuban. The average annual influx of fresh water into the Sea of Azov is 40.7 km³, of which 28.5 km³ comes from the Don River and 11 km³ from the

Map of Kerch Strait



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