

Studies of Marine Chemical Pollution at Turkish Straits and Sea of Marmara

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In this paper, the effects of the marine chemical pollution are discussed on the Turkish Straits and Sea of Marmara. It is also aimed to show the environmental impacts of intense maritime traffic depending on numerical values in the same region.

Key Words: Marine chemical Pollution, Turkish Straits, Sea of Marmara, Tankers.

INTRODUCTION

Turkish Straits, connecting Mediterranean with Black Sea, consist of the Dardanelles, Sea of Marmara and Bosphorus. Bosphorus is one of the busiest waterways in the world, handling annually 50,000 ships in addition to fishing boats and local traffic. Bosphorus is 19 miles long and is less than one half mile wide at its most narrow point. Traversing Istanbul, a city of 12 million people, Bosphorus is spanned by two bridges. Over one-half million people cross the waterway daily. Bosphorus is as central to Istanbul as Mississippi for New Orleans¹.

International importance of Sea of Marmara stands in the forefront even though it is an inland sea of Turkey and it deals with increasing ecological problems for the last 50 years. The pollution in Sea of Marmara which threatens all living species cause dramatic falling in fishing potential. Increase in the volume of maritime traffic on the Strait and Marmara Sea have increased the risk of the maritime accidents over the years and since 1948, the number of ship accidents have been recorded as around 700.

The metropolis of Istanbul occupies both sides of the entrance to the narrow, 20 mile long Bosphorus Strait connecting Mediterranean and Marmara Sea (south) to Black Sea (north). Bosphorus or the Bosphorus (Turkish Bogazici or Istanbul Bogazi) is a strait that separates the European part (Rumeli) of Turkey from its Asian part (Anadolu), connecting the Sea of Marmara (Marmara Denizi) with Black Sea (Karadeniz). It is an important oil transit checkpoint. It is 30 km long, with a maximum width

of 3,700 meters at the northern entrance and a minimum width of 750 meters between Anadoluhisari and Rumelihisari.

Legislation about Marine pollution in Turkey: It is necessary to prepare a national legislation depending on international conventions and regulations to prevent the marine pollution from ships. In Turkey, to prevent the pollution of seas and to shift the related activities for this aim some laws and regulations and prepared² which are given in Table-1.

TABLE-1
LEGISLATION ABOUT MARINE POLLUTION IN TURKEY

Establish date	Name of legislation about marine pollution
9 July 1982	Coast Guard Command Law numbered as 1982
09 August 1983	Turkish Environmental Code 2872
1935	Turkish Ports Code 618
1991	Water Pollution Control Regulation dated as 1991
2004	The Waste Reception Services Regulation dated as

Maritime Traffic regulations for the Turkish straits: The increasing maritime traffic in the Turkish Straits, especially the sharp rise after 1990's in the number of oil tankers and the amount of oil they carry bring with them the growing risk and danger of a large-scale accident in the Straits causing huge environmental damage and destruction. The past examples show that this risk and danger may turn into a nightmare any time unless the necessary measures are taken to ensure safety of navigation in the Straits.

Having faced with this gloomy reality, Turkey had to take some safety measures in the Straits in 1994. The measures, which were contained in the Turkish straits regulations, were revised in 1998 taking into account 4 years of practice and experience.

On the other hand, traffic separation schemes (TSS) were introduced in 1994 in the Straits in accordance with the provisions of the International Regulations for Prevention of Collision at Sea (COLREG). The TSS were approved by the International Maritime Organization (IMO) general assembly in November 1995.

The Turkish straits regulations and the TSS aim at enhancing safety of navigation in the Turkish straits and are in conformity with the relevant rules of international law and practice. The associated IMO Rules and Recommendations have proven to be effective and successful. The drastic decline in the number of accidents and collisions substantiate this conclusion³.

Turkish straits vessel Traffic service (VTS): The Turkish straits VTS has been established in accordance with applicable national laws and

international rules and regulations in order to improve the safety of navigation, protection of life, environment and property in the Turkish straits by using the latest technology. The user's guide has been prepared⁴ to provide information related to the services provided, needed by the participant vessels that are navigating in the Turkish straits. The Turkish Straits Vessel Traffic Services shall be operated in accordance with the Turkish Straits Maritime Traffic Regulations, as promulgated in the Official Gazette together with the IMO Resolutions.

If taking account of the total accidents for which the reasons remain unknown and without the material events such as fire or sabotage, *ca.* 84 % of all the accidents of period 1982-2003 can be awarded to the human error. For the same period, the accidents are collisions (54.6 %), groundings (27.6 %), fires-explosions 7.9 % and others 4.6 %. Lastly, during this same period 1982-2003, out of the 608 accidents which have occurred, 564 ships did not have a pilot on board (92.8 %) and 44 had a pilot on board (7.2 %).

Introduction of a Traffic separation scheme in 1994, then the beginning of a Vessel Traffic service in 2004, strongly influenced the occurrence of accidents. But the traffic density, the increasing size of the ships and some reduction in the qualification of the crews masked part of the beneficial effects of the means introduced to improve safety of navigation in the straits.

The 608 accidents which occurred in Bosphorus during years 1982-2003 were caused by: (i) Human factors: 22.5 %; (ii) Bad weather: 14.0 %; (iii) Breakdowns: 12.2 %; (iv) Violent currents: 4.8 %; (v) Fire: 11.3 %; (vi) Sabotage: 1.2 %; (vii) Topographic conditions: 0.3 %; (viii) Others: 0.7 %.

Conclusion

As Turkey resumes economic growth in coming years, it will increasingly need to take environmental considerations into account.

Over 50,000 vessels, on average, annually use the Turkish Straits. In other words, together with the congested local traffic, on average one vessel passes through the Strait at every 10 min. More importantly, the number of tankers passing through the Straits has also reached alarming limits⁵.

There were not any major accidents or spills after the implementation of 1994/1998 Turkish Straits Regulations. However, one should take this fact with caution recalling that was a fifteen year of interval between last two major accidents in the Turkish Straits (the *Independenta* in 1979 and the *Nassia* in 1994). Therefore, by not having an accident before 2009 would only be consistent with previous margins. But on the other hand, apart from major accidents, the overall volume of accidents indicate that there has been a sharp drop in the number of accidents since the implementation of 1994/1998 Regulations⁶.

Thus, it is recommended that (i) Marine pollution must be done in easy way from the sea and coastal and the necessary records must be examined in the ship. (ii) When the marine accident is become in the sea or platforms the pollution disposal equipment must be provided. (iii) For sea facilities emergency plans must be prepared according to several scenarios and the some training must be done with some civilian communities. (iv) To prevent the spreading of pollution, the necessary equipment must be supply and maintain in a definite center. (v) Necessary training and education must be supply to the related port authorities which are responsible to port control. (vi) It is necessary to provide a legal regulation for cost responsibility to the ships which cause marine environment pollution in Turkish ports and coasts.

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