State of pollution of the Turkish coast of the Eastern Mediterranean by land based sources

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Following the development of the regional seas programmes for protection of the Mediterranean Sea against pollution (UNEP, 1982 ; UNEP, 1985), the member countries have spent more effort to reduce the waste discharges and to assess the present level of pollution in the receiving marine environment as well as for determining the annual loads of hazardous pollutants given to the coastal waters of the Mediterrranean.

It is important to note that there have been a great migration from the eastern and inland areas towards the Aegean and Mediterranean coasts of Turkey-extending from Iskenderun to Izmir-resulting in uncontrolled population increase and serious problems in relation to environmental pollution during the last decades. The industrial establishments preferring to locate at the coast and especially the coastline between Mersin and Iskenderum in the Northeastern Mediterranean region (Figure 1) is intensively industrilized (e.g. iron and steel, textile, food, paint, soda, pulp and paper, ferro-chrome, plastic, artificial fertilizer and petroleum industries). In this article, the pollutional status of the NE Mediterranean coastal waters from land-based sources is presented from the data of 9 years (1983-1991). The parameters monitored at the main sewage outlets, rivers and industrial discharge points were, Total Suspended Sediment (TSS), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Feacal Coliform (FC), Poliaromatic Petroleum Hydrocarbons (PAH) and Nutrients (PO_4 -P, Total-P, NO_3+NO_2 and Total-N) and the average values are given in Table 1. The concentration levels of these parameters were checked at the nearest coastal stations and at three offshore stations (Fig. 1). The annual loads of these pollutants from land-based sources were estimated and compared with the other Mediterranean regions. On the regional basis, Iskenderun and Mersin are the most polluted regions relative to western coastal waters. (YILMAZ *et al.*, 1992). The Bay of Iskenderun for example receives 85 x 10^3 tons of BOD, 525 x10^3 tons of COD annually where as the Mersin Bay receives 15 x 10^3 tons of BOD and 132 x 10^3 tons of COD. Consequently there may be potential danger for local ecosystem in this corner of Eastern Mediterranean. The western regions of Northeastern Mediterranean of Turkey, extending from Anamur to Marmaris are the least affected regions from the wastewater discharges.

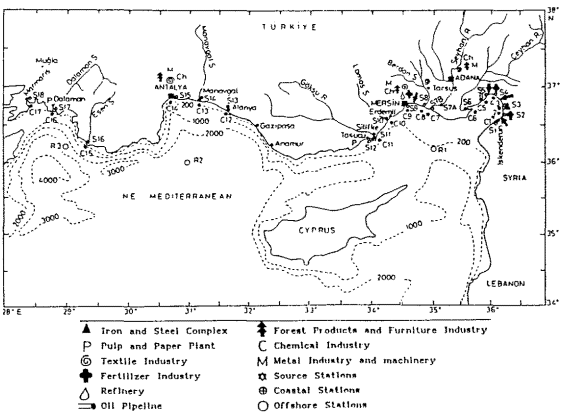

Figure 1. Locations of rivers, industrial and domestic inputs and coastal, offshore stations included in the pollution source inventory in the Northeastern Mediterranean.

Station	TSS (mg/L)	BOD5 (mg/L)	COD (mg/L)	FC #of cells/100mL	PAH µg/L
Iskenderun Sewage (S1)	88.5	62.4	199.5	$1072.8x10^3$	13.3
Sariseki Fertilizer (S2)	691.3	5.9	56.7	-	1.2
Iron and Steel Complex (S3-A) (Residental area)	11.8	32.2	150.9	$42.2x10^3$	33.6
Iron and Steel Complex (S3-B) (Industry)	381.5	10.9	61.4	-	271.6
Toros Fertilizer (Acidic Effluent)(S4-A)	1633.4	13.1	108.3	-	27.6
(Basic Effluent) (S4-B)	138.3	2.4	106.5	-	120.0
Botas Oil Pipe line (S5)	3.5	-	-	-	19.5
Ceyhan River (S6)	280.1	4.6	24.4	$5.6x10^3$	5.7
Seyhan River (S7-A)	19.3	6.9	48.0	$29.6x10^3$	7.3
Adana Sewage (S7-B)	27.1	33.9	233.7	$206x10^3$	43.3
Berdan Stream (S8)	25.2	3.9	11.4	$5.0x10^3$	4.2
Mersin Sewage (S9)	51.6	71.2	414.8	$9360x10^3$	51.7
Goksu River (S11)	134.7	1.5	22.2	$0.8x10^3$	1.4
Pulp and paper Industry (S12)	51.1	120.0	215.0	-	51.0
Manavgat Stream (S14)	15.2	2.9	8.4	$0.2x10^3$	0.6
Antalya Sewage (S15)	12.9	187.5	300.6	$143.3x10^3$	1.4

Table 1. Overall average of some pollutants measured at selected discharge points in the Northeastern Mediterranean.

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