

## Distribution of Mercury in Aegean Coastal Sediments

A. BALCI, H.-A. BENLI and F. KUCUKSEZGIN

Institute of Marine Sciences and Technology, Dokuz Eylül University, Izmir (Turkey)

In this study, the distribution of mercury in suspended matter and sediment of the Aegean Sea were investigated. The total mercury content in deposited sediments ranges between 0.09 ug/g and 3.61 ug/g with mean of 0.91 ug/g.

## MATERIAL AND METHOD

Mercury was detected flameless atomic absorption spectrophotometry (AAS) using cold vapour technique stripping by an argon flow the metallic mercury reduced by an SnCl<sub>2</sub> acid solution.

Water samples for suspended material were filtered through 0.45 um pore size preweighted Nucleopore filter. Study area and sampling stations are shown in Figure 1.

## RESULTS AND DISCUSSION

Concentrations of total mercury in surface sediments from Aegean Sea are given in Table I. Highest concentration of mercury in the Aegean have been obtained at Karaburun Peninsula. Karaburun mining region, for the Aegean, the most important source of mercury. But even if it not being mined, it might be responsible for appreciable amounts of mercury being carried by surface erosion and rivers in to Aegean Basin. Küçük Menderes and Büyük Menderes rivers flow through the mercury-bearing ores and carry mercury rich material in to the Aegean Sea. It has been reported that the amount of mercury transported to the Aegean Sea by rivers is about 14 ton/years (UNEP 1984). Continental weathering and subsequent erosion play an important role in determining the mercury content of rivers and thus amount of mercury entering the Aegean.

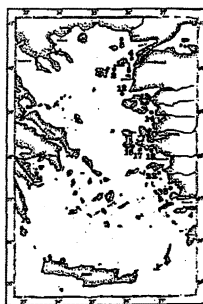
The mercury load on suspended particles in rivers ranged between 4 and 231 ug/g. In estuaries, the suspended matter is more contaminated than the deposited sediments. This is due to its greater amount of fine grained particles and organic matter to which trace metals used to be associated Cranston and Buckley, (1972). The mercury content of suspended matter in rivers are given in Table II. High level of mercury on suspended particles in Küçük Menderes river.

STATION	n	R	X
1	7	0.09-1.32	0.80
2	3	0.70-0.91	0.82
4	6	0.42-3.61	1.38
5	4	0.36-1.68	1.03
12	2	0.39-1.15	0.78
13	6	0.08-1.81	0.67
14	7	0.12-1.28	0.61
16	3	1.45-3.67	2.32
17	4	0.47-2.06	1.05
18	6	0.36-1.15	0.74
22	-	0.39-1.30	0.83
40	2	0.24-0.73	0.48
41	2	0.64-0.88	0.76

Table : I Mercury concentrations in Aegean Sediments (ug/g)  
n: number of sample, R: Range X: mean

Rivers	TSM (ng/l)	Particulate Hg Range	(ug/g) mean
Meric	32	4-231	52
Mavran	34	10-26	35
Gediz	77	8-83	46
K.Mend.	7	24-231	152
B.Mend.	46	38-148	84

Table : II Particulate Mercury and total suspended material (TSM) in some rivers.



## CONCLUSIONS

Industrial sources and the frequent natural geochemical anomalies in Aegean sea influence the mercury distribution in the marine sediments, adjacent to these sources. Near the river mouths due either to anthropogenic or natural sources, sediments show higher levels. The pattern of distribution of mercury in coastal sediments indicates that suspended particulate matter is the main vehicle for mercury from land based sources to marine environment. Another aspect which is worth further investigation is whether the inflow of waters through the straits of dardanelis might represent an appreciable input or output of mercury in Aegean sea.

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