

LAND-BASED SOURCES OF MERCURY IN THE BLACK SEA AND THEIR REFLECTION IN THE MARINE ENVIRONMENT

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The land-based sources of mercury, one of the most dangerous pollutants in the aquatic environment, were investigated in the western and eastern Black Sea. Sediment and mussel samples collected in different seasons of the year were analysed for their mercury content.

As was expected, sediments contained more mercury than mussels although some exceptions were observed. Sediments from both the western and eastern Black Sea had more or less the same concentrations, while mussels from the western Black Sea contained more mercury than those from the eastern part (Figs. 1 and 2).

In the western Black Sea, mercury concentrations were highest in sediments taken from the mouth of streams (Sts. 1 and 3) which implies that this pollutant originates from land. High values were also obtained in the sediments collected from these streams [1]. It is obvious that stations located in the western Black Sea are influenced also by the Danube River which runs across many European countries. High mercury concentrations were also measured at St. 5 in Zonguldak harbour which is the most populated and industrialized city in the western Black Sea (Fig. 1A).

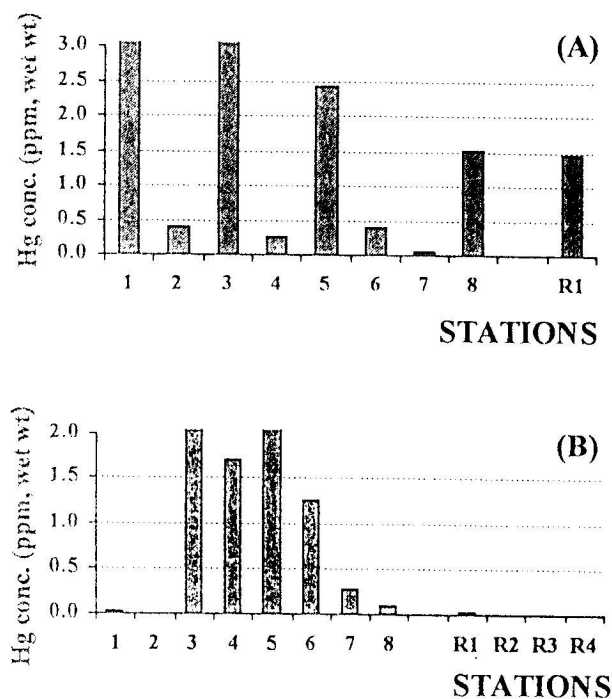


Figure 1. Mercury concentrations in sediments (A) and mussels (B) from the western Black Sea (R: Control stations)

Mercury concentrations in mussels from the western Black Sea were quite high at most of the sampling stations (Fig. 1B). The abnormally high value found at St.5 resulted from the high concentrations measured in April.

In the eastern Black Sea, the highest values were obtained in sediments from Sts. 3 and 14 (Fig.2A). Station 3 was located in the mouth of a big river (Kızılırmak River) and St.14 at the discharge point of the effluents of a copper refinery. Very high values were also observed in sediments from the Kızılırmak River and from the effluents [2].

Mussels from the eastern Black Sea contained less mercury than those collected from the western part. The highest concentrations were again measured in the samples from St.14 followed by those sampled from Sts. 9 and 10 which were located near Trabzon which is one of the biggest city in the eastern Black Sea (Fig.2B).

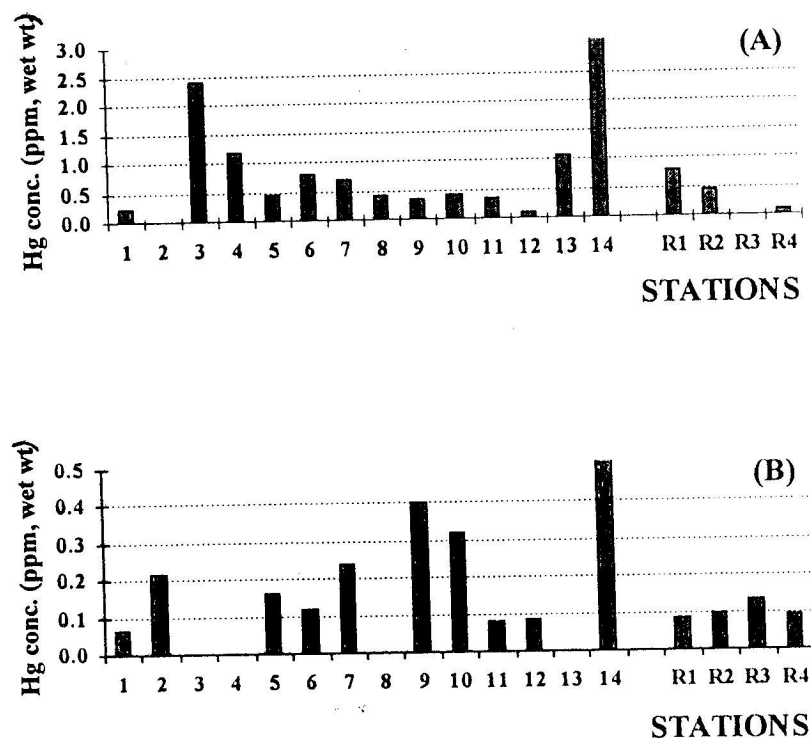


Figure 2. Mercury concentrations in sediments (A) and mussels (B) from the eastern Black Sea (R: Control stations).

REFERENCES

- [1] ÜNSAL, M. et al., Determination of the land-based sources of heavy metal pollution in the western Black Sea.. Final Rep.Inst.of Mar.Sc., METU, (1997), 94 p. (in Turkish).
- [2] ÜNSAL, M. et al., Determination of the land-based sources of heavy metal pollution in the eastern Black Sea.. Final Rep.Inst.of Mar.Sc., METU, (1995), 83 p. (in Turkish).