

TRACE METALS IN THE SIBENIK AQUATORIUM
P-1 CONCENTRATIONS OF Zn, Cd, Pb, and Cu ANALYZED IN THE
1983/1984 PERIOD

Marko Branica, Željko Peharec, Željko Kwokal and Sonja Kozar
Center for Marine Research Zagreb, "Rudjer Bošković" Institute
Zagreb, Croatia, Yugoslavia

Summary. The average concentrations of ionic Zn, Cd, Pb and Cu, determined by DPASV and TFE in the water samples of the Šibenik aquatorium in the period from July 1983 to July 1984, are in the range of 470-940, 8-12, 24-70, 18-94 ng dm⁻³, respectively.

Résumé. Les concentrations en Zn, Cd, Pb et Cu ioniques déterminées au moyen du DPASV et TFE dans les échantillons d'eau du système aquatique de Sibenik de juillet 1983 à juillet 1984 sont respectivement dans la gamme de 470-940, 8-12, 24-70 et 18-94 ng dm⁻³.

The biogeochemical cycle of trace elements in the estuarine region is accelerated as a result of a high geochemical reactivity and enhanced biological processes at a surface water-sea-water interface. The anthropogenic influence on such naturally accelerated cycles can also be observed. The observed high growing rate of shellfish and a very good results in the cage fish farming experiments in the River Krka estuary region are in agreement with the mentioned statements. With the main aim to elucidate the specific natural biogeochemical processes and anthropogenic influence on the trace metal cycle in the estuarine condition, the Šibenik aquatorium monitoring programme was established. It has started in 1983 at the national level in the frame of the international UNEP MED POL PHASE II programme and as a bilateral agreement between Yugoslavia and F.R. Germany (RBI-CMR Zagreb and KFA, ICH-4, Jülich).

In addition to other parameters the seasonal variation of the concentration of Zn, Cd, Pb, Cu and Hg in water, sediments and biota samples was followed. The sampling stations are located from the River Krka falls (E-1) towards the "open" sea and ending at the Kornati Islands (R- station) as it can be seen from the Fig. 1.

In Table 1 the average metal concentrations (ng dm⁻³) at natural and acidified water samples in the period from July 1983 to July 1984 are presented.

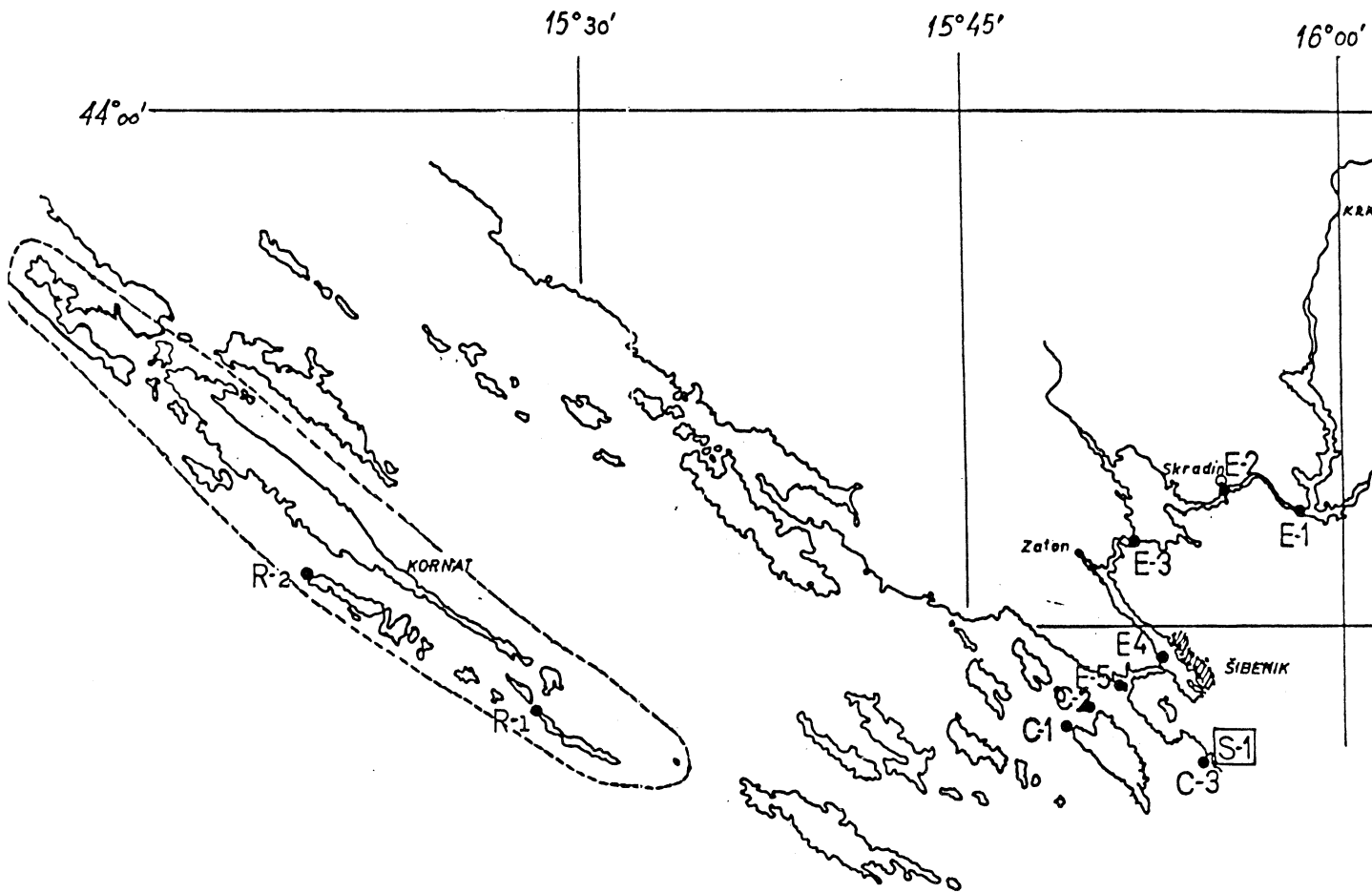
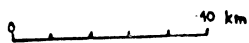


Fig. 1.



THE RIVER KRKA ESTUARY AND THE KOR NATI ACHEPELAGO
(THE ADRIATIC SEA)

Table 1

	Zn		Cd		Pb		Cu ng dm ⁻³	
Cruise sampling pH =	4,7	8	2	8	2	8	2	8
A. Mohorovičić Jan.1980	3,700	1,800	7	4	71	47	240	90
Lim Channel June 1979	2,170	1,210	15	3	130	30	400	200
07.1984	995	660	16	10	118	24	98	18
05.1984	824	470	10	10	245	95	256	47
02.1984	1,560	935	10	10	180	70	388	94
10.1983	650	423	12	8	420	-	415	-
07.1983	1,520	730	18	12	440	-	243	-

The data obtained indicate that the Šibenik aquatorium is not heavy polluted area by the above mentioned metals, even the elevated concentration levels at the same stations were observed.

These preliminary results will be discussed and compared with the data of trace metals in the Adriatic Sea as well as in other sea waters.

