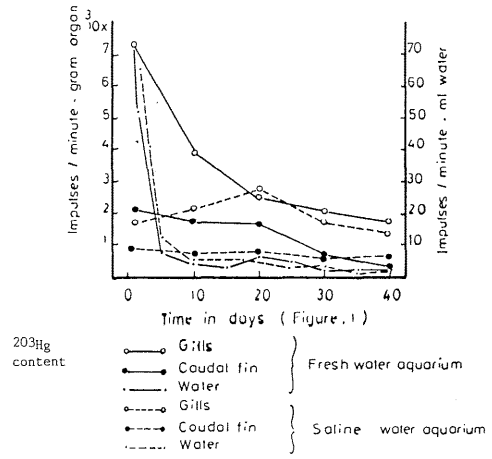
Effect of Environmental Water Salinity on Toxicity and Bioaccumulation of Mercury in *Tilapia zillii* Gerv.

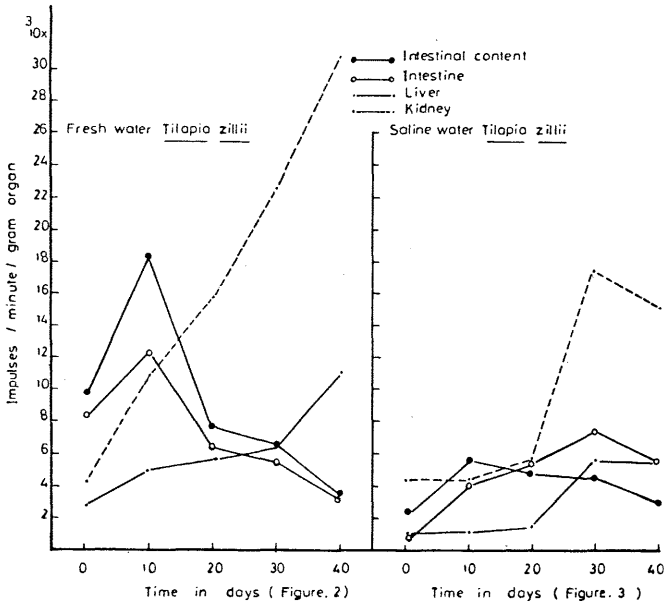
Hamed Hamed SALEH

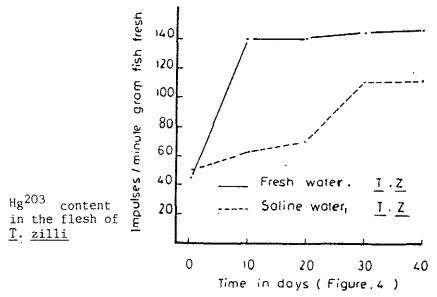
National Institute of Oceanography and Fisheries, Alexandria (Egypt)

Laboratory experiments using the euryhaline fish Tilapia zillii Gerv living in fresh and saline water (30‰) aquaria, polluted with high and low concentrations of mercury (as Hg^{203} cl_2), showed that the toxicity of mercury is mainly due to its bioaccumulation on the gills, whether on the short or long term and this bioaccumulation of mercury on the gills is higher for the fish living in saline water



than that in fresh water as shown in figure 1 (Hg^{203} was measured by Gigar counter and calculated as impulses/minute). However, the mortality of the fishes living in fresh water polluted with mercury was low, but its body contains more mercury than that living in saline water (Figures 2, 3 and 4). The danger of mercury is





probably due to its high adsorption and permeability into water organisms and so its quick disappearance form the water environment during few time which means that its concentration in the water is small and negligible while its content in the water organisms and sediments is considerably high (Figures 1,2,3 and 4) mainly when the aquatic environment is shallow and stagnant.

Anchovy and Sardine Eggs and Larvae on the Continental Shelf of the Ligurian Sea (1985-1989)

Giancarlo ALBERTELLI, Norberto DELLA CROCE and Tecla ZUNINI SERTORIO

Institute of Marine Environmental Science, University of Genoa, C.so E. Rainusso 14, 16038 S. Margherita L. (Italia)

Since 1985 the Institute of Marine Environmental Science is carring on a research on the evaluation of anchovy (Engraulis enchrasicolus) and sardine (Sardina pilcardus) stocks by eggs and larvae method (Albertelli et all., 1988).

The areas of interest under study in the Ligurian Sea are its continental shelf and a pilot area located in the Eastern Riviera (Chiavari).

Double-oblique hauls are collected by sets of bongo plankton net at 4 fixed stations located in the pilot area on the continental shelf (between 40 - 200 m depth) every fortnight. Each time on each station trasparency of water, water column temperature and weather data are recorded. Every forthnight, in the pilot area, currents are also recorded at the same station at 5, 45 and 75 m depths (Fig. 1). Surface hauls are carried out seasonally, every ten miles, over the continental shelf in water about 100 m deep along the ligurian coast within 48 hours (Fig. 1).

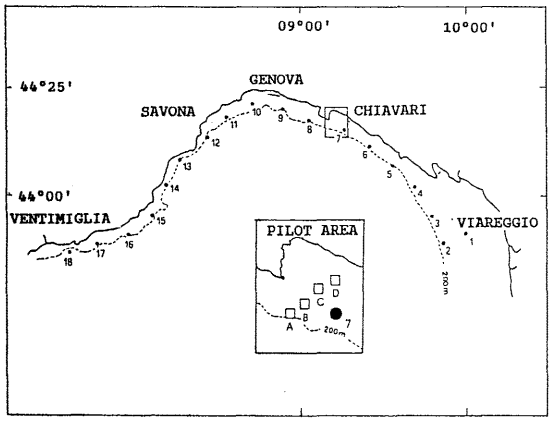


FIGURE 1 - Sampling stations on the continental shelf of the Ligurian Sea and on the Pilot Zone off Chiavari.

The preliminary results have determined the spawning time for anchovy as well as the fluctuations on the eggs and larvae /square metre (Albertelli et all., 1988). Sardine eggs and larvae are present through the years but discontinuously and with low density values.

The biological data concerning 930 samples (Albertelli et all., 1988 a; b; c; 1989) will be examined in relation to some environmental parameters such as "trasparency, temperature on the water column and currents, as well as to weather conditions . Some data are presented in the Table 1.

TABLE 1.

STATIONS	EGGS/SM MEAN VALUE ON 48 MONTHS ANCHOVY	SARDINE	OTHER FISHES	TOTAL	LARVAE/SM MEAN VALUE ON 48 MONTHS ANCHOVY	SARDINE	OTHER FISHES	TOTAL	SURFACE TEMPERATURE IN °C MINIMUM	MAXIMUM	SECCHI DISK TRANSPARENCY IN METRE MINIMUM	MAXIMUM
A	17.61	1.13	31.33	50.07	27.98	3.91	69.87	100.78	12.5	26.1	5	44
B	16.09	2.13	41.34	59.56	41.87	4.85	112.43	158.18	12.2	26.2	6	41
C	14.63	12.19	69.94	96.78	29.91	7.06	139.40	174.61	11.5	26.6	4	33
D	8.62	10.17	62.71	81.71	24.86	5.26	57.64	86.44	11.8	26.3	3.5	30

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