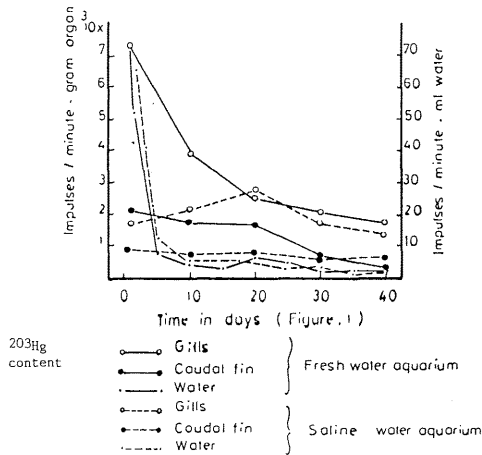


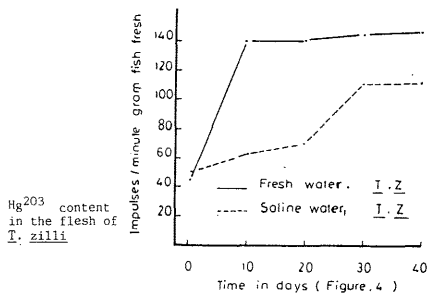
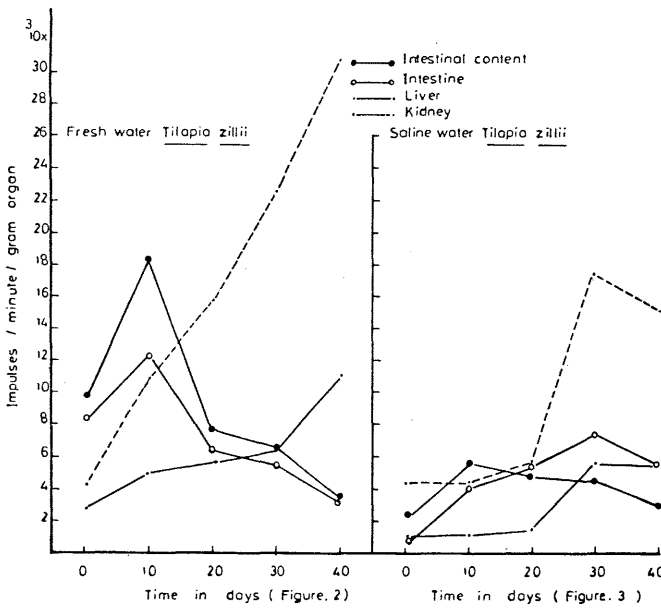
Effect of Environmental Water Salinity on Toxicity and Bioaccumulation of Mercury in *Tilapia zillii* Gerv.

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 Giger 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 from 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.

Rapp. Comm. int. Mer Médit., 32, 1 (1990).

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 carrying on a research on the evaluation of anchovy (*Engraulis encrasicolus*) and sardine (*Sardina pilchardus*) stocks by eggs and larvae method (Albertelli et al., 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 transparency of water, water column temperature and weather data are recorded. Every fortnight, 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).

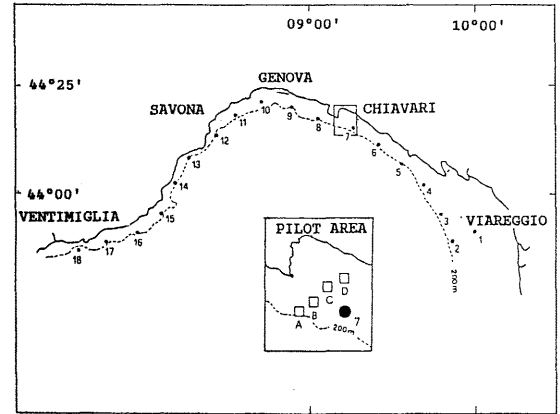


FIGURE 1 - Sampling stations on the continental shelf of the Ligurian Sea and on the Pilot Zone off Chiavari.

The preliminary results have determined the spawning time for anchovy as well as the fluctuations on the eggs and larvae /square metre (Albertelli et al., 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 al., 1988 a; b; c; 1989) will be examined in relation to some environmental parameters such as "transparency, 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				LARVAE/SM MEAN VALUE ON 48 MONTHS				SURFACE TEMPERATURE IN °C		SECCI DISK TRANSPARENCY IN METRE	
	ANCHOVY	SARDINE	OTHER FISHES	TOTAL	ANCHOVY	SARDINE	OTHER FISHES	TOTAL	MINIMUM	MAXIMUM	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

REFERENCES

ALBERTELLI, G., ANGELINO, M.I., DELLA CROCE, N. et SALEMI PICONE, P., 1988. Valutazione degli "stocks" di acciughe e parametri ambientali in Mar Ligure. *Atti Seminari per la Pesca e l'acquacoltura, Ministero Marina Mercantile - C.N.R., Roma, novembre-dicembre 1986*: Vol I: 89-97.

ALBERTELLI, G., DELLA CROCE, N., OLIVARI, E. et SALEMI PICONE, P., 1988. Uova e larve di acciughe nella zona pilota. Chiavari: marzo 1985 - marzo 1986. *Ist. Sc. Amb. Mar., Catt. Idrob. Piscic. Univ. Genova, Rapp. Tecn.*, 27, 12 pp.

ALBERTELLI, G., ANGELINO, M.I., DELLA CROCE, N. et OLIVARI, E., 1988. Uova e larve di acciughe nella zona pilota. Chiavari: marzo 1986 - marzo 1987. *Ist. Sc. Amb. Mar., Catt. Idrob. Piscic. Univ. Genova, Rapp. Tecn.*, 28, 16 pp.

ALBERTELLI, G., D'AMBROSIO, N., DELLA CROCE, N. et OLIVARI, E., 1988. Uova e larve di acciughe nella zona pilota. Chiavari: marzo 1986 - marzo 1987. *Ist. Sc. Amb. Mar., Catt. Idrob. Piscic. Univ. Genova, Rapp. Tecn.*, 29, 40 pp.

ALBERTELLI, G., DELLA CROCE, N., OLIVARI, E. et SALEMI PICONE P., 1989. Uova e larve di acciughe nella zona pilota. Chiavari: marzo 1986 - marzo 1987. *Ist. Sc. Amb. Mar., Catt. Idrob. Piscic. Univ. Genova, Rapp. Tecn.*, 31, 40 pp.

Rapp. Comm. int. Mer Médit., 32, 1 (1990).