

## **Fish as an Indicator of Eco-System Contamination with Mercury**

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**Aim.** To compare the total and organic mercury content in sea-fish samples from Croatia, where fishing occurs in a closed part of the Mediterranean Sea, and from other countries fishing mostly in the oceans.

**Method.** During 1997, we collected at the Zagreb fish market a total of 115 samples of fifteen kinds of fish including bathypelagic, pelagic and elasmobranch fish, caught in the wider coastal areas of Netherlands, Germany, Spain, Argentina, Belgium, and Croatia. Total mercury and organic methyl-mercury in the fish were determined at the laboratory for testing of food and other common use material at the Zagreb Institute of Public Health. Total mercury was determined by the method of atomic absorption spectrometry. Methyl-mercury was determined by the method of gas chromatography. The mean annual fish consumption in each country was used to calculate the mean weekly intake of mercury and methyl-mercury in each individual country relative to the recommended values.

**Results.** The mean content of total mercury and organic mercury in pooled samples was  $111 \pm 100$   $\mu\text{g}/\text{kg}$  and  $95 \pm 87$   $\mu\text{g}/\text{kg}$  (85.6%), respectively. The highest values were found in the fish from Croatia ( $170 \pm 124$   $\mu\text{g}/\text{kg}$  and  $150 \pm 107$   $\mu\text{g}/\text{kg}$ ; 88.2%, respectively). This concentration did not exceed the maximal allowed level of 500  $\mu\text{g}/\text{kg}$  for total and 400  $\mu\text{g}/\text{kg}$  for organic mercury in any of the samples examined. The highest values of total mercury ( $119 \pm 111$   $\mu\text{g}/\text{kg}$ ) and organic mercury ( $103 \pm 96$   $\mu\text{g}/\text{kg}$ ; 86.6%) were found in bathypelagic fish. According to the mean annual per capita fish consumption in each country, the mean weekly mercury intake was highest in Spain (49.8  $\mu\text{g}$ ) and lowest in Croatia (19.0  $\mu\text{g}$ ).

**Conclusion.** At present conditions of mercury content and its mean annual consumption, dietary use of sea-fish can still be recommended, even from the seas with closed circulation, such as Adriatic.

**Key words:** conservation of natural resources; Croatia; ecology; fishes; food contamination; mercury poisoning; organomercury compounds; seafood