Concentrations of mercury (Hg) and cadmium (Cd) in some coastal fishes from Gulf of Finland; Baltic herring (*Clupea harengus membras* L.), smelt (*Osmerus eperlanus* L), perch (*Perca fluviatilis* L.), eelpout (*Zoarces viviparus* L.), flounder (*Platichtys flesus* L.) and four-horned sculpin (*Myoxocephalus quadricornis* L.) in Finnish and Estonian waters.

Heinz-Rudolf Voigt, Department of Limnology and Environmental Protection,
P.O.Box 62, Infocenter (514), FIN 00014 University of Helsinki-Helsingfors, Finland

Concentrations of mercury (Hg) and cadmium (Cd) have been analyzed from herring, smelt, perch, eelpout, flounder, and four-horned sculpin sampled from coastal waters off Tvärminne, Helsinki, Kotka (Finland) and off Muuga,Vainupea, Palganeeme, Käsmu (Estonia), Gulf of Finland, Baltic Sea.

In contrast to the Baltic Environmental Monitoring Programme headed by HELCOM which concentrates mainly on two open-sea species Baltic herring (*Clupea harengus membras* L.) and cod (*Gadus morhua callaris* L.) some selected species of fishes, both open sea eg.; herring, and inshore eg.; smelt (Osmerus eperlanus L), perch (*Perca fluviatilis* L.), eelpout (*Zoarces viviparus* L.), flounder (*Platichtys flesus* L.), and four-horned sculpin (*Myoxocephalus quadricornis* L.) have been sampled from coastal waters for indivudual analyzes of Hg and Cd in mainly muscle tissue and liver.

The mean Hg concentration in muscle tissue of recent (in 2000) samples of inshore herring at Tvärminne is 0.17 $mg.kg^{-1}$, fresh weight (f.wt) in contrast to 0.14 for smelt from the same locality. The corresponding figures for both species from Käsmu (in 1998) are 0.14 and 0.09 respective.

The mean concentrations of Hg in muscle tissue of smelt from Tvärminne varies from 0.15 (in 1969), 0.13 (in 1970), .. 0.06 (in 1988), 0.06 (in 1989), .. 0.08 (in 1998), 0.13 (in 1999) to 0.14 $mg.kg^{-1}$, f.wt (in 2000).

For Cd there is an increase in the livers of the smelts from Tvärminne: 0.08 $mg.kg^{-1}$, dry weight, (d.wt) in 1990 to 0.25 and 0.32 $mg.kg^{-1}$ (d.wt) in 1997 and 1999 respectively.

The mean recent concentration of Hg in muscle tissue of perch from Tvärminne is 0.25 and in perch off Helsinki 0.78 $mg.kg^{-1}$, f.wt.

In eelpout from Tvärminne the mean concentrations of Hg in muscle tissue varies from 0.05 (in 1996), 0.07 (in 1997) to 0.05 $mg.kg^{-1}$, f.wt. (in 1998) and for Cd in the liver of these fishes the corresponding figures are 0.73, 0.76 and 0.35 $mg.kg^{-1}$, d.wt respectively. Corresponding figures for eelpouts from Muuga and Vainupea (in 1998) are: 0.09 and 0.10 $mg.kg^{-1}$, f.wt Hg in muscle tissue and 2.01 and 1.43 $mg.kg^{-1}$ (d.wt) Cd in the liver respectively.

In flounder from Tvärminne the mean concentrations of Hg in muscle tissue varies from 0.09 (in 1996), 0.10 (in 1997), 0.11 (in 1998) to 0.13 $mg.kg^{-1}$, f.wt. (in 1999) and for Cd in the liver of these fishes the correspoinding figures are 3.99 (in 1997), 2.82 (in 1988) and 2.28 $mg.kg^{-1}$, d.wt. (in 1999) respectively. Corresponding figures for flounder from Käsmu (in 1998) are 0.06 $mg.kg^{-1}$, f.wt Hg in muscle tissue and 0.51 $mg.kg^{-1}$, d.wt Cd in the liver.

The mean concentration of Hg in muscle tissue of four-horned sculpin from Tvärminne (in 1998) is 0.54 $mg.kg^{-1}$, f.wt in contrast to 0.22 $mg.kg^{-1}$, f.wt in muscle tissue of the same species from Palganeeme (in 1998) and the mean concentration of Cd in the liver of these fishes is 0.20 $mg.kg^{-1}$ d.wt.

There are no clear trends of any decrease by time for Hg concentrations in muscle tissue of the investigated fishes but for Cd in the livers of these fishes there may be an increase during the last decade. There also are unexpected and even significant differences between the sampling areas in the metal concentrations of some of the species investigated altough these concentrations with few exceptions do not exceed the stipulated safety levels for fish as food neither in Estonia nor Finland or in the European Union.