

### GC/MS analysis

The sample was analyzed with GC/MS-SIM using a 30m x 0.25mm  $\phi$  ULTRA-2(SPB-1). GC conditions used were: carrier gas helium 10 psi; temperature program 50°C (1 min) to 200°C at the rate of 30°C/min, then 5°C/min to 250°C.

MS conditions used were: ionization EI mode, 280°C, 70eV, 300  $\mu$ A.

PCB Monitoring ion: 222.000; 223.998; 255.961; 257.959; 289.922; 291.920;  
323.883; 325.881; 357.844; 359.842; 393.803; 395.800;  
427.764; 429.761; 451.725; 463.722

### RESULT AND DISCUSSION

Commercial PCB are complex mixture of chlorinated biphenyls having specified chlorine content, and associated with over 110 resolved peaks (Nakano et al., 1987a) in GC/MS analysis. Industrial chlordane is also mixture of chlordane isomers (Nakano et al., 1987b). Data are presented for PCB congeners in vapor, particulates, sediment, and plankton. Fig. 1 shows characteristic GC/MS-SIM chromatograms of PCB congeners in the various samples. Residual isomeric pattern of PCB and chlordane in the sediment and plankton reflects the general abundance of isomer component in the commercial products.

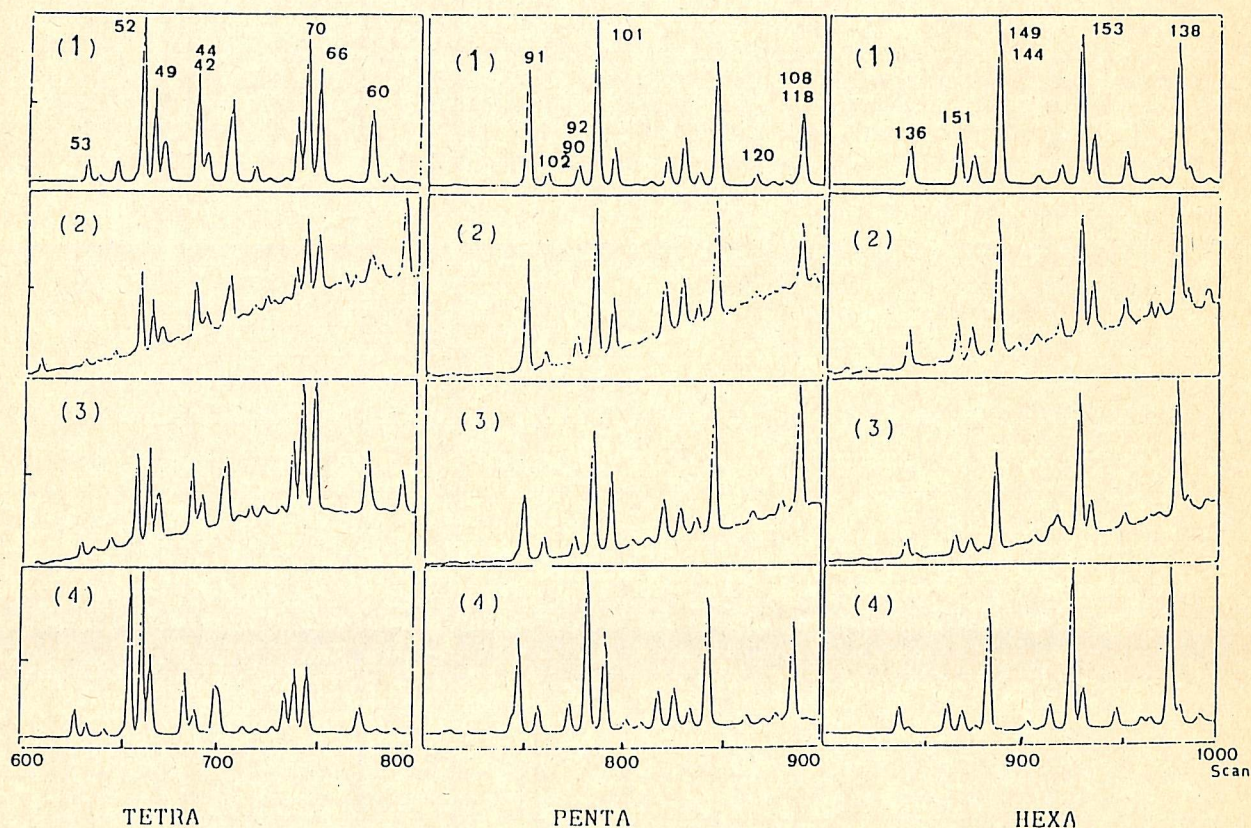


Fig. 1 GC/MS-SIM chromatograms of PCBs in the environmental samples.  
(1) Equivalent mixture of Kanechlor (KC-300,400,500,600=1:1:1:1)  
(2) Urban air (vapor) (3) Sediment (4) Plankton (IUPAC No.)

Thirty monitoring ions of PCBs were analyzed simultaneously by SIM using magnetic field switching technique. This rapid analytical method was developed to determine for each congener in environmental samples. Thousand sediment samples were collected over 15 years. Isomer specific analysis showed that the PCB composition in sediments reflect historical input with different usage