



Periphyton density influences organochlorine accumulation in rivers

Berglund, Olof

Limnol. Oceanogr., 48(6), 2003, 2106-2116 | DOI: 10.4319/lo.2003.48.6.2106

ABSTRACT: To investigate the influence of eutrophication on organochlorine dynamics in lotic systems, we related polychlorinated biphenyl (PCB) concentrations in brown trout (*Salmo trutta*) to the periphyton density and total phosphorus concentrations (Tot-P) in 10 Swedish rivers. Tot-P concentrations in the water ranged from 37 ± 4 to $156 \pm 51 \mu\text{g L}^{-1}$. Periphyton density in the rivers during the experiment ranged from 6 to 199 mg carbon (C) m^{-2} and was not related to the Tot-P concentration. The concentrations of PCB 52, PCB 66/95, PCB 90/101, PCB 132/153/105, PCB 160/138/158, PCB 180, and PCB 194 in brown trout were positively related to both periphyton density and Tot-P concentration, with periphyton density having the highest degree of correlation, 40-58%, compared to 6-44% for Tot-P. All seven PCB concentrations in brown trout were significantly, positively related to the areal mass (ng m^{-2}) of the PCB in periphyton ($r^2 = 0.69-0.86$). Contrary to what has been found for lakes, eutrophication and organochlorine accumulations are positively related in rivers. Thus, an increase in primary production should increase the exposure of the local biota but lead to a decrease of the downstream transport of these pollutants to coastal areas and oceans.

Article Links

[Download Full-text PDF](#)

[Return to Table of Contents](#)

Please Note

Articles in L&O appear in PDF format. Open access articles may be freely downloaded by anyone. Other articles are available for download to subscribers only, or may be purchased for \$10 per article. All L&O articles are moved into Open Access after three years.