

International Pellet Watch: global monitoring of persistent organic pollutants (POPs) in coastal waters. 1. Initial phase data on PCBs, DDTs, and HCHs

ABSTRACT

Samples of polyethylene pellets were collected at 30 beaches from 17 countries and analyzed for organochlorine compounds. PCB concentrations in the pellets were highest on US coasts, followed by western Europe and Japan, and were lower in tropical Asia, southern Africa and Australia. This spatial pattern reflected regional differences in the usage of PCBs and was positively correlated with data from Mussel Watch, another monitoring approach. DDTs showed high concentrations on the US west coast and in Vietnam. In Vietnam, DDT was predominant over its metabolites (DDE and DDD), suggesting the principal source may be current usage of the pesticide for malaria control. High concentrations of pesticide HCHs were detected in the pellets from southern Africa, suggesting current usage of the pesticides in southern Africa. This study demonstrates the utility and feasibility of the International Pellet Watch approach to monitor POPs at a global scale.

Keyword: Environmental monitoring; Organochlorine pesticides; Passive sampler; Marine debris