

THE CANADIAN GREAT LAKES HEALTH EFFECTS PROGRAM: RESEARCH STUDIES UNDERWAY

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The Great Lakes Health Effects Program is a five year federal initiative in Canada designed to identify the nature and extent of human health related impacts associated with exposure to mixtures of environmental chemicals in the Great Lakes basin. These mixtures of substances include PCBs, PCDD, PCDF, several other chlorinated organics and various metals. The Government of Canada stated in 1991 in a comprehensive report¹ that the health of some basin residents was at risk.

The program combines research in epidemiology, surveillance and toxicology, with public consultation and communication to provide advice to publics and recommend remedial measures, guidelines and objectives. The major research activities pertaining to dioxin-like compounds includes:

- a two generation rat study involving modules to assess reproduction, immune system and neurobehavioral impacts associated with sustained consumption of highly contaminated coho salmon from Lake Ontario. Full characterization of the contaminants in the fish and offspring is underway.
- several PCB congener subchronic toxicity studies (91 days exposure). The studies are focusing on congeners #126, #118, #77, #28, #110, #128. The results of some of these studies are being reported at this meeting².
- a pilot exposure study with sport fishermen consuming contaminated Lake Ontario fish to determine their blood levels of PCBs, PCDDs and other organics and metals relative to their stated consumption of fish. This study involves 200 individual assessments with community follow-up meetings and information to physicians.
- a detailed analysis of 11 species of sport fish using GC-MS and neutron activation to determine and quantify known and previously unknown chlorinated organics. Chlorinated fractions known to contain most of the persistent organics and the fractions containing the remainder of the chlorinated materials will be compared using an in vivo toxicity screening bioassay.

- other research studies underway are evaluating dermal exposure, delayed-onset neurotoxicity, cancer and congenital anomaly end points, reproductive impacts for males and females and effects in special at-risk populations (immigrant Canadians, aboriginal peoples, commercial fishermen, fishing guides and charter boat operators, etc.)

Information on these and other research studies will be available at the poster display area.

1 Government of Canada. Toxic Chemicals in the Great Lakes and Associated Effects. Synopsis and two volumes. 1991. Minister of Supply and Services Cat. No. En 37-94/1990E.

2 Chu, I., Villeneuve, D.C., Gilman A.P., Yagminas, A., LeCavalier, P., Poon, R., and Kennedy, S. Toxicity study of 3, 3', 4, 4' - tetrachlorobiphenyl and 2, 3', 4, 4', 5 - pentachlorobiphenyl in the rat. 1992. Dioxin '92 proceedings (in press).