

1. Introduction and Inventory Objective

This 1998 inventory update, a product of the Great Lakes Regional Air Toxic Emissions Inventory Project, presents a multijurisdictional inventory of point, area and mobile sources of toxic air emissions that have the potential to impact environmental quality in the Great Lakes region. This initiative was undertaken through an intergovernmental partnership involving the eight Great Lakes states, the province of Ontario, and the U.S. Environmental Protection Agency (U.S. EPA). The objective of this ongoing initiative is to present researchers and policy makers with detailed, region wide data on the source and emission levels of air toxic contaminants.

The development and release of the inventory is an important step in meeting the goals of the 1986 Great Lakes Toxic Substances Control Agreement (signed by the Great Lakes governors and Premier of Ontario), and sections 112(c)(6), 112(k) and 112(m) of the 1990 U.S. Clean Air Act Amendments (see <http://www.cglg.org/pub/toxics/index.html> and <http://earth1.epa.gov/oar/caa.html> for further details).

The inventory project presents a compilation of the best available data for calendar year 1998 emissions. Great Lakes jurisdictions believe this work will provide a strong foundation upon which to build national and binational strategies to reduce toxic air emissions affecting the Great Lakes.

This inventory effort focused on the identification of point, area and mobile source categories that contribute to the total emissions of toxic contaminants listed in Table 1-1. This list of 82 contaminants was compiled using the Great Lakes Water Quality Agreement, International Joint Commission's list of Great Lakes critical pollutants, U.S. EPA's list of targeted toxic chemicals and compounds defined in the U.S. Clean Air Act Amendments of 1990, section 112 (c)(6), and those pollutants suggested by the Great Lakes states and Province of Ontario.

The inventory project is strengthening decision making capabilities in the region by promoting interjurisdictional consistency in data collection and analysis, establishing standard procedures and protocols, developing and testing an automated emission estimation and inventory system, and demonstrating the value of client/server technology via the Internet to transmit and exchange environmental data among the Great Lakes jurisdictions and inform the larger Great Lakes community.

Inventory Scope

The Great Lakes Toxic Air Emissions Inventory effort began in 1989 with primary funding provided by the U.S. EPA. Development of a Regional Air Pollutant Inventory Development System (RAPIDS), a regional protocol for calculating emissions and an inventory for Southwest Lakes Michigan launched this regional effort. To date we have released full inventories for the years 1993, 1996, 1997 and 1998. The 1993 inventory consisted of point

Table 1-1: List of 82 targeted toxic air pollutants.

Non-Metal Compounds (Excluding PAHs)	
Acetaldehyde	Methyl chloroform (1,1,1-Trichloroethane)
Acrolein	Methylene chloride (Dichloromethane)
Acrylamide	Methylene diphenyl diisocyanate (MDI)
Acrylonitrile	Parathion
Atrazine	Pentachloronitrobenzene (quintobenzene)
Benzene (including benzene from gasoline)	Pentachlorophenol
1,3-Butadiene	Phenol
Carbon tetrachloride	Phosgene
Chlordane	Styrene
Chloroform	2,3,7,8 -tetrachlorodibenzo -furan (TCDF)
Coke oven emissions	2,3,7,8 -tetrachlorodibenzo -p-dioxin (TCDD)
Di-n-butyl phthalate	Tetrachloroethylene (Perchloroethylene)
Di-n-octyl phthalate	Toluene
Dichloroethyl ether (bis(2-chloroethyl) ether)	2,4-Toluene diisocyanate
Diethylhexyl phthalate (Bis(2-ethylhexyl)phthalate) (DEHP)	Total polychlorinated biphenyls (PCBs)
Ethylbenzene	Total polychlorinated dibenzodioxins (PCDDs)
Ethylene dibromide (Dibromoethane)	Total polychlorinated dibenzofurans (PCDFs)
Ethylene dichloride (1,2-Dichloroethane)	Trichloroethylene
Ethylene oxide	2,4,5-Trichlorophenol
Formaldehyde	2,4,6-Trichlorophenol
Glycol ethers	Trifluralin
Heptachlor	Vinyl chloride
Hexachlorobenzene	Xylenes (Meta)
Hexachlorobutadiene	Xylenes (Ortho)
Hexachloroethane	Xylenes (Para)
Hydrazine	Xylenes (Iso)
Methoxychlor	
16 PAHs (POM)	
Acenaphthene	Chrysene
Acenaphthylene	Dibenz(a,h)anthracene
Anthracene	Fluoranthene
Benz(a)anthracene	Fluorene
Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene
Benzo(b)fluoranthene	Naphthalene
Benzo(ghi)perylene	Phenanthrene
Benzo(k)fluoranthene	Pyrene
Metal Compounds	
Antimony	Copper
Arsenic	Lead
Beryllium	Alkylated lead
Cadmium	Manganese
Chromium	Mercury
Chromium (6)	Nickel
Cobalt	

Data summaries of the 1998 update and all previous inventories are available online at the Great Lakes Information Network (GLIN, <http://www.great-lakes.net>). Additional information, including background documents, GIS maps depicting air emissions across the region, the emissions protocol document and list of products for the project are located on the emission inventory project's web site (<http://www.glc.org/air/air3.html>).

The air emissions inventory project is funded primarily by the U.S. EPA from the Great Lakes Geographic Initiative air program grant funds designated for regional projects that address air toxics and the Great Lakes.

The eight states and Ontario will continue to work collaboratively to improve and refine the toxics inventory and strengthen its ability to support sound regulatory decisions at all levels of government.