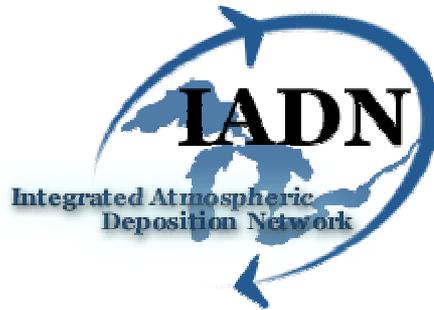


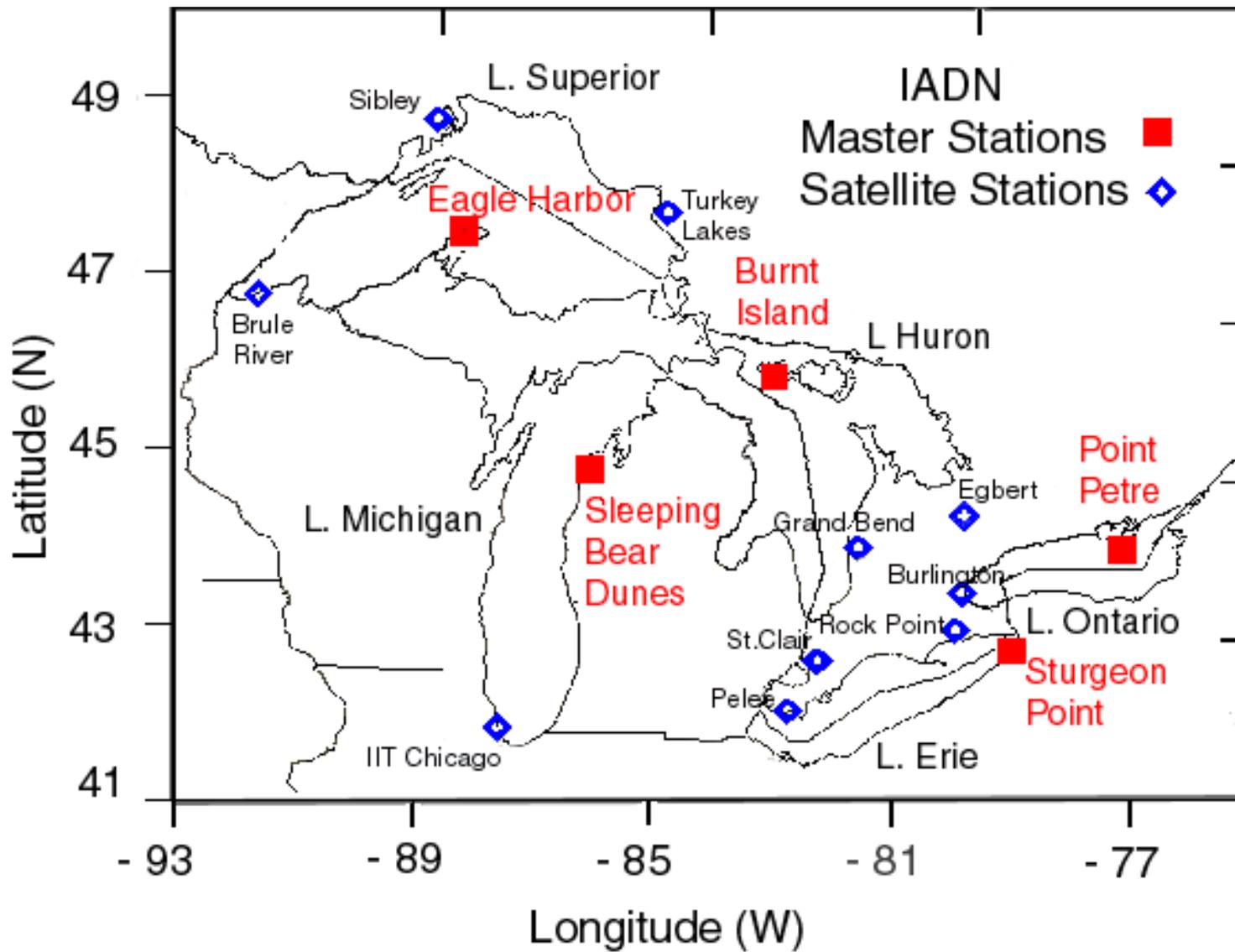
Ambient Air Monitoring of Great Lakes Toxics: The Integrated Atmospheric Deposition Network



Todd Nettesheim
U.S. EPA – GLNPO
May 29, 2002

The Integrated Atmospheric Deposition Network

- ◆ **Annex 15 of GLWQA**
- ◆ **PCBs, PAHs, organochlorine pesticides, metals**
- ◆ **Gas, particulate, precipitation concentrations; weather measurements**
- ◆ **In operation since 1990 under direction of BEC**
- ◆ **Partnership: U.S. EPA, U.S. grantee (IU), Environment Canada (MSC, EHD)**

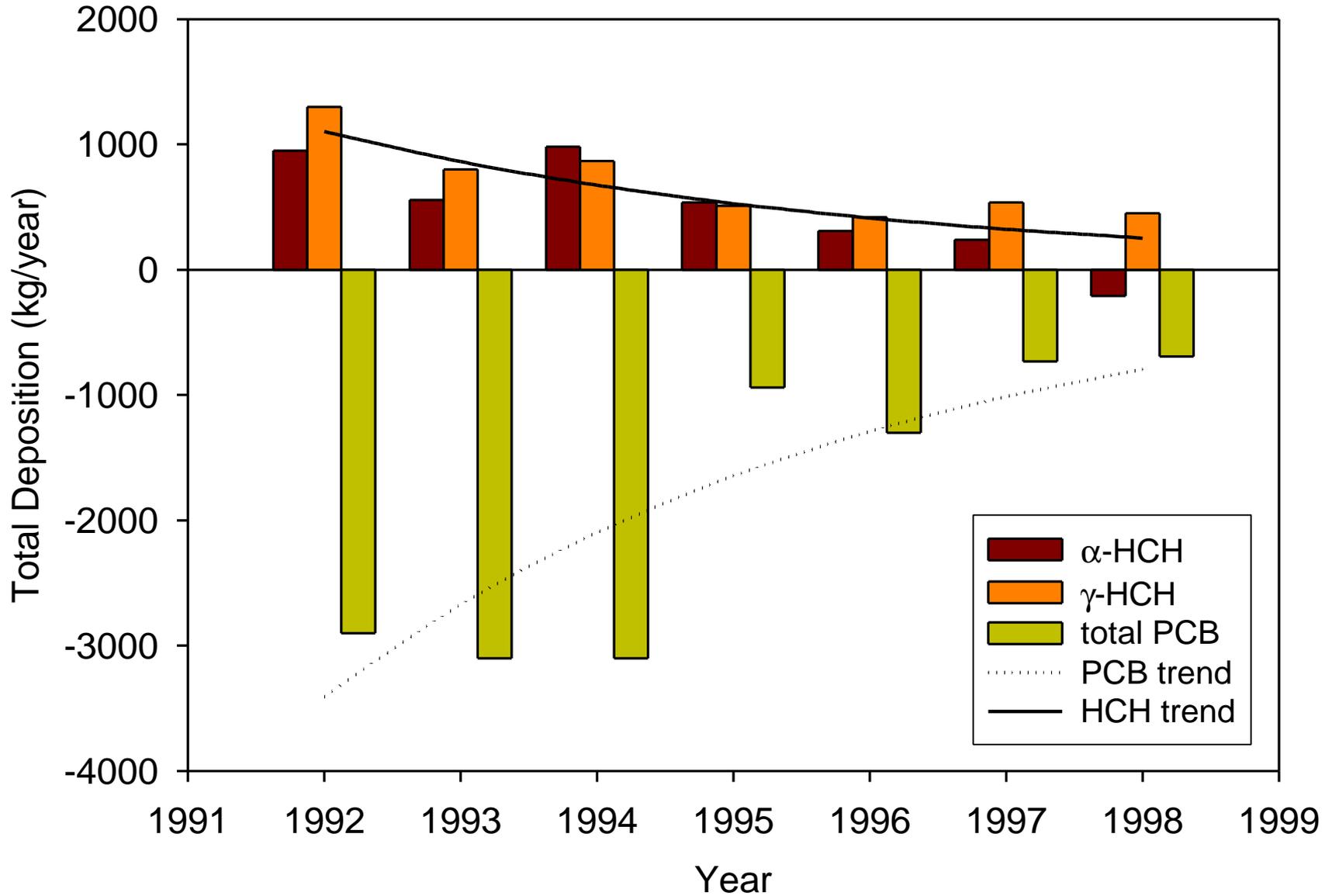


◆ 5 master stations, 10 satellite

IADN Station: Eagle Harbor

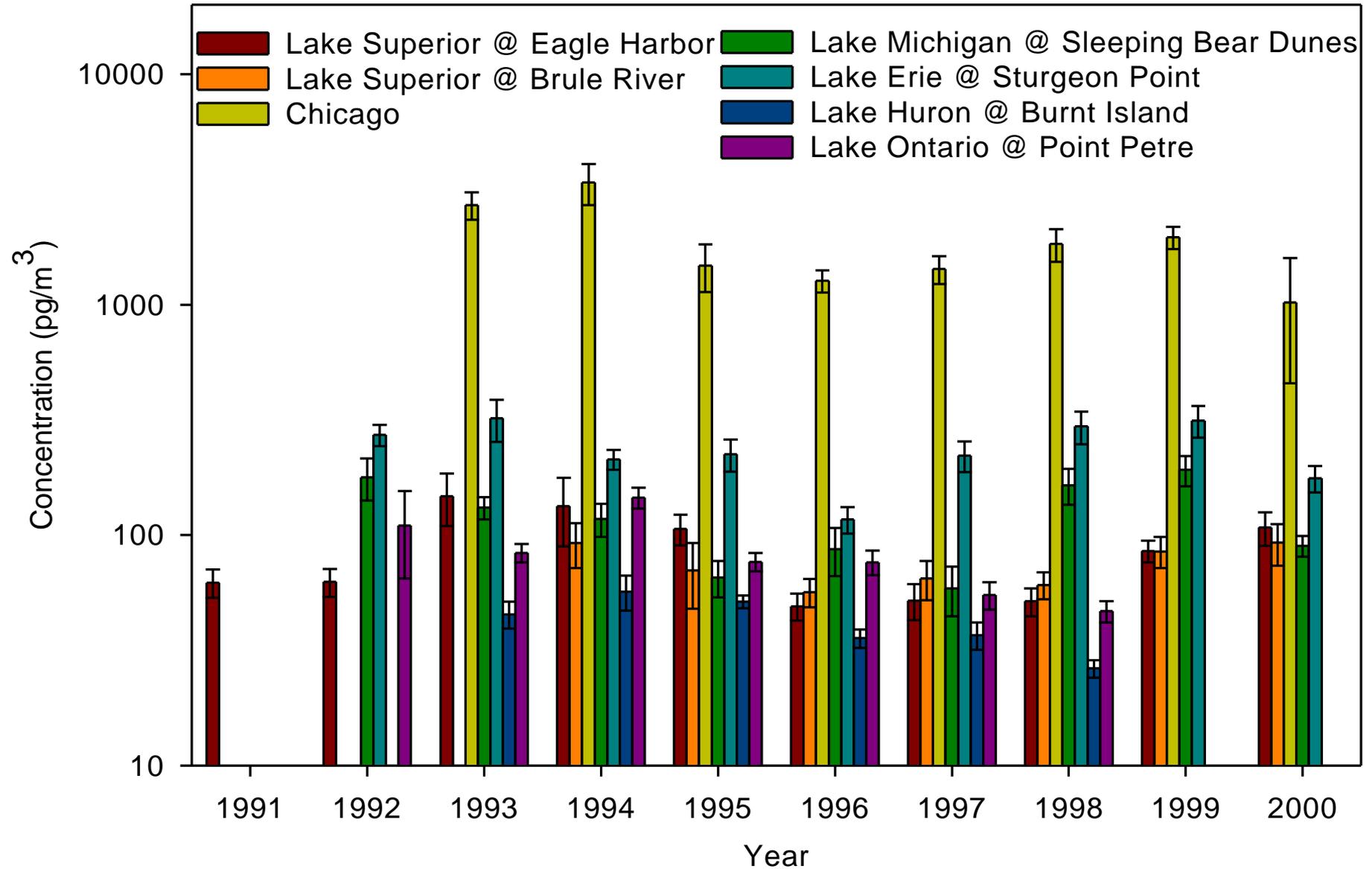


PCB & HCH Loadings to GL Basin



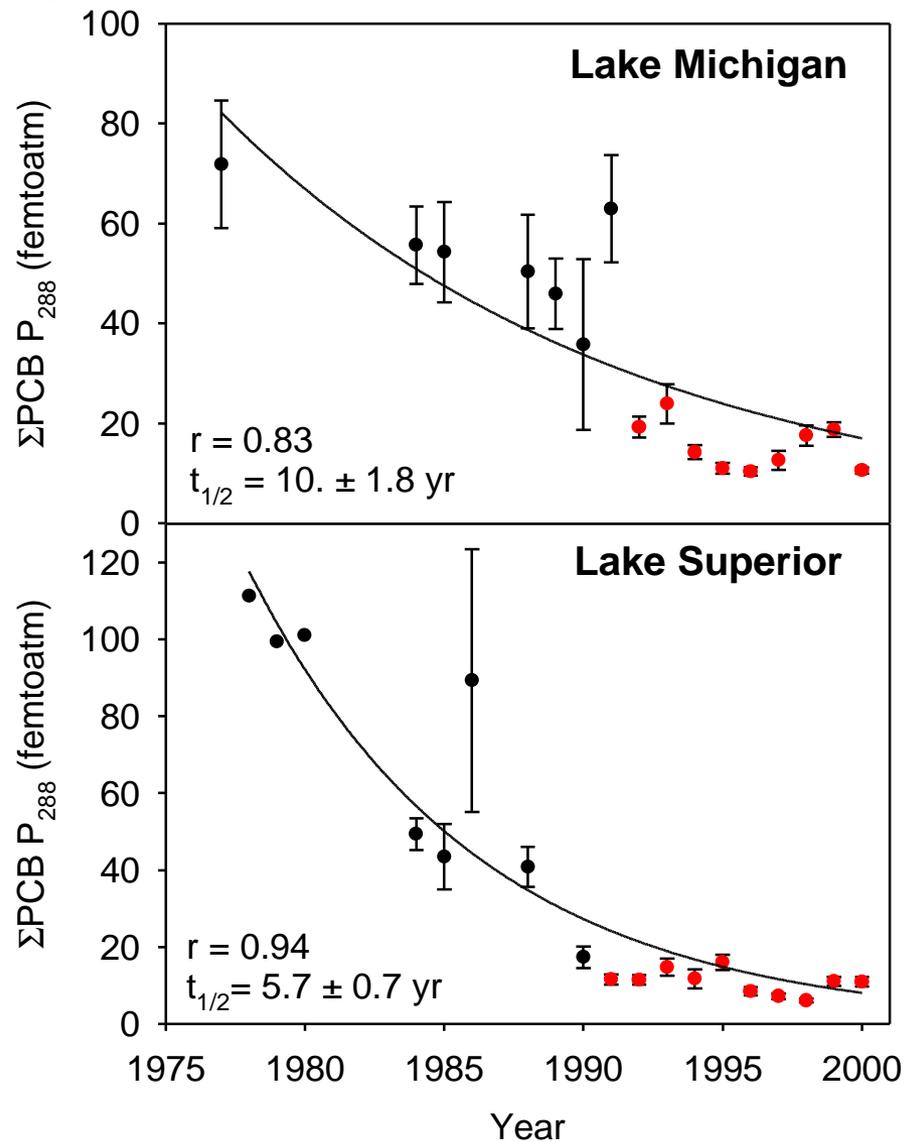
Source: Buehler and Hites, ES&T in press

Total PCB Concentrations



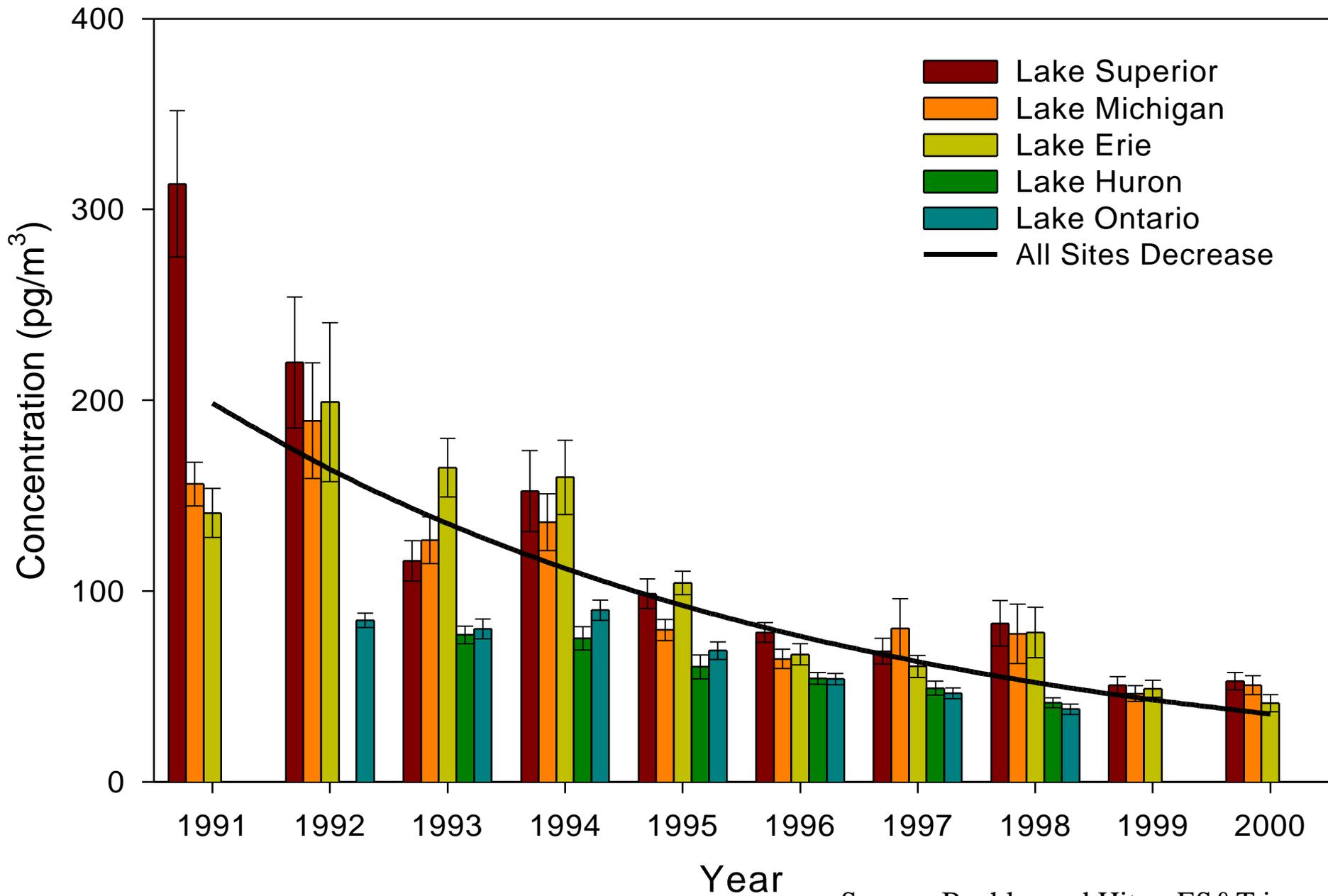
Source: Buehler and Hites, ES&T in press

Long-term PCB Concentrations



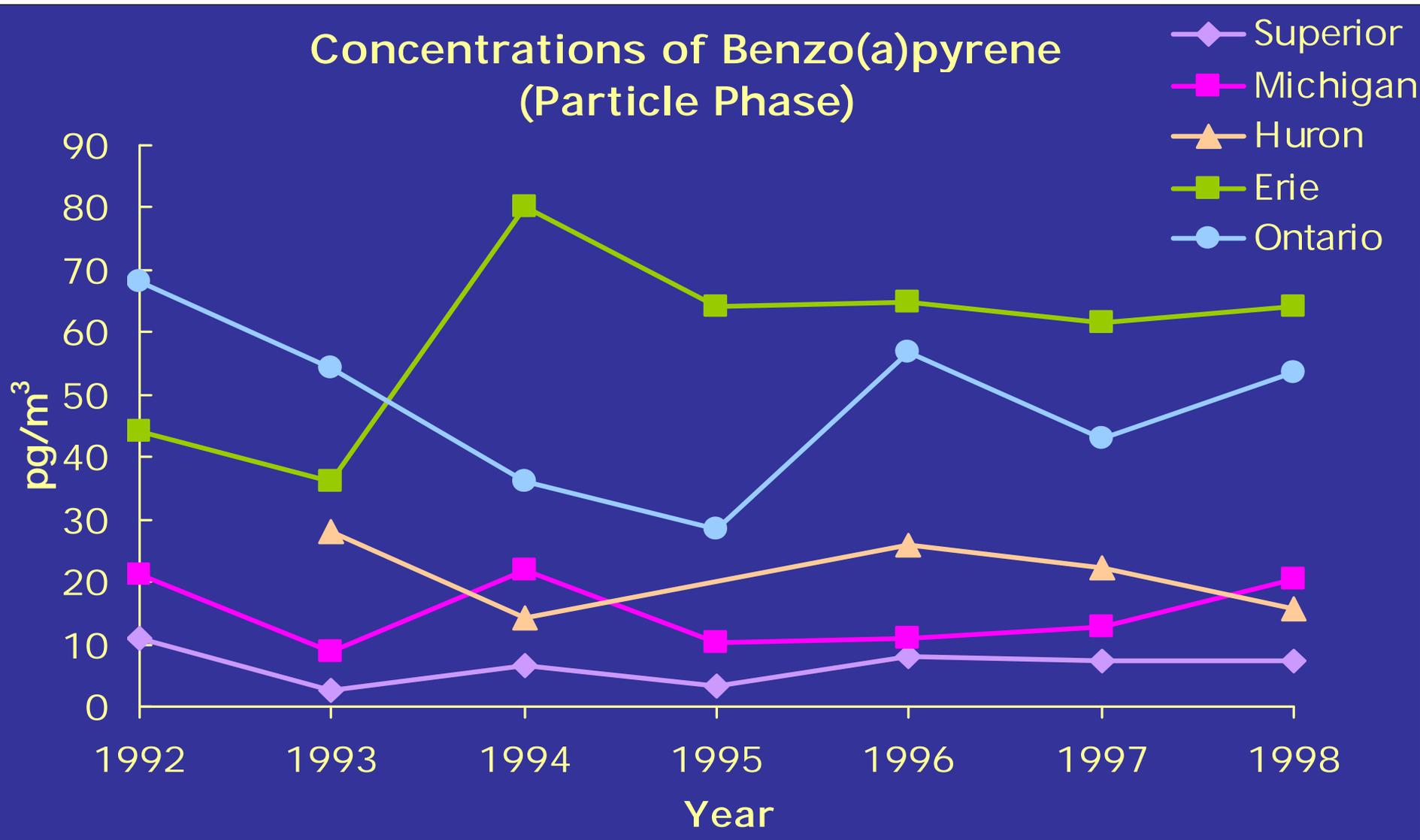
Source: Buehler and Hites, unpublished

α -HCH Concentrations

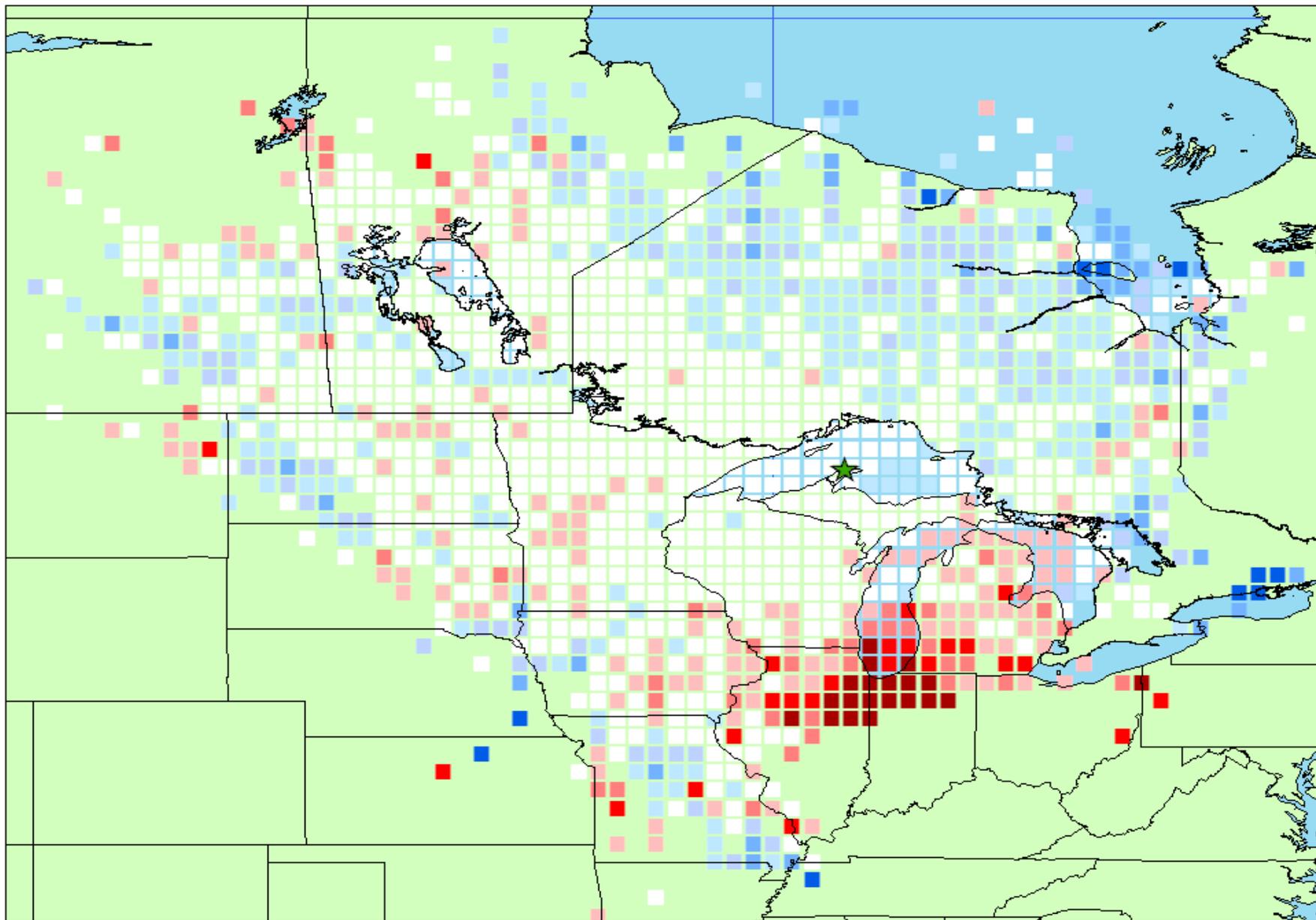


Source: Buehler and Hites, ES&T in press

B(a)P Concentrations

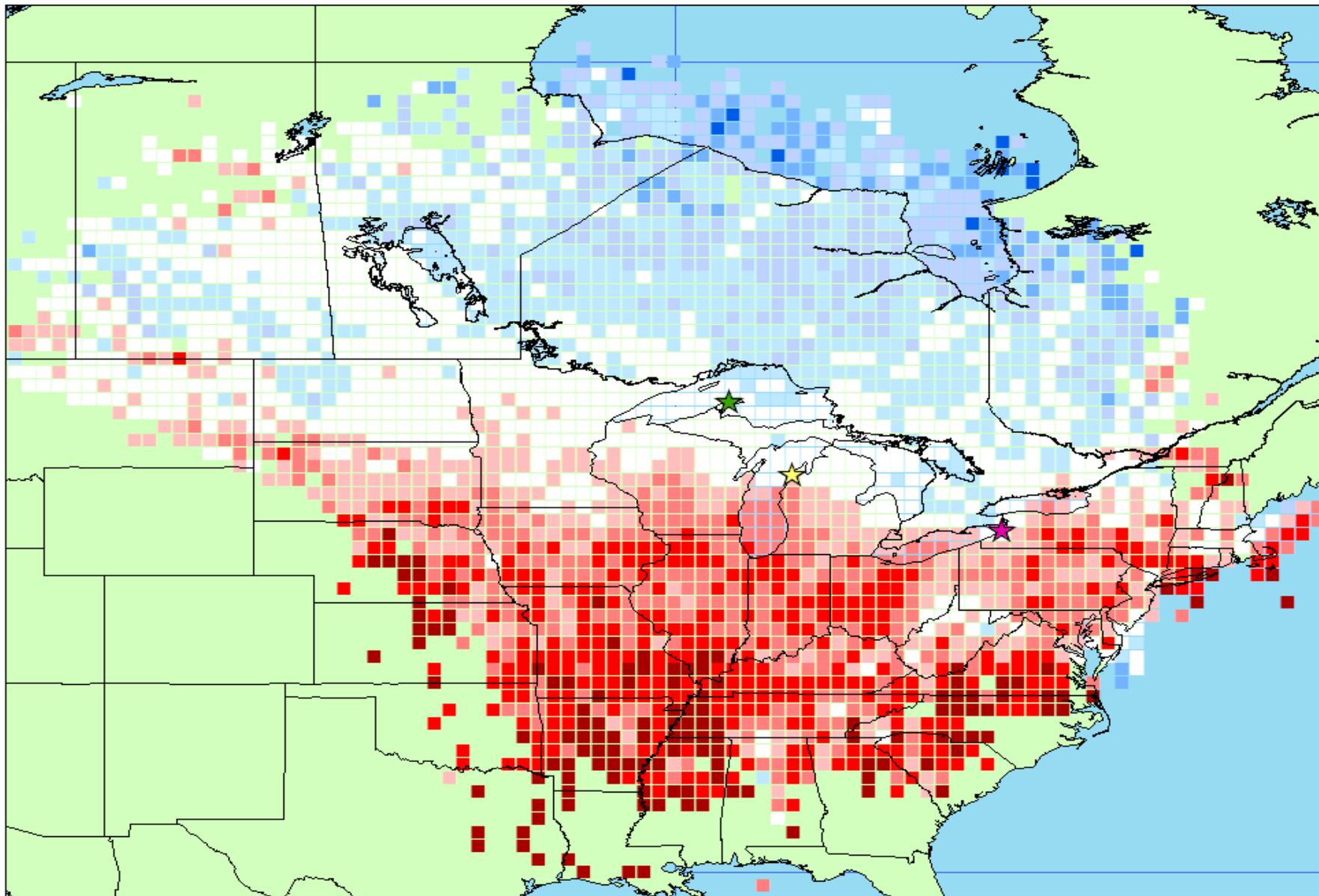


PSCF modeled estimates for PCBs at Eagle Harbor



Source: Hafner and Hites, unpublished

PSCF modeled estimates for chlordane at the 3 US Master Stations



Source: Hafner and Hites, unpublished

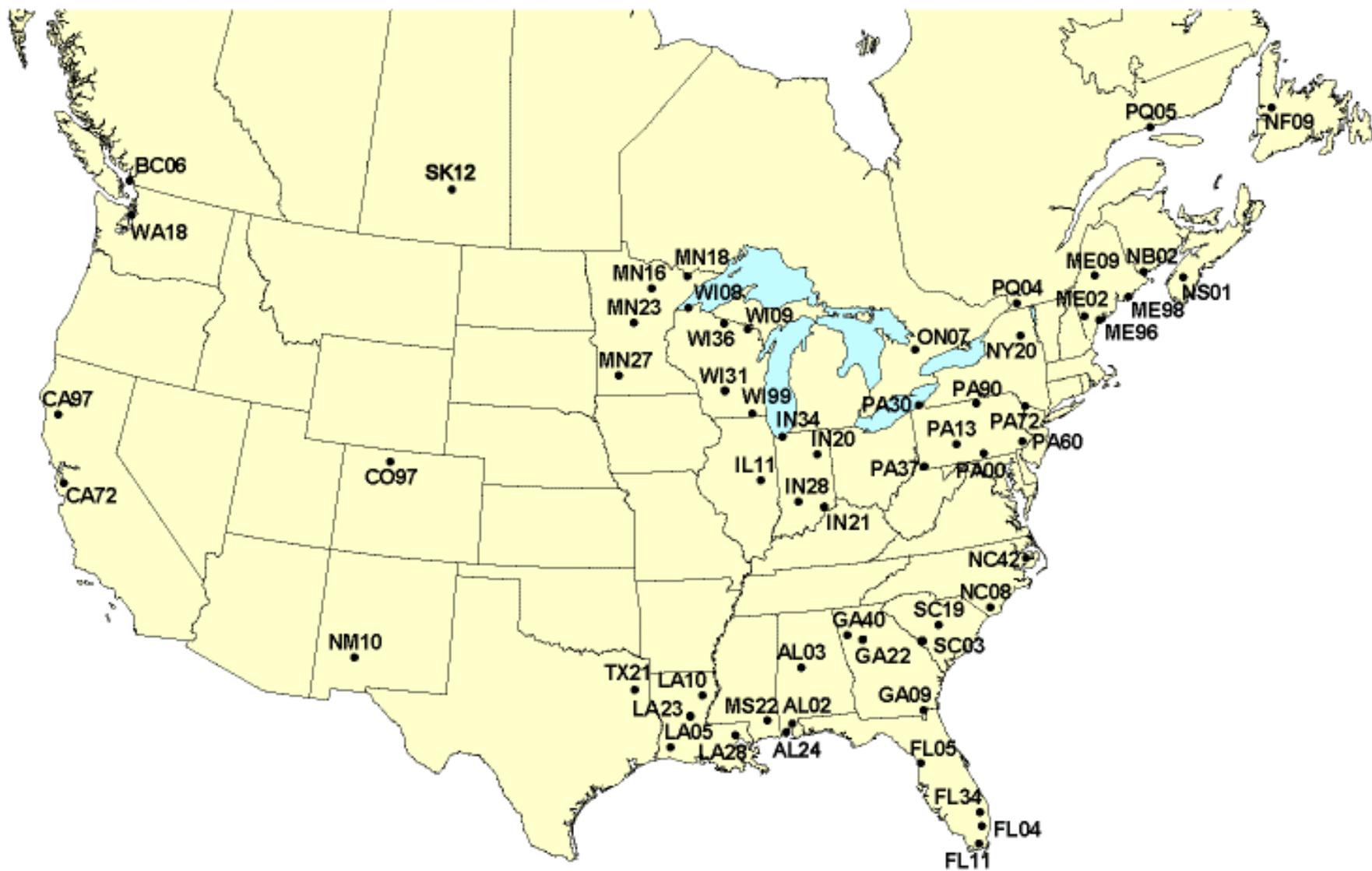
Future of IADN

- ◆ **Coordination with other PBT monitoring efforts**
- ◆ **Hg and Dioxin/Furan monitoring**
- ◆ **Additional urban stations**
- ◆ **Consistent lake water measurements**
- ◆ **Emerging contaminants**

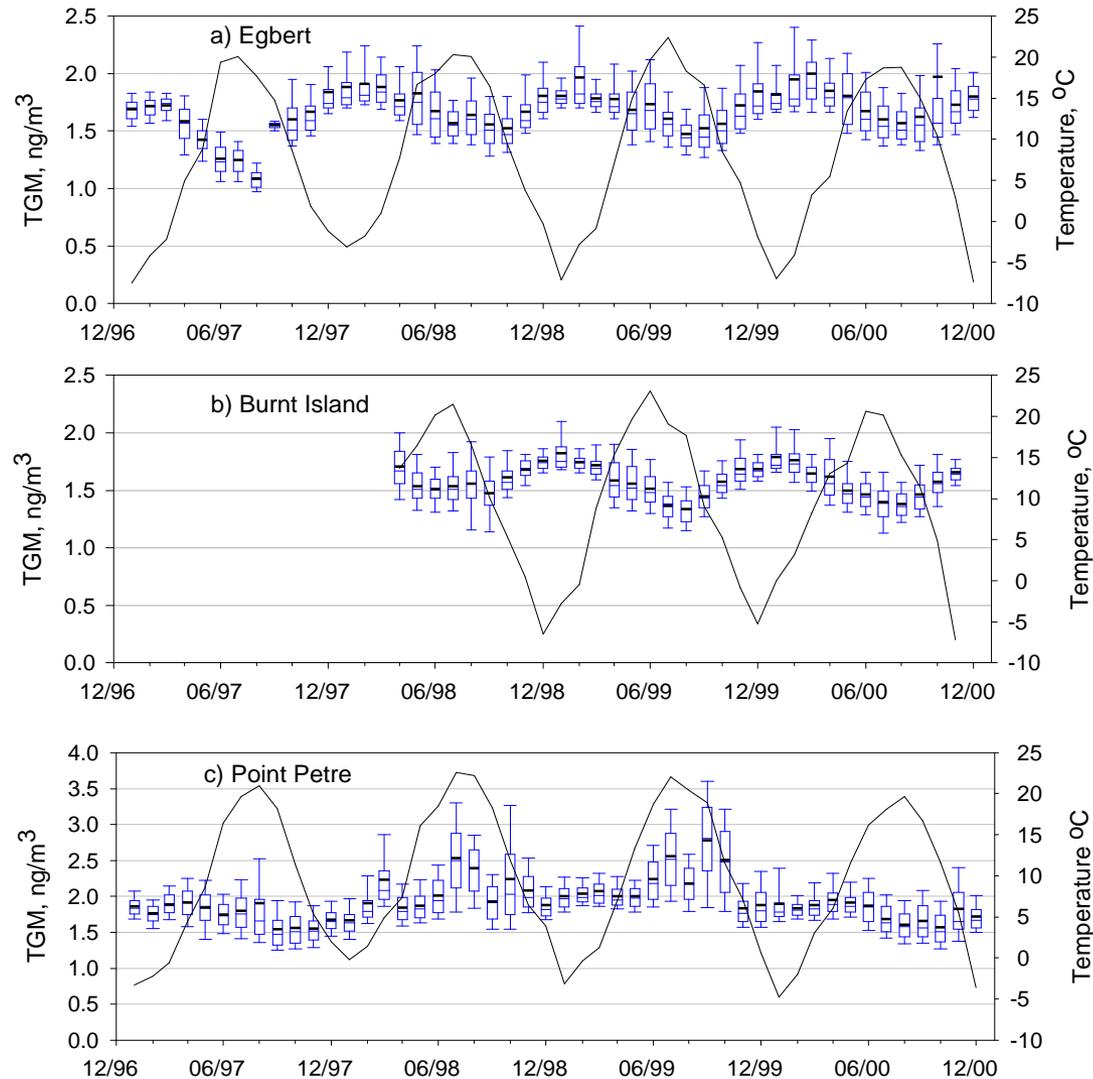
Mercury Deposition Network

- ◆ **International Wet Deposition Network**
 - Collects weekly precipitation samples
 - Analyses for total mercury and methyl mercury
- ◆ **Long-term Monitoring Program**
 - In existence since 1995. Now with over 50 sites
- ◆ **Spatial and Seasonal Trends of Hg Deposition**
- ◆ **Supports Regional Modeling Efforts**
- ◆ **Augments Intensive Research**

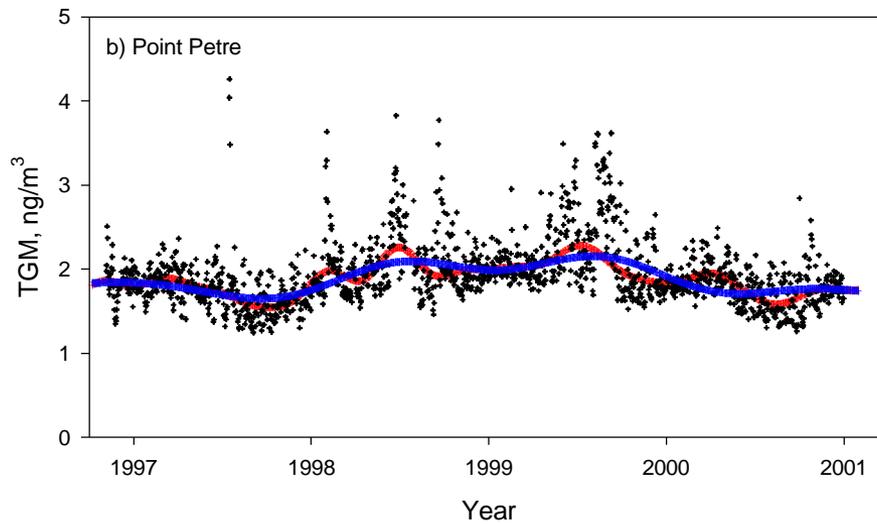
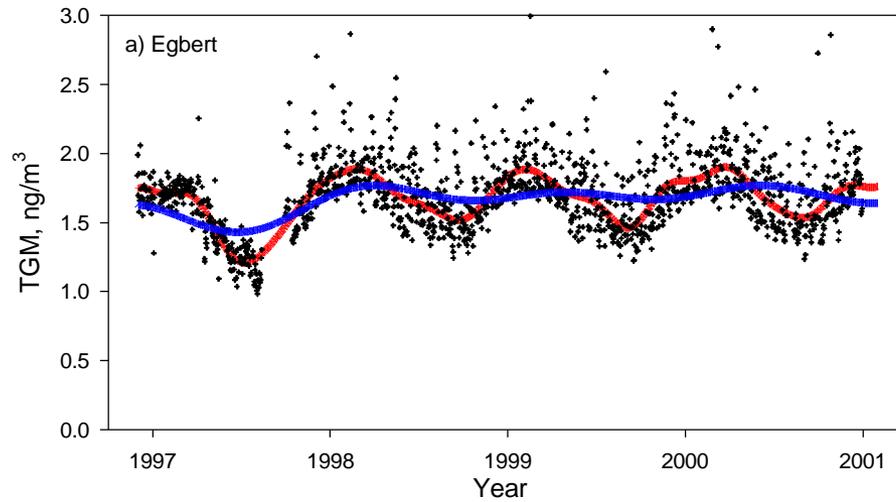
National Atmospheric Deposition Program Mercury Deposition Network



Time Series of Total Gaseous Mercury at Canadian IADN Stations



Temporal Trends of Total Gaseous Mercury at IADN Stations



Take-Home Messages

- ◆ **Atmosphere major source**
- ◆ **On a regional basis (based on master station data), atmospheric deposition of banned toxics is decreasing**
- ◆ **However, urban areas are providing very significant inputs**
- ◆ **Residual PCB sources in urban areas need be explored and dealt with**
- ◆ **IADN wants to be responsive to Hg, dioxins, emerging contaminants, need for urban stations, but faces resource limitations**