

Mapping Anthropogenic BaP Releases in the Great Lakes Basin

Yi-Fan Li¹, Cindy Yang¹, Dacheng Li², and Shawn Michajluk¹

1-Environment Canada

2-LDC Consulting, Toronto, Canada

Cindy.Yang@ec.gc.ca

May 2006
GLBTS Meeting





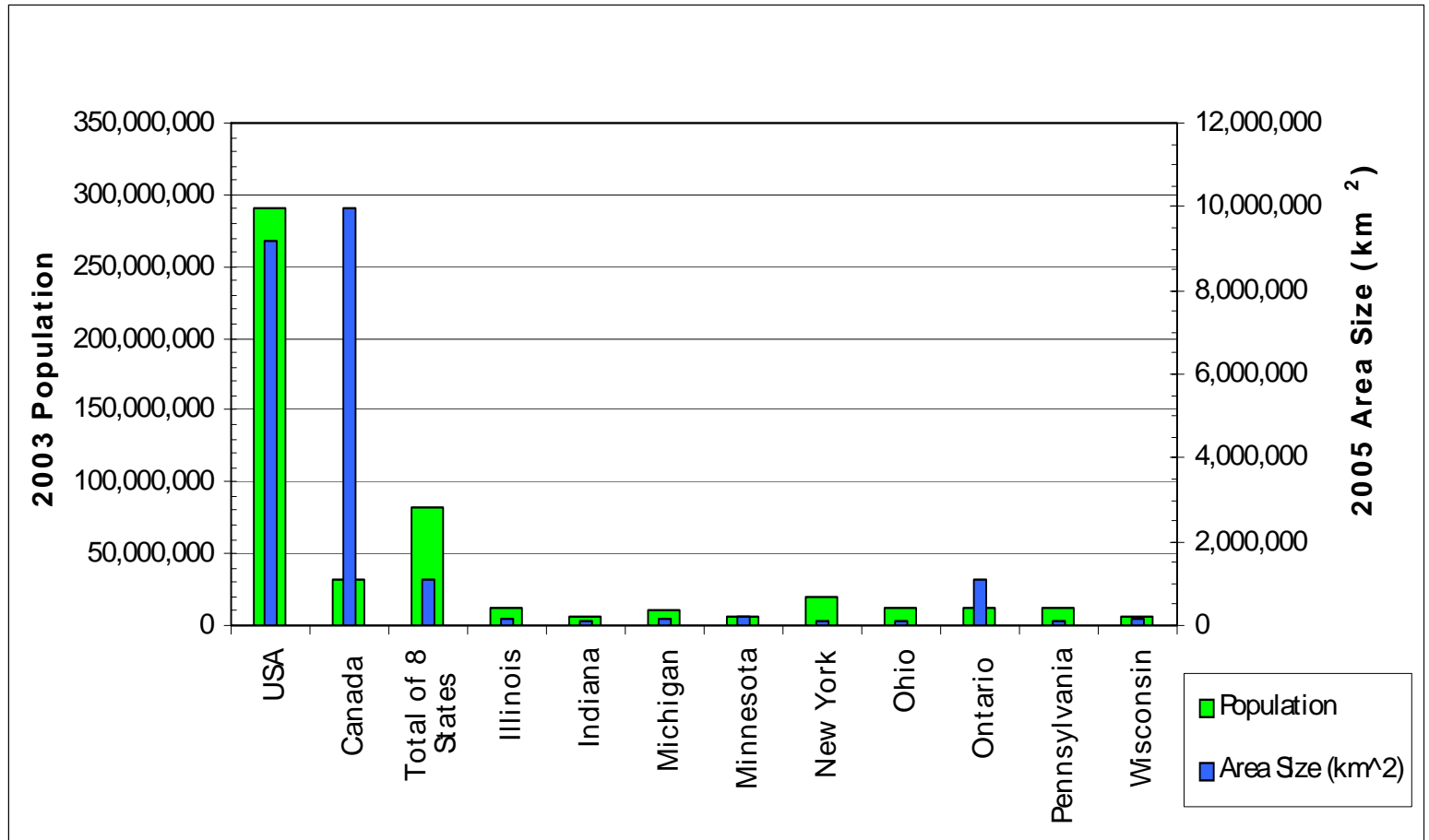
Outline

- Introduction
- Major Sources in the Basin
- BaP from Various Sources in the Basin
- Major Sectors in the Basin
- GL Basin Grid-System Map
- Ontario Grid-System Maps
- BaP Releases and Ambient [BaP]
- Conclusions

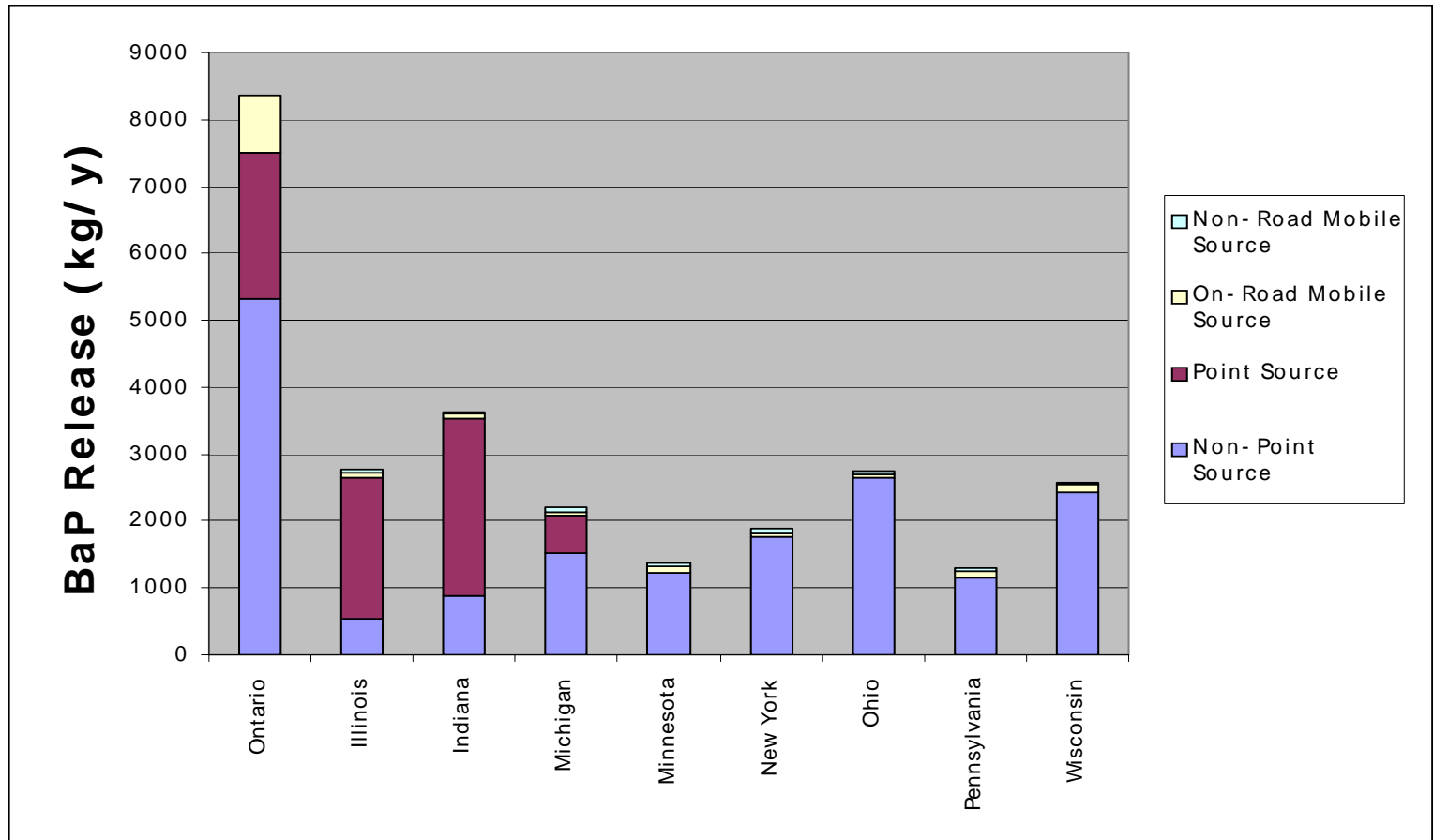
Introduction -1



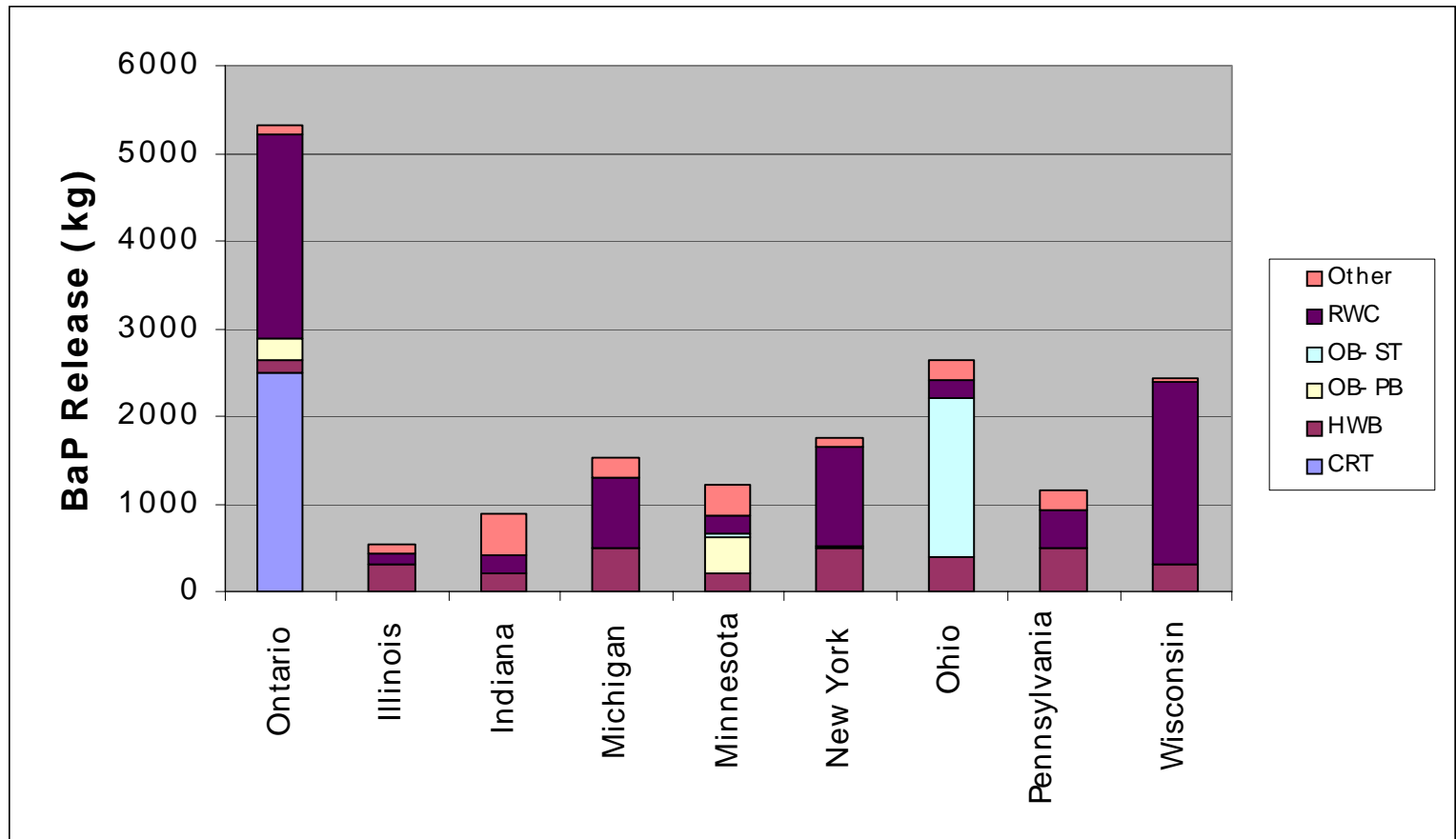
Introduction -2



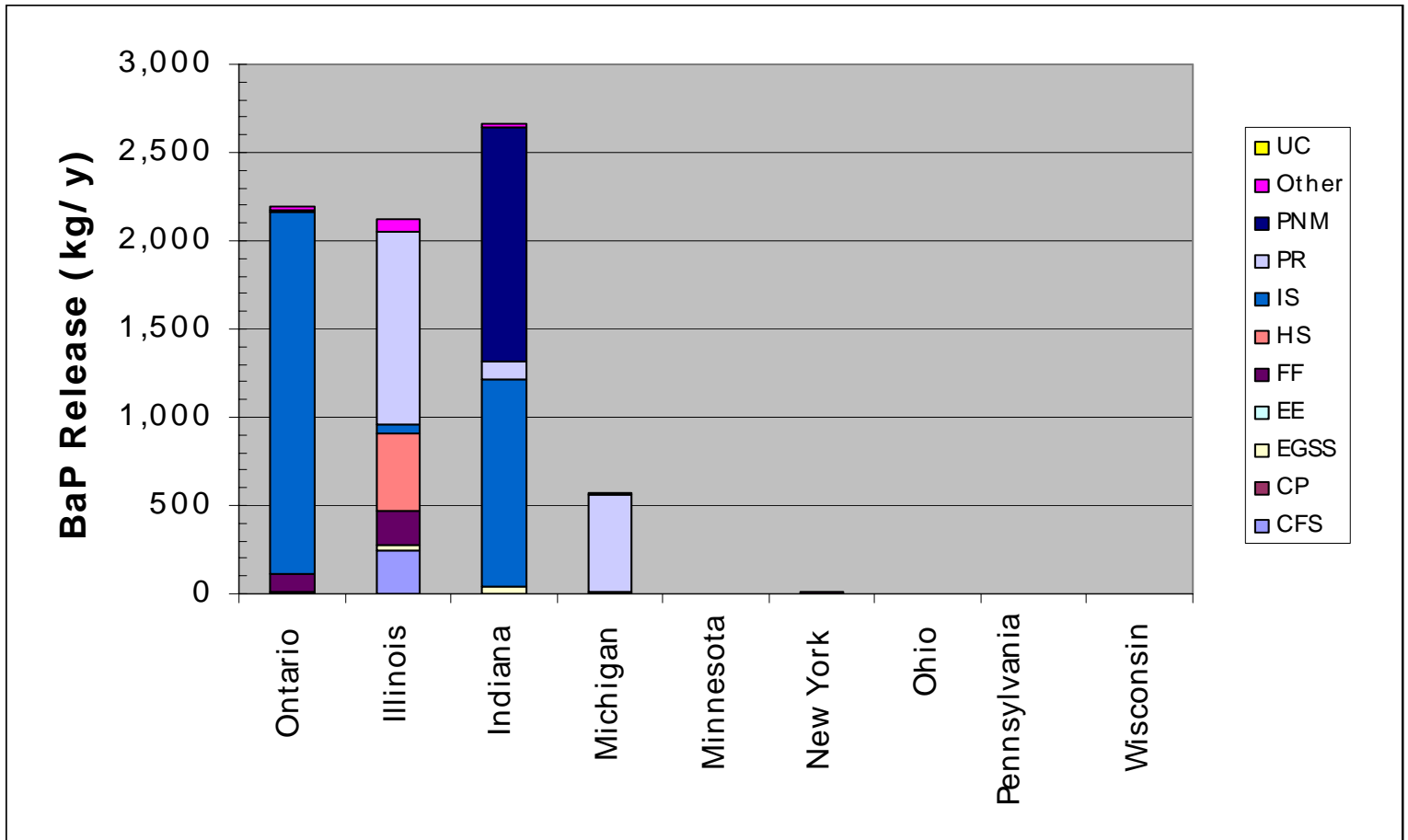
Major Sources in the Basin



BaP from Non-Point Source



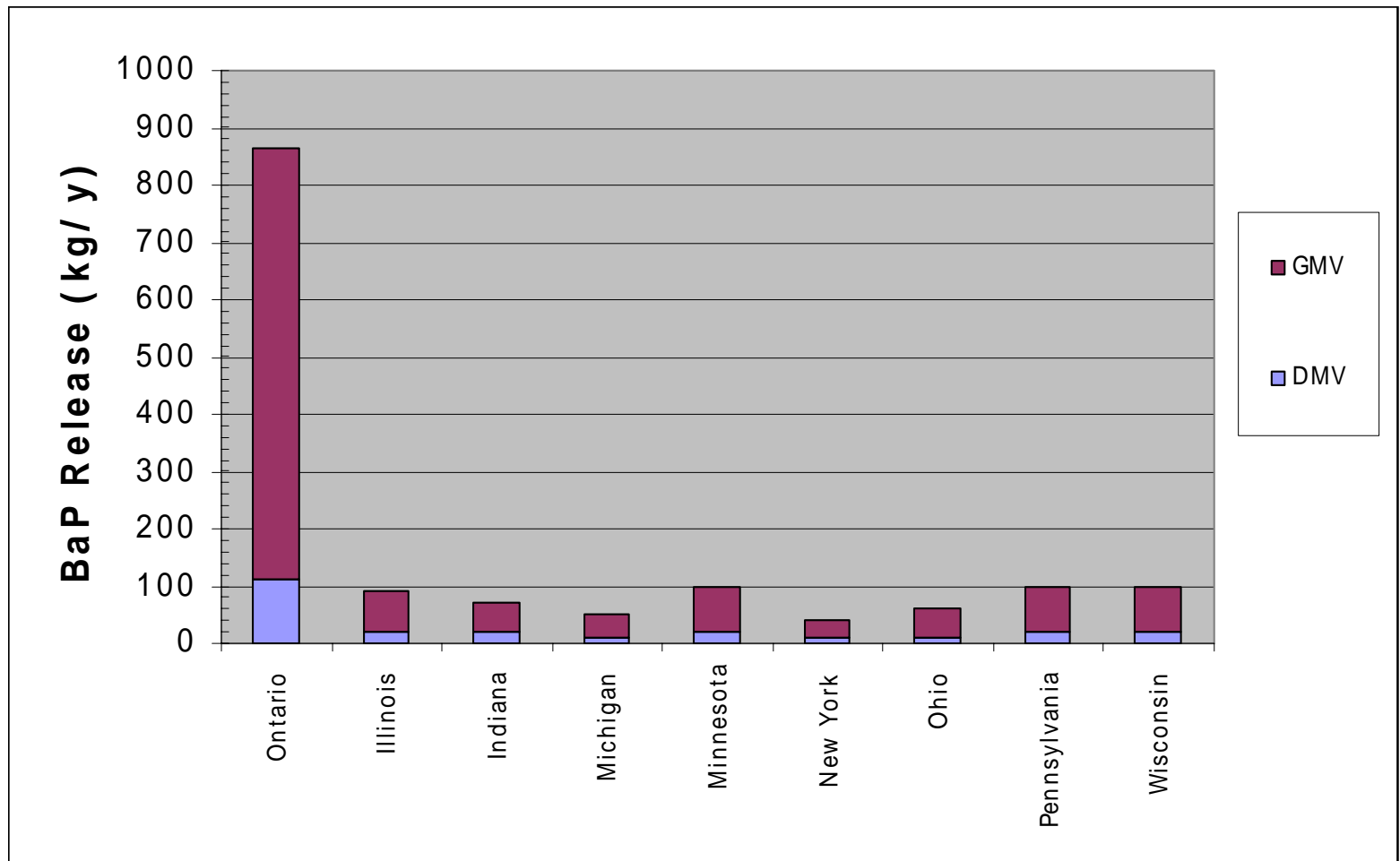
BaP from Point Source



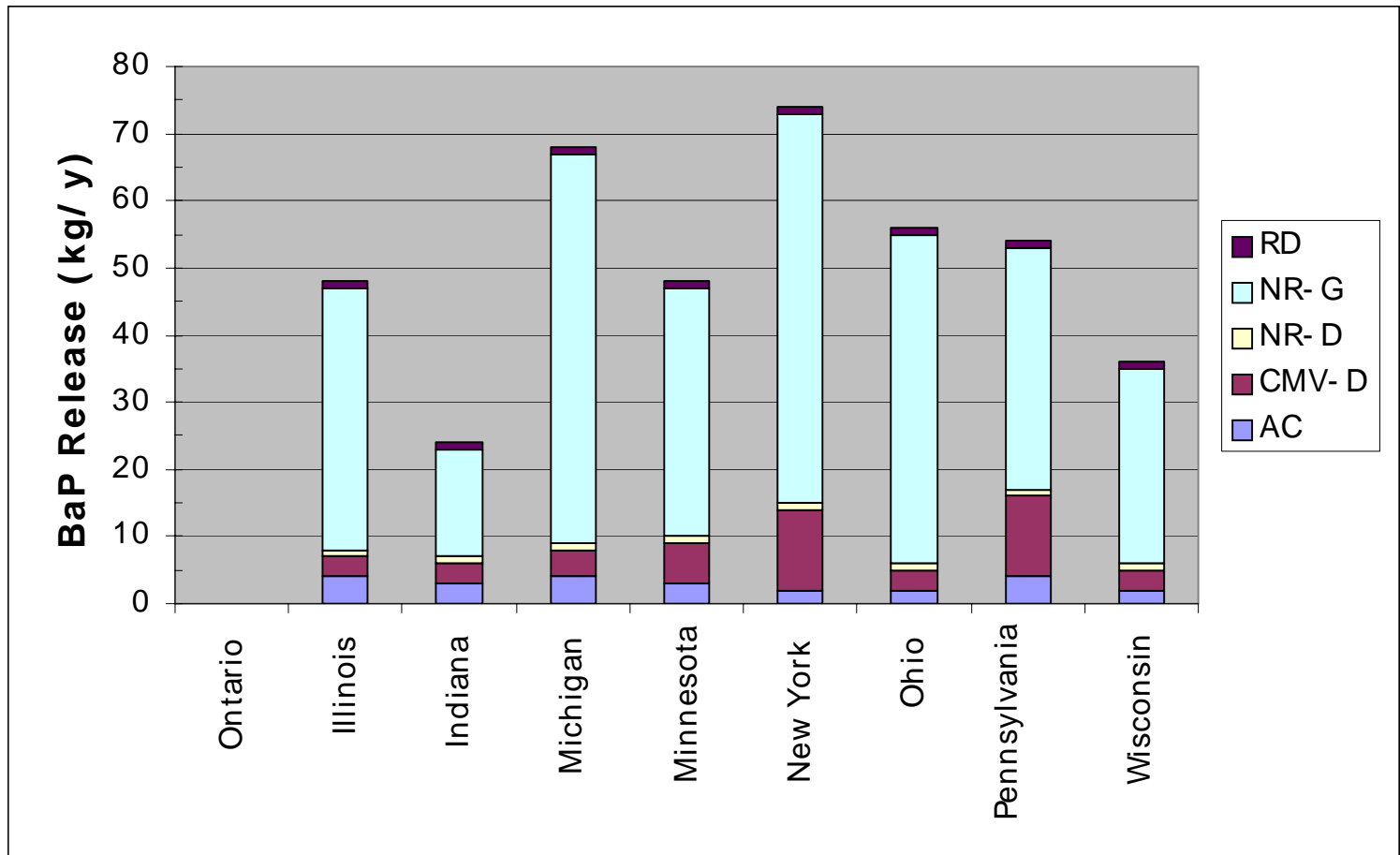
Major Facilities Releasing BaP in the Basin



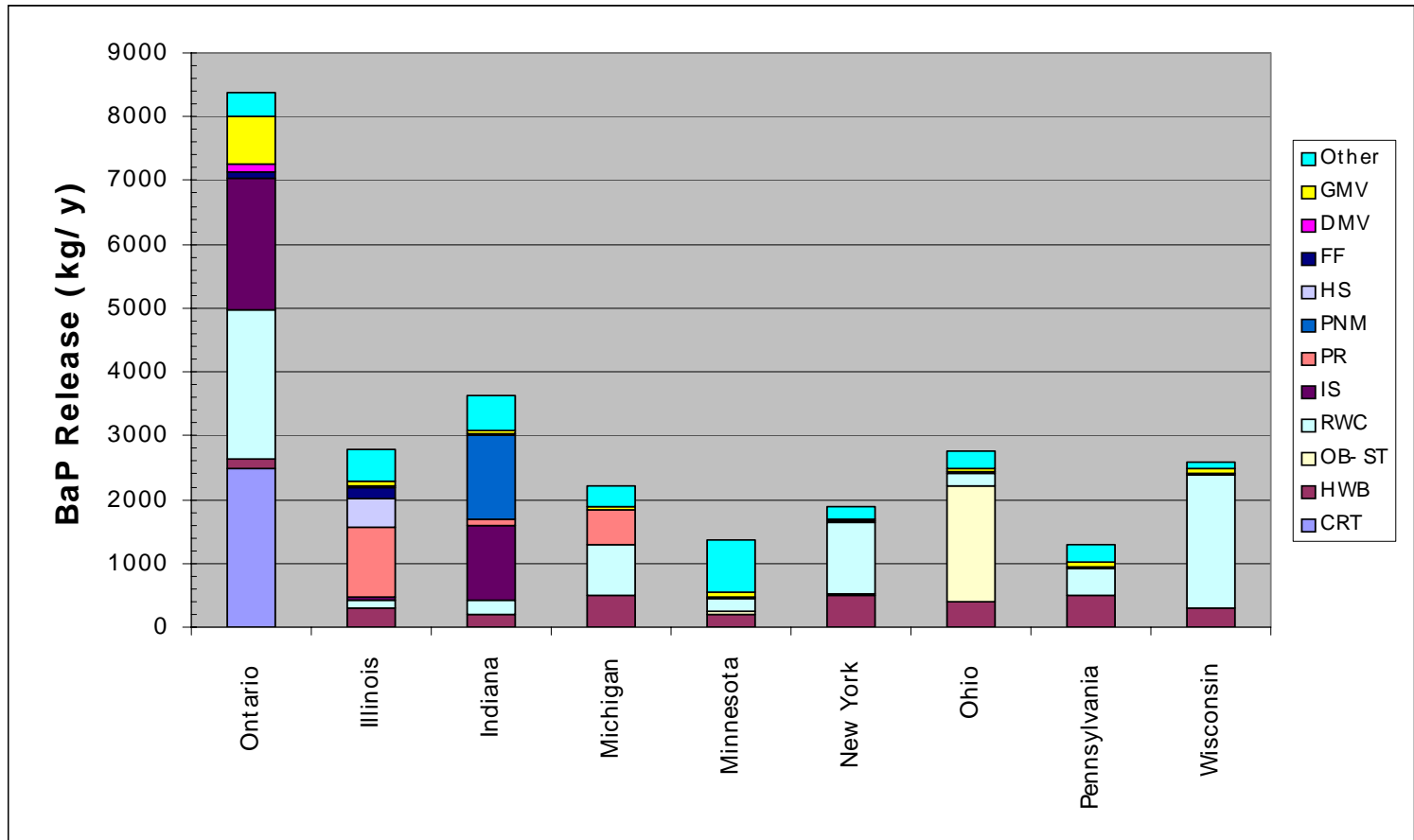
BaP from On-Road Mobile Source



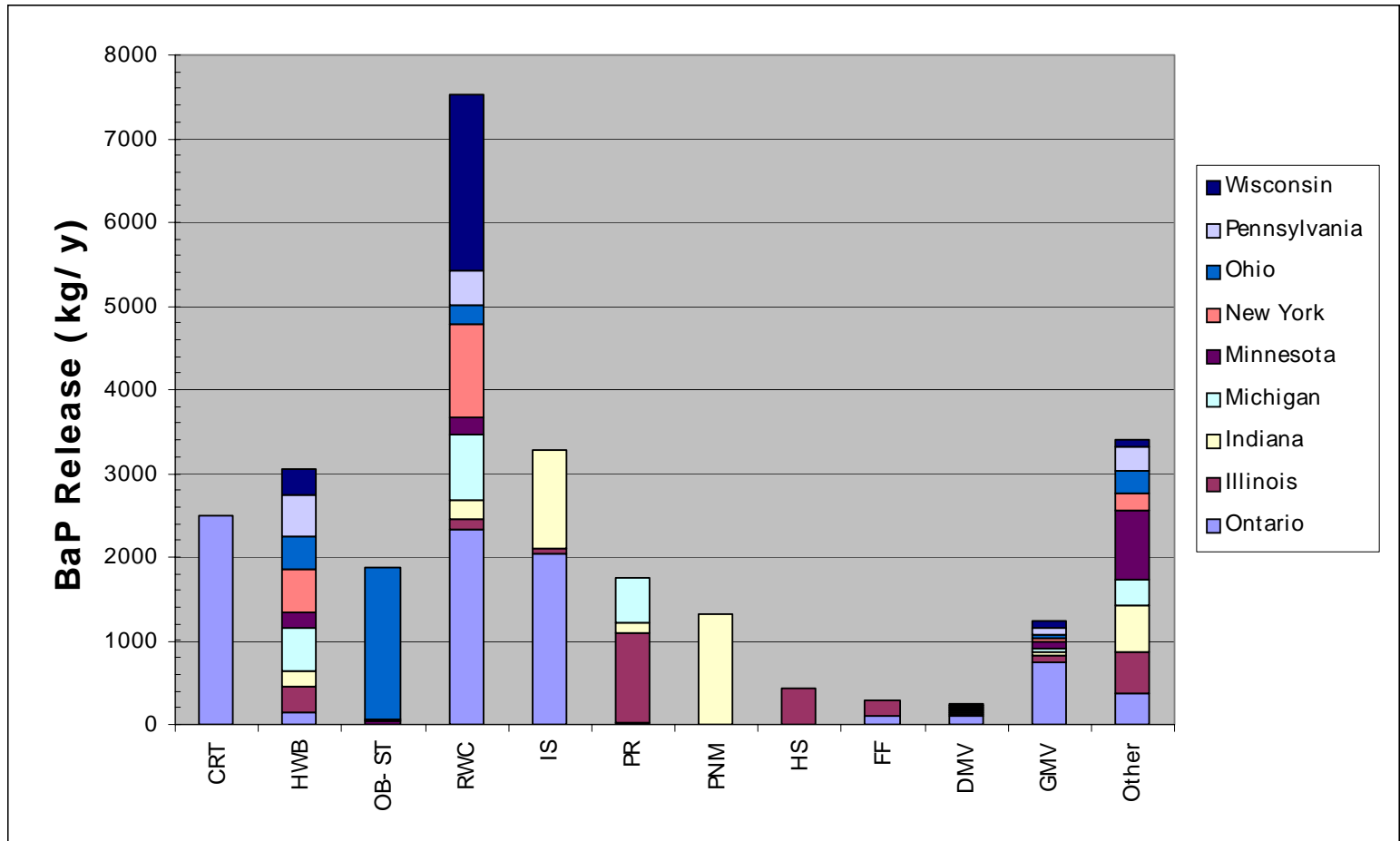
BaP from Non-Road Mobile Source



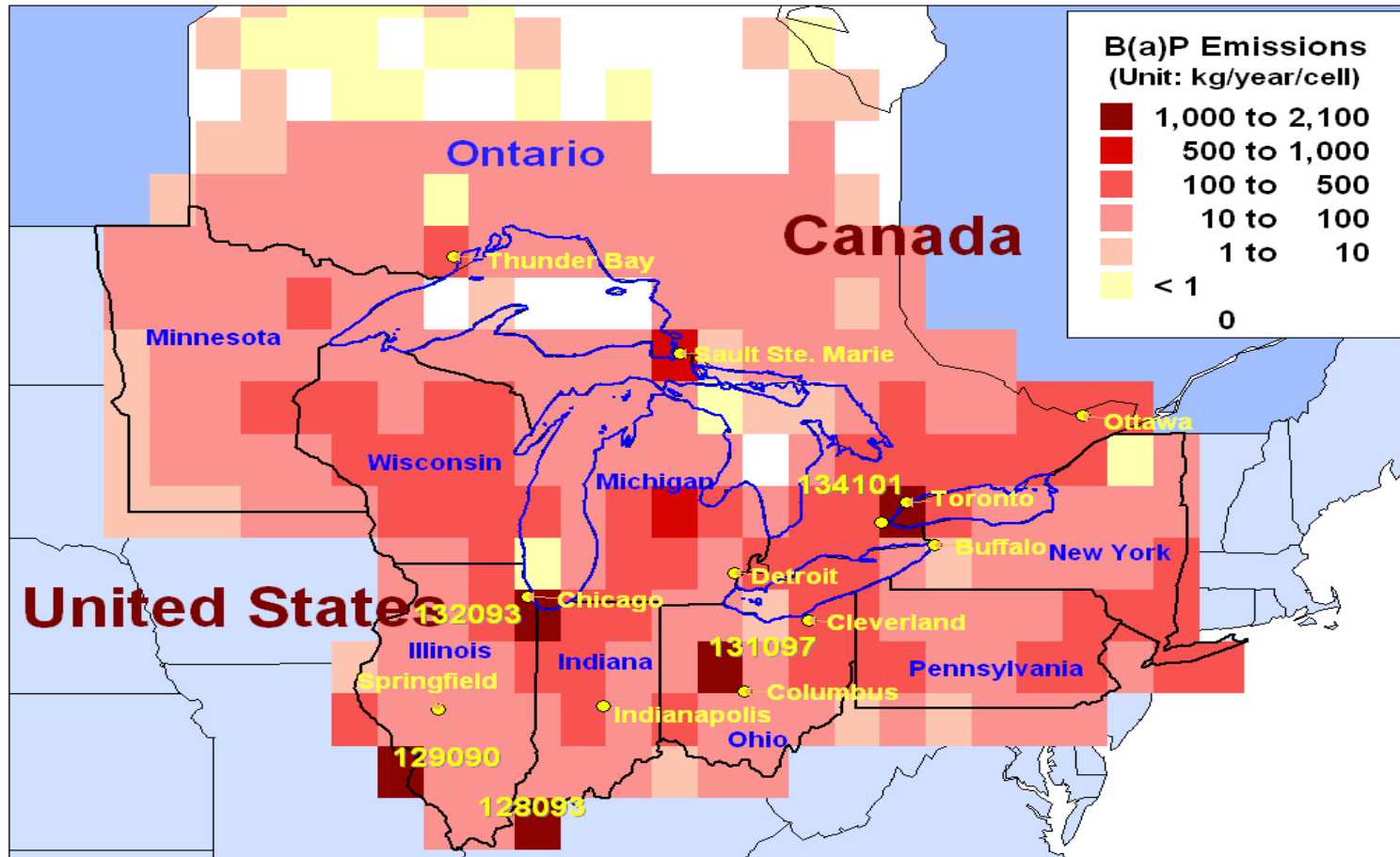
Major Sectors in the Basin-1



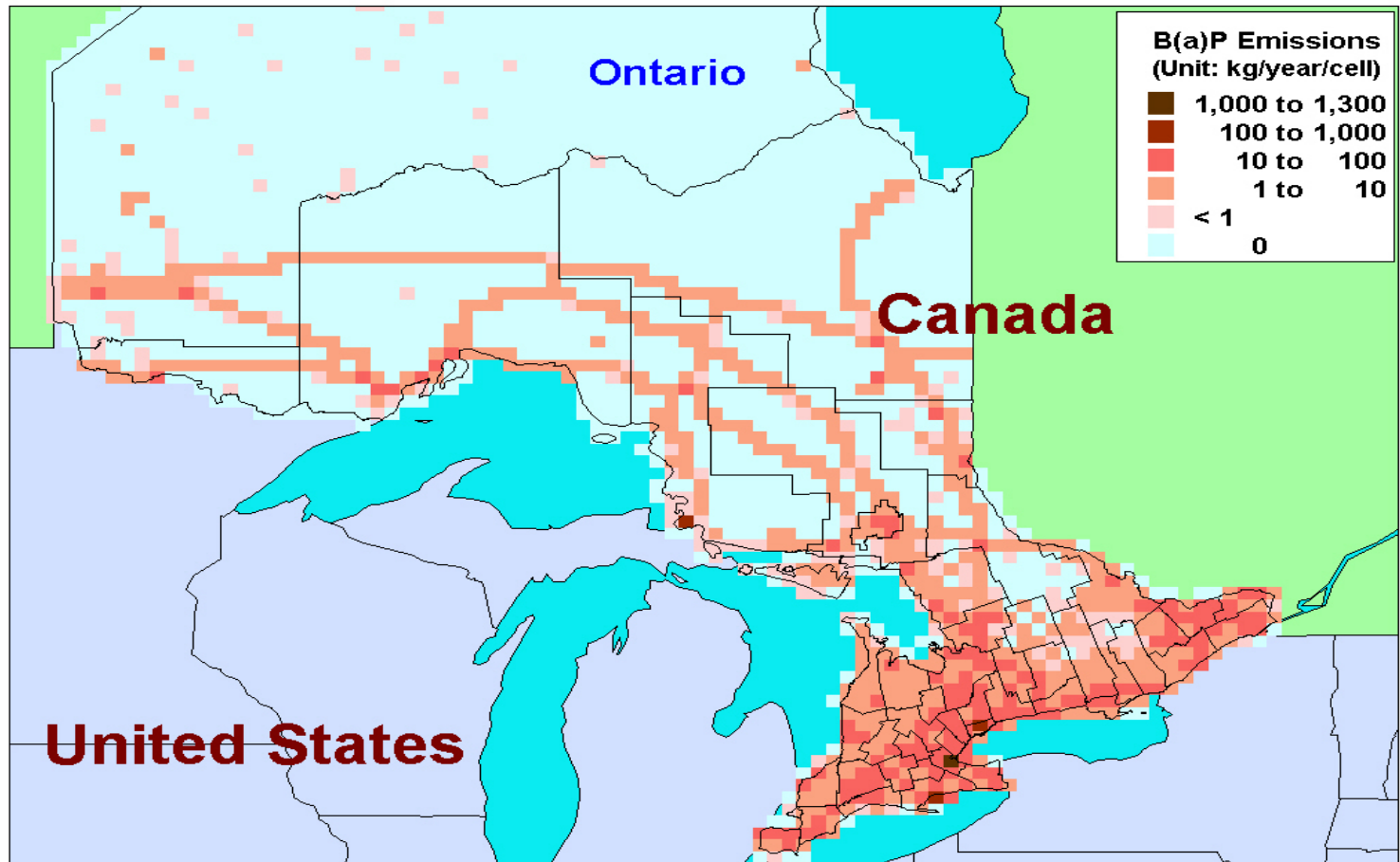
Major Sectors in the Basin-2



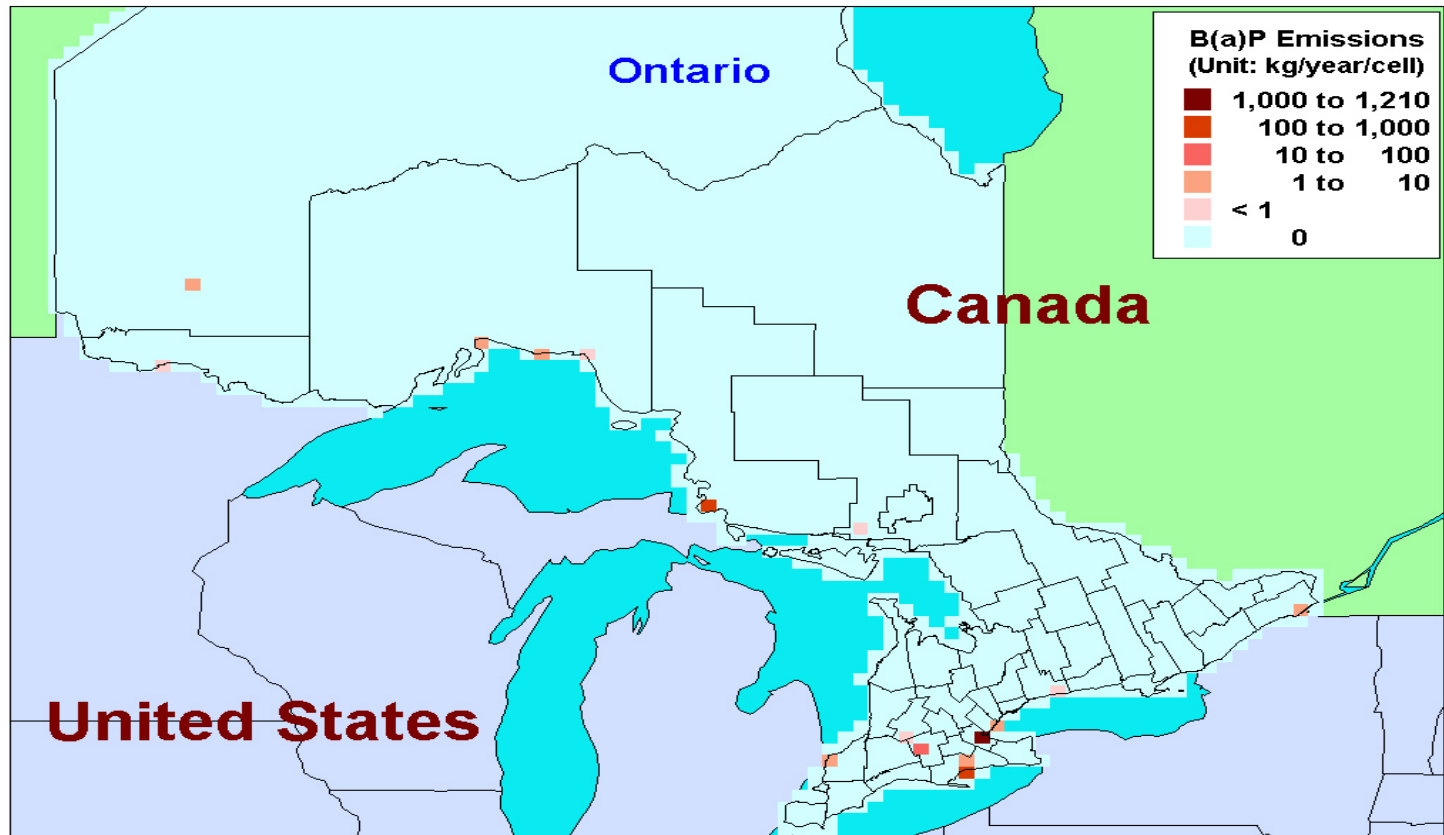
GL Basin Grid-System Map



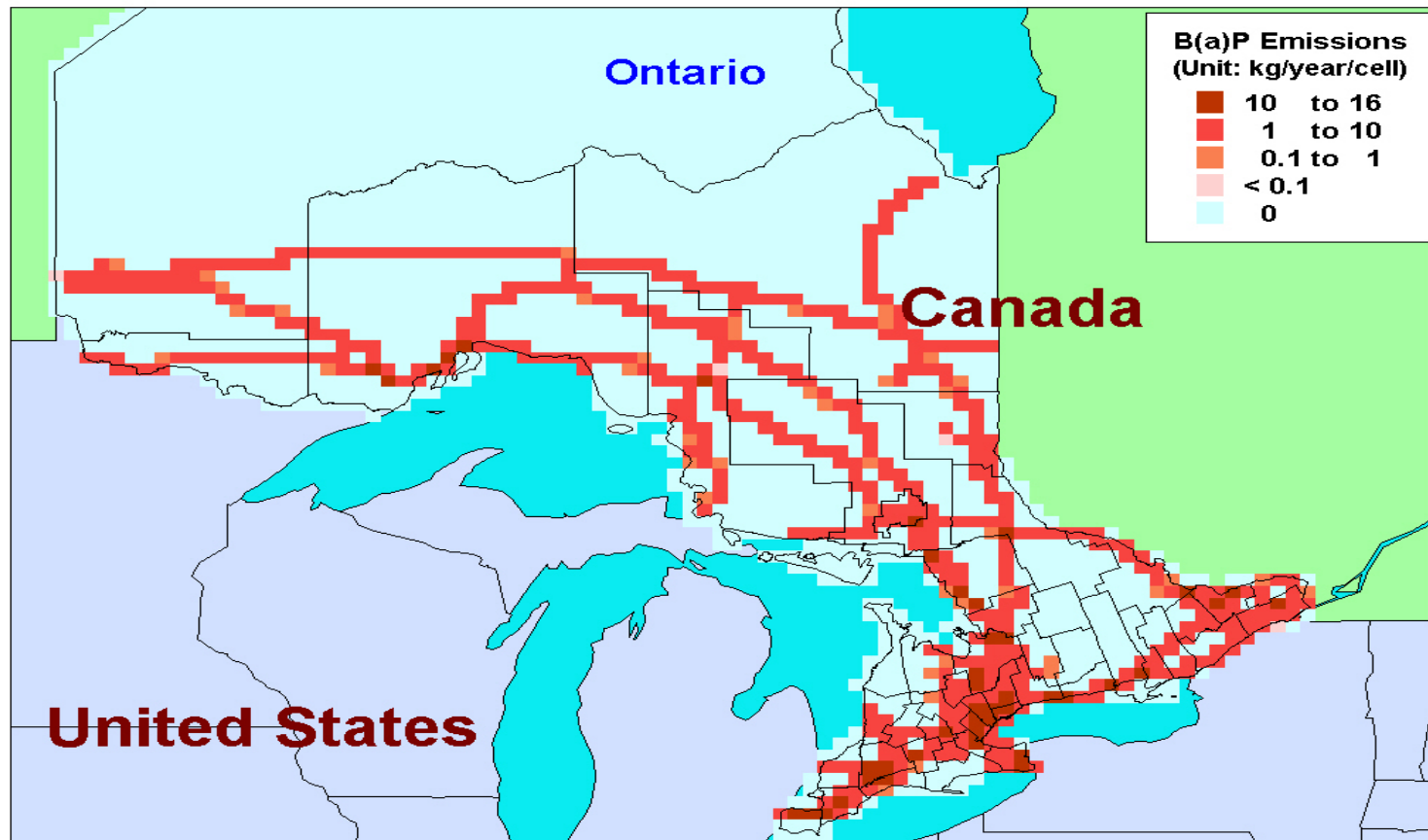
Mapping Anthropogenic BaP from Ontario Sources



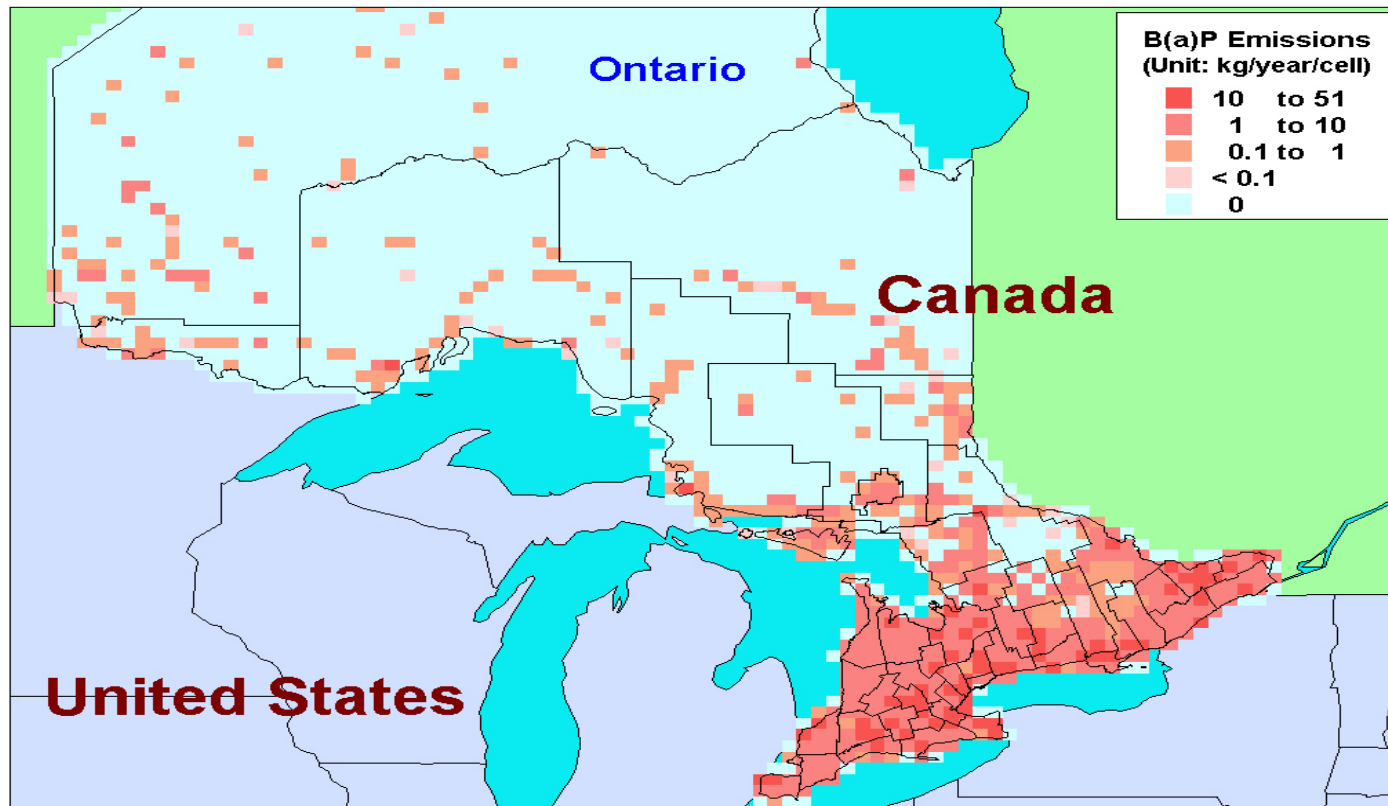
Ontario BaP from I & S and other Point Sources



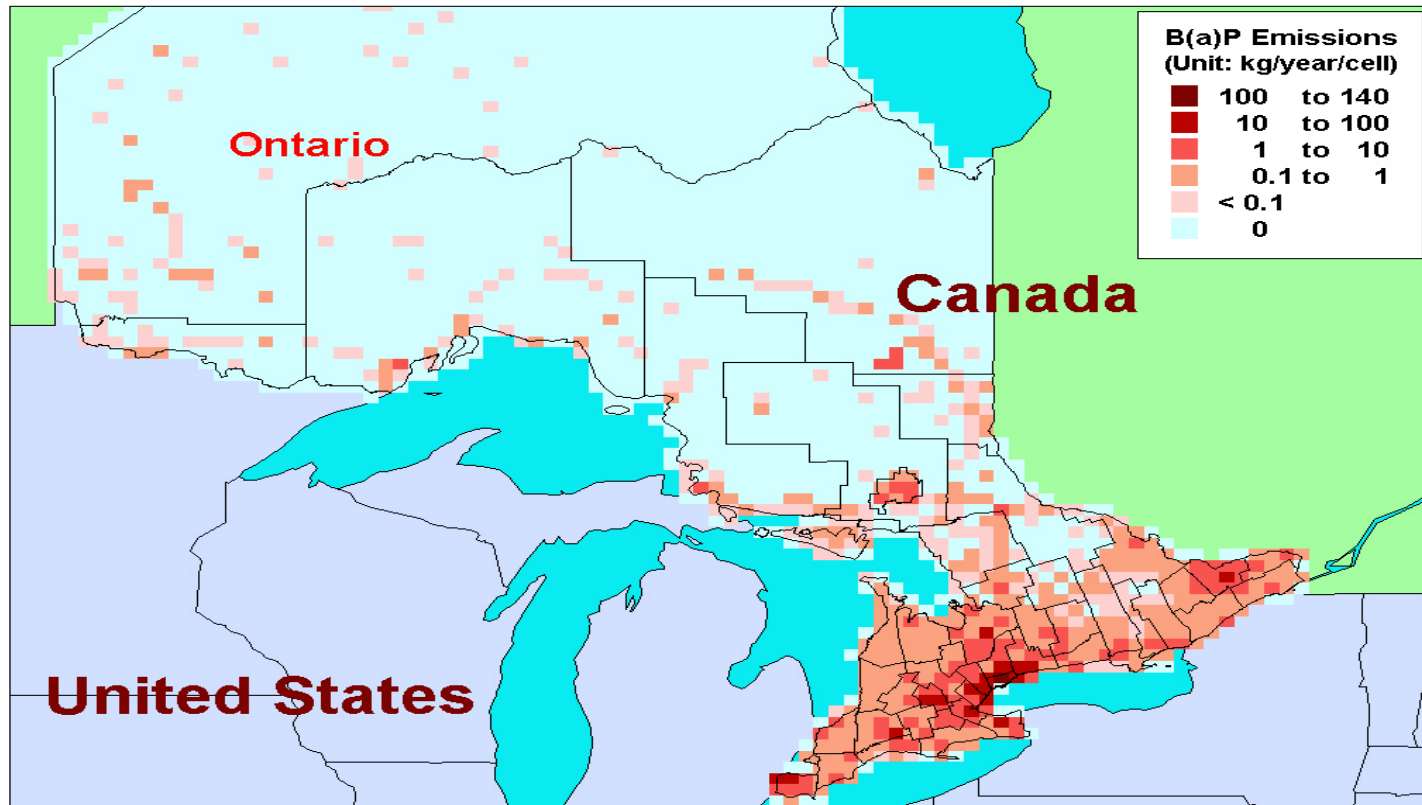
Ontario BaP from Creosote Rail Ties



Ontario BaP from Residential Wood Combustion



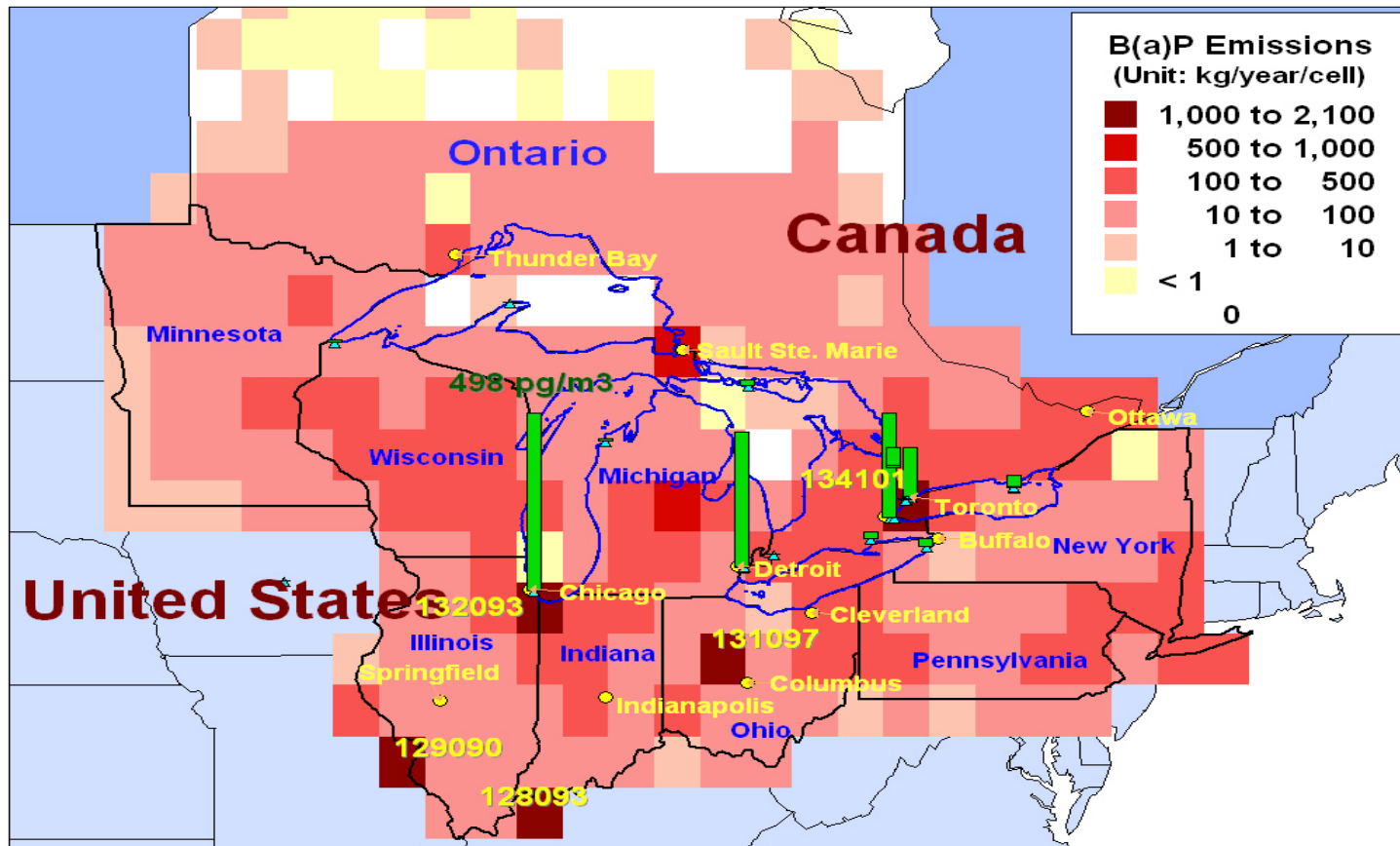
Ontario BaP from Motor Vehicles



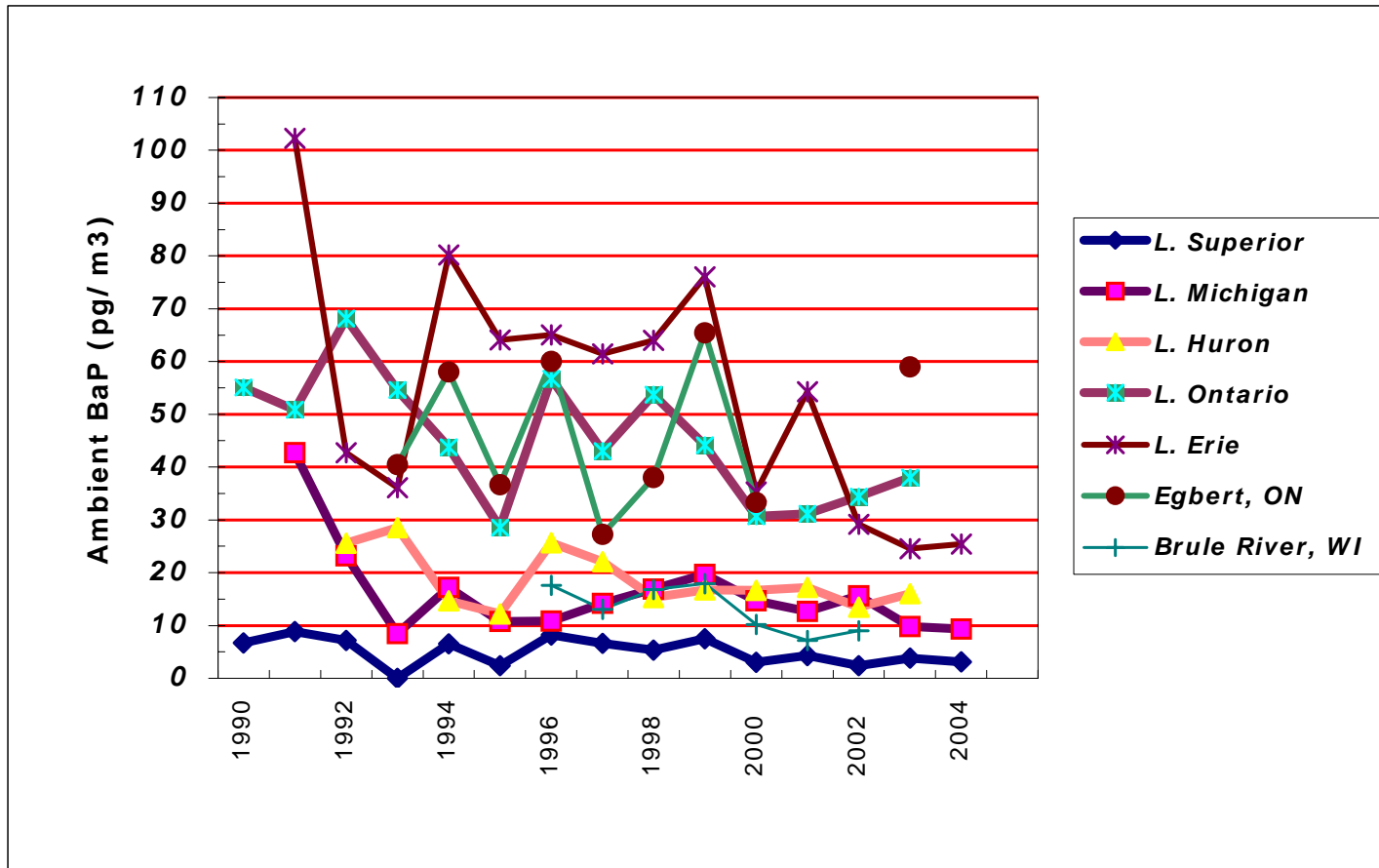
Ambient Air Monitoring



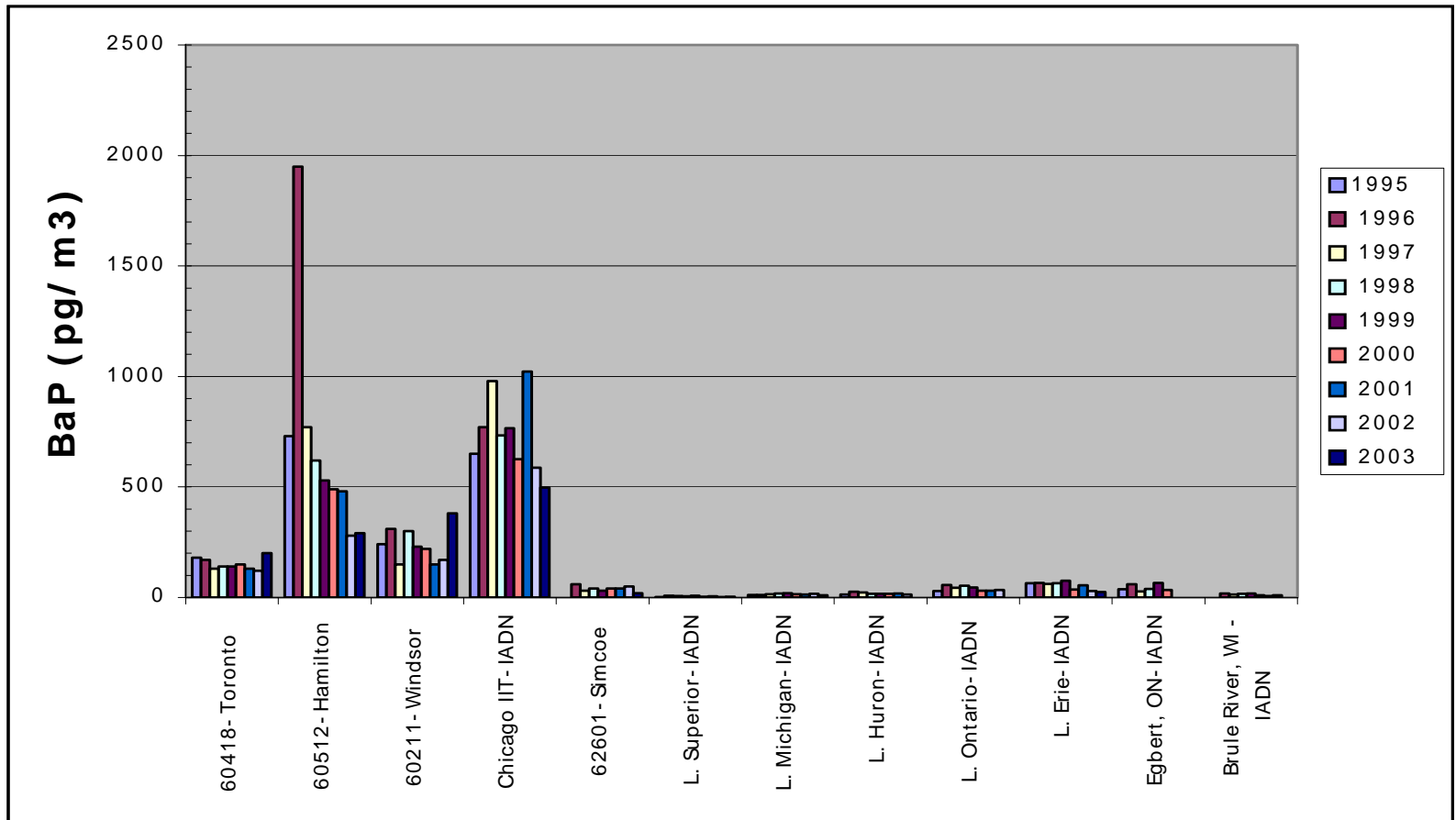
Ambient BaP Concentration



Trending of IADN Data



Trending of NAPS and IADN Data





Conclusions

- About 27,000 kg of BaP Released in the Basin in 2003/1999 and common sources identified
- Data Gaps and Estimation Method Variation on Non-point and Mobile Sources
- Ambient Air BaP in Urban is Higher than in Rural Areas
- An exception is with Windsor/Detroit Area. Need to investigate both the sources, inventory, and ambient monitoring
- Five Grid Cells have Highest BaP Releases and Major Sources Identified
- No evidence of decreasing trend in most urban monitoring stations except Hamilton
- Monitoring sites should be properly selected to better indicate local BaP reduction



Reference

Most of the work in this paper is
published under the same title in

*Fifteenth International Conference on Modelling,
Monitoring and Management of Air Pollution 2007*

Editors C. A. Brebbia

WIT Press, Southampton, UK 2007

ISBN: 1-84564-067-5