



Health Indicators

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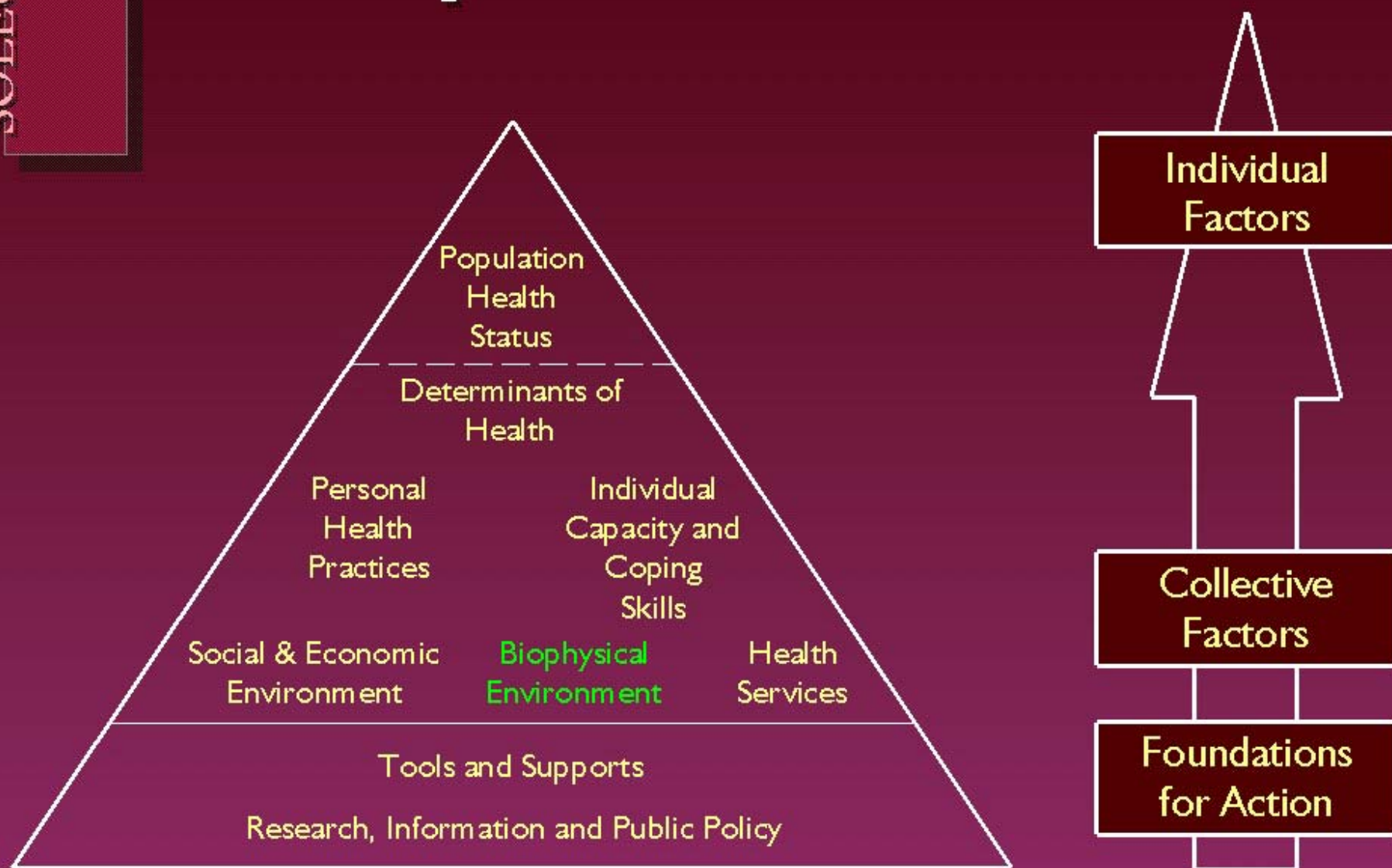
Definition Of Health

Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.

World Health Organization

A Framework for Population Health

SOLEC '98





Purpose Of Health Indicators

- **Health of the Population**
- **Changes Over Time and Between Regions**
- **Effectiveness of Policies and Actions**
- **Identify Knowledge Gaps**
- **Decision Making and Policy Development**



Types Of Health Indicators

- **Population Health Indicators**
 - ▶ Birthweight
 - ▶ Life expectancy

- **Indicators Of Exposure**
 - ▶ Chemicals
 - ▶ Micro-organisms
 - ▶ Radiation



Types Of Health Indicators

- **Health Effects Indicators**
 - ▶ Contaminant exposure and health effects

- **Geographic Patterns and Trends in Disease Incidence**
 - ▶ Cancer
 - ▶ Birth defects
 - ▶ Asthma



Types Of Health Indicators

- **Social Health and Well-Being Indicators**
 - ▶ Health risk perception
 - ▶ Attitudes, knowledge and behaviours
 - ▶ Uses of the Great Lakes

Desired State



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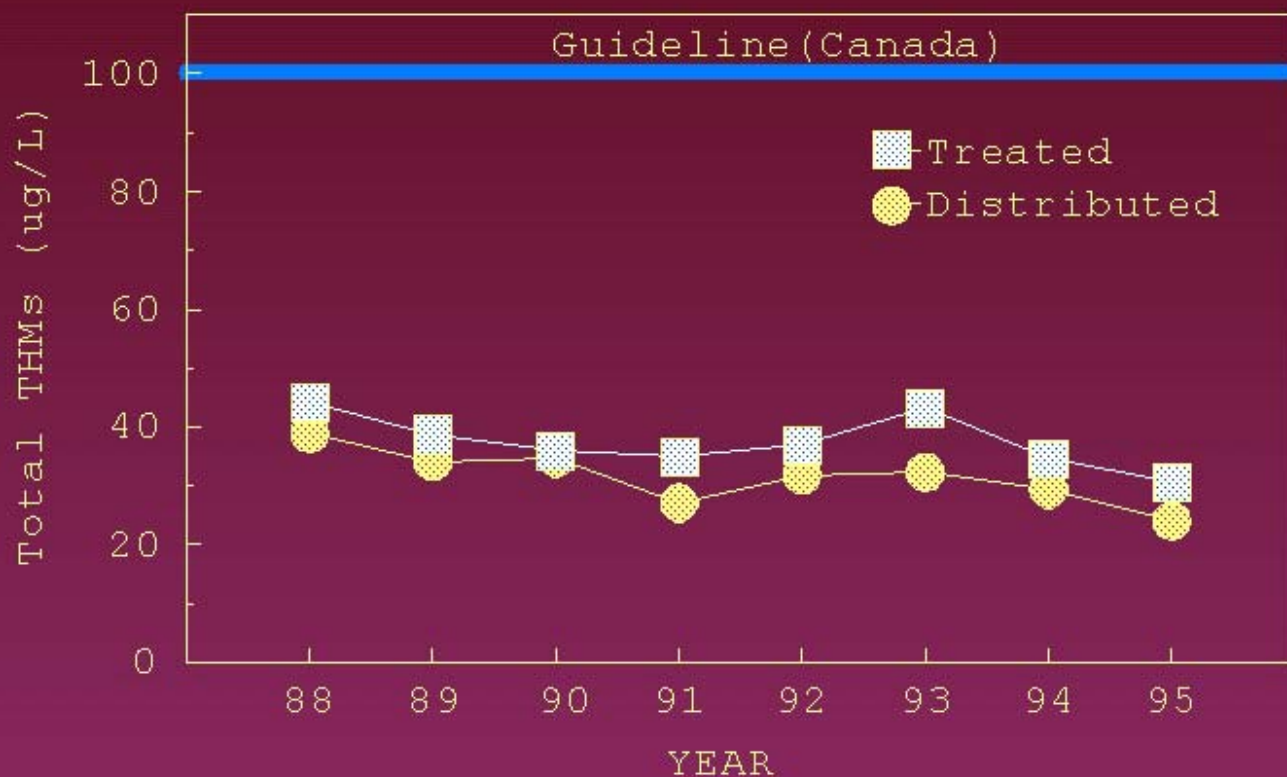
- **Continuously Improve Population Health**
 - ▶ Health
 - ▶ Well-being
 - ▶ Quality of life

- **Achieved by**
 - ▶ Managing factors and risks contributing to disease, as well as to social and mental well-being

Indicators Of Exposure

Drinking Water Quality

Trihalomethanes (THMs) in Drinking Water Obtained from Lake Erie

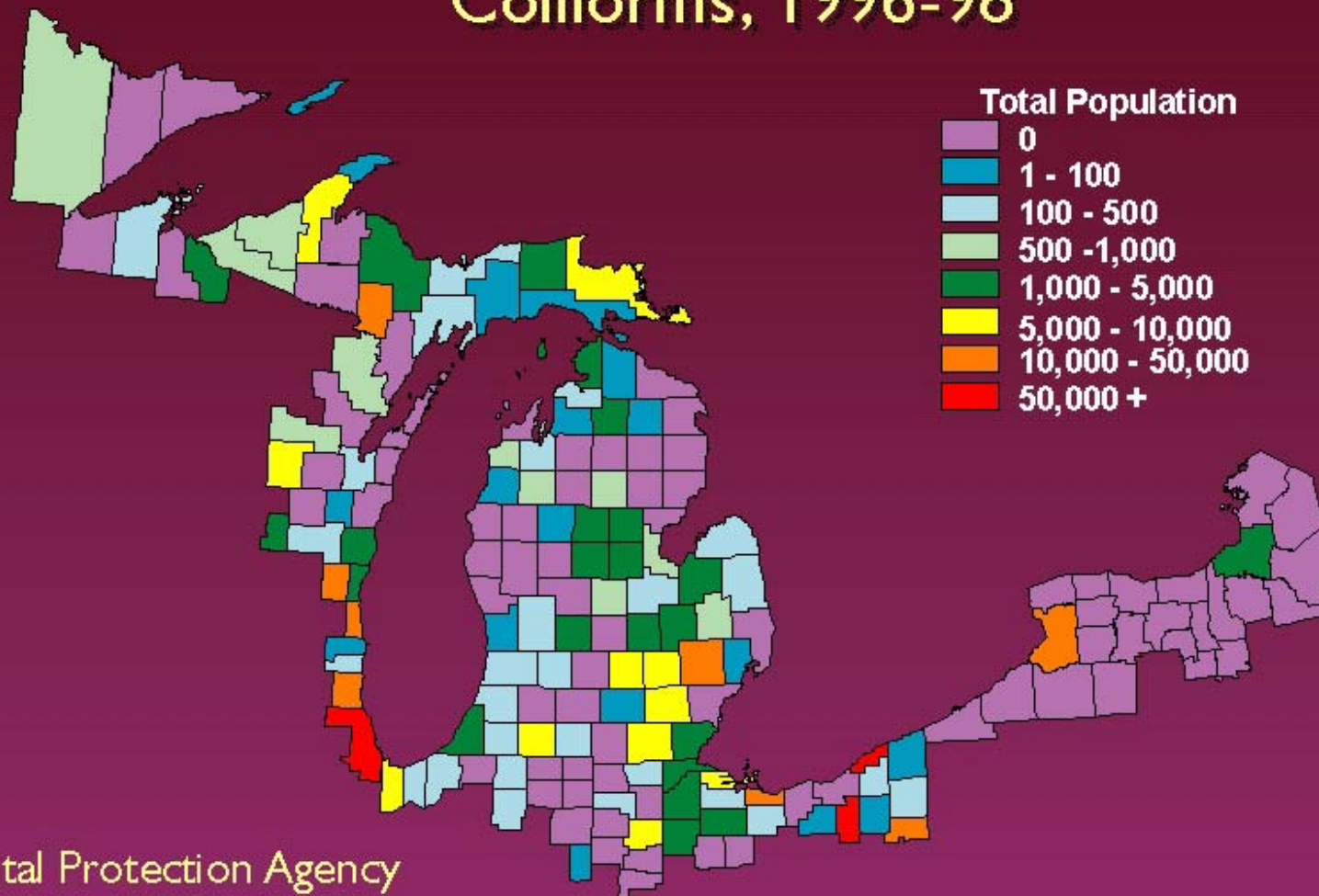




Indicators Of Exposure

Drinking Water Quality

Populations impacted by MCL violations for Total Coliforms, 1996-98

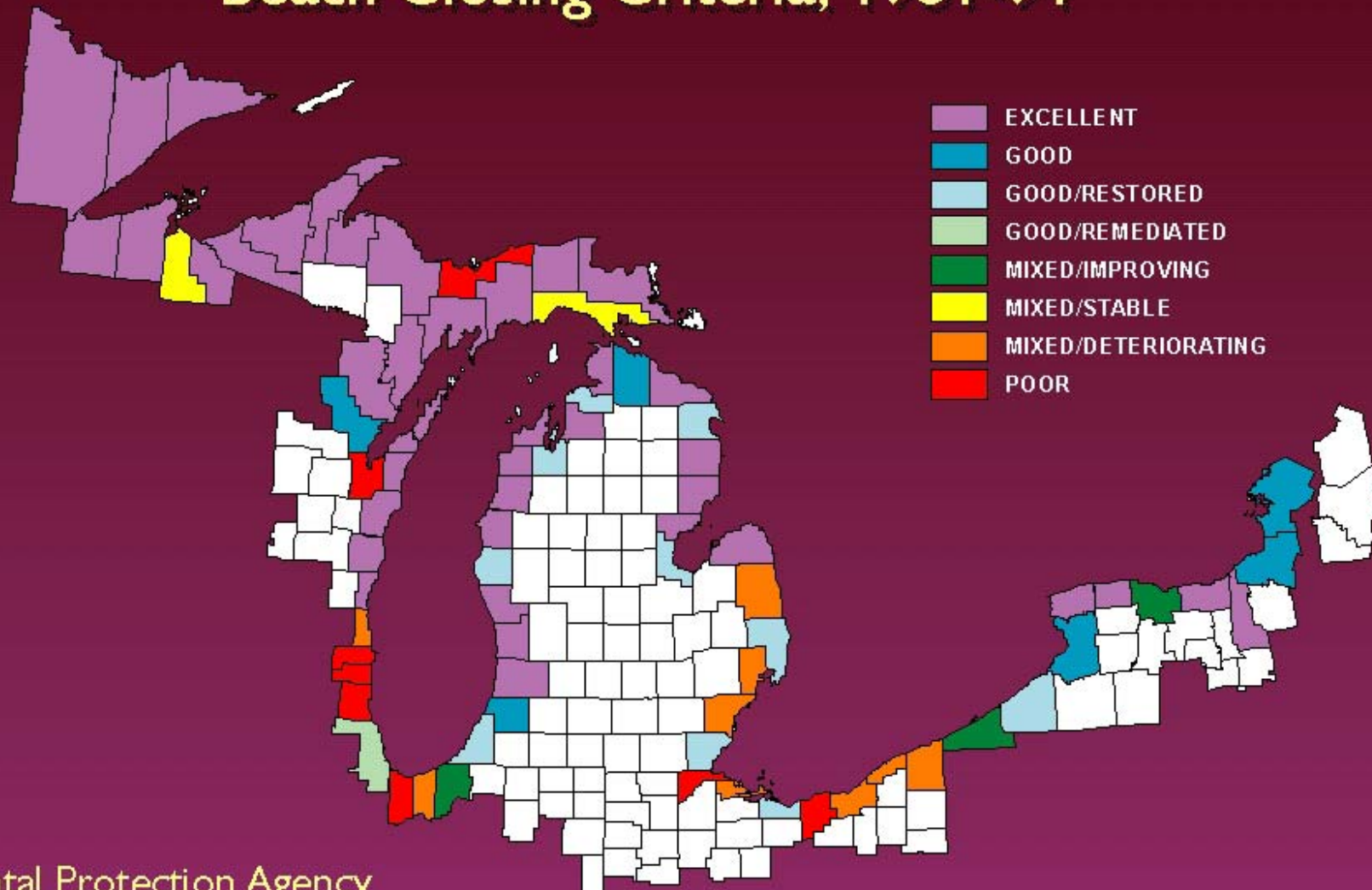




Indicators Of Exposure

Recreational Water Quality

Beach Closing Criteria, 1981-94

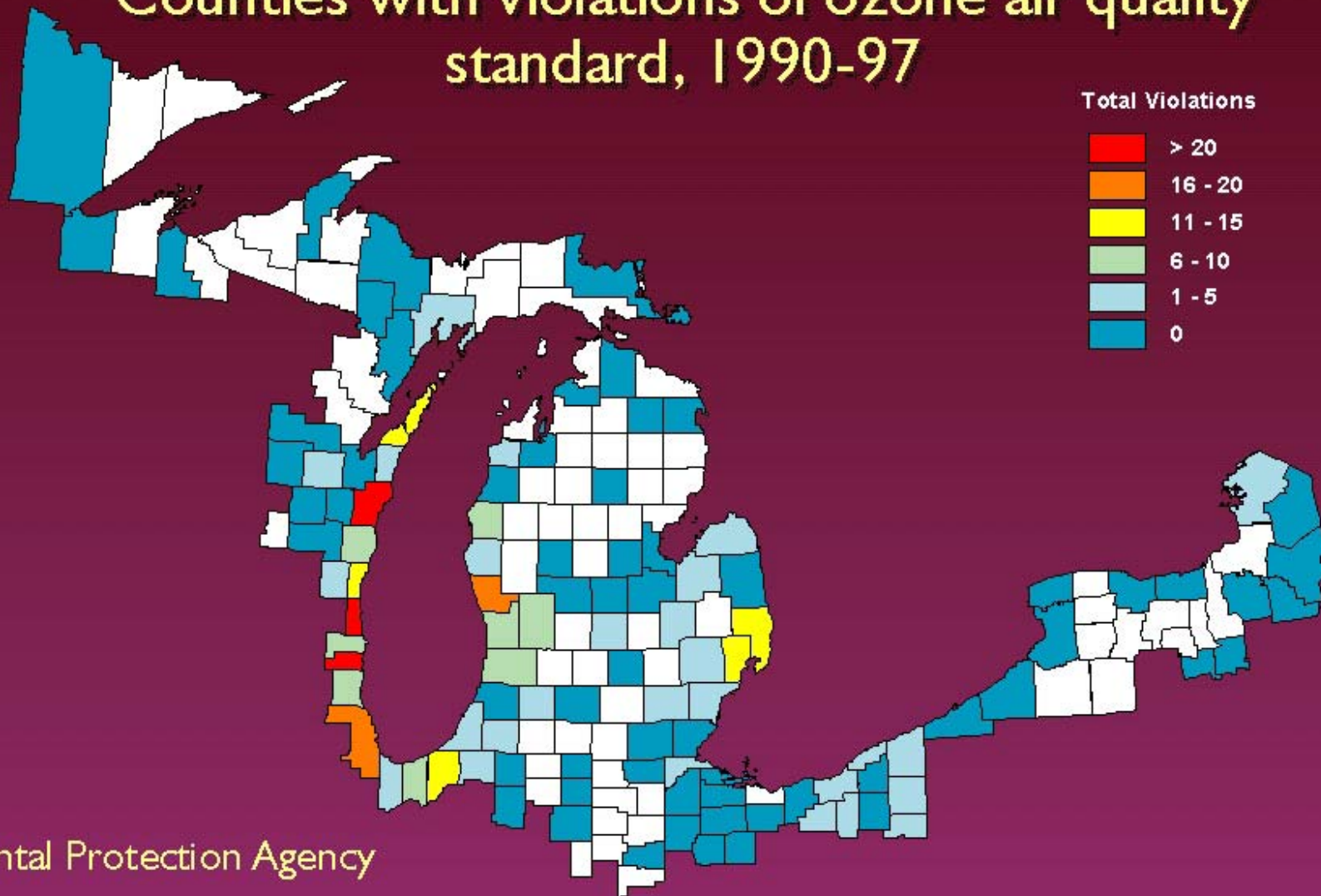




Indicators Of Exposure

Air Quality

Counties with violations of ozone air quality standard, 1990-97

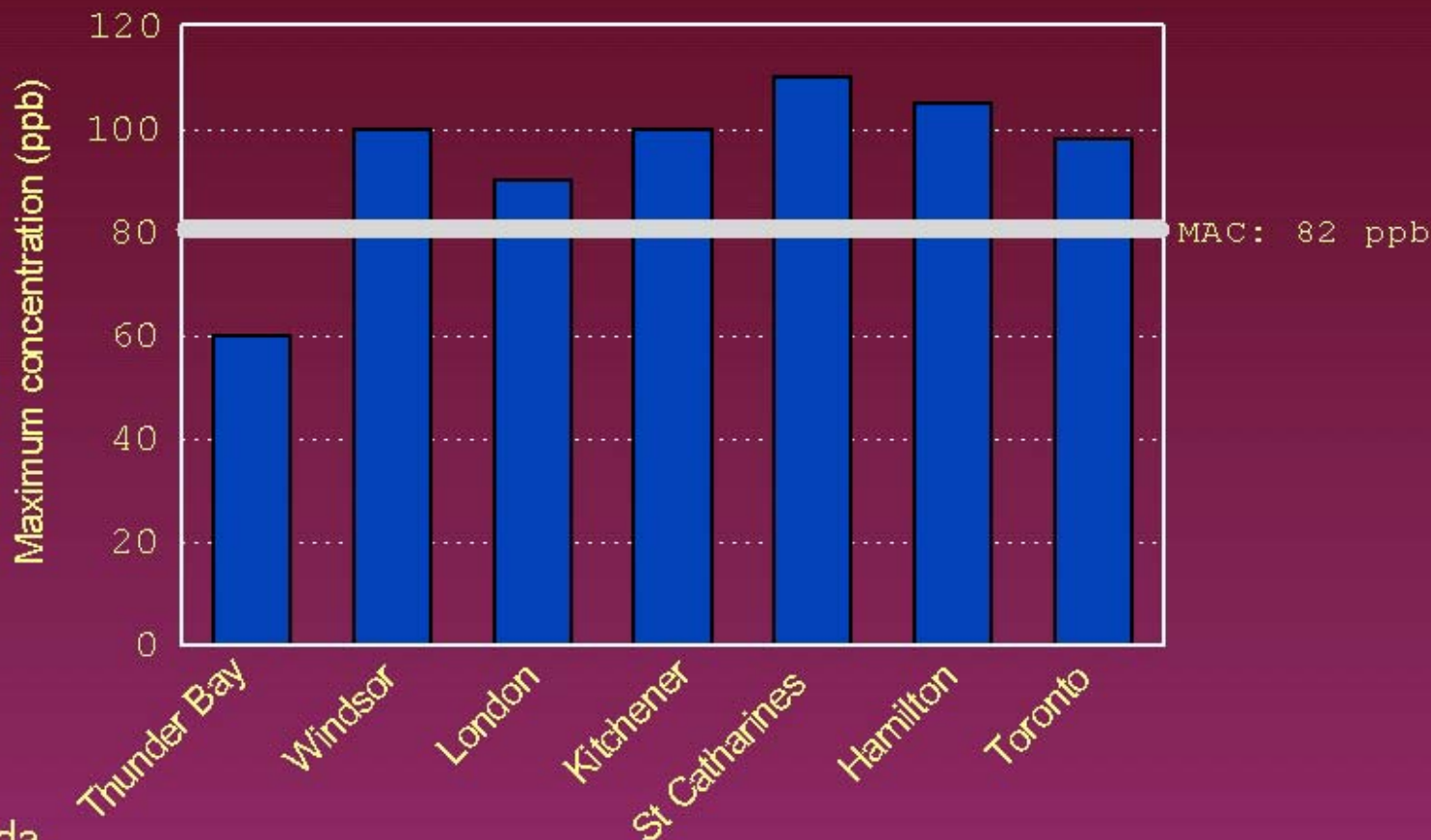




Indicators Of Exposure

Air Quality

Average Maximum 1-Hour Ozone Levels for Canadian Great Lakes Cities, 1992

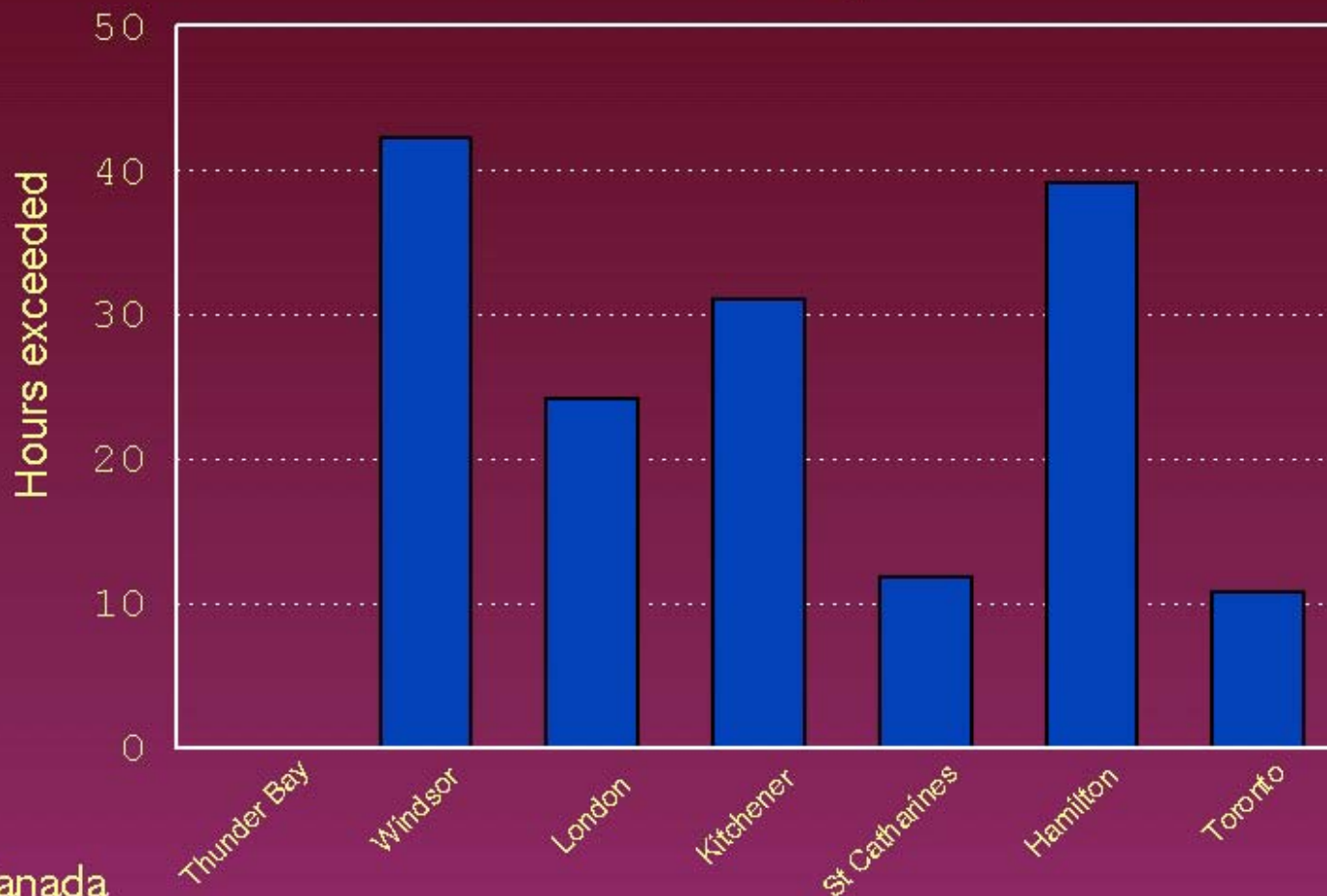




Indicators Of Exposure

Air Quality

Ozone Exceedances In Canadian Great Lakes Cities - Annual Average, 1994



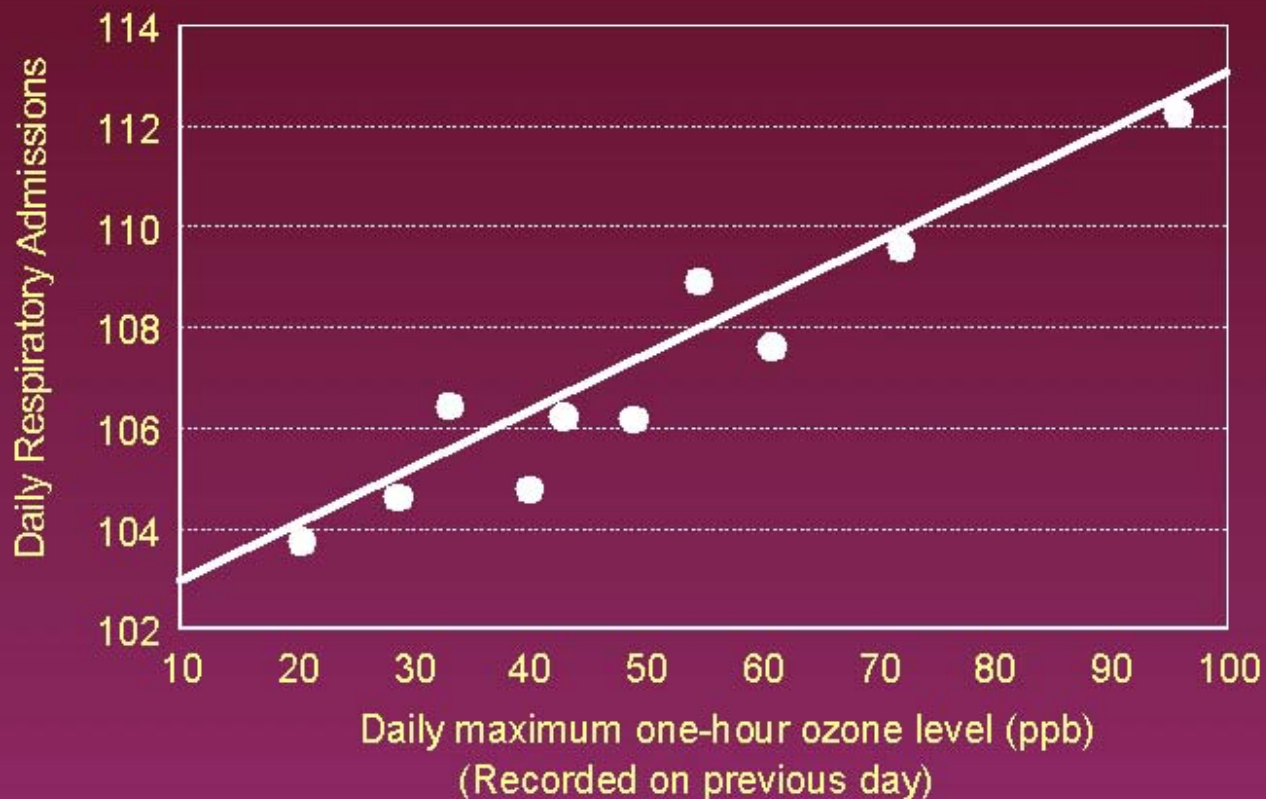
Source:
Environment Canada



Indicators Of Exposure

Air Quality

Respiratory Admissions and Ozone Levels in Ontario

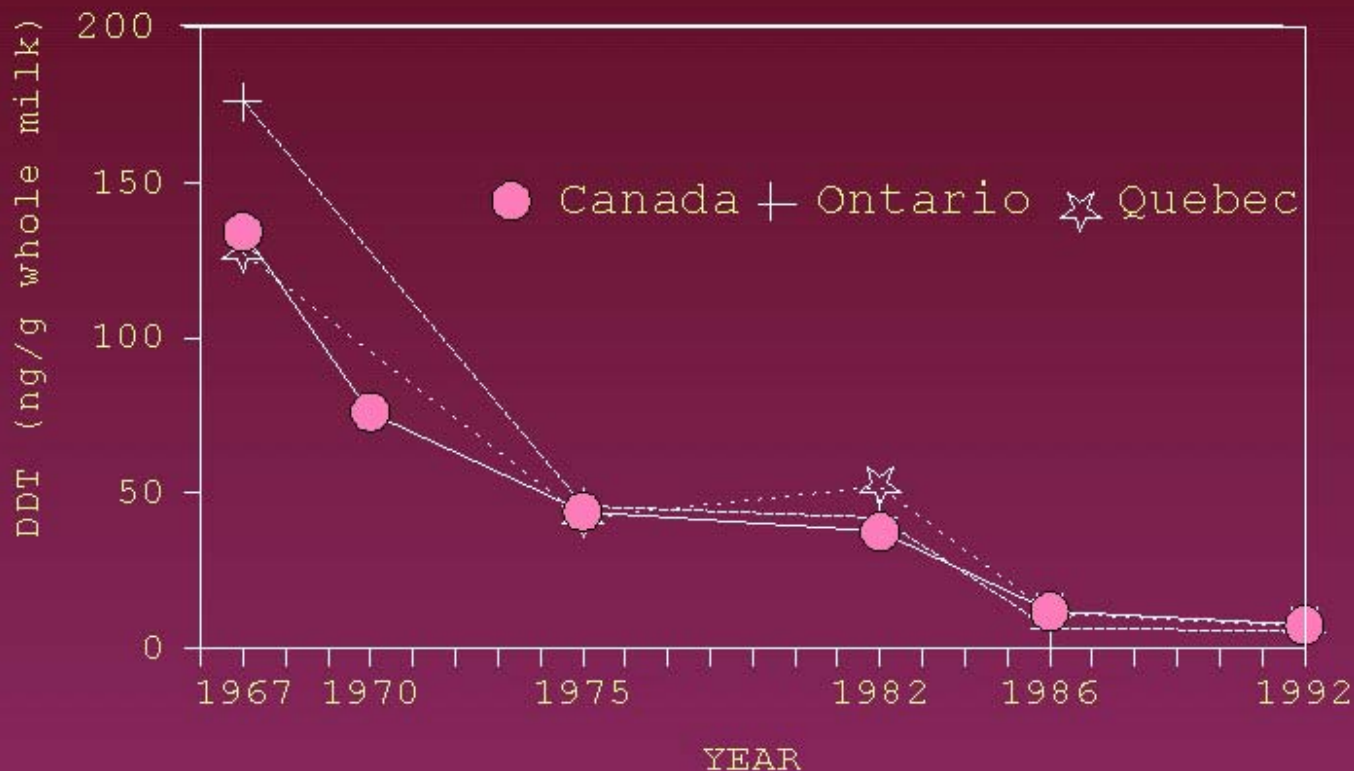




Indicators Of Exposure

Chemical Contaminants in Human Tissue

DDT Concentrations in Human Breast Milk

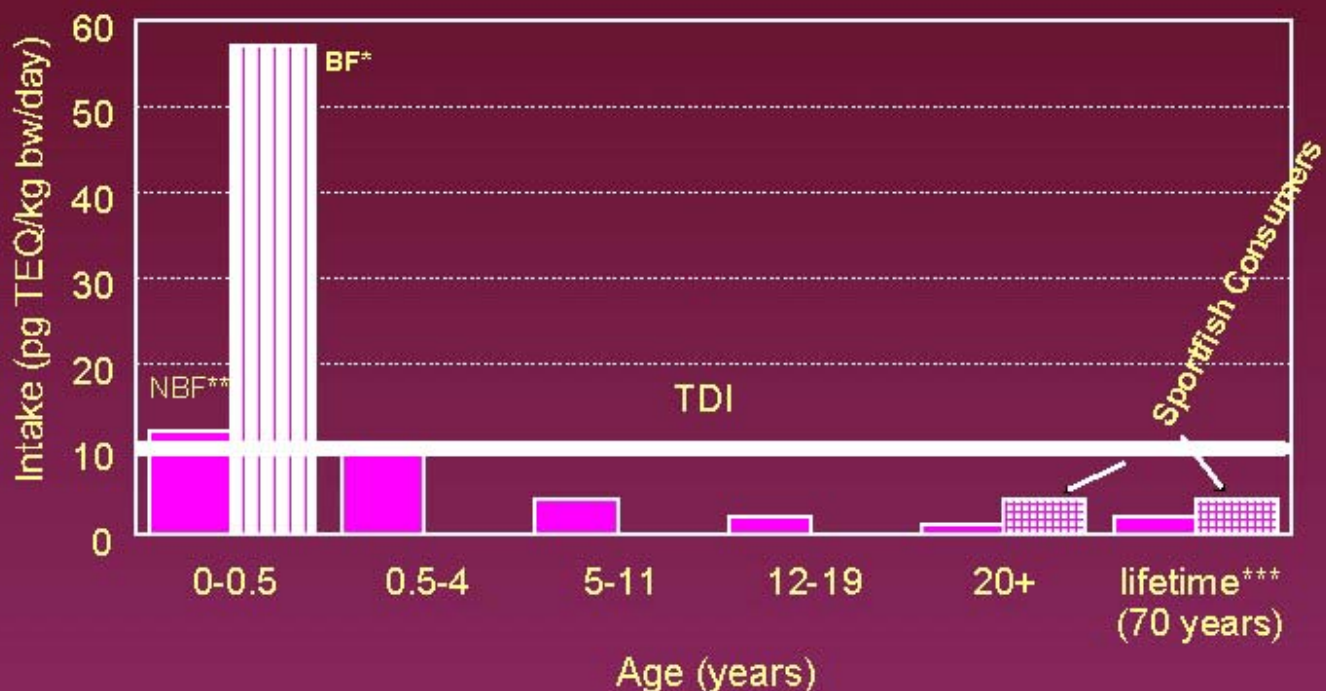




Indicators Of Exposure

Chemical Contaminant Intake From All Sources

Estimated Daily Intake of Dioxins and Furans



* BF - Breast-fed

** NBF-Not breast-fed

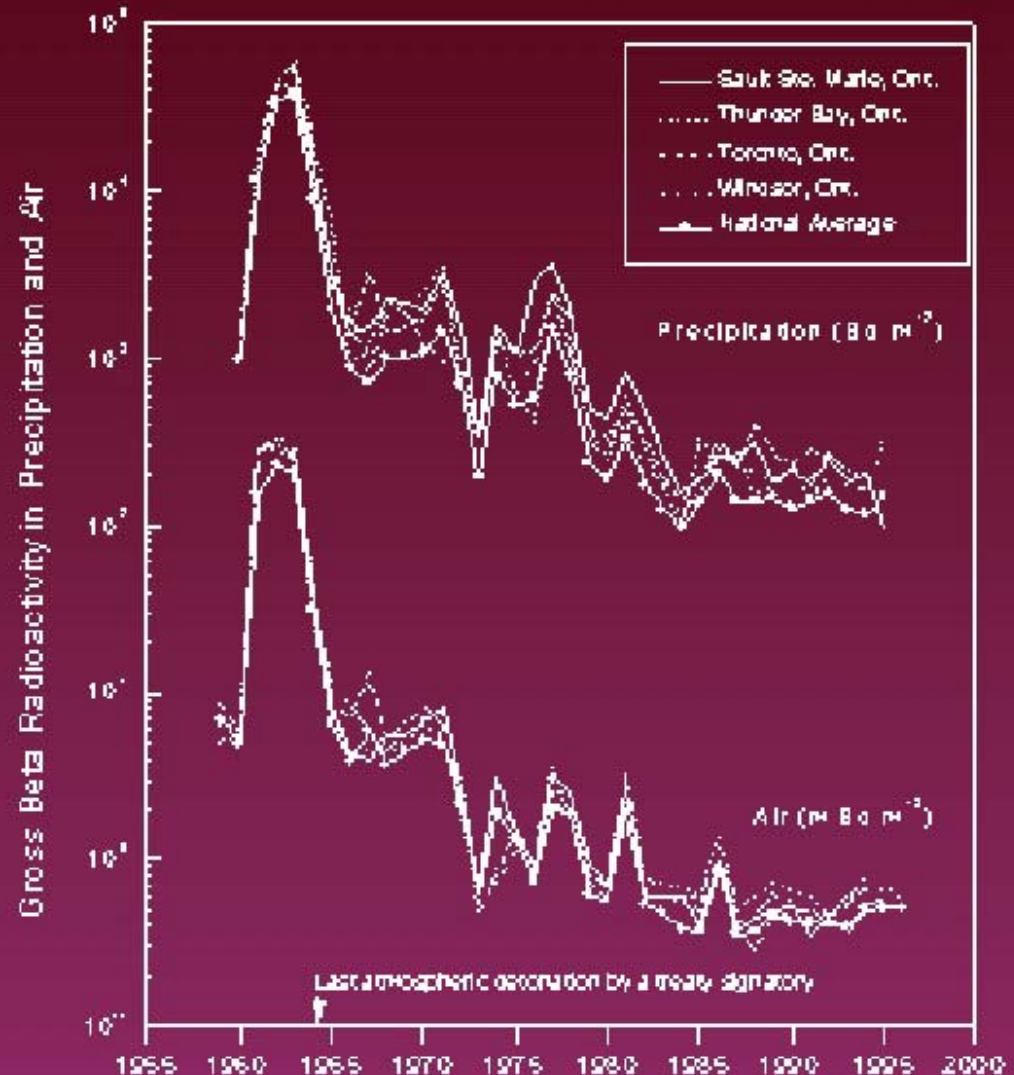


Indicators Of Exposure

Radiation

Gross Beta Activity in Precipitation and Air

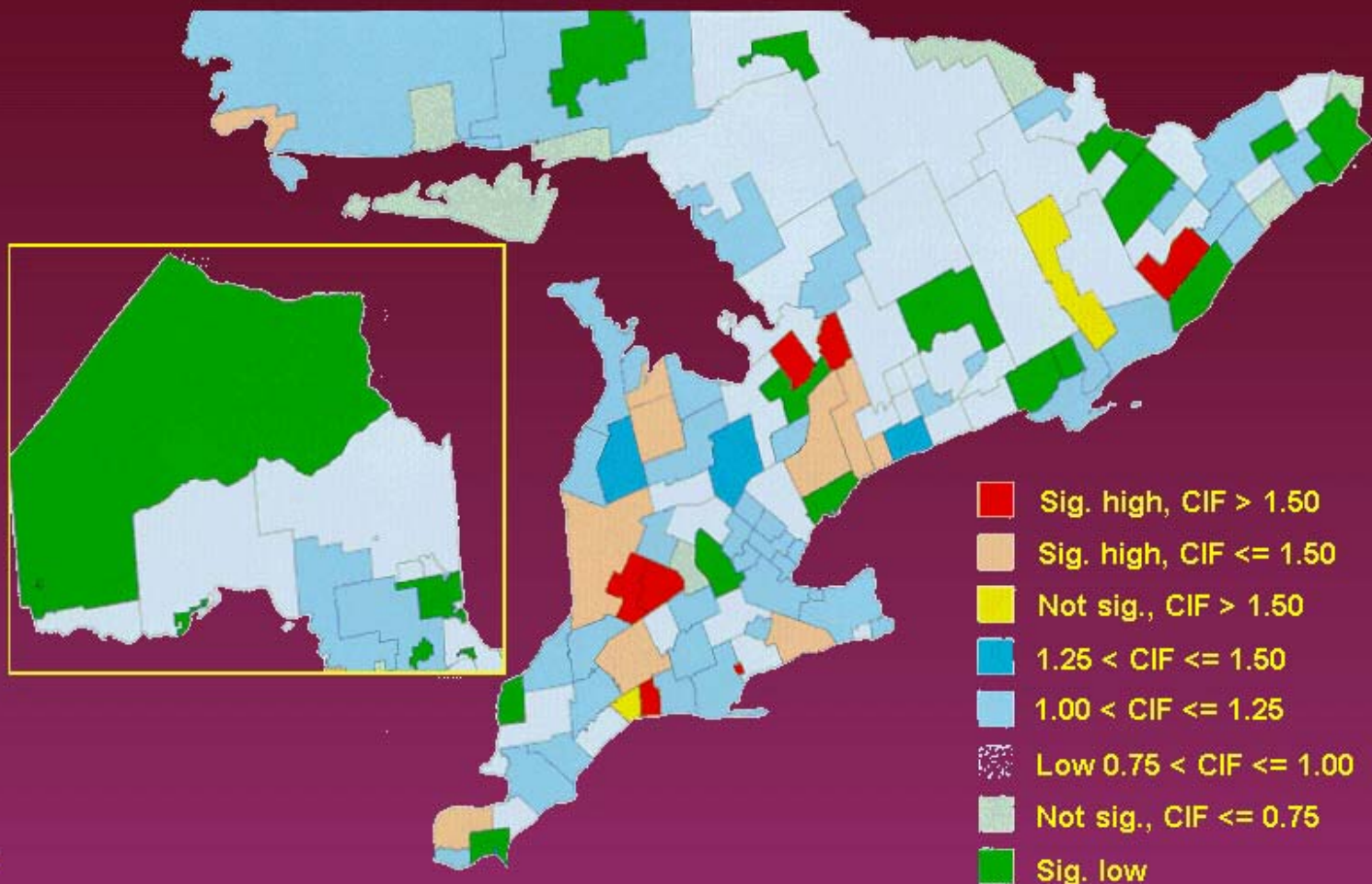
Annual Averages in the Great Lakes Basin and Canada, 1959 to 1996





Geographic Patterns and Trends in Disease Incidence

Prostate Cancer Incidence in Ontario
All Ages, 1984-1988

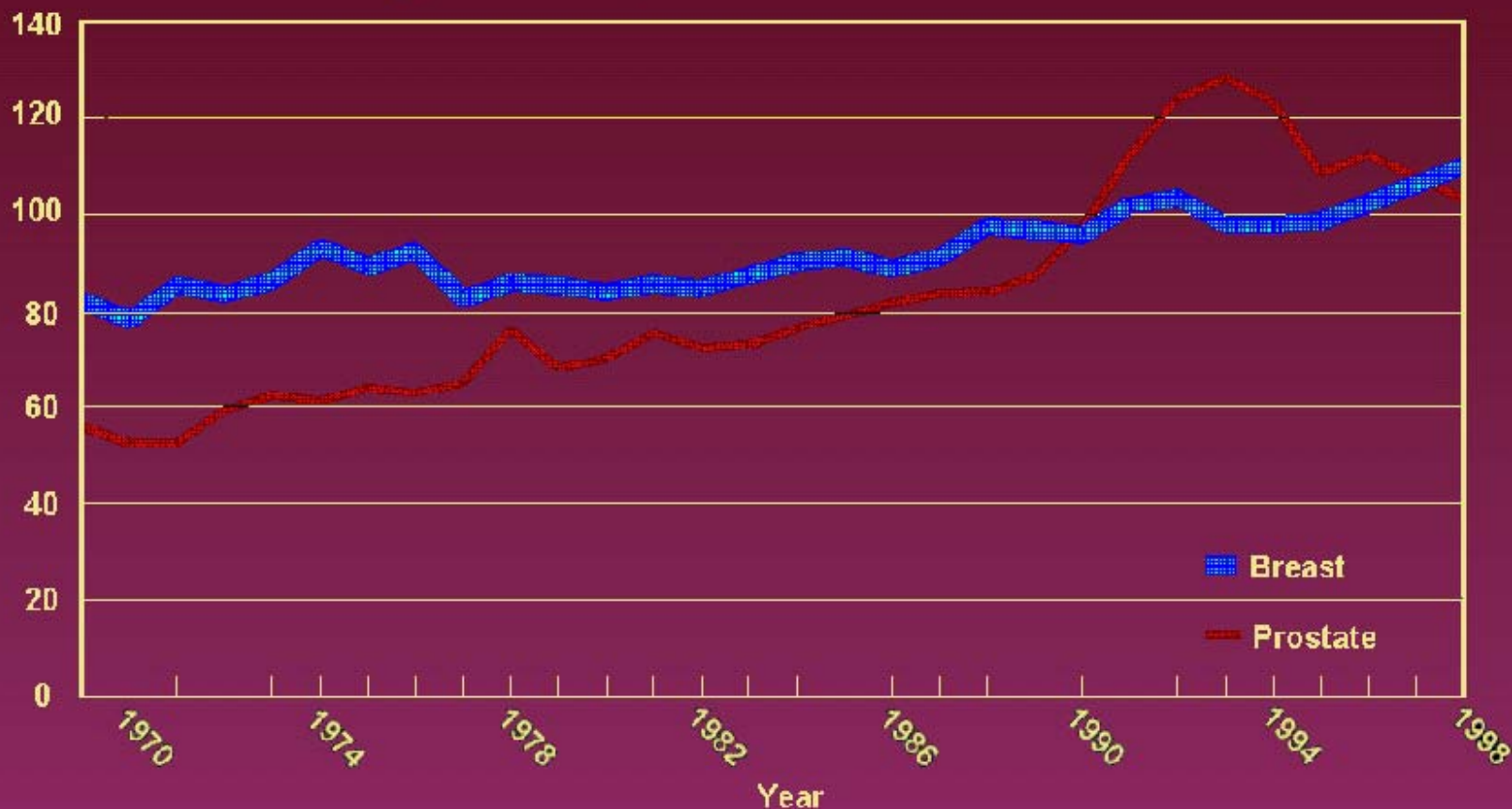




Geographic Patterns and Trends in Disease Incidence

Breast and Prostate Cancer

Age-Standardized Incidence Rates per 100,000
Population, Ontario 1969-1998





Conclusions

- **SOLEC- first effort identifying indicators relating health to Great Lakes environment**
- **Many indicators needed**
- **Long-term commitment**
- **Monitoring by many agencies essential for developing and maintaining indicators**