

Human Health: Swimming Advisories



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Indicator Objectives



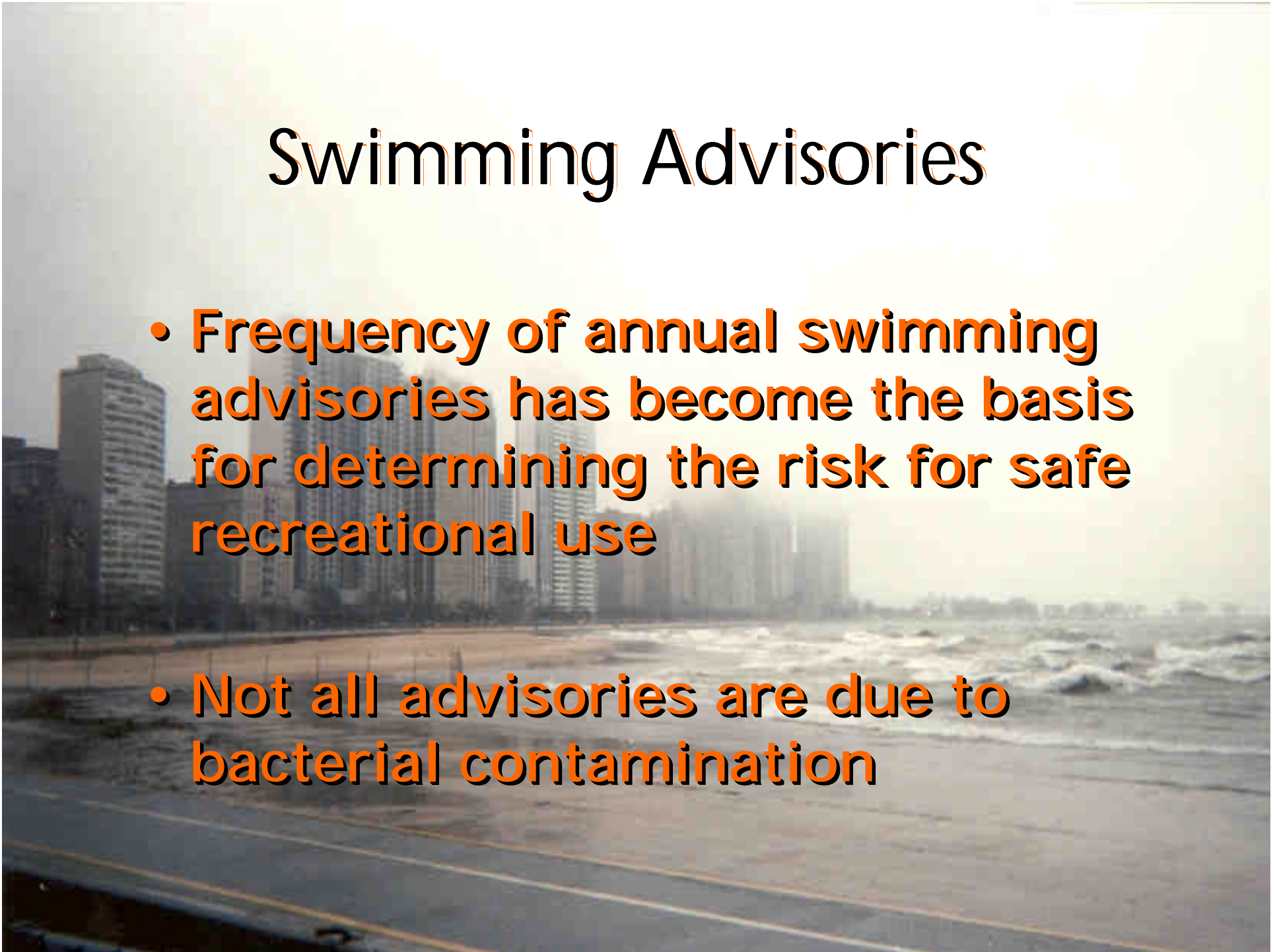
- **Waters of the Great Lakes should be safe for recreational use.**
- **Safe means:**
 - **free from pathogens (bacteria, parasites, and viruses)**

Water Quality Monitoring at Great Lakes Beaches

- **Water Quality Monitoring Indicators and Standards:**
 - ***E. coli* bacteria**
 - U.S. 235 colonies per 100 ml
 - Canada 100 colonies per 100 ml
 - **Fecal coliform**
- **Local authorities restrict swimming or issue advisories of unsafe water when standards are exceeded**
- **Frequency of monitoring varies**

Swimming Advisories

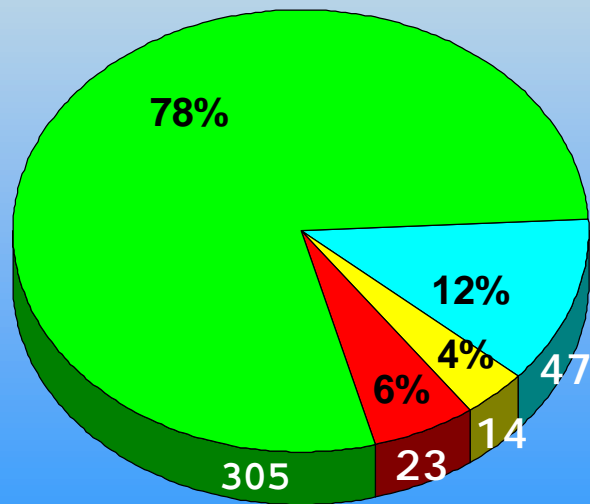
- **Frequency of annual swimming advisories has become the basis for determining the risk for safe recreational use**
- **Not all advisories are due to bacterial contamination**



Percentage of Great Lakes Beaches Open for Swimming (June-August 1998)

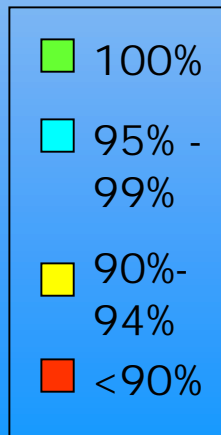
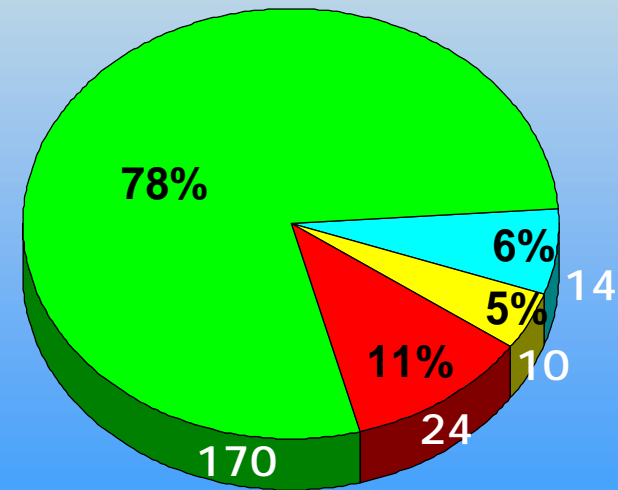
United States

Total Number of Beaches 389



Canada

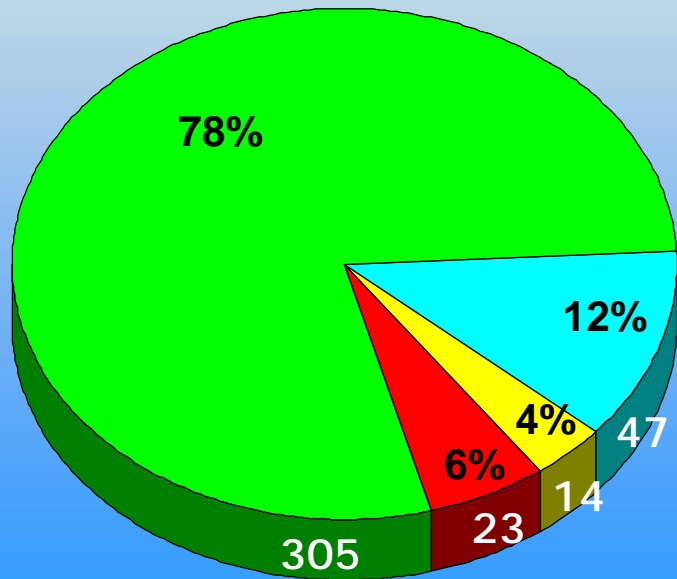
Total Number of Beaches 218



Percentage of U.S. Great Lakes Beaches Open for Swimming (June-August)

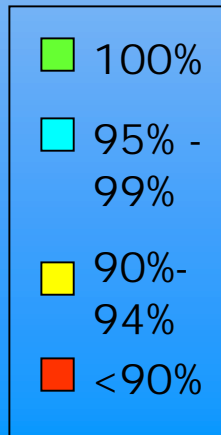
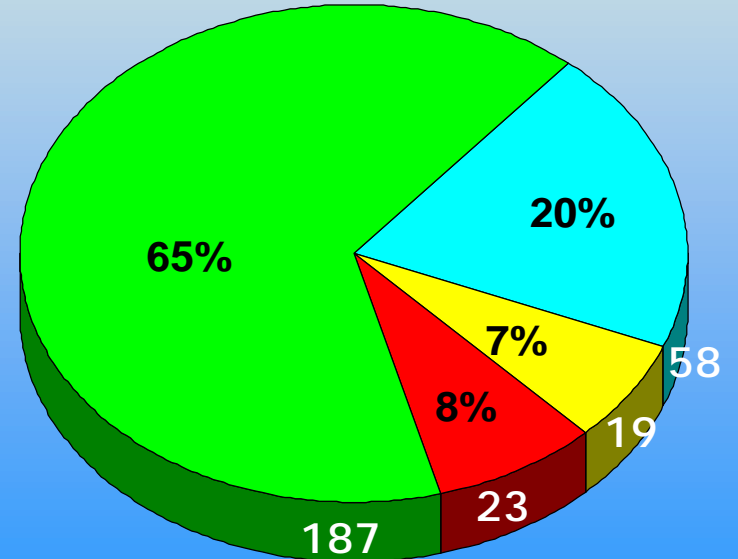
1998

Total Number of Beaches 389



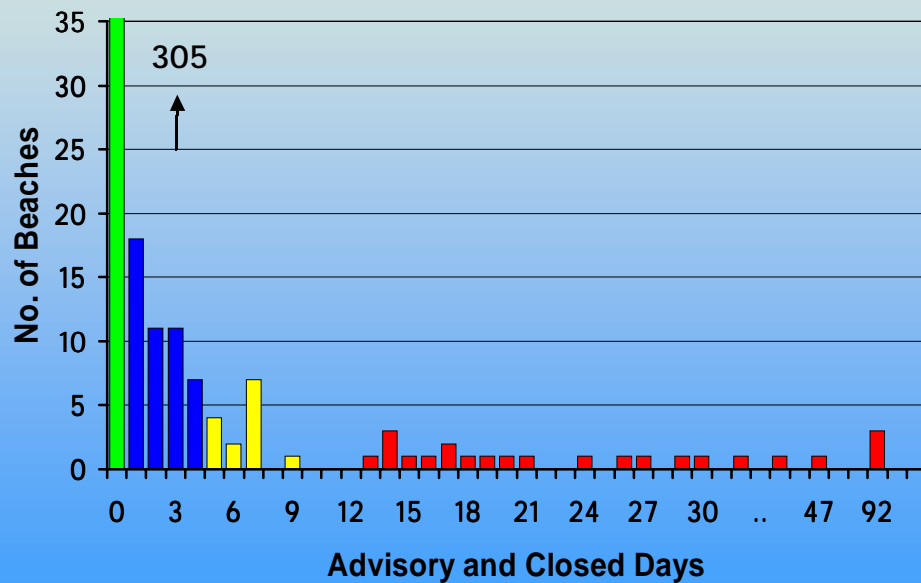
1999

Total Number of Beaches 287

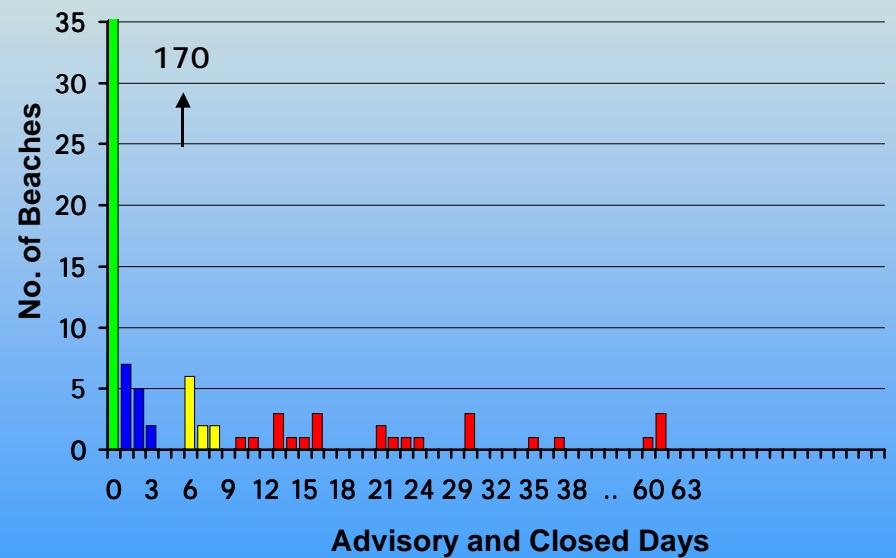


Great Lakes Swimming Advisories and Closings 1998

United States



Canada



RISK: ■ Low ■ Low-Moderate ■ Moderate ■ High

Swimming Advisories Survey Conclusions

- *E. coli* is a more sensitive indicator of public health risks for swimmers
- *E. coli* tests give more consistent measurements
- Beach managers are using *E. coli* testing more frequently to advise swimmers
- *E. coli* is a "common denominator" between beaches

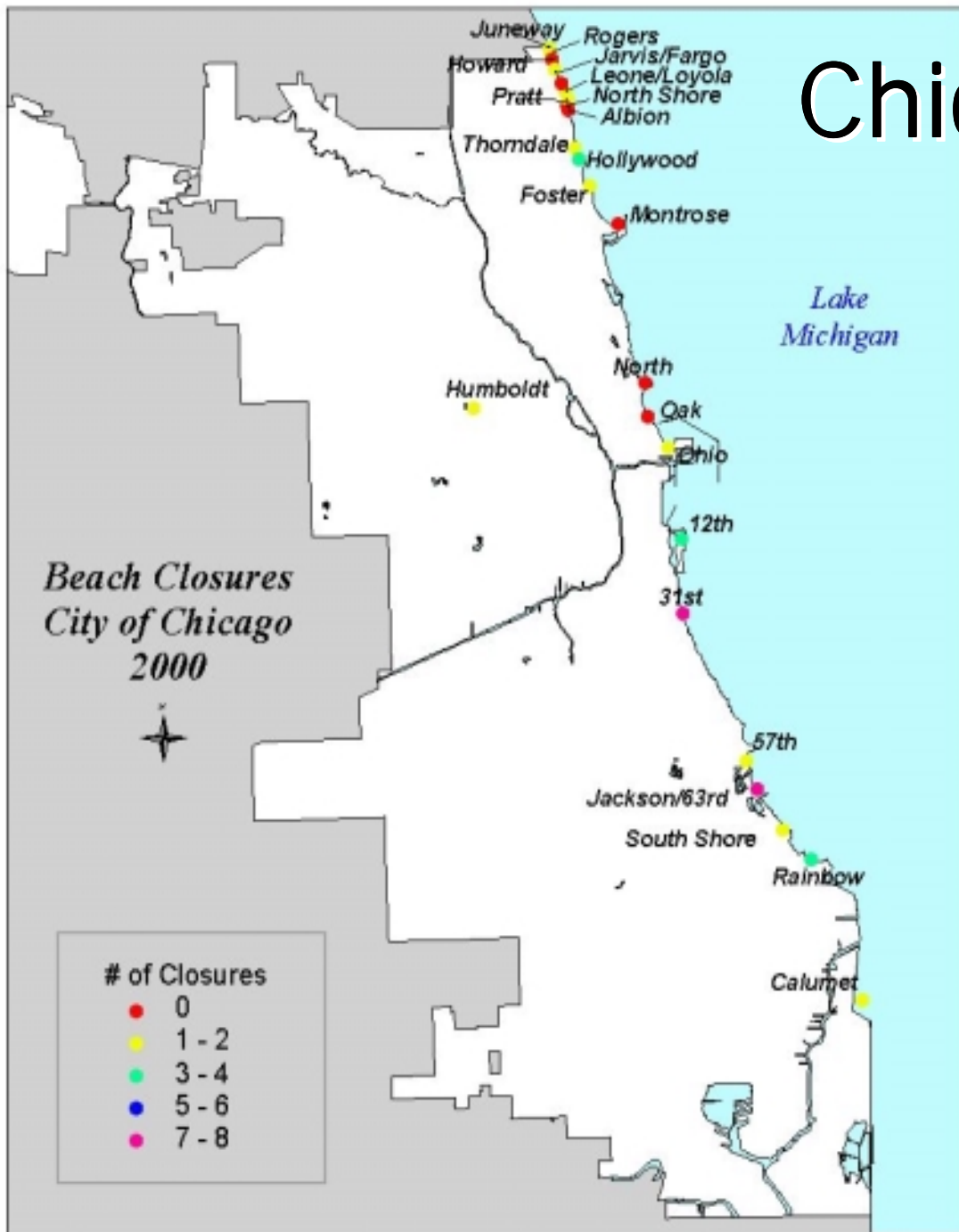


Future Pressures on Waters of Great Lakes

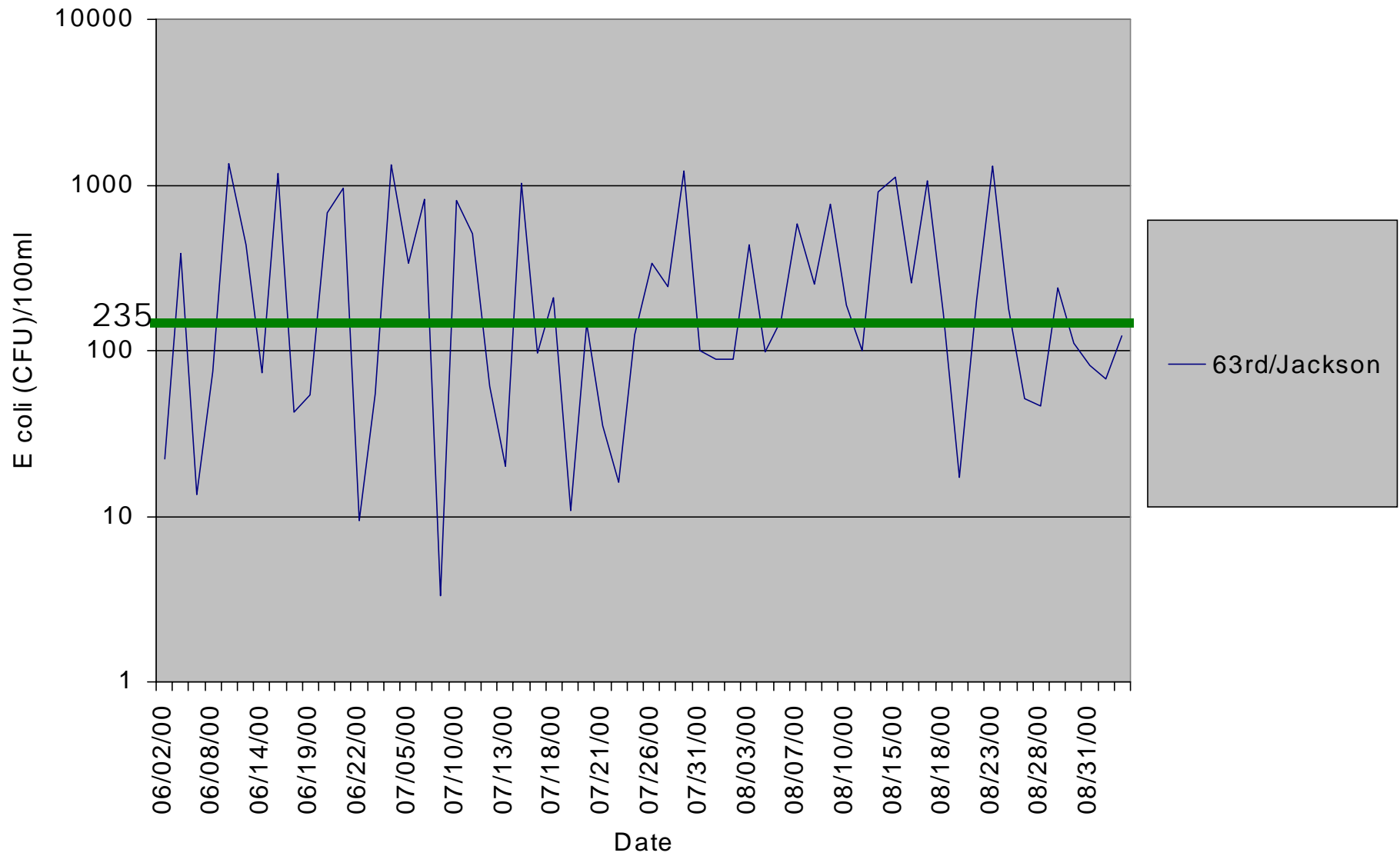
- Increased Growth of cities
- Increase in resort and vacation areas utilizing private systems
- Uncertainty of available funding for future research

Chicago Lakefront

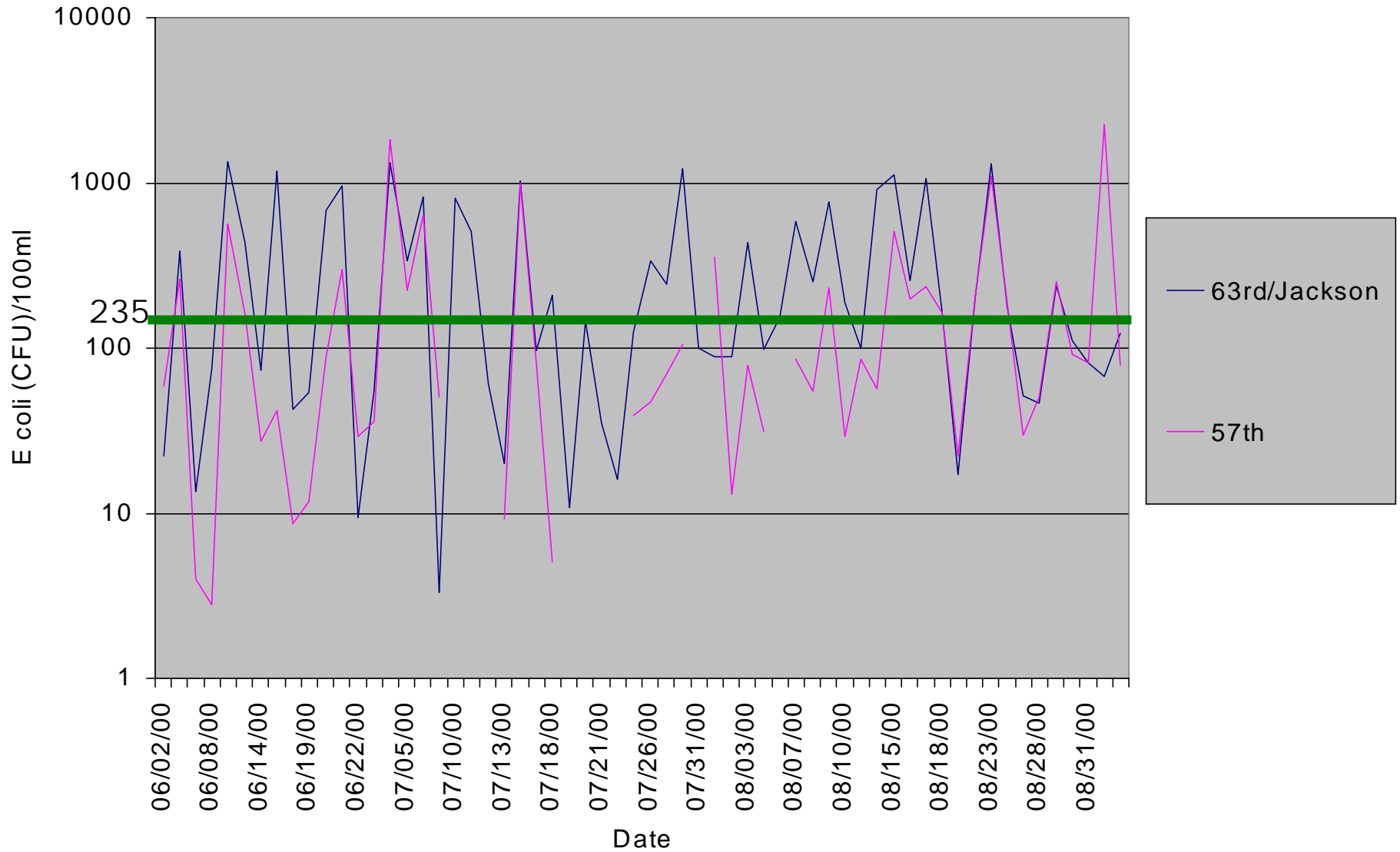
- 28 Miles of Lakefront
- 32 Public beaches
- 4 Lakefront designs
- Millions of Users
- \$5 Billion in Annual Revenue



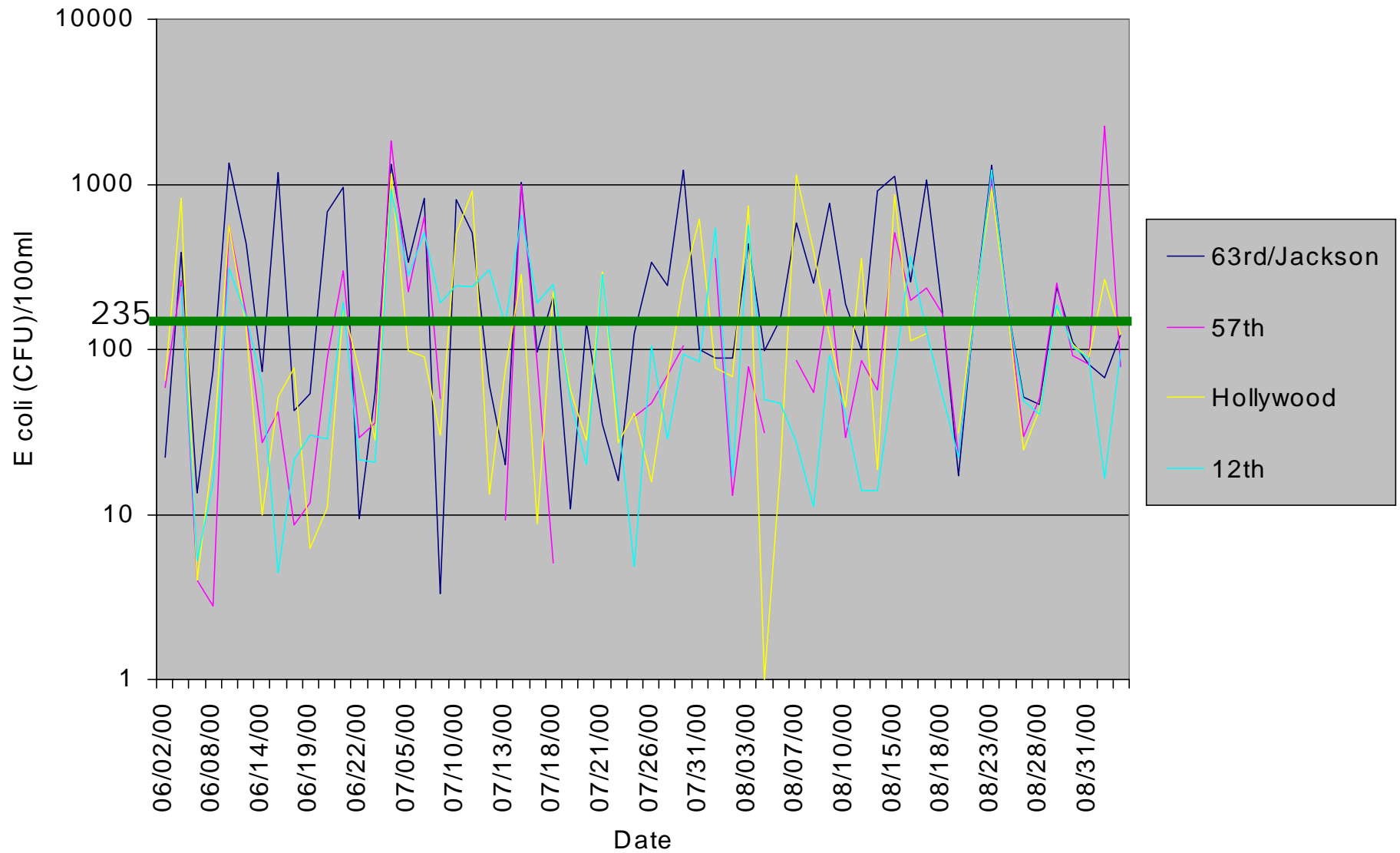
Summer 2000 *E. coli* Concentrations, Chicago Beaches



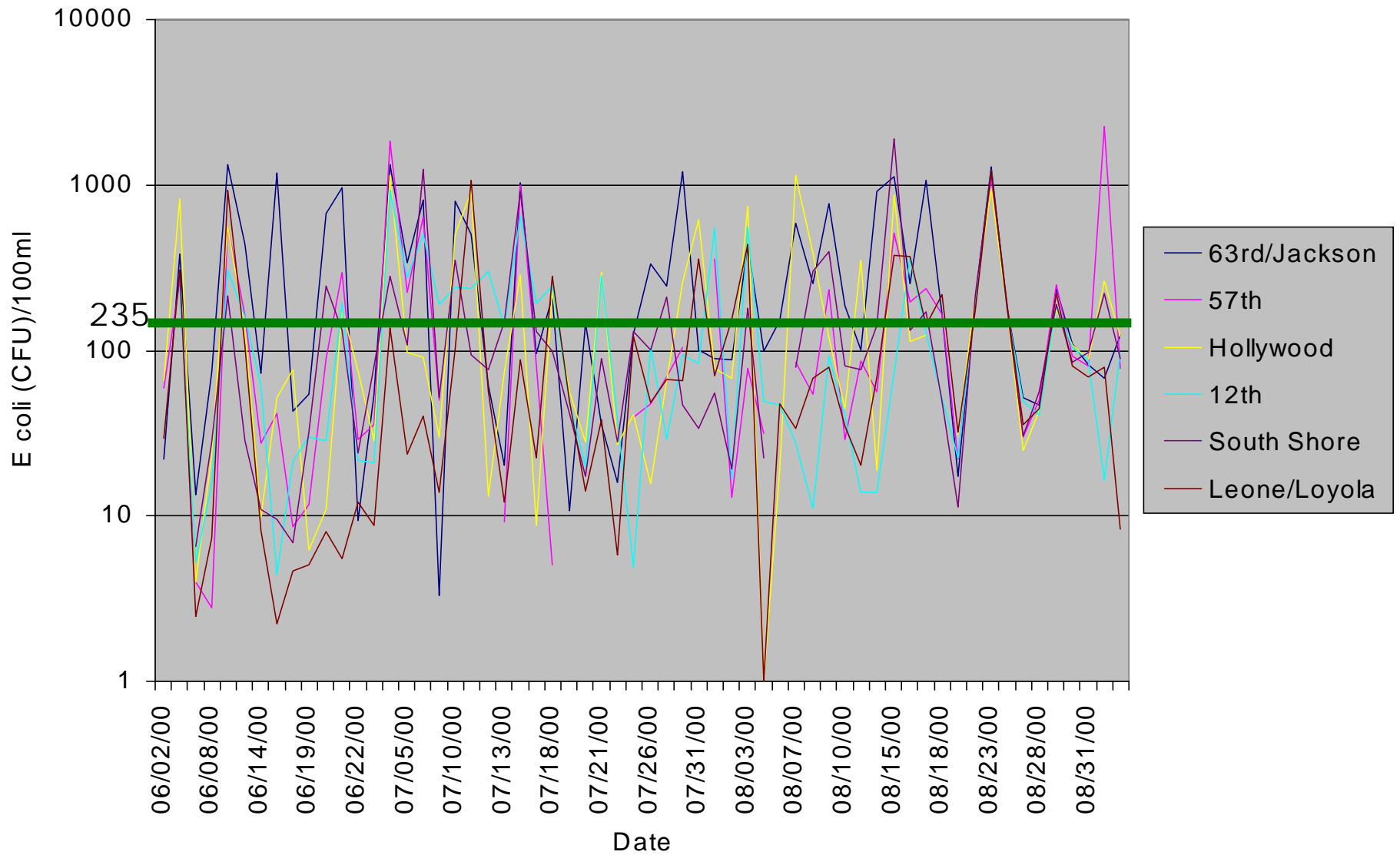
Summer 2000 *E. coli* Concentrations, Chicago Beaches



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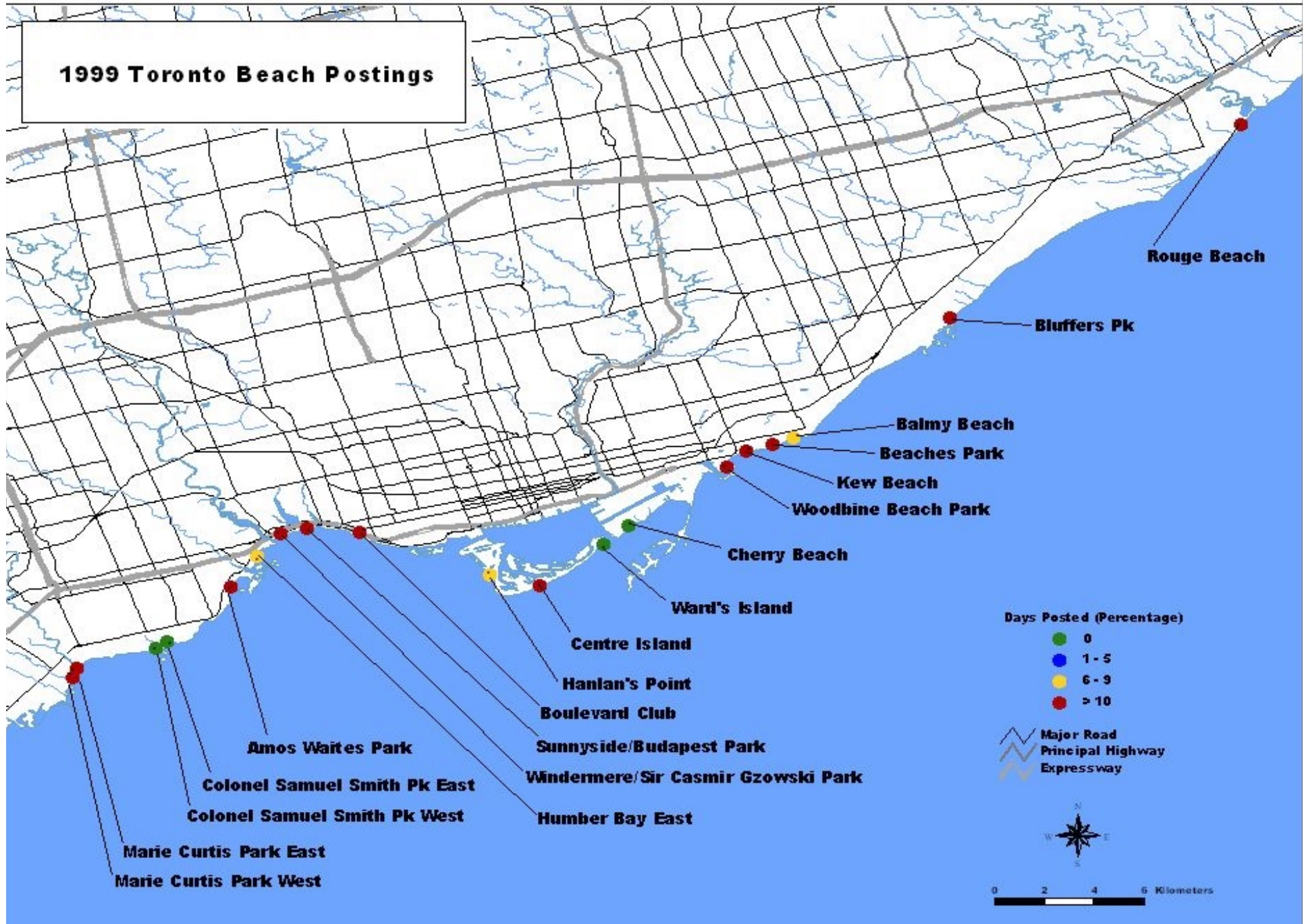
Summer 2000 *E. coli* Concentrations, Chicago Beaches



Illinois Cook County Lake Michigan Beaches

Year	Beaches with Swimming Advisories	Annual Rainfall	Comments
1981	30	39.2	LOCKS OPENED
1982	36	44.7	LOCKS OPENED
1983	36	49.4	LOCKS OPENED
1984	0	34.0	
1985	27	40.1	LOCKS OPENED
1986	2	31.7	POLLUTION/ DEEP TUNNEL OPEN
1987	36	41.4	POLLUTION
1988	0	33.4	POLLUTION
1989	22	29.5	POLLUTION
1990	14	43.1	POLLUTION
1991	13	35.0	LOCKS OPENED
1992	9	30.1	POLLUTION
1993	0	44.9	
1994	0	29.6	
1995	2	32.9	POLLUTION
1996	19	30.7	PRECAUTIONARY/POLLUTION
1997	20	31.7	
1998	8	37.5	SEWAGE
1999	27	38.2	E.coli/POLLUTION

1999 Toronto Beach Postings

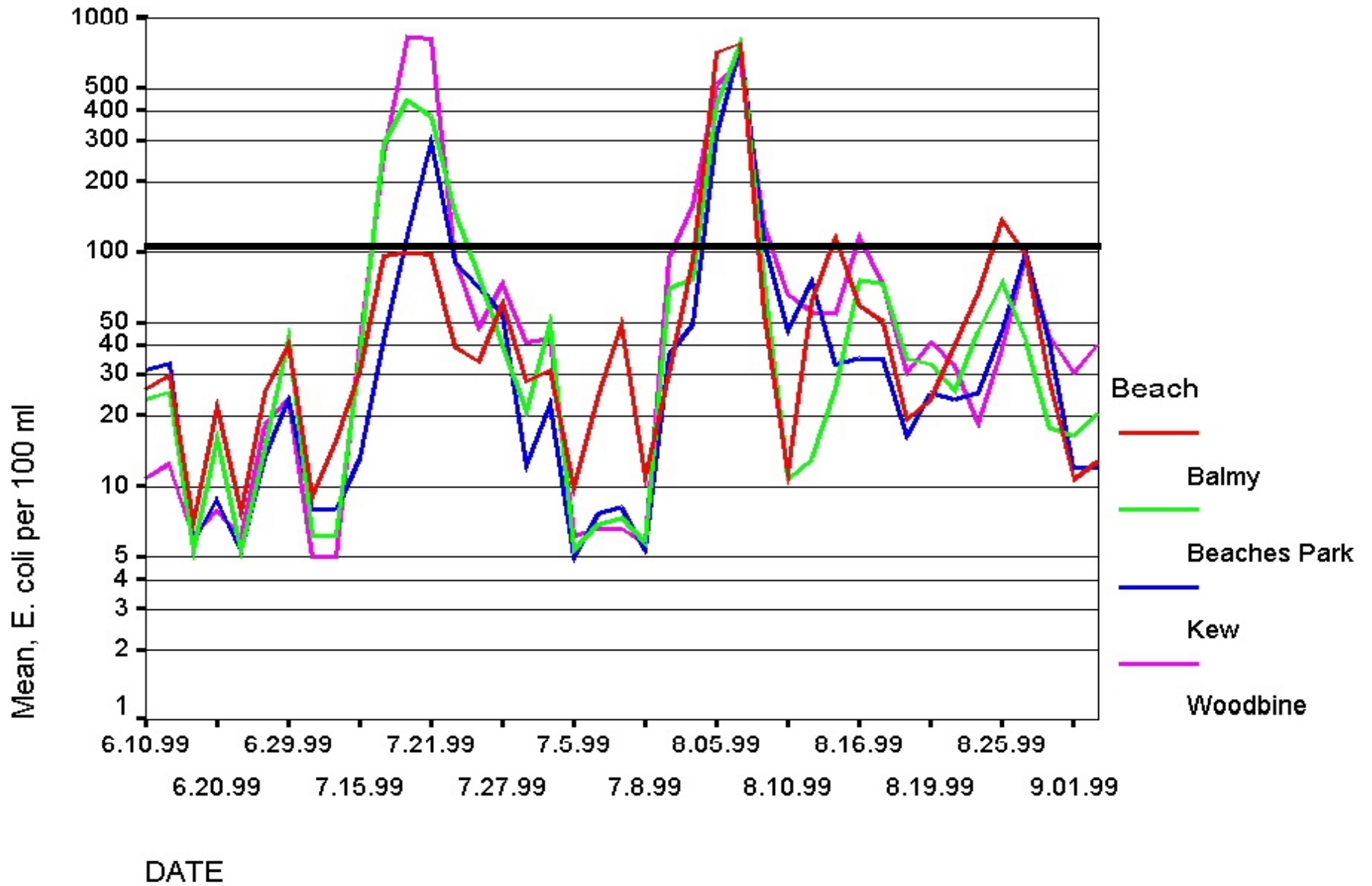


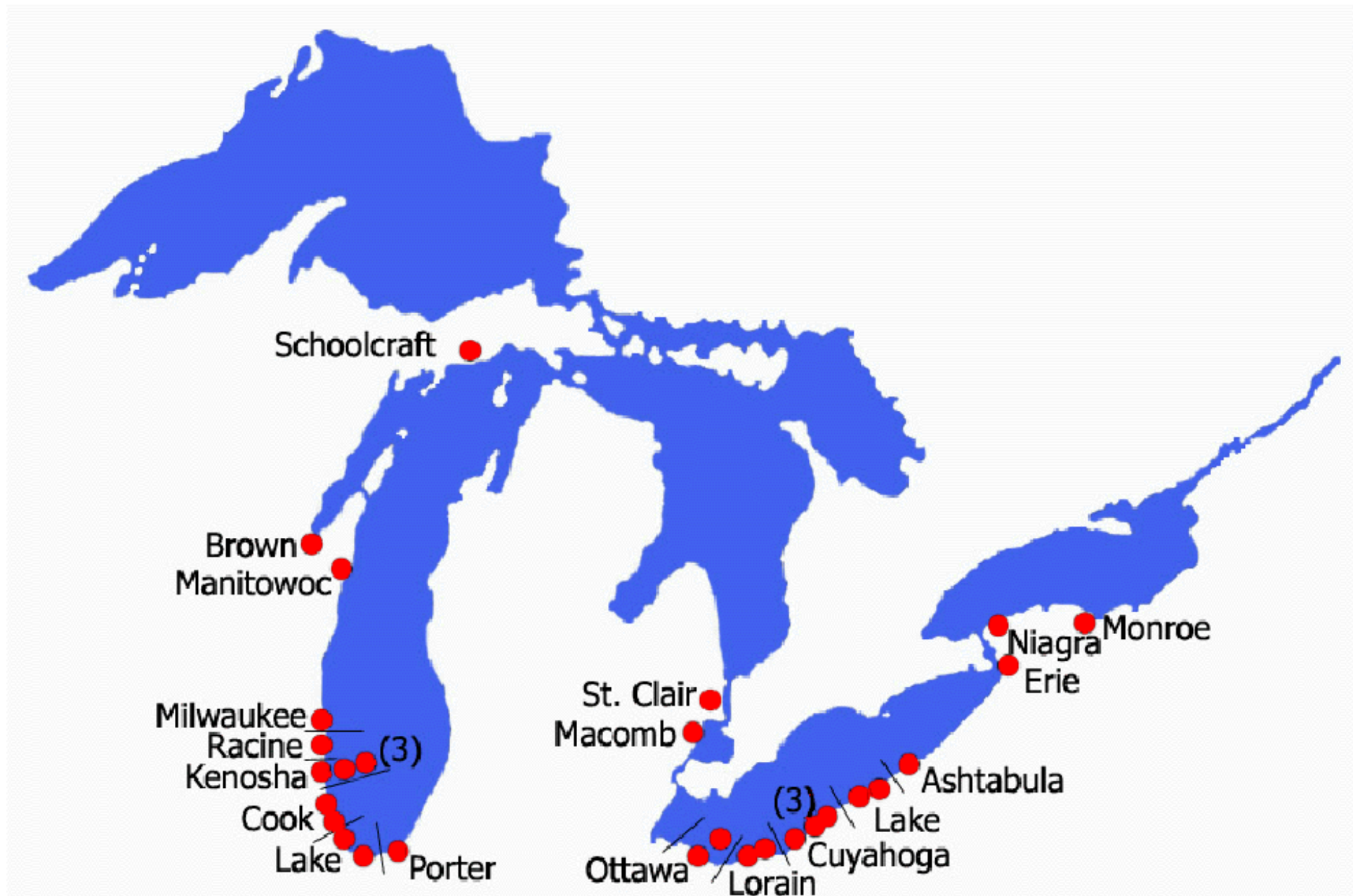
Toronto Point Source Contamination

- Identified direct source of contamination nearly eliminating beach advisories
- 2 tunnels installed to intercept/divert runoff from Eastern Beaches
- Western Beaches Tunnel will reduce postings by 75% (under construction)

E. coli at Eastern Toronto Beaches

Summer 1999





SUMMARY

- Universal adoption of *E. coli* testing standards
- Rapid testing procedures
- Standardized testing protocol
- Universal reporting of beach advisories

Conclusion

- The human health indicator for swimming advisories shows a mixed deteriorating state
- However, experience and data tell us that the indicator is mixed improving

Acknowledgments

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