

Can I Swim at the Beach?

Update on the Activities and Recommendations from the IJC Work Group on Beaches and Recreational Water Quality

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2010 Great Lakes Beach Association Conference



Outline

- GLWQA, Role of Advisory Boards
- Nearshore Priority
- 2007-2009 Charge from the Commission
 - Findings
 - Recommendations
- 2010-2011 Charge
- Outcomes/Benefits

1972 Great Lakes Water Quality Agreement

- Purpose:

- Control Pollution
- Measure Progress
- Research Problems

- identification and evaluation of emerging issues and future priorities

- Advisory boards

- Water Quality and Research (now Science) Advisory

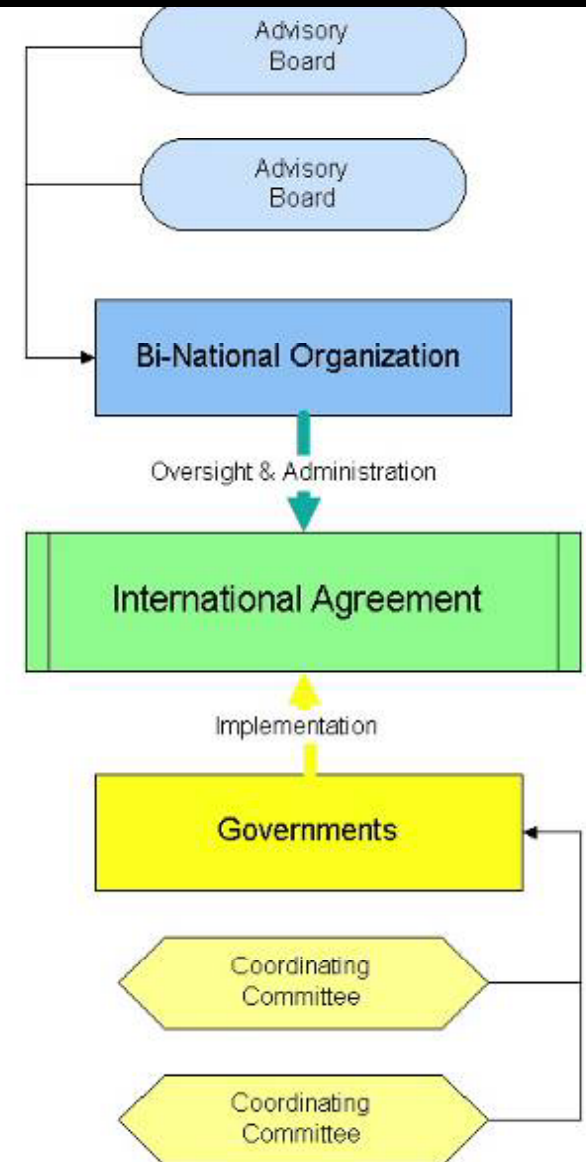
- Most recent revision: 1987 protocol

- New annexes - RAPs, LAMPs, non-point contaminant sources; contaminated sediment; airborne toxic substances; contaminated groundwater; and associated research and development



Oversight & Implementation

- The IJC and the Governments share common goals of the agreement, but have different responsibilities.
- The IJC monitors progress, provides advice and reports to the governments.
- The Governments are responsible for implementing the agreement.
- IJC reports are released to both the governments and the public; the IJC depends upon public opinion to compel government action.



International Joint Commission

United States Section

Lana Pollack, Chair
Irene B. Brooks, Commissioner
Sam Speck, Commissioner



Organization:

- 3 Commissioners per country (appointed)
- Staff in Washington, Ottawa and Windsor



Canadian Section

Joseph Comuzzi, Chair
Lyall Knott, Commissioner
Pierre Trépanier,
Commissioner

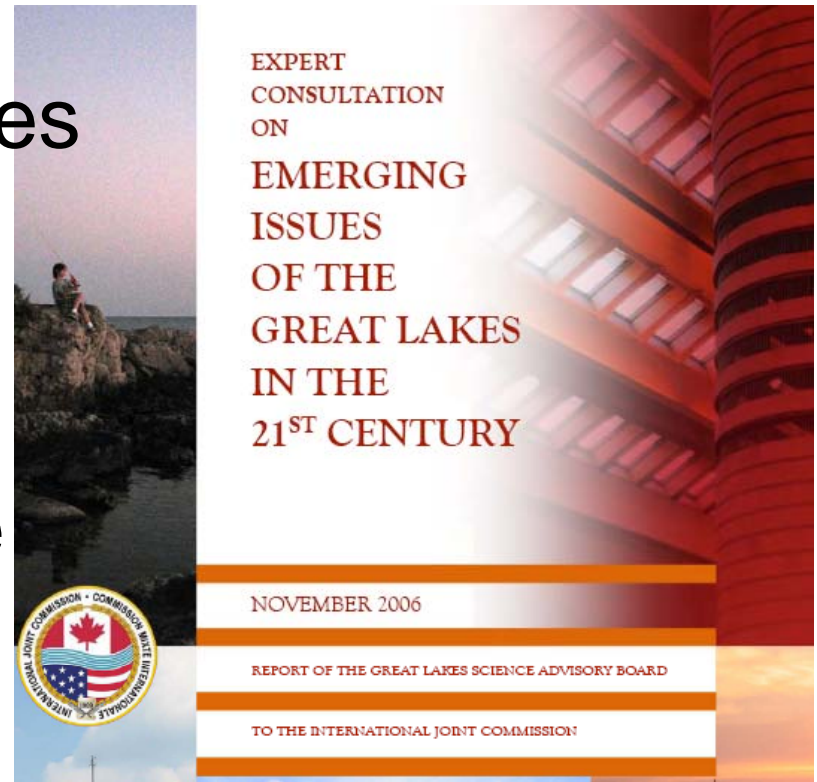


Two year “Priority” Cycles

- Charge to the Advisory Boards
- Work Groups
- Information Gathering
 - White Papers
 - Experts Consultation Meetings
- Recommendations
- Reporting out - Biennial Meetings

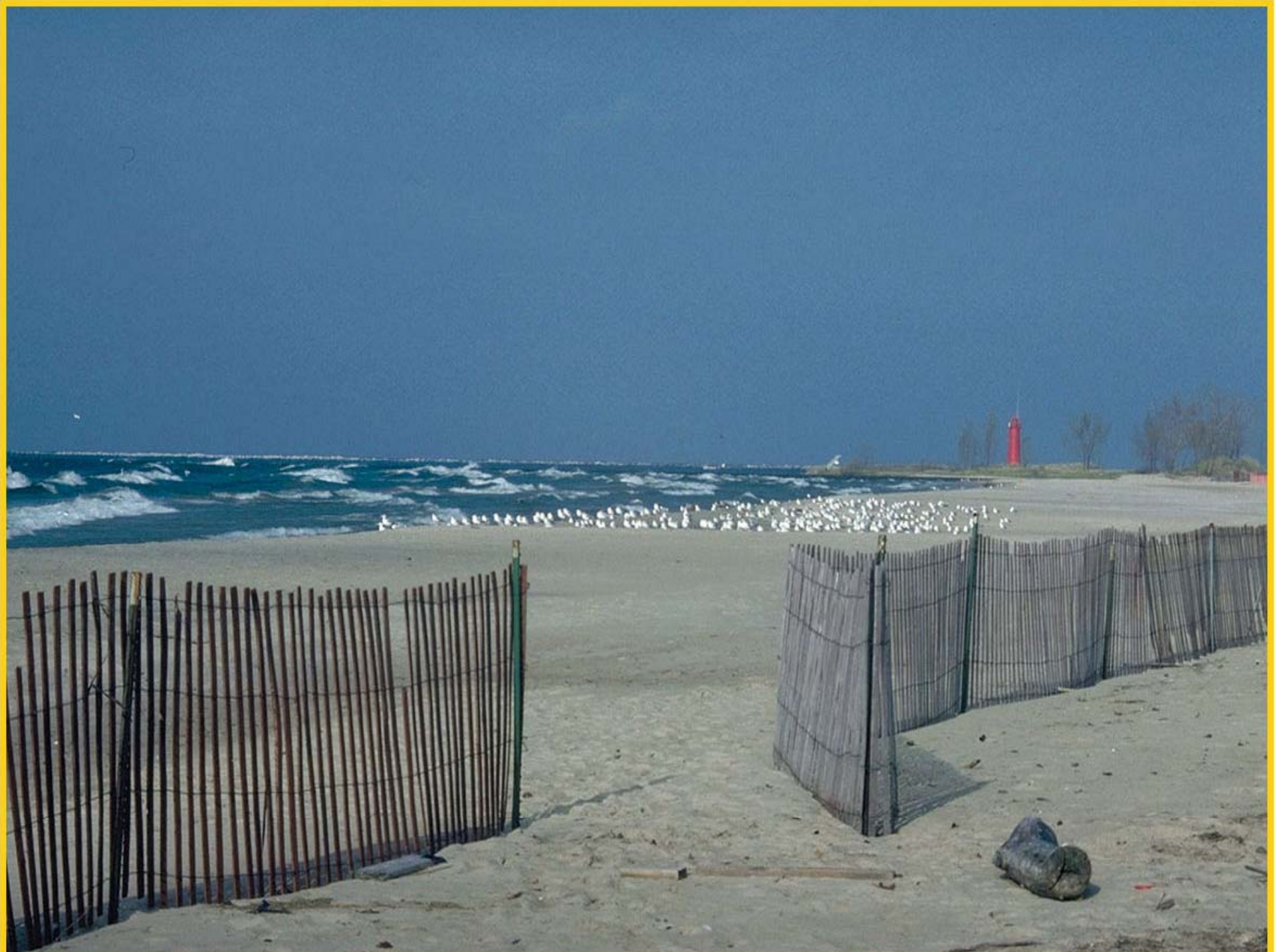
Nearshore Issues

- Post 1987 – focus on open waters of the Lakes
- Emerging nearshore issues
- Nearshore is where people interact with the Great Lakes
- *Drinkable, swimmable, fishable, breathable*



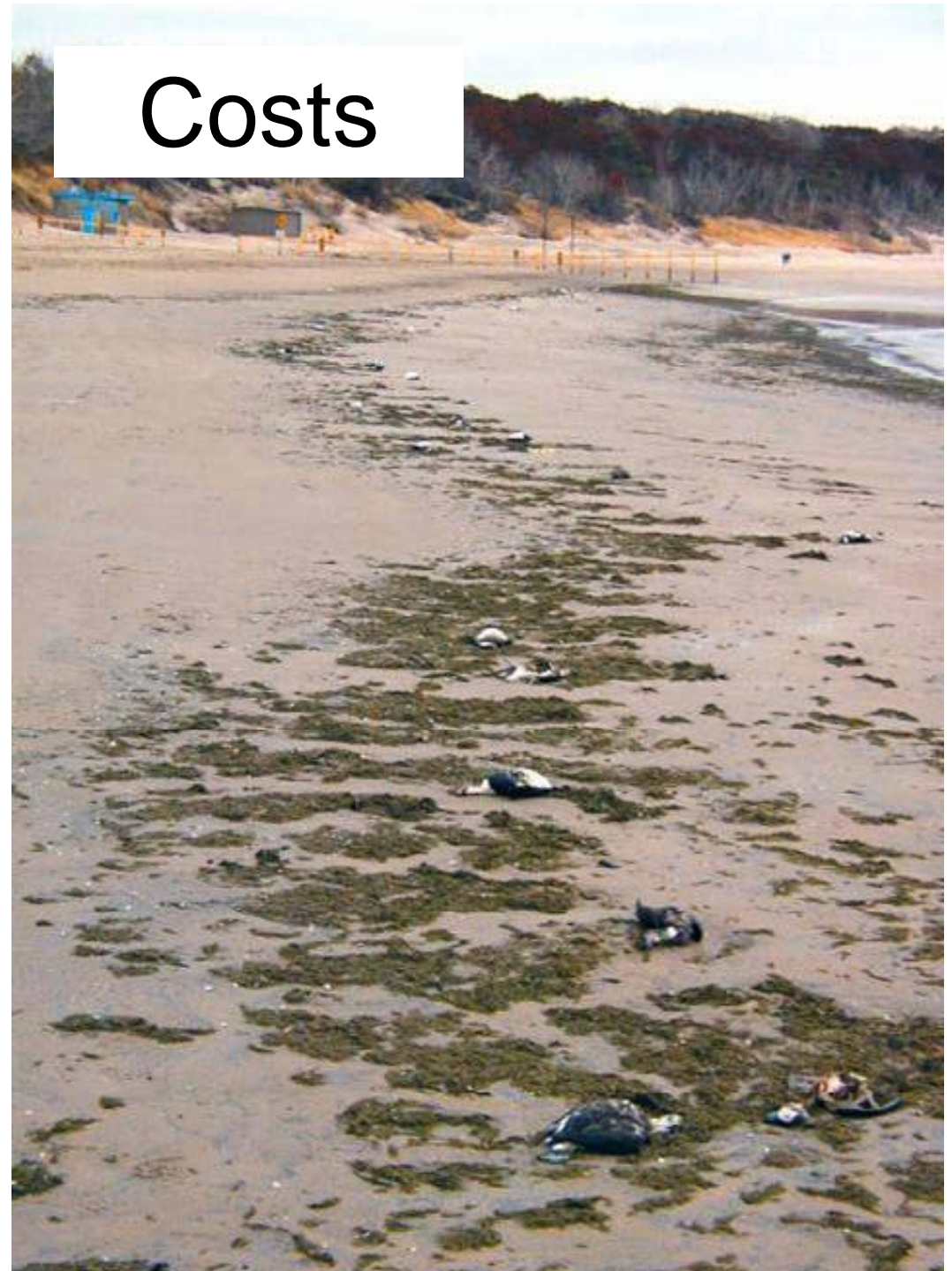








- ① Foul smelling beaches
- ① Loss of use & recreational dollars
- ① Citizen Complaints
- ① Habitat for toxic microbes that are a threat to pets and human health





Nearshore Priority (2007)

- **Beaches and Recreation Water Quality**

- Eutrophication

- Chemicals of Emerging Concern

- Fish Consumption (benefits vs risks)

- Aquatic Invasive Species

Cross-Cutting Issues

Climate Change

Groundwater

Land Use and
Population Growth

Multi-Board Workgroups (WQB, SAB, CGLRM,
IAQAB, HPTF)

Work Group Members

	WQB	SAB	CGLRM	IAQAB	HPTF	Other Experts
2007-2009	Dave Ullrich Lori Boughton Gary Gulezian (David Rockwell)	Richard Whitman Bill Taylor Scott Findlay John Carey Jeff Ridal	Dale Henry; Jim Nicholas Tim Fletcher		Marg Sanborn Patrick Levallois	Will Robertson
2010-2011	Lori Boughton Dave Ullrich Gary Gulezian (David Rockwell) Rita Cestarc	Richard Whitman Bill Taylor Scott Findlay John Carey (Tom Edge) Jeff Ridal	Tim Fletcher (Dale Henry) Norm Granneman	Ann McMillan	Marg Sanborn Patrick Levallois	Stewart Sweeney Greg Kleinheinz Gordon Yasvinski

IJC WG Secretary: **Doug Alley**

Beaches and Recreational Water Quality

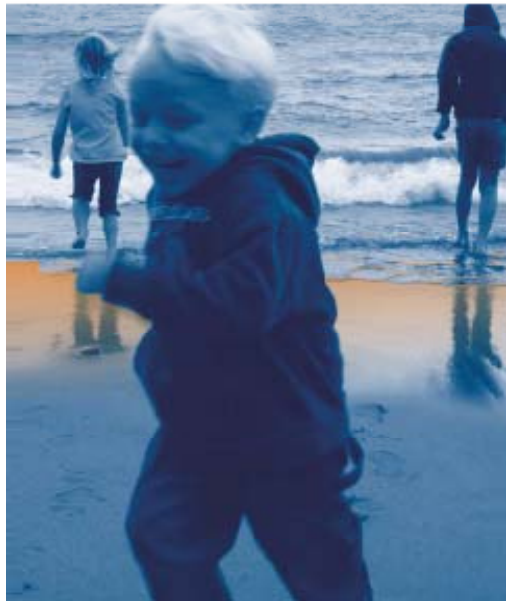
- 2007-2009 Charge
This collaborative priority will address GLWQA Annexes relating to recreational water quality issues and “swimmability” in the Great Lakes basin.
- Current monitoring programs adequate?
- Sources of FIB in the Great Lakes?
- Indicators appropriate?
- Beach Management practices?
- Economic Impacts?

Beaches and Recreational Water Quality

- White papers :
 - *Policies and Practices of Beach Monitoring in the Great Lakes:* (R. Whitman and M. Nevers)
 - *Fecal Indicator Monitoring: Advantages, Disadvantages, and Steps Toward Refinement* (T. Scott)
 - *Issues Related to Inconsistent Water Quality Criteria Applications at Great Lakes Beaches* (W. Robertson)
 - *Local economic effects of impaired recreational water quality* (S. Shaikh, Univ. Chicago)
 - The burden of illness related to microbiological contamination of recreational water/HPTF white paper
- Meta analysis of nowcasting/forecasting studies (S. Findlay –UOttawa)

2007-2009 Report

Great Lakes Water Quality
AGREEMENT
PRIORITIES 2007-09 SERIES
**Work Group Report on Beaches
and Recreational Water Quality**



What is a "Priority?"

Because the Great Lakes Water Quality Agreement (GLWQA) focuses on a wide variety of water-quality issues facing the Great Lakes Basin Ecosystems, the Commission created a GLWQA "Priority" setting process to focus on what it considers the most pressing issues. The Commission and its advisory bodies review and revise these Priorities as needed every two years. After receiving input from the public on its Priorities work, the Commission prepares Biennial Reports to governments on the status of Great Lakes water quality.

A century of
cooperation
protecting our
shared waters

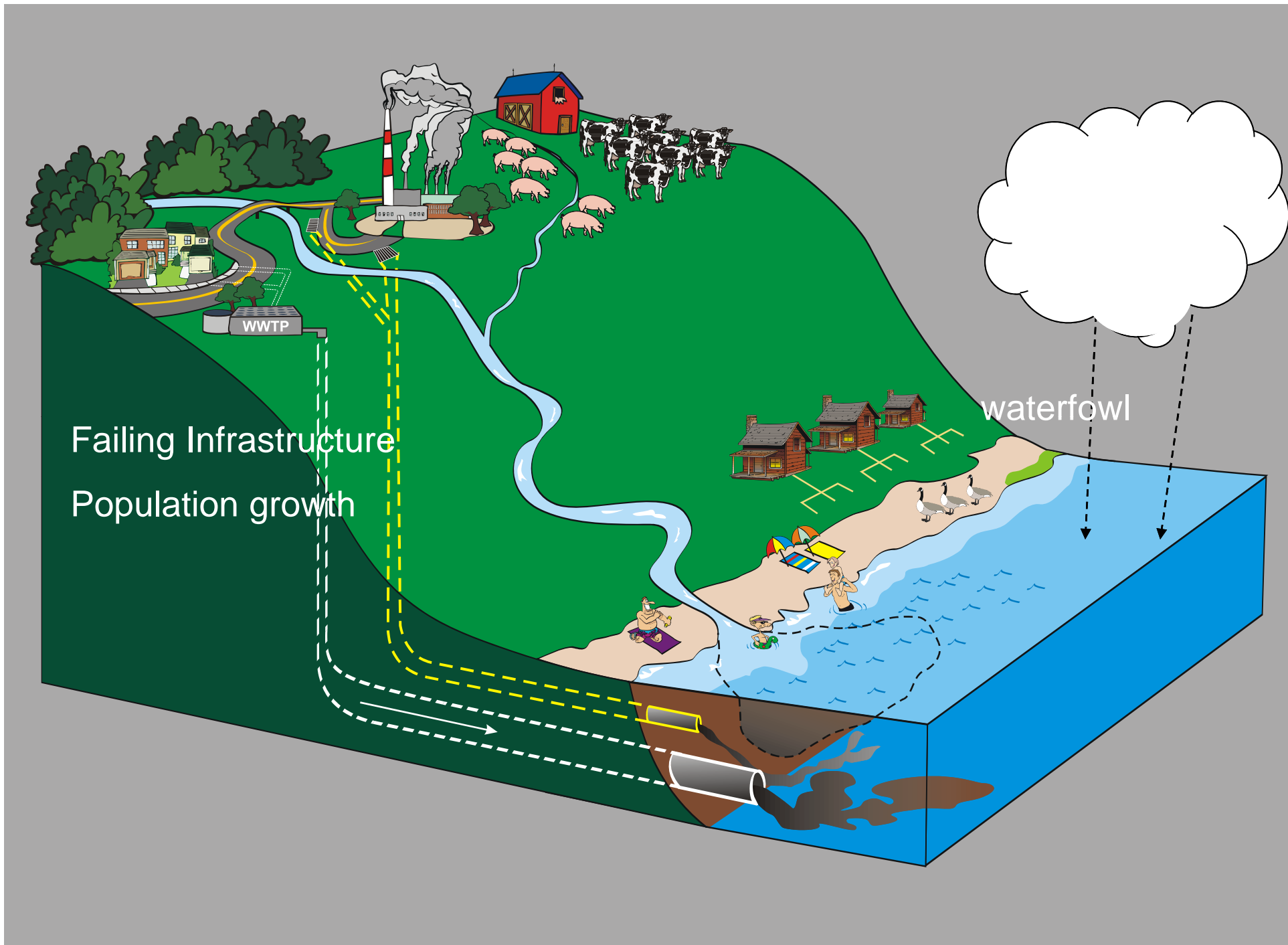


Un siècle de
collaboration à
protéger nos
eaux communes

<http://meeting.ijc.org/>

Key Findings (monitoring & indicators & management)

- Different sampling protocols and criteria for posting beaches across the basin (8 states and 1 province)
 - sampling depth, time of day, numbers of samples
 - difficult to compare Great Lakes recreational water from advisories
- reliability of FIB indicators? (adapted E. coli populations, wildlife and waerfowl sources)
- Nowcasting and forecasting methods
 - Limited information on predictive power
 - very few “head to head” comparison with persistence models
- Success with innovative management practices
 - A need to adopt more widely preventative risk management approaches



Key Findings (Human Health)

- Information relating human health and Great Lakes beach exposure is very sparse
 - since 1978, only one recorded outbreak has been associated with the recreational use of Great Lakes water (WBDOSS)
 - No Canadian equivalent → local Ontario Health Units
- Growing body of research related to microbial source tracking → but the health risk to humans associated with this information is still largely being inferred
- health risks of adapted *E. coli* populations?

Key Findings (SocioEconomics)

- More than 60 million people visit Great Lakes Region provincial and state parks every year
- Impaired recreation water quality can have significant economic impacts
 - a “typical swimming day” at one beach is \$30 per person (Dorfman and Rosselot 2008), majority of beach \$\$ goes into local economies
 - Beach postings due to bacterial contamination or nuisance algae are also known to decrease lakefront property values.
 - High priority for local governments - across the Great Lakes-St. Lawrence region invest \$138.7 million in beaches (Great Lakes Commission 2008)

Recommendations to the IJC – 2009 Report

- Establish binational programs to
 - standardize basin-wide surveillance and monitoring protocols.
 - standardize criteria for beach postings.
 - develop a systematic, centralized and timely way to evaluate and report waterborne illness in the Great Lakes and track what is happening on the local, regional, state, provincial and federal levels.

Recommendations to the IJC – 2009 Report

Prioritize research that will:

- determine sources of contamination, especially non-point sources, the human versus non-human contributions and the resulting risk to human health.
- develop novel indicators of human fecal contamination that are rapid and reliable
- carry out head to head comparisons of now/forecasting models versus the persistence model at a set of Great Lakes beaches that span the full range of ambient conditions.

Two of the issues that emerged that require further review are:

- the relationship between *fecal indicator bacteria (FIB)* from birds, other wildlife and livestock and human health effects at beaches in the Great Lakes region, and
- beach improvement activities, including beach-scale and broader-scale actions, related to wildlife deterrence at beaches



2009-2010 Beach Quality WG

White Papers:

- *“Livestock as a source of pathogen contamination of beach water in the Great Lakes”* Colleen M. McDermott
- *“Avian Impacts on Recreational Water Quality”* Greg Kleinheinz and Kimberly Busse
- *“Cladophora as a Source and Sink of Fecal Indicator Bacteria and Pathogens in the Great Lakes”* Satoshi Ishii and Michael Sadowsky
- *“Waterborne Pathogens and Indicators: An Overview of Sources, Persistence and Associated Human Health Risk Potential”* R.M. Slawson
- *A Review of Best Management Practices Benefiting Great Lakes Recreational Waters: Current Success Stories and Future Innovations”* Adrian Koski and Julie Kinzelman



Second Order Science Study

- Pilot study: relationship between presence of wildlife and human health at beaches (Fossani, Whitman, Findlay)



Beach Quality WG

- “Expert consultation at Great Lakes Beach Conference, October 2010
- “What is the state of the science and preferred risk management tools for protecting the health of beach visitors in the Great Lakes Basin?”

Outcomes/Benefits



- IJC provides a unique bi-national forum
 - basin-wide perspective and comparison
 - Added profile during renegotiation of GLWQA
- Additional spotlight and pressure on water recreation/ beach issues to governments
 - Documented research needs and information gaps
 - New projects and initiatives
 - Additional tools for managers
 - governments on both sides of the border moving toward improved water recreation practices (rapid methods, model development, etc)