

# ***BACTERIAL QUALITY OF WATERS NEAR PRESQUE ISLE***

***A COMPILATION OF RELEVANT PUBLICATIONS  
1987-2007***

Divisions of Public Health Preparedness & Environmental Health  
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This compilation was prepared in advance of the "Our Lake, Our Future Research Symposium" at the Tom Ridge Environmental Center, May 17-18, 2007. Questions or comments can be directed to Jeff Quirk (Epidemiologist) or Scott White (Environmental Supervisor) at 451-6700.



Title: Water pollution in Presque Isle Bay and Lake Erie waters near Presque Isle State Park

By: Ad Hoc Water Quality Study Committee to the Erie County Water Resources Commission

Publication Date: September, 1987

Locations: Blasco Memorial Library & Erie County Department of Planning

Call number: TD 225.P7E76 1987 REF

Description: The committee reviewed the most recent information available on the quality of Presque Isle Bay and Lake Erie waters and also examined the activities of the various public agencies responsible for monitoring and protecting the integrity of those waters. The committee summarized what they found to be the most significant pollution problems in the Bay and Peninsula waters, identified the major administrative needs for continued monitoring, preservation, and improvement of water quality, and made recommendations regarding what steps should be taken in the future.

Title: Harbor development and environmental quality: the next 20 years. International Joint Commission Science Advisory Board workshop, February 24-26, 1988.

By: Pat Lupo, O.S.B.

The workshop and recorded proceedings were funded by the PA Department of Environmental Resources, Division of Coastal Zone Management, Erie County, and the Erie Area Chamber of Commerce.

Publication Date: May, 1988

Location: Erie County Department of Planning

Call number: GC1021.P4 1988 REF

Description: This publication presented seminar proceedings and additional material from a three-day science advisory board workshop held in Erie. The workshop included meetings, presentations, general sessions, roundtables, and a concluding press conference. Selected topics included the identification and status of pollution problems in Presque Isle Bay and adjacent Lake Erie waters. Over 100 participants attended the event, representing local and state governments, regulatory agencies, and a variety of business, development, industrial, and environmental interests.

Title: Presque Isle State Park bathing beach contamination investigation: year 1

By: Erie County Department of Health

The following agencies and organizations provided assistance with the study: Erie County Department of Health; PA Department of Environmental Resources, Division of Coastal Zone Management; PA Department of Environmental Resources, Bureau of Laboratories (including Erie Laboratory); PA Department of Environmental Resources, Bureau of State Parks; Pennsylvania State University, Behrend College; Gannon University; Villa Maria College.

Publication Date: May, 1989

Location: Erie County Department of Planning

Call number: GB454.B3P74 1989 REF

Description: This study was the first in a series of three comprehensive investigations completed under the leadership of the Erie County Department of Health to determine the sources of periodic high fecal coliform counts that caused recent bathing beach closures at Presque Isle State Park. The report consisted of literature searches, a review of existing data, field surveys, water quality analyses, and recommendations based on the findings. Data collection was performed in 1988.

Title: Presque Isle State Park bathing beach contamination investigation: year 2

By: Erie County Department of Health

The following agencies and organizations provided assistance with the study: Erie County Department of Health; PA Department of Environmental Resources, Division of Coastal Zone Management; PA Department of Environmental Resources, Bureau of Laboratories (including Erie Laboratory); PA Department of Environmental Resources, Bureau of State Parks.

Publication Date: February, 1990

Location: Erie County Department of Planning

Call number: GB454.B3P74 1990 REF

Description: This investigation was a continuation of the original beach contamination study. Data collection was performed in 1989.

Title: Presque Isle State Park bathing beach contamination investigation: year 3

By: Erie County Department of Health

The following agencies and organizations provided assistance with the study: Erie County Department of Health; PA Department of Environmental Resources, Division of Coastal Zone Management; PA Department of Environmental Resources, Bureau of Laboratories (including Erie Laboratory); PA Department of Environmental Resources, Bureau of State Parks.

Publication Date: March, 1991

Location: Erie County Department of Planning

Call number: GB454.B3P74 1991 REF

Description: This investigation was a continuation of the year 1 and year 2 beach contamination studies. Data collection was performed in 1990.

Title: Presque Isle Bay, our place in the Great Lakes basin: Erie harbor and Great Lakes action. Erie Harbor Improvement Council public information workshop, April 19, 1991.

By: Erie Harbor Improvement Council

The workshop and workshop report were funded by the PA Department of Environmental Resources, Division of Coastal Zone Management and Edinboro University of Pennsylvania.

Publication Date: April, 1991

Location: Erie County Department of Planning

Call number: TC225.P7E7 1991 REF

Description: This report presented the proceedings and relevant supplemental material from a one-day public information workshop held in Erie. The workshop reviewed both the progress of the Erie Harbor Improvement Council over the previous 18 months, and the recent designation of Presque Isle Bay and its adjacent waters as a Great Lakes area of concern. The format included presentations, a question and answer panel forum, and a concluding plenary session. Over 60 participants attended the event, representing local, state and international interests.

Title: Presque Isle Bay ecosystem study: background report

By: PA Department of Environmental Resources

Potomac-Hudson Engineering, Inc. (Bethesda, MD) prepared this plan for the PA Department of Environmental Resources.

Publication Date: June, 1991

Location: Erie County Department of Planning

Call number: QH541.5.L3P68 1991 REF

Description: This report was prepared to determine which actual and/or potential beneficial uses of Presque Isle Bay were impaired. The report provided a synthesis of the available data and other existing information, and sought to determine the causes of the indicated impairments. Included is a detailed review and discussion of two studies from 1986 and 1990 that investigated fecal coliform water quality data at locations throughout the Bay where water access was readily available from the shore. Based on the findings from these two studies, no impairment of water contact recreation use was indicated (i.e., beach closing guideline). This conclusion was later modified in the formal 1992 remedial action plan.

Title: Presque Isle Bay remedial action plan

By: PA Department of Environmental Resources & Presque Isle Bay Public Advisory Committee

Publication Date: December, 1992 (submitted in 1993)

Location: [http://www.epa.gov/glnpo/aoc/presque/PIB\\_RAP-1992.pdf](http://www.epa.gov/glnpo/aoc/presque/PIB_RAP-1992.pdf)

Description: This plan was prepared as a requirement from the 1991 designation of Presque Isle Bay as an area of concern under the Great Lakes Water Quality Agreement. The document presented a comprehensive plan to identify and alleviate the pollution and resulting environmental impacts in the Bay. Included is a slightly expanded section from the Presque Isle Bay ecosystem study (1991) regarding water contact recreation use impairment (i.e., beach closing guideline). It was concluded that no major impairment of this use existed in the Bay based on fecal coliform water quality data, but it was noted that there was limited or partial impairment at the mouth of Mill Creek Tube and possibly at other creek and stormwater inputs to the Bay.

Title: Analysis of water from Presque Isle State Park (Erie, Pennsylvania) for fecal coliforms

By: Sona N. Katti

This thesis was submitted in partial fulfillment of the requirements for the degree of Master of Science in Biology at Edinboro University of Pennsylvania.

Publication Date: 1994

Location: Baron-Forness Library, Edinboro University

Call number: Thesis Bio. 1994 K20a

Description: This exploratory study analyzed water samples for fecal coliforms from ten non-beach sites at Presque Isle State Park. Seven sites were areas exposed to Presque Isle Bay, and three sites were interior ponds. Sample collection took place during May-July, 1993.

Title: Fecal coliform loading to Lake Erie from four tributary streams

By: Erie County Department of Health

The following agencies and organizations provided assistance with the study: Erie County Department of Health; Gannon University Science Department; PA Department of Environmental Resources, Bureau of Laboratories, Erie Laboratory; PA Department of Environmental Resources, Division of Coastal Zone Management.

Publication Date: December, 1994

Location: Erie County Department of Planning

Call number: TC225.E7E75 1994 REF

Description: The purpose of this study was to examine streams as possible sources of water contamination which may affect the quality of the water in Lake Erie adjacent to Presque Isle beaches. Four small Lake Erie tributary streams immediately west of Presque Isle (Marshall Run, Waldameer Creek, Wilkins Run, Shorehaven Creek) were sampled in 1994 to determine fecal coliform and selected chemical loading to Lake Erie and the possible effects on Presque Isle beaches.

Title: Presque Isle Bay remedial action plan update

By: PA Department of Environmental Resources & Presque Isle Bay Public Advisory Committee

Publication Date: 1995

Location: [http://www.epa.gov/glnpo/aoc/presque/PIB\\_1995-RAP-Update.pdf](http://www.epa.gov/glnpo/aoc/presque/PIB_1995-RAP-Update.pdf)

Description: This publication was an update and revision of the original Presque Isle Bay remedial action plan (1992). Regarding water contact recreation use impairment (i.e., beach closing guideline), the report presented a brief summary of additional fecal coliform water quality data that was collected at three locations in Presque Isle Bay during a six-week period in 1993. No bacterial concentration exceedances were observed, and continued monitoring was recommended.

Title: Ground-water quality and flow at Presque Isle State Park, Erie County, Pennsylvania with emphasis on impacts from on-site sewage effluent disposal

By: Michael E. Moore, Pennsylvania Geological Survey

Publication Date: 1995

Location: Erie County Department of Planning

Call number: F157.E6M77 1995 REF

Description: During 1990-1992, the Bureau of Topographic and Geologic Survey of the PA Department of Environmental Resources investigated the physical and chemical nature of the ground-water flow system at Presque Isle State Park. A major focus of this study was to determine if the on-site sewage treatment and effluent disposal systems were responsible in part for the fecal coliform contamination that resulted in a series of bathing beach closures.

Title: Lake Erie area watershed Act 167 stormwater management plan

By: Erie County Department of Planning

Chester Engineers (Pittsburgh, PA) prepared this plan for the Erie County Department of Planning, and the project was funded jointly by Erie County and the PA Department of Environmental Protection.

Publication Date: June, 1996

Locations: Heritage Collection at Blasco Memorial Library & Erie County Department of Planning

Call number: TD 675.5.C341 1996 REF

Description: This three-volume engineering plan was prepared for Erie County in order to meet the requirements of the PA Storm Water Management Act (Act 167, 1978). The plan provided a foundation for future cooperative action to manage stormwater flows for municipalities within the watershed.

Title: Water quality monitoring study for the Lake Erie watershed

By: PA Department of Environmental Protection, Division of Coastal Zone Management

The Erie County Department of Planning in conjunction with the PA Department of Environmental Protection, Division of Coastal Zone Management and the Erie County Department of Health retained Malcolm Pirnie, Inc. (Buffalo, NY) to conduct this study.

Publication Date: September, 1996

Location: Erie County Department of Planning

Call number: TD 224.P4E75 1996 REF

Description: This four-volume study presented both historical data and the results from a 1995-1996 water quality survey (including fecal coliform levels) that was to be used as a baseline for the Lake Erie watershed. The survey focused on the Walnut Creek, Elk Creek, and Twelvemile Creek subwatersheds. A major objective of the study was to identify those parameters having the greatest potential to affect pollutant loading to Lake Erie.

Title: Recreational water quality impairments (bacterial levels and beach postings)

By: Beth Kwavnick & Joyce Mortimer, Health Canada

Publication Date: October, 1999

Location: Lake Erie Lakewide Management Plan (LaMP) Technical Report Series, Number 12, 1999

<http://www.epa.gov/glnpo/lakeerie/buia/beachpt1.pdf>

<http://www.epa.gov/glnpo/lakeerie/buia/beachpt2.pdf>

<http://www.epa.gov/glnpo/lakeerie/buia/beachpt3.pdf>

Description: This beneficial use impairment assessment report was prepared as a component of the Lake Erie Lakewide Management Plan (LaMP) status report (1999). The report included detailed technical and background information from 1992-1996 on bacterial level exceedances and jurisdictional criteria used to assess beach water quality in Canadian and American nearshore recreational waters along Lake Erie, including data for Presque Isle State Park beaches. The information in this report provided the basis for the impairment conclusions found in the status report.

Title: Lake Erie Lakewide Management Plan (LaMP) status report

By: Environment Canada and United States Environmental Protection Agency

Shannon Daher compiled and wrote this report on behalf of the Lake Erie LaMP Work Group.

Publication Date: 1999

Location: <http://www.epa.gov/glnpo/lakeerie/status/index.html>

Description: This document reported on the progress and status of the Lake Erie Lakewide Management Plan (LaMP). The Lake Erie LaMP is a binational plan that was endorsed by Canada and the United States in 1994 in accordance with provisions of the Great Lakes Water Quality Agreement. The report designated nearshore recreational water quality as impaired at beaches throughout the entire Lake Erie basin based on exceedances of *E. coli* and/or fecal coliform guidelines.

Title: Presque Isle Bay remedial action plan 2002 update

By: PA Department of Environmental Protection & Presque Isle Bay Public Advisory Committee

Publication Date: 2002

Location: [http://www.epa.gov/glnpo/aoc/presque/PIB\\_2002-RAP-Update.pdf](http://www.epa.gov/glnpo/aoc/presque/PIB_2002-RAP-Update.pdf)

Description: This publication represented the second update of the original Presque Isle Bay remedial action plan (1992), and included a recommendation that the Presque Isle Bay area of concern be designated in the recovery stage. Regarding water contact recreation use impairment (i.e., beach closing guideline), the report presented a brief summary of fecal coliform water quality data that had been collected monthly at a network station in the Bay near Dobbins Landing. Based in part on the favorable bacteriological findings, it was concluded that water contact recreation use was no longer partially impaired in the Bay.

Title: Monitoring and modeling to predict *Escherichia coli* at Presque Isle beach 2, city of Erie, Erie County, Pennsylvania

By: Tammy M. Zimmerman, U.S. Geological Survey

This study was completed in cooperation with the Erie County Department of Health.

Publication Date: 2006

Location: U.S. Geological Survey Scientific Investigation Report 2006-5159

<http://pubs.usgs.gov/sir/2006/5159/pdf/sir2006-5159.pdf>

Description: *E. coli* concentrations and various environmental and water-quality data were collected during 2004-2005 at Presque Isle beach 2. The data were used in regression analyses to develop 2004, 2005, and combined 2004-2005 beach-specific forecasting models of *E. coli* concentrations. This study provided a framework for the development of a quick and supplemental method of determining recreational water quality.

Title: Operation Creek Sweep - surface water *E. coli* assessment of major tributaries to the western portion of the Lake Erie watershed, Erie County

By: Ronald P. Lybrook, PA Department of Environmental Protection, Northwest Regional Office Watershed Management Program

The following agencies and organizations provided assistance with the study: PA Department of Environmental Protection; PA Department of Conservation and Natural Resources; PA Fish and Boat Commission; Erie County Department of Health; Regional Science Consortium; PA Sea Grant; Erie County Conservation District; Erie Area Convention and Visitors Bureau.

Publication Date: December 19, 2006

Location: PA Department of Environmental Protection, Northwest Regional Office Watershed Management Program (office telephone: 814-332-6984)

Description: This report documented the results from a 2006 three-phased assessment to identify potential fecal indicator bacteria sources that may be impacting Presque Isle beaches. The first phase (Creek Sweep) was a one-day event that encompassed three tasks: (1) collection of samples from beaches, streams, and stormwater control facilities; (2) an evaluation of regulated sewer discharges; and (3) a stream corridor assessment to identify illicit discharges. Creek Sweep results were compared to historic water quality data in the second phase, and the third phase focused on DNA PCR testing of samples from Elk Creek and Walnut Creek to determine whether the fecal indicator bacteria were from animal or human sources.

Title: Walnut Creek watershed environmental quality assessment (draft full report)

By: PA Department of Environmental Protection, Northwest Regional Office Watershed Management Program

Publication Date: March, 2007 (final report will be presented on May 23, 2007)

Location: PA Department of Environmental Protection, Northwest Regional Office Watershed Management Program (office telephone: 814-332-6984)

Description: This report presented the findings from the comprehensive Walnut Creek watershed assessment that was conducted during 2006. Included in the pathogenic bacteria assessment is a discussion of the bacterial monitoring and *Bacteroides* PCR testing results from Operation Creek Sweep.