Henderson Bay (0303-0022) Impaired Seg

Waterbody Location Information

Revised: 04/12/2007

Water Index No: Ont (portion 4a)
Hydro Unit Code: 04140102/ **Str Class:** A
Waterbody Type: Bay
Waterbody Size: 20.0 Acres
Seg Description: entire bay, see description

Drain Basin: Lake Ontario
Salmon R/Sandy Cr
Reg/County: 6/Jefferson Co. (23)
Quad Map: HENDERSON BAY (F-16-1)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Water Supply	Stressed	Known
Public Bathing	Stressed	Known
FISH CONSUMPTION	Impaired	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: PRIORITY ORGANICS (PCBs), PRIORITY ORGANICS (dioxin), PESTICIDES (mirex), Algal/Weed Growth, Nutrients, Pathogens
Suspected: - - -
Possible: - - -

Source(s) of Pollutant(s)

Known: TOX/CONTAM. SEDIMENT, On-Site/Septic Syst
Suspected: - - -
Possible: - - -

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/EPA **Resolution Potential:** Medium
TMDL/303d Status: 2b (Multiple Segment/Categorical Water, Fish Consumption)

Further Details

Fish consumption in Lake Ontario/Henderson Bay is impaired by contamination from the past/historic discharge of organics (PCBs, dioxin) and pesticides (mirex). In addition, water supply and various recreational (swimming, boating, fishing) uses in Henderson Bay are known to experience impacts/threats as a result of inadequately treated sewage discharges from the Hamlet of Henderson Harbor and failing and/or inadequate on-site septic systems serving cottage communities and seasonal homes along the bay.

Fish consumption in Lake Ontario (and all tribs to the first impassable barrier) is impaired due to a NYS DOH health advisory that recommends eating no American eel, channel catfish, carp, larger lake trout (over 25 inches), larger brown trout (over 20 inches) and chinook salmon and eating no more than one meal per month of white sucker, rainbow trout, smaller lake trout, smaller brown trout and larger coho salmon (over 25 inches) because of elevated levels of PCBs, dioxin and mirex. The advisory also recommends eating no more than on meal per month of white perch for portions

ROBERT P. WHALEN, M.D.
COMMISSIONER

STATE OF NEW YORK
DEPARTMENT OF HEALTH
DISTRICT OFFICE
STATE OFFICE BUILDING
317 WASHINGTON STREET
WATERTOWN, N. Y. 13601

January 16, 1979

Donald Chilton, P. E.
Consultant Engineer
105 Orchard Drive East
North Syracuse, New York 13212

Re: Proposed Henderson - Henderson Harbor Sewer District - Jefferson County

Dear Mr. Chilton:

This Department would endorse the establishment of a sewage treatment district in the Henderson - Henderson Harbor area.

The majority of the existing structures could not comply with Health Department regulations for on site sewage disposal systems since they are too close to the lake, have insufficient soil cover over rock and the lot sizes are too small to accommodate an adequately sized leach field.

Very truly yours,

Stephen E. Powers

Stephen E. Powers, P. E.
Acting District Engineer

cc: Mr. McCarthy - Syracuse Area Office

The history of the Town of Henderson and its pursuit to find a feasible solution to correct the sanitary waste problems dates back forty-five years. The Town has tirelessly been hopeful that the right funding package will come along to solve the problems in Henderson Harbor (Harbor) as well as the Hamlet of Henderson (Hamlet). Active reports have been submitted to the NYS Environmental Facilities Corporation (EFC) and NYS Department of Environmental Conservation (DEC) for funding consideration every year since 2001.

In February 2017, the Town hired GYMO Architecture, Engineering and Land Surveying, DPC and Blue Line Engineering, DPC to prepare a Map, Plan and Engineering Report, with the understanding that a fresh approach, alternative technologies and perhaps even, unchartered funding will be incorporated into the collection system as well as the treatment options. GYMO and Blue Line are challenged with delivering to the Town: a larger service area; a decreased construction cost; unconventional user cost calculation; and an innovative funding package that addresses the failing, illegal, inadequate subsurface sanitary systems that are all along Henderson Harbor and Stony Creek.

The varying degree of demographic between the Harbor and Hamlet has always been somewhat of a detriment for this project. The cost was too high for each area and would not gain the public support that was necessary to move the project forward. While the Town understands why this project has always been phased in the past, this too, was analyzed in a different light, since we are discussing trying to solve a real, water quality concern for the Town and the waterways of New York, while factoring in, and compensating for, the disparate demographics that exist in the Town.

The Town of Henderson has a Median Household Income (MHI) of ***$64,250 (2017 value obtained from EFC)*** and unfortunately, we cannot use that MHI for the entire project model since there is MHI data available for the two service areas from the same source. The Harbor has a MHI of $79,545 and the Hamlet (Henderson Census Designated Place (CDP)) has a MHI of $23,333. ***In 2020, G&G Municipal Consulting and Grant Writing completed an income survey for the proposed sewer district. The income survey reported a MHI of $45,001 for the 2019-2020 calendar year.*** As standalone districts, construction costs for conventional wastewater collection and treatment systems are too expensive and serve too small of a service area and have proven to not gain public support. Alternative user costs will also be considered within this report as well as innovative funding since both areas rely on one another for all that the Town has to offer its year-round residents as well as its seasonal residents.
Henderson Harbor is the home to many charter fisherman for nearly every freshwater fish, and this classic, maritime destination is also known for sailors as well as recreational boaters. Although there is no public beach within the Town boundary, swimming is as abundant here in front of many cottages and homes as any place along Lake Ontario and the St. Lawrence River. In 1993, the NYSDEC conducted a study and have documented illegal wastewater discharges into the Harbor. No studies since then have been done, but the typical life span of an average septic system is 20 years depending on the materials of construction, so one can surmise that more systems have failed or are failing since the '93 study. It is also documented that Henderson Bay is on the NYS Impaired Waterbody List, with known sources being on-site septic systems. To the best of our knowledge at the time of this report, no known public awareness of the public health concern has been made to the residents within the study area. With abundant bedrock and postage sized lots, coupled with Lake Ontario waters **exceeding** 100 year flood levels in 2017 **and 500-year flood levels in 2019**, there is inadequate space requirements and inadequate or no percolation for **existing subsurface sewage disposal systems and** replacement of existing systems.

These same design constraints hold true within the Hamlet. Many homes are on postage size lots with inadequate separation distances from neighboring properties. Stony Creek meanders through the Hamlet and during the spring thaw and runoff, the creek's water levels saturate properties on Water Street, Mill Street and Adams Road.

The following was obtained from correspondence (attached as Appendix C) from the NYS Department of Health – "The majority of the existing structures could not comply with Health Department regulations for on site sewage disposal systems since they are too close to the lake, have insufficient soil cover over rock and the lot sizes are too small to accommodate an adequately sized leach field."

of the lake east of Point Breeze. The source of organics/pesticides is contaminated lake sediments, the result of past/historic industrial discharges to the lake, the Niagara River and the Upper Great Lakes. The advisory for this lake was first issued prior to 1998-99. (2006-07 NYS DOH Health Advisories and DEC/DFWMR, Habitat, December 2006).

Sanitary surveys conducted by NYSDOH and NYSDEC in 1993 have confirmed household discharges to the bay. These discharges contribute pathogens as well as nutrients that result in excessive aquatic weed and algal growth, increased oxygen demand and a general decrease in water quality and aesthetics. Two municipalities (Village of Sackets Harbor and the Town of Henderson) currently draw water for public supply from the bay. In addition, a number of private users (motels, campgrounds, marinas, restaurants) have either installed filtration equipment or are on legal notice to do so. Protection of public bathing and recreation at Westcott Beach State Park and several small private beaches is of concern due to pathogens and aquatic weed growth. Some private beaches have already been closed due to environmental concerns. Aesthetic complaints regarding weeds and odors have been received. (DEC/DOW, Region 6, May 2007)

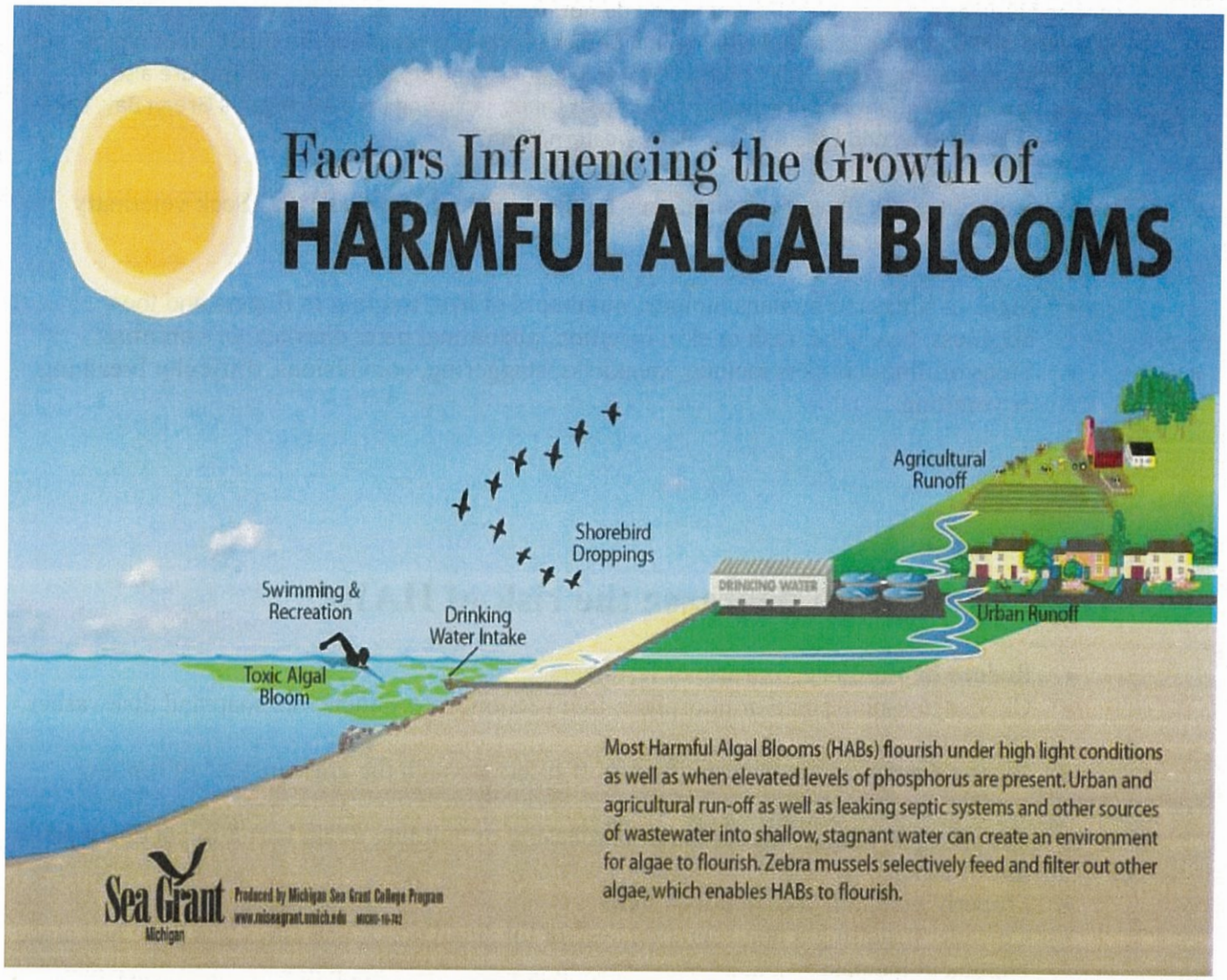
A sewer district to serve Henderson Harbor in the Town of Henderson remains in the planning stage. The town has hired a consultant (Bernier, Carr & Assoc, Watertown) to develop a revised preliminary engineering report to address sewage problems in the area. The 1993 sanitary survey will be used to help develop alternatives. However, costs are prohibitive and the project has stalled due to lack of adequate funding. (DEC/DOW, Region 6, May 2007)

The governments of the United States and Canada made a commitment in 1987, as part of the Great Lakes Water Quality Agreement (GLWQA), to develop a Lakewide Management Plan (LaMP) for each of the five Great Lakes. The Lake Ontario LaMP is a binational, cooperative effort that also involves a large number of local, statewide and federal partners. The goals of the LaMP are to restore and protect the health of Lake Ontario by reducing chemical pollutants entering the lake and addressing the biological and physical factors impacting the lake. The LaMP evaluates use impairments, identifies sources of the identified impairments and recommends strategies for resolution of the impairments and restoration of beneficial uses.

An outline of the most recent Lake Ontario LaMP activities and progress can be found in the Lake Ontario Lakewide Management Plan Status 2006 Report (www.epa.gov/glnpo/lakeont/2006/index.ht ml). The LaMP 2006 Status Report is the latest, comprehensive compilation of existing LaMP reports. The document contains new/updated information on the current status of beneficial use impairments, sources and loads of critical pollutants, public involvement and communication and significant ongoing and emerging issues. (DEC/DOW, BWAM/WQM, January 2007)

This waterbody is included on the NYS 2006 Section 303(d) List of Impaired Waters. The lake is included on Part 2b of the List as a Fish Consumption Water.

This segment includes the waters of the bay south of a line from the eastern point of Association Island east to the western point of the mainland just east of Horse Island. The waters of the bay are Class A.



What causes HABs?

Harmful algal blooms do naturally occur in the Great Lakes but have increased since the mid-1990s (see the timeline below for a full picture of HABs in Lake Erie). Blue-green algae thrive in conditions with excess phosphorus or nitrogen, which can come from sources like malfunctioning septic systems, household or industrial detergents (though modern products now use less phosphorus), lawn fertilizers, and urban and agricultural runoff. Blooms are also more common in warm, sunny, calm waters. The blooms often persist for several weeks to a few months, depending on air and water temperature, sunlight, water flow, and naturally occurring bacteria levels. Some scientists also link the increase of HABs to the invasion of zebra and quagga mussels in the Great Lakes. These filter-feeding mussels eat good algae and release blue-green algae back into the water intact.

Algae are naturally occurring plants that grow in water. When algae grow extremely rapidly in a confined area or grow to the point where you do not need a microscope to see it, it is referred to as an algal bloom. Blooms can be found within most bodies of water throughout the Great Lakes region, but they thrive in shallow, warm, still bodies of water like ponds and smaller lakes. Blooms are also becoming more frequent in some parts of the Great Lakes, including Lake Michigan's Green Bay, Lake Huron's Saginaw Bay, and Lake Erie's shallow western basin.

If anyone becomes ill after swimming, seek medical attention immediately. Seek veterinary assistance if a pet appears ill.

- Signs of illness in humans include: numbness of lips, tingling in fingers and toes, dizziness, headache, rash or skin irritation, abdominal pain, diarrhea, or vomiting.
- Signs of illness in pets include: weakness, staggering, convulsions, difficulty breathing, or vomiting.

What can I do to decrease the risk of HABs?

- Reduce or eliminate your use of fertilizers.
- Choose low-phosphate or phosphate-free versions of products like soap and dishwasher detergent.
- Wash your car on the lawn so the runoff filters through the grass instead of running straight to the gutters.
- Consider planting a rain garden or purchasing or building a rain barrel to cut down on runoff.
- Properly maintain your septic system.
- Consider installing a pond aeration system for small ponds and lakes that have had algae blooms in the past.

https://www.epa.gov/nutrientpollution/issue

Many factors can help phytoplankton grow quickly, or bloom:

- **Levels of nutrients** such as phosphorus and nitrogen increase in water. Nutrient pollution sources include:
  - Fertilizer (for example, from home lawns and agricultural land)
  - Sewage from people and animals
  - Run-off from cities and industrial buildings

Too much nitrogen and phosphorus in the water causes algae to grow faster than ecosystems can handle. Significant increases in algae harm water quality, food resources and habitats, and decrease the oxygen that fish and other aquatic life need to survive. Large growths of algae are called algal blooms