

KWIC BACKGROUND DOCUMENTS 1986 -2008

October 20, 1986

Perimeter Committee Members

Dear Perimeter Committee Members:

The Watershed Inspector has completed a report of the activities and inspections for the watershed in his yearend report which is enclosed for your information.

At the perimeter committee meeting held October 7, 1986 in Hammondsport, there were items mentioned that the members requested information on in regard to the watershed.

The items mentioned were: anticipated budgets, inspection fees, actual budget and percentages charged to each township.

The Penn Yan Municipal Board has notified the perimeter committee members what the anticipated budget for the ensuing year would be in the annual report to the members. The letter of October 25, 1985 stated that the anticipated budget for the ensuing year would be \$36,400.00. The actual budget for 1985-1986 year was \$35,917.40.

The anticipated budget for the ensuing year of 1986-87 will be approximately \$37,100.00.

The members also remarked, that a possible fee for the property owners that actually use the services of the watershed inspector. The Penn Yan Municipal Board worked up a possible fee cost for the inspector. The possible fee schedule was discussed at the municipal meetings which the committee members were invited to attend. One member attended the meeting. The member of the perimeter committee that attended the meeting was of the opinion that the fee schedule proposed by the municipal board would not be fair and that the fees to be charged would be a form of double taxation. After many discussions and lack of interest by the perimeter committee members, the municipal board tabled the proposed fee schedule.

The members of the perimeter committee desire to have the cost for operation of the watershed by budget items. Enclosed you will find the breakdown of the cost for the watershed operations by budget items.

The percentage of the watershed cost to each township was set by the Village of Penn Yan Attorney and the members of the perimeter committee. The percentages that each entity are billed at were changed proportionately when the Town of Wayne and the Town of Pulteney withdrew from using the Village of Penn Yan's Watershed Inspector. Attorney Taylor will update the committee members how the percentage charge to each township are calculated.

The combined efforts of the Perimeter Committee Members in the past have kept Keuka Lake as it is today and it will take the combined efforts of the members in the future to continue to keep it clean for the water needs of those who depend on it.

Sincerely,

PENN YAN MUNICIPAL BOARD

Wesley G. Ryder
Utilities Manager

WGR:js

October , 1986

Dear Sir:

As in the past, 1986 was a very busy year. Both the lakeshore and the adjoining hillside saw major construction this year. The number of inspections are up this year as is new construction. Violations and complaints are down from previous years. A summary sheet will be sent so you can compare your town with others involved in the program.

A new concern to all of us is the development of the adjoining property around the lake. As we see farm land bought and the land developed into housing, our main concern is erosion problems. As trees are cut and the vegetation stripped from the site, a two or three day rain can create a silt problem along the lakeshore. This is something that should be looked into. Maybe if there was a clause on a building permit saying that if there's an erosion problem that an individual is liable to correct the problem.

If there are any questions, please call the office.

Respectfully yours,

PENN YAN MUNICIPAL BOARD

William G. Mahrt
Watershed Inspector

SUMMARY - WATERSHED REPORT

Year Ending 8/31/86

Ownership	No. of Inspections	Work in Progress	Violations	Technical Violations	Installations OK	Violations Abated	New Construction	Violations Abated	Complaint
Alto	160	42	2	2	93	2	20	0	1
Barrington	160	26	2	4	119	2	10	0	1
Jerusalem	360	75	3	1	228	3	51	0	4
Urbana	255	57	2	3	158	2	32	0	7
Totals	935	200	9	10	598	9	113	0	13

Village of Hammondport being in the Township of Urbana, inspections covering this area are combined

Work in Progress - Consists of new construction and corrections of violations

Violation - Definite violation of regulations

Technical Violation - Not conforming to regulations but working property at time of inspection

New Construction - New installations

Total Water Courses Patrolled - 32

YATES COUNTY

WATERSHED PROTECTION REGULATIONS

D R A F T O U T L I N E

POLICY: The uncontrolled use of watersheds in Yates County, New York affects the public health, safety and welfare not only by contributing to pollution of public waters, but by impairing the local tax base. Therefore, it is in the best interests of the public health, safety and welfare to provide for the wise development of watersheds [MN Shoreland Mgmt. Act].

I. ESTABLISHMENT OF WATERSHED PROTECTION ZONES

- a) Zone 1 : Within (x) feet of lakeshore, major tributaries (as defined). [Recommended distances: 75-150 feet]
- b) Zone 2 : Within (x) feet (75-100?) from mid-channel of permanent and non-permanent watercourses [within (x) stream miles of lake?].
- c) Zone 3 : All other areas.

II. SANITARY PROVISIONS

a) **Purpose:** To ensure the protection of human health and to prevent pollution and contamination of public waters.

b) **General:**

1) Public or municipal collection and treatment facilities must be used where available and where feasible -- new construction only?

2) All private sewage and other sanitary waste disposal systems shall conform to applicable standards, criteria and rules in terms of size, construction, use and maintenance.

3) Location and installation of a septic tank and soil absorption system shall be such that, with reasonable maintenance, it will function in a sanitary manner and will not create a nuisance, endanger the safety of any domestic water supply, nor pollute or contaminate any waters of the state. In determining a suitable location for the system, consideration shall be given to the size and shape of the lot, slope of natural and finished grade, soil permeability, high ground water elevation, geology, proximity to existing or future water supplies, proximity to other disposal systems, accessibility for maintenance, and possible expansion of the system.

4) Septic tank and soil absorption or similar systems shall not be acceptable for disposal of domestic sewage under the following conditions:

a) low swampy areas or areas subject to recurrent flooding; or

b) areas of ground slope where there is danger of seepage of the effluent onto the surface of the ground.

c) Specific for Zone 1 (new sources only):

No septic tanks unless you meet (strict) performance standards (e.g. soil permeability, depth to water table, distance above mean high water--soil borings/percolation tests etc.)

d) For Zone 1 (existing sources):

1) No additional regulation. However, in the case of property transfer, new owner must ensure that septic system is in compliance with regulations for new sources.

2) For properties with capital improvements/additions (determined as percentage of assessed value of property ?), septic system must be brought into compliance with new source standards.

3) Matching grants (?) provided by county for repairs to existing systems which bring them into new source compliance (\$500 max?).

e) For Zone 2 (new sources):

1) Use blue-book guidelines, but additional stringency (e.g. size of leach field, distance from water line?).

2) Placement of soil absorption systems subject to the following specifications: ten feet from a lot line; 20 feet from a building intended for human occupancy; 50 feet from a well or other water supply source.

f) Zone 2 (existing sources): No additional regulation. Non-compliance systems must be brought into compliance as in (d), above.

g) For Class 3: No additional regulation.

h) Variances from Standards: may be granted by local board with authority over regulations (to be determined) if the strict enforcement of any provision of the standards would

cause unnecessary hardship or that strict conformity with the standards would be unreasonable, impractical or not feasible provided that:

1) the condition causing the hardship is unique to that property;

2) the variance is proved necessary in order to secure for the applicant a right or rights that are enjoyed by other owners in the same area or district (N.B. not applicable to "rights" cited in "grandfathered" cases);

3) the granting of the variance will not be contrary to the public interest or damaging to the rights of other persons or to property values in the neighborhood.

i) Certificate of Occupancy -- must be obtained from responsible board before any building hereafter constructed or structurally altered (see d(2)) is occupied. The C.O. shall state that the building complies with all provisions of this ordinance. A record of all certificates shall be kept on file by responsible agency, and copies shall be furnished on request to any person having a proprietary interest in the building affected.

j) Enforcement -- ?

III. LAND-USE REGULATIONS

a) Shoreland Alterations

1) Natural vegetation in shoreland areas (including on watercourses) shall be preserved insofar as practical and reasonable so as to retard surface runoff and soil erosion, and to utilize excess nutrients in the soil to alleviate pollution problems. Therefore, no vegetation removal within (x) feet of normal high water mark:

a) within six feet of shore, not more than 30% of the shoreline lot width may be clear of vegetation (exceptions for docks, loading ramps etc.)

b) within 35 feet of shore, not more than 30% of trees in excess of 6" in diameter at breast height may be cut over a ten year period. (Adirondack Park Agency Regulations)

2) Grading and filling in shoreland areas or any alterations of the natural topography where the slope of the land is toward a public water or watercourse leading to a public water must be authorized subject to the conditions that:

a) the smallest amount of bare ground is exposed for as short a time as is feasible,

b) temporary ground cover, such as mulch, is used and permanent ground cover such as sod is planted.

c) methods to prevent erosion and trap sediment are employed.

a) Logging

- 1) use of buffer zones around watercourses
- 2) seasonal limitations (not spring!)
- 3) downhill haybaling?
- 4) road construction (see road building/construction).

b) Road Building/Construction

- 1) grade limitations for different road classes
- 2) use of culverts ?
- 3) BMPs for new road construction

c) New Home Construction

- 1) BMPs
- 2) minimum lot sizes for individual residences (minimum lot widths? -- 50-150 feet?)
- 3) grade limitations for private driveways

d) Agriculture -- BMPs from Les Travis

By. John Herring

YATES County

AQUATIC VEGETATION COMMITTEE MEETING RESULTS OF FECAL COLIFORM TESTING, KEUKA LAKE DRAFT - FOR DISCUSSION ONLY

Surface grab samples were taken at a variety of locations in Keuka Lake on July 29 and September 7. A total of 35 samples were taken, all in nearshore waters. Samples were analyzed by R & J Laboratories, Penn Yan, to determine levels of fecal coliforms. The results are summarized below.

# Coliforms per 100 ml sample	# Samples in Category
0	9
under 5	2
5 to 20	3
21 to 50	5
51 to 100	5
101 to 200	6
201 to 1000	3
over 1000	2

The above results are a strong indication that waste disposal systems are leaking into the lake at a number of sites. High levels occurred in each of the three branches of the lake, with the greatest proportion of high levels found in the Hammondsport branch. At least a portion of this may be due to the fact that the Penn Yan branch was sampled on a separate day.

Although care must be used in interpreting these results, they seem to provide persuasive evidence that large numbers of septic systems around the lake are failing. Coliform bacteria are relatively short-lived in fresh water (several hours to a day).

To place these observed levels in perspective, New York State drinking water regulations (State Sanitary Code 5-1.54) set a maximum coliform bacteria level of four per 100 milliliter sample for community water systems. Title 10 of New York State's Health regulations (170.4) set a standard of 50 coliforms per 100 milliliter sample for raw water which is to be used for public drinking water systems. This latter standard applies to water which is to be treated before consumption. The observed levels are therefore high enough to merit considerable attention.

The results underline two related areas of concern. First, relating the results to aquatic vegetation growth, the septic tank seepage indicated by the coliform levels could provide a

DRAFT - FOR DISCUSSION ONLY

major source of nutrients for weed growth. While demonstrating the existence of septic tank seepage does not indicate the magnitude of the problem, septic tanks may play a critical role in providing nutrients for weed growth, particularly during the summer months when loadings are heaviest and stream flows are minimal.

The second (potential) problem posed by these results is one of public health. While coliform bacteria in and of themselves are not harmful to humans, they serve as indicators of a wide variety of pathogens found in human excreta. These pathogens can cause a wide range of waterborne illnesses from amoebic dysentery to typhus.

If in fact the nearshore waters of Keuka Lake are widely contaminated with septic seepage, the public health importance may be considerable (note that the existing data do not allow such a firm conclusion to be drawn). The results of the Watershed Septic System Study indicate nearly half of all residences in the watershed obtain their drinking water from the lake (See attached study, Table 3). While this figure may be somewhat out of date due to the age of the records examined, it would imply that about 1500 residences of the more than 3000 on the lake use the lake as a water supply. Watershed Inspector Mahrt has estimated that only 60% of those using the lake as a source chlorinate or otherwise disinfect their supply, which would mean that some 600 residences are using the lake as a water source and not disinfecting it. Further analysis of the data obtained in the Septic System Study and the watershed survey may allow refinement of this estimate.

It should be noted that these data do not imply a specific health hazard. Given the short life expectancy of most pathogens in water, sampling done at the surface and near shore is at best a very tentative indicator of water quality at depths and far from shore. These data serve merely to demonstrate the likelihood of significant numbers of failing or failed waste disposal systems around the lake. For those who obtain their drinking water from the lake and disinfect through chlorination, ozonation, or heat treatment, the results are essentially irrelevant. The only specific hazard these limited data reflect is for those who use the lake as a water supply, do not disinfect, and have water intakes in shallow water close to the shore.

Because these preliminary data indicate that septic systems may be significant sources of nutrients to the lake and because they leave open the possibility of any health implications, it is suggested that further, more intensive sampling be done in the 1988 sampling season. Such sampling for coliforms should be designed to answer questions regarding the safety of the water for drinking purposes. Testing to determine nutrient flows will likely require the use of such approaches as dye tests.

R & J Laboratories

Biological and Chemical Testing

Dept of Natural Resources
Fernow Hall
Cornell University

ATTN: John Herring

September 10, 1987

RE: Keuka Lake Aquatic Vegetation Study

Dear John,

The following are the results of the 9/7/87 samplings for fecal coliforms:

<u>SAMPLE NO.</u>	<u>LOCATION</u>	<u>FECAL COLIFORMS</u> (No. colonies/100ml)	
<i>URBANA</i>	1 158 W. Lake Rd (WLR) Hammondsport	194	
	2 205 WLR	4	
	3 340 WLR	88	
	4 611 WLR	15	
	5 Vintage Restaurant	0	
<i>PULTENEY</i>	6 745 WLR	4	
	7 S. of Harbor Light Marina	112	
	8 536 WLR Branchport	0	
	9 471 WLR	0	
	10 400 WLR (off trailer park)	37	
	11 311 WLR	42	
	12 140 WLR on the flats	57	
	13 73 WLR	32	
<i>JERUSALEM</i>	14 360 West Bluff Drive (WBD)		
	(two *14 samples were submitted they were designated 14A and 14B and tested)		
14A	0	
14B	95	
	15 433 WBD	251	
	16 522 WBD	52	
	17 760 WBD	197	
	18 off Bluff Pt.	1,792	
	<i>WAYNE</i>	19 Switzer land Inn	17
		20 1271 East Lake Rd. (ELR)	612
21 1305 ELR		17	
22 1353 ELR		32	
23 1400 ELR (trailer Park)		5,180	
24 625 ELR		57	
25 560 ELR		39	
<i>URBANA</i>	26 392 ELR	748	
	27 225 ELR (opposite Snug Harbor)	0	
<i>JERUSALEM</i>	28 Guyanoga Valley Inn	553	
	29 Isaac Walton League	0	
	30 Sugar Creek (mouth)	0	

Rest 9/10/87

IT IS A PLEASURE TO SERVE YOU

P.O. Box 654 Penn Yan, New York 14527-0654 (315) 536-9302

M E M O R A N D U M

TO: YATES COUNTY AQUATIC VEGETATION COMMITTEE
FROM: JOHN HERRING, JOSH LIPTON
DATE: SEPTEMBER 8, 1987
RE: RESULTS OF FECAL COLIFORM TESTING, KEUKA LAKE

The results of the fecal coliform samples taken on July 29 are as follows:

LOCATION	COLIFORMS (# colonies/100 ml)
Camp Corey (N. end)	0
Camp Corey (S. end) --off water inlet/outlet (?)	90
S. of Camp Corey	0
Willow Grove N.	103
Willow Grove S.	0
Off 720 E. Lake Rd.	188
Brandy Bay (middle)	119
Brandy Bay Inlet	0
Penn Yan Channel	0

The above results serve as a strong indication that septic tanks are leaking into the lake at a number of sites. The results, however, do not imply that overall water quality is degraded. The fact that samples were only taken on one day limits the extent to which these results should be generalized. Follow-up sampling of the Branchport branch and much of the Hammondsport branch was performed on September 7. If possible, samples will also be taken by Lakeshore Association volunteers during their routine sampling.

Despite the incomplete coverage so far obtained, the coliform counts do serve as persuasive evidence of septic tank leakage into Keuka Lake. Coliform bacteria are relatively short-lived in fresh water (on the order of several hours to a maximum of a day). The above results therefore indicate recent and probably continuing contamination. Moreover, the fact that stream beds flowing into the lake at the sample sites were uniformly dry at the time of sampling indicates that the coliform source was located on the lakeshore rather than in upland areas.

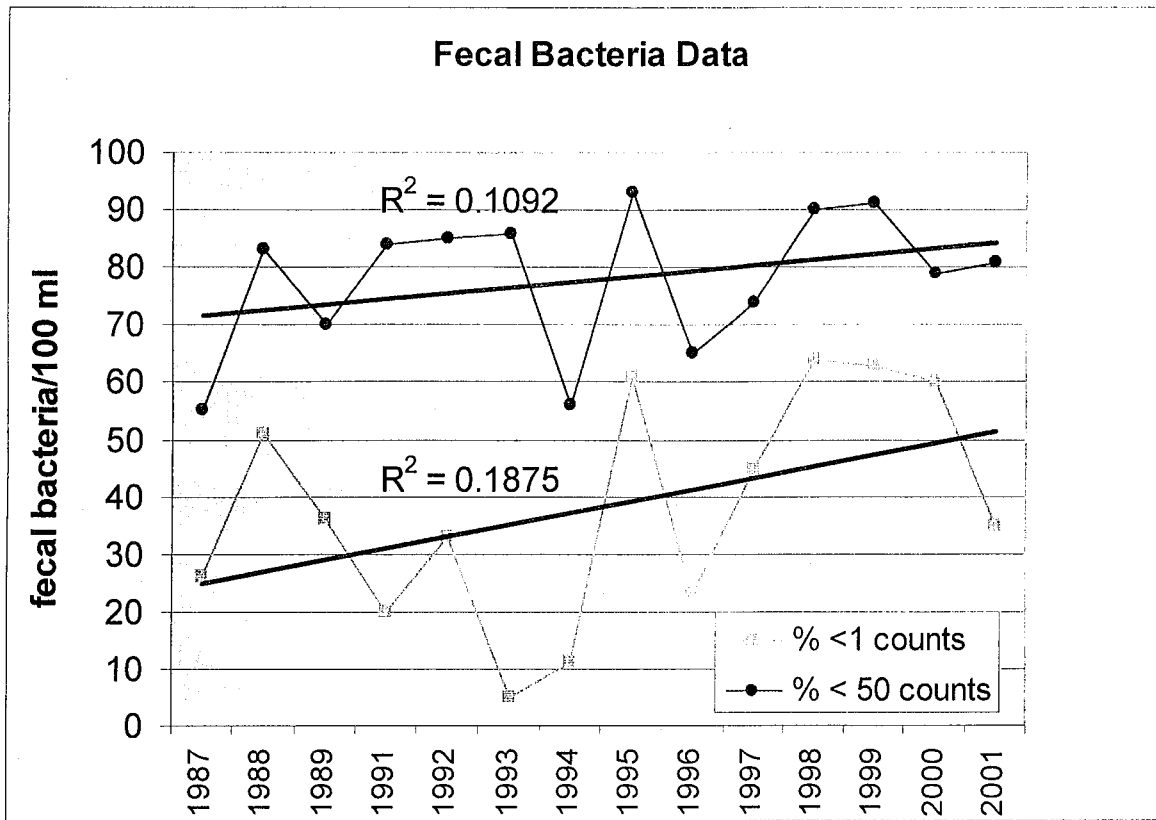
In addition, the observation that positive coliform counts appeared at several sites implies that the problem of septic tank seepage is relatively widespread.

Although the above conclusions are somewhat tentative, they underline two distinct areas of concern. First, as related to aquatic weed growth, the septic tank seepage indicated by the coliforms could provide a major source of nutrients (particularly phosphorus and nitrogen) for weed growth. While demonstrating the presence of septic tank seepage does not indicate the magnitude of the problem, septic tanks may play a critical role in providing nutrients for weed growth, particularly during the summer months when stream flows are minimal to non-existent.

Second, the evidence of coliform contamination poses a potential public health problem to those residents who obtain drinking water from the lake. Although coliform bacteria themselves are not harmful to humans, they serve as indicators of a wide variety of pathogens found in human excreta. These pathogens can cause a range of waterborne illnesses from amoebic dysentery to typhus.

To place the observed coliform levels in perspective, New York State drinking water regulations (State Sanitary Code 5-1.54) set a maximum coliform bacteria level of four per 100 milliliter sample for community water systems. Title 10 of New York State's Health regulations (170.4) set a standard of 50 coliforms per 100 ml sample for raw water which is to be used for public drinking water systems. This latter standard applies to water which will be treated prior to consumption. New York's contaminant levels are the same as the federal levels set by the U.S. EPA in its National Primary Drinking Water Standards.

As can be seen by the above state and federal standards, the coliform levels measured in several of the Keuka Lake samples far exceed those levels deemed "safe" for direct consumption. It should be noted that Penn Yan's water supply is taken from the middle of the lake and is treated prior to distribution, so that there is little likelihood of microbiological contamination in the municipal drinking water supply. Penn Yan also tests its water regularly (as required by state and federal laws), further reducing the chance of large-scale contamination. However, for those individuals who take their drinking water directly from the lake, the coliform levels may be a cause for concern. Those who use lake water for drinking purposes should follow the watershed inspector's recommendation and use some form of treatment, either chlorination or ozonation.



Climate Station Installation Underway

Mike Sprague

As this newsletter is going to press, a new automated climate station is being installed at the end of the town of Urbana dock, adjacent to the Keuka Maid berth. This climate station is being installed by Environmental Emergency Services and the County of Steuben through funds made available by the NYS Environmental Bond Act. The climate station is part of an improvement in real-time data collection at several locations within Steuben County for emergency management and will provide wind speed and direction, water level, water temperature, air temperature and precipitation information. The informa-

tion is transmitted by radio to a central computer collection system available to the Steuben County Office of Emergency Services and the National Weather Service.

The station will be in a testing and evaluation mode for a period of time. We anticipate having basic information available by the end of March. Calibration of the equipment will take some time to establish, as well as the radio pathway and computer software set-up. Once the station has been proven, the radio information can be received locally for specific purposes.

The weather station will open up possibilities for lake level forecasting that previously were not available. Combining information

already available from existing automated rainfall gauging coupled with the new real-time lake level information will allow for the development of lake level response information.

A heart-felt thanks goes to Senator Randy Kuhl and his office staff for their assistance in securing the grant that made this climate station possible.

Everyone will need to obtain a **PWC Boat Operating Certificate** by 2004? Call the Yates or Steuben County Sheriff's office to register for a class.

Yates – (315) 536-4438
Steuben – (607) 776-3347

(Continued from page 1)

(President's Report continued)

been actively working with members of KLOC (Keuka Lake Outlet Compact) to develop ways to more rapidly respond to high water situations and to hold the lake level within its guidelines. KLA has provided some funding for a sophisticated system to measure snow levels on the hillsides, temperature conditions, and lake level. This should provide early warnings of high runoff situations in order to open the gates on time. Recognize, however, that lake level is always a compromise. I should also point out that KLOC controls the gates, not the KLA. Our goal is to assure that the best possible effort is made to maintain lake level within the guidelines, taking into consideration weather conditions. The result – a more active monitoring of the lake level and faster response to varying conditions.

Jet Skis

Residents generally have seemed to have had a love/hate relationship with personal water craft (PWCs). The KLA has taken two approaches:

- 1) Measure through water testing whether emissions pose a hazard to the lake. So far the evidence suggests the answer is “no”.
- 2) Support increased safety for operation of PWCs by working with Steuben and Yates Sheriff Departments to publicize rules of operation and events for power boat operator training. We have also worked to assure that lake shore residents and lake users know that (now) everyone under 21 years of age needs to have a boat operator training certificate to operate a PWC (NYS Law) and by 2004, everyone will need one. We have also worked with the Sheriffs Department to encourage our residents to call them with specific complaints regarding dangerous operation of PWCs. The result – more responsible operation of PWCs.

CAFOs (Hog Farms)

The KLA has taken a data based approach to this emotional issue. We are currently monitoring water quality at the mouths of stream beds that feed into the lake from drainage areas where there are high concentrations of animal operations. In addition, we have contacted local and state elected and regulatory officials to express our concerns and urge our towns to take steps to conduct proper studies of potential dangers and to consider revising zoning laws accordingly. Secondly, we have expressed our strong desire to assure that environmental regulations for “importers” of manure are just as strong as those for “generators” of manure to eliminate any loophole for overspreading manure in excess of the capacity of the land.

As you can see, KLA has and will continue to be an active player in issues that affect the lake. We enjoy working with the many public and private organizations that impact Keuka Lake.

Ken Blumenstock
President

P.S. Best wishes to Paul Bauter, Watershed Manager for KWIC, who recently suffered a heart attack. Get well soon, Paul!

During the Months of March, April and May the KLA Office will be open on Tuesdays and Thursdays from 10:00 to 3:00. During the months of June, July and August the office will be open on Tuesdays, Thursdays and Saturdays from 10:00 to 2:00. The Office is located at 90 Pulteney Street, Hammondsport, NY.
Phone: (800) KLA-5121 E-mail: kla1@empacc.net

Keuka Lake Bacteria Testing-Peter Landre, Cornell Cooperative Extension

Over the past year, the Keuka Lake Association Water Quality Committee has been examining the bacteria results and the overall monitoring program. With the maturation of the KWIC and the completion of the sewer study, many questions have been asked regarding the bacteria health of the lake relative to these programs. What trends, if any, do we see over the long-term? Can the bacteria results be directly correlated to the condition of septic systems on the lake? Are there other testing methods the KLA should be using to evaluate the bacterial health of the lake? These questions and more have been asked and are being addressed for testing this summer. This article will provide members with some insight into the bacteria testing program, interpretation of results and future directions.

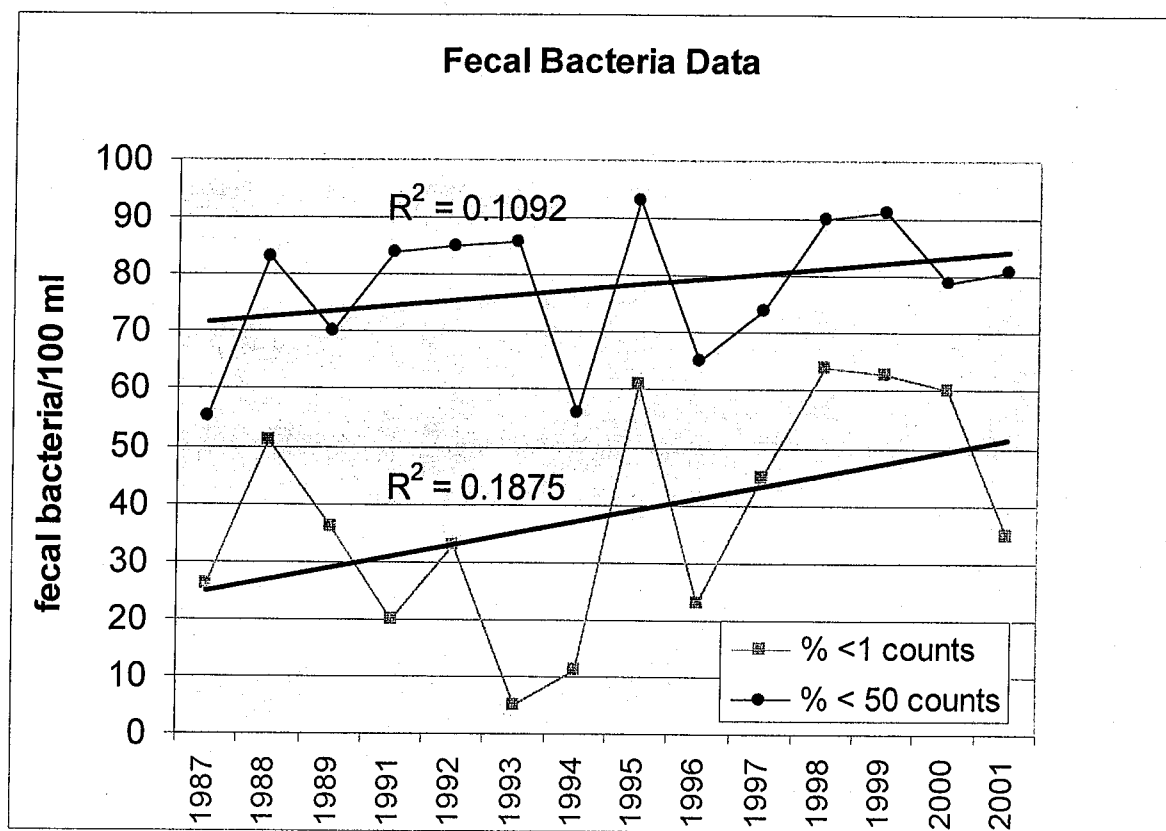
The Keuka Lake Association, in cooperation with other organizations, has monitored bacteria levels in Keuka Lake since 1987. Samples are collected during a single day in June, July and August, and sometimes in September. Fifty samples are collected within 25 feet of shore at randomly selected sites every mile or so around the lake. Samples are sent to an independent, certified DOH of laboratory for analysis where the samples are cultured and a "fecal count" is determined.

Water supplies and public bathing beaches are commonly monitored for the presence of fecal contamination by testing the presence of indicator microorganisms. These are used because they are present in high numbers in feces and are easily cultured in the laboratory. Their presence in water indicates there may be fecal matter and the potential for other disease-causing pathogens.

Fecal coliform (FC) tests were chosen as the method of choice because it is EPA approved and conforms with long-established state and federal drinking, swimming and lake-use standards. Test results for FC indicate the presence of fecal matter from animal sources (not just humans) and the potential risk of disease. The intestinal tract of humans and other animals contain numerous rod-shaped bacteria known as coliform organisms. In addition to other kinds of bacteria, each person discharges 100 to 400 billion coliform organisms per day. The use of coliforms as an indicator organism is complicated by the fact that some coliform groups can grow in soil. As a result, when determining the quality of water for bathing beaches, the NYSDOH uses FC as the indicator organism.

Given this general background on FC testing, what are the trends over the past ten years? The chart below shows a positive trend in the % of counts less than 1 (drinking water standard) and the % of counts less than 50 (NYSDEC standard for AA lake). While the trend is "positive" over the entire period, it is easy to see that the yearly values tend to fluctuate quite a bit. Yearly fluctuations in part seem to be related to weather. During "wet" years, there often are more high FC levels and during "dry" years, the opposite seems to hold true. In 2000 for example, the area was very wet, particularly in May and June. For the year, the average FC count was 253 and 13 % of the samples were over the swimming standard of 200 counts/100 ml. In contrast, 1998 and 1999 were relatively dry years and the average FC counts were 21 and 17 and only 2% and 3% of samples were over 200 counts/100 ml respectively.

On a seasonal basis, there also appears to be a trend: July and August average count levels over the past ten years are 4 times higher than June and September levels (104 vs. 24).



Can the bacteria levels found in the lake be correlated directly to the functioning of shoreline septic? Probably not directly! Again, fecal bacteria tests are not specific to humans and any individual sample may reflect the influence of a number of animal/human sources. When samples are collected, however, notes are taken as to the presence of waterfowl. Generally, samples are not collected where waterfowl are present (at least at the time of collection) and the assumption is that most of the fecal levels found are related to human sources. This may or may not be the case and this year's testing is planned to refine the source issue. A number of other factors to consider when evaluating the results is the influence of weather and water currents. During the warmer months, bacteria may live longer and even multiply and bacterial "plumes" from one source may be collected from more than one sample site. The results do give a good indication of overall bacterial health as they relate to regulatory standards (drinking and swimming), regardless of the specific source. With the large number of septic around the lake (nearly 3,000), there are a lot of potential sources and the higher levels observed during the summer and wet years supports continued vigilance and a closer look at practical alternatives.

With a greater need to understand the direct correlation between the condition of septic systems and bacterial levels in the lake, research into possible alternatives to the current testing program are being evaluated. Like the discussion above, there are no simple answers. A major issue is finding practical and cost-effective methods that are available locally. Recent research by the EPA indicates that both *E. coli* and *Enterococci* are better indicator organisms for determining the possible health risks related to bacterial levels found in freshwater. So, for answering the question, "Are the bacteria levels found in the lake a human health risk?" switching from FC testing to *E. coli* or *Enterococci* would make sense. These tests, however, would not answer the

question of the source of bacteria. A recent study on Owasco Lake where public beaches at the North end of the lake were closed 105 times between 1989 and 1998, found the primary source of contamination was from waterfowl (ducks and geese), intermediate sources were agriculture and minor sources were humans and pets. The study used a new technique for DNA fingerprinting whereby DNA sequences from *E. coli* samples are obtained from fecal contaminated water and are compared to the DNA sequences of *E. coli* from known animals that harbor a particular strain of *E. coli* (Simmons et al. 1995). This technique is quite promising, however, very expensive. Other techniques for bacteria source differentiation are being studied and a recommendation for 2002 testing will be finalized this spring.

Friend Laboratory, Inc.

446 BROAD STREET • WAVERLY, N.Y. 14892-1445

(607) 565-2893

NEW YORK LAB
#10252

NEW JERSEY LAB
#73168

PENNSYLVANIA LAB
#68180

EPA LAB
NY 033

October 31, 1986

Mr. Fuller J. Allen
Executive Director
Keuka Lake Shore Property Owners
443 East Lake Road
Penn Yan, N.Y. 14527

Dear Mr. Allen,

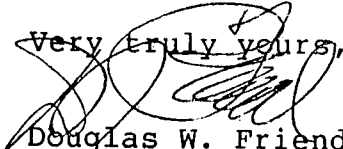
I have examined the chemical report for samples received 8/19/86.

The results on all the test performed at each location and all results are well within acceptable limits.

Bacteriologically all samples indicate Fecal Coliform. Site 3 and site 7 appear to be quite highly contaminated. I think I would want sites 3 and 7 resampled for Fecal Coli and I would also include Fecal Strep. If these sites are persistantly high, one should examine the area and determine if there is a cause for the contamination.

Although the algae is high, it isn't alarming at that time of the year, I would expect a higher concentration of algae in a body of water.

Very truly yours,


Douglas W. Friend

DWF: gwr

#1
2nd samples were taken
10 days ago after
NYS EG Start-up.

Will advise
F

November 14, 1986

Mr. Laurence Cook
Hunt Engineers P.C.
185 East Corning Road
P.O. Box 20
Corning, NY 14830

Re: Realty Subdivisions
Arthur Sable Property
Pulteney (T), Steuben Cty.

Dear Mr. Cook:

Regarding our conversation pertaining to the installation of subsurface sewage disposal systems, I wish to call your attention to Part 74 of the New York State Sanitary Code (copy enclosed) and, in particular, to Section 74.4. You can see that community sewerage systems are required, when the soil percolation rate is slower than 60 minutes per inch.

I believe that the majority of Mr. Arthur Sable's property falls into this category. This means that the land under discussion cannot be used for realty subdivision development, unless a community sewerage system is proposed.

If you have questions, or wish to discuss this matter, please call me at: (607) 324-5120.

Very truly yours,

Laurence R. Keefe, P.E.
DISTRICT ADMINISTRATOR PUBLIC HEALTH

LRK/hp

enc.

Resolution: Adoption of revisions to current policy and procedure, as recorded in the KWIC Program Handbook, amending and clarifying standards for septic system inspection for purposes of real property transfer and Zone One requirements. Old language is presented in parenthesis. New language is presented in italics.

Sanitary Inspection

The following represents the minimum standard for inspection of wastewater and septic systems in the towns of Barrington, Jerusalem, Milo, Pulteny, Urbana, and Wayne, and the villages of Hammondsport and Penn Yan. These standards are applicable to inspections performed for reasons of real property transfer certification and Zone One requirements as defined by local wastewater management law.

1) *In general, a complete septic system inspection for Zone one or real property transfer purposes shall document the discharge of all wastes to a suitable septic tank, assess of the condition and size of the septic tank(s), and evaluate the apparent function of the leach system given the wastewater discharge encountered at the site up to the time of inspection.* The owner or owner's agent is responsible for uncovering septic tanks, holding tanks, and pump stations.

2) The owner or owner's agent will make provisions for water so that a flow test of the system can be performed. The inspector may choose to perform the flow test before the septic tank is pumped out to assess the flow of wastewater through the tank and into the absorption area. Access must be provided to allow the inspector to assure that all appropriate plumbing fixtures, including bathroom, kitchen, laundry and wash basin fixtures drain to the wastewater treatment systems.

3) Pump out of a septic tank or holding tank is required at the time of real property transfer *or Zone One* inspection. (It may be required at the time of a regularly scheduled Zone One inspection.) *The watershed inspector may choose to waive pump out of the tank only where the following criteria can be met:; the size, condition and location of the tank was documented by a complete inspection previously completed under the authority of the KWIC program, the tank was pumped out at that time under the supervision of the watershed inspector, the tank was uncovered for the current inspection, and the presence of necessary baffles, liquid level in the tank, and accumulation of sludge and scum was made known and visible to the inspector. Local law does require pump out of septic tanks for real property transfer inspection if two years or more have passed since the last documented pump out.* Pump out will begin only after the arrival and concurrence of the inspector.

4) Tanks must be found to be water tight, free of cracks, corrosion or other structural defect. Tops, lids or covers must also be in a satisfactory condition. Baffles must be in place and securely fastened. If a tank is found to be in unsatisfactory condition, the replacement tank shall meet the standard for size established by the NYS sanitary code. Local law in the municipalities of Barrington, Hammondsport, Jerusalem, Milo, Pulteney, Urbana and Wayne allows the regulatory officer to require additional tank volume to meet system use and capacity standards.

5) Pump stations shall be inspected where applicable. Pump tanks shall meet the same standards concerning integrity and suitability as other tanks, *and shall be uncovered for inspection.* Adequate function of the pump station shall be demonstrated at the time of inspection.

6) A surface inspection of the leach field or absorption area will be made to determine its apparent function. Drainage pipes or other features found during inspection may require additional investigation to address any potential surface discharge of sewage or septic system effluent. Dye tests may be required by the regulatory officer at the time of initial inspection, and sufficient follow-up visits performed as a means of investigating suspect conditions.

7) *Inspection of septic systems is required by local law within 10 days of closing, even in those circumstances where a site may have passed a previous Zone One inspections. Tanks shall be uncovered in all cases, and pumped, unless specifically waived by the inspector as noted in # 3 above.*

8) A certificate of inspection will be issued by the regulatory officer. Where systems are found to be unsatisfactory, a written Notice of Violation will be issued by the regulatory officer providing the property owner with instructions on corrective action and date by which such action must be undertaken. Any repair or modification will require a permit issued by the Keuka Watershed Improvement Cooperative.

Exerpts from speech by
John E. Wills, Professor of Biology
Corning Community College

Keuka Lake, along with the other Finger Lakes and the Great Lakes, were formed by a glacier some 12,000 years ago. It is only recently that any studies of a significant nature have taken place. Most of the Finger Lakes are now undergoing some scientific data gathering.

I feel Keuka should join in this venture. The major concern of the property owners on Keuka Lake is weed control. I feel the weeds, as producer organisms, are telling (literally screaming) us a story. Something is going on at the abiotic (non living chemical level) that is causing what appears to be an opportunistic growth curve.

The information or data to support this hypothesis is scant or lacking. A two-year project, possibly longer, of data gathering by the property owners could provide a data base through which some recommendations for weed control - short-term/long-term - could be made.

These tests could identify what is going on at the chemical level that effects the living components of the Keuka Lake ecosystem.

The profiles I would like to see developed are listed below:

Ph
rate of sedimentation
water color
transmission of light through water
water temperature
chloride concentration
phosphate ion concentration
plankton inventory
nitrate ion concentration
dissolved oxygen

The weeds very well may tell us where sampling should be done.