



Beach Mysteries

summary

Students learn about bacteria as an indicator of beach water quality for swimming. In groups they solve hypothetical problems associated with beaches. Then students write persuasive essays on the issue.

GRADE LEVEL

4-8

90 minutes



objectives

- Discuss the effect of harmful bacteria on swimming conditions at beaches.
- Diagram three reasons for beach contamination.
- Explain solutions for beach health problems.
- Write a persuasive essay about beach health.

prerequisite

Garbage Investigation, Litter Tag

vocabulary

Bacteria: single-celled organisms, free-living or parasitic, that break down the wastes and bodies of dead organisms, making their components available for reuse by other organisms

Sewage overflow: sewage that is discharged into waterways

Stormwater: water that accumulates on the ground during a rain event

subjects

Environmental Science, Human Health, Social Studies, Language Arts

standards



Science: 12.B.2a, 13.B.2a, 13.B.2f
Social Studies: 17.B.3b, 17.C.2c

Language Arts: 3.C.2a, 3.C.3a



Science: 6.3.8, 7.4.14, 8.3.6
Language Arts: 4.5.6, 5.5.4, 6.5.5, 7.5.4, 8.5.4



Science: SCI.III.5.E.4, SCI. III.5.MS.6
Social Studies: SOC. II.4.LE.5

Language Arts: ELA.2.MS.1



Language Arts: B.8.1, C.4.2, C.8.1

setting



INDOORS



OUTDOORS

Classroom or beach

materials

- Prescription for Healthy Beaches (on CD)
- Journals
- Pencils
- Clipboards (if outside)

background

Beaches can bring great advantages to shoreline communities, providing recreation, gathering places and beauty. It is important to keep them clean and healthy. Although this activity is about beach closings, emphasize to students that the Great Lakes beaches can be wonderful places for swimming and recreation. However, based on the rise of beach closings due to bacteria issues, it is important that communities become informed about beach closings. The information in this activity should not stop students and their families from enjoying Great Lakes beaches when they are open and healthy. On the contrary, this information should enable students and their families to better understand how to appreciate their beaches and keep them healthy so they can be enjoyed.

Beach Closings: Local health departments are forced to close beaches or declare “swimming bans” when bacteria levels are high. As monitoring programs start in communities, beach closings happen with increasing frequency.

Closures are prompted because of the health risks posed by the bacteria which comes from sewage overflows, untreated stormwater runoff, animal waste, boating wastes and malfunctioning septic systems. Sewage treatment plants in some large cities were not originally built for the increased number of people that now live there. Each day a beach is closed, according to a 2004 study, *The Economic Costs of E. coli Beach Closings*, communities can lose thousands of dollars in revenue. In 2003 for example, Lake Michigan beaches that were monitored for bacterial pollution experienced 1473 closings due to high bacteria counts.

Recreational water quality monitoring: Beaches are run by governmental agencies that try to keep the shoreline safe for human use. In many cases these agencies monitor the water quality by testing bacteria levels. When levels are too high, areas that have monitoring programs will close the beaches.

Health Issues: When a beach is closed, everyone who uses nearshore areas for recreation – including divers and swimmers – is at risk when bacteria are present. Bacteria and other germs in contaminated sand and water can cause vomiting, diarrhea, stomachaches, nausea, headaches, fever, giardiasis, rashes, and pink eye.

E. coli: *E. coli* is the bacteria used to determine if a beach should be closed. It is found in human and animal feces. *E. coli* is a common bacteria used for science experiments in thousands of schools and laboratories around the world. You have it living inside your intestines right now, as does every other human, and many other organisms. *E. coli* has hundreds of genetic variants; only a very few of these can make humans sick. The *E. coli* agencies search for in beach testing is not necessarily what makes humans sick, but it indicates the presence of fecal contamination (and possibly other pathogens that ARE harmful).

There is only one particular strain of *E. coli* harmful to human health, and it is relatively uncommon. However, *E. coli* is easy to test for and is an indicator of other potentially harmful bacteria that can exist under the same conditions. When *E. coli* is found in high levels, beaches are closed because bacteria harmful to human health may be present.

procedure

1. Ask for a show of hands to find out how many students in your group swim regularly at a Great Lakes beach. Discuss as a class: Can beaches be dirty if there is no garbage to be seen? How? Take a few responses.
2. Are beaches in your area ever closed or do they have swimming bans? *This depends on whether or not your area has a recreational water quality monitoring program. Beaches in some areas are closed when bacteria levels exceed Environmental Protection Agency standards.*
3. Why does this happen? Create a list of ideas to assess students’ prior knowledge about why beaches close. *Note: If beaches are not monitored or closed in your area due to high bacteria levels, let students know that this happens in other areas of the Great Lakes.*
4. Use the background information to explain bacteria in general and *E. coli* in particular, and the health issues they present.
5. Have students work in small groups to solve beach mysteries on journal pages. Students may use the Alliance for the Great Lakes’ Prescription for a Healthy Beaches: http://www.greatlakes.org/beach_center/prescription.pdf.

Answers to Beach Mysteries

- #1. How did the bacteria get there? *After the gulls have eaten, they may leave droppings behind on the beach. E. coli bacteria is found in human and animal waste. How can we help solve this problem? Don’t leave litter behind. Any litter can cause harm. Food-related litter can attract wildlife in greater numbers than might normally live at or near the beach. Wildlife waste may contribute to high bacteria levels at the beach.*
- #2. How did the bacteria get there? *When a lot of precipitation (rain or snow) falls, the water treatment plant may not be able to process and clean all the water as quickly as it accumulates. If this happens, water treatment plants may release untreated sewage into the lake. E. coli may be found in the untreated sewage. This can cause elevated bacteria levels. As for the phone call, beach managers are often notified of sewage overflows. How can we help solve this problem? Encourage your local municipality to make sure your water treatment facility is big enough to handle all of the water from your community. Do not contribute extra water to the system during a heavy rain. This may mean waiting to run your dishwasher or do your laundry.*

procedure continued

- #3. How did the bacteria get there? *Dog waste may be contributing to E. coli or other bacteria in the water if the dog owners do not responsibly pick up after their pets. How can we help solve this problem? Always pick up after your pet. Encourage other animal owners to do the same.*
- #4. How did the bacteria get there? *When rain reaches the ground during a rain event, it is called stormwater. As it accumulates, stormwater flows to the lowest point. In a Great Lakes community, this is often the lake. Stormwater carries bacteria and other pollutants from a variety of sources including animal waste from domestic and wild animals, as well as fertilizers. Stormwater flows from the surrounding surfaces (streets, parking lots, lawns, agricultural areas) over sand and into the lake. This can cause elevated levels of bacteria to be detected. Some communities funnel stormwater into the Great Lakes through pipes called outfalls, which can contribute to the bacteria levels. Nationally, stormwater is the most frequent cause of beach closings. How can we help solve this problem? Encourage your community to incorporate "green spaces" such as rain gardens, wetlands, or a pond system near hard surfaces so the rain runoff can be absorbed and filtered instead of flowing directly into the Great Lakes. Other ideas include using hard surfaces that allow water to pass through (permeable paving) and planting native grasses in "green borders" around parking lots.*
6. Discuss the mysteries in a large group. Have students present their answers to each other.
7. Create! After students have solved the Beach Mysteries, have them create and label a diagram that shows at least three to four ways bacterial pollution can get to the beach. Students should include solutions to the problems in their diagrams.
8. Discuss as a class: What are solutions to beach health issues? Have students share the responses in their diagrams. Remember that while monitoring can indicate that there is a problem, it doesn't identify or eliminate the source. Source elimination is the ultimate solution. How will students' knowledge of beach health issues change their future behavior at the beach?
9. As a follow-up, have students write a persuasive essay about human responsibility with regard to beach health. This can include the following:
- a. Your area may or may not have a program for monitoring the recreational water quality for beach health purposes. Why should such a program exist in your community?
 - b. Humans can change their behaviors to improve water quality. What should or shouldn't people do to help improve water quality?

wrap-up

1. Play Mysterious Bacteria to finish the activity.
2. Students sit in a circle with their eyes closed. Choose one student to be the "beach bacteria." Tap this student on the shoulder and have everyone re-open his or her eyes. The student uses the knowledge from the activity to decide what source s/he is from (*sewage overflow, seagull waste, stormwater runoff*)
3. Have the students walk around the room, shaking hands with each other. When the "bacteria" student shakes hands, s/he squeezes the other students' hand, indicating the spread of the bacteria.
4. When a student is "contaminated," s/he dramatically falls to the ground, indicating sickness.
5. Other students can guess who the "bacteria" student is. If they are wrong, they are out of the game.
6. Once the student is identified, the other students can ask yes or no questions to determine the student's selected source of contamination.
7. After the game, explain that it is currently very difficult to determine the source of bacteria in the water, much like it was difficult to determine which student was the harmful bacteria and what their source was.

assessment

Rubric on next page

extension

1. Research the status of recreational water quality in your area by inviting a beach manager as a guest speaker to your classroom.
2. Have the students decide if they would like to take action to improve beach health in their community. If so, have them choose one or more of the following options:
 - Participate in the Alliance for the Great Lakes's Adopt-a-Beach program, which enables students to create positive change for their beaches through litter clean-up and monitoring and water quality monitoring.
 - Turn the persuasive essays regarding beach health into a class "letter to the editor" for your local paper.

Beach Mysteries Rubric

ELEMENTS	☆☆☆☆	☆☆☆	☆☆	☆
MYSTERIES: Student works with other students to respond to activity questions. Student helps share one scenario and group response. Student listens to other mysteries and participates in the discussions. Student uses active listening skills (eye-contact, confirming or referencing others' comments, affirmative gestures or comments).	Addresses all of the components	Missing one component	Missing two components	Missing three or more components
DIAGRAM: Student draws a diagram that shows at least 3 ways bacterial pollution enters the lake. Diagram is understandable and labeled. Student discusses diagram and articulates how knowledge may shape his/her future behavior.	Addresses all of the components	Missing one component	Missing two components	Missing three or more components
GAME: Student participates in Mysterious Bacteria game by listening to and following rules, participating as necessary, and trying to guess the "mystery" student.	Addresses all of the components	Missing one component	Missing two components	Missing three or more components

Beach Mysteries

GRADE LEVEL
4-8

journal  pages

FIRST NAME

LAST NAME

[1] **Facts:** A high level of bacteria is not detected at the beach. A flock of seagulls spot some food and wrappers left behind by humans. They land on the beach to eat and inspect the garbage. A boat sails by in the distance. Two kayakers paddle up to the shore, which startles the birds. They fly away. Several hours after the seagulls arrived, water samples are taken. When they come back from the lab, results show there is a high level of bacteria in the water near the beach.

Questions: How did the bacteria get there?

How can we help solve this problem?

[2] **Facts:** The beach is clean. A high level of bacteria is not detected. That night a huge rainstorm takes place. It rains hard all night long. You think it is a great night to stay in and do laundry and your dishes, so your family runs both the washing machine and the dishwasher. You listen to music while doing homework, then go to bed. The next day, the beach is closed because the beach managers have received a call from the water treatment plant. Based on the call, the beach managers know there will be high levels of bacteria in the water.

Questions: How did the bacteria get there?

What did the mysterious phone call tell the beach managers about why the beaches should be closed?

How can we help solve this problem?

APPROVED BY

Beach Mysteries

GRADE LEVEL
4-8

journal  pages

FIRST NAME

LAST NAME

[3] **Facts :** A few friends meet on the beach in the morning to walk their dogs. The dogs run along the shoreline and into the water, fetching sticks for an hour. A jet-ski zooms by in the distance and several motor boats pass by at high speeds. When the group with the dogs leaves, there is dog waste visible along the water's edge. The next day, the beach is closed because the beach managers have detected high levels of bacteria at the beach.

Questions: How did the bacteria get there?

How can we help solve this problem?

[4] **Facts :** During a walk around your neighborhood, you see dog waste on the ground, ants walking on the sidewalk and into the grass and hear birds singing in the trees. After it rains that night, the beaches are closed. You remember that the dog waste was not close to the beach, but in the grass across the street from it. It was not really a heavy rain, and you know that there was not a "sewage overflow," but there are still high levels of bacteria when the beach managers get the results back from a water sample they take after the rainy night.

Questions: How did the bacteria get there?

How can we help solve this problem?

APPROVED BY

Beach Mysteries

GRADE LEVEL
4-8

journal pages

FIRST NAME

LAST NAME

[5] Create and label a diagram that shows at least three ways bacterial pollution can get to the beach. Include solutions to the problems you indicate in the diagram.

APPROVED BY

Beach Mysteries

GRADE LEVEL
4-8

journal \neq pages

[illegible]

[6] Write a persuasive essay or letter to the editor about human responsibility with regard to beach health. You may include the following ideas:

a. Your area may or may not have a program for monitoring the recreational water quality for beach health purposes. Why should such a program exist in your community?

b. Humans can change their behaviors to improve water quality. What should or shouldn't people do to help improve water quality?

APPROVED BY

A Prescription for Healthy Beaches

Helping You Help Your Beach



LAKE MICHIGAN FEDERATION

A Prescription for Healthy Beaches

Helping You Help Your Beach



1. *Educate Yourself*

2. *Start Small*

3. *Take Action*

4. *Get Involved!*

5. *Contacts*

the problem

1. Educate Yourself

Our Beaches are Hurting

Whether you are walking a remote stretch of beach on Beaver Island or playing volleyball on Chicago's popular waterfront, our beaches serve as gathering spots for friends, families, and people of all ages, cultures, and socioeconomic backgrounds. They help weave us together as communities. Unfortunately, bacteria, viruses, and other "germs" from animal and human waste often hurt our region's beaches. They get into the Great Lakes and their tributaries from sewer overflows, wildlife, and agricultural runoff.

This prescription will lead you through four easy steps intended to help you understand why beaches close, and what you can do to keep them healthy - and open.

Beach Closings are a Public Health Issue

These pollutants can linger in water and wet sand where they can make you and your family ill if your eyes, nose ears or mouth are exposed. Local officials are often forced to close beaches when bacteria levels exceed acceptable limits. Bacteria, viruses and pathogens can cause vomiting, diarrhea, stomachache, nausea, headache, and fever. Other forms of bacteria can cause giardiasis, amoebic dysentery, skin rashes, and pink eye. Everyone who heavily uses nearshore areas for recreation - including kayakers and swimmers - is at risk when untreated wastewater is present, but children may be most susceptible if they put contaminated sand in their mouths.

Unfortunately, sometimes the agencies entrusted with caring for our beaches do not have enough basic information to know whether your community even has a problem. To help eliminate the largest known source of beach contamination, sewage overflows, you need to know what sewage overflows are and why they happen.



1. Educate Yourself

2. Start Small

3. Take Action

4. Get Involved!

5. Contacts

the problem

Aging Sewer Systems Contribute to the Problem

Many sewer systems in urban areas were built over a hundred years ago and were designed for a much smaller number of users. Some cities may combine pipes ("combined sewer systems") that carry rainwater from storm sewers with pipes that carry domestic and industrial wastewater. This includes water that you use for showering, flushing the toilet and washing dishes. The pipes often fill to capacity during heavy rains.

When the sewer systems reach capacity, extra sewage, which includes human, animal, and industrial waste, is usually discharged into lakes, rivers and streams, making them unsafe for human use. These discharges are called, "combined sewer overflows" or CSOs.



1. *Educate Yourself*

2. *Start Small*

3. *Take Action*

4. *Get Involved!*

5. *Contacts*

the problem

Aging Sewer Systems Contribute to the Problem

Other communities have separate pipes for sanitary waste and stormwater (separated sewers). Just like combined sewer systems, separated systems can have capacity problems and experience overflows. These overflows are called “sanitary sewer overflows” or SSOs.

Not all communities are served by sewage treatment plants. Many homeowners in small towns and rural areas must provide their own septic system. Some of these systems leak sewage directly into streams. With age sewer lines can crumble and aging septic systems can leak, allowing raw sewage to enter the surface and groundwater.

There’s good news, however. This plan outlines a variety of measures you can take to safeguard your community from health risks associated with bacterial pollution. Because every beach is different, this “prescription” is not intended to be a “cure-all.” Rather, it is intended to provide a formula that can be adjusted to suit virtually every Great Lakes community.

1. Educate Yourself

2. Start Small

3. Take Action

4. Get Involved!

5. Contacts

the problem

2. Start Small

Make Changes Around Your Home

While water use at home is a smaller source of pollution than industrial and agricultural use, practicing water conservation at home can ease pollution to local waterways and beaches . . . and every bit counts.

Plus, what you learn from practicing water conservation around the home can often be used at work.

1. *Educate Yourself*

2. *Start Small*

3. *Take Action*

4. *Get Involved!*

5. *Contacts*

the plan

What you can do:

1.

During storms, delay activities that require a lot of water, such as laundry or washing dishes.

Automatic lawn sprinkling systems can sometimes be seen continuing to water lawns, even while it's raining! When this water leaves your home or lawn it can enter the sewer system and contribute even more to an already burdened system. This extra water increases the chances that untreated sewage will be released to a river, lake, or stream.

2.

Keep your septic system in proper working order.

Have your septic system pumped out annually and inspected regularly. An overloaded or broken septic system can leak sewage into the surrounding ground and water.

3.

Eliminate or minimize your use of manure as fertilizer on gardens and lawns.

During rainfalls, these wastes can get washed into local sewers. Try using composted food waste from home as a fertilizer for gardens.

Be a Responsible Beachgoer

Waste from wildlife is a source of bacteria on the beach and in the water. Garbage, especially leftover food from picnics, can attract gulls, raccoons, and opossums to the beaches. This wildlife then leaves its waste on local beaches and this can cause contamination.

1. *Educate Yourself*

2. *Start Small*

3. *Take Action*

4. *Get Involved!*

5. *Contacts*

the plan

What you can do:

1.

Don't feed seagulls or any other wildlife you encounter at the beach.

Animals get used to being fed by humans quickly. If fed frequently enough, they will spend more time on the beaches and leave more waste behind.

2.

Properly dispose of your trash in waste receptacles.

Ask your local beach management agency to provide trash bins that are large enough to contain waste, even from long holiday weekends. Press them to clean up trash more often if you see garbage bins overflowing.

3.

Infants and toddlers should wear rubber pants if they go in the water.

Research suggests that waste from children can contribute to beach contamination. Incontinent adults or adults experiencing any type of gastrointestinal illness should avoid swimming in the lake.

4.

Ask your local beach management agency to clean up dead alewives.

Alewives are a small fish that wash up onto beaches, sometimes in great numbers. As they decay they contribute bacteria to the lake and attract wildlife, which in turn deposit waste on the beach.

Practice Proper Pet Management

Pet owners enjoy walking their pets and playing with them at the beach. Wastes from our pets, whether in our yard or at the beach, is a source of bacteria that can contaminate our beaches.

You can help reduce the impact of your pet's waste by following these common sense measures.

1. *Educate Yourself*

2. *Start Small*

3. *Take Action*

4. *Get Involved!*

5. *Contacts*

the plan

What you can do:

1.

Properly dispose of your pet's waste at the beach.

Pet waste can contaminate sand and water.

2.

Properly dispose of your pet's waste on your lawn and when walking your pet around the neighborhood.

If left on lawns, sidewalks, or alleys, pet waste can wash into local sewers and waterways during rain events.

3.

Dog beaches should be properly sited and carefully controlled.

"Dog beaches" are becoming more popular, and controversial, in some cities. If they are going to exist, they should not lead to beach contamination or migratory bird disturbances.

Eliminate Boating Waste

Our lakes provide a wonderful playground for boating and sailing. If you use the lakes for boating, please protect them by “treading” lightly as you go.

1. *Educate Yourself*

2. *Start Small*

3. *Take Action*

4. *Get Involved!*

5. *Contacts*

the plan

What you can do:

1.

When you go boating, don't empty your waste into the water.

Instead, discharge your waste at pump-out stations, which are located at virtually every harbor. Encourage your fellow boaters to do the same. If your harbor doesn't have one, lead an effort to get one installed, and make sure it is marked with a large, visible sign.

2.

Ask your state elected officials to sponsor a law requiring boaters to use pump out stations.

Boaters in some Great Lakes states, like Wisconsin and Indiana, are required to use pump-out stations. Other states, like Michigan and Illinois, do not have such laws.

3.

Ask your state representative or congressman to sponsor a law prohibiting the discharge of waste from commercial ships.

Some Great Lakes states already prohibit this practice, even if the waste has already been treated by “marine sanitation devices.” Other states, like Illinois and Indiana have no similar prohibition. In theory, a commercial ship in one of these states could release its sanitary waste into a harbor near area beaches without risk of violating state law.

3. Take Action

Identify Contamination Sources

The ultimate step to ensuring a healthy beach is to determine what is causing the contamination. Once you know where pollution comes from, you can work to eliminate its source. Local beach management agencies are usually park districts or public health departments. At the end of the year these agencies report their beach monitoring data to a state public health department.

Different agencies that operate sewer systems also usually exist. The end of this plan includes a listing of public health departments and their contact information along Lake Michigan's coasts. Once you know who to contact, there are a number of questions you can ask to start in your quest to save your beach.

What you can do:

1. **Ask your agency how it monitors for bacterial pollution.**
How often do they monitor?
What testing method do they use?
2. **Ask your agency how it identifies sources of beach contamination.**
These sources may include local sewer lines that empty into the lake, one of its rivers, or even underground, where it can seep into area waters.
3. **Ask your agency how it surveys underground sewers.**
Cracked or crumbling pipes allow groundwater to infiltrate and contribute to overflows and sewage to flow out, leading to groundwater contamination.
4. **Ask your agency how it keeps track of large bird populations.**
Seagulls are a common source of animal waste on the beach.
5. **Ask your agency how it keeps track of how many people use the beach.**
In some instances beaches may be experiencing an overload in the numbers of bathers using the beach.
6. **Ask your agency how it knows if there are instances of people getting sick after swimming.**
Does it keep records of reported outbreaks?

the plan

1. Educate Yourself

2. Start Small

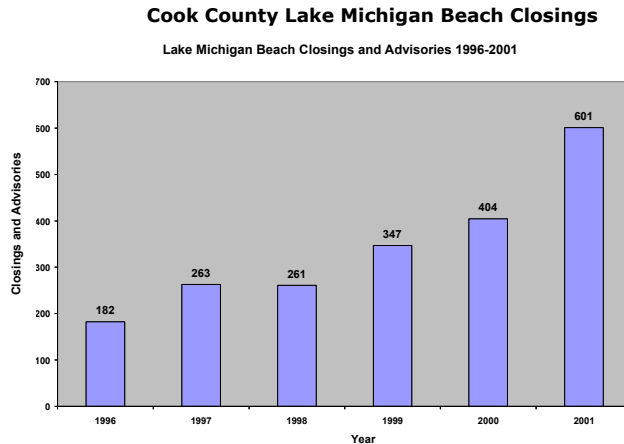
3. Take Action

4. Get Involved!

5. Contacts

Stop Sewage Overflows

Now that you know what overflows are and why they happen, you can start to help eliminate them in your community by asking the right questions of your local sewage agency.



the plan

1. *Educate Yourself*
2. *Start Small*
3. *Take Action*
4. *Get Involved!*
5. *Contacts*

What you can do:

1.

Ask your local planning department whether it requires stormwater downspouts from roofs to be separated from sanitary sewers.

This can be most effective if done before a building is constructed. If disconnection is done "after-the-fact," it may be advisable to seek the help of a knowledgeable friend or contractor.

2.

Ask your local sewerage agency whether it uses "rain blockers."

These are devices that cause streets to temporarily flood while preventing sewage from backing up in your house. Though rain blockers aren't effective in all instances, they can be effective in reducing the impact from some storms in certain areas.

3.

Ask your agency whether it routinely cleans out its sewer system.

Regular maintenance will keep dirt, sediment, and debris from taking up capacity that could otherwise be used to store wastewater until treated.

fact

According to event sponsors, approximately 50 of 5500 participants in the 2001 Mrs. T's Triathlon, held in Chicago on August 26, declined to participate due to elevated levels of e-coli in Lake Michigan after heavy rains caused sewage to be released into the lake from the 95th street locks the day before.

Persuade Your Community to Minimize Impacts from New Development

Agencies can help significantly reduce the impacts of overflows by working with communities to ensure the sensible growth of new development.

Poorly planned development can impact local waterways and beaches. This happens when new homes or businesses are connected to a treatment plant that is already struggling to keep up with the current amount of waste to be treated. Luckily, there are a number of things you can do to help beaches, while limiting uncontrolled “sprawl” in your area at the same time.

the plan

1. Educate Yourself
2. Start Small
3. Take Action
4. Get Involved!
5. Contacts

What you can do:

1.

Find out whether your local government requires developers to pay for larger sewer pipes, holding tanks or similar devices, to store the wastes of new households or businesses.

If not, ask your local official, e.g. alderman or planning director, to get involved. They can help ensure that new development is prohibited from being built until there is enough capacity in the sewer system to handle their waste. Some states, like Indiana, have a petition procedure that allows citizens to request a hearing on the matter.

2.

Ask your local government to consider encouraging developers to incorporate natural elements into their design plans.

For example, native grasses and other soft landscapes can hold water during heavy rains. Ground surfaces that do not absorb water, such as concrete and asphalt, cause stormwater to run into sewers. This increases the risk of overloading a sewer system (for more info, refer to the permeable surface website: <http://invisiblestructures.com>).

3.

Ask your local government to consider requiring developers to direct water runoff from roofs into “green” spaces near the development (wetlands or other vegetated soils) rather than sewer lines.

Vegetation and soils help filter rainwater and return it naturally to the ground without straining the sewers. For existing homes and businesses, you can redirect roof runoff in this manner. Collecting rainwater in barrels for use on lawns and gardens during dry weather also helps reduce the volume of water entering the sewer system.

Demand Public Notification of Beach Closings and Their Causes

Citizens need timely and accurate information when beaches are not open. In the short run, they won't make unnecessary trips to the beach and in the long run, they can understand how to be part of the solution.

To aid in this education, beach managers and members of the public should be notified promptly and directly when a sewer overflow event occurs. This will help eliminate health risks that may occur from uninformed citizens swimming in contaminated beaches.

What you can do:

1.

Call your local sewer authority and ask them who is notified when untreated sewage is discharged to local waterways.

If they don't already notify any individuals or agencies, urge them to inform local beach management agencies and the public directly of the reason for the closure, within one hour of an overflow.

2.

Urge your local sewage authority to post warning signs close to sewage pipes that empty near beaches and waterways.

These signs should warn people to avoid swimming or playing in the area.

1. Educate Yourself

2. Start Small

3. Take Action

4. Get Involved!

5. Contacts

the plan

4. Get Involved!

The only way to ultimately stop health threats from bacterial pollution at beaches is for citizens to press for change. Aside from the above suggestions, citizens can also get involved with others who are working to solve the problem:

What you can do:

1.

Participate in a citizen-monitoring program for your beach. The results of these programs may provide evidence that your municipality needs to start regular testing or can tell you whether your beach agency's testing is accurate. Participate in the Federation sponsored Coastal Cleanup and Adopt-a-Beach. Visit our www.lakemichigan.org for more information.

the plan

1. Educate Yourself
2. Start Small
3. Take Action
4. Get Involved!
5. Contacts

Lake Michigan Federation

www.lakemichigan.org/conservation/beach_health_index.asp

U.S. EPA Office of Water Monitoring Water Quality

www.epa.gov/owow/monitoring/volunteer/

Illinois EPA Volunteer Lake Monitoring Program

www.epa.state.il.us/water/conservation-2000/vlmp.html

Hoosier Riverwatch

www.in.gov/dnr/soilcons/riverwatch

Wisconsin's Self-Help Citizen Lake Monitoring

www.dnr.state.wi.us/org/water/fhp/lakes/shlmmain.htm

Michigan Cooperative Lakes Monitoring Program

www.michigan.gov/deq/1,1607,7-135-3313_3686_3731-14766--CI,00.html

River Network Getting Started with Volunteer Monitoring

www.rivernetwork.org/library/librivmon_sdw.cfm

2.

Educate others! Pass along the information in this plan to others so they can be part of the solution.

3.

Develop a S.W.A.T. team! (Safe Water Action Team)
Organize like-minded neighbors and community members to press for improved water quality at your local beach.

4.

Get in touch. The Lake Michigan Federation and other community groups around the Great Lakes can help answer questions and steer you in the right direction for advocating better beach health in your area.

***Citizens' Center for Beach Health
(312) 939-0838 x 3
or on the Web at
www.lakemichigan.org***

1. Educate Yourself

2. Start Small

3. Take Action

4. Get Involved!

5. Contacts

the plan

Who to Contact in Your Community:

ILLINOIS

Evanston
Evanston Health and
Human Services Department
2100 Ridge Avenue
Evanston, IL 60201
P: 847-866-2969
F: 847-448-8125

Glencoe
Glencoe Park District
999 Green Bay Road
Glencoe, IL 60622
P: (847) 835-3030
F: 847-835-7279

Chicago
Chicago Park District
Lakefront Services
541 N. Fairbanks
Chicago, IL 60611
P: 312-742-5239
F: 312-742-5339

Lake
Lake County Health Department
3010 Grand Ave.,
Waukegan, IL 60085
P: 847-360-6748
F: 847-249-4972

Wilmette
Village of Wilmette
1200 Wilmette Ave.
Wilmette, IL 60091
P: 853-7508
F: 853-7700

Winnetka
Winnetka Park District
540 Hibbard Road
Winnetka, IL 60093
P: 847-501-2040
F: 847-501-5779

INDIANA

Lake
Lake County Health
Department
2293 N. Main Street
Crown Pointe, IN 46307
P: 219-755-3655

Lake
City of Hammond Health
Department
649 Conkey Street
Hammond, IN 46324-1101
P: 219-853-6358
F: 219-853-6403

LaPorte
La Porte County Health
Department
809 State Street, Suite 401A
La Porte, IN 46350-3385
P: 219-326-6808 x 200
F: 219-325-8628

Porter
Indiana Dunes National
Lakeshore
1100 North Mineral
Springs Road
Porter, IN 46304
P: 219-926-7561 x 337
F: 219-926-8816

- 1. Educate Yourself
- 2. Start Small
- 3. Take Action
- 4. Get Involved!

5. Contacts

the contacts



MICHIGAN

Allegan
Allegan County Health
Department
2233 33rd Street
Allegan, MI 49010
P: 616-673-5411

Antrim
Northwest Michigan Community
Health Agency
PO Box 246
Bellaire, MI 49615
P: 231-587-5052

Berrien
Berrien County Health
Department-Env. Health
Division
2106 S. M-139
P.O. Box 706
Benton Harbor, MI 49023-0706
P: 616-927-5623
F: 616-927-2960

Benzie / Leelanau
Benzie-Leelanau District Health
Department
6051 Frankfort Hwy., Suite 100
Benzonia, MI 49616
P: 231-882-2103/5
F: 231-882-2204

Charlevoix / Emmet / Antrim
Northwest Michigan Community
Health Agency
220 W. Garfield
Charlevoix, MI 49720
P: 231-547-7651
F: 231-547-6238

Delta / Menominee
Public Health Delta &
Menominee
2920 College Avenue
Escanaba, MI 49829
P: 906-786-9692
F: 906-789-8147

Emmet
NW Michigan Community
Health Department-Emmet
2233 Mitchell Park Drive
Petoskey, MI 49770
P: 231-547-7651

Grand Traverse
Grand Traverse County
Health Department
2325 Garfield Road North
Traverse City, MI 49686
P: 231-995-6024
F: 231-995-6033

Leelanau (Sleeping Bear)
Sleeping Bear Dunes National
Lakeshore-NPS
9922 Front Street
Empire, MI 49630-9797
P: 231-326-5134

Mackinac
LMAS District Health
Department
749 Hombach
St. Ignace, MI 49781
P: 906-643-1105
F: 906-643-7719

Manistee
District Health Department
#10-Manistee County
385 3rd Street
Manistee, MI 49660
P: 231-723-3595
F: 231-723-1477

Mason
Mason County Health
Department
1110 S. Washington Avenue
Ludington, MI 49431
P: 231-845-7381

1. Educate Yourself
2. Start Small
3. Take Action
4. Get Involved!

5. Contacts

the contacts

MICHIGAN (continued)

Muskegon
Muskegon County Health
Department, Environmental
Health
209 E. Apple Drive
Muskegon, MI 49442
P: 231-724-1259
F: 231-724-1251

Oceana
District Health Department
#10-Oceana
3986 N. Oceana Drive
Hart, MI 49420
P: 231-873-2193

Ottawa
Ottawa County Health
Department
12251 James Street
Suite 200
Holland, MI 49424-9661
P: 616-393-5645
F: 616-393-5643

Schoolcraft
LMAS District Health
Department
300 Walnut Street,
Room 155
Manistique, MI 49854
P: 906-341-4110
F: 906-341-5230

Van Buren
Van Buren/
Cass County
Public Health Department,
Van Buren County Office
57418 CR 681, Suite A
Hartford, MI 49057
P: 616-621-3143
F: 616-621-2725

1. *Educate Yourself*
2. *Start Small*
3. *Take Action*
4. *Get Involved!*

5. *Contacts*

the contacts

WISCONSIN

Door

Door County Sanitarian Office
P.O. Box 670
Sturgeon Bay, WI 54235-0670
P: 920-746-2308

Door (Peninsula State Park)
Peninsula State Park, WI DNR
P.O. Box 218
Fish Creek, WI 54212
P: 920-868-2957
F: 920-868-1931

Kewaunee
City of Kewaunee
413 Milwaukee Street
Kewaunee, WI 54216
P: 920-388-5000
F: 920-388-5025

Kenosha
Kenosha County Division of
Health
714 52nd Street
Kenosha, WI 53140
P: 262-605-6700
F: 262-605-6715

Manitowoc
Manitowoc County Health
Department
823 Washington Street
Manitowoc, WI 54220
P: 920-683-4155
F: 920-683-4156

Marinette
Marinette County Health and
Human Services Department
2500 Hall Avenue
Marinette, WI 54143
P: 715-732-7670
F: 715-732-7646

Milwaukee

City of Milwaukee Health
Department
Division of Disease Control and
Prevention
841 N. Broadway
Milwaukee, WI 53202-3653
P: 414-286-3674

Oconto
Oconto County
Courthouse-Forestry
and Parks Dept.
301 Washington Street
Oconto, WI 54153
P: 920-834-6827
F: 920-834-6821

Ozaukee
Harrington Beach State Park
531 County Road D
Belgium, WI 53004
P: (262) 285-3015
F: 262-285-7821

Racine
City of Racine Health Department
Environmental Health Division
730 Washington Ave.
Racine, WI 53403
P: 262-636-9203
F: 262-636-9165

Sheboygan
Sheboygan County Health and
Human Services, Division of Public
Health
1011 N. 8th Street
Sheboygan, WI 53081
P: 920-459-4382

1. Educate Yourself

2. Start Small

3. Take Action

4. Get Involved!

5. Contacts

the contacts