Why Disinfect?

The argument for a healthy Chicago River

"Our waterways are among Illinois' most vital natural resources. We have a responsibility to do everything we can to clean up our rivers for the people and wildlife that share them."

~ Pat Quinn,
Governor, State of Illinois

Friends of the Chicago River

Everybody Does It

In October 2007, the Illinois EPA proposed amendments to the Illinois Pollution Control Board recommending more appropriate water quality standards for the Chicago Area Waterways (CAWS). The outcome of a five-year study, prompted by law under the Clean Water Act, the new standards lay the foundation for a healthier river system that protects the health of people and aquatic life, particularly fish.

Among the myriad improvements included in the new standards is wastewater disinfection to kill the pathogens and bacteria from human sewage that are present in the CAWS from sewage effluent, the byproduct of the sewage treatment process. The solids are removed from the sewage but the bacteria aren't and are released into the CAWS as effluent.

A standard wastewater treatment practice employed in every major city in the United States and many smaller ones, disinfection of sewage effluent has become essential for the CAWS because, unlike decades ago when no one was recreating there, today thousands of people of all ages are directly interacting with the water while paddling kayaks and canoes, wading and fishing, or rowing crew. Every one of them is being exposed to unnaturally high levels of bacteria providing potential for infection.

What's in the Water?

For decades across the U.S., wastewater effluent disinfection has been considered a basic protocol in public health protection because there are hundreds of pathogens present in human sewage that can make people ill. Some of the common ones include:

Pathogens	**Associated Illness**
Echoviruses	Meningitis, encephalitis, respiratory illness, rash, diarrhea, fever
Hepatitis A virus	Infectious hepatitis
Norovirus	Epidemic vomiting and diarrhea
Rotavirus	Diarrhea, vomiting
Salmonella	Typhoid, paratyphoid, salmonellosis
Shigella	Bacillary dysentery
Pathogenic *E. coli*	Gastroenteritis, hemolytic uremic syndrome
Campylobacter	Gastroenteritis
Vibrio	Cholera
Legionella	Acute respiratory illness, Legionnaire's disease
Mycobacterium	Tuberculosis
Giardia lamblia	Diarrhea, malabsorption
Cryptosporidium	Diarrhea

These pathogens can cause multiple serious illnesses, particularly in sensitive populations who may not realize that they are at an increased risk like children, pregnant women, the elderly, and the immuno-compromised like someone being treated with chemo therapy or taking certain prescriptions.

Continued failure to disinfect sewage effluent discharged to the CAWS results in a substantial and unnecessary risk to public health, a risk that every other major metropolitan area in the country mitigates through the practice of disinfection.

In 2003, US Environmental Protection Agency (USEPA), Illinois Dept. of Public Health, the Metropolitan Water Reclamation District (MWRD), and Illinois EPA published *Chicago Area Waterways Health Precautions* to warn the public about CAWS water quality. Specifically the brochure states that the water can contain "harmful bacteria" and that the CAWS are "deemed unsuitable for activities that involve direct body contact including wading, swimming, and jet skiing/waterskiing/tubing."

Yet at public parks, forest preserves, street ends, and from peoples' backyards access to the water is easy and encouraged with new residential development, public canoe launches, fishing stations, or school-sponsored crew teams paid for with public and private money along the entire river system. There are countless ways to access the water.

Why Would Anyone Say No?

A number of arguments have been made against local disinfection including:

- **The CAWS are clean enough.**
  The water in the CAWS can't be clean enough because, according to MWRD, 70% of it is sewage effluent. Each day 1.2 billion gallons of effluent containing bacteria from human sewage are poured into the CAWS from three sewage treatment plants located upstream of public parks and put ins. The Tunnel and Reservoir Plan (TARP) only helps the river when it rains.
- **Disinfection won't make a difference because TARP doesn't work.**
  Water quality in the CAWS has steadily improved since the Clean Water Act became law nearly 40 years ago and with the tunnel portion of TARP completed in 2006, 85% of CSOs have been eliminated. That number will decrease further when the unfinished reservoirs come

online. That means that most of the year the only sewage impact on the CAWS is from effluent which is preventable through disinfection. A good indicator of improvement is fish populations skyrocketed from less than 10 species before TARP to nearly 70 today.

- **Portions of the river were manmade or engineered so therefore they are not natural and Clean Water Act law does not apply.**

With 70 species of fish, 60 species of birds, and beavers, muskrats, minks, and occasional otters dependent upon our river system, it doesn't matter who made the waterways or why. There has always been a river here and like Chicago's entire Lake Michigan shoreline, we engineered portions of it to suit our needs. The need to provide protection is based on use not on design and people are out there using them.

- **No one gets wet so therefore there is no public health risk.** Everybody engaged in sports or recreation on the CAWS is directly exposed to the bacteria from sewage. Wading, lifting boats, touching fish, poles or hooks, not to mention the soaking reported from paddle and oar back splash or falling in, gets people wet. Even people not in direct contact with the water are exposed when sewage pathogens become airborne through spray.
- **Not enough people get sick.** Since the incubation period for illness from exposure to bacteria can range from six to as many as 72 hours or longer people often don't connect that the gastrointestinal or other symptoms they are experiencing may be from exposure to river water. In fact, the Center for Disease Control estimates that 38 cases of *salmonellosis* actually occur for every case that is actually diagnosed and reported to public health authorities. There is no dispute that pathogens from human sewage make people sick.
- **No one uses the CAWS.** Each year the number of people using the CAWS and the access to them increases. Already there are over 150 public and private access points throughout the system. Just two of the canoe and kayak liveries reported over 20,000 paddlers last summer. High school, club and college crew teams with rowers young as 13 are on the river two hours day six days a week nine months of the year. People are fishing everywhere. And the Illinois Dept. of Tourism, Chicago 2016 Olympic bid video, and media coverage are promoting it all.
- **Disinfection will cause climate change.** Choosing clean air over clean water is a false choice. Industrial energy

audits, use of clean and renewable energy, and the implementation of contemporary technologies that reduce energy use to a fraction of current energy consumption. Cutting-edge technologies like the fuel cells employed by Portland transform wastewater agencies from energy consumers to net producers saving money and energy.

- **The CAWS are not safe for paddling because of commercial navigation and seawalls.**
  Although conditions along the CAWS vary from the breathtaking beauty of downtown to wooded north side neighborhoods to old industrial areas in the south, southeast, and southwest, the CAWS have miles and miles of accessible shoreline. In the reaches where there is heavier boat traffic, the engineered channels provide excellent opportunity for recreation with long straight shots that make crew team practice possible and it is easy to see what's coming so boaters can get out of the way.
- **Disinfection costs too much.**
  A study commissioned by USEPA concluded that using ultraviolet light, a widespread disinfection technology, would cost $1.94 household per month, or less than half the price of a Big Mac. Conversely, with disinfection, the economic benefit from recreation alone is valued at an increase of over $52 million a year, not counting new jobs, new homes, new businesses, and increased property values directly resulting from investment in clean water.

The Clean Water Act Requires It

In the last 10 years, nearly $100 million has been spent by the City of Chicago and the Chicago Park District alone not to mention Blue Island and other communities and the countless private developments investing in the concept of a waterfront economy.

This investment is based on an understanding that as a society we will continue to invest in the protection of our natural resources and protect human health. This understanding is codified by the Clean Water Act.

The Clean Water Act itself is by nature not static but forward looking, not content with the status quo but demanding constant review and analysis to strive for new and better ways to improve water quality. Under the Clean Water Act it is never sufficient for governmental authorities and the regulated community to keep

doing what they are doing in perpetuity, without examining whether they can do better. On the contrary, they are required to strive together toward the Act's goals of clean, safe water.

The Clean Water Act establishes as a goal "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water" – in the usual shorthand, waters that are "fishable and swimmable." 42 U.S.C. § 1251(a)(2).

In furtherance of that goal, standards and limitations established under the Clean Water Act are required to be reviewed on an ongoing basis and improved wherever possible. This means that water quality standards for all water bodies in the U.S. are subject to a "trienennial review," i.e., a thorough analysis once every three years to determine whether the water quality standards can be upgraded to accommodate higher uses.

The Time is Now

It has been over 30 years since the water quality standards of the CAWS have been evaluated and with limited resources and limited budgets, it may be another 30 before they are again. This is a once in a generation opportunity.

And right now, there are tens of thousands of people canoeing, kayaking, rowing, fishing, wading, and sometimes falling in. These people, and those who would use the CAWS if they were cleaner, have a right to clean water through the Clean Water Act and the Constitution of the State of Illinois, have the means to achieve it through common technologies employed across the country, and the proof it is necessary by the physical presence of bacterial sewage in the water and years of study be Illinois EPA.

We are out time. The debate is happening. We need to act. The time to disinfect is now.

> "It's time to act now to clean up the Chicago River to protect people's health and our environment. Let's get it done—the need to disinfect bad bacteria that makes our rivers unhealthy has been clearly demonstrated and has been studied long enough."
>
> ~ Howard A. Lerner, president and executive director, Environmental Law & Policy Center

Select Cities that Disinfect

In 2000, Friends of the Chicago River, the Civic Federation, and Openlands released a study that found of the 23 major dischargers in the U.S. (those releasing 15-1,200 million gallons a day), 22 disinfect their sewage effluent.

New York City
Los Angeles
Philadelphia
Washington, D.C.
Portland
Cincinnati
Cleveland
Detroit
Gary
Milwaukee
East Chicago
Indianapolis
Louisville
Minneapolis

Who is On the Record in Support?

Governor Pat Quinn
Attorney General Lisa Madigan
U.S. Representative Jesse Jackson, Jr.
U.S. Representative Mark Kirk
U.S. Representative Mike Quigley
State Representative Elizabeth Coulson, 17th District of Illinois
State Representative Elizabeth "Lisa" Hernandez, 24th District of Illinois
State Representative Kevin Joyce, 35th District of Illinois
Chicago Alderman Scott E. Waguespack, 32 Ward
City of the Chicago
Chicago Area Sea Kayaking Association (CASKA)
Chicago River Canoe and Kayak
Chicago Whitewater Association
Environmental Law & Policy Center
Friends of the Forest Preserves
Illinois Department of Natural Resources
Illinois Endangered Species Protection Board
Illinois Paddling Council
Kayak Chicago
Lincoln Park Boat Club
Natural Resources Defense Council
National Marine Manufacturers Association
Openlands
Prairie Rivers Network
Sierra Club of Illinois

See the complete list at chicagoriver.org

"The City of Chicago encourages MWRD to identify and implement cost-effective disinfection technologies that improve the recreational potential of the river while limiting the negative impacts on the environment."

~ Mayor Richard M. Daley, Chicago River Agenda 2005

What Can You Do?

- **Send a letter of support**
- **Contact your elected officials**
- **Write a letter to the editor for your local paper**

Find out more about it at
http://www.chicagoriver.org/projects/clean_water_and_healthy_fish/

"A state rule requiring disinfection of effluent discharged into the Chicago Area Waterways is long overdue. The Metropolitan Water Reclamation District must not be allowed to continue practices that threaten human health and the environment."

~ Lisa Madigan, Attorney General, State of Illinois

Crew photo on cover by Clayton Miller.

Friends of the Chicago River

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