

Dear HLPOA Member,

Recent water samples collected in Higgins Lake Fall 2022 indicate pharmaceutical chemicals are in Higgins Lake waters.

The Michigan State University's Laboratory supervised by Professor Li has analyzed six samples of water drawn from nearshore locations distributed around the lake. The sampling took place on September 22, 2022. The samples were taken according to Professor Li's strict sampling protocols and the chain of custody was maintained from the drawing of the samples until personally received by Professor Li.

The results clearly indicate the presence of pharmaceutical contamination of the lake's waters. Higgins Lake is fed primarily by springs from groundwater, and the presence of these chemicals in the lake prove the existence of septic field connections to groundwaters in the watershed. To quote Steve King of the Central Michigan District Health Department:

"Since Higgins Lake is predominantly spring fed, the presence of pharmaceuticals in the lake water reinforces the connection that onsite sewage disposal has with groundwater and the lake. I would suspect that drinking water wells with detectable nitrates would have a similar mix of pharmaceuticals from upstream sources should the wells get tested. Just as we did not know if pharmaceuticals would be found in the lake, we don't know of any impacts to drinking water. This should be the next area to look at to see what residents might potentially be exposed to through consumption of groundwater."

To see the procedures followed and the resulting data click on the link below.

<http://hlpoa.org/wp-content/uploads/2022/11/2022-11-4-report-PPCPs-in-Higgins-Lake-from-Hui-Li-MSU.pdf>

Tuesday, November 29, 2022, is "Giving Tuesday". In the spirit of giving this season, please consider making a donation to the Higgins Lake Property Owners Association, Environmental Committee, and help to continue impactful research and environmental projects in and around Higgins Lake.

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Amoxicillin is used to treat certain infections caused by bacteria, such as pneumonia; bronchitis (infection of the airway tubes leading to the lungs); and infections of the ears, nose, throat, urinary tract, and skin. It is also used in combination with other medications to eliminate *H. pylori*, a bacteria that causes ulcers. Amoxicillin is in a class of medications called penicillin-like antibiotics. It works by stopping the growth of bacteria.

Carbadox is an animal drug used in swine (hogs and pigs) for production purposes (e.g., increased rate of weight gain and improved feed efficiency) and therapeutic purposes (e.g., to control swine dysentery and bacterial swine enteritis).

Ampicillin is used to treat certain infections that are caused by bacteria such as meningitis (infection of the membranes that surround the brain and spinal cord); and infections of the throat, sinuses, lungs, reproductive organs, urinary tract, and gastrointestinal tract.

Chlortetracycline A veterinary medicine, chlortetracycline is commonly used to treat conjunctivitis in cats, dogs and horses. It is also used to treat infected wounds in cattle, sheep and pigs, and respiratory tract infections in calves, pigs and chickens.

Ciprofloxacin is used to treat serious infections, or infections when other antibiotics have not worked. It's used to treat bacterial infections, such as: chest infections (including pneumonia) skin and bone infections.

Clindamycin is used to treat certain types of bacterial infections, including infections of the lungs, skin, blood, female reproductive organs, and internal organs. Clindamycin is in a class of medications called lincomycin antibiotics. It works by slowing or stopping the growth of bacteria.

Demeclocycline is used to treat infections caused by bacteria including pneumonia and other respiratory tract infections; certain infections of the skin, eye, lymphatic, intestinal, genital, and urinary systems; and certain other infections that are spread by ticks, lice, mites, and infected animals.

Doxycycline is used to treat bacterial infections in many different parts of the body. It is also used to treat pimples and abscesses (usually on the face) that are caused by rosacea, also known as acne rosacea or adult acne.

Erythromycin is used to prevent and treat infections in many different parts of the body, including respiratory tract infections, skin infections, diphtheria, intestinal amebiasis, acute pelvic inflammatory disease, Legionnaire's disease, pertussis, and syphilis.

Lincomycin works by killing or stopping the growth of bacteria causing your infection. The specific infections for which LINCOCIN is used include: ear, throat and lung infections; skin infections; bone and joint infections; and infections of the blood. LINCOCIN will not work against viral infections such as colds or flu.

Minocycline capsules are used to treat bacterial infections in many different parts of the body. It is also used to treat anthrax infection and other infections in patients who cannot receive penicillin's. Minocycline belongs to the class of medicines known as tetracycline antibiotics.

Ofloxacin is used to treat certain bacterial infections in many different parts of the body. It may also be used for other problems as determined by your doctor. Ofloxacin may mask or delay the symptoms of syphilis. It is not effective against syphilis infections.

Oxytetracycline is a tetracycline class of antibiotics, commonly used for the treatment of various infectious diseases like anthrax, Chlamydia, cholera, typhus, relapsing fever, malaria, plaque, syphilis, respiratory infection, streptococcal infection, and acne.

Sulfadiazine is a sulfa drug, eliminates bacteria that cause infections, especially urinary tract infections. Antibiotics will not work for colds, flu, or other viral infections.

Sulfamerazine, is an antibacterial agent used in the treatment of various bacterial infections, such as bronchitis, prostatitis, and urinary tract infections. A sulfanilamide that is used as an antibacterial agent.

Sulfamethoxazole and trimethoprim combination is an antibiotic. It works by eliminating the bacteria that cause many kinds of infections. This medicine will not work for colds, flu, or other virus infections. This medicine is available only with your doctor's prescription.

Paraxanthine is a central nervous stimulant but has lower toxicity and lesser anxiogenic effects than caffeine.

1,7-Dimethyluric Acid is a metabolite (a substance made or used when the body breaks down food, drugs or chemicals) often found in human urine samples.

Xanthine is used for relief of bronchospasm caused by asthma or chronic obstructive lung disease.