

# WASTEWATER BUG SPOTLIGHT

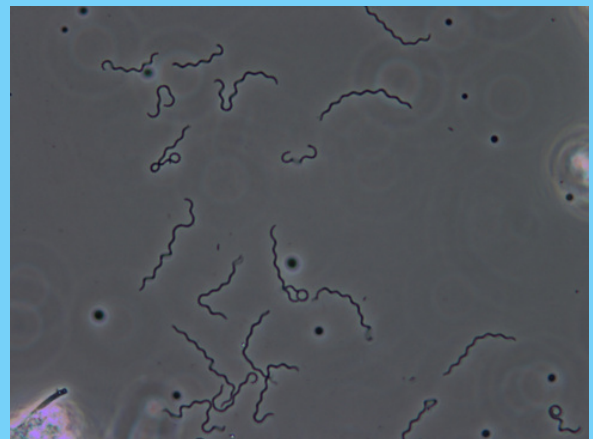
## SPIROCHAETES

Spirochaetes are free swimming bacteria that have long, distinctive coiled cells. Spirochaetes are often seen at El Estero Water Resource Center wriggling through aeration basins feeding on organic chemicals and reduced forms of carbon, providing an excellent micro particle cleanup service while also serving as food for larger, more advanced microscopic metazoans.

Spirochaetes are easily identifiable by their coiled, spiral-like structure and their spastic, twisting movement. This rotation, caused by a flagella running the length of their body, creates a corkscrew-like propulsion that allows them to move through more viscous material that other microorganisms cannot traverse.

Spirochaetes also serve as excellent indicator organisms for anaerobic or septic conditions within the treatment system. When dissolved oxygen conditions are best, spirochaetes are hidden within aeration basin particles and cannot be easily observed. However, when dissolved oxygen conditions worsen, spirochaetes will emerge in search of oxygen.

While the presence of spirochaetes in a wastewater treatment plant is generally indicative of good treatment, related species of spirochaetes are associated with a litany of pathogenic diseases in humans and animals such as syphilis, Lyme's disease and leptospirosis - which is one of the reasons wastewater treatment is so important to public health and the environment.



Spirochaetes ciliates found under the microscope at the City's El Estero Water Resource Center, magnified x1000



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