

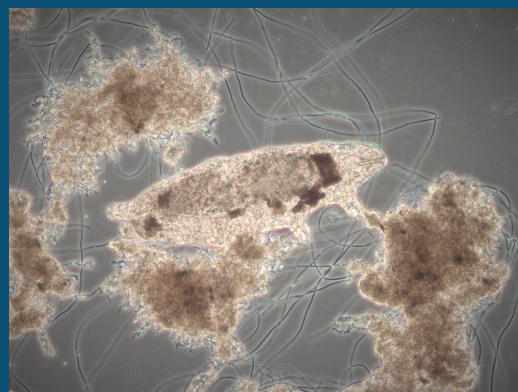
WASTEWATER BUG SPOTLIGHT

WATER BEARS

First discovered in 1773 by German Zoologist Johann August Ephraim Goeze, Tardigrades were originally described as "little water bears" due to their bearlike claws and aquatic habitat. These creatures were given a proper name a few years later in 1777 when Italian biologist Lazzaro Spallanzani dubbed them Tardigrada which aptly translates to "slow steppers."

Today Tardigrades, or, as they are more commonly known, "water bears," are often recognized as the only known creatures that can survive in outer space! This uniquely resilient characteristic is due to water bears being able to enter a hibernative state of suspended animation called cryptobiosis in which metabolism slows considerably and the body becomes rounded and dehydrates. Water bears can stay in cryptobiosis for years and even decades without dying and are quickly revived when rehydrated.

Water bears are short, plump creatures with eight legs that have four to eight claws on each leg. Mature adults can range between 0.05 to 1.2 mm in length and spend most of their time pawing around for food. In wastewater, these microscopic metazoans can often be seen in older sludge and indicate low food to biomass ratios, high dissolved oxygen levels, and good biochemical oxygen demand degradation - all important indicators for effective wastewater treatment.



Water bears found under the microscope at the City's El Estero Water Resource Center, magnified x100



El Estero
WATER RESOURCE CENTER

For more information on
wastewater treatment visit
www.SantaBarbaraCA.gov/ElEstero