

110 Years

# CAWD Connections



"Protecting your health and the environment since 1908"

CONSUMER NEWS FROM YOUR CARMEL AREA WASTEWATER DISTRICT

FALL/WINTER 2021

15-year master plan update

## Phase Two construction underway

With design and permitting complete, Phase Two construction of CAWD's Capital Improvement Projects 15-year Master Plan is now underway. Over the next year and a half, we will be upgrading outdated systems, and replacing circa 1970-1980s equipment that is past its useful life and is no longer cost-effective to maintain.

"Phase Two will ensure efficient and reliable operation of our community's treatment plant for the next 30 years," said CAWD Principal Plant Engineer Patrick Treanor. "New technologies, equipment, and electrical systems will minimize risk, increase reliability, save energy, and greatly reduce staff time currently being spent on upkeep of equipment which is 40 to 50 years old."

### Making every dollar count

Phase One, completed in 2018, rehabilitated or replaced approximately half of the plant's operational systems. Phase Two will upgrade the five remaining areas: our headworks, disinfection, influent, effluent, and digesters/sludge holding systems. The capital improvements projects will

mitigate risk of failure for critical equipment so the plant can continue to function without issue and meet regulatory requirements.

"In Phase Two we are using the same successful strategy that allowed us to complete Phase One on time, well within budget, and with many more improvements than we had originally planned," said Patrick. "Our comprehensive assessments, detailed design, and careful day-to-day construction management will ensure that we get the highest possible return on our community's investment."

*Please watch your newsletter for updates on Phase Two progress. To view the Capital Improvement Projects 15-year Master Plan, please visit [cawd.org](http://cawd.org).*



Phase 2 includes replacement of our community's 40-year-old wastewater intake pumps, which are past their useful life and no longer cost-effective to maintain. This will greatly reduce the labor required to keep the pumps running, freeing up staff time for other important tasks.

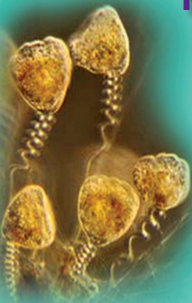
### MICROORGANISM OF THE MONTH

#### MEET "CHUCK" *CARCHESIUM!*



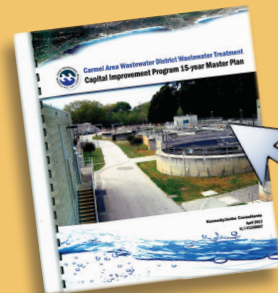
Chuck is one of the multitudes of microbes that clean our community's wastewater at CAWD. Our giant blowers oxygenate the wastewater in our activated sludge system to keep Chuck and his pals thriving. In this giant aquarium "ecosystem," bacteria and fungi eat dissolved organic matter, and one-celled protozoa like *Carchesium* eat the bacteria and each other. About 95 percent of the microbes in our system are bacteria, 4 percent are one-celled microbes like Chuck, and 1 percent are multicellular.

*Carchesium* is a ciliate, a large and diverse phylum that possess hair-like, beating cilia that help them move and capture food. As a colonial microbe, Chuck shares nutrients (Cont. on flip side)



**Carchesium** microbes can recoil their spring-like sheaths at astounding speed to capture prey and get out of harm's way.

Photo: Sorbonne University Life Sciences



### View the master plan for Phase Two

Visit our home page at [cawd.org](http://cawd.org) to find the detailed Capital Improvement Projects 15-year Master Plan for our community's treatment plant.

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## Tree trimming scheduled

If you live in Mission Field or Carmel Meadows, you may be able to see the eucalyptus trees that screen the perimeter of the CAWD treatment plant. This fall, after all bird nesting is concluded, we will be trimming the trees to remove dead branches and ensure the safety of our staff.

Planted in the 1970s as a fast-growing screening plant, the non-native Australian blue gum eucalyptus are now over 100 feet tall (they can grow up to eight feet each year).

With increasing fires in California, the species is being removed from many areas because its aromatic oils are highly combustible, and the tree also produces large amounts of flammable debris. CAWD is implementing a long-term plan to replace the trees with native, firesafe riparian species such as willows and cottonwoods. This will be an incremental process to ensure continual buffer screening for nearby neighborhoods.



**Carmel Area Wastewater District**

3945 Rio Road, Carmel, CA 93923  
(831) 624-1248 ■ cawd.org

**Free 24-hour sewer back-up service:** Call 624-1248; after 5 pm, please call Carmel Police Department at 624-6403. If water is backing up into your tub or toilet, it is an emergency. Call us immediately, day or night!

CAWD is a special district dedicated to protecting public health and the environment with the cost-effective collection and treatment of wastewater and the return of clean water to the environment.

*We invite the public to attend CAWD board meetings, held the last Thursday of each month at 9:00 am at the CAWD office.*

### Board of Directors

Greg D'Ambrosio Charlotte Townsend  
Michael Rachel Ken White  
Robert Siegfried

**General Manager**  
Barbara Buikema

"Bug of the Month" © Anne Muraski 201

# CRFREE update

CAWD continues to work diligently with Monterey County and participating agencies to move forward on the Carmel River Floodplain Restoration and Environmental Enhancement Project (CRFREE). The project is designed to restore habitat and reduce flood risk to homes and property inside the floodplain.

We have nearly completed the engineering design to underground our 180-foot-long outfall and sewage pipelines that currently cross above the south arm of Carmel River Lagoon. The undergrounding is necessary to safeguard the lagoon, Carmel River State Beach, and nearshore waters from sewage spills, because CRFREE will increase water velocity and the risk of debris strikes on existing pipelines.

The California Coastal Commission has approved the undergrounding project. California State Parks is providing a property easement for construction, and we will soon have our permit from the Army Corps of Engineers. With agreements falling into place, construction could begin before the end of the year. Currently, we are waiting for Monterey County to complete the memorandum of understanding for the undergrounding.

"CAWD fully supports CRFREE, and we also take very seriously our responsibility to protect human health and the environment, as well as to advocate for our customers," said CAWD General Manager Barbara Buikema. "We have been negotiating with Monterey County to reach an agreement that safeguards the lagoon and protects CAWD customers from being unfairly burdened by the cost of the undergrounding."

The CAWD undergrounding design and EIR will be part of Monterey County's \$26 million FEMA grant application to fund CRFREE, of which \$5.6 million is slated for the CAWD project. We thank Big Sur Land Trust for facilitating negotiations, as well as the \$750,000 California Coastal Conservancy grant that paid for the design and environmental impact report.



**The CAWD pipeline undergrounding project will safeguard Carmel River State Beach (shown here), the lagoon, and Carmel Bay from sewage spills.** Photo: weekendsherpa.com

## Microorganism (Cont. from page one)

with the colony. Under the microscope, the colony looks like a bouquet of tulips, with the separate flowers bouncing this way and that on their stems to capture bacteria. The individuals contract their stalks at lightning speed to capture prey, causing their sheaths to coil like a spring.

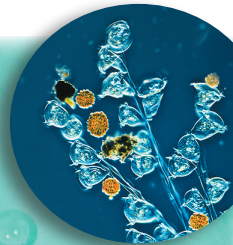
*Carchesium's* cousin, *Vorticella*, has been clocked contracting in five milliseconds (it takes 100 to 150 milliseconds to blink your eye), which is like a midsize car moving at 15,000 mph!

The ciliates use a "mechanochemical" action to achieve their astounding speeds. Calcium provides the fuel, and calcium-binding proteins trigger the spiral movement.

Bioengineers are studying the coordinated structural and chemical reaction, hoping to find inspiration to improve micromachinery such as the micropumps and microvalves used in blood and DNA analysis, implanted insulin delivery devices, and inkjet printers.



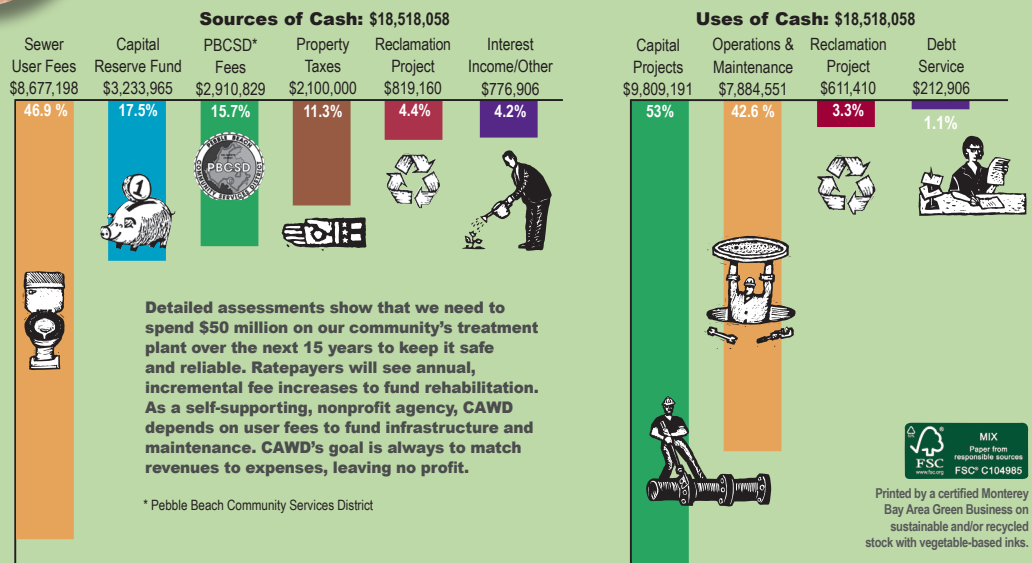
**Carchesium hitches a ride on a snail shell.**



**Individuals in the Carchesium colony capture bacteria, which provide nutrients for the entire colony.**  
Photo: plingfactory.de

## CARMEL AREA WASTEWATER DISTRICT BUDGET

July 1, 2021 - June 30, 2022



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