115 Years

CAWD Connections

"Protecting your health and the environment since 1908"

CONSUMER NEWS FROM YOUR CARMEL AREA WASTEWATER DISTRICT

FALL/WINTER 2024

Aspiring engineer Brianna Sciuto checks out project site plans at the CAWD treatment plant with District Engineer Patrick Treanor.

And now for some good news . . .

High school interns rock the plant

When we launched our intern pilot program at the CAWD treatment plant this summer we planned on hosting two students, but after interviewing the twelve candidates the decision was unanimous: we took them all!

"It's hard to find industry partners so we were ecstatic when CAWD accepted all our students," said Ivonne Glenn, Director of College and Career Readiness at Carmel Unified School District. "Nothing is better than real-world experience. The internships have been transformational for our students and will have a lasting impact on their college readiness and future careers."

Local high school and Monterey Peninsula College students applied for positions in all departments: maintenance/operations, safety/compliance, engineering, IT, collections, and the CAWD laboratory, working up to 8 hours a day for two months. Guided by staff mentors, they experienced all facets of the job: a formal hiring process, safety training, visiting project sites, talking to customers, attending conferences, meeting with the board of directors, and performing hands-on tasks throughout the treatment plant.

Learning in the real world

Brianna Sciuto was one of four female Carmel High School interns in our final session who chose engineering as her focus, shadowing District Engineer Patrick Treanor. Among other tasks, she calculated the overhead and internal pressure of a future underground pipeline to determine its maximum load at depth.

"Seeing all the aspects of the job come together in the *(Cont. on flip side)*

MICROORGANISM OF THE MONTH

MEET "DANTE" *D. AUDAXVIATOR*, "THE LONELIEST MICROBE"

***D. audaxviator* (shown in blue) lives miles beneath the surface in an ecosystem all its own. The orange spheres are carbon.**

Photo: © Greg Wanger, California Institute of Technology, USA, and Gordon Southam, University of Queensland, Australia.)

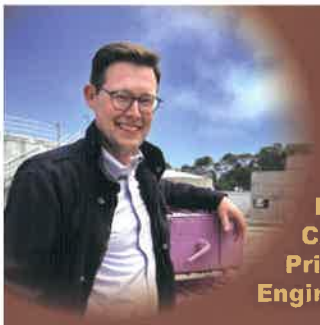
Over the years we've introduced you to dozens of microorganisms that live in, on, and amongst us. Bacteria have evolved in concert with other organisms and have complex, vital relationships with other species wherever they occur, which is . . . everywhere! At the CAWD treatment plant we create the perfect oxygenated environment so bacteria can quickly multiply and digest organic material to clean our wastewater for safe return to the environment.

Until fairly recently, all life forms were thought to depend upon sunlight. Even deep sea volcanic vent ecosystems use oxygen that is produced by photosynthesizing *(Cont. on flip side)*

See a spill? Call CAWD immediately!

We count on the public to be our eyes and ears out in the community. If you see water flowing out of a manhole cover, in the street, through cracks in the road or sidewalk, or coming out of the sewer relief valve in your yard, it is a serious emergency! Please contact CAWD at once. *We respond to emergencies seven days a week, 24 hours a day, so don't hesitate to call us at 624-1248. After 5 pm, please call Carmel Police at 624-6403, and they will activate a CAWD response.*

Carmel Area Wastewater District
3945 Rio Road
Carmel, CA 93923
831/624-1248



New CAWD Principal Engineer

We welcome **Jeff Bandy** to the CAWD team. Jeff received a PhD in civil and environmental engineering from prestigious Duke University in 2009, and brings a wealth of experience to our community. During Jeff's 10 years of service with East Bay Municipal Utility District (EBMUD) he supported three water filtration plants and helped optimize their wastewater treatment and recycled water facilities, including a microfiltration/reverse osmosis plant similar to CAWD's.

"I'm excited to bring my experience at a large utility to the Carmel area, where I can also be closer to family," said Jeff.

Most recently, Jeff was program manager and resident engineer for a $267 million upgrade at EBMUD's largest water treatment plant–the biggest capital improvement project in their history. He guided the project through planning, design, and construction, and coordinated with stakeholders and regulatory agencies.

"I take CAWD's mission as a steward of the public trust very seriously," Jeff said. "We have a very principled and experienced staff here, and I'm glad to be part of a great team who really make a difference for the community!"

Carmel Area Wastewater District

3945 Rio Road, Carmel, CA 93923
831 . 624 . 1248
cawd.org

Free 24-hour sewer back-up service:
If water is backing up in your tub or toilet call us immediately: 624-1248, or 624-6403 after-hours.

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 fourth Thursday of each month at 9:00 am at the CAWD office.

"Bug of the Month" © Anne Muraski 2001-2024

Interns *(Cont. from page one)*

real world really helped me gain confidence in my chosen career of engineering," said Brianna. "There was more outreach than I expected, which is great because I'm passionate about the environment. A job like this would allow me to protect ecosystems and incorporate my STEM [science, technology, engineering, and math] interests in one job."

"We did things that actually mattered, like testing samples and running alkalinity levels on the machines," said intern Jeremiah Robinson, also from Carmel High School. One of Jeremiah's favorite experiences was discovering some of the microbes that clean our wastewater. "Under the microscope we saw tardigrades moving around and eating things. It was really surprising! I'm thinking about working in a lab now, and this internship will help with my college applications."

"There is a shortage of engineers and skilled water professionals locally and nationwide, so it's very rewarding to open the door to these careers for our local youth," said CAWD Operations Superintendent Ed Waggoner. "It's also given us a fresh perspective of our jobs, seeing it through the eyes of these young, talented people. We are all looking forward to hosting more interns next year!"

Laboratory Interns Mason Hogan (left) and Jeremiah Robinson verify bottle sterility to ensure the accuracy of bacteriological testing. Below: Intern Samuel Hauser receives his completion certificate from his mentor, Collection Superintendent Daryl Lauer.

Microorganism *(Cont. from page one)*

plankton at the surface. Until the mid-20th century most scientists did not think subterranean life was possible beyond ten feet or so below the planet's surface.

Naturally, it was a huge surprise in 2008 when scientists discovered *Desulforudis audaxviator* (nickname: "Dante") two miles beneath the earth's crust in a South African goldmine. Dubbed "the loneliest microbe," Dante lives in water-filled cavities inside solid rock, an ecosystem all his own without sunlight, oxygen, or any other life forms! In fact, Dante cannot tolerate being exposed to oxygen, indicating that he could be as old as the water he lives in, which has not seen the light of day in over 3 million years. Instead of breathing oxygen, Dante gets energy from the natural radioactive decay of minerals.

D. audaxviator has also been found at similar depths in Siberia and California. Shockingly, all their genomes are almost identical, making it likely that they are basically unchanged since they were geologically separated during the breakup of the supercontinent Pangaea about 175 million years ago. Even more astounding, Dante is only one of many subterranean organisms of which we know very little. Once thought barren, earth's interior is now thought to contain the majority of our planet's microbes—perhaps more than 90 percent!

A researcher opens a borehole to collect *D. audaxviator* from solid rock deep in a mine.
Photo credit: Lisa M. Pratt, The Trustees of Indiana University, NASA, NSF

Carmel Area Wastewater District Budget

July 1, 2024 - June 30, 2025

Sources of Cash: $18,682,505

Sewer User Fees	Property Taxes	PBCSD* Fees	Capital Reserve Fund	Interest Income/Other	Reclamation Project
$10,046,239	$2,740,617	$2,072,329	$1,786,932	$1,342,981	$693,407
53.8%	14.7%	11.1%	9.5%	7.2%	3.7%

Uses of Cash: $18,682,505

Operations & Maintenance	Capital Projects	Reclamation Project	Debt Service
$10,445,117	$7,382,300	$642,107	$212,981
55.9%	39.5%	3.4%	1.1%

For the past seven years, CAWD has focused on necessary upgrades to our wastewater treatment plant to protect public health and the environment. Now we are turning our attention to the safety of our collection system. This fiscal year we have slated $7.3 million to replace or rehabilitate aging sewer main lines which are 80 to 100 years old, with capital projects on Scenic Road and at other locations.

* Pebble Beach Community Services District