

100 Years

# CAWD Connections



"Protecting your health and the environment since 1908"

CONSUMER NEWS FROM YOUR CARMEL AREA WASTEWATER DISTRICT

FALL/WINTER 2013

## Capital project update

### Renovation site plan complete!

The CAWD treatment plant Capital Improvement Program 15-year Master Plan continues to proceed on schedule. We have surveyed the plant, conducted energy audits, and developed a preliminary site plan as we continue to investigate all options. What is the shortest effective path for waste streams at the plant? Where should buildings be located to save money on pipeline and electrical runs? What new technologies can we use with our existing equipment to increase efficiency and save money and energy? These are just a few of the hundreds of complex issues that the CAWD professional staff and our highly experienced consultants from Kennedy/Jenks are tackling as we determine the most cost-effective design for our community.

"Our energy audit showed that the District had already done all they could to maximize the energy efficiency of the existing plant," said consultant Patrick Trainer, Kennedy/Jenks Project Engineer. "We are now focusing on new technologies that will provide even greater cost savings."

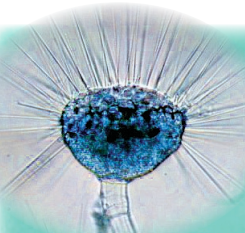


One major study we are currently conducting may help us combine the plant's three waste streams into one. Right now, waste from our secondary and tertiary clarifiers, and backwash from our microfiltration-reverse osmosis system are pumped separately.

"Combining the waste streams would mean that one pump could do the job of three," said CAWD Principal Engineer Drew Lander. "Energy efficiency and environmental protection are top priorities as we weigh our options."

The introduction of low-flow toilets and other water conservation measures over the last decade have significantly reduced our daily per gallon intake, yet our blowers, which aerate our activated sludge process, continue to be our top energy user (Cont.)

**WE'VE GOT YOUR BACK**  
The highly experienced professionals on CAWD's renovation design team are dedicated to updating our community's wastewater treatment plant in as efficient and cost-saving a manner as possible. Shown are (from left) Mike Barnes and Patrick Treanor, engineers with Kennedy/Jenks Consultants, and CAWD staff members Jim Pinkevich, Plant Superintendent; Drew Lander, Principal Engineer; and Barbara Buikema, General Manager.



### MICROORGANISM OF THE MONTH:

MEET "SABRINA" SUCTORIA:  
THE VAMPIRE OF THE MICROWORLD!

Although pretty scary on the molecular level, "Sabrina" Suctorina is a welcome resident at any wastewater treatment plant. When we see her under our microscopes in the CAWD lab we can rest assured that our activated sludge process is extremely healthy and operating at peak efficiency.

Other microbes at the treatment plant are not so happy to see Sabrina, due to her particularly gruesome eating habits. Put yourself in their microscopic shoes for a moment and imagine, if you will, walking down the street minding your own business when a tentacle comes out of nowhere and grabs you. Suddenly you are paralyzed in mid-air as other (Cont.)

**Ouch! Suctorina's spiny, tubular tentacles paralyze prey and suck out their cytoplasm.**

Photo by Jean-Marie Cavanahac



### View our renovation Master Plan online!

Click on the financial tab at [cawd.org](http://cawd.org) to find our Capital Improvement Program 15-year Master Plan. While you're there, check out tips on preventing sewer backups, or see a breakdown of exactly how your sewer fees are allocated. We're your go-to resource for everything sewer related!

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## Flush with confidence ...

Your CAWD team provides the expertise needed in engineering, chemistry, biology, microbiology, public policy and management to safely clean our community's wastewater.

**Our mission:** to protect human health, wildlife, and the environment, including the Carmel River lagoon/wetlands, and Carmel Bay, a designated Area of Special Biological Significance.

Our **Principal Engineer** designs projects and creates new systems to ensure efficiency and effectiveness. The **Plant Superintendent** supervises operations, creates budgets, and plans for future needs. The **General Manager** ensures fiscal responsibility and oversees administration.

**Certified Operators** monitor instrumentation and automated technology. Our **Maintenance Mechanic** repairs machinery and prevents breakdowns. **Collection Workers** inspect, clean and repair sewer lines to prevent spills and protect the environment. **Lab Analysts** test waste stream samples and effluent throughout the treatment process.

Our **Board of Directors** are elected officials who represent the community and help us all fulfill our mission: "to protect public health and the environment with cost-effective collection and treatment of wastewater and the return of clean water to the environment."



**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 it is an emergency. 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 9:30 am at the CAWD office.

### Board of Directors

Greg D'Ambrosio Charlotte Townsend  
Suzanne Paboojian Ken White  
Robert Siegfried

### General Manager

Barbara Buikema

## Renovation site plan (from page one)

because they cannot be adjusted to the lower flows. The plant upgrade includes new variable speed motors which will allow operators to match blower power usage to plant intake throughout the day, and during tourist season and special events. To further increase efficiency we are also repurposing existing structures and systems whenever it is cost-effective to do so. For example, instead of building a new electrical plant we are going to remodel the second floor of our existing office building to house our mechanical control center. Analysts in the CAWD lab are also hard at work, testing how to optimize our plant's waste stream. They are taking wastewater samples at different stages throughout the plant and testing them with coagulants and polymers to see if we can shorten treatment time.

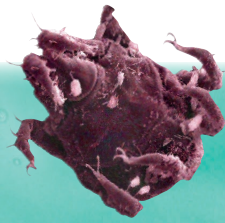
"The design process involves analyzing all possible options and parameters. We have to take into consideration our existing infrastructure and equipment, chemical and biological processes, state and federal regulations, our proximity to neighborhoods and sensitive habitat, and much more," said Drew. "By rigorously analyzing all aspects of our system we are developing a highly cost-effective and efficient design that is tailor-made to fill the present and future needs of our unique community." For more information on the upgrade, please see previous newsletters and our master plan at [cawd.org](http://cawd.org).

## Microorganism (from page one)

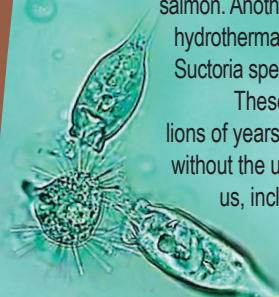
tentacles attach to your body. Then Suctoria starts pumping out your precious bodily fluids, which pulsate down her clear, rigid tentacles. Sabrina gets bigger as you get smaller, until you are an empty husk discarded without fanfare onto the sidewalk. Grisly—no? Yet Suctoria performs this vampire act on her unsuspecting relatives in a matter of minutes! (To be fair, she sometimes releases them while they are still alive.) Suctoria is a small, specialized sub-class of the phylum Ciliophora, which includes the free-swimming ciliates upon which she feeds. Sabrina starts as a swimming larvae but then attaches to something solid with her stalk. At the CAWD plant, the free-swimming ciliates clean our wastewater by eating bacteria—and then they are eaten by Sabrina and other microbes in our activated sludge "ecosystem."

As so-called "higher life forms" we tend to lump microorganisms together, but the micro-universe through which we obliviously move has its own ecosystems, habitats, plants, and animals whose relationships may be even more intriguing and complex than in the world that we see. For example, one species of Suctoria lives on a salmon louse, which in turn is a parasite of the Atlantic salmon. Another species was recently found living on a parasitic mite collected off a mid-Atlantic hydrothermal vent 2.5 miles beneath the sea! Suctoria species Tachyblaston leeches off a fellow Suctoria species, eventually filling it with parasites which swim off to infest new hosts.

These complex relationships aren't surprising given that Suctoria has been around for hundreds of millions of years, as compared to the appearance of humanoids 6 or 7 million years ago. Humans could not exist without the unseen and largely unknown services provided by the countless microbes that live in, on, and around us, including the trillions of microorganisms that clean our wastewater at the CAWD plant.



The white spots on this micrograph image are Suctorians attached to the legs and underside of a parasitic marine mite. Lower left: Two rotifers, who are like giant filter-feeding sharks in the microworld, appear to be attacking Suctoria, but in fact she is eating them both at the same time!



## CARMEL AREA WASTEWATER DISTRICT PROPOSED BUDGET

July 1, 2013-June 30, 2014

### Sources of Cash

\$10,392,315

Sewer user fees	PBCSD* fees	Draw on reserves	Property taxes	Reclamation project	Interest income/Other
\$4,619,129	\$2,128,489	\$1,458,189	\$1,436,225	\$439,445	\$310,838

44.4% 20.5% 14% 13.8% 4.2% 3.0%



### Uses of Cash

\$10,392,315

Operations & Maintenance	Capital projects	Reclamation project	Debt service
\$5,118,992	\$4,600,240	\$439,445	\$233,638

49.3% 44.3% 4.2% 2.2%



The District will be drawing on \$12 million in reserve savings set aside for our plant upgrade to help pay for our Capital Improvement Projects 15-year Master Plan. Throughout the renovation CAWD will continue to keep sewer fees as low as possible, ensuring that our community receives the best value for every ratepayer dollar.

\*Pebble Beach Community Services District