

110 Years

CAWD Connections

CONSUMER NEWS FROM YOUR CARMEL AREA WASTEWATER DISTRICT

FALL/WINTER 2018



"Protecting your health and the environment since 1908"

CClean monitoring protects the bay

A line of pelicans dips down between the swells as you wade the surfline. Nearby, a sea otter bobs to the surface with dinner for her pup. . . . The value of our ocean habitat is incalculable for the humans and wildlife who live here on the Central Coast.

CAWD exists to protect human health and our local environment, and a key part of this effort is monitoring our effluent and the waters of the Monterey Bay National Marine Sanctuary. In 2001, local treatment plants, all of which discharge into the ocean, pooled their resources to share the cost of fulfilling their regulatory obligations. This collaboration was the beginning of a more efficient and comprehensive water quality monitoring program, which became the Central Coast Long-term Environmental Systems Assessment Network, or CClean. CClean participants include CAWD, Monterey One Water, Dynegey Moss Landing power plant, and the Cities of Santa Cruz and Watsonville. The program protects and enhances ocean water quality to support human recreation, wildlife, marine habitat, and rare, threatened, and endangered species.



HARBOR SEAL HAVEN

CAWD is the current lead agency for CClean, a collaborative program that helps protect marine wildlife and habitat by monitoring the waters of the Monterey Bay National Marine Sanctuary.

MICROORGANISM OF THE MONTH

MEET "DORIS" DAPHNIA!



Daphnia is the catalyst behind environmental genomics—a new field of science investigating how genes and the environment interact.

"Doris" Daphnia, commonly known as the water flea, is one of the larger microorganisms that works at the CAWD plant. Barely visible to the naked eye, this planktonic crustacean feeds on single-celled protozoa that in turn eat the bacteria in our activated sludge process. In this complex food web, bacteria do the lion's share of the work to clean our wastewater by consuming organic matter like protein, carbohydrates, and fats.

Doris Daphnia's translucent body, short life cycle, and sensitivity to chemical changes has made her a cornerstone organism in ecological research. She has played a key role in setting regulatory limits on pollutants for more than 50 years, and is routinely used to test wastewater effluent before discharge. *(Cont. on flip side)*

As the current lead agency for CClean, CAWD plays a managing role by conducting meetings and handling financial and contractual matters. We receive 7 percent of CClean's budget as reimbursement. Day to day operation of the CClean program is performed by Applied Marine Science (AMS), one of the nation's leading experts in marine environmental sciences.

"CClean monitors ocean health by regularly testing effluent, ocean waters, sediment, and mussel samples," said Mine Berg, Senior Oceanographer with AMS. "Over the past 17 years we've produced a high-quality database so we can track the sources, amounts, and impacts of pollutants, and take corrective measures to protect our Central Coast waters." *(Cont. on flip side)*

Good citizen checklist

Protect the ocean



Dump only wastewater down your drains and toilets. Treatment plants remove organic matter from wastewater—not toxins. Dump nothing down the storm drain—it empties into the ocean.

Wash your vehicle at a car wash where wastewater is collected. At home, wash it on an unpaved area and put soapy water down the toilet.

Pick up animal waste for the trash.

Check under your car for leaks and fix them promptly. Soak up spills thoroughly.

Do not use weed or bug killers, fungicides, herbicides or other poisons. Dispose of hazardous products at the Monterey Regional Waste Management District: 384-5313.

Do not put medications down the drain or toilet. Use disposal bins at Carmel Police Station or the Community Hospital of the Monterey Peninsula (CHOMP). Visit dontrusstoflush.org for details.

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Carmel, CA 93923
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New CAWD Safety Officer

We welcome **Mark Dias**, Safety Officer, to the CAWD team.

"Half of my job is eliminating safety hazards, and the other half is ensuring that everything is shipshape when the regulators show up," said Mark. A veteran inspector himself, Mark worked at Monterey County Environmental Health for 13 years, where he reviewed every kind of development project that passed through the county. He was also Assistant General Manager for the Aromas Water District, and worked as a private consultant for eight years. Mark's experience is especially crucial as we enter Phase Two of our Capital Improvement Projects 15-year Master Plan.

"It's important to look down the road to anticipate future changes in regulations during the design stage," said Mark. "Having an ex-inspector to keep you in compliance is a bit like hiring an ex-police officer to do your security plan. We have a good working relationship with our local inspectors, and we know what they're looking for.

"On the safety side, everyone here is on board to take our safety culture to the next level. All the crews have a 'get it done' attitude, and management immediately clears the path for improvements," said Mark. "I feel lucky to be working with a great staff where I can use my planning, regulation, and consulting background together in one job."



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.

Board of Directors

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

General Manager
Barbara Buikema

"Bug of the Month" © Anne Muraski 2001-2018

CClean *(Cont. from page one)*

Tests are performed in and around outfall pipes, and at river mouths, estuaries, and lagoons. Contaminants tested include bacterial pathogens, nutrients, ammonia, nitrates, suspended solids, and persistent organic pollutants (POPs). POPs are chemicals used mainly in agriculture and industry. They do not degrade, and accumulate in the environment and tissues of animals.

The CAWD plant removes 95 to 99 percent of organic pollutants from wastewater before discharge. Our typical discharge level is three parts per million of biological oxygen demand* per liter, far better than the 30 parts per million maximum designated by the Environmental Protection Agency. CAWD also has very low concentrations of POPs—in the parts per trillion or less. The majority of POPs that enter Monterey Bay are agricultural in origin, from the Salinas and Pajaro Rivers. During the first rain after the dry season, more pollutants enter the bay in a day than are discharged from the CAWD plant in an entire year.

"Climate change and warming waters are increasing stress on ocean ecosystems, causing harmful algal blooms and seabird and marine mammal die-offs," said Mine. "CClean monitoring is more important than ever to enhance Monterey Bay waters and protect our abundant marine species."

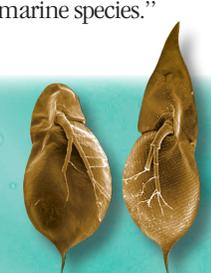


KEEPING IT CLEAN CAWD has been recognized by the State Water Quality Control Board for the cleanliness of our effluent. Our laboratory team carefully monitors all stages of the treatment process before discharge. Shown are Lab Supervisor Ray DeOcampo (center) and Lab Analysts Fanny Mui and Trevor Weidner-Holland.

Microorganism *(Cont. from page one)*

Amazingly, Doris has more genes packed into her tiny body than you or I do: 31,000 compared to the human average of 25,000—the largest number of genes in any animal studied so far. These excess genes help her adapt quickly to changes in the environment. Incredibly, daphnia can change the shape of their bodies when they sense predators in the water, growing bulky helmets, tail spines, and neck spikes so they can't be eaten. This discovery has cleared up a lot of confusion about daphnia taxonomy that had vexed scientists for over 100 years!

Researchers are working to link daphnia's ongoing genomic changes to the environmental influences that cause them, in the hopes of modernizing environmental toxicology. Hundreds of scientists in the international Daphnia Genomics Consortium are working to develop cheap, fast screening tools to identify the toxins of greatest concern for environmental, animal, and human health. This tiny water flea is doing nothing less than providing the tools for a new field of science—environmental genomics—to investigate the key ecological problems of our time.

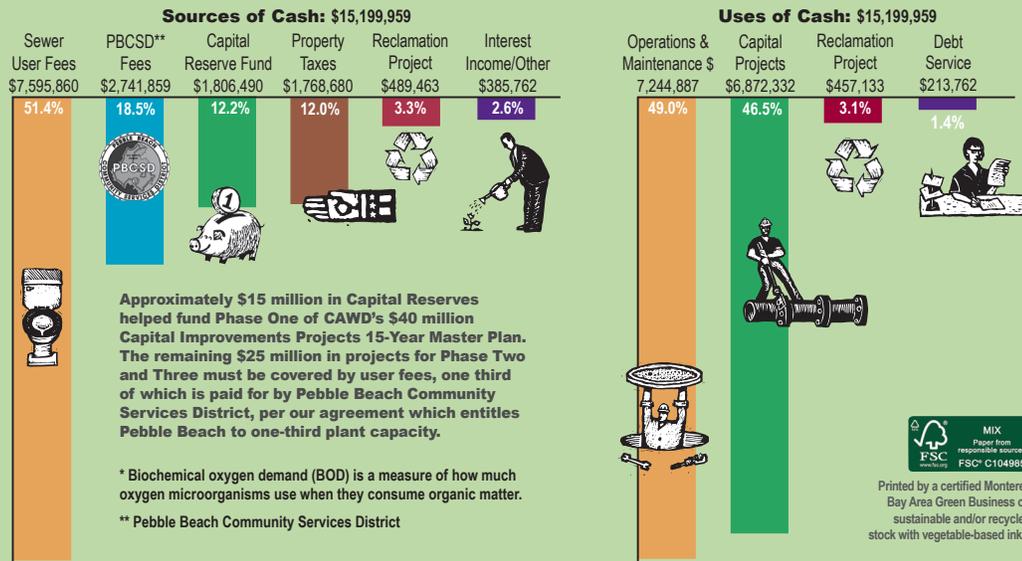


CRAFTY CRUSTACEAN
Different daphnia species? Nope. The one on the right grew a pointy helmet and long tail spine to protect itself from predatory crayfish in its environment.
Left: Electron micrograph shows the abdominal claw daphnia uses to clean its carapace.



CARMEL AREA WASTEWATER DISTRICT BUDGET

July 1, 2018 - June 30, 2019



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