



EBMUD Ranger Virginia Northrop (left) and volunteers with Friends of Pinole Creek Watershed work to keep Pinole Creek free of trash.

# From Watershed to Bay

 **EAST BAY  
MUNICIPAL UTILITY DISTRICT**  
stewardship integrity respect teamwork

As Creek to Bay Day and Coastal Clean-Up Day approaches on September 16, the East Bay Municipal Utility District (EBMUD) and partners along our watersheds, waterways and the San Francisco Bay, invite you to join us in taking action. Environmental protection starts right here at home in our beautiful East Bay!



# You. In a Watershed.



**W**herever your feet land in the East Bay, you're in a watershed – from the ridgelines and open space of the Oakland-Berkeley-San Leandro hills, to the creeks that meander through our urban neighborhoods, to the waters of the San Francisco Bay. These are the unique lands and waterways that make the East Bay home.

The beauty around us deserves protection and even in this urban metropolis, you can take part in keeping our watersheds and Bay free from harm. We at the East Bay Municipal

Utility District are stewards of the watersheds that surround Briones, San Pablo, Upper San Leandro, Chabot and Lafayette reservoirs, as well as the land of the Pinole Valley.

We've spent almost 100 years protecting these lands as a critical piece of our mission to deliver high quality drinking water to you, and we welcome you to visit, explore, wander, learn or volunteer.

From these lands, flow creeks that travel to the Bay. These natural pathways remind us that

nature is right here in our backyards and needs our help. Join a creek organization in your community and be a weekend environmental warrior in the East Bay's backyard.

Near every watershed and creek, lies an urban watershed we call home. Whether off streets, or from sinks to sewers, every drop of East Bay water flows to the Bay. Take action at home to protect our precious Bay.

Read on, and learn how you can protect the environment right here in the East Bay.







Volunteers with the Skyline Gardens Project work to restore the Skyline Trail area of the Oakland-Berkeley hills.

## VISIT EBMUD'S OPEN SPACE AND WATERSHEDS

About 28,000 acres of watershed lands in the East Bay provide needed protection for high quality drinking water, while offering habitat for plants and animals – as well as a natural haven for the public to enjoy.

EBMUD's watershed lands – largely protected from development and human disturbance – offer important high-quality habitat for a wide variety of plant and animal species. These reservoirs also store high-quality drinking water – some collected locally, but much brought to the reservoirs by large aqueducts from the Sierra foothills – for 1.4 million East Bay residents.

EBMUD biologists monitor fish, wildlife and plant species on East Bay watershed lands, conducting habitat assessments, population studies and other research to inform management of sensitive species on the watershed.

## TRAILS AND ACCESS

Enjoy expansive open space, wildlife viewing opportunities, hiking and equestrian trails, and volunteer opportunities along 80 miles of East Bay trails on our lands. Shimmering lake views and streams, stately redwoods, colorful wildflowers, wooded glens and open grasslands beckon.

**EXPLORE!** Purchase a trail permit online at [ebmud.com](http://ebmud.com). \$3.00/day or \$10.00/1 year

## OUTDOOR CLASSROOMS

Hands-on learning provides children experiences that help them to better understand what it takes to protect the environment, how natural systems function and how our drinking water supply relates to those systems. EBMUD rangers work with school age children to enhance habitats, stabilize soils, and restore natural conditions for creeks and disturbed areas in the East Bay. Contact EBMUD at [recreate@ebmud.com](mailto:recreate@ebmud.com) to find out more!







# Reservoirs to Creeks

## LOCAL CREEK & WATERSHED GROUPS ►

Get connected! Many volunteer-led groups work year-round to protect local creeks and watershed lands. They depend on dedicated East Bay residents like you. For opportunities and events, contact a group active in your backyard.

PINOLE	EL SOBRANTE	RICHMOND
<p><b>Friends of Pinole Creek Watershed (FOPCW)</b></p> <p>Pinole Creek has a watershed of approximately 15 square miles and is some of the best steelhead habitat in the Bay Area. Stretching from the San Pablo Bay up into the Briones hills, it includes the City of Pinole as well a large unincorporated area upstream where predominant land uses are agriculture and open space. FOPCW works to keep that watershed healthy and accessible. We hold community meetings twice a year and regular volunteer events to help improve the health of the creek and the habitat for local species. Typical volunteer projects include creek cleanups, habitat restoration, wildlife monitoring, and educational activities.</p> <p>Learn more at: <a href="http://www.friendsofpinolecreek.org/">www.friendsofpinolecreek.org/</a>.</p>	<p><b>SPAWNERS – San Pablo Neighbors Education and Restoration Society</b></p> <p>The mission of SPAWNERS is to protect the San Pablo Creek Watershed and inspire community appreciation and stewardship through advocacy, education, and habitat restoration. Volunteer work parties are held every 3rd Saturday in El Sobrante, 9:30am-noon. Join us at one of our riparian habitat restoration sites to learn about native ecosystems, plant native plants, remove invasive ones, and more! Location changes monthly.</p> <p>Learn more at: <a href="http://www.spawners.org">www.spawners.org</a> or contact: Helen Fitantes, <a href="mailto:helen@thewatershedproject.org">helen@thewatershedproject.org</a></p>	<p><b>The Watershed Project</b></p> <p>The mission of the Watershed Project is to inspire Bay Area communities to understand, appreciate, and protect our local watersheds. Volunteer workdays are every 2nd Saturday on the Richmond Greenway, 10am-1pm. Please join us in our garden and enjoy being out in nature on the Richmond Greenway for our monthly Second Saturday event. We plant and tend to unique Low Impact Design projects that not only construct beautiful park landscapes but also filter pollutants out of stormwater. The Watershed Project assists in hosting many Coastal Clean-up Day events in Alameda and Contra Costa Counties.</p> <p>Learn more at <a href="http://Thewatershedproject.org">Thewatershedproject.org</a> or Contact Paula White, <a href="mailto:paula@thewatershedproject.org">paula@thewatershedproject.org</a>.</p>







In the hills of the East Bay, Briones, San Pablo, Upper San Leandro, and Chabot reservoirs hold drinking water for East Bay residents. Local runoff from precipitation, along with Mokelumne River supplies, is stored in East Bay reservoirs before treatment and delivery to customers, and to ensure local water supplies are available in an emergency. In a year of normal precipitation, the East Bay gets an average of 21 million gallons per day of water from local watershed runoff.

Though managed for water supply, these reservoirs each provide water to creeks that flow to the Bay. And during rain events, each reservoir helps minimize high creek flows by collecting local watershed rainfall, and when needed, releasing that water downstream between storms when local creeks have capacity to transport extra flow.

**DIRECT CONNECTION:  
HOW TRASH AND  
POLLUTANTS END UP IN  
OUR CREEKS AND BAY**

Living in an urban environment, it's easy to forget how closely connected we are to our local creeks and the Bay. That is until large amounts of litter end up on our shorelines after a storm. Surprisingly, most of this debris originates inland on our streets.

Rains can wash plastic bags and cups, cigarette butts and other trash off the streets and into storm drains. From there the litter is carried directly into our creeks, wetlands and the Bay, without any treatment.

Comprised of local government agencies, the Alameda Countywide Clean Water Program works to prevent pollution to waterways throughout Alameda County. Since its inception in 1991, the Program has been monitoring the health and water quality of the county's creeks, and has worked with the community to keep the water entering the storm drains as clean as possible.

Litter is only one among many pollutants. When cars leak fluids on the road, soapy water is dumped into the gutter or rain washes garden chemicals off the lawn and into

storm drains, it all adds up to a significant toxic injection into our local waterways.

Some simple practices are all that's needed to keep the East Bay's waterscapes beautiful and healthy, and to protect plants, birds, fish, insects and other wildlife that live there. Picking up after your dog, controlling pests with non-toxic alternatives and sweeping instead of hosing down your driveway are just a few of the actions the Clean Water Program promotes.

During this year's Coastal Cleanup Day, the Clean Water Program's focus is on litter, by encouraging residents to participate in cleanup events, raising awareness about the harm litter does and how to prevent it. For more information and tips to keep our waterways clean visit [www.CleanWaterProgram.org](http://www.CleanWaterProgram.org).

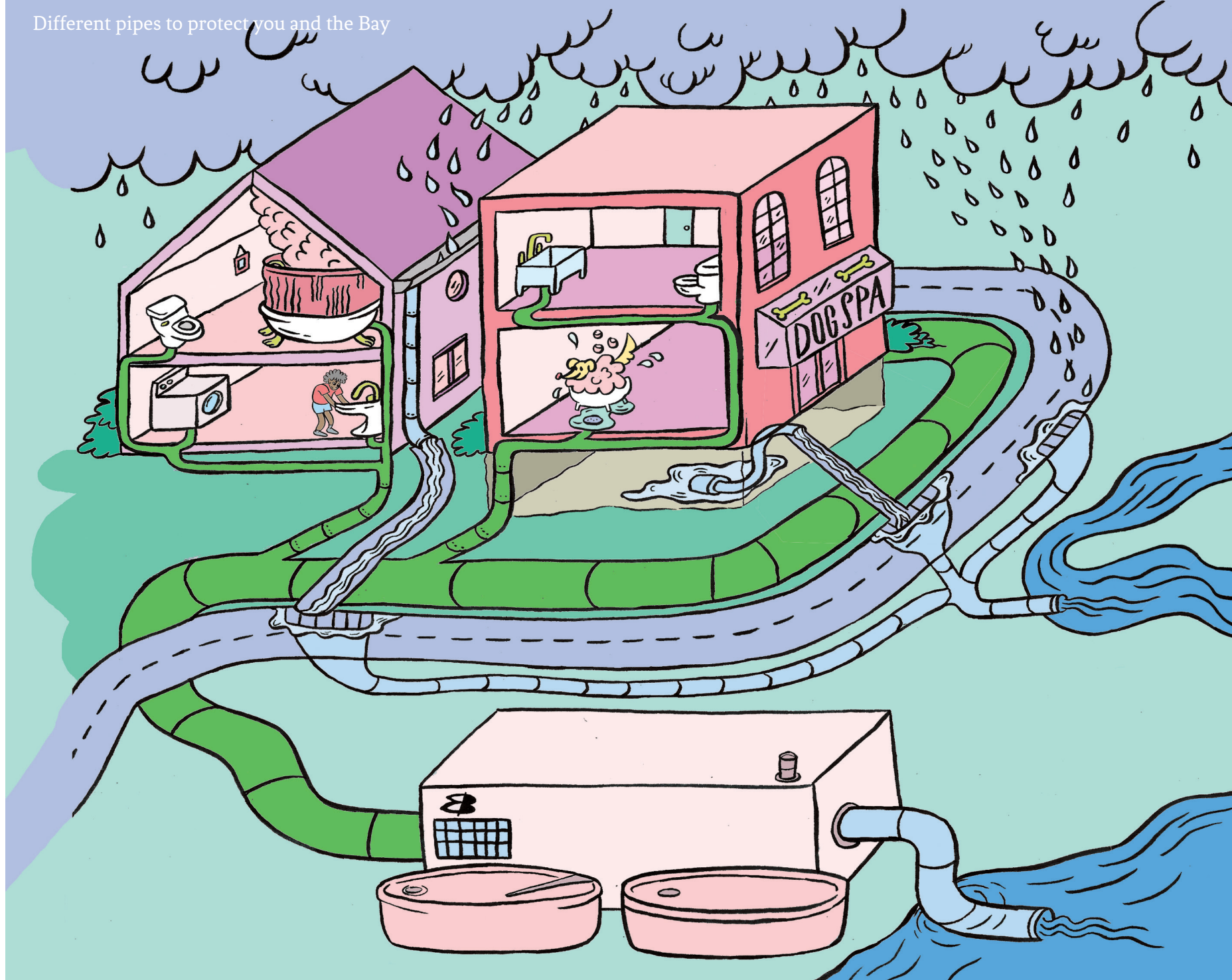
BERKELEY - OAKLAND			SAN LEANDRO
<p><b>Friends of Five Creeks</b></p> <p>All-volunteer Friends of Five Creeks has worked for the health of urban environments since 1996, supporting healthy creeks, watersheds, and nature from Berkeley to Richmond. In year-round work parties, we plant, weed, and remove trash, lead walks and fun citizen-science events including mapping and monitoring. We post our lively e-news, host speakers at our fall-spring Bay Currents talk series, and work with other groups to advocate for nature that welcomes people and wildlife.</p> <p>Learn more at <a href="http://www.fivecreeks.org">www.fivecreeks.org</a> or contact <a href="mailto:f5creeks@gmail.com">f5creeks@gmail.com</a></p>	<p><b>The Skyline Gardens Project</b></p> <p>Skyline Gardens is a combination botanical survey and restoration project in the Skyline Trail area of the Oakland-Berkeley Hills. It's the most botanically diverse area of its size (about 250 acres) in the entire East Bay. Nearly 250 native species have been identified so far, with ten newly discovered this year. Sponsored by the East Bay Chapter of the California Native Plant Society in collaboration with EBMUD, this ongoing, multi-year volunteer staffed project documents the native flora and to removes invasive plants to restore the full native diversity of the area.</p> <p>To learn more, contact <a href="mailto:skylinegardens@ebcnps.org">skylinegardens@ebcnps.org</a></p>	<p><b>Friends of Sausal Creek</b></p> <p>For more than 20 years, the Friends of Sausal Creek has worked to restore and maintain the ecology and natural beauty of the Sausal Creek Watershed in central Oakland. A community-based volunteer organization, we protect sensitive habitats, monitor water quality and wildlife, restore creek banks and canyons, grow and plant native plants, educate our neighbors in environmental stewardship, and work with agencies and other nonprofits to further improve the local ecosystem</p> <p>Learn more at <a href="http://www.sausalcreek.org">www.sausalcreek.org</a> or call 510-501-3672.</p>	<p><b>Friends of San Leandro Creek</b></p> <p>The Friends of San Leandro Creek is a community group made up of dedicated citizens, students, and businesses interested in the protection and enhancement of San Leandro Creek, and in learning more about the creek's ecology. Meetings are the second Tuesday of every other month and are held from 7-8 p.m. Guest speakers are often invited to our meetings. Join the Friends in learning about the San Leandro Creek Watershed! New faces are always welcome.</p> <p>Learn more at <a href="http://www.fslc.org">www.fslc.org</a> or call (510) 577-6069</p>



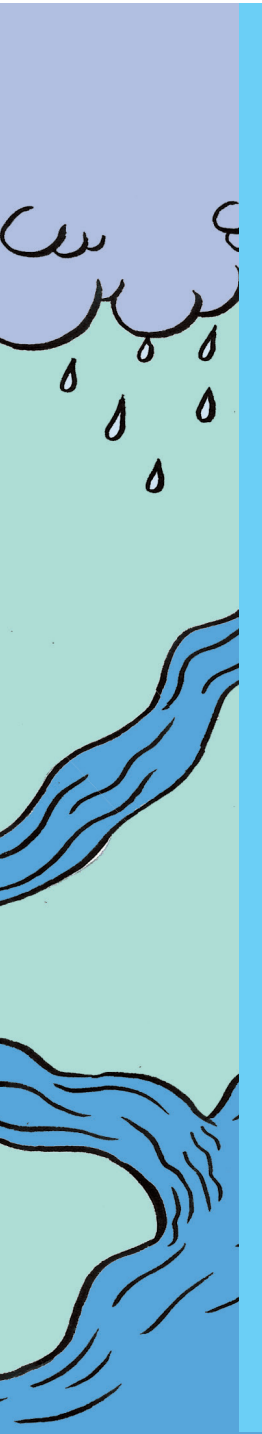


# Stormwater. Wastewater.

Different pipes to protect you and the Bay







**U**nder your feet in the East Bay are two separate systems that move rain water and sewage away from your home or business. EBMUD and the cities we serve are working together to ensure these systems are maintained to protect you and the San Francisco Bay.

## FLOOD PREVENTION

Storm drains in streets are designed to carry rain directly to our local creeks. Unlike sanitary sewage, stormwater flows are typically untreated. Stormwater collection systems are meant to protect homes and businesses from flooding during rain events.

## PUBLIC HEALTH PROTECTION

Sewers direct wastewater from toilets, sinks, showers, and industries to a wastewater treatment plant. The treatment plant uses a simple combination of screening, gravity settling, microorganisms, disinfection, and dechlorination to clean wastewater and return it to the Bay. Learn more about the treatment process on pages 10 and 11.

Treating wastewater is about moving human waste away from people and protecting public health.

## LEAKY PIPES - WHAT HAPPENS WHEN IT RAINS?

Across the country, our critical infrastructure is aging, and the East Bay is no different. Most of the sewer pipes in our community were installed just after World War II. As pipes age, cracks appear, particularly here in earthquake country.

When it rains, stormwater enters the sewer collection system through these cracks. The resulting increase in flows can overwhelm the wastewater system and cause untreated or partially treated wastewater to be released into the Bay. During some rain events, flows have increased by as much as 14 times that of dry weather flows.

## KEEPING THE RAIN IN THE DRAIN

To reduce the amount of stormwater getting into the sewer system when it rains, we need to invest in and fix the sewer pipes in your neighborhood streets, and we need property owners to fix their leaky pipes.

## PRIVATE SEWER LATERALS AND THE BAY

In 2011, EBMUD partnered with the United States Environmental Protection Agency (EPA), the California Regional Water Quality Control Board, and the cities and sewer district in our wastewater service area to develop the Regional Private Sewer Lateral (PSL) Program. This program provides a framework for property owners to address leaky sewer laterals. These pipes, which connect homes and businesses to the sewer collection system, are owned and maintained by private property owners. The Regional PSL Ordinance requires affected property owners to obtain a certificate from EBMUD certifying that their PSL is leak-free. Stopping rain from entering the sewers during rainstorms is the best way to protect the Bay and the public's health.

**Check out [eastbayPSL.com](http://eastbayPSL.com) for more information.**

### When Does the PSL Ordinance Apply to Me?

If you are

- buying or selling property
- building or remodeling in excess of \$100,000
- changing the size of your water meter and
- you are in one of these locations: Alameda, Albany, Berkeley, Emeryville, Oakland, Piedmont, Kensington, El Cerrito, Richmond Annex .

### In an HOA?

You are still subject to the PSL ordinance, and special provisions apply. Visit our website to find out more.

### Can I be proactive?

Of course! Anyone can certify their PSL as leak-free. It's a particularly good idea if you've had frequent sewer backups.







# A Clean Bay Begins With You

**W**astewater treatment plants are designed to handle only human waste. At EBMUD, our wastewater plant uses microorganisms to eat human waste and break it down. Our operators carefully balance wastewater flows, oxygen and temperature to keep our microorganisms happy, healthy, and busily chomping away. What you put down your toilet or drain can kill our microorganisms, upset plant operations, and impact the health of the Bay.

## WIPES CLOG PIPES:

Flush only the 3 P's – poop, paper, and pee.

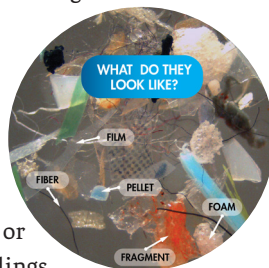
Despite marketing claims, “flushable” wipes do not breakdown in water. Same with paper towels, trash, condoms, tampons, and all other

non-human wastes. Trash is not flushable: it clumps together in sewer systems and can clog pipes in your home, as well as sewage pumps and treatment equipment. If it is not toilet paper, throw it in the trash to protect your toilet, our pipes, and the treatment plants filters we all rely on to keep our San Francisco Bay healthy.

## EMERGING ISSUE: MICROPLASTICS CONTAMINATION IN THE BAY

Microplastics are tiny particles of plastic five millimeters or smaller that can come from beauty products with microbeads, synthetic clothing, plastic bags, polystyrene foam packaging, and disposable plastic items.

Microplastics enter sewer systems through drains and washing machines. Though some are removed in wastewater treatment plants, some pass through and pollute the San Francisco Bay. Wildlife can mistake microplastics for food, causing exposure to pollutants within the plastics or absorbed from their surroundings.



EBMUD has partnered with the San Francisco Estuary Institute (SFEI) and 5 Gyres Institute, which are conducting pioneering research into this and other emerging issues. SFEI is the science leader for monitoring the health of the Bay. A better understanding of microplastics in the Bay will lead to better solutions to this complex challenge. For more information, visit [SFEI.org](http://SFEI.org) and [5gyres.org](http://5gyres.org).







## FATS, OILS, AND GREASE

Cooking with fats, oils and grease, if washed down the drain, can lead to sewage back-ups at your home, business, or in the community's sewer pipes and into the San Francisco Bay. No one wants untreated sewage backing up into homes, buildings, or streets!

To reduce grease-related problems at home, compost cooking oil or grease or dispose of large quantities at one of EBMUD's residential cooking oil and grease drop off locations. Find the one near you at [ebmud.com/fog](http://ebmud.com/fog).

EBMUD also helps restaurants and other food facilities control grease – Email us at [cleanbay@ebmud.com](mailto:cleanbay@ebmud.com) for more information.

## SMART PRODUCT SELECTION - IT'S IN YOUR HANDS

### Antibacterial and Antimicrobial Products

Antibacterial ingredients are common in everyday products like hand soaps, dish and laundry soaps, toothpaste, and mouthwash. However, the American Medical Association reported there is "little evidence to support the use of antimicrobials in consumer products such as topical hand lotions and soaps." Not only are they not helpful, but antibacterial products can actually harm beneficial bacteria at wastewater treatment plants. Read labels and choose products without antibacterial ingredients.

### Safe Cleaning Products

Some cleaning products contain toxic compounds that can be harmful to you and the Bay, so it's wise to use less-toxic alternatives, and when getting rid of old products, never pour them down indoor or outdoor drains.

### Safe Flea Control for Pets

Fipronil is a chemical insecticide present in many spot-on flea control products for pets. Although intended for pets, when those pets are washed, the Fipronil that goes down the drain ultimately makes its way to San Francisco Bay, where it's toxic to aquatic organisms. Talk to your veterinarian about oral flea medications that are safer alternatives to spot-on flea control products. Find more information at [SFEL.org](http://SFEL.org).

For more information visit [ebmud.com/cleanbay](http://ebmud.com/cleanbay)



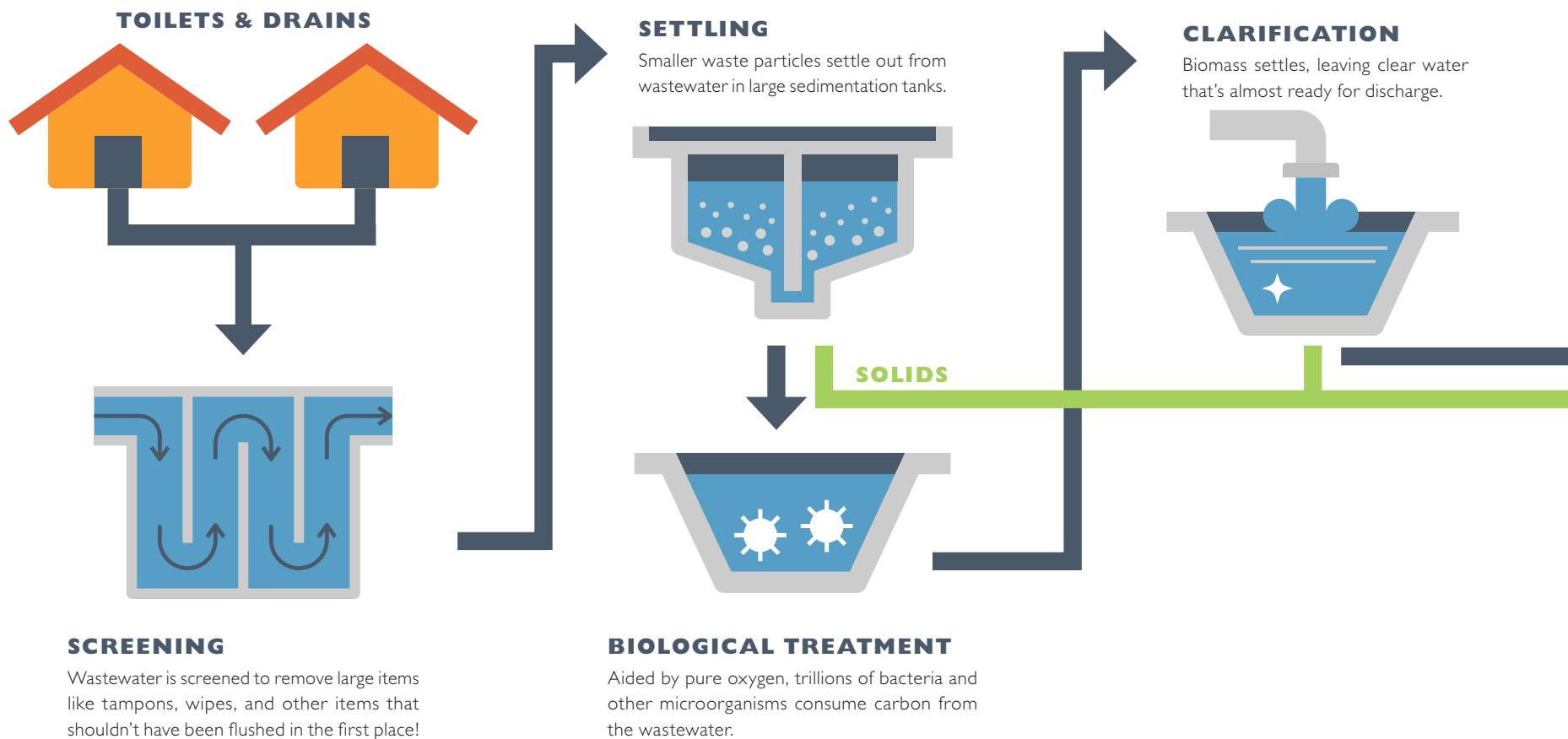
## WE TAKE DRUGS SO THE BAY DOESN'T HAVE TO

Wastewater treatment plants were not designed to remove pharmaceuticals waste. Flushing expired or unwanted medications down the toilet can harm the San Francisco Bay. The best way to safely get rid of your expired or unwanted medicines is to discard them at a designated collection site.

EBMUD provides free pharmaceutical disposal bins at ten East Bay locations. Check [ebmud.com/cleanbay](http://ebmud.com/cleanbay) for collection sites throughout the Bay Area.







# Wastewater Treatment

## Protecting Public Health While Innovating for the Future

**E**BMUD treats wastewater 24 hours a day, 7 days a week, 365 days a year – so you don't have to. While many of us don't think about (or perhaps would prefer not to think about) what happens when we flush the toilet, wastewater treatment is critical for protecting public health and maintaining our high quality of life in the East Bay. Since 1951, EBMUD's wastewater treatment plant has protected the people of the East Bay from water-borne diseases. Modern wastewater treatment prevents diseases like cholera, dysentery, and typhoid – and has increased average life expectancies by an estimated 20 years.

EBMUD's wastewater plant uses mechanical and biological (our friendly microorganisms!) processes to separate trash, solid human waste, and water. Once separated, our biological digesters convert the

solids to energy and fertilizer, while filtration and chemical treatment disinfects the water for reuse or return to the San Francisco Bay.

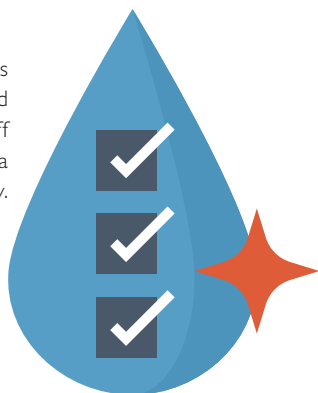
At EBMUD, we don't just treat wastewater, we innovate. We originated turning sludge into fertilizer and methane to electricity. We strive to keep organics out of landfills and methane – a potent greenhouse gas – out of the atmosphere, and we're leading the way in using existing infrastructure to combat climate change. Our innovations are being used as a model by other wastewater treatment plants across the U.S. and around the world. We continue to think toward the future and figure out new ways to turn our waste into resources right here in the East Bay.





## DISINFECTION

Treated wastewater is disinfected, dechlorinated and then discharged 1.2 miles off the East Bay shore through a deep water outfall into the Bay.



TO SAN FRANCISCO BAY

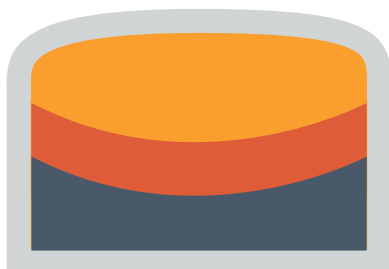


### WHAT'S THAT SMELL?

That's wastewater being treated and converted to energy or clean water every day. Learn more how we tackle odors and aim to be a good neighbor at [EBMUD.com/odor](http://EBMUD.com/odor).

## DIGESTION

Large heated anaerobic digesters treat the settled solids to turn them into energy and fertilizer.



### Fertilizer

EBMUD applies 60,000 to 70,000 wet tons per year of nutrient-rich biosolids as a soil amendment to grow feed for animals. Biosolids promote plant growth through improving soil properties, supplying nutrients and replenishing soil organic matter. That's a great re-use of your human waste!

### Poop to Power

In 2012, EBMUD became the first wastewater treatment plant in North America to produce more renewable energy onsite than is needed to run the facility. We sell that excess renewable energy to the Port of Oakland, cutting fossil fuel use and greenhouse gas emissions, and providing savings for EBMUD customers. Biogas production saves EBMUD approximately \$3 million each year by reducing electric power demand.

### Recycled Water

Every day EBMUD turns millions of gallons of wastewater into recycled water. This recycled water is transported through purple pipes for use in irrigation or industry. Our 2040 goal is to recycle nearly 7.3 billion gallons annually. That amount could save enough water to supply the indoor and outdoor water needs of more than 220,000 EBMUD residents every day.

## WANT TO SEE IT FOR YOURSELF? TAKE A TOUR!

Register at [ebmud.com/wwtp-tours](http://ebmud.com/wwtp-tours)





## SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

is part of the California Environmental Protection Agency, and our job is to protect and improve the quality of San Francisco Bay, creeks, wetlands, groundwater, and other natural water resources in the region. We issue permits for actions that have the potential to pollute these waters, enforce compliance with permit requirements, and investigate and require cleanup of polluted waters. We also work with the public and provide partners to promote stewardship and collaborative efforts. Find more information and opportunities to participate at [www.waterboards.ca.gov/sanfranciscobay/](http://www.waterboards.ca.gov/sanfranciscobay/).



Join us on  
**October 7, 2017**  
for our second  
annual Bay Day!

GET INVOLVED AT  
[WWW.BAYDAY.ORG](http://WWW.BAYDAY.ORG)

Our lives and our communities are all connected to San Francisco Bay: Seven million Bay Area residents, 400 native species, our economy, and quality of life all counts on it. The future of our Bay depends on how we conserve and care for this natural resource – the economic and ecological heart of the Bay Area. Bay Day is one official day every year for us all to celebrate our beautiful Bay. Take part in a restoration event or nature program near you.

## SEE POLLUTION IN THE BAY? CALL BAYKEEPER!

If you see a leaking pipe, illegal dumping, sewage or other pollution in SF Bay, report it to Baykeeper and we'll investigate!

Report pollution to  
**1-800-KEEP-BAY,**  
[hotline@baykeeper.org](mailto:hotline@baykeeper.org),  
or [baykeeper.org](http://baykeeper.org)



SAN FRANCISCO  
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ON THE CASE, ON THE WATER, ON YOUR SIDE.



GET RID OF TRASH,  
NOT WILDLIFE.

56% OF ALL WHALE SPECIES ARE KNOWN TO EAT TRASH.

 **CALIFORNIA COASTAL CLEANUP DAY**  
**SEPTEMBER 16, 2017**  
[COASTALCLEANUPDAY.ORG](http://COASTALCLEANUPDAY.ORG) 1-800-COAST-4U



**VOLUNTEER OAKLAND!**  
Join your neighbors to clean and green  
Oakland's creeks and shoreline!

22nd Annual **CREEK TO BAY DAY**  
**Saturday, September 16, 2017**

For accessibility information or to request disability related accommodations,  
contact [adoptspot@oaklandnet.com](mailto:adoptspot@oaklandnet.com), (510) 238-7611 or TTY (510) 238-3254.

For locations and more information • Para más información • 欲知詳情

[oaklandcreektobay.org](http://oaklandcreektobay.org)