



POLLUTION PREVENTION PROGRAM

2022 ANNUAL REPORT

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Introduction

This report to the San Francisco Bay Regional Water Quality Control Board (RWQCB) summarizes the Pollution Prevention (P2) Program for Las Gallinas Valley Sanitary District (LGVSD or the District) in fulfillment of LGVSD's NPDES Permit No. CA0037851, Order No. R2-2020-0022 Provisions C.3.b. This annual report covers the reporting period of January 1, 2022, through December 31, 2022.

This annual report also fulfills Provision C.5.b Table 7. Copper Action Plan Task 3, Provision C.5.c Table 8. Cyanide Action Plan Task 4 and Order No. R2-2022-0038 Provision C.3 Mercury and PCBs Source Control Program.

Wastewater Treatment Processes, Reclamation, Service Area

LGVSD operates a Publicly Owned Treatment Works (POTW) facility serving the northern portion of San Rafael. The treatment plant's permitted average dry weather flow is 2.92 mgd. The plant's secondary treatment process was recently upgraded from trickling filters to a hybrid fixed-film nitrifying activated sludge process, which began operating in April 2021. The switchover to use of two new secondary clarifiers occurred during the first quarter of 2022. Following secondary treatment, wastewater is disinfected with chlorine, and then dechlorinated prior to discharge to Miller Creek. Effluent is also utilized in LGVSD's on-site reclamation area and used to produce Title-22 compliant recycled water for distribution by two water agencies. During the dry season, these alternative uses can utilize 100% of the plant effluent. Accordingly, the plant's NPDES permit prohibits discharging to Miller Creek June 1 through October 31.

LGVSD operates a wastewater reclamation system that includes a 20-acre wildlife marsh pond, 40 acres of storage ponds, 200 acres of irrigated pasture and 3.5 miles of public trails. It also operates a recently expanded Recycled Water Facility that produces Title 22 disinfected tertiary recycled water for distribution by the Marin Water (formerly Marin Municipal Water District) and the North Marin Water District. Recycled water distributed by these agencies is used for landscape irrigation, carwash systems, indoor secondary plumbing systems, a commercial laundry, and other approved uses. The wastewater reclamation and recycled water systems allow LGVSD to have zero discharge (to surface water) from June through October in most years.

Waste solids from the treatment system are anaerobically digested. The digested biosolids are disposed of by subsurface injection at LGVSD's nine-acre dedicated disposal site, in accordance with federal regulations.

The LGVSD service area covers 16 square miles with an approximate population of 30,000 people. The wastewater sources are domestic or commercial (auto shops, dental offices, medical facilities, etc.). LGVSD is not required to implement a Pretreatment Program because the average dry weather flow is less than five MGD and there are no categorical dischargers or facilities discharging greater than 25,000 gallons per day. Therefore, LGVSD's P2 Program was developed without the foundation of a Pretreatment Program.

Pollutants of Concern

LGVSD's NPDES permit, effective September 1, 2020, specifies final effluent limitations for copper, cyanide, bis(2-ethylhexyl)phthalate and dioxin. Copper is a current "pollutant of concern" for the LGVSD P2 Program. LGVSD has examined the potential sources of cyanide to the LGVSD influent as summarized below and provided within the LGVSD Industrial User and Cyanide Source Identification Survey dated November 18, 2021. LGVSD has determined the current P2 Program activities for copper and cyanide are sufficient and effective. These activities are the current auto service facility program, ongoing surveillance to assure no industrial activities of interest (such as electroplating) are in the service area, outreach to homeowners, pool, and spa maintenance companies, and working with local plumbers.

The NPDES permit specifies final effluent limitations for cyanide and dioxins. Neither of these are considered a "pollutant of concern" for the following reasons:

- It is apparent from the LGVSD's November 20, 2015 *Cyanide Compliance Attainability Evaluation* and an extensive investigation during 2007 and 2015 source control efforts are not currently relevant to the District's compliance with a cyanide limit. The *Potential Cyanide Contributors to the Treatment Plant* (March 1, 2010) Report submitted in fulfillment of the previous Order R2-2009-0070 Provision C.6.b.(1) also concluded that there were no contributors of detectable levels of cyanide to the sanitary sewer, therefore, the district would not implement a cyanide control program.
- LGVSD completed an Industrial User and Cyanide Source Identification Survey of its service area in October 2021. A summary of this survey was provided in the 2021 Annual Pollution Prevention Report. Findings of this survey confirmed that zero industrial sources of cyanide were identified within the LGVSD service area.
- LGVSD will remain vigilant for any potential new sources of influent cyanide, such as electroplating activities, which could impact effluent cyanide concentrations.
- No additional tasks are required for dioxin source control measures unless LGVSD's effluent monitoring results are out of compliance with its effluent limit.

Discharge of fats, oils, and grease (FOG) to the sanitary sewer, alone or in conjunction with other factors, can be a significant cause of sanitary sewer overflows (SSOs). The LGVSD P2 Program is currently directing substantial resources toward an effective and successful FOG Control Program.

Order No. R2-2022-0038, the Waste Discharge Requirements for Mercury and PCBs from Municipal and Industrial Wastewater Discharges to San Francisco Bay, contains mercury discharge limits that apply to LGVSD. Therefore, mercury is a "pollutant of concern" for the LGVSD P2 Program.

The Order also contains PCBs discharge limits that apply to LGVSD. However, PCBs are not a pollutant of concern for the LGVSD P2 Program. LGVSD must evaluate and identify controllable sources of PCBs contributions to wastewater from industrial equipment. The manufacture of PCBs was banned in the U.S. in 1979. PCBs were used as coolants and lubricants in transformers, capacitors, and other electrical equipment because of their superior thermal and electrical insulation properties. The LGVSD service area is comprised of residential and commercial wastewater sources. The likely sources of PCBs from older, pre-1979, industrial equipment, are not found in the LGVSD service area.

Sources of Pollutants of Concern

Copper

Listed below are identified or potential sources of copper in the LGVSD influent. The list is based on available sample data, available references such as the Palo Alto Regional Water Quality Control Plant's *Copper Source Identification*, and best professional judgment.

- Water supply
- Plumbing corrosion
- Copper Sulfate root killers
- Auto repair and related activities
- Cooling towers
- "Bluestoning" of water supply reservoirs

The water supplier, Marin Municipal Water District (MMWD), applies copper sulfate (bluestone) to local water storage reservoirs for algae control.

Mercury

Listed below are identified or potential sources of mercury in the LGVSD influent. The list is based on available sample data, available references such as the Palo Alto RWQCP's *Mercury Source Identification* and best professional judgment.

- Dental offices
- Residential Mercury disposal (thermometers, fluorescent lamps, contact lens solution, etc.)
- Photo processes (aerial photography, microfilm, commercial movie film)
- Human feces
- Medical facilities
- Auto repair and related activities

FOG

Fats, oils, and grease (FOG) is produced by residential cooking operations, commercial food service establishments (FSEs) and industrial food production facilities. There are no industrial food production facilities in the LGVSD service area. Although the LGVSD collection system staff report some FOG problems in residential areas, it is apparent that most FOG problems are caused by FSEs.

Recent, Continuing and Planned Tasks to Reduce "Pollutants of Concern"

Pursuant to a January 15, 2004, written agreement between LGVSD and Central Marin Sanitation Agency (CMSA), CMSA staff implements LGVSD's P2 Program with assistance from LGVSD staff. In 2007 six Marin County Wastewater Treatment Agencies signed a Memorandum of Understanding to form a combined, countywide Public Education Program.

Copper

Auto Program: The LGVSD auto service facility program primarily targets copper, mercury, and other heavy metals. The Program requires any auto service or similar facility (engine repair, body shops, fleets,

corporation yards, and machine shops) to obtain a wastewater permit. All permittees are typically inspected and monitored annually.

Plumbers and Pool and Spa Maintenance Contractors: LGVSD works with the Public Education Program to educate local plumbers and persons maintaining pools and spas on procedures to reduce the amount of copper discharged to the sanitary sewer. The Public Education Program developed and distributed the *Good Plumbing Practices Protect San Francisco Bay* and *Maintenance Tips for Pools, Spas, and Fountains* brochures for homeowners and pool and spa maintenance companies about not using copper-containing products.

Mercury

Dental Offices: In January 2010 the LGVSD Board of Directors adopted the LGVSD Mercury Reduction Ordinance. The Ordinance requires any dentist in the LGVSD service area who installs, removes, or repairs mercury amalgam fillings to comply with the specified Best Management Practices (BMPs) for handling amalgam and to install an approved amalgam separator on their vacuum system. LGVSD maintains a database of dentists in the service area. Dental offices are inspected annually and all dental practices within the service area have installed amalgam separators, achieving 100 percent compliance.

In 2017 the EPA promulgated pretreatment standards to reduce discharges of mercury from dental offices into publicly owned treatment works (POTWs) in 40 CFR Part 441. Dental offices that place or remove amalgam must operate and maintain an amalgam separator and must not discharge scrap amalgam or use certain kinds of line cleaners. Existing and new sources must submit a one-time compliance report to their Pretreatment Control Authority by October 12, 2020. LGVSD does not implement, and is not required to implement, a Pretreatment Program for their service area. However, LGVSD has received one time compliance reports from dental dischargers in their service area and keeps them on file. LGVSD can provide the reports received to Regional Water Board or EPA staff if requested.

During 2022 dental inspections, inspectors reminded existing dental practices of the changes in the dental regulations, BMPs and conducted inspections of records and dental amalgam removal devices.

Battery and Fluorescent Lamp Recycling: The District maintains a fluorescent bulbs and batteries recycling program. District personnel transported over 150 pounds of batteries and 276 feet of fluorescent lamps to a local recycling center during 2022.

Thermometer Take-Back Program: LGVSD exchanges Mercury containing thermometers for digital thermometers for the public at their POTW office. Additionally, thermometer exchange also occurs at P2 outreach events. No thermometers were collected during 2022.

Fats, Oils, and Grease (FOG)

FOG Control Program: The LGVSD FOG Control Program is now in the routine-maintenance phase. Currently there are 50 FOG permitted FSEs in 2022. Permitted FSEs which receive regular pumping of their interceptors are scheduled for one routine compliance inspection annually. Permitted FSEs which self-clean their interceptors are scheduled for three routine compliance inspection annually.

FOG Outreach: The District's collection crew uses door hangers to notify customers of FOG issues. In addition to door hangers, a letter is mailed to customers in response to sewer spills or if there are severe

maintenance concerns where FOG could cause an overflow. The Water Environment Association's brochure *Fat Free Sewers* is distributed to residents in areas where residential grease is a problem. The brochure educates the residents on how to handle FOG and prevent it from being discharged to the sanitary sewers.

Non-Significant Industrial User Permit Program

The District issues wastewater discharge permits to facilities that discharge industrial wastewater. Currently permits are issued to a hospital and treated groundwater from a long-term site remediation project. The wastewater discharge permits are issued annually. Facilities are inspected annually and sampled according to permit requirements.

Public Outreach Program

Wastewater Treatment Agencies of Marin County Public Education Program: During 2007, LGVSD and the five other Marin County POTWs (CMSA, Novato Sanitary District, Sewerage Agency of Southern Marin, Sanitary District No. 5, and Sausalito-Marín City Sanitary District) implemented the Wastewater Treatment Agencies of Marin County Public Education Program. The activities of the Program are essentially an expansion of the former joint public outreach activities of CMSA and LGVSD. The educational activities of each POTW continue to be enhanced by combining resources and communicating a unified message. In 2014, 2016, 2017, 2018, and 2020, the Public Education Program won the California Water Environment Association (CWEA) Redwood Empire Section (RES) Large Budget Community Engagement and Outreach Award. The Public Education Program won the statewide CWEA Large Budget Public Education Program Award for 2009, 2012, and 2014 which was awarded at the Annual CWEA Conferences. Each of the participating POTWs provides staffing for events and pays a share of the direct expenses of the Program.

All the public outreach and school activities listed below and in the Public Outreach section of Table 1 are now activities of the combined Public Education Program, except for the LGVSD website and POTW tours, which are LGVSD specific. The activities are further described in the *Wastewater Treatment Agencies of Marin County Public Education Program Annual Report*.

The public outreach activities listed below are designed to educate students and the public on the following issues:

- The difference between storm drains and sanitary sewers, and their functions.
- Nothing but rainwater should go in storm drains.
- The types of wastes appropriate for the sanitary sewers.
- "Flush Green"- the toilet is not a trash can.
- Ways to properly dispose of wastes that cannot go in the storm drains or sanitary sewers (*e.g.*, household hazardous waste programs).
- Beneficial reuse of treated wastewater and biosolids.
- Hazards and proper disposal of waste mercury.
- Proper disposal of unused pharmaceuticals through the RxSafe Marin program.

- Sources of dioxin released to the environment and ways to prevent its release by minimizing burning of household trash and fireplaces.
- Sources of PCBs and cyanide to help identify and properly handle their disposal.
- Issues relating to preventing FOG-related sanitary sewer overflows.
- Private sewer laterals, responsibility for their maintenance, and their potential to cause a Sanitary Sewer Overflow.
- Emerging topics are added to the Public Education Program when appropriate.

Wetlands Days: This is a highly successful program hosted by Sewerage Agency of Southern Marin (SASM) in collaboration with a variety of other non-profit organizations and public agencies. The Wetlands Days address all of the topics listed above in a day-long field trip for third grade students. In addition, they use SASM’s unique facilities, including the POTW, marsh, bird-watching areas, laboratory facility, and City Park to address a variety of other environmental and life science issues, making Wetlands Days particularly attractive to local teachers. Due to a large capital construction project at the SASM facility, Wetlands Days was suspended for the 2018 through 2022 school year. The program should restart in 2023 at the SASM facility.

School Outreach Shows: The Public Education Program works with professional entertainers to produce the scripts for entertaining and educational school outreach shows. The shows address water and pollution issues in a simple, humorous manner suitable for kindergarten to second grade, and third to sixth grade. The entertainers are then contracted to present the shows at schools in Marin County. During the 2019 school year, the Public Education Program produced an updated show; *Go with the Flow*, working with a very talented and knowledgeable juggler for kindergarten to second grade. For the 2020 school year, the Public Education Program through the efforts of the *Go with the Flow* producer, converted his in-person show to a virtual show. In 2022, the virtual show was presented to 9 Marin County schools reaching a total of 2,085 students. In-person shows were presented to 12 Marin County schools reaching a total of 3,534 students.



Brochures: The LGVSD Public Education Program has several brochures covering a wide range of topics including materials that should not be flushed, lateral maintenance, and copper. The brochures are regularly reviewed, and informational content is updated when necessary. This year several hundred of these brochures were distributed through the Public Education Program.

Classroom Presentations: Upon request from teachers, the LGVSD Public Education Program will provide a presentation in a school classroom. Each presentation is tailored to the grade level of the class and generally covers the topics listed above. If requested by the teacher, the presentation will focus more on a specific area of study that is relevant to the teacher’s lesson plan. Each presentation has hands-on activities including looking at wastewater biology through a microscope, a watershed diorama, and a pollution-prevention-related video game. Classroom presentations were not held in 2022.

Outreach Booths: The Public Education Program staffs outreach booths at several public events each year. Visitors to the booths have an opportunity to take a quiz concerning the topics listed above. Adults who answer all questions correctly win their choice of a t-shirt, stainless water bottle, stuffed animal, canvas tote, or nylon backpack bag. Children are given a simpler quiz addressing similar issues. If they answer all the questions correctly, they may spin a prize wheel. The quizzes are intended both to educate the persons who take them and to provide information on the public's level of awareness on key topics. In addition to administering quizzes, staff members engage the public and answer questions regarding pollution prevention, wastewater treatment, recycled water, and other environmental issues. At outreach events staff make contact with local teachers and inform them of possible outreach activities including in class presentations and facility tours offered by the Public Education Program member agencies.



Plant Tours: LGVSD normally conducts tours of its POTW and enhanced wetlands upon request from schools, community groups, and other members of the public. In 2022, LGVSD provided facility tours for 15 people.



FastForward Publication: The LGVSD Public Education Program participates as a “Major Sponsor” for the FastForward school outreach publication. This is a magazine written by students covering a large array of subjects including media, arts, sciences, and current events. It gets distributed throughout Marin County schools and can reach more than 25,000 students by print and much more online.

Website: LGVSD has a website, www.LGVSD.org with pages dedicated to community outreach, school outreach, and business outreach.

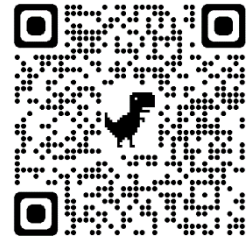
FOG Education: The FOG Control Programs of LGVSD and other Marin County POTWs regulate commercial FSEs. To complement these programs, the Public Education Program has initiated the following activities to educate the public about preventing discharge of FOG from residences:

- A question about household FOG disposal is included on the quiz used at the public outreach booths.
- The school outreach program *Go with the Flow* includes information about how children and parents should dispose of FOG.
- FOG scrapers and grease collection cans are given to visitors at the public outreach booths. The scrapers are imprinted with an educational message about FOG disposal and can be used to discard FOG from soiled dishes and utensils into the trash.
- English and Spanish versions of the Water Environment Federation brochure, *Fat Free Sewers* are distributed at the public outreach drive-thru events and in door hanger distributions.
- Multi-lingual posters are handed out at FSEs throughout the county that include information on proper handling, recycling, and disposal of FOG.

TV-ad (and YouTube) campaign: The Public Education Program partnered with Ross Valley Sanitary District (RVSD) to have TV ads covering specific topics (wipes, FOG, drugs) with all the district logos at the end of the ad to raise our collective visibility and show we are a unified, coordinated front. The ads ran on Effectv (Comcast), twice a year.

Newsletter: LGVSD mails an educational newsletter, called *The Heron*, to all residences in the service area on a periodic basis. Typically, residents receive a summer and winter edition of *The Heron* which included articles relevant to P2, public outreach, facility upgrades, and new upcoming projects.

Public Education Program Website: The Public Education Program supported a website (www.savrbay.com) that addresses the Countywide Public Education Program activities. The website has information about what resources are currently available and activities and programs that are currently being offered to schools and members of the community. People can also call 1-800-SAV-R-BAY to report spills and water pollution throughout Marin County. In 2022 quizzes at outreach events were taken online by using phones to scan the quiz QR code.



Regional Efforts

BAPPG: Public Education Program Members participate in the Bay Area P2 Group (BAPPG). This is an excellent forum for local POTW P2 staff to network and to coordinate regional projects. The [2022 BAPPG Annual Report](#) is available for download on the BAPPG webpage on the Bay Area Clean Water Agencies (BACWA) website and includes descriptions of projects related to the following pollutants:

- Copper
- Fats, Oils, and Grease (FOG)
- Mercury and Silver
- Pesticides
- Pharmaceuticals
- Trash and Wipes

NBWA: LGVSD is a member of the North Bay Watershed Association (NBWA). During 2007 and 2008, the NBWA Water Quality Committee developed the High School P2 Audit Project. The public education group usually sponsors a public education and outreach booth at the NBWA biannual conference which will be held in 2022.

BACWA: LGVSD is an associate member of the Bay Area Clean Water Agencies (BACWA). BACWA, the Bay Area Municipal Stormwater Collaborative (BAMSC), and the Regional Water Quality Control Board have a Memorandum of Understanding for developing San Francisco Bay Total Maximum Daily Loads and SSOs and provide guidance and funding for receiving water monitoring through the Regional Monitoring Program and the San Francisco Estuary Institute.

Employee Outreach

District Employee Outreach: District employees are made aware of “Pollutants of Concern” and are encouraged to make environmentally preferable purchasing decisions. The District has moved away from purchasing mercury switches when alternatives are available. In addition, District staff switched from using petroleum oil to using vegetable oil as a lubricant on several submersible pumps at the treatment plant and sewage pump stations. The District will continue to pursue opportunities to use more environmentally sensitive products.

District Employee PCB Source Identification and Control: District staff reviewed caulk, elastic sealant materials, expansion joint sealants, mastics, adhesives, ceiling tiles and other acoustic board sources used prior to 1978 when PCB usage in the manufacture of materials listed above were banned. No readily identifiable materials were found that would contain PCBs based on staff knowledge. All construction projects will carefully review demolition or modification plans to areas which may contain potential sources identified above. Appropriate identification of PCB sources occurs, and caution is taken to handle materials properly to minimize potential release to wastewater, stormwater, soil, or possible air contamination.

Criteria used to measure Pollutant Minimization Program and Task Effectiveness

Determining LGVSD's P2 program effectiveness can be challenging. The performance indicators provided below are listed to identify how LGVSD evaluates program performance.

Influent Monitoring

LGVSD provides comparisons of influent and effluent pollutant concentrations published in facility Annual Self-Monitoring Reports. The treatment process is effective so that effluent pollutant levels are low and unaffected by minor changes in influent concentrations. Influent monitoring focuses investigation on waste streams more likely to identify pollutants in need of P2 measures. Influent monitoring performed at the facility's headworks provides the best long-term trends to show if a given pollutant is increasing or decreasing. Given the size of the collection area, no single discharger and no result from a single task can be individually detected. But, over the past two decades, reductions in all metals and FOG have been measured in influent.

Inspections of Commercial and Industrial Facilities

The numbers of inspections and percent of facilities in compliance with local discharge regulations is the measure of program effectiveness for these activities. Inspection compliance provides only an indication, and only for those pollutants discharged by the respective business or industry.

Pollutant Waste Collection and Disposal

Mercury waste collection conducted by Dental Facilities and the Cooperative P2 Group, also provide an indicator of successful P2 activities for LGVSD. When pounds or gallons of material of hazardous substances such as mercury in thermometers and dental amalgam are collected, it is presumed that this represents material that may have otherwise been discharged to the respective sewer collection system. Additionally, FOG program and collection activities can be better measured in the reduction of grease related collection system activities and inspection compliance of FSEs.

Outreach Activities

Outreach events that communicate P2 messages can be vitally important for the overall P2 effort. The number of people attending outreach events, including outreach to employees, provides a quantity of the number of people who received the respective message. However, simply counting the number of messages that were broadcast tells very little about the effectiveness of the program. Literal counts of

messaging materials and activities give a sense of the size of the program, but not necessarily the effectiveness. The effectiveness of outreach is better measured in the long-term education of the population and subsequent behavioral modification.

Documentation of Efforts and Progress

Copper, Mercury, Zinc

Auto Program: An auto service facility may choose between two types of wastewater permits (Discharge or Zero-Waste Discharge). The 13 current auto facilities in the LGVSD service area are permitted as follows:

- 8 are classified as Auto Class III – Zero Waste Discharge Permits.
- 5 are classified as Auto Class III – Discharge Permits.

Discharging facilities are sampled and inspected every year to assure compliance with LGVSD's stringent local discharge limits. In 2022, 10 of the 13 Class III discharger permittees were inspected due to staffing limitations. In 2023, annual inspections will be targeted.

Copper

Plumbers and Pool and Spa Maintenance Contractors: The Public Education Program handed out the brochure *Good Plumbing Practices Protect San Francisco Bay and Maintenance Tips for Pools, Spas, and Fountains* for homeowners and pool and spa maintenance companies about not using copper-containing products.

Mercury

Dental Offices: In 2022, 13 of the 14 dental practices in the LGVSD service area were visited and inspected to review records for removal of amalgam waste, servicing of amalgam separators, and proper disposal of x-ray fixer (dentists are required to maintain the records for a minimum of three years). The remaining dental facility was contacted by staff; however an inspection was unable to be scheduled for completion within this reporting period. All dental offices have submitted a one-time compliance report. The District's Mercury P2 program removed a total of 4.5 lbs. of mercury from the waste stream in 2022. A total of 28 lbs. of mercury containing amalgam waste was removed from the waste stream by amalgam separators within the LGVSD, CMSA and Novato Sanitary District service areas. There are no additional dental practices identified from the previous year.

Facilitating Recycle of Mercury: During 2022, the County of Marin Household Hazardous Waste Program did not hold their annual household hazardous waste collection day. The Cooperative P2 Group, comprised of the 6 Marin County POTWs, has collected 20 items of mercury, preventing it from contaminating the environment.

Fats, Oils and Grease (FOG)

FOG Program: The Fats, Oils, & Grease (FOG) Control Program was developed to prevent SSOs caused by FOG and to reduce the amount of sewer line maintenance required to prevent FOG from blocking lines. In 2022, staff conducted 54 Food Service Establishment (FSE) FOG inspections, 42 FSE Permits were

renewed and 97 pump out manifest documents were received. Program effectiveness assessment was conducted by comparing data for the following years:

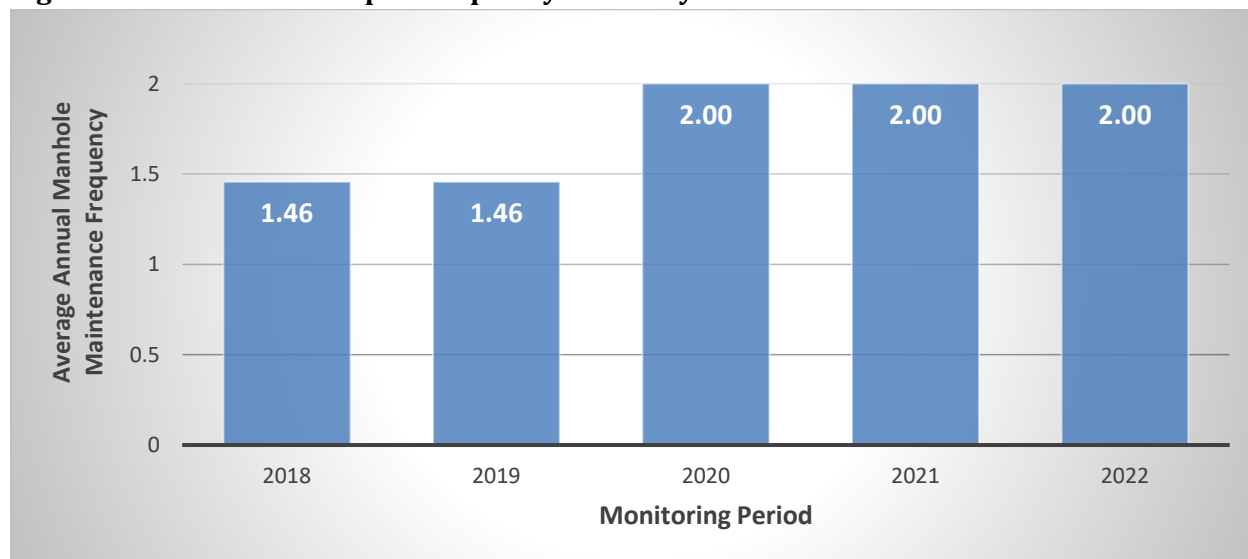
- **2006-** Program implementation began at the end of the year.
- **2007-** Program implementation completed in September of 2007. All FSEs upstream of identified FOG problem locations in the sanitary sewers (“hot spots”) were on a FOG permit except for a small number who were installing a grease trap or interceptor.
- **2008-** The program is in “maintenance phase”. The District is performing compliance inspections to verify traps and interceptors are being maintained.
- **2009-** The program is being maintained. Source control staff work with collection system staff on “hot spots” which were not improving.
- **2010-** The program continues to be in “maintenance phase” with the District continuing to perform compliance inspections. Source control staff, continue to work with collection system staff on “hot spots” and review pumping frequency and public outreach efforts to reduce FOG discharge to the sanitary sewers.
- **2011-** The program continues to be in “maintenance phase” with several new restaurants opening as construction continued at Northgate Mall in 2010 and 2011. Increased monitoring and increased pumping frequency for FSEs has resulted from increased FOG discharged as a result of new large restaurants surrounding the recently remodeled mall area.
- **2012 –** “Maintenance phase” continues and over all 8 areas showed improvement with extended cleaning frequencies and one showed an increase downstream from a large hotel and conference facility. Additional monitoring and inspection will take place upstream of the area showing increased cleaning frequency due to FOG.
- **2013 and 2014 –** “Maintenance phase” continues with three more sites showing improvement.
- **2015 and 2016 -** No change from 2014.
- **2017 -** No change in hot spots except one that improved.
- **2018 -** No change in maintenance frequency of all hot spots but one new hot spot added.
- **2019 –** No change in maintenance frequency of all hot spots.
- **2020 –** No change in hot spots. Cleaning frequency increased due to the implementation of a new CMMMS.
- **2021 and 2022 –** No change in hot spots. Cleaning frequency remained consistent with 2020 frequencies. Cleaning frequency may be updated in 2023.

The data on SSOs is encouraging but not conclusive:

- There were no reported SSOs during 2006 where FOG was wholly or partially the cause.
- There were two FOG-related SSOs during 2007.
- There were no reported FOG-related SSOs during 2008 to 2017.
- In 2018 there no reported FOG related SSOs. But there was a privately owned lateral overflow due to excessive FOG and wipes near a senior living facility.
- There were no reported FOG-related SSOs during 2019 through 2022.

Data on required maintenance at “hot spots” shows the program has been effective in keeping additional flushing from increasing at the problem areas for the past seven years. Figure 1 illustrates the required maintenance (interval in months between each scheduled line cleaning) for each identified “hot spot” from 2018 to 2022.

Figure 1: LGVSD FOG Hot Spot Frequency Summary



In 2018, Pine Ridge Care Center was added to the program and quarterly maintenance was implemented. This additional site increased the average annual maintenance frequency. In 2019, manhole maintenance frequency remained consistent with the previous reporting period. In 2020 cleaning frequency increased due to the implementation of a new CMMMS. Increased maintenance was not related to increased FOG presence. This increased the program average maintenance frequency. In 2021 and 2022, cleaning frequencies remained consistent with 2020 frequencies.

Public Outreach

The Public Education Program staffs outreach booths at several public events each year. Visitors to the booths have an opportunity to take a quiz concerning the topics listed above. Adults who answer all questions correctly win their choice of a t-shirt, stainless water bottle, stuffed animal, canvas tote, or nylon backpack bag. Children are given a simpler quiz addressing similar issues. If they answer all the questions correctly, they may spin a prize wheel. The quizzes are intended both to educate the persons who take them and to provide information on the public’s level of awareness on key topics. In addition to administering quizzes, staff members engage the public and answer questions regarding pollution prevention, wastewater treatment, recycled water, and other environmental issues. At outreach events staff make contact with local teachers and inform them of possible outreach activities including in class presentations and facility tours offered by the Public



Education Program member agencies. The following list includes a description summary of the events that were attended by the Public Education Program members during 2022.

The Mill Valley Spring Eggstravaganza

On March 26, 2022, the Public Education Program participated in a community outreach event to educate the public on what not to flush. During this event, 275 individuals were engaged by public education staff on what not to flush down the toilet.



Novato Farmer's Markets

The City of Novato sponsors Farmer's Markets with vendors and entertainment in downtown areas. The Public Education Program staffs an outreach booth at the markets during Pollution Prevention and Earth Day Markets.

The Marin Rotary Day of Service

The Rotary Day of Service – Protecting the Environment was held at the Marin County Fairgrounds on April 9, 2022. The event featured local businesses and community members with expertise in sustainability. During this event, staff interacted with 100 members of the public to discuss sustainability in the community.



Novato School Fuel

The Novato School Fuel held an outreach fair on April 23, 2022, for children and parents focusing on educational resources that are available in the community. During this event public education messages were shared with approximately 50 participants.



Mill Valley Earth Day

Mill Valley Earth Day – Earth 2050 had speakers presenting a variety of environmental topics, research projects, studies, and success stories related to environmental concerns and potential impacts. It also had booths with local resources focusing on sustainability and conservation.

The Marin County Fair

From June 30th to July 4th, 2022, the Public Education Program staffed a community outreach booth to educate the public on key pollution prevention education messages. During this event, 2,488 individuals were engaged by public education staff on conservation and pollution prevention.



Marin Sanitary Service Customer Appreciation Day

The Marin Sanitary Service Customer Appreciation Day is an event where the public can view what should be thrown away, and not thrown away, and is a chance to show them what not to flush down the

drains. During this event, approximately 150 individuals were engaged by public education staff on key public education messages.

School Outreach

During the 2019 school year, the Public Education Program produced an updated show, *Go with the Flow*, working with a very talented and knowledgeable juggler for Kindergarten to second grade. For the 2021 school year, the Public Education Program through the efforts of the “Go With The Flow” producer, converted his in-person show to a virtual show. In 2022, the virtual show was presented to 9 Marin County schools reaching a total of 2,085 students. In-person shows were presented to 12 Marin County schools reaching a total of 3,534 students

TV-ad and YouTube Campaign

In 2022, the Public Education Program partnered with RVSD to run ad campaigns from March through June and again in November through December. Ads in the campaign included:

- “Do Not Flush Wipes”.
- “Proper FOG Disposal”.
- “Don’t Flush Meds”.
- “Is Your Sump Pump Connected Properly?”

In 2022, during the first ad campaign, the ads were delivered 72,502 times within premium content and the target audience watched 65,418 (90%) of the ads in their entirety. During the second ad campaign the ads were delivered 132,783 times within premium content and the target audience watched 107,485 (81%) of the ads in their entirety.

Treatment Plant Facility Tours

Over the years, LGVSD has provided tours of LGVSD’s POTW, and during 2022 LGVSD provided tours of its facility to 15 people. On a countywide basis a reduced number of tours were provided by POTW facilities. A total of 273 people toured the POTWs regionally.

Pollutants of Concern Influent / Effluent / Biosolids Assessment

The historical LGVSD influent, effluent, and biosolids concentrations for copper and mercury are provided in the summary figures below. There is not a clear trend in the 5 years of data shown.

Figure 5: Influent and Effluent Mercury 5-Year Concentration Trend Assessment

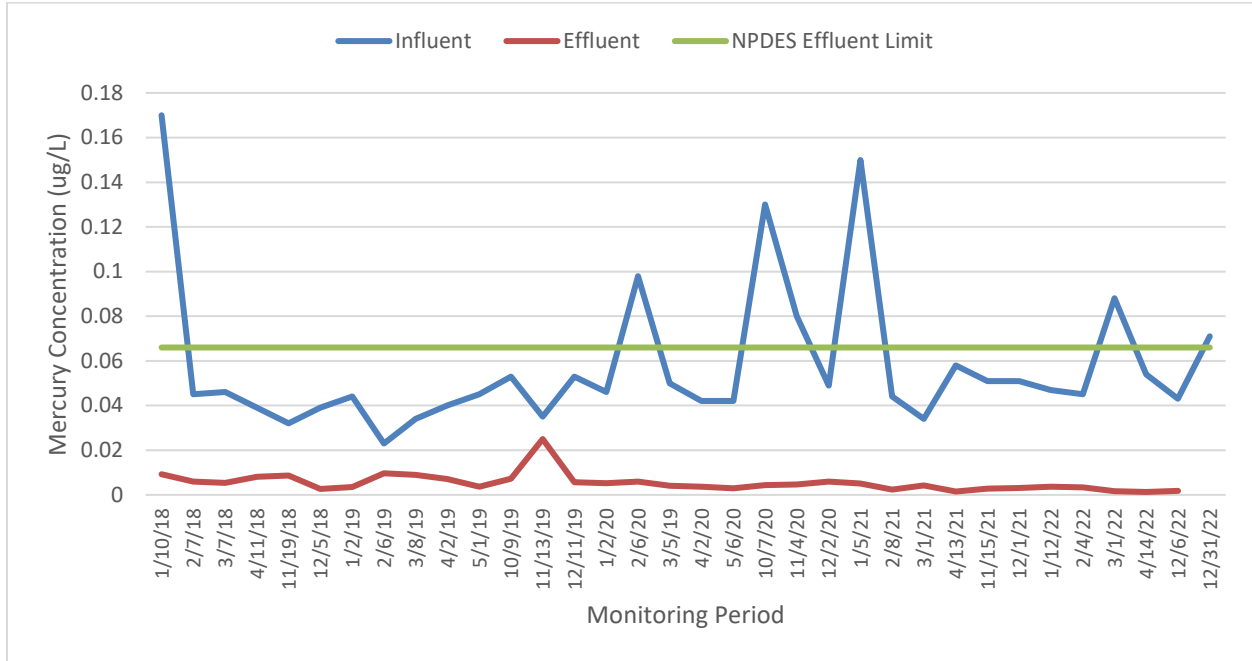


Figure 6: Influent and Effluent Copper 5-Year Concentration Trend Assessment

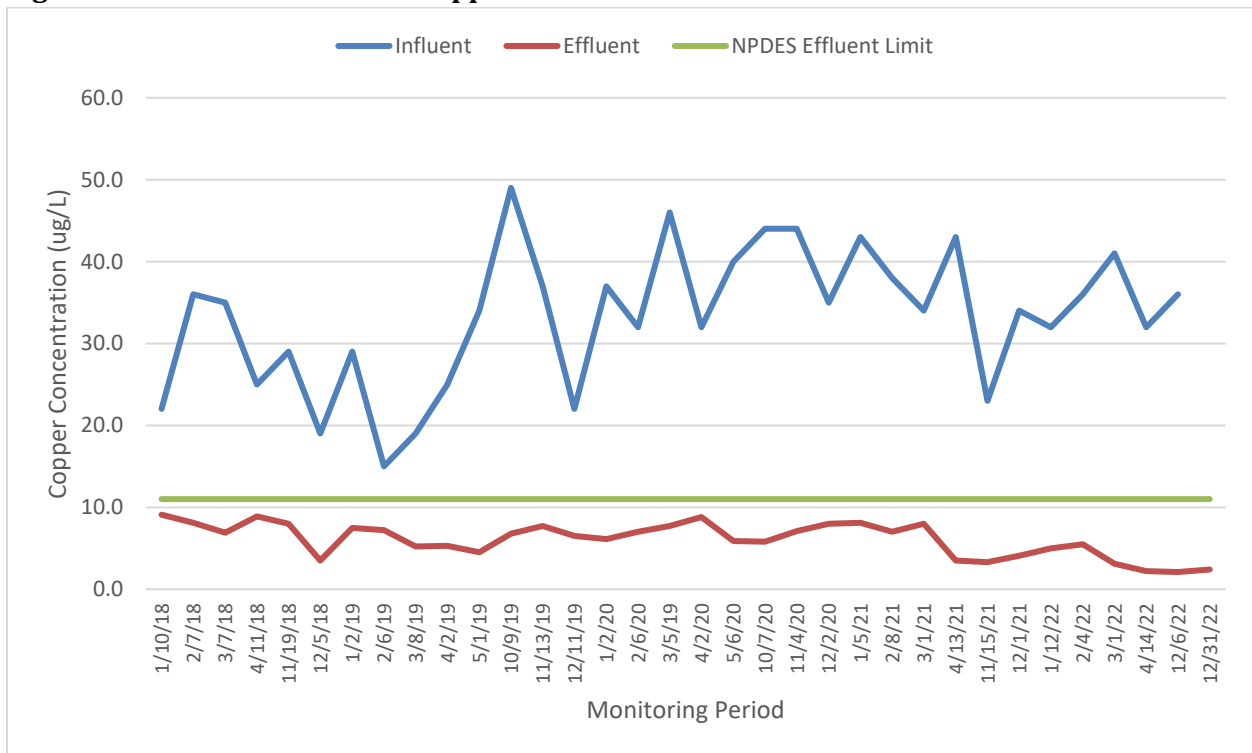


Figure 7: Biosolids Mercury 5-Year Concentration Trend Assessment

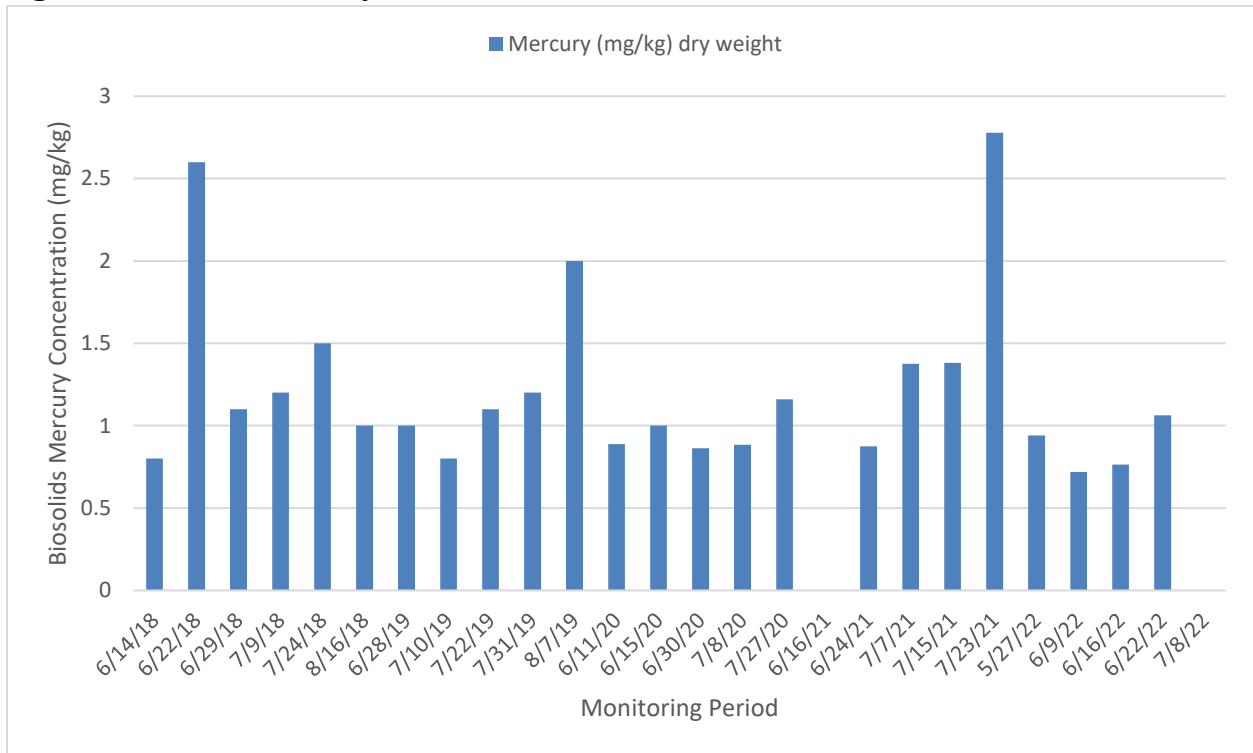
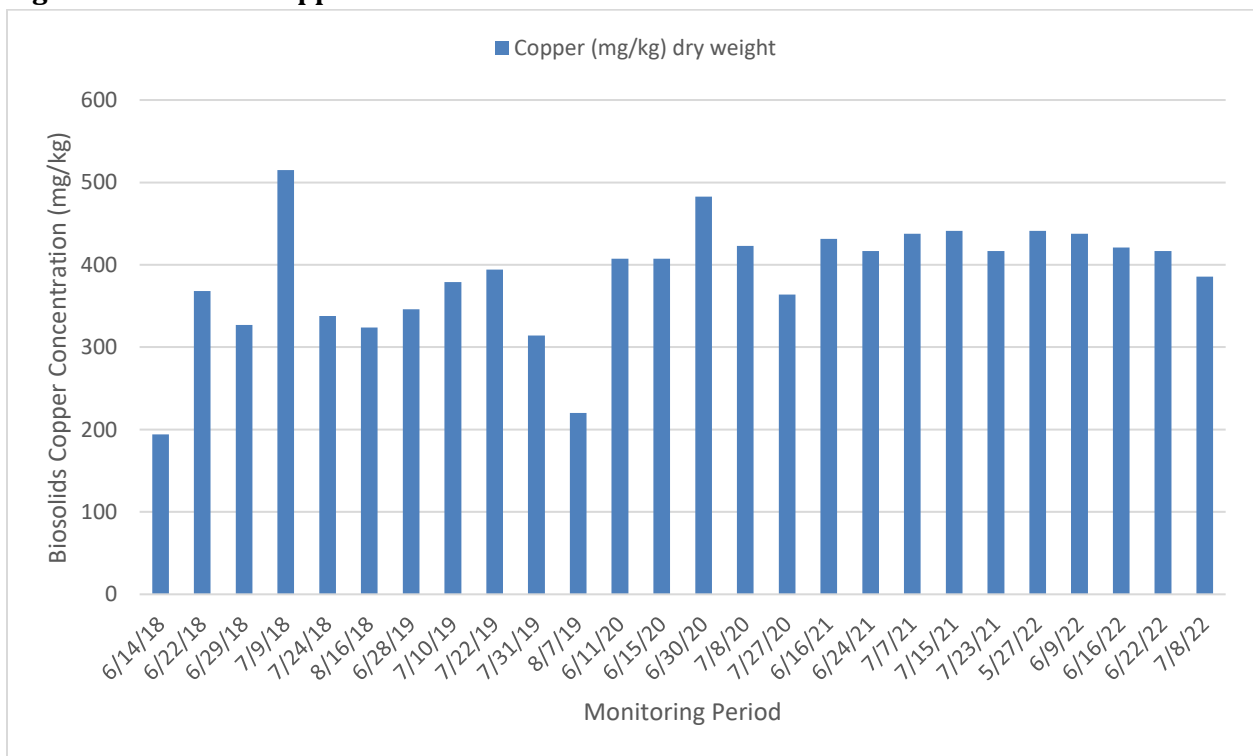


Figure 8: Biosolids Copper 5-Year Concentration Trend Assessment



Task Evaluation and Proposed Future Efforts

Table 1 provided below summarizes LGVSD’s and the countywide program’s recent, continuing, and planned efforts to reduce pollutants of concern in the LGVSD influent and effluent. For each pollutant or activity, the table lists accomplishments during 2022, activities planned for 2023, and criteria used to evaluate the level of success.

Table 1: Copper, Mercury, Zinc

Auto Program	
Goals	Maintain an ongoing auto service facility program with all facilities in compliance.
2022 Accomplishments	In 2022, 10 inspections of the 13 Class III auto facilities within the LGVSD jurisdiction were completed.
2023 Plans	Maintain program with, at a minimum, annual inspection of all facilities
Evaluation Criteria	Facilities inspected and monitored in compliance with permit requirements.
Non-SIU Permit Program	
Goals	Maintain an ongoing permit program for dischargers that are not SIUs.
2022 Accomplishments	Facilities which are identified as potential sources of pollutants of concern are permitted. Permitted facilities that are inspected typically annually. In 2022, the 2 Class III industrial users within the LGVSD jurisdiction were inspected.
2023 Plans	Inspect and sample all permitted and potential class permitted facilities.
Evaluation Criteria	Facilities inspected and monitored in compliance with permit requirements.
Copper Minimization Program	
Goals	Reduce copper discharge to sanitary sewer from plumbing corrosion, pool, spa, and fountain maintenance and copper root control chemicals.
2022 Accomplishments	Brochures were provided to plumbers, pool, spa, fountain owners, and maintenance companies.
2023 Plans	Continue public education efforts through the Public Education Program and Bay Area P2 Group (BAPPG) to distribute brochure for pool, spa, and fountain owners.
Evaluation Criteria	The number of brochures handed out and questions answered by the public.

Table 2: Mercury

Dental Offices	
Goals	Reduce mercury discharged to the sanitary sewer by implementing dental amalgam programs requiring amalgam separators.
2022 Accomplishments	13 inspections at dental offices; amalgam separators removed 4.5 lbs. of mercury in the LGVSD service area and 28 lbs. total for all County dental amalgam programs.
2023 Plans	Continue to annually inspect dental offices; determine compliance with separator maintenance and update Best Management Practices (BMPs). Continue to provide dental offices with additional information to assist with

	compliance with 40 CFR 441 Dental Effluent Requirements.
Evaluation Criteria	100 percent of all dental offices in compliance; long-term reduction in mercury levels in influent/effluent/biosolids.
Facilitating Mercury Recycling	
Goals	Facilitate through the Countywide Public Education Program, removal, and recycling of mercury -containing products, including thermometers, fluorescent tubes, ballasts, switches, bulbs, batteries, and laboratory chemicals. Provide a thermometer exchange program to exchange mercury - containing thermometers for non- Mercury digital thermometers.
2022 Accomplishments	Publicly owned treatment works (POTWs) in Marin County recycled 26,688 ft. of fluorescent tubes; 10 lbs. ballasts (PCB), and 34,883 lbs. of batteries. LGVSD recycled 276 ft. of fluorescent tubes; 150 lbs. of batteries, and 20 miscellaneous mercury containing devices.
2023 Plans	Continue to properly recycle and dispose products containing mercury and batteries; distribute mercury disposal brochures at events.
Evaluation Criteria	Report the amount of mercury containing materials collected by each Agency and the Public Education Program.

Table 3: Fats, Oils and Grease (FOG)

FOG Control Program	
Goals	Eliminate FOG related SSOs and reduce required sewer maintenance for all LGVSD member agencies and contract customers.
2022 Accomplishments	Performed 54 routine compliance inspections, maintained FSE database and worked with Marin County Environmental Health Services (EHS) to ensure all new FSEs and those undergoing a substantial remodel or change of ownership install approved grease removal devices (GRDs).
2023 Plans	Maintain FOG programs and restaurant plan checking procedures; perform routine compliance inspections and maintain database; work with Marin County EHS to ensure all new FSEs and those undergoing a substantial remodel or change of ownership install approved GRDs.
Evaluation Criteria	The number of FSEs in the programs that are inspected and in compliance.
FOG Outreach Program	
Goals	Educate the public about minimizing residential FOG discharges.
2022 Accomplishments	<p>Agencies were able to conduct meaningful outreach (i.e., door hangers vs. personal contact) that would allow tabulation of results regarding questions about FOG. During the Marin County Fair, 2,488 individuals were engaged by public education staff on conservation and pollution prevention message including FOG. FOG scrapers were also handed out during this event.</p> <p>LGVSD also partnered with the Marin County Public Education Program to sponsor outreach commercials on cable TV, YouTube channels. In 2022, during the first ad campaign, the ads were delivered 72,502 times within premium content and the target audience watched 65,418 (90%) of the ads in their entirety. During the second ad campaign the ads were delivered 132,783</p>

	times within premium content and the target audience watched 107,485 (81%) of the ads in their entirety.
2023 Plans	Continue the current FOG Outreach Program. Develop a new virtual outreach message and continue supporting the Marin County Public Education TV commercial outreach for FOG and preventing SSOs.
Evaluation Criteria	Provided multi-lingual FOG outreach material to Marin County residents at outreach booths. Quiz questions, brochures, FOG scrapers, restaurant inspections are performed routinely by some agencies.

Table 4: Public Outreach

Wastewater Treatment Agencies of Marin County Public Education Program	
Goals	Unify public outreach for Marin County POTWs
2022 Accomplishments	Maintained combined program with six POTWs in Marin County
2023 Plans	Continue program and expand when beneficial
Evaluation Criteria	Public education program topics and goals will be evaluated as needed.
Brochures	
Goals	Develop brochures that effectively convey wastewater messages and P2 to the public.
2022 Accomplishments	Brochures were handed out at outreach events and in limited quantities as door hanger packets.
2023 Plans	Develop some of our brochures in Spanish.
Evaluation Criteria	The number of brochures handed out.
FastForward Publication	
Goals	P2 Outreach to School-Age Children
2022 Accomplishments	“Major” level sponsor of the student magazine FastForward. These bi-monthly publications are delivered to 50 elementary and high schools in Marin (including private schools) for a readership of 25,000+ students. The magazine is also online and reaches an even wider audience.
2023 Plans	Continue to support and include the current logo.
Evaluation Criteria	Estimate how many students this publication reaches.
Outreach Booths	
Goals	Educate the public through various outreach materials and provide one on one discussions on key public education messages between the public and Agencies.
2022 Accomplishments	<ol style="list-style-type: none"> 1. Eggstravaganza Event – Total of 75 adults and 200 kids. 2. Rotary Day of Service – 48 adults took quizzes. Total of 100 visitors. 3. Tour of Novato – Total of 50 visitors at the outreach booth. 4. Earth 2050 - Total of 112 visitors. 5. Marin County Fair – 2,488 visitors.

	<p>6. Farmer’s Market – 63 adults took quizzes. Total of 160 visitors.</p> <p>7. Marin Sanitary Service Customer Appreciation Day – Total of 125 visitors.</p>
2023 Plans	Promote appropriate Public Education Programs tailored to meet community needs.
Evaluation Criteria	The number of events attended, and quizzes given to the public.
“Wetland Days” Program	
Goals	Assist public agencies and non-profit organizations through the countywide Public Education Program during “Wetland Days”.
2022 Accomplishments	Wetland Days at the SASM facility were suspended in 2022 during a large capital improvement project.
2023 Plans	Resume Wetland days in 2023.
Evaluation Criteria	Numbers of students and teachers who attend the event.
School Outreach Program	
Goals	Provide educational entertainment to Marin County kindergarten to second grade students on wastewater, stormwater, and related P2 topics that are revised every two years to target different age groups.
2022 Accomplishments	‘Go with the Flow’ Juggler shows were performed in 2022 reaching 5,619 students in kindergarten to third grade. Twelve shows were in person, where 3,534 students attended. Nine shows were virtual, where 2,085 students participated.
2023 Plans	Continue providing the Juggler show for schools through the countywide Public Education Program.
Evaluation Criteria	Tabulate the number of children that have viewed the Juggler show, from kindergarten to sixth grade.
Plant Tours	
Goals	Provide tours to individuals and schools as part of outreach and education.
2022 Accomplishments	Due to ongoing capital construction a reduced number of plant tours were provided in 2022. In 2022, 273 toured wastewater treatment plants countywide and 15 people toured the LGVSD treatment plant.
2023 Plans	Continue providing tours as allowed.
Evaluation Criteria	Number of people who toured LGVSD facility.
Website	
Goals	Provide information on wastewater treatment and additional LGVSD related information.
2022 Accomplishments	Maintained and update the LGVSD website with information and links to resources.
2023 Plans	Monitor activity of the LGVSD website and Dotty video series.
Evaluation Criteria	People who visited the website for contact information and took tours of the treatment plant.
Marin County Public Education Website	

Goals	Provide contacts and information on Countywide Public Outreach Program, P2, and POTWs.
2022 Accomplishments	The Public Education Program launched the newly designed website www.savrbay.com on October 21, 2021. In 2022 quizzes at outreach events were taken online by using phones to scan the quiz QR code. During 2022, 64 children’s quizzes and 74 adult quizzes were completed online. Since October 21, 2021, the website has been visited 10,527 times.
2023 Plans	Continue to update and keep current the www.savrbay.com website. Update website with the new outreach ad campaign on wipes, FOG, and drug proper disposal.
Evaluation Criteria	Website traffic will be calculated.

Table 5: Regional Efforts

Bay Area Clean Water Agencies (BACWA)	
Goals	Facilitate San Francisco Bay TMDL, SSO, regional studies development and other regional planning/projects
2022 Accomplishments	Affiliate member of BACWA
2023 Plans	Continue to participate in BACWA.
Evaluation Criteria	See BACWA Annual Report submitted to Regional Water Board.
Bay Area Pollution Prevention Group (BAPPG)	
Goals	Participate in SF Bay Area regional P2 planning and projects.
2022 Accomplishments	Funded and participated in BAPPG
2023 Plans	Continue to participate in BAPPG.
Evaluation Criteria	See BAPPG and BACWA Annual Reports
North Bay Watershed Associate (NBWA)	
Goals	Participate in watershed coordination, planning, and projects
2022 Accomplishments	Funded and participated in the NBWA.
2023 Plans	Continue to participate in NBWA Water Quality Committee.
Evaluation Criteria	Engagement with NBWA.

Table 6: Employee Outreach

Marin County Green Business	
Goals	Assure that LGVSD operations are appropriate for waste reduction, P2, and conservation of energy and water.
2022 Accomplishments	Maintained Marin County Green Business certification by Marin County Community Development Agency.

2023 Plans	Maintain or increase current program of conservation, waste reduction, and recycling efforts.
Evaluation Criteria	Certification renewal and inspection by Marin County Community Development Agency – Marin Green Business Program.

Appendix I – Countywide Public Outreach Program Annual Public Education Report

Wastewater Treatment Agencies of Marin County Public Education Program



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• Sanitary District No. 5 of Marin County • Sewerage Agency of Southern Marin • Central Marin Sanitation Agency •
• Novato Sanitary District • Las Gallinas Valley Sanitary District • Sausalito • Marin City Sanitary District •

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I. Introduction

This report summarizes the Public Education Activities and measures for Pollution Prevention taken as part of the Wastewater Treatment Agencies of Marin County Public Education Program (Public Education Program). The Sausalito-Marin City Sanitary District (SMCSD), Las Gallinas Valley Sanitary District (LGVSD), Central Marin Sanitation Agency (CMSA), Novato Sanitary District (NSD), Sewerage Agency of Southern Marin (SASM), and Sanitary District #5 of Marin County (SD#5) are members of the Public Education Program. This annual report covers the reporting period of January 1, 2022, through December 31, 2022.

II. Historical Summary

Provided below is an historical summary over the last 5 years of the Public Education Program.

A. Copper

The Public Education Program has distributed brochures on how to control copper applications and discharges from pools, spas, fountains, plumbing practices, and demolition. These application brochures were mailed to plumbers, and demolition brochures mailed to construction companies in Marin County. These brochures were also made available in the typical outreach booth and various wastewater treatment facility reception buildings.

B. Copper and Mercury

In 2017 a Copper and Mercury Audit was conducted at one high school with the focus on the sampling of creeks and the bay in Marin County. Sample collection and analysis was conducted for Copper, Mercury, and additional water quality parameters. The Copper and Mercury Audit program was suspended in 2018 due to a change in personnel at high schools participating in this program. This public outreach element has since been discontinued.

C. Pharmaceuticals

The Public Education Program has supported and helps fund the RxSafe Marin program run by Marin County employees, and various community leaders to educate the public on pharmaceuticals and their proper disposal since 2017.

D. Mercury

Annual dental office inspections are performed in the service areas of CMSA, LGVSD, and NSD. These service area inspection programs have prevented Mercury amalgam waste from being released to the sanitary sewers. Additionally, the Public Education Program supports a Mercury Take Back program in which mercury thermometers are exchanged with digital thermometers during outreach events and at the wastewater treatment facilities. The Public Education Program also supports a Mercury Recycling Program in which partnership with the Marin County Household Hazardous Waste Program provides a Marin County-wide

collection day. During these event the program collects Mercury-containing devices, fluorescent tubes, ballasts, and batteries for proper recycling and disposal.

E. Public Education

The Public Education Program has conducted several public outreach activities, including staffing an outreach booth at several local community events, coordinating in-school outreach shows, and hosting tours at treatment facilities.

III. Pollutants of Concern

A pollutant of concern is any toxic or undesirable substance that passes through a wastewater treatment plant or otherwise imposes undesirable operational costs to the Wastewater Treatment Agencies of Marin County.

In 2012 the Waste Discharge Requirements for Mercury and PCBs from Municipal and Industrial Wastewater Dischargers to San Francisco Bay (Regional Water Board Order R2-2022-0038) was adopted which contained Mercury discharge limits that apply to Publicly Owned Treatment Works (POTWs) in Marin County. Therefore, Mercury is a pollutant of concern for the Public Education Program.

Due to influent copper concentrations and NPDES permit limits for copper, copper is a current pollutant of concern for wastewater treatment agencies in Marin County. The Public Education Program has participated in activities geared toward reducing the discharge of Copper to the sanitary sewer from residents, plumbers, and pool and spa maintenance companies.

Discharge of fats, oils, and grease (FOG) to the sanitary sewer, alone or in conjunction with other factors, is a significant cause of sanitary sewer overflows (SSOs). The Public Education Program directed resources toward providing information to the public and business owners about reducing FOG discharge to the sanitary sewers.

IV. Sources of Pollutants of Concern

Provided below is a list of the potential sources associated with the pollutants of concern identified by the Public Education program.

A. Copper

Listed below are identified or potential sources of Copper in Marin County. The list is based on available sample data, available references such as the Palo Alto Regional Water Quality Control Plant's (RWQCP) "Copper Source Identification," and best professional judgment.

- Water supply and plumbing corrosion
- Cooling towers
- Copper sulfate root killers
- Auto repair and related activities

B. Mercury

Listed below are identified or potential sources of Mercury in Marin County. The list is based on available sample data, available references such as the Palo Alto RWQCP's "Mercury Source Identification," and best professional judgment.

- Dental offices
- Residential Mercury disposal
- Photo processes
- Medical facilities
- Auto repair and related activities
- Human feces

C. Fats, Oils, and Grease (FOG)

Fats, oils, and grease (FOG) is produced by residential cooking operations, commercial food service establishments (FSEs), and industrial food production facilities. Although some collection system FOG-related issues have been reported in residential areas, most FOG issues are caused by FSEs.

V. Recent, Continuing, and Planned Tasks to Reduce Pollutants of Concern

A. Copper

In 2022, the Public Education Program handed out the brochure "Good Plumbing Practices Protect San Francisco Bay" and "Maintenance Tips for Pools, Spas, and Fountains" to homeowners and pool and spa maintenance companies.

B. Mercury

- Dental Amalgam Inspection Program:** During 2022, LGVSD, CMSA and NSD service areas continued their annual dental office inspection programs to minimize the discharge of Mercury to the sanitary sewer from dental offices in Marin County. In 2022 amalgam separators removed approximately 28 lb. of Mercury within the service areas.
- Thermometer Take-Back Program:** All partnered wastewater treatment agencies provided the service of exchanging Mercury-containing thermometers for digital thermometers at their offices for the public.
- Mercury Recycling Program:** The Public Education Program did not partner with the Marin County Household Hazardous Waste Program to staff a booth at their Marin County-wide collection day because the event was not held in 2022. Agencies continued to collect Mercury-containing devices, fluorescent tubes, ballasts, and batteries for proper recycling and disposal.

- iv. **Mercury Outreach Materials:** Mercury disposal brochures produced by the EPA that discuss the toxicity of mercury and how to properly handle their disposal are handed out at all public education and outreach events.

C. Fats, Oils, and Grease (FOG)

The Public Education Program continues the FOG Outreach Program by handing out information at several public events describing ways to reduce discharge of FOG to the sanitary sewers. Grease scrapers to be used in homes to scrape the grease off dishes prior to washing were also given away and are imprinted with an educational message. On the outreach quiz there is a question about how to properly clean pots, pans, and dishes before washing that was answered by members of the public. Many of the FOG Control Programs of Marin County POTWs regulate FSEs. Multi-lingual posters were handed out and displayed at FSEs about proper handling, recycling, and disposal of FOG including grease trap maintenance. Laminated posters are available at the booths for the public to view. The program also hosts various educational sessions at Senior living facilities where FOG is one of the topics covered.

In 2022, six outreach events were conducted by public education staff and the distribution of door hangers continued to reach a broader diversity of the community. Public outreach materials and door hangers consisted of assorted brochures:

- “Fat-Free Sewers”,
- “Wipes Clog Pipes”,
- “Safe Disposal of Prescription Medicines Saves Lives” by RxSafe Marin.

VI. Public Education Program Outreach

In 2007, six Marin County POTWs--Central Marin Sanitation Agency (CMSA), Las Gallinas Valley Sanitary District (LGVSD), Novato Sanitary District (NSD), Sewerage Agency of Southern Marin (SASM), Sanitary District No. 5 of Marin County (SD5), and Sausalito-Marín City Sanitary District (SMCSD), implemented the Public Education Program. The educational activities of each Public Education Program member agency are enhanced by combining resources and sharing a unified message.

All of the public outreach and school activities listed below and in Table 1 below are coordinated and administered through the Public Education Program. The public outreach activities listed below are designed to educate students and the public on the following issues:

- The difference between storm drains and sanitary sewers, and their functions.
- Nothing but rainwater should go in storm drains.
- The types of wastes appropriate for the sanitary sewers.
- “Flush Green” - the toilet is not a trash can.

- Ways to properly dispose of wastes that cannot go in the storm drain or sanitary sewers (e.g., household hazardous waste programs).
- Beneficial reuse of treated wastewater and biosolids.
- Hazards and proper disposal of waste Mercury.
- Proper disposal of unused pharmaceuticals through the RxSafe Marin program.
- Sources of Dioxin released to the environment and ways to prevent its release by minimizing burning of household trash and fireplaces.
- Issues relating to preventing FOG-related SSOs.
- Private sewer laterals, responsibility for their maintenance, and their potential to cause infiltration into the collection system which can lead to SSOs.
- Emerging topics are added to the Public Education Program when appropriate.

Table 1: Public Education Program Budget (July 1, 2022, through June 30, 2023)

Budget Line-Item Description	Total Budget
Event Enrollment (Booth costs)	\$ 4,000
Juggler Show (20 shows per year annual cost)	\$ 10,000
Fast Forward/Kidspeak Publication	\$ 4,000
Logo Development (every other year)	\$ 2,000
SAV-R-BAY website maintenance	\$ 1,500
Booth Set Up Supplies (yearly events)	\$ 1,000
Booth Technology equipment	\$ 2,000
Brochures (printing/updates/ development)	\$ 3,000
Public Education Video Outreach (Comcast)	\$ 18,000
Promotional Items	\$ 12,000
Marin Science & Environmental Leadership Program at Terra Linda HS (MSEL)	\$ 2,500
Total	\$ 60,000

A. School Outreach

The Public Education Program works with professional entertainers to produce the scripts for entertaining and educational school outreach shows. The shows address water and pollution issues in a simple, humorous manner suitable for kindergarten to sixth grade. The entertainers are then contracted to present the shows at schools in Marin County. For the 2021 school year, the Public Education Program through the efforts of the “Go With The Flow” producer, converted his in-person show to a virtual show. In 2022, the virtual show was presented to 9 Marin County schools reaching a total of 2,085 students. In-person shows were presented to 12 Marin County schools reaching a total of 3,534 students.

B. Outreach Booths

The Public Education Program staffs outreach booths at several public events each year. Visitors to the booths have an opportunity to take a quiz concerning the topics listed above. Adults who answer all questions correctly win their choice of a t-shirt, stainless water bottle, stuffed animal, canvas tote, or nylon backpack bag. Children are given a simpler quiz addressing similar issues. If they answer all the questions correctly, they may spin a prize wheel. The quizzes are intended both to educate the people who take them and to provide information on the public's level of awareness on key topics. In addition to administering quizzes, staff members engage the public and answer questions regarding pollution prevention, wastewater treatment, recycled water, and other environmental issues. At outreach events, staff has the opportunity to talk with local teachers and inform them of possible outreach activities including in class presentations and facility tours offered by the Public Education Program member agencies.

The following list includes a description of the events that were attended by the Public Education Program members during 2022.

The Mill Valley Spring Eggstravaganza

On March 26, 2022 the Public Education Program participated in a community outreach event to educate the public on what not to flush. During this event, 275 individuals were engaged by public education staff on what not to flush down the toilet.



Novato Farmer's Markets

The City of Novato sponsors Farmer's Markets with vendors and entertainment in downtown areas. The Public Education Program staffs an outreach booth at the markets during Pollution Prevention and Earth Day Markets.

The Marin Rotary Day of Service

The Rotary Day of Service – Protecting the Environment was held at the Marin County Fairgrounds on April 9, 2022. The event featured local businesses and community members with expertise in sustainability. During this event, staff interacted with 100 members of the public to discuss sustainability in the community.



Novato School Fuel

The Novato School Fuel held an outreach fair on April 23, 2022, for children and parents focusing on educational resources that are available in the community. During this event public education messages were shared with approximately 50 participants.

Mill Valley Earth Day



Mill Valley Earth Day – Earth 2050 had speakers presenting a variety of environmental topics, research projects, studies, and success stories related to environmental concerns and potential impacts. It also had booths with local resources focusing on sustainability and conservation.

The Marin County Fair

From June 30th to July 4th, 2022, the Public Education Program staffed a community outreach booth to educate the public on key pollution prevention education messages. During this event, 2,488 individuals were engaged by public education staff on conservation and pollution prevention.



Marin Sanitary Service Customer Appreciation Day

The Marin Sanitary Service Customer Appreciation Day is an event where the public can view what should be thrown away, and not thrown away, and is a chance to show them what not to flush down the drains. During this event, approximately 150 individuals were engaged by public education staff on key public education messages.

C. TV-ad (and YouTube) campaign

The Public Education Program partnered with Ross Valley Sanitary District (RVSD) to have TV ads covering specific topics (wipes, FOG, drugs) with all the district logos at the end of the ad to raise our collective visibility and show we are a unified, coordinated front. The ads ran on Effectv (Comcast) from March through June and again in November through December. Ads in the campaign included:

- “Do Not Flush Wipes”.
- “Proper FOG Disposal”.
- “Don’t Flush Meds”.
- “Is Your Sump Pump Connected Properly?”

In 2022, during the first ad campaign, the ads were delivered 72,502 times within premium content and the target audience watched 65,418 (90%) of the ads in their entirety. During the second ad campaign the ads were delivered 132,783 times within

premium content and the target audience watched 107,485 (81%) of the ads in their entirety.

D. Website

The Public Education Program launched the newly designed website www.savrbay.com on October 21, 2021. The website has information about what resources are currently available and activities and programs that are offered to schools and members of the community as well as the location and contact information for the six wastewater treatment plants in Marin County. In 2022 quizzes at outreach events were taken online by using phones to scan the quiz QR code. During 2022, 64 children’s quizzes and 74 adult quizzes were completed online. Since October 21, 2021, the website has been visited 10,527 times.



E. Plant Tours

Agencies conduct tours of the POTWs upon request from schools, community groups, and other members of the public.

F. Brochures

The Public Education Program has several brochures covering a wide range of topics including materials that should not be flushed, lateral maintenance, and copper. The brochures are regularly reviewed, and informational content is updated when necessary. This year several hundred brochures were distributed through door hanger outreach.

G. Classroom Presentations

Upon request from teachers, the Public Education Program provides presentations at school classrooms. Each presentation is tailored to the grade level of the class and generally covers the topics listed above. If requested, presentations can be tailored to focus on a specific area of study that is relevant to the teacher’s lesson plan. Each presentation has hands-on activities including looking at wastewater biology through a microscope, a watershed diorama, and a pollution-prevention-related video game.

H. FastForward Publication

The Public Education Program is a “Major Sponsor” for the FastForward school outreach publication. This magazine written by students covering a large array of subjects including media, arts, sciences, and current events. It gets distributed to over 50 elementary and high schools in Marin (including private schools) to a readership of over 25,000 students by print, and online it reaches an even wider audience, including teachers, administrators, and parents.

VII. Regional Efforts

A. STRAW

The Students and Teachers Restoring a Watershed (STRAW) program coordinates and sustains a network of teachers, students, restoration specialists, and community members to plan and implement professional watershed restoration. STRAW provides teachers with resources, materials, and technical support to integrate watershed content into their classrooms. Environmental science education is delivered in coordination with other school science curricula throughout the school year. In 2022, the Public Education Program was not able to meet with STRAW teachers.

B. BAPPG

Public Education Program Members participate in the Bay Area Pollution Prevention Group (BAPPG). This is an excellent forum for local POTW Pollution Prevention staff to network and coordinate regional projects. The 2022 BAPPG Annual Report is available for download on the BAPPG website (bacwa.org) and includes descriptions of projects related to the following pollutants:

- Copper
- Fats, Oils, and Grease (FOG)
- Mercury and Silver
- Pesticides
- Pharmaceuticals
- Triclosan
- Trash and Wipes
- Fipronil / Imidacloprid / Pyrethroids

C. NBWA

Public Education Program agencies are members of the North Bay Watershed Association (NBWA). They participate in the NBWA Water Quality Committee through individual staff participation. The Water Quality Committee is of particular benefit to the Public Education Program.

D. BACWA

Public Education Program agencies are associate and affiliate members of the Bay Area Clean Water Agencies (BACWA). BACWA, the Bay Area Municipal Stormwater Collaborative (BAMSC), and the RWQCB have a Memorandum of Understanding for developing San Francisco Bay Total Maximum Daily Limits and SSOs and provide guidance and funding for receiving water monitoring through the Regional Monitoring Program and the San Francisco Estuary Institute.

VIII. Evaluation of Program and Task Effectiveness Discussion

A. School Outreach

The Juggler Show premiered in 2014 for grades 3-6 and was based on a similar show that was sponsored in 2004. Teacher feedback from the previous show was used when developing the current show. Evaluation forms are distributed to teachers after the presentation to determine the show effectiveness.

- Developmentally appropriate
- Appropriate length
- Adequately conveys the role that POTWs play in society to protect our water supply and the environment
- Demonstrates the difference between storm drains and sanitary sewers
- Any suggestions for improvement or additional information

The completed forms are used to judge age appropriateness and other elements of the show. The 2019 production was revised and geared towards kindergarten to second grade level children. In 2020, due to COVID-19, the juggler show was revised to a virtual program. In 2021 due to COVID-19, the juggler show was viewed virtually with only a few in-person performances. In 2022, the juggler show was viewed virtually, and in-person shows returned to some locations.

B. Public Outreach

The 2022 events are described in more detail above (Outreach Booth section). In normal years, quizzes are administered at public outreach booths at several events each year. Assessed solely based on the number of documented contacts with the public, the booths have been a very successful public outreach endeavor. There are many other useful means of contact with the public, in addition to people taking quizzes. It should be noted that whether a successful quiz-taker will exhibit desirable behavior regarding related environmental issues cannot be determined from test score data.

IX. Summary of Programs Accomplishments and Future Plans

Copper Minimization Program	
Goals	Reduce copper discharge to sanitary sewer from plumbing corrosion, pool, spa, and fountain maintenance and copper root control chemicals.
2022 Accomplishments	Brochures were provided to plumbers, pool, spa, fountain owners, and maintenance companies.
2023 Plans	Continue Public Education efforts through the Public Education Program.

Evaluation Criteria	The number of brochures handed out and questions answered by the public.
Mercury Dental Amalgam Program	
Goals	Reduce mercury discharged to the sanitary sewer by implementing dental amalgam programs requiring amalgam separators.
2022 Accomplishments	Marin county dentist offices were monitored to ensure compliance. Approximately 28 lb. of mercury was collected from amalgam separators.
2023 Plans	Conduct detailed annual inspections in LGVSD, CMSA, and NSD service areas and determine program compliance of individual dental offices.
Evaluation Criteria	Track inspections compliance and ensure amalgam separators are maintained properly. Estimated amount of mercury captured is calculated based on amalgam hauled away and separator maintenance.
Mercury Take Back Program	
Goals	Thermometer exchange program to exchange mercury-containing thermometers for non-mercury digital thermometers. Facilitate removal and recycling of mercury-containing products, including fluorescent tubes, ballasts, switches, bulbs, batteries, and laboratory chemicals.
2022 Accomplishments	Exchange mercury-containing thermometers for digital thermometers at POTWs. In 2022, 20 mercury-containing thermometers were exchanged. POTWs in Marin County recycled 26,688 ft. of fluorescent tubes; 1 lb. ballasts (PCB); and 34,886 lb. of batteries.
2023 Plans	Continue thermometer exchange at participating POTWs. Continue to properly recycle and dispose of mercury-containing fluorescent tubes, mercury-containing devices, and batteries. Hand out mercury disposal brochures at events.
Evaluation Criteria	Calculate the number of thermometers exchanged. Participating agencies will report on collection activity materials collected. The total combined amount of material collected is reported.
Fats, Oils & Grease (FOG) Program	
Goals	Educate the public about minimizing residential FOG discharge.
2022 Accomplishments	Due to COVID-19, agencies were unable to conduct meaningful outreach (i.e., door hangers vs. personal contact) that would allow tabulation of results regarding questions about FOG. However, agencies supported new TV commercial ads on the proper disposal of FOG.
2023 Plans	Continue the current FOG Outreach Program. Develop a new virtual outreach message and continue supporting RVSD's TV commercial outreach for FOG and preventing SSOs.

Evaluation Criteria	Provided multi-lingual FOG outreach material to Marin County residents at outreach booths. Quiz questions, brochures, FOG scrapers, restaurant inspections are performed routinely by some agencies.
County-wide POTW Public Education Program	
Goals	Unify public outreach efforts for all Marin County POTWs.
2022 Accomplishments	Maintained a combined program with 6 POTWs in Marin County.
2023 Plans	Continue the program and expand when beneficial.
Evaluation Criteria	Public Education Program topics and goals will be evaluated.
Marin County Public Education Website	
Goals	Provide contacts and information on Public Education Program outreach program, Pollution Prevention, and contacts at POTWs.
2022 Accomplishments	Launched newly designed website, October 21, 2021. Updated all agencies' website information.
2023 Plans	Continue to update and keep current the www.savrbay.com website. Update website with the new outreach ad campaign on wipes, FOG, and drug proper disposal.
Evaluation Criteria	Website traffic will be calculated.
"Wetlands Days" Program	
Goals	Assist public agencies and non-profit organizations through the countywide Public Education Program during "Wetlands Days".
2022 Accomplishments	Wetlands Days at the SASM facility were suspended in 2022 during a large capital improvement project.
2023 Plans	Resume Wetlands days in 2023.
Evaluation Criteria	Numbers of students and teachers who attend the event.
School Outreach Program	
Goals	Provide educational entertainment to Marin County kindergarten to third grade students on wastewater, stormwater, and related Pollution Prevention topics that are revised every two years to target different age groups.
2022 Accomplishments	21 'Go with the Flow' Juggler shows were performed in 2022 reaching 5,619 students in kindergarten to third grade. Twelve shows were in person, where 3,534 students attended. Nine shows were virtual, where 2,085 students participated.
2023 Plans	Continue newly reworked Juggler show.
Evaluation Criteria	Juggler show presented at local schools for younger children, kindergarten to third grade.

Public Outreach Program (Outreach Booths)	
Goals	Educate the public through various outreach materials, and provide one on one discussions on key Public Education messages between the public and agencies.
2022 Accomplishments	<ol style="list-style-type: none"> 1. Eggstravaganza Event – Total of 75 adults and 200 kids. 2. Rotary Day of Service – 48 adults took quizzes. Total of 100 visitors. 3. Tour of Novato – Total of 50 visitors at the outreach booth. 4. Earth 2050 - Total of 112 visitors. 5. Marin County Fair – 2,488 visitors. 6. Farmer’s Market – 63 adults took quizzes. Total of 160 visitors. 7. Marin Sanitary Service Customer Appreciation Day – Total of 125 visitors.
2023 Plans	Promote appropriate Public Education Programs tailored to meet community needs.
Evaluation Criteria	The number of events attended, and quizzes given to the public.
Commercials for Wastewater Outreach on TV-ad & YouTube	
Goals	Educate the public on proper disposal of unused pharmaceuticals and facilitate proper disposal. Educate the public not to flush “flushable wipes”. Educate the public on disposing of FOG.
2022 Accomplishments	In 2022, during the first ad campaign, the ads were delivered 72,502 times within premium content and the target audience watched 65,418 (90%) of the ads in their entirety. During the second ad campaign the ads were delivered 132,783 times within premium content and the target audience watched 107,485 (81%) of the ads in their entirety.
2023 Plans	Continue to support funding for TV ads on specific topics (wipes, FOGs, pharmaceuticals disposal). These ads will play for a 3-month term and twice per year.
Evaluation Criteria	Decrease of SSOs caused by FOG or wipes.
Websites	
Goals	Provide outreach on District/Agency and Public Education websites.
2022 Accomplishments	The Public Education Program launched the newly designed website www.savrbay.com on October 21, 2021. In 2022 quizzes at outreach events were taken online by using phones to scan the quiz QR code. During 2022, 64 children’s quizzes and 74 adult quizzes were completed online. Since October 21, 2021, the website has been visited 10,527 times.
2023 Plans	Update website with relevant events and upcoming schedule.
Evaluation Criteria	Continue to monitor website traffic.

Plant tours	
Goals	Outreach and education
2022 Accomplishments	In 2022, 273 students and adults toured POTWs countywide.
2023 Plans	Continue providing tours as allowed.
Evaluation Criteria	The number of people who toured Marin County POTWs.
Classroom Presentations	
Goals	Teach students in a classroom setting about how agencies treat wastewater, what can and cannot go down the drains, and why.
2022 Accomplishments	Classroom presentations at Marin schools were not held in 2022.
2023 Plans	Continue to encourage schools to utilize the program and perform additional programs as requested.
Evaluation Criteria	Number of schools and students participating in the program.
Brochure	
Goals	Develop brochures that effectively convey wastewater messages and Pollution Prevention to the public.
2022 Accomplishments	Brochures were handed out in limited quantities as door hanger packets. Additionally, brochures were reviewed, several were retired and noted brochures were marked to be reprinted.
2023 Plans	Develop some of our brochures in Spanish.
Evaluation Criteria	The number of brochures handed out.
FastForward Publication	
Goals	Pollution Prevention Outreach to School-Age Children
2022 Accomplishments	“Major Sponsor” of the student magazine FastForward. These bi-monthly publications are delivered to 50 elementary and high schools in Marin (including private schools) for a readership of over 25,000 students. The magazine is also online and reaches an even wider audience.
2023 Plans	Continue to support and include the current logo.
Evaluation Criteria	Estimate how many students this publication reaches.
STRAW	
Goals	Work with STRAW (Students and Teachers Restoring A Watershed).
2022 Accomplishments	Due to COVID-19, unable to partner with STRAW on wastewater-related Pollution Prevention activities.
2023 Plans	Continue to support STRAW.
Evaluation Criteria	The number of teachers and students receiving information on wastewater-related Pollution Prevention activities.

Bay Area Pollution Prevention Group (BAPPG)	
Goals	Participate in SF Bay area regional Pollution Prevention planning & projects.
2022 Accomplishments	Participated in BAPPG.
2023 Plans	Continue membership and attend meetings.
Evaluation Criteria	See BAPPG Annual Report submitted to Regional Water Quality Control Board (RWQCB).
North Bay Watershed Association	
Goals	Participate in watershed coordination, planning, and projects.
2022 Accomplishments	NBWA event will be held in 2023.
2023 Plans	Continue to participate in NBWA Water Quality Committee.
Evaluation Criteria	Engagement with NBWA.
Bay Area Clean Water Agencies (BACWA)	
Goals	Facilitate SF Bay TMDL, SSO, regional studies development, and other regional planning/projects.
2022 Accomplishments	Associate member of BACWA (CMSA). Affiliate member of BACWA (LGVSD, NSD, SASM, SD#5, and SMCSD).
2023 Plans	Continue membership.
Evaluation Criteria	Facilitate SF Bay TMDL, SSO, regional studies development, and other regional planning/projects.

X. Appendices

Appendix A: 2022 Outreach Events

SPRING EGGSTRAVAGANZA!

Saturday | March 26, 2022 | 9am - 1pm
@ the Mill Valley Community Center

FREE EGG HUNT

- 9:30am - 2 & Under
- 10:00am - 3 Year Old
- 10:30am - 4 Year Olds
- 11:00am - 5 Year Olds
- 11:30am - 6-8 Year Olds
- 12:00pm - 9-12 Year Olds

Egg Hunt Sponsored By:
HOME LOANS bay equity

Special thanks to Josh Burns Real Estate for his generous donation of egg hunt eggs.

Mill Valley RECREATION

Register Online at MyMVR.org
COURSE #: 7123



You know what's EGG-CITING?



Not having another toilet overflow!

Only flush the three 'P's':

(Pee, Poop, Toilet Paper)



From your Wastewater Treatment Agencies of Marin County PEEPS.
savrbay.com

HIPPIITY HOPPITY MATCHING GAME

Match each item (on the left) to where it should go (either the toilet or trash can on the right) to help prevent a sewer overflow!



Rotary
District 5150

Marin
San Francisco
San Mateo
Counties

Rotary Day of Service
Protecting The Environment
April 9, 2022

A multi-county Service and Learning event
to help protect our environment

★ Hands on Environmental Projects ★
★ Protecting The Environment Fair ★
(EV Car Show and Environmental Related Exhibits)

www.Rotary5150.org
Contact: Sylvia Barry at Sylvia@SylviaBarryRE.com

Serve To Change Lives

FASHION ETHICS

By Annelie Kamperin
Tam High, Senior



Fatima lives in a two-bedroom apartment with ten people. She sleeps on the floor and can only access water for one hour three

times per day. She told her story to OXFAM Australia. Working long hours without toilet access leaves her sick, feverish, and aching. Line chiefs steal money from workers by lying about their pay, bullying workers into signing paylips. When Fatima's wages are low, she sends money to her ill mother and goes hungry.

According to the International Labour Organization, 170 million children are employed in the textile and garment industry. This is the reality of the fast fashion industry.

The fashion industry grows exponentially yearly. Companies such as Zara and H&M found incredible success as people care less about quality products and more about the latest trends. Consumers bought 60% more garments in 2014 than in 2000 and kept their clothes half as long. In 2011, European fashion companies shifted from two to five clothing lines per year. Now, Zara produces 24 clothing lines.

Fast fashion may be beneficial for consumers and multi-billion dollar corporations, but it doesn't outweigh detrimental labor conditions and environmental impact. The fashion industry contributes up to ten percent of humanities' carbon emissions. The equivalent of one garbage truck full of clothes is burned or dumped in a landfill every second. Global warming intensifies yearly. Humans cannot afford to create immense pollution and waste.

Fast fashion has affected wildlife for many years. It is the second-largest consumer of the world's water and pollutes the ocean with microplastics. A 2017 report from the International Union for Conservation of Nature (IUCN) estimated 35% of all ocean microplastics came from the laundering of synthetic textiles. To make matters worse, more than 60% of fabric fibers

are now synthetics. Microplastics are plastic fragments less than five millimeters in length that pollute the ocean, killing over one million marine animals each year. Microplastics take hundreds to thousands of years to fully decay.

If it looks too good to be true, it probably is.

H&M, Forever 21, Topshop, and Zara produce clothing at rapid rates with low prices. These are key stores to avoid because they own sweatshops that exploit children and workers like Fatima. U.S. companies exploit workers by outsourcing production to countries with weaker labor standards. If an American corporation is unable to outsource production, they employ undocumented immigrants who aren't fully protected by US labor standards. Other companies use "guest workers," (people with a temporary immigration status) because they are instantly deportable when fired and cannot retaliate against abusive employers.

Solutions and Ethical Brands

If you love fashion as I do, this news is disappointing. Most brands I used to shop were fast fashion or didn't disclose enough information about eco-friendly production and distribution methods. Unfortunately, shopping ethically and eco-friendly tends to be expensive. My recommendation is to buy quality basics you can use forever from ethical brands. There are multiple browser extensions and websites such as good on you that give you information on your favorite brands or help you find new ones.

For more affordable clothing, try to reuse, upcycle, or buy second-hand. Thrift stores are a good option because they contain quality clothing and only about 10-15% of donated clothes end up in the second-hand market. You can also try using apps such as Depop, Poshmark, or Mercari. You can even sell your own clothes to make money, ensuring your clothes don't end up in a landfill.

Overall, fast fashion needs to slow down. Try to shop sustainably. Share your knowledge with friends because fast fashion thrives because of us. Remember to think about the 1,800 gallons of water it takes to produce a single pair of jeans. Remember workers like Fatima. Write your representatives about implementing subsidies for eco-friendly companies and taxing companies that outsource their work to countries with exploitative labor practices. In our world, almost anything is available via the click of a button. We need to remember the hard work put into everything we buy and look after the nature surrounding us.

For more info on ethical eco-friendly brands visit:

<https://donegood.co>

<https://goodonyou.eco>

www.thegoodtrade.com/features/fair-trade-clothing



PROUD TO SUPPORT ENVIRONMENTAL EDUCATION..

Las Gallinas Valley Sanitary District • Central Marin Sanitation District • Novato Sanitary District
Sewerage Agency of Southern Marin • Sausalito-Marín City Sanitary District • Tiburon Sanitary District
To report a polluter call 1-800-SAV-R-BAY

DELIVER ZERO

By Palmer Dean

Urban High School of San Francisco, Senior

Take-out and Delivery in Returnable Reusable Containers



The Big Apple, the city that never sleeps. We have all heard of its Broadway musicals and the Statue of Liberty. But what most of us have not heard of is its ongoing

mass production of waste. Every year in New York City, 414,000,000 pounds of restaurant disposables are used. That is equivalent to nearly 1 billion takeout containers a year. As climate change continues to threaten our world, reducing waste is more important than ever. Lauren Sweeney, co-founder of Deliver Zero sat down with me to share her team's approach to growing the zero waste movement in New York City.

Launched in November of 2019 in Brooklyn, Deliver Zero was founded on the idea of creating a "zero waste Seamless." Seamless is the major food delivery platform used in New York. The concept is ordering take-out or delivery like any other food delivery service, except all your food comes in reusable containers. Once you receive your food you can keep the containers for \$3.25 each or return them to a partner restaurant or delivery person within six weeks. Lauren's cofounder started by compelling eight restaurant owners in Park Slope to work with them. From a business perspective, the Deliver Zero team felt that the zero waste movement had so much potential to expand and blow up. They explained to restaurants that a lot of customers would be more inclined to order from these restaurants if there was a zero-waste component, many feel strongly about minimizing waste. After those initial eight partnerships, Deliver Zero has been able to use social media and press to expand into over one hundred restaurants in New York City.

Now, how has the Deliver Zero Team continued to partner with so many restaurants?

What is in it for them? Well, from a cost perspective, partnering with a zero-waste delivery service saves money for a restaurant. To start, restaurant partners are not charged for reusable containers that Deliver Zero puts food in. Restaurants are only charged a commission for each order received through the Deliver Zero platform, but it is lower than the commission

price of all the other food delivery services. In addition to low commission prices, restaurants can save money from not buying single-use plastic containers.

"If you add up the expense of each order, just the containers are costing restaurants a lot of money," Lauren says. "To create a solution that really feels accessible for restaurant operators and for customers, it needs to feel either cheaper or kind of equal to the existing solutions. Rather than making them pay more. It makes it easy for them to make the right choice."

Single-use plastic containers range in price from \$0.18 to \$0.85 a container. This means that the average order for one customer is costing the restaurant \$2 just in containers, all of which will be used for about twenty minutes. It is ridiculous how wasteful and costly this is.

These quick calculations are the most convincing points for a restaurant to want to join forces with Deliver Zero. On the consumer end, Deliver Zero has to focus on drawing customers towards their platform and away from others.

"We're really out to convert the Door Dash customers to order through us because that's how we're reducing waste. We take someone who was ordering in single-use containers and convert them into ordering and reusables."

Lauren and her team have utilized social media to their advantage. One strategy is using humor to point out the absurdity of single-use plastic through Instagram and other platforms.

"Our goal sounds very challenging — and it is. We want to make participating in our reusable system as easy as throwing something away."

— Lauren Sweeney, Deliver Zero

"I think the way into people's minds and hearts can be through humor," she says. "So we try to kind of funny and share social stats wherever we can. Stats around climate change, in particular, are more resonant with our customers."

Since Deliver Zero has expanded so widely in the last year, I asked Lauren what the future holds for her business. Deliver Zero hopes to see their reusable containers become an option on other delivery platforms like Seamless so customers do not just have one platform option to save waste. In addition, the team hopes to get their model working within fast-casual chains and grocery stores, creating a network of reusable containers. As one of the company's advisors put it, "Our goal sounds very challenging — and it is. We want to make participating in our reusable system as easy as throwing something away."

For more info, visit: www.deliverzero.com



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Sewerage Agency of Southern Marin • Sausalito-Marín City Sanitary District • Tiburon Sanitary District
To report a polluter call 1-800-SAV-R-BAY



Appendix C: 2022 Public Education Brochures

Fats, oils, and grease aren't just bad for arteries and waistlines; they're bad for sewers, too.

Sewer overflows and backups can cause health hazards, damage home interiors, and threaten the environment. A common cause of overflows is sewer pipes blocked by grease. Grease gets into the sewer from household drains, as well as from poorly maintained grease traps in restaurants and other businesses.

Caution: Grease traps or interceptors at restaurants, large buildings, and other commercial establishments must be properly designed to handle the amount of grease that is expected, be installed correctly, and be cleaned and serviced on a frequent basis.



Las grasas y los aceites no sólo son perjudiciales para las arterias y para la figura; también son dañinos para las alcantarillas.

Los derrames y desbordamientos de aguas residuales pueden ser peligrosos para la salud, dañar el interior de los hogares, y amenazar el medio ambiente. Una causa cada vez más común de derrames es las alcantarillas obstruidas por grasa. La grasa llega a las alcantarillas desde los desagües domésticos y trampas de grasa mal mantenidas en restaurantes y otros negocios.

Advertencia: Las trampas de grasa o interceptores en los restaurantes, edificios grandes y otros establecimientos comerciales deben estar diseñados correctamente de modo que puedan manejar la cantidad de grasa esperada, deben estar bien instalados y deben limpiarse y dárseles servicio con frecuencia.

Helping To Prevent Sewer Overflows and Backups Is Easy.

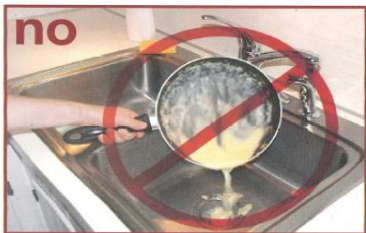
Where Does the Grease Come From?

Grease is a byproduct of cooking from meat fats, lard, oils, shortening, butter, margarine, food scraps, baked goods, sauces, and dairy products. When washed down the sink, grease sticks to the insides of sewer pipes (both on your property and under the street). Over time, it can build up and block entire portions of your home's plumbing system.

Caution: Home garbage disposals do not keep grease out of the plumbing system. Moreover, hot water and products such as detergents that claim to dissolve grease only pass it down the line and cause problems elsewhere.

The results can be:

- Raw sewage overflowing into your home or the house next door.
- An expensive and unpleasant cleanup often required to be paid for by you, the home or business owner.
- Raw sewage overflowing into parks, yards, streets, and streams.
- Potential contact with disease-causing organisms.
- An increase in operation and maintenance costs for local sewer departments, which causes higher sewer bills for customers.



This brochure was prepared under Cooperative Agreement Assistance CX824505-01-0 between the Water Environment Federation and the U.S. Environmental Protection Agency. For more information, contact your local sewer system authority or the

Water Environment Federation
the water quality people®
601 Wythe Street
Alexandria, Virginia
22314-1994 USA
Tel. 1-800-666-0206
Fax. 1-703-684-2492
www.wef.org

Este panfleto fue elaborado de acuerdo con la Asistencia del acuerdo de cooperación CX824505-01-0 entre la Water Environment Federation y la Agencia de protección ambiental de EE.UU. Si desea obtener más información, comuníquese con su autoridad local del sistema de alcantarillas o con la WEF.



Printed on recycled paper using vegetable-based inks and 100% wind power.

HP1902

3/2010

Es fácil prevenir los derrames y desbordamientos de aguas residuales.

¿De dónde proviene la grasa?

La grasa, uno de los productos derivados de la preparación de comida, está presente en la carne, manteca animal, aceite vegetal, manteca vegetal, margarina, sobras de comida, productos horneados, salsas, productos lácteos. Cuando entra por el desagüe, la grasa se pega al interior de las tuberías de alcantarillado (tanto las de su propiedad como las de la calle) y con el tiempo, puede acumularse al punto de bloquear la tubería por completo.

Advertencia: Los trituradores de basura domésticos no impiden la entrada de grasa al sistema de cañerías. Es más, el agua caliente y los productos como los detergentes que alegan ser capaces de disolver la grasa, pueden trasladarla por las cañerías y causar problemas en otras zonas.

Esto puede traer las siguientes consecuencias:

- Desbordamientos de aguas residuales en el interior de su hogar o el de su vecino.
- Necesidad de una limpieza costosa y desagradable que casi siempre es responsabilidad de usted, el propietario de la casa o el negocio.
- Desbordamiento de aguas residuales hacia parques, jardines y calles.
- Posible contacto con organismos causantes de enfermedades.
- Crecientes costos de operación y mantenimiento para los departamentos locales de alcantarillado y, en consecuencia, facturas más altas para los consumidores.



Fat-Free Sewers

Prevent Fats, Oils, and Greases from Damaging Your Home and the Environment



ALCANTARILLAS SIN GRASA

Evite que las grasas y los aceites dañen su hogar y el medio ambiente

Water Environment Federation
the water quality people®

You Can Help!

Help prevent sewer overflows by:

- Never pouring grease or oils down sink drains or into toilets.
- Scraping grease and food scraps into a can or the trash for disposal (or recycling where available).
- Putting baskets/strainers in sink drains to catch food scraps and other solids, and then emptying them into the trash.
- Speaking with your friends and neighbors about how to keep grease out of sewers.

¡Usted puede ayudar!

Ayude a evitar derrames en las alcantarillas de las siguientes maneras:

- No vierta nunca grasa por el desagüe del fregadero ni en inodoros.
- Raspe la grasa y las sobras de comida y colóquelas en una lata o en la basura para desecharlas (o reciclarlas, si dispone de esta opción).
- Ponga filtros o coladores en los desagües de los fregaderos para atrapar las sobras de comida y otros sólidos, y deseche su contenido en la basura.
- Hable con sus amigos y vecinos sobre cómo impedir que la grasa llegue a las alcantarillas.



WHEN IT COMES TO GARBAGE, IT BELONGS IN THE TRASH.

Your drains are not a trash can. The water from your home or business (toilet, shower, kitchen, etc.) ends up into one of the most beautiful parts of our community, the San Francisco Bay.

Throwing anything other than toilet paper down the drains can cause sanitary sewer overflows (SSOs) and will severely impact your plumbing system, the city's sewer system, and the processes at the treatment plant.



PROPERLY DISPOSING OF YOUR WASTE WILL HELP PROTECT PUBLIC HEALTH AND THE ENVIRONMENT.

1-800-SAV-R-BAY
www.savrbay.org



Central Marin Sanitation Agency
1301 Andersen Drive
San Rafael, CA 94901
(415) 459-1455 www.cmsa.us



Las Gallinas Valley Sanitary District
300 Smith Ranch Road
San Rafael, CA 94902
(415) 472-1734 www.lgvsd.org



Novato Sanitary District
500 Davidson Street
Novato, CA 94945-3399
(415) 892-1694 www.novatosan.com



Sewerage Agency of Southern Marin
450 Sycamore Ave., Mill Valley, CA 94941
(415) 388-2402 www.cityofmillvalley.org



Sausalito-Marín City Sanitary District
No. 1 Fort Baker Road
Sausalito CA, 94965
(415) 332-0244
www.sausalitomarinacitysanitarydistrict.com



Sanitary District No. 5, Tiburon and Belvedere
2001 Paradise Drive
Tiburon CA, 94920
(415) 435-1501 www.sani5.org

RETHINK
WHAT YOU FLUSH...

FLUSH GREEN



PROTECTING WATER QUALITY
STARTS WITH EACH OF US!

Protecting our water quality starts with each of us, so please...

FLUSH ONLY TOILET PAPER IN THE TOILET



the DIRTY DOZEN

all these items belong in the trash, not the toilet



Remember the toilet is not a trash can!

WHERE TO DISPOSE OF HAZARDOUS WASTE

The Alameda County Household Hazardous Waste Program operates a drop-off facility in Hayward, located at 2091 West Winton Avenue. An appointment is not necessary. For specific days and times, call: 1-800-606-6006 or www.household-hazwaste.org

ACCEPTED MATERIALS	NOT ACCEPTED MATERIALS
<ul style="list-style-type: none"> Paint, stain, varnish, thinner and adhesives Auto products such as old fuel, motor oil, oil filters and batteries Household batteries, fluorescent bulbs, cleaners and sprays Garden products, including pesticides and fertilizers Home generated "sharps" waste in approved containers. Prescription and over the counter medicines, except for controlled substances 	<ul style="list-style-type: none"> Asbestos Explosives Railroad ties (scrap) Railroad ties (usable) Radioactive materials Most compressed gasses Computer Monitors (working) Computer Monitors (non-working) CRTs & TVs (working) CRTs & TVs (non-working) Computers (working) Computers (non-working) Electronic Equipment (working) Electronic Equipment (non-working) Microwave Ovens (working) Microwave Ovens (non-working)

For more information on disposal and how to recycle other household products and unwanted pharmaceuticals, call or visit the following:

RECYCLING HOTLINE:
1-877-STOPWASTE
www.stopwaste.org
www.earth911.com

To prevent pollution of our waterways, visit: www.baywise.org

"Flushable" does not mean "flushable".

Flushable wipes are clogging sewer pipes!

Flushable wipes do not dissolve in the sewer system. Even if you just flush one, eventually wipes will collect in sewer pipes, pumps and equipment causing clogs and blockages.

THINK BEFORE YOU FLUSH

Clogs and blockages in sewer pipes lead to sewage spills and overflows. Help us avoid sewage spills and overflows and protect our local environment.

- 

Central Marin Sanitation Agency
1301 Andersen Drive, San Rafael, CA 94901
415-459-1455 cmsa.us
- 

Las Gallinas Valley Sanitary District
Las Gallinas Valley Sanitary District
300 Smith Ranch Road, San Rafael, CA 94903
415-472-1734 lgvsd.org
- 

Novato Sanitary District
500 Davidson Street, Novato, CA 94945
415-892-1694 novatosan.com
- 

Sanitary District No. 5 of Marin County
Tiburon and Belvedere, 2001 Paradise Drive
Tiburon, CA 94920
415-435-1501 sani5.org
- 

Sausalito-Marin City Sanitary District
1 Fort Baker Road, Sausalito, CA 94965
415-332-0244 sausalitomarincitysanitarydistrict.com
- 

Sewerage Agency of Southern Marin
450 Sycamore Ave., Mill Valley, CA 94941
415-388-2402 cityofmillvalley.org

WIPES CLOG PIPES

FLUSH ONLY TOILET PAPER

Protect Your Family, Community and Waterways from Sewer Backups and Overflows

© 2013 Central Marin Agency, Inc.

Wipes clog pipes. Flush ONLY toilet paper.

An overflowing toilet can ruin your home in an instant!

Wipes do not dissolve like toilet paper. Just one wipe flushed down a toilet can collect with other wipes and materials that should not be flushed, contributing to expensive and messy sewer backups in your home or neighborhood. Do your part and put all wipes in the trash. Think Before You Flush!

Baby Wipes

Cleaning Wipes

Facial Wipes

Flushable Wipes

CLOG

Photo: Shutterstock © 2013 Central Marin Agency, Inc.

ONLY HUMAN WASTE AND TOILET PAPER SHOULD BE FLUSHED.

THESE ITEMS SHOULD NEVER BE FLUSHED:



Wastewater Treatment Agencies of Marin County



RE SOURCES

For information on...

...disposal of household hazardous waste: In central, south, or west Marin: Call 485-6806. In north Marin call 892-7344.

...used oil collection and recycling: Call 1-800-CLEAN-UP.

...injured wild animals: (other than marine mammals): Call WildCare at 453-1000

...injured marine mammals: Call The Marine Mammal Center at 289-SEAL

...dead marine mammals: Call the CA Academy of Science at 750-7177

...the Adopt-a-Beach Program: Call the California Coastal Commission at 800-Coast-4-U

Printed on recycled paper

Cover photo: The Marine Mammal Center

...how pollutants affect birds: Call National Audubon Society's Richardson Bay Audubon Center at 388-2524.

...National Marine Sanctuaries along the Marin Coast: Call the Farallones Marine Sanctuary Association at 561-6625

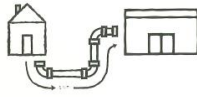
...pollution prevention and how to protect our local waterways, wetlands, and wildlife call:

Marin County Stormwater Pollution Prevention Program (MCSTOPP): 485-3363

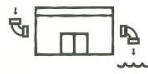
Central Marin Sanitation Agency: 1-800-Sov-B-Bay

Las Gallinas Valley Sanitary District: 472-1734 ext.14

SEWERS



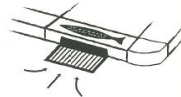
The sanitary sewer system carries wastewater from showers, sinks and toilets in our homes and businesses, through pipes, to a treatment plant.



Here, the water is cleaned up before it is discharged into the Bay. However, some products like paints and pesticides contain compounds that wastewater treatment plants can't remove. Consequently, they pass right through the treatment plant and end up in the Bay!

If a product isn't designed to be placed down a drain - Don't put it there!

STORM DRAINS



Unlike the sanitary sewer system, anything that enters a storm drain goes directly into Marin's local creeks (over 3,000 miles of them).



Although storm drains were designed to carry rainwater, they carry pollutants as well. Motor oil, pesticides, fertilizers, trash, and other pollutants are washed into the gutter by rain or garden hoses - where they find their way into one of Marin's 13,000 storm drain inlets. The water and pollutants ultimately end up in the Bay without passing through a treatment plant. According to the Bay Area Regional Water Quality Control Board, stormwater pollution has become the leading cause of water pollution in the Bay!

This Brochure was produced by Marin County Stormwater Pollution Prevention Program, Central Marin Sanitation Agency and Las Gallinas Valley Sanitary District

WE'RE DYING TO TELL YOU



...pollution hurts more than just the Bay!

Much of the debris and toxic substances affecting marine animals originates on land. Things like pesticides, plastic bags, balloons, cigarette butts, motor oil, and fishing line find their way into local waterways either by means of direct dumping, through storm drains (whatever is left on streets and parking lots can be washed into storm drains which lead directly to local waters), or through sanitary sewers (many toxic chemicals and pesticides by-pass the sewage treatment plant and end up in the Bay).

This brochure lists simple actions you can take to protect our local waterways and the creatures that inhabit them. The journey of 1000 miles begins with a single step-take yours today! *Take action!*



Photo: Doug Perrine/Humboldt Vision

DEBRIS CAUSING ENTANGLEMENT



Photo: National Audubon Society

Thousands of cormorants are strangled each year due to six-pack rings, strings, or other debris. When fish and other marine life become entangled in such items, they are often unable to free themselves. Eventually they become exhausted and drown. *Take Action: Cut the loops of six-pack rings before discarding them, thus reducing their danger to wildlife.*



Photo: The Marine Mammal Center

Monofilament fishing line can be lethal to seals, sea lions, fish and other animals. This thin line can cause abrasions that become infected and often prevents the ensnared animal from moving about to catch food and avoid predators. At least 267 marine species, including seals, gulls, egrets, herons, pelicans, ducks, loons, jellyfish, starfish, shark, and shellfish have died or suffered injuries from nets, kite string, and fishing line. All of these animals are found in Marin's waterways or the ocean.

Take Action: Retrieve all fishing line, kite strings, and other debris whenever safely possible.



Photo: National Audubon Society

PESTICIDES

Diazinon and many other pesticides washed from your yard (with rain and overwatering) can kill insects on which fish and birds feed. Certain pesticides persist in the environment and can cause damage for years after their use.

Take Action: Use less-toxic products to control pests. Dispose of unwanted toxic pesticides through your local household hazardous waste collection program. Consult the resource section of this brochure.

DEBRIS MISTAKENLY EATEN



Photo: Doug Perrine/Humboldt Vision

Trash that ends up in the bay is often eaten by animals that mistake it for food. For example, leatherback sea turtles can choke to death on plastic bags which they mistake for their favorite food - jellyfish. Birds, whales and other marine life can ingest balloons, plastic bags, cigarette butts and other types of trash which can interfere with the digestion of food, causing starvation. This is not a small problem. During Marin's 1997 Coastal Clean-up Day, over 7,000 cigarette butts (which contain plastic pieces) and

nearly 8,000 pieces of foamed plastic were collected! Such items are often found in the stomachs of dead birds. *Take Action: Don't release inflated balloons and always put deflated balloons in the trash along with debris and other plastic including extinguished cigarettes.*

USED OIL & OIL DRIPS

Used oil in our waterways can cause a lot of damage. It can coat the feathers of ducks, murres, and other water birds making it impossible for them to fly. It can also coat the fur of

young seals and otters making it impossible for them to stay dry and keep warm. This can lead to hypothermia and death. In addition, animals become ill when they ingest oil in an effort to groom themselves. Motor oil can also coat the gills of fish, making it difficult for them to breathe. *Take Action: A lot of the oil that ends up in local creeks and the Bay comes from people like you and me! If your car leaks oil, the oil can be washed down a storm drain on a rainy day. When changing your oil, never place it in the trash or down a storm drain. Recycle your used motor oil and fix any drips. See the resources section of this brochure.*



Photo: The Marine Mammal Center

SOAP



Photo: California Trout Inc.

Soap, from dish-washing soap to car washing soap, is harmful to fish and their food supply. Even biodegradable soap can be poisonous to fish and other water creatures. *Take Action: Rather than washing your car on a street and sending soapy water to the local creek or storm drain, take your car to a commercial car wash where the water can be recycled or directed to a sanitary sewer system and treated before being discharged into the Bay.*

How to Prepare

Obscure personal info from containers and recycle them.



Place pills in a clear zipper bag. Place creams in packaging. No needles or sharps.



Place your prepared medications into the bins at our dropoff locations. Find them at rxsafemarin.org.



RxSAFE MARIN

MARIN COUNTY
PRESCRIPTION DRUG
MISUSE AND ABUSE
INITIATIVE
www.rxsafemarin.org

Contact us:

rxsafemarin@gmail.com
(415) 473-6731
www.rxsafemarin.org @rxsafemarin



HOW TO SAFELY DISPOSE OF UNWANTED AND EXPIRED MEDICINES

RxSAFE MARIN

MARIN COUNTY
PRESCRIPTION DRUG
MISUSE AND ABUSE
INITIATIVE
www.rxsafemarin.org

Disposal Options



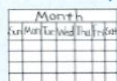
Check the Package: If there are specific instructions for disposal on the label, package or package insert, follow those instructions.



Drop Off Locations: See next panel for locations to drop off old unused medications in your area or visit rxsafemarin.org for more information. Mail-back package distribution locations may also be available in your area.



Mail-Back: Mail-back services for unwanted medicine are available to residents upon request. Visit the mail-back section of med-project.org.



Take-Back Events: Local take-back events offer residents a free and convenient way to dispose of expired or unwanted medicines. Visit <https://takebackday.dea.gov/> or rxsafemarin.org for year round locations.

Drop Off Locations For Pharmaceutical Waste

Belvedere: Belvedere Police Dept., 450 San Rafael Ave, Belvedere Tiburon (415) 435-2611

Kentfield: College of Marin Police Dept., 700 College Ave., Village Square 1, Kentfield (415) 485-9696

Larkspur: Central Marin Police Authority 250 Doherty Drive, Larkspur (415) 927-5150

Mill Valley: Mill Valley Police Dept., One Hamilton Drive, Mill Valley (415) 389-4100

Novato: Novato Police Dept., 909 Machin Avenue, Novato (415) 897-4361

Kaiser Permanente, 97 San Marin Drive, Novato

Ross: Ross Police Dept., 33 Sir Francis Drake Blvd., Ross (415) 453-2727

San Anselmo: Central Marin Police Authority 525 San Anselmo Ave., San Anselmo (415) 927-5150

Jack's Drug Store, 121 Tunstead, San Anselmo (415) 454-1451

San Rafael: Golden Gate Pharmacy, 1525 E. Francisco Blvd., Ste. #2 San Rafael (415) 455-9402

Kaiser Downtown Offices, 1033 Third Street, San Rafael (415) 482-6800

Kaiser Medical Center, 99 Montecillo Road, San Rafael (415) 444-2000

Marin Community Clinics Pharmacy, 3110 Kerner Blvd., San Rafael (415) 755-2514

Marin County Environmental Health Services, 3501 Civic Center Dr. Ste. #236 San Rafael (415) 473-6907

Marin County Probation, 3501 Civic Center Drive, Room 259, San Rafael (415) 473-6599

Marin Medical Pharmacy, 750 Las Gallinas Ave., San Rafael (415) 479-1930

San Rafael Police Dept., 1400 Fifth Ave., San Rafael (415) 485-3000

Sheriff's Office/Coroner's Office, 1600 Los Gamos Dr., Suite 205, San Rafael (415) 473-6043

Sausalito: Sausalito Police Department, 29 Caledonia St., (415) 289-4170, Rm. 24 (will not accept liquids)

Tiburon: Tiburon Police Dept., 1155 Tiburon Blvd., Tiburon (415) 789-2801

More locations to be added, go to www.rxsafemarin.org

Which types may I dispose of?

ACCEPTED:

Medications in any dosage form, except for those listed below, in their original container sealed bag.

NOT ACCEPTED:

Herbal remedies, vitamins, supplements, cosmetics, other personal care products, compressed cylinders, aerosols, Inhalers, Medical devices, sharps, illicit drugs and iodine-containing medications.

