

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

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Executive Officer's Report

Executive Officer’s Report February 2, 2022

Items in this Report (Author[s])

Table of Contents

Are Municipal Wastewater Agencies Prepared for Climate Change? (James Parrish)	2
Staff Presentation on Groundwater and Cleanup Priorities (Alec Naugle)	4
Enforcement Actions (Brian Thompson and Jessica Watkins)	5
401 Water Quality Certification Applications Received (Abigail Smith)	6

Are Municipal Wastewater Agencies Prepared for Climate Change? (James Parrish)

We asked our municipal wastewater community this question by sending all municipal wastewater agencies or “dischargers” in our region a [questionnaire](#) soliciting information about how they are planning for climate change. Specifically, the questionnaire asked about sea level rise planning targets (i.e., the increment of sea level rise the agency is planning for); findings from any facility vulnerability assessments related to sea level rise, groundwater rise, prolonged droughts, or extreme storms; and any current or future plans for climate change adaptation. We also asked dischargers to describe their regional and sub-regional collaboration on adaptation strategies.

The purpose of the questionnaire was to ensure that our municipal dischargers are thinking seriously about, and planning for, climate change, so that they are prepared to properly operate and maintain their facilities amidst a changing climate. The questionnaire, developed in collaboration with the Bay Area Clean Water Agencies, asked open-ended questions calling for narrative responses. We are seeking similar information from many of our region’s industrial wastewater treatment plants, landfills, and soil and groundwater cleanup sites.

Climate change is shifting precipitation and temperature patterns and intensifying extreme wet and dry weather conditions. This has significant implications for wastewater collection, treatment, and discharge operations. Rising sea and groundwater levels may flood essential equipment and infrastructure. As storms become more frequent or more intense, sewer system infiltration and inflow may increase flows beyond collection system and treatment capacity, thereby worsening sewer backups, exacerbating sanitary sewer overflows, and requiring more frequent

Executive Officer's Report February 2, 2022

treatment bypasses (diverting wastewater around treatment units). Increased dry weather heat and drought may increase power outages or reduce sewer flows, thereby contributing to sewer pipeline corrosion and increasing hydrogen sulfide odors (the “rotten egg” smell).

We reviewed responses from all 48 of our municipal wastewater agencies. The dischargers assessed their circumstances based on their geographic locations and various guidance and interpretations of that guidance. Below, we offer four takeaways regarding the state of climate change preparedness within our wastewater community.

1. Regional Sea Level Rise Projections Vary. Due to numerous guidance documents on sea level rise, planning scenarios vary from discharger to discharger, including the sea level rise projection year (ranging from 2030 to 2100), amount of sea level rise (ranging from 5 inches to 3 feet by 2050), and risk scenario (e.g., low, medium, or high probability). The California Coastal Commission's [Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action](#) (May 2020) recommends that critical facilities like wastewater treatment plants plan for more than 3.5 feet sea level rise by 2050, which is a conservative standard for wave-protected embayments like San Francisco Bay. Dischargers are not necessarily planning to that standard and are instead relying on their own site-specific assessments for climate adaptation planning. Based on these site-specific assessments, many dischargers would likely not face significant impacts from sea level rise due to their geographic location or planned or completed adaptation projects. About one-third of the dischargers have not chosen a sea level rise planning target; this includes dischargers that are not at risk of sea level rise impacts due to their location (i.e., they are located inland or at elevations above sea level rise or 100-year storm flood projections).
2. Dischargers Are Planning for Sea Level Rise and Storm Surges. Although the questionnaire addressed a range of climate change impacts, the responses focused largely on risk assessments and adaptation planning related to flooding from coastal sea level rise and extreme storms. Other impacts, including groundwater rise, droughts, and power outages, were either not considered in as much detail or were simply not a concern. Many dischargers believe their existing equipment (e.g., submersible pump stations and backup generators) and routine maintenance and upgrade programs address these issues.
3. Dischargers with High Flood Risk Are Taking Action. Dischargers that believe they could face sea level rise or storm surge impacts within the next 50 years are taking action to adapt. The most common short-term measures are raising critical equipment above projected sea level rise and storm surge flooding levels, increasing wastewater pumping and storage capacity, and installing submersible pump stations. The most common long-term measure is constructing or improving levees and flood walls around the treatment plants. Some dischargers (e.g., City of San Leandro, City of Palo Alto, Oro Loma Sanitary District, and West County Wastewater District) are exploring nature-based solutions, such as wetlands and horizontal levees, as possible adaptation strategies. This is partly an outgrowth of our [Nutrient Watershed Permit](#), which requires municipal wastewater dischargers to consider multi-benefit nature-based solutions to reduce nutrient loads.

Executive Officer's Report
February 2, 2022

4. The Questionnaire is Driving Action. The questionnaire prompted municipal dischargers to think about regional and sub-regional collaboration and climate change adaptation beyond flooding from coastal sea level rise and extreme storms. While many dischargers have engaged regional stakeholders to develop climate adaptation plans, some acknowledge the need for, and an interest in, more regional and sub-regional collaboration. Many dischargers committed to conducting more comprehensive assessments to identify other climate change-related vulnerabilities, particularly for impacts related to groundwater rise or extended drought. These dischargers indicate they will account for climate change impacts in future master plans, climate action plans, and capital improvement projects that consider updated adaptation guidance and comprehensive vulnerability assessments.

The questionnaire has been an informative tool for identifying how prepared for climate change our municipal wastewater community is and where climate change vulnerability assessments can be improved. The questionnaire prompted some dischargers to commit to conducting new vulnerability assessments and collaborating with regional stakeholders on adaptation strategies and cohesive planning. Most dischargers acknowledge that climate change will be an inevitable part of their future planning. For the sake of future wastewater operations and the communities they serve, they know it is vital that they conduct comprehensive vulnerability assessments that are driven by the best available climate change guidance.

We will continue to engage with our wastewater community to encourage climate change preparedness, including by meeting with interested dischargers about how we can permit nature-based solutions that improve wastewater treatment and provide shoreline resiliency. We also plan to follow up with dischargers as we reissue their NPDES permits to ensure they are incorporating effective climate adaptation into their future plans, and we will continue to use the Nutrient Watershed Permit, which will be reissued in 2024, as a vehicle to promote regionwide nature-based options that can adapt with climate change. In the future, we may also follow up with another questionnaire to track progress on vulnerability assessments and adaptation projects, and encourage more robust planning. Refineries in our region are also responding to an order (pursuant to California Water Code section 13383) requesting similar information, and we will review that information soon. This questionnaire and our continued engagement with our wastewater community on climate adaptation are part of our commitment to meeting our agencywide strategic priority for driving climate action and water resilience, which is described in our 2021 [Progress Report](#) presented at our December Board meeting.

Are municipal wastewater agencies prepared for climate change? Based on our review of the responses to the questionnaire, we are optimistic that good progress is being made. Moreover, we continue to collaborate constructively with the Bay Area Clean Water Agencies and relevant research institutions. We expect that these technical and creative discussions will lead to more regional and sub-regional collaboration and more multi-benefit nature-based solutions.

**Executive Officer's Report
February 2, 2022**

Staff Presentation on Groundwater and Cleanup Priorities (Alec Naugle)

On January 19, Nicole Fry, Mark Johnson, Kimberlee West, Ross Steenson, and Alec Naugle, presented a regulatory update to the Bay Area branch of the Groundwater Resources Association of California (GRA). GRA is a non-profit organization that promotes the protection and improvement of groundwater supply and quality.

The update focused on the groundwater and cleanup program priorities that were discussed with the Board in December 2021 as part of our [priorities progress update](#).

- Mark Johnson provided an update on our approach to addressing investigation and cleanup of polychlorobiphenyls at in-Bay sediment sites and upland sites. The in-Bay sites are typically former industrial and military facilities with historic activities like ship building. The upland sites are identified through municipal stormwater agency referrals and property transactions or redevelopment.
- Kimberlee West provided an update on our approach to prioritizing per- and polyfluoroalkyl substances (PFAS) investigations as we identify an increasing number of historic and current industrial operations where PFAS was discharged.
- Nicole Fry provided an update on our approach to regulating vapor intrusion mitigation systems, which are often applied in tandem with remediation of the underlying soil vapor and groundwater contamination.

Nicole's presentation discussed the decision criteria we use to determine when vapor mitigation is needed to protect occupants of commercial or residential buildings. This is a complicated subject because there are many ways to approach vapor mitigation depending on whether an existing building needs to be retrofitted, or if a future building is being designed. Retrofits often involve sealing the foundation and installing ventilation beneath the foundation or augmenting ventilation within the building. Proposed buildings can incorporate designs for subterranean garages and slab depressurization systems in a way that existing buildings cannot.

Common to all mitigation measures is the need for monitoring their performance and effectiveness. While we (and local building departments) require and review design, operation, and maintenance plans, our primary reliance is the ongoing performance/effectiveness demonstrated through monitoring and appropriate contingencies.

We oversee many cases with vapor intrusion concerns that involve commercial or residential owner or tenant-occupied buildings. We use fact sheets and community meetings to make sure people understand the vapor intrusion concerns, the need for mitigation measures, agency roles, process, and timing, and can voice their needs and provide input.

The GRA audience of about 100 included environmental cleanup consultants, environmental attorneys, vendors, and dischargers. Our staff has been making this annual presentation for over 20 years. This meeting continues to be the best attended meeting for this GRA branch and provides a useful forum for staff to interact with the regulated community.

**Executive Officer's Report
February 2, 2022**

Enforcement Actions (Brian Thompson and Jessica Watkins)

The following table shows the settled enforcement action since January's report. Please refer to the [Pending Enforcement Liabilities and Penalties](#) webpage for more information.

Settled Action

On behalf of the Board, the Executive Officer approved the following:

Discharger	Violation	Imposed Penalty	Supplemental Environmental Project
City of San Mateo	Unauthorized discharge of potable water and construction pollutants to San Mateo Creek.	\$73,700	None

**Executive Officer's Report
February 2, 2022**

401 Water Quality Certification Applications Received (Abigail Smith)

The table below lists those applications received for Clean Water Act section 401 water quality certification from December 31, 2021, through January 31, 2022. A check mark in the right-hand column indicates a project with work that may be in BCDC jurisdiction.

Project Name	City/Location	County	May have BCDC Jurisdiction
Shadow Cliffs Boat Launch and Lake Trail Repair	Pleasanton	Alameda	
Sediment Removal Pittsburgh	Pittsburg	Contra Costa	
Metocean Buoy Installation	Rodeo	Contra Costa	✓
Emergency Bank Repair at 3338 Freeman Rd	Walnut Creek	Contra Costa	
46 Cliff Road Waterside Construction Access	Belvedere	Marin	✓
Marin Yacht Club Maintenance Dredging	San Rafael	Marin	✓
52 Varda Landing Road Gazebo Houseboat	Sausalito	Marin	✓
The Valhalla Ramp Replacement	Sausalito	Marin	✓
Railroad Marsh Aquatic Plant Management	Tiburon	Marin	✓
Point Martin Residential Subdivision	Daly City	San Mateo	✓
Tunitas Emergency Slip-out	Half Moon Bay	San Mateo	
Bair Island Villas Erosion Repair	Redwood City	San Mateo	✓
Spreckles Wetland Enhancement	Coyote	Santa Clara	
Access Road 21750 Rainbow Drive Cupertino	Cupertino	Santa Clara	
Calabazas Creek Bank Rehabilitation	Cupertino	Santa Clara	
Vasona Creek Trail Construction	Saratoga	Santa Clara	
Suisun Multi-Family Development	Suisun	Solano	
4892 Warm Springs Streambank Stabilization	Glen Ellen	Sonoma	