

BAY AREA MONITOR

 A Publication of the League of Women Voters of the Bay Area

October/November 2020 • Volume 46, Number 2

Facing Sea-Level Rise



Weathering the Storms

The phrase “perfect storm” gets tossed around a lot, often incorrectly. But it feels appropriate now, as we struggle through a COVID-19 pandemic that has ravaged public health and the economy, leading up to a politically charged election, during a time of massive social unrest. We are facing that rare combination of circumstances that seem primed to intensify each other’s effects and stir significant turmoil.

This is not the only storm on our horizon, however. As the California Legislative Analyst’s Office warned in an August report, “Science has shown that the changing climate will result in a gradual and permanent rise in global sea levels. Given the significant public infrastructure, housing, natural resources, and commerce located along California’s 840 miles of coastline, the certainty of rising seas poses a serious and costly threat.” As the LAO went on to explain, the hazards of these encroaching waters will be exacerbated by another consequence of climate change: more frequent and extreme storms. So not only do we have a metaphoric perfect storm to deal with in the short term, we also have several literal ones headed our way in the long term.

And we at the League of Women Voters are preparing for both.

For the near future, we remind you as always that 20 local Leagues across the Bay Area stand ready to help you navigate election season challenges, while the state League offers you the invaluable Voter’s Edge California (*see sidebar*). Also, we’ll be featuring election coverage throughout October in our weekly *Monitor Notes* email newsletter, online at bayareamonitor.org/notes.

With an eye on the more distant future, this edition of the magazine focuses on sea-level rise, starting with front and back cover images from Pacifica, a town particularly at risk. Then Aleta George explains how surging tides will affect the islands in our region, and Cecily O’Connor examines what they will do to our roadways. On the proactive side, Robin Meadows reveals how planners are streamlining adaptation efforts, and Leslie Stewart looks into elimination of atmosphere-heating (and thus climate-changing) diesel exhaust. As you’ll see, there are some rough waters ahead, but hopefully we can manage to navigate them together.

Alec MacDonald

Editor, *Bay Area Monitor*

(510) 839-1608 • editor@bayareamonitor.org

Published in August, October, December, February, April, and June, the Bay Area Monitor appears both in print and online at www.bayareamonitor.org. Distributed primarily in the nine-county San Francisco Bay Area and Sacramento, the Monitor’s readership consists mainly of elected and appointed officials, government staff, business and community leaders, nonprofit affiliates, library patrons, engaged residents, and League members. Subscriptions to the publication are free.

The Monitor’s primary financial support comes from the Metropolitan Transportation Commission and the Bay Area Air Quality Management District. The publication also receives funding from advertising sponsors and through reader donations. The Monitor is nonpartisan, and operates with editorial autonomy.

LET THE LEAGUE BE YOUR GUIDE

Contact your local League of Women Voters for voter services and other support this election season.

LWV Alameda
lwvalameda.org ♦ (415) 580-2698

LWV Berkeley-Albany-Emeryville
lwvbae.org ♦ (510) 843-8824

LWV Solano County
my.lwv.org/california/solano-county

LWV Cupertino-Sunnyvale
www.cs.ca.lwvnet.org

LWV Diablo Valley
www.lwvdv.org ♦ (925) 283-2235

LWV Eden Area
my.lwv.org/california/eden-area ♦ (510) 826-6674

LWV Fremont-Newark-Union City
www.lwvfnc.org ♦ (510) 794-5783

LWV Los Altos-Mountain View Area
www.lwvlamv.org ♦ (650) 429-8382

LWV Marin County
www.marinlwv.org ♦ (415) 507-0824

LWV Napa County
lwvnapa.com ♦ (415) 299-0035

LWV North & Central San Mateo County
www.ncsmc.ca.lwvnet.org ♦ (650) 342-5853

LWV Oakland
www.lwvoakland.org ♦ (510) 834-7640

LWV Palo Alto
www.lwvpaloalto.org ♦ (650) 903-0600

LWV Piedmont
www.lwvpiedmont.org ♦ (510) 295-7027

LWV San Francisco
www.lwvsf.org ♦ (415) 989-8683

LWV San Jose/Santa Clara
www.lwvnet.org/ca/sjsc ♦ (408) 271-7163

LWV Sonoma County
www.lwvsonoma.org ♦ (707) 546-5943

LWV South San Mateo County
www.lwvssmc.org ♦ (650) 325-5780

LWV Southwest Santa Clara Valley
www.lwv-sw-santaclara-valley.org ♦ (408) 598-1842

LWV West Contra Costa County
(510) 974-3321

Also be sure to visit Voter’s Edge California (www.votersedge.org), a nonpartisan online guide to federal, state, and local elections that lets voters view detailed descriptions of the candidates and measures on their personalized ballot. Voter’s Edge California is a joint project of the LWV California Education Fund and MapLight.



Imperiled Islands of the Bay

By Aleta George



The Quartermaster Storehouse at Angel Island State Park's Camp Reynolds is vulnerable to sea-level rise.

photo courtesy the Angel Island Conservancy

The late-19th-century whitewashed buildings at Angel Island State Park's Camp Reynolds stand at attention on higher ground, but the old, brick Quartermaster Storehouse is nearly at water's edge, and the waves from the bay are already eroding the seawall close to its feet. Although Angel Island is a fortress of steep metamorphic rock rising to 788 feet, the Quartermaster Storehouse (a popular destination for living history programs and overnight kayak trips) and Ayala Cove (the landing and concessions site for tourists) are vulnerable to sea-level rise, as are many shoreline portions of islands in the San Francisco Bay. From Bair Island in the South Bay to the Marin Islands off Point San Pedro, the islands of the bay will be affected by sea-level rise in different ways. Some may even be part of the solution.

There are different kinds of islands in the bay. The most iconic are the rocky ones, like recreational destinations Angel and Alcatraz, or those more frequently visited by birds than people, such as Brooks and Marin. There are marsh islands in the South Bay, like Bair and Greco, formed by sediment from streams that piled up until vegetation took hold to capture more sediment. There used to be many more of these until the spongy marshes ringing the bay were filled in and developed in the past century. There are also man-made islands like Treasure Island, a popular destination for cyclists

and tourists who take selfies against the backdrop of the San Francisco skyline. And finally, there is Alameda Island, which actually wasn't an island at all until the Oakland Inner Harbor Tidal Canal was dug and dredged to connect the Oakland Estuary with San Leandro Bay.

Projections about sea-level rise vary, but the California Ocean Protection Council estimates a one-foot increase by 2050, with the potential for a seven-foot increase by 2100.

Even though the exact amount of rise can't be predicted, land managers and planners across the Bay Area are grappling with the scope of the problem. California State Parks has 128 units in the coastal zone, including Angel Island. "We have so many vulnerable facilities that we had to develop a system-wide approach," said Jay Chamberlin, chief of CSP's natural resource division. The agency has determined three options to adapt to sea-level rise: defend, accommodate, or retreat. Due to the cultural significance of Angel Island, however, the first priority is to document through photography or artifact retrieval the resources that will potentially be affected.

Beyond documenting, they don't yet have any specific plans for Angel Island State Park, but Chamberlin believes that time will come. "Our sea-level rise strategy calls for a vulnerability assessment for each of our units with more

continued on page 4

Imperiled Islands of the Bay (from page 3)

robust planning. Those are obviously public discussions, and there's going to be a lot of stakeholder engagement. You can go to Angel Island and see the entire metropolis of the Bay Area, and all those people are stakeholders who will be brought into the conversation."

Those stakeholders can get a visual understanding of sea-level rise at Angel Island or other specific locations by using the Coastal Storm Modeling System (CoSMoS), an online tool provided by the United States Geological Survey and based on a model by the interagency partnership Our Coast, Our Future. CoSMoS provides a range of probable sea-level rise scenarios, and a map to show the effects. For example, with 19 inches of sea-level rise plugged into the map and a king tide thrown in for good measure, CoSMoS shows that the sea wall in front of Angel Island's Quartermaster Storehouse would take more direct hits, and the road running along the water's edge would be partially covered with water. Six feet of sea-level rise would overtop the sea wall and reach the building.

"There's a range of potential futures, and it doesn't stop rising in 2100 even though most models are only looking out to 2100. We have potentially hundreds of years of sea-level rise baked into our future at this point," said Chamberlin.

Due north, West Marin Island near the mouth of San Rafael Creek is home to the largest egret and heron rookery in the San Francisco Bay Area. Up to 800 nesting pairs of great egrets, snowy egrets, great blue herons, and black-crowned night herons have been counted there. The Marin Islands National Wildlife Refuge and State Ecological

Reserve includes West Marin and East Marin islands and a supporting swath of nearly 340 acres of submerged tidelands. "Those tidelands are a nice smorgasbord for the birds," said biologist Meg Marriott.

Black oystercatchers nest on the sand and rock beaches of East Marin Island, only one of two places (along with Alcatraz) in the San Francisco Bay Area where the sensitive birds are known to nest. To the north, the beaches transition to a rocky intertidal zone and mudflats used by sandpipers, willets, black-necked stilts, pelicans, and cormorants.

CoSMoS shows that 19 inches of sea-level rise would cover a portion of the beaches, and a four-foot rise would put most of the beaches underwater. With a six-foot rise, the water reaches the base of the steep, graywacke walls. In all of these scenarios the tidelands would flood, and thus change this important ecological food niche. Although the rookery habitat in the trees won't be affected by sea-level rise, the bird's food source would likely change. "Sea-level rise and warming of the oceans is almost certainly going to cause their prey to redistribute. If their prey is not coming into the area because it's too warm, then they may leave the islands," said Marriott. "There is really nothing that we can do to mitigate for sea-level rise since it's a hard edge and we don't really have any space to mitigate to," she added.

Any statement about the scope of the problem is an understatement. "There's a lot of work being done on risk assessment and understanding what the impacts will be," said Brian Holt, East Bay Regional Park District's chief of planning. "Frankly, when we start looking at possible solutions, it starts to get really complicated and expensive. The scale of the challenge is huge."

EBRPD manages 50 miles of shoreline that is adjacent to development and the San Francisco Bay Trail, including on Alameda Island. Historically, Alameda had a large mature marsh that covered its northwest side, but it was filled with dredge material and built upon. The San Francisco Bay Trail runs along the southern shore of Alameda from the Bay Farm Island Bridge to Crown Memorial State Beach and Crab Cove Visitor Center, both operated by EBRPD. A look at sea-level rise scenarios at Alameda Island with CoSMoS reveals that 19 inches of sea-level rise would flood some portions of the Bay Trail at the southern end. With four feet of rise, parts of the Bay Trail and the beach are flooded, and in higher-range projections, the entire southern edge of Alameda is underwater.

Planning is underway for a new 170-acre park at Alameda Point, which was once home to a naval air station. In the



designs, EBRPD has the opportunity to build in upland migration for rising sea levels. But a look at CoSMoS for Alameda Point (and for Treasure Island, which similarly expects new development on land made of fill) is sobering, and puts a point on the challenge of building up these properties to accommodate sea-level rise.

Marsh islands, such as Greco and Bair islands near Redwood City in the South Bay, are more resilient to sea-level rise. "We expect [these islands] will be able to keep pace with sea-level rise because they really are good at creating sediment and forming new marsh that keeps moving uphill, as long as sediment supplies stay the same," said Dave Halsing, executive project manager of the South Bay Salt Pond Restoration Project.

Greco Island is a mature, natural marsh that supports endangered and threatened species. Northwest of Greco is Bair Island, which was historically a tidal salt marsh before it was diked for agriculture and then divided into three islands for salt evaporation. The island was saved by citizen groups and became part of the San Francisco National Wildlife Refuge. In a ten-year restoration project that began before the South Bay Salt Pond Restoration Project, they built up the soil and breached some of the outer levies so that tidal action could continue to build up the marsh's interior.

The optimism that these tidal marshes will survive sea-level rise evaporates with the possibility that the water could rise faster than expected. "Our expectations of sea-level rise are adjusted by ongoing science, research, and modelling, and they almost never tell us it's going to be slower or less severe than we think," said Halsing.

Greco and Bair represent a story of connectivity. Southeast of Greco Island is Bedwell Bayfront Park, and east of that is the refuge's Ravenswood Pond Complex. These connected open space marshes provide recreation and habitat for wildlife. They will also provide a buffer for U.S. Highway 101, Facebook headquarters, and wastewater treatment plants in the face of sea-level rise as well as storm and king tide events.

"Although ninety percent of the marsh habitat in the San Francisco estuary has been lost, there's great opportunities

to restore lands back to tidal marsh habitat all around the bay," said Chris Barr, acting manager of the San Francisco Bay National Wildlife Refuge Complex.

Funds from 2016's Measure AA are supporting many current wetland restoration projects, but EBRPD's Holt hopes there will be more targeted money to deal

with this issue. "[Most of] the funding right now is really towards infrastructure protection, and as far as what's coming from the federal level, there's not even that. Hopefully, times will change, and we'll be able to have a big climate bond, or something along those lines, that can actually provide some meaningful investment." With that investment, land managers can design projects that protect infrastructure and address habitat and recreation while building resilience to sea-level rise for both the mainland and the islands we love. 

Aleta George covers open space for the Monitor.



Bair Island is composed of three islands (Inner, Middle and Outer) totaling approximately 3,000 acres of former salt ponds.

photo by Dick Lyon, courtesy Wikimedia Commons



We'll get you there.

Getting people where they need to go has been the mission of AC Transit for over five decades. With over 150 bus lines serving cities from Richmond to Fremont, chances are, we can get you right where you need to go.

@RideACT    actransit.org 

Gush Hour: More Frequent Flooding Threatens Roadway Travel

By Cecily O'Connor

Driving delays have long been a major source of stress for many Bay Area workers and travelers — so they'll be unhappy to learn that rising sea levels imperil the region's road network, threatening to cause even greater delays with episodic shoreline flooding.

Along U.S. Highway 101 in Marin County there are several flood-prone spots, including Marin City, whose topography acts like a bowl. Further north, State Route 37, a 21-mile connector linking job markets and housing within Marin, Sonoma, Napa, and Solano counties, has a history of frequent flooding. And in the South Bay, the low-lying western approach to the Dumbarton Bridge in East Palo Alto is prone to deluges that can stall movement of its nearby working-class community.

The impacts of climate change, including sea-level rise and extreme weather, will contribute to more frequent and severe coastal flooding that affects individual residents. More than five million daily vehicle trips around the region would need to be rerouted due to flooding when total water levels (a combination of tides, surge, and wave runup) reach four feet, according to the San Francisco Bay Conservation and Development Commission's (BCDC) *Adapting to Rising Tides* March 2020 report.

New Stanford University research takes it a level further and pinpoints areas where coastal flooding events could delay commuters over the next 20 years, based on analysis of private vehicle traffic during peak morning travel at varying water levels. It reinforces the idea that regional coordination is key to bolster road network defenses and ensure protective steps taken in one community don't negatively affect bay conditions elsewhere.

"Sea-level rise is a regional problem and not just a coastal problem," said Indraneel Kasmalkar, an engineering PhD candidate at Stanford and lead author of the study. "Even far from the shoreline in Santa Rosa you might still be affected because the road network is connected."

The reminder comes as COVID-19 drives new opportunities for policymakers to reimagine regional transportation. They

are considering measures such as telecommuting and reducing car-produced emissions, and, in this case, what investments are necessary to make sure access and economic activity aren't compromised because of flooding.

Traffic plunged after shelter-in-place orders were issued on March 19, but it's piling up gradually. For example, average daily traffic counts on SR 37 at Harbor Drive were 30,900 in August.

That's up from 19,800 between March 14 and 31, according to data from the Caltrans Performance Measurement System.

"There needs to be oversight to plan ahead for those kinds of [flooding] events rather than reacting after they happen," said Brian Gilardi, who relies on SR 37 to travel between his oat hay farms located

near the Petaluma River's southwestern end, as well as behind the Bel Marin Keys community in Marin.

Some Bay Area cities and counties had begun their own sea-level rise assessments and were coordinating with other groups and jurisdictions before the coronavirus appeared. By taking a region-wide view, the Stanford report reinforces the importance of such coordination, pointing out indirect consequences of broken transportation networks.

"It's not really how exposed you are to the flooding, but whether you have sufficient alternate route capacity to offset increases in traffic or route closures," Kasmalkar said.

Stanford's model is built upon road network, census, and traffic data from 2010 through 2020 in conjunction with regional flood maps produced by BCDC. The research team defines coastal flooding events as extreme water levels resulting from potential combinations of storm surges, tides, seasonal cycles, inter-annual anomalies driven by climate variability such as El Niño, and sea-level rise.

Kasmalkar and his colleagues determined parts of Marin County, which is surrounded by water on three sides, would experience traffic delays of 30 minutes or more in the event of a one-foot flood. That's mainly due to the sparsity of the county's road network.



Highway 37 is subject to increasing flooding as sea levels rise.

photo by Alec MacDonald

“If one corridor goes down, the other corridors are highly stressed as a result,” said Nick Nguyen, project manager and engineer at the Transportation Authority of Marin (TAM).

A SR 37 closure, for example, would snarl traffic on surrounding highways and sub-corridors, according to pre-COVID-19 traffic data from TAM. State Route 121, an alternate two-lane northern route, would see traffic increase by 47 percent, while the Richmond-San Rafael Bridge, a southern route alternative, would experience a nearly 60 percent traffic increase.

Like Marin, San Mateo County also has high flood exposure. However, it will see shorter commute disruptions because of its “advanced through-network with alternative routes” between work and home, Kasmalkar said. His study projected that a three-foot flood would create an average delay of 0.02 minutes per mile in San Mateo County, compared with 1.2 minutes per mile in Marin.

Kasmalkar said what surprised him and his team most is that commute impacts aren’t isolated to a given flooded area. For example, 20 to 50 percent of Santa Rosa residents — living more than 20 miles from the bay shoreline — would face commute delays of 30 minutes or more in the event of a one-foot flood. But only 5 percent of people living on the Peninsula in Santa Clara and San Mateo counties would face similar delays, even from a three-foot flood. They have multiple corridor choices, not all of which are exposed to flooding.

These findings have big implications for sea-level rise adaptation planning, which requires both land-use and transportation decisions that affect multiple stakeholders. BCDC launched its Bay Adapt initiative earlier this year to coordinate the efforts.

Bay Adapt is currently working on a “joint platform,” or a shared set of 10 to 15 actions for regional sea-level rise adaptation. A draft of the platform is forthcoming, according to BCDC’s Dana Brechwald. She said the next goal is figuring out how to implement these actions, work together to secure funding, set up new databases, and promote new legislation.

BCDC also is collaborating with the Metropolitan Transportation Commission to align approaches with MTC’s forthcoming Plan Bay Area (PBA) 2050, a long-term planning roadmap outlining a vision for growth and infrastructure.

The PBA 2050 draft blueprint was shared with residents this summer. It contains strategies and a set of investments for implementation over the next 30 years. One strategy includes “Adapt to Sea-Level Rise” with possible solutions like elevated roadways, marsh restoration, and tidal gates to protect shoreline areas in parts of the Bay Area.

But none of this is cheap. MTC’s sea-level rise assessments compare the anticipated fiscal need over the next three decades against available forecasted revenue. It’s identified \$11 billion in existing revenue sources that, when combined with \$8 billion in potential new revenues (such as adding to the regional parcel tax, expanding assessment districts, enacting new business taxes, or receiving more state and federal funding), would provide an estimated \$19 billion to meet sea-level rise funding needs for two feet of sea-level rise by 2050.

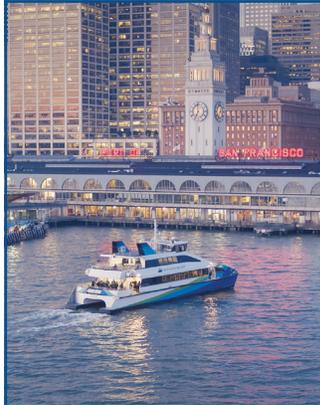
Some resilience investments are unique because they propose fixes in areas that cross PBA’s adaptation and transportation planning lines. For example, SR 37 sits in the San Pablo Baylands, an important habitat for protected species. It has been closed for weeks at a time, most recently in 2017 and 2019, due to flooding.

A SR 37 policy committee representing Marin, Napa, Sonoma, and Solano counties, as well as MTC and Caltrans, was formed in 2015 to plan for congestion relief and sea-level rise projection. The work has advanced to various stages of environmental review.

Overall, sea-level rise work “requires not just the government paying attention, but the public paying attention,” said Chris Choo, principal watershed planner for the County of Marin. “We need engagement and for folks to get involved and be solutions-oriented.”

Bay Adapt will host a public forum to discuss its joint platform this fall. 

Cecily O’Connor covers transportation for the Monitor.



**THE BEST
WAY BACK
TO WORK.**

San Francisco Bay Ferry is committed to providing a clean, safe commute option. Learn more about our safety plan and schedules at sanfranciscobayferry.com/bestwayback.

 **San Francisco Bay Ferry**
A SERVICE OF WETA

Speeding Approval of Tidal Marsh Restoration in the Bay

By Robin Meadows

In 2016 the Bay Area voted on Measure AA, which will raise half a billion dollars to restore the tidal marshes that protect against rising tides. The measure passed in a landslide, prompting the team behind it to spring into action. “We have until about 2030 to establish wetlands in the bay before sea-level rise makes it infeasible because it’s too deep,” explained Adrian Covert, who is vice president of public policy for the Bay Area Council, a business-backed nonprofit that helped lead the Measure AA campaign. “We asked how to make sure we have success.”

The team identified two major obstacles to restoring the bay’s tidal marshes. One is that the supply of sediment needed for rebuilding wetlands is uncertain. The other is that it is difficult to get the permits required by half a dozen state and federal agencies for environmental projects. “It can take five to 10 years,” Covert said. “We have to speed permits or we’ll only have one round of projects completed in the 20-year life of Measure AA.”

Each agency — from the U.S. Army Corps of Engineers to the California Department of Fish and Wildlife to the Bay Conservation and Development Commission (BCDC) — has its own mandates, and these can conflict with each other. One agency may restrict public access, for example, while another may require it. In addition, one agency may approve converting open water and mudflats to tidal marsh, while another sees this as habitat loss for non-marsh species. “As a permit applicant, you’re hearing different things from different people,” said Brad McCrea, BCDC’s regulatory director.

Besides being time consuming, resolving these conflicts can be expensive. “Permitting can eat up a chunk of funding in staff time or consultant fees,” said Amy Hutzel, deputy executive officer at the California State Coastal Conservancy. In hopes of finding a better way to permit environmental projects, Measure AA leaders met with the six main permitting agencies.

This marked the beginning of an effort to streamline environmental permitting called the Bay Restoration Regulatory Integration Team (BRRIT). The team includes



The eventual removal of the environmentally hazardous wharf and pilings at Terminal 4 in Richmond is one of the first Measure AA projects to be handled by the Bay Restoration Regulatory Integration Team.

photo courtesy California State Coastal Conservancy

a dedicated permit analyst from each agency. “They usually don’t talk to each other,” Covert said. “BRRIT gets them in the same room so they can hash things out.”

Besides helping the agencies to coordinate, BRRIT also smooths the process by providing pre-application guidance. “Applicants meet with the permit analysts in advance of submission,” said Hutzel, the project manager for BRRIT. “The idea is to reduce all the back and forth.” Importantly, any project eligible for Measure AA — not just those that receive funding — can take advantage of BRRIT.

This new approach to environmental permitting also includes a policy team designed to help resolve conflicts among the permit analysts from the various agencies. “If they get stuck, we try to break the logjam and get the process moving again,” said BCDC’s McCrea, pointing to a recent BRRIT-driven change in his agency’s policy. While BCDC used to be required to limit additional fill in the bay regardless of the type of project, they now have the leeway to approve more fill for environmental restoration.

The first Measure AA projects that have gone all the way through BRRIT, starting with pre-application guidance, are about to submit permit applications. One of these projects, which is sponsored by the Coastal Conservancy and the City of Richmond, includes removing the derelict wharf

and pilings at Terminal 4 in Richmond. This involved quite a bit of hashing out. These old pilings had been treated with creosote, a wood preservative toxic to marine life that is now banned, and the agencies initially had different opinions on the best way to remove them. Moving into the permit application phase will reveal whether — and how well — the agencies worked out their differences during the pre-application phase. “This will be a good test of BRRIT,” project manager Hutzel said.

Other Measure AA projects readying to submit permit applications through BRRIT include one by Marin County Parks and Open Space to restore 180 acres of diked wetlands in McInnis Park, which is on San Pablo Bay near San Rafael. Another, by the Santa Clara Valley Water District and the U.S. Army Corps of Engineers, will restore 4,700 acres of wetlands on former commercial salt ponds in the South Bay near San Jose. Likewise, a California Department of Fish and Wildlife/Coastal Conservancy project will restore 1,375 acres of wetlands on former commercial salt ponds near the mouth of Alameda Creek, which is near Union City.

Letitia Grenier, an ecologist at the San Francisco Estuary Institute, will be paying close attention to this first round of BRRIT projects. This summer she began a year-long fellowship on improving environmental permitting sponsored by the Public Policy Institute of California and the environmental nonprofit California Trout. “We’re in this race against time with climate change and with our own governmental structures,” Grenier said. “They’re so hard

to change.” The problem is that regulations were written to prevent environmental destruction rather than to facilitate environmental restoration. “We can keep the environmental laws but update the policies,” she continued, which is in keeping with the BRRIT approach.

To help find ways forward, Grenier is gathering standout case studies of environmental permitting to identify what makes them so successful. Her goal is to provide recommendations for permitting agencies as well as for permittees. Possibilities include better agency coordination, as pioneered by BRRIT, as well as blanket permits that cover small projects by, for example, private landowners.

Wade Crowfoot, secretary for the California Natural Resources Agency, is tracking the outcome of BRRIT too. He recently launched a state-level initiative called Cutting Green Tape, which aims to reform government processes and requirements for permitting ecological restoration projects. “I am really excited to watch the progress of your BRRIT initiative that is a one-of-a-kind effort,” Crowfoot told BCDC at their May 2020 meeting. “Your efforts are really a poster child of that broader initiative.”

BCDC’s McCrea is optimistic about BRRIT. “We all want the same thing,” he said of permitting agencies and permit applicants for tidal marsh restoration projects on the shores of the bay. “It’s an unprecedented initiative — if it works it will be a national model.” 

Robin Meadows covers water for the Monitor.



East Bay
Regional Park District
Healthy Parks Healthy People

Keeping Parks Open During COVID-19

Working with the County Health Officers, the Park District has kept parks open for physical and mental wellbeing. We thank the public for their cooperation and understanding during these stressful times as we balance the public’s need for parks, public health, and the health and safety of our employees. Please wear a face covering while in our parks...for you, for others, and for our employees.

SOCIAL DISTANCING
DISTANCIAMIENTO SOCIAL

← 6' →
2M

COVID-19 VISITOR INFORMATION

Social Distancing Requirements:

- Maintain six-foot distance from other people
- Cover mouth and nose with elbow or elbow flexion
- Do not shake hands

Visitor Tips:

- Plan to Park It, Get It, Treat collection & removal
- Bring Hand Sanitizer, Disinfectant and Soap
- Bring Mask/ Water Bottles are encouraged

Visit www.eastbay.org for more info.

Driving Away Diesel

By Leslie Stewart

The steady deep throb of a diesel engine is not as menacing as a villain's laugh, but it is a threat nevertheless. Diesel exhaust is full of tiny sooty particles made up of black carbon, toxic air contaminants, and other unhealthy components such as heavy metals. It is bad for the global climate as a whole, and also for the human bodies that encounter it. It is also a daily companion for many in the Bay Area.

From construction equipment, to trucks waiting outside ports, to backup power generators behind neighborhood supermarkets, diesel engines are everywhere. They are especially prevalent in low-income, mixed-zoning neighborhoods where residences share fence lines with commercial, light industrial, and even heavy industrial activities.

Diesel engines are so ubiquitous because, unlike gasoline, diesel contains lubricants which make diesel engines reliable and long-lasting. The fuel is readily available, since it is a companion product to jet fuel, and diesel engines are more fuel-efficient than gasoline engines. They are unusual in American passenger vehicles, other than some pickups, but they are the standard for heavy-duty uses — trucks, locomotives, construction equipment, port and airport vehicles, and backup generators.

Diesel exhaust is a multi-level threat. It contributes about 25 percent of the Bay Area's black carbon, which heats the atmosphere by absorbing sunlight. It contains fine particulates that irritate the body, causing inflammation, lung damage, heart disease, and dementia. Diesel particulates carry the greatest cancer risk of all air pollutants.

Numerous studies have shown that impacts are greatest in neighborhoods with low incomes and high percentages of people of color; physical effects of diesel pollution are amplified by other factors contributing to health disparities, but an underlying problem is the greater number of diesel sources in these communities.

New studies are indicating that other areas are also at risk. Between January 2018 and February 2019, the California Office of Environmental Health Hazard Assessment did an intensive study of 40 households in the East Bay between San Leandro and Hercules, examining one child and one adult in each household. The families varied in their ethnicity and lifestyles,

but the study found that chemicals from diesel exhaust were detected in all 40 children, 39 of 40 adults, and in air and dust samples from the homes, sometimes at high levels.

In 2018, in conjunction with the International Climate Action Summit held in San Francisco, the Bay Area Air Quality Management District launched its Diesel Free by '33 challenge. The agency asked leaders across the region to sign a statement of purpose to eliminate diesel use in their

communities by the end of 2033. To support signatories and raise general awareness, the Air District hosted a recent series of Diesel Free by '33 webinars covering health risks, the availability of alternatives, and funding options for the transition.

There are numerous types of diesel engines, meaning that many different categories of replacements need to be

designed, tested, and adopted. Buses and heavy-duty trucks, which are familiar sources of diesel exhaust, have been early targets for diesel emissions reductions. Strategies for achieving these reductions include relying on natural gas, hydrogen fuel cells, and renewable diesel. Public transit agencies are now pursuing zero-emission technologies to comply with the state's Innovative Clean Transit regulation; adopted in 2018, it requires them to gradually transition to a 100-percent zero-emission bus fleet.

Trucks have also been the target of increasingly stringent requirements, most recently the California Air Resources Board's Advanced Clean Trucks regulation. Approved in June, it will force a steady increase in the percentage of zero-emission medium- and heavy-duty vehicles sold in California by 2035.

According to the Air District's Adam Shapiro, "Moving to zero-emission has a short payback period for trucking, even without CARB credits, due to lower fuel and maintenance costs." Infrastructure for charging or hydrogen fueling is the largest investment, but there are incentives available for transitioning to cleaner technology.

Cleaner off-road construction equipment, including tower cranes and concrete mixers, is also commercially available. The Port of Oakland is already using non-diesel alternatives for cargo handling equipment. Amy Dao, Shapiro's colleague in the Air District's Strategic Incentives Division, informed webinar participants that airport ground support equipment



CARB's Innovative Clean Transit regulation requires that public transit agencies transition to zero-emission bus fleets. photo courtesy Gillig

is readily adaptable to electric vehicles because of short trips and proximity to charging infrastructure.

Additional types of off-road construction equipment, cargo handlers, locomotives, and harbor craft are being tried out. The Air District is a financial partner in a new ferry powered by hydrogen fuel cells. John Deere has been testing zero-emission tractors for agriculture since 2016. Replacements for some categories of diesel engines, including various types of marine vessels, are still in the research stage, but Dao remarked, “There are lots of reasons to be hopeful. Just having pilot demonstrations happening is a really great sign.” She noted there are “multiple manufacturers internationally working on these options.” Several Air District webinars covered the multiple sources of financial assistance for pilot programs, infrastructure, and equipment.

Next to buses and various types of trucks, back-up generators represent the most widely spread use of diesel throughout the region. While these generators are intended to provide electricity during power outages, they are run monthly for testing as well as in emergencies. During recent power shortages, the Air District allowed backup generators to run more than usually permitted, to relieve the grid.

“Disadvantaged communities are clustered around commercial and industrial locations, many of which use backup generators,” CARB Air Pollution Specialist Pippin Mader told the *Monitor*. “Diesel backup generators, in particular, affect the people right next door. Testing them monthly means there are exposures happening monthly.” In his webinar presentation, he mentioned that testing a diesel generator monthly is dirtier than a fuel-cell alternative running 24 hours a day, seven days a week.

Because diesel engines are so durable, Mader emphasized that “they will be functional for a very long time.” Retrofitting diesel backup generators may be an option in some cases, but older ones generally can’t be retrofitted. Mader noted that although there are effective particulate filters for diesel generators, and they are required for newer generators, “the best filters are not always the filters that are being used, and some existing generators have none at all.”

There are non-diesel generators in use, although they may need to be customized for special situations. Many burn natural gas or propane; these are not zero-emission, but they

are better for air quality, if not for greenhouse gases. However, the mantra for CARB is to look at zero-emission options first, “and there are technologies on the horizon,” according to Mader. There is also funding, including PG&E’s Self Generation Incentive Program, which is currently focused on serving vulnerable customers in state-defined “resiliency zones” facing power shutoffs, high fire danger, or both. The program offers additional incentives in disadvantaged communities.

Cities which signed the Diesel Free by ’33 statement of purpose are beginning to adopt some of the technologies and planning to adopt more. In Windsor, “the Town has replaced a diesel-fueled dump truck with a gasoline model, and plans on replacing all diesel standard service vehicles with gasoline vehicles when they reach the end of their service life,” environmental program manager Veronica Siwy wrote in an email. “We are also working toward ensuring that all heavy equipment that does still use diesel

(generators, for example) are CARB compliant.” Oakland recently began to use renewable diesel in all city-owned diesel equipment. The diesel is manufactured from locally-collected waste grease by a company which also supplies renewable diesel to several other Bay Area cities and agencies. Oakland is currently working on a zero-emission vehicle plan.

Oakland considers renewable diesel as a win-win, diverting waste and replacing fossil fuels, but also as a transition toward zero-emission.

Renewable diesel, and its relative, biodiesel, are fuel for combustion engines, and as Air District Health Officer Judith Cutino cautioned in a webinar, combustion still generates particulates. Like CARB, the Air District emphasizes zero-emission technology and prioritizes new equipment over retrofits.

Progress toward becoming diesel-free in 2033 will involve technical advances, marketplace competition, funding, community pressure through programs like the Assembly Bill 617 (C. Garcia) planning process, and ultimately some additional regulations. The Air District’s Monte DiPalma, a senior air quality engineer who coordinated the Diesel Free by ’33 webinar series, summed it up: “In California, we try to incentivize the people that want to be at the forefront and let them figure out what works or doesn’t, then follow up with regulation.” 

Leslie Stewart covers air quality and energy for the Monitor.



CARB’s Advanced Clean Trucks regulation is promoting the use of zero-emission medium- and heavy-duty vehicles.

photo courtesy Freightliner

Bay Area Monitor
League of Women Voters of the Bay Area
PO Box 22516
Oakland, CA 94609
(510) 839-1608
bayareamonitor.org
facebook.com/bayareamonitor

NONPROFIT
ORGANIZATION
U.S. POSTAGE
PAID
OAKLAND, CA
PERMIT NO. 2508

