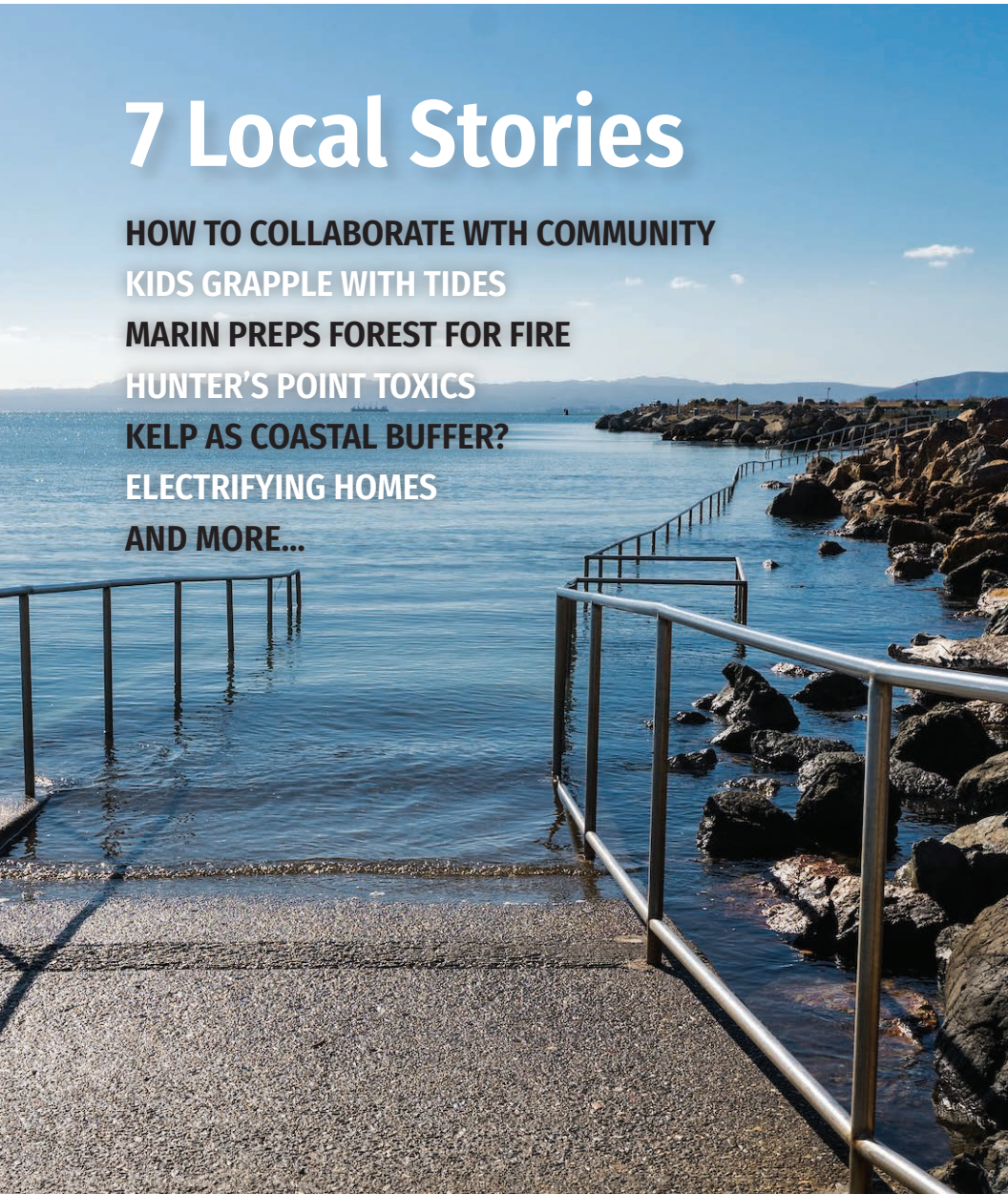
kneedeep times

THE BAY AREA'S CLIMATE RESILIENCE MAGAZINE



7 Local Stories

HOW TO COLLABORATE WTH COMMUNITY

KIDS GRAPPLE WITH TIDES

MARIN PREPS FOREST FOR FIRE

HUNTER'S POINT TOXICS

KELP AS COASTAL BUFFER?

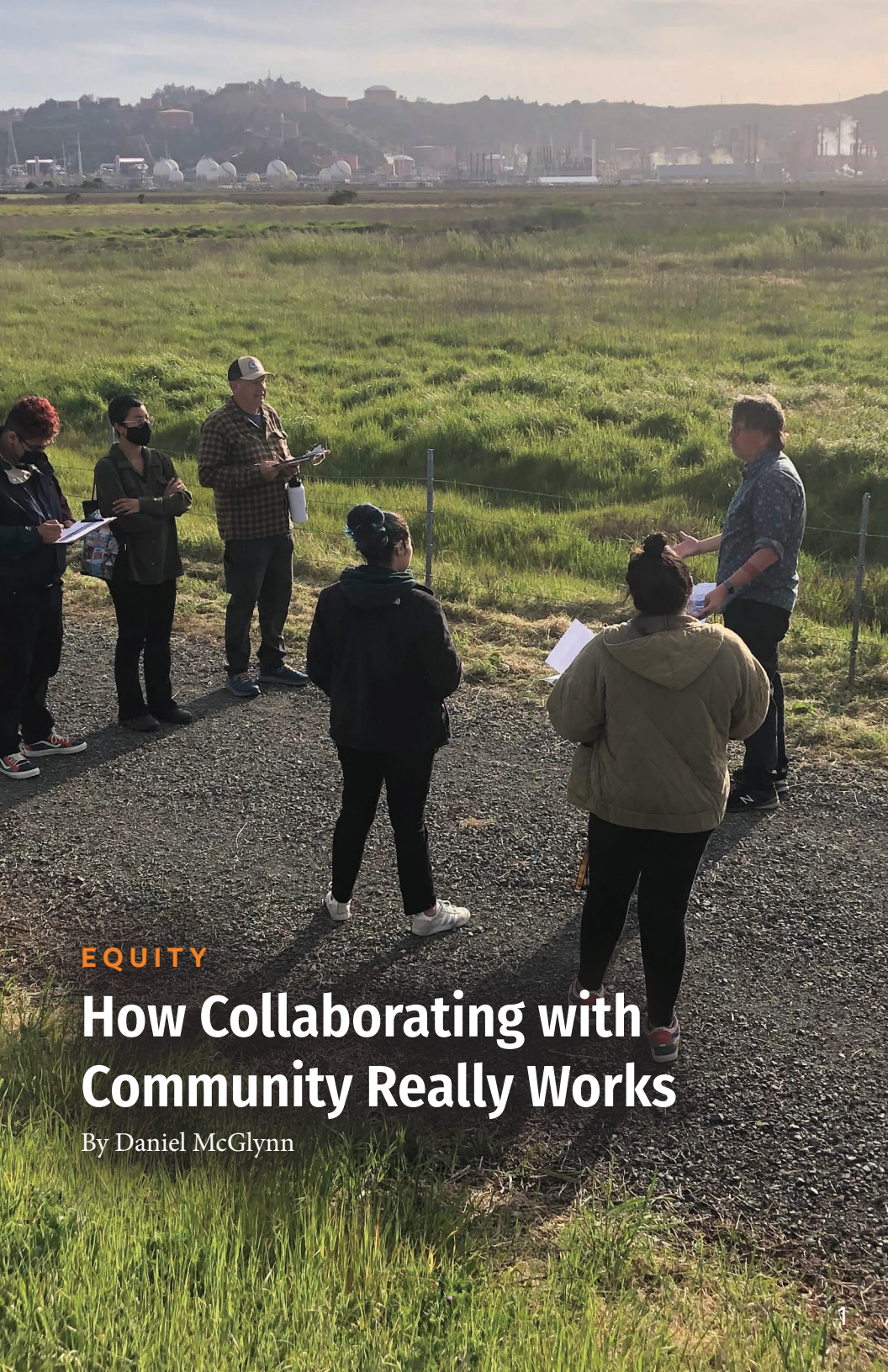
ELECTRIFYING HOMES

AND MORE...

GIST OF 2024

7 Stories of Climate Resilience

This zine offers key content selected from much longer stories. To read the full stories go to **kneedeeptimes.org**



EQUITY

How Collaborating with Community Really Works

By Daniel McGlynn

How Collaborating with Community Really Works

Tucked behind fences, ringed by industrial sites, and disconnected by roadways, the marshes and creek mouths of North Richmond have long felt like a reclusive neighbor—intriguing, but often unavailable. But now, after years of meetings among residents, engineers, designers, and property owners, there are big plans to connect the five miles of shoreline with the nearby community.

The North Richmond Living Levee, a key component of the project, has passed an early design review. Unlike traditional levees, a "living" levee features a slope of vegetation that filters treated wastewater, creating a gradient between the marsh and higher ground. This nature-based infrastructure is part of a broader effort to reconnect the residents of North Richmond to the nearby landscape.

The project started in 2017 with a new community vision for the North Richmond shore. Local nonprofit The Watershed Project organized educational events and invited community leaders to participate in a working group. By early 2022, that group met regularly with designers from Mithun, engineers from ESA, and West County Wastewater, the property owner. Then, the project team divided into three groups: design, community benefits, and outreach. Community members were paid a stipend for their efforts.

For planners and designers, the project provided a different kind of experience.

"It was new for me," says civil engineer Eddie Divita, "working with that level of community involvement. We were sharing early work of drawings and concepts. The whole point was to give people the opportunity to provide feedback so they could help shape projects and outcomes."

Most of the feedback centered on how to make the living levee project more connected to the surrounding neighborhoods. "The site visits were very revealing," says Divita. "Feedback from community members included finding places to build benches and shade and water fountains so that walkers could take breaks and take in the scenery."

Members from the Confederated Villages of Lisjan asked about creating a small boat launch near the marsh in order to connect modern access to traditional usage. A site on San Pablo Creek was found to create a yearlong boat launch.

"One of the big themes with this project is capacity building," says Divita.

STORY 6/24: https://www.kneedeeptimes.org/how-collaborating-with-community-really-works/

Zine version edited by Sonya Bennett-Brandt

HEARTS & MINDS

San Rafael Schoolkids Grapple with Rising Canal

by Audrey Mei Yi Brown

San Rafael Schoolkids Grapple with Rising Canal

Emily DeLeon, 11, stood over a handmade model of San Rafael sprawled across her fifth-grade classroom floor, contemplating how to make her home more resilient to flooding. The model presented a mix of reality and imagination: while the streets and flood zones were real, the students could instantly retrofit their homes with solar panels, wind turbines, gardens, and rain barrels with just a few snips of construction paper.

For DeLeon and many of her classmates at Laurel Dell Elementary, sea level rise is an emerging threat. The school, along with many of the students' homes nearby, is in a watershed deemed one of the most at risk for inundation due to sea level rise in the region. Still, many San Rafael residents aren't aware of the threat, says Kate Hagemann, the city's climate adaptation and resilience planner. Floods are currently forestalled by an aging and haphazard system of levees and pumps.

That's why DeLeon and her classmates were participating in Youth-Plan, Learn, Act Now, a program to introduce students to coming climate risks and encourage them to devise adaptations. During the 15-week-long-program, the students are tasked with building intricate models of their neighborhood, imagining sustainable solutions, and partnering with a client that wants their input on a real-world problem.

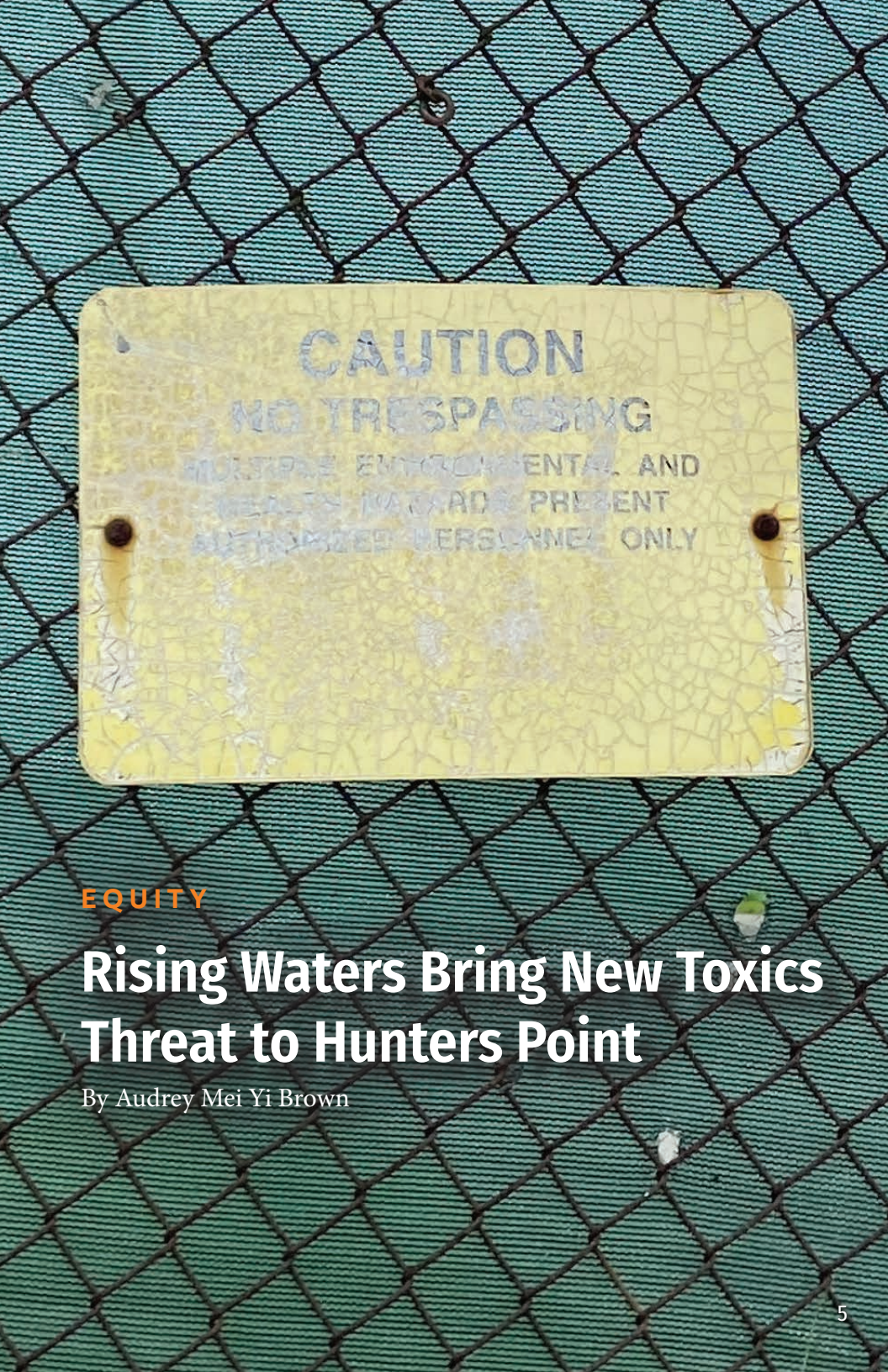
"It's important to introduce young people to issues that are going to affect their futures," says Y-PLAN creative director Shirl Buss. "The contours of their lives are going to be shaped by them."

Youth perspectives are also valuable in addressing climate change, says Kristina Dahl, principal climate scientist from the Union of Concerned Scientists, the class' client. Compared to adults who drive cars, youth have much more direct contact with the built environment from walking, biking, skateboarding, and taking public transit. They are also unafraid to propose bold ideas, which is needed, Dahl says. "We're never going to get to climate resilience with piecemeal solutions. We need space to dream," she says.

Dahl hopes that what the students have learned about the risks facing the area and possible solutions will percolate through their families and out into the broader community. Eleven-year-old DeLeon intends to keep trying to bolster the resilience of her home and her community, perhaps as a career path. She's interested in someday becoming an architect. "Because I think I could help San Rafael," she says.

STORY 6/24: https://www.kneedeeptimes.org/san-rafael-schoolkids-grapple-with-rising-canal/

Zine version edited by Claire Greenburger



EQUITY

Rising Waters Bring New Toxics Threat to Hunters Point

By Audrey Mei Yi Brown

Rising Waters Bring New Toxics Threat to Hunters Point

"Caution. No trespassing," reads a sign lashed to the chain link fence separating Parcel E-2 of San Francisco's Hunters Point Naval Shipyard from the surrounding residential neighborhood. At that spot during last year's storms, Shirletha Boxx-Holmes, a Bayview native and community organizer with Greenaction for Health and Environmental Justice, watched as soil from the shipyard ran into neighborhood streets with the floodwater. Her stomach sank.

The 638-acre shipyard, the site of Navy radiation experiments and ship decontamination in the 1940s, is a federal Superfund site contaminated with radioactive waste and a litany of other toxic substances, including arsenic and lead. The Navy, which is overseeing cleanup, has capped much of the toxic area with asphalt or soil to contain the contamination and protect people and the San Francisco Bay ecosystem. However, rising groundwater and sea levels are expected to open up new pathways for the contamination to spread, which may demand new solutions.

The effects of toxic exposure are already ravaging the historically Black neighborhood, says Boxx-Holmes. Contaminated shipyard dirt blows through the chain-link fence daily, dusting nearby areas where people live, work, and play. New plans to build over 10,000 housing units, commercial spaces, and parks near the site have heightened fears of further exposure.

Residents and experts worry that the Navy's cleanup plan fails to capture the extent of the climate impacts coming for the shipyard. Current projections

account for one foot of sea level rise by 2035 and 3.2 feet by 2065. But those projections don't account for the shipyard sinking, which is likely because it's built on infill, says Kristina Hill, the director of the Institute for Urban and Regional Development at UC Berkeley. Hill says the Navy also needs to pay more attention to the impact of rainfall.

Innovative cleanup methods, such as high-temperature electrothermal process, or HET, show promise but remain in early testing stages. In the meantime, Hill calls for more frequent sampling of its monitoring wells, especially after storms, and the construction of a local toxics treatment facility, which she thinks could streamline cleanup.

Throughout the region, contamination disproportionately burdens the so-called frontline communities who live just beyond the chain link fence, but local activists caution that people outside the community aren't impervious to its reach through water.

"It's not just a Hunters Point issue, it's going to be a whole San Francisco Bay Area coastal crisis," says Kamillah Ealom, a Hunters Point resident and Greenaction activist.

Ealom points out that sea level rise is projected to flood wealthy areas too, such as the Marina District.

"Water wants to move," says Bradley Angel, executive director of the environmental justice nonprofit Greenaction.

STORY 4/24: https://www.kneedeeptimes.org/rising-waters-bring-new-toxics-threat-to-hunters-point/

Zine version edited by Claire Greenburger

Snapshots from our Stories

"While we are in a geopolitical moment of many crises, with few glimpses of hope, the Bay Area, as a place with a comprehensive, intersectional view of society, continues to create solutions."

Yani Garcia, California's Secretary of Environmental Protection (Story 6/24).

"The work we're doing is trying to figure out how to communicate that climate change increases the unpredictability of weather, not necessarily just creates a warmer, drier place all around the world."

Richelle Tanner, Assistant Professor of Environmental Science & Policy at Chapman University, studies climate messaging (Story 2/24).

"Young people should be able to come back to our town and get a job healing the environment rather than working in a warehouse."

Chariz Guerzo works with Little Manila Rising and Restore the Delta to reduce environmental racism and create a greener economy (Story 6/24).

"Climate change can feel like it's something that is going to happen in 2100 [or only] to polar bears, but events like king tides make it less abstract."

Kate Hagemann is the Climate Adaptation & Resilience Planner for San Rafael (Story 2/24).

"What I love most about surfing is I feel small in a really large world. In the day-to-day, you get wrapped up and you feel like things are so important. Then you go into the ocean, and you realize you're a part of something much bigger than yourself."

Arye Janoff is a Senior Project Planner for the U.S Army Corps of Engineers' San Francisco District who focuses on coastal erosion adaptation in the Bay Area (Story 1/24).

Quotes selected and edited by Skylla Mumana.

ENERGY

Will PG&E's New Rates Help People Electrify Their Homes?

By Kelechukwu Ogu

Will PG&E's New Rates Help People Electrify Their Homes?

When Jason Clock added a solar array to the roof of the mobile home he shares with his mom in Mountain View a few years ago, he bought a single electric stovetop burner, but kept his gas stove as well. Clock, who works remotely as a Product Manager for Georgetown University, wants to make the greenest choices possible within his budget. But with nine more years before he breaks even on his solar panels, he can't afford to go all-electric yet.

Soon, thanks to a recent vote by the California Public Utilities Commission, changes to his utility bill could encourage him to finally get rid of gas altogether. But until he goes fully electric, he may actually be paying more based on his location in a temperate zone where he uses less energy overall.

The new rate package is coming down the pike at a moment when state and local rebates and incentives have allowed a growing number of Bay Area residents to replace their furnaces, hot water heaters, and other appliances with electric appliances that can make use of the solar, wind, and geothermal power produced in the region. The effort to electrify homes is central to regional and state-level plans to simultaneously reduce greenhouse gas emissions and improve air quality.

At the same time, because of the way the CPUC has set the charges, experts say the new fixed rates could burden lower-income people while preventing the wealthiest Californians from paying their fair share.

As all this plays out, there's also the looming question of what it might take to get the big energy companies to pay for at least some of the cost of the transition themselves. Jillian Du of the Bay Area Regional Energy Network is working on transforming the agency's home-electrification efforts to meet the needs of those who don't quite qualify for low-income electric appliance installation programs, but don't have much to spare either.

Du believes the question of who can electrify their homes at this moment is intricately tied to the market dominance that the three large corporate utility companies have in the California marketplace.

"Right now, the assumption is that ratepayers pay for everything," says Du. "We're going to pay for the investor-owned utilities to make their aging infrastructure more resilient to wildfires. We're also going to assume that ratepayers pay for some of this transition off gas infrastructure. This assumption is causing a lot of tension, and it doesn't have to be that way."

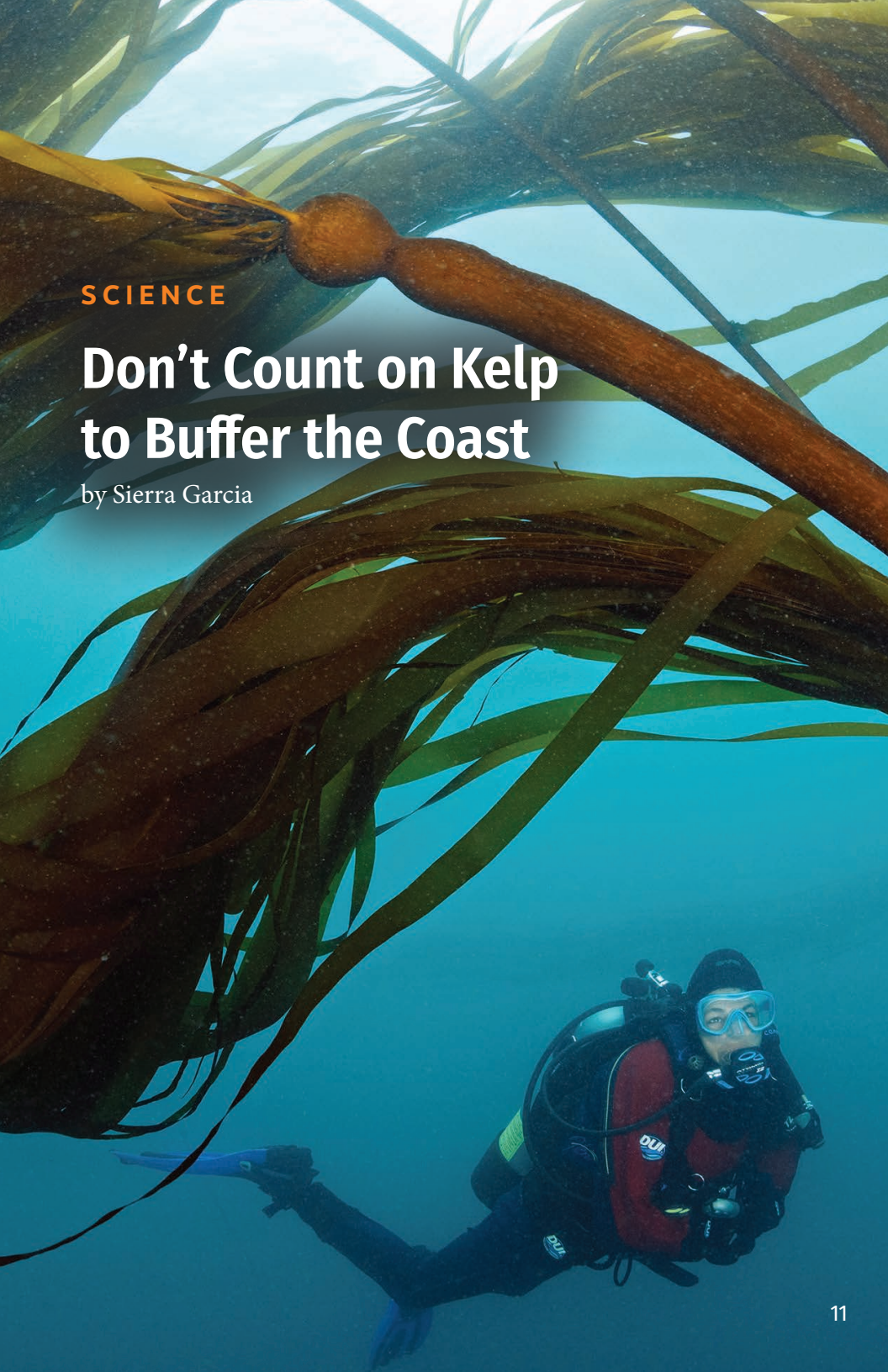
STORY 6/24: https://www.kneedeeptimes.org/will-the-cpucs-new-rates-really-help-everyone-electrify-their-homes/

Zine version edited by Ariel Rubissow Okamoto

SCIENCE

Don't Count on Kelp to Buffer the Coast

by Sierra Garcia



Don't Count on Kelp to Buffer the Coast

When winter storms sent 20-foot waves barreling towards Santa Cruz, California in January 2023, the sea met none of the natural storm breaks it might have encountered on the East Coast: no crests of intricately carved coral reefs, no tangled roots of mangrove forests, no conglomerations of millions of oyster shells. They did, however, pass through kelp forests – luxurious, floating canopies of giant seaweed that have been theorized to be natural barriers against coastal erosion.

Now, research led by California Department of Fish and Wildlife specialist Kristen Elsmore challenges the idea that kelp forests can significantly reduce wave energy and protect coastal areas from storm damage. Her study showed that the reduction in wave energy caused by kelp is minimal: about 6-8%, with the kelp playing a slightly larger role when waves are under three feet tall.

"People have floated the idea, no pun intended, of using kelps as a way of protecting shorelines. And it's just not going to work," says Mark Denny, a specialist in ecological mechanics at Stanford and one of the paper's co-authors.

That doesn't mean that we don't need kelp forests – they create habitats for hundreds of other species. And, they "play an important role in where the sediment goes, or doesn't go, following an erosion event," says Elsmore. These benefits are more than enough to make the undersea forests worth protecting, regardless of how they reduce wave energy – or don't.

STORY 10/24: https://www.kneedeeptimes.org/dont-count-on-kelp-to-buffer-the-coast/

Zine version edited by Sonya Bennett-Brandt

FIGHT OR FLIGHT

Letting the Cliff Crumble

By Kim Hickock and Sierra Boucher

Letting the Cliff Crumble

The city of Santa Cruz is a vibe. Its long border with the Pacific Ocean makes it an attractive place to live or visit, known for surf, sand, and sun – but it also places Santa Cruz at the frontlines of sea level rise and coastal erosion, a fact made abundantly clear in early 2023, when enormous chunks of the city's iconic West Cliff Drive crumbled into the sea after being pummeled by intense storm waves for hours. The damage left a gaping hole in the road and served as a warning sign of how climate change will impact this treasured stretch of coastline.

"This storm destroyed us to a level that we didn't think we were going to have to face for quite a while," says Assistant City Manager Laura Schmidt.

In response, Santa Cruz swung into action, completing emergency repairs and composing a 50-Year Vision for West Cliff built on community input. Key aspects of the vision include prioritizing pedestrian and bike access, limiting hard armoring of the cliff, exploring nature-based solutions to decrease the rate of erosion, and relocating certain developments.

While the vision has garnered widespread community support, experts warn that implementing these strategies will be costly and contentious. Some, like UCSC coastal geologist Gary Griggs, doubt the long-term viability of preserving West Cliff against increasingly powerful storms and rising seas.

"In the long run we're going to have to move back," he says. Managed retreat is a key strategy in the 50-Year-Vision, but it's not a popular idea. "Nobody wants to do that. Nobody wants to hear about it."

No one can say for sure when the next storm will threaten West Cliff. But with the community-backed 50-Year Vision as a guide, the city is ready to implement a variety of solutions that align with the community's priorities. And with the vision in place, the community is ready to take the next step toward their city's future, says Santa Cruz resident Al Ramadan. "Everybody is here at the table, which is a really powerful thing."

STORY 7/24: https://www.kneedeeptimes.org/letting-the-cliff-crumble/

Zine version edited by Sonya Bennett-Brandt

FIRE

Marin Makes Clean Sweep of Forest Floor

By Jacoba Charles

Marin Makes Clean Sweep of Forest Floor

It is a dry summer day in the midst of a heat wave in the forested hills of Marin County. At the end of a twisting one-lane road, a small crew of laborers wearing orange vests finish their lunch breaks and head, single file, down a deer trail that leads into a steeply sloping forest of bay trees in the small town of Fairfax.

Most observers would not notice anything remarkable about the forest. Yet, in the past five days, it has been transformed by the crew of workers. Last week, a dense thicket of flammable, invasive French broom obscured the views that now stretch between trunks. Now, the broom plants are stacked by the roadside, waiting for a chipper truck to dispose of them while the crew continues to clear a 100- to 200-foot-wide swath through the forest.

This is only one of the numerous projects being implemented by the Marin Wildfire Prevention Authority (Marin Wildfire), a 17+ member Joint Powers Authority formed in 2020. The authority was established following a series of devastating fires in neighboring counties. Recognizing their vulnerability, Marin County conducted studies that concluded only luck had prevented major fires in their forested communities. In response, voters approved Measure C in 2020, implementing a parcel tax that generates approximately $21 million annually for fire prevention.

“Wildfire doesn’t stop at jurisdictional boundaries, so wildfire resilience efforts shouldn’t either,” says Anne Crealock at Marin Wildfire.

The authority follows a “house-out” approach, starting with homes, then yards, then roads, and expanding outward. Their work includes annual inspections of approximately 30,000 homes, distribution of $800,000 in annual grants for home hardening, and operation of free chipper programs. They also conduct public education campaigns, install wildfire detection and warning systems, develop safe evacuation routes, and manage vegetation along hundreds of miles of roads. However, plants continue to grow — and the Marin Wildfire Prevention Authority only has funding for six more years. They are already planning to campaign for a continuation of the tax.

“It’s a tough sell to tell communities to tax themselves,” Crealock says. “One of the challenges is that if we are successful, nothing happens — so how do you prove you’ve succeeded when success is so quiet, right?”

STORY 8/24: https://www.kneedeeptimes.org/marin-makes-clean-sweep-of-forest-floors/

Zine version edited by Sonya Bennett-Brandt

Snapshots from our Stories

"I spend a lot of time in a boat on the water with the wildlife, which is exactly where I want to be," Lane says. "It's amazing that I am doing exactly what I had just always dreamed of as a child."

Bekah Lane, Cetacean Field Research Specialist at The Marine Mammal Center in Sausalito who investigates the overlap and impact of human interaction with cetaceans (Story 1/24).

"Green spaces are disappearing and grocery prices are rising and people seem disconnected from life and the natural world."

Sydney Searchwell-Simpson, co-creator of Sowing Seeds Project, which supports BIPOC-led sustainable food projects and promotes permaculture (Story 5/24).

"Changing practices has been somewhat difficult and changing plants not at all – it is changing minds that is a challenge."

Wyatt Tong, East Bay landscaper who works for his family landscape maintenance company, Dinwoodie Landscape Services (Story 5/24).

"Our findings show that marsh restoration can play a role in reducing flood risk in the bay pretty substantially."

Rae Taylor-Burns, a postdoctoral fellow with UC Santa Cruz's Center for Coastal Climate Resilience (Story 6/24).

"Climate Change is an opportunity to build the world anew, a world that centers justice and gives everyone the same opportunities regardless of who they are and where they come from."

Cade Cannedy, an activist with Climate Resilient Communities (Story 9/24).

Quotes selected and edited by Skylla Mumana.

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If you would like copies of our zine for your reception area or community spaces or board members, we are happy to provide upon request for the cost of printing and mailing.

If you would like a custom zine including stories of special interest to you or your organization (like nature-based infrastructure or equity or community-based stories or stories about your county, for example), that can also be arranged. Email us to find out more: **editorial-team@kneedeeptimes.org**

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