



Clean Water Act 50th Anniversary and Emerging Regulatory Issues Update

Board of Directors Meeting
October 12, 2022



TRANSFORMING WASTEWATER TO RESOURCES

Celebrating 50 Years after the 1972 Clean Water Act



50

Years after passage of the 1972 Clean Water Act, **Delta Diablo** continues to thrive in **Protecting Public Health and the Environment**

Delta Diablo is a special district that provides wastewater conveyance and treatment services for over 215,000 residents in Antioch, Pittsburg, and Bay Point



Delta Diablo Wastewater Resource Recovery Facility
(Wastewater Treatment Plant + Recycled Water Facility)



Delta Diablo's Next 50 Years

- Investing in Critical Wastewater Conveyance and Treatment Infrastructure to Ensure Effective and Reliable Service Delivery
- Meeting the Challenge of Emerging Regulatory Requirements for Nutrient Management
- Planning for the Future, Supporting a Vibrant Local Community and Economy
- Integrating Innovative Technologies and New Work Processes to Drive Organizational Efficiency
- Cultivating a Thriving, Engaged Workforce Focused on Organizational Excellence and Dedicated Public Service

Delta Diablo continues effectively "Transforming Wastewater to Resources" by **reducing local potable water demand** via water recycling, **generating on-site renewable energy** via biogas utilization, and **recovering valuable nutrients** to improve soil health via biosolids reuse.

215,000 customers

14 million gallons of wastewater treated each day

7.6 million gallons of recycled water produced each day

50% of plant power needs met via on-site renewable energy production

38 tons of biosolids produced each day

100% beneficial use of biosolids via land application and composting

Meeting the Challenge of Emerging Regulatory Drivers



- ① Potential acceleration of nutrient removal requirements in future NPDES permits
- ② Significant concern regarding ubiquitous presence of PFAS compounds in homes and the environment

Key Highlights 40 Years of WWTP Operation



- Average WWTP flow increased from 7.0 million gallons per day (MGD) to 13.6 MGD
 - Nearly 100,000 customers in 1982, over 215,000 customers today
- District is recognized as award-winning, industry leader known for progressive “Utility of the Future” commitment
 - Dozens of prestigious awards at national, state, and local level recognizing exemplary regulatory compliance, environmental stewardship, operational excellence, financial reporting
- Significant WWTP capital improvements completed to maintain infrastructure and expand services
- Talented, dedicated employees have directly contributed to District’s success



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Ensuring Resiliency for the Next 40 Years



- Addressing aging infrastructure
- Meeting challenge of future nutrient management regulatory requirements (>\$150M WWTP upgrade cost)
- Ensuring workforce development to support District mission and meet customer needs
- Recovering valuable resources
- Implementing Strategic Plan, which identifies key goals, strategies, and objectives to guide activities over next few years

MISSION

Delta Diablo protects **public health and the environment** for our communities by **safely providing exceptional wastewater conveyance, treatment, and resource recovery services** in a **sustainable and fiscally-responsible** manner

VISION

Delta Diablo will achieve **sustained organizational excellence** through **dedicated commitment to public service, stewardship, innovation, industry leadership, and active engagement** at all levels

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Slides excerpted from May 11, 2022 Board Meeting presentation

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① Nutrient Management Collaborative, Sound Science Approach

- Most WWTPs in SF Bay Area are not required to remove nutrients (nitrogen, phosphorus) despite being significant point source discharges
 - Historical resiliency of SF Bay to assimilate nutrient loading with only localized, episodic water quality impacts
 - Significant focus on nutrient removal in other regions due to water body impairment (low dissolved oxygen [DO], algal blooms, toxicity)
- District has been working collaboratively with peer agencies, Regional Water Quality Control Board, and scientific community via Bay Area Clean Water Agencies
 - Increased annual BACWA funding support from \$880k to \$2.2M in 2019 to monitor water quality, conduct modeling, develop studies



① Nutrient Management (cont'd)

Significant Potential Financial Impacts

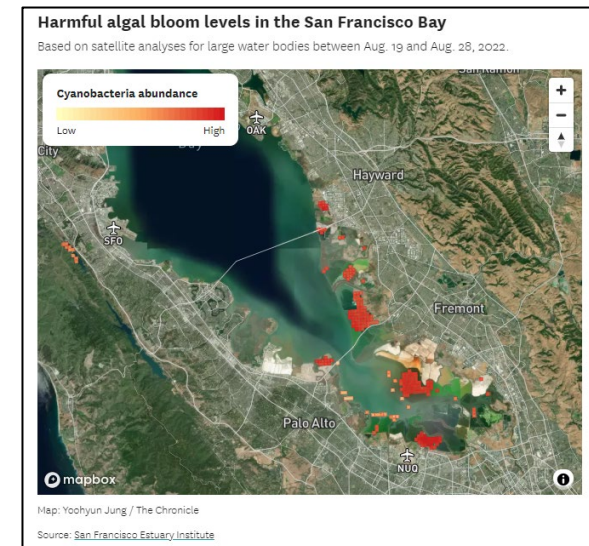


- Collaborative engagement has been focused on sound science and public health benefits to achieve sustainable, cost-effective environmental regulations
- Implementation of nutrient removal requirements in NPDES permits would require transformative infrastructure investment in the SF Bay Area
 - Initial capital costs estimated at \$8B to \$15B in SF Bay Area (>\$150M at District) with significant increases in operating costs
 - Affordability issues with impacts to ratepayers

① Nutrient Management (cont'd)

Impacts of Recent Algal Blooms in SF Bay

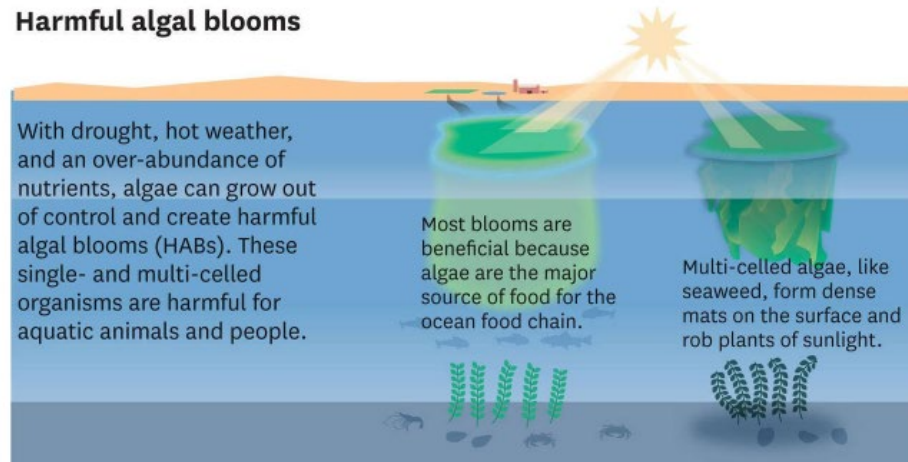
- Recent algal blooms (late Jul-mid Sep) has intensified focus on nutrient loading from WWTPs
 - Fish mortality, toxicity, low DO conditions
 - SF Bay is complex water body with multiple causative/contributing factors
 - Impact of nutrient loading conditions is unclear; event recurrence is uncertain
- Current 5-year Nutrient Watershed Permit expires in 2024
 - Significant focus on future nutrient loading caps for each WWTP, “early actions”
 - May directly impact near-term capital investment needs if algal blooms recur



① Nutrient Management (cont'd)

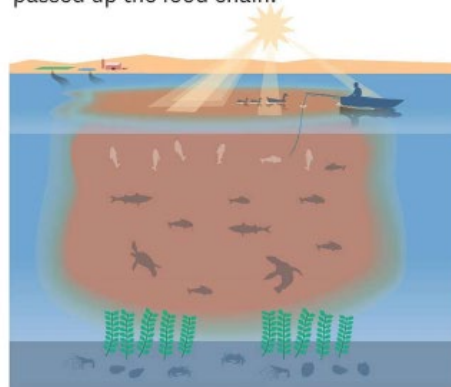
Impacts of Recent Algal Blooms in SF Bay

Harmful algal blooms



Red tide

This red-colored harmful algal bloom produces a neurotoxin that can be passed up the food chain.



Dead zone

Algae die in the oxygen-depleted water, the decay sinks, clogging fish gills, and smothering crustaceans and vegetation.

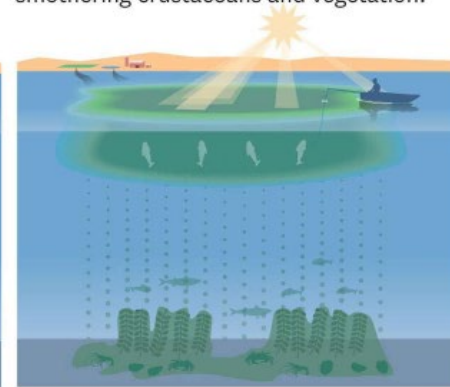
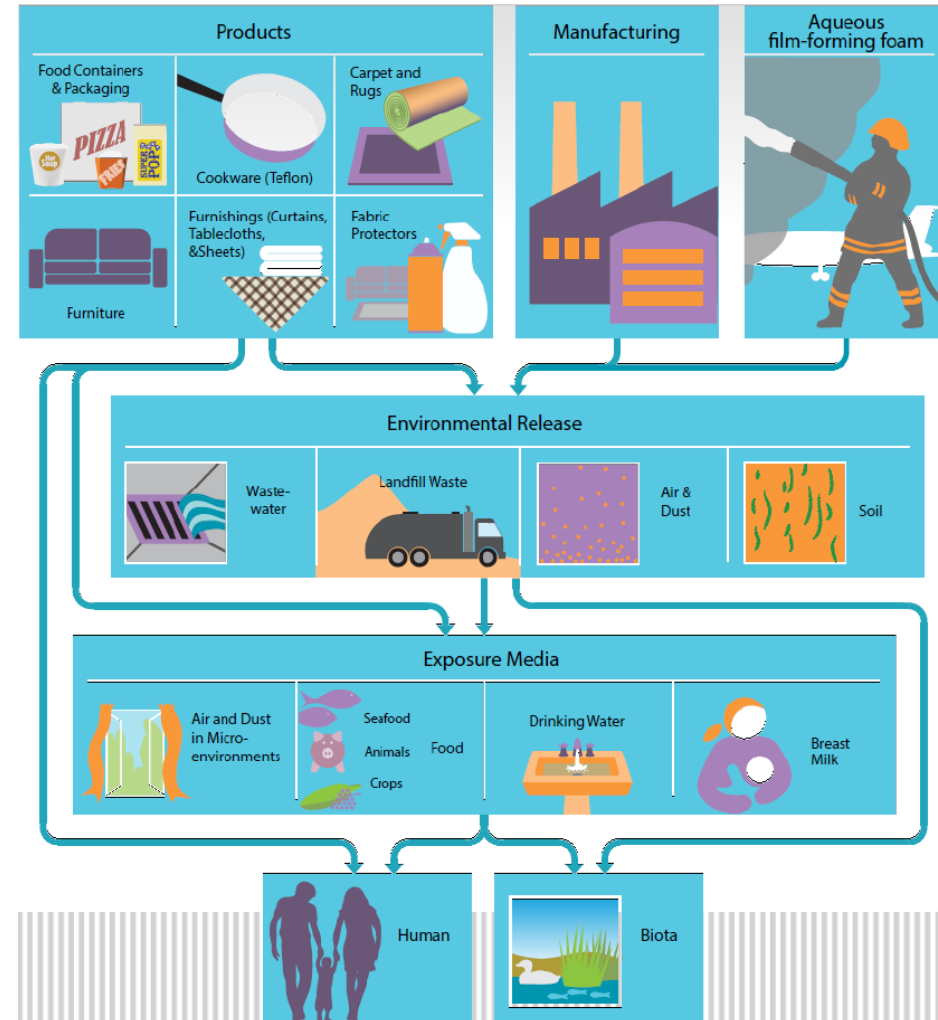


Chart: John Blanchard / The Chronicle • Source: NOAA

② PFAS Compounds

Emerging Contaminant of Concern

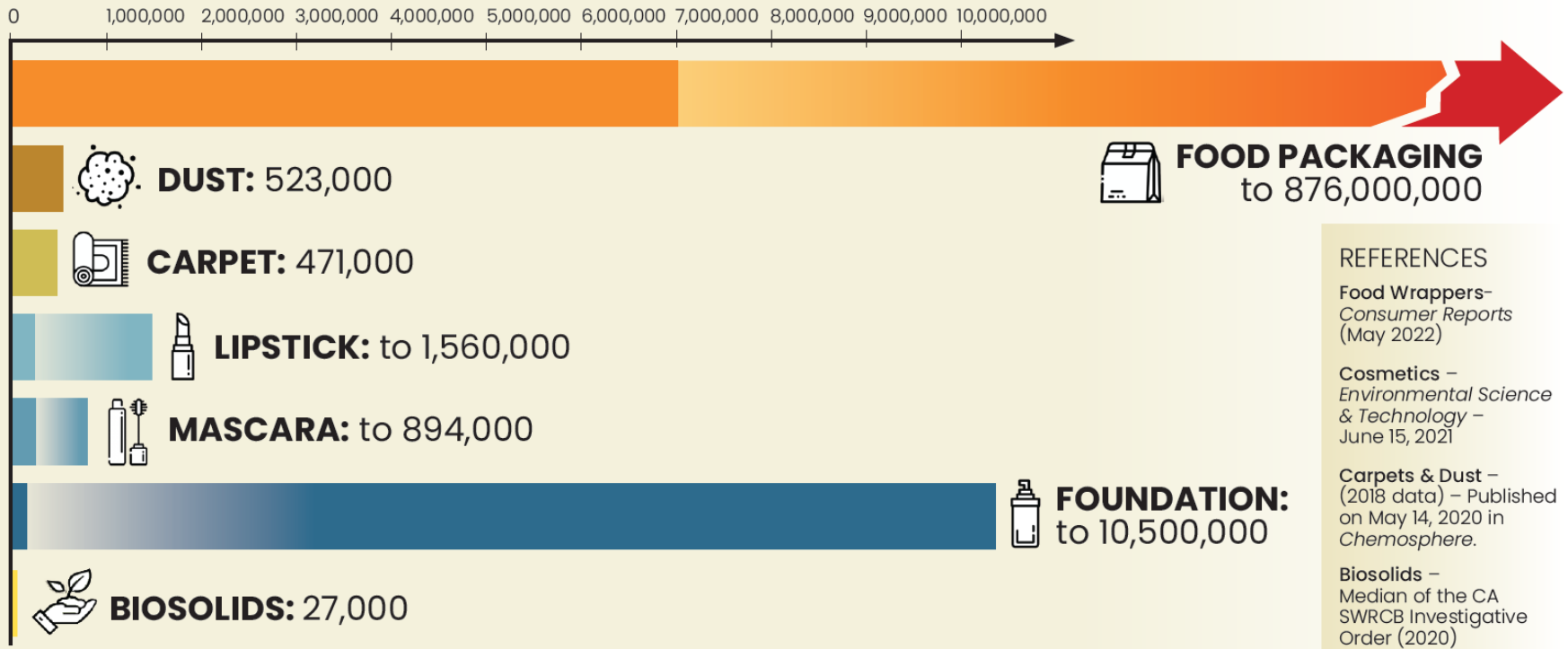
- Ubiquitous in homes and the environment
 - Per- and polyfluoroalkyl substances (PFAS) with over 3,000 chemical variations
 - Widely used for industrial applications and residential household products due to resistance to heat, water, oil
- Persistent in environment, difficult to remove (may be referred to as “forever chemicals”)
- Present in some water resources across country



② PFAS Compounds (cont'd) Emerging Contaminant of Concern



RELATIVE RANGES in parts per trillion



② PFAS Compounds (cont'd)

Emerging Contaminant of Concern



- U.S. EPA has issued drinking water health advisories for two specific PFAS compounds (PFOA, PFOS) and is in process of establishing drinking water quality standards
- Significant advancements in analytical testing methods with reduction in associated costs
- Wastewater sector is engaging with regulators at national, state, and local level to address PFAS contamination
 - WWTPs receive broad range of domestic, industrial, and commercial sources that may contain PFAS—receiver not a producer
 - Emphasizing sound-science based approach that focuses on:
 - Eliminating PFAS use in consumer products
 - Understanding fate, transport, and toxicity before implementing PFAS limits on WWTP discharges, recycled water, and biosolids

Next Steps

- Continue monitoring these critical regulatory compliance issues, while advocating for sound-science based, collaborative approach
 - BACWA (Bay Area Clean Water Agencies)
 - CASA (California Association of Sanitation Agencies)
 - NACWA (National Association of Clean Water Agencies)
- Consider project approach and scope for upcoming \$60M Secondary Process Improvements
 - Evaluate inclusion of “early action” project for near-term, partial nutrient removal (e.g., sidestream treatment)
 - May provide a benefit relative to securing Clean Water State Revolving Fund financial support (i.e., multi-benefit, watershed project)