EAST BAY MUNICIPAL UTILITY DISTRICT

Nutrients Update

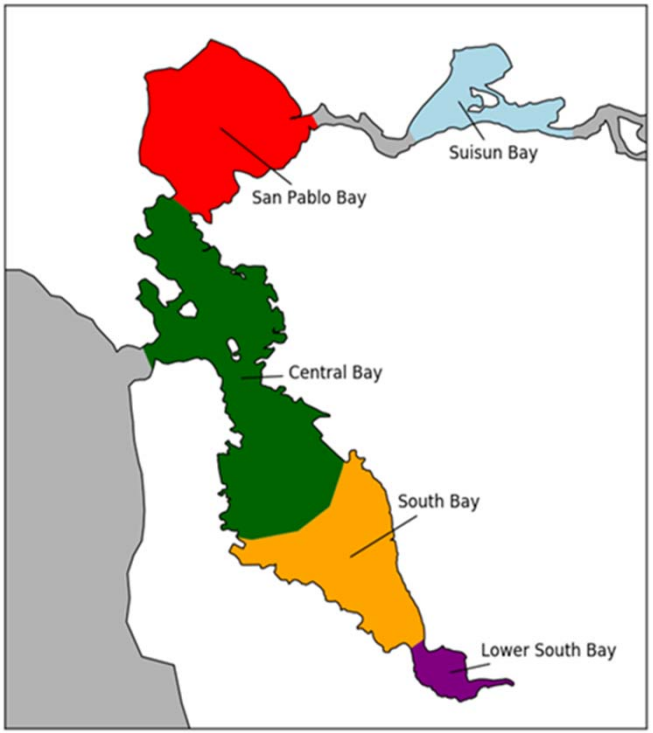
Planning Committee

November 14, 2017

Agenda

- Background
- Nutrient Permit Renewal in 2019
- Regional Science Program
- District Nutrient Efforts
- Summary and Next Steps

San Francisco Bay and Its Subembayments



* Source: San Francisco Estuary Institute (SFEI)

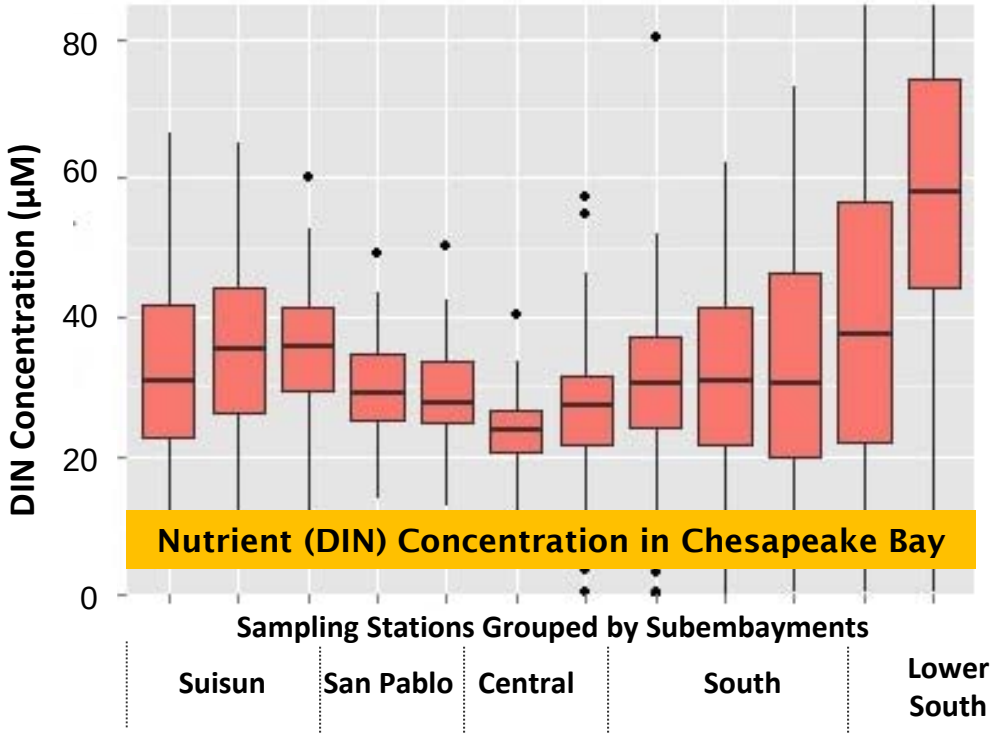
Background
San Francisco Bay Nutrient Concerns

- High nutrient input to the Bay elevates concentrations which may lead to adverse impacts
- Harmful algae and toxins are commonly detected throughout the Bay
- Subembayment-specific concerns on possible nutrient impact

San Francisco Bay — Nutrient Enriched

Dissolved Inorganic Nitrogen (DIN) = NO_3^- + NH_4^+

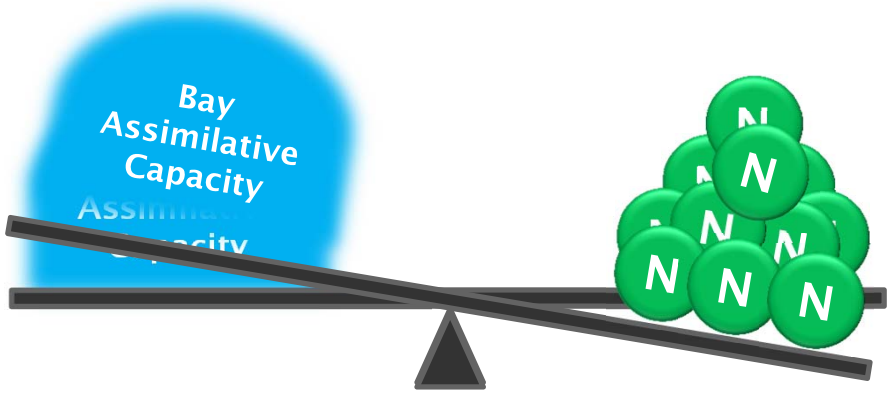
DIN Concentration in San Francisco Bay (2005–2012)*



* Source: San Francisco Estuary Institute (SFEI)

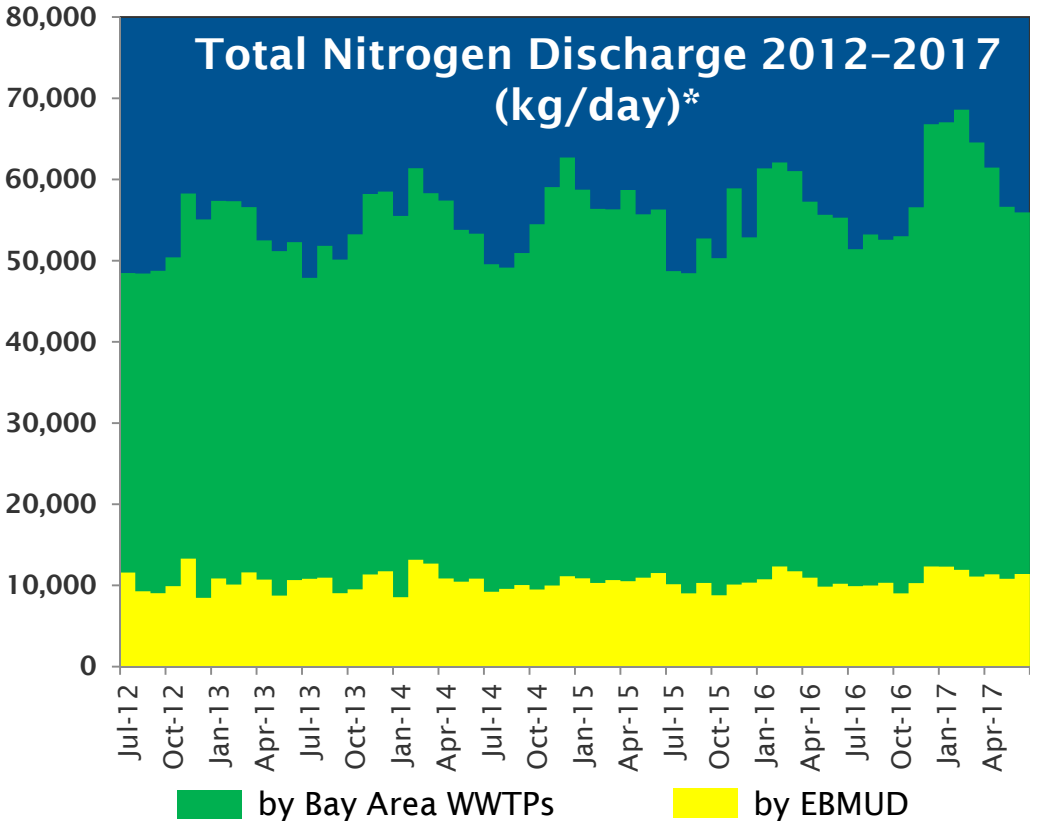
Background
Nutrient Management Questions

- Is the Bay currently impaired by nutrients?
- Is there a tipping point?
- What management actions, if any, are needed?



Background
Wastewater Nutrient Input to the Bay

- **Treated wastewater is the major nutrient source**
  - ~40 WWTPs in the Bay Area
  - Serve over 7 million people
  - Treat ~450 MGD of wastewater
  - Most WWTPs were not designed to remove nutrients
  - Discharge over 50,000 kg/day of nitrogen and ~4,000 kg/day of phosphorus
    - ~20% from EBMUD



- **Cost for nutrient removal upgrades will be substantial**
  - Current estimate is $5-10 billion for Bay Area WWTPs*

* Source: Bay Area Clean Water Agencies (BACWA)

Nutrient Permit Renewal in 2019

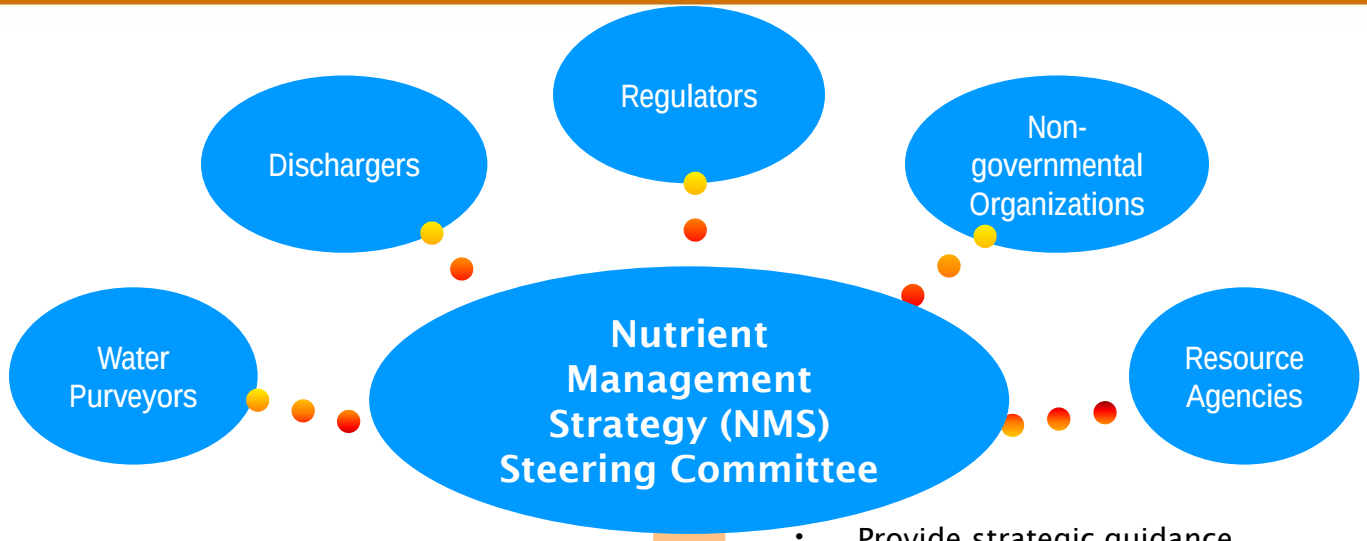
Current Watershed Permit (2014–2019)

- Effluent Nutrient Monitoring
- Treatment Optimization and Upgrade Studies
- Analysis of Nutrient Load Trend
- Support for Scientific Studies ($0.88M/yr; ~$107K/yr by EBMUD)

Possible Requirements for Next Permit (2019–2024)

- Effluent Nutrient Monitoring
- Study of Non-WWTP Nutrient Management Options
- Analysis of Nutrient Load Trend
- Support for Scientific Studies ($2.2M/yr; ~$330K/yr by EBMUD)

Regional Science Program (2014—2024)



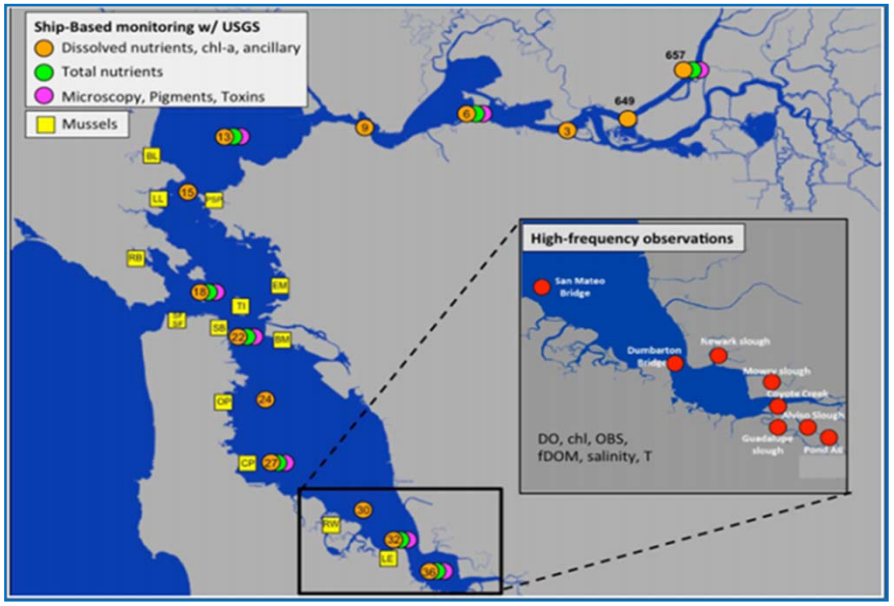
- Provide strategic guidance
- Approve budget
- Review progress
- Apply adaptive management

Science Program

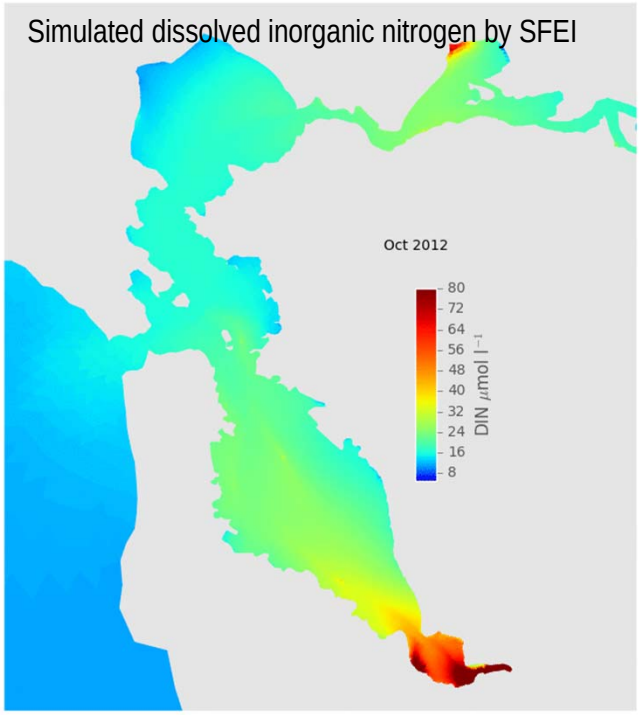
- To build the scientific foundation to support nutrient management decisions
- **However, currently financially constrained**

Regional Science Program Expansion

- **Expand the current monitoring program**



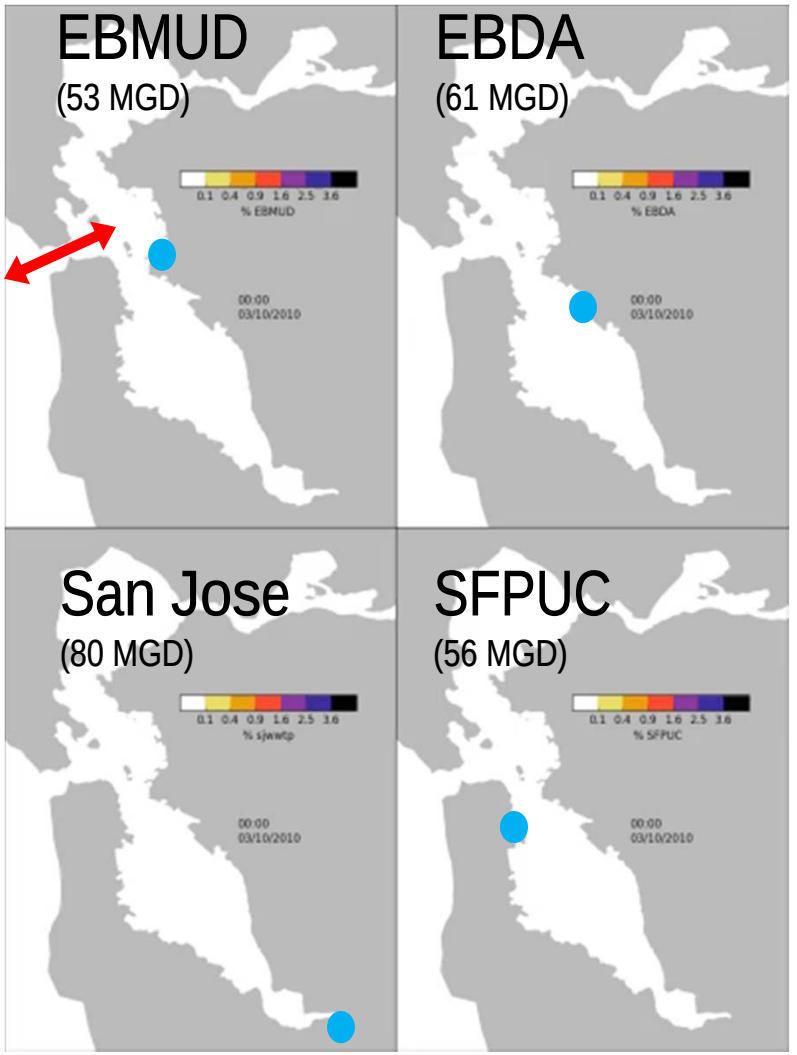
- **Accelerate water quality model development**



- **Conduct special studies such as focused investigations on harmful algae and toxins**

District Effluent Impact

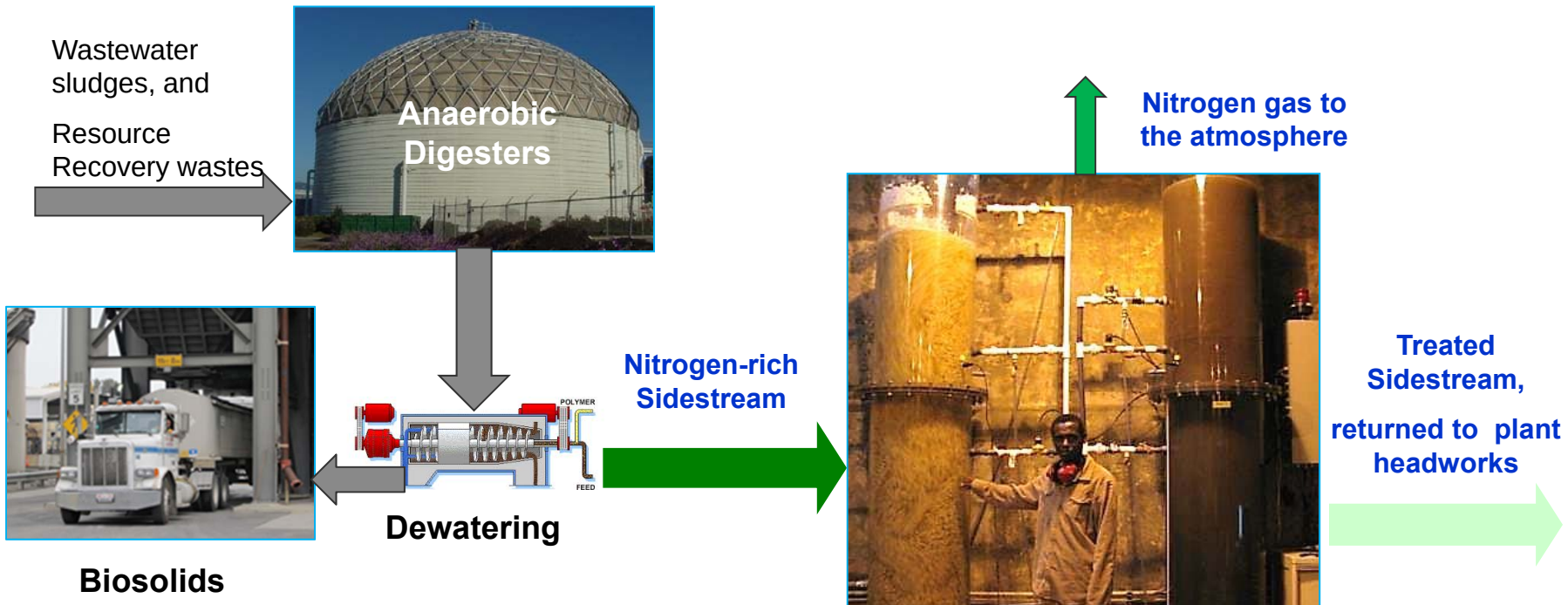
- **District's MWWTP is a significant nutrient discharger**
- **Despite high loads, the District benefits from its discharge location (Central Bay)**
- **However, concerns are emerging regarding impacts to the coast**



Ongoing Water Quality Modeling by SFEI

District Efforts
Pilot-tested Sidestream Treatment

- **Conducted a two year pilot testing on new sidestream treatment technology (Anammox)**
- **Demonstrated the technology viability and identified challenges**

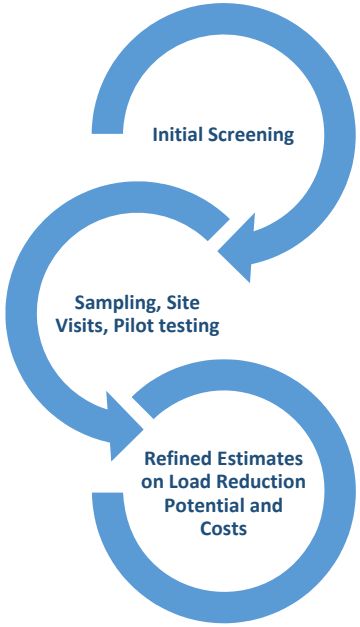


Anammox Pilot System at EBMUD

District Efforts
Led a Regional Sidestream Study

- **Evaluated sidestream treatment potential for Bay Area WWTPs**

Step 1: Identified sidestream treatment candidates



32 out of 37 plants eligible for sidestream treatment

Three sampling events for 32 plants

Site visits to each plant

Pilot testing coordination

Over 20 WWTPs are potential sidestream treatment candidates

Step 2: Simulated potential nutrient concentration reduction in the Bay*

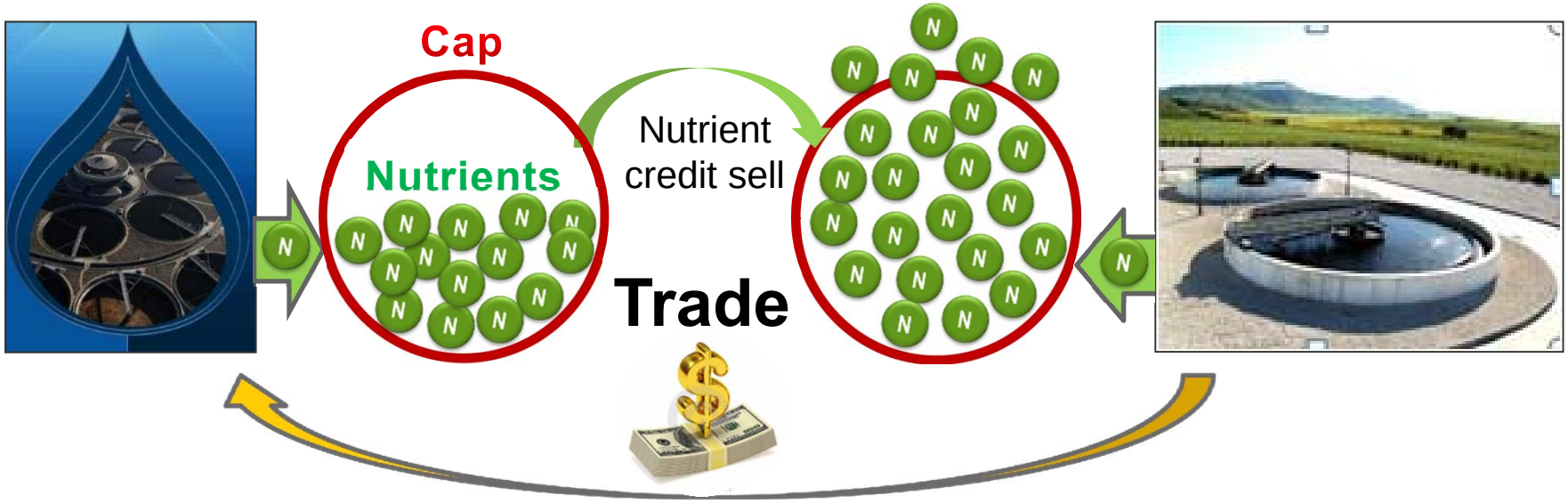
* Simulation was conducted by SFEI using a simplified water quality model available, while more complete model will be developed over the next few years.

District Efforts
Explored Nutrient Trading

- **Developed a common understanding regarding the potential for trading in San Francisco Bay**

WWTP A: Nutrients discharge below the cap

WWTP B: Nutrients discharge exceeding the cap



Summary and Next Steps

- **Nutrient discharge to the Bay continues to be a significant regulatory focus**
- **Cost for nutrient upgrades at WWTPs will be substantial**
  - ~$5–10 billion for Bay Area WWTPs
- **Science is critical to inform future nutrient management decisions**
  - Recognizing that science is complex and may not provide complete answers
- **Continue technical planning and regulatory strategy development**
- **Provide ongoing Board updates**

EAST BAY MUNICIPAL UTILITY DISTRICT

Lead Sampling at K-12 Schools Update

Planning Committee

November 14, 2017

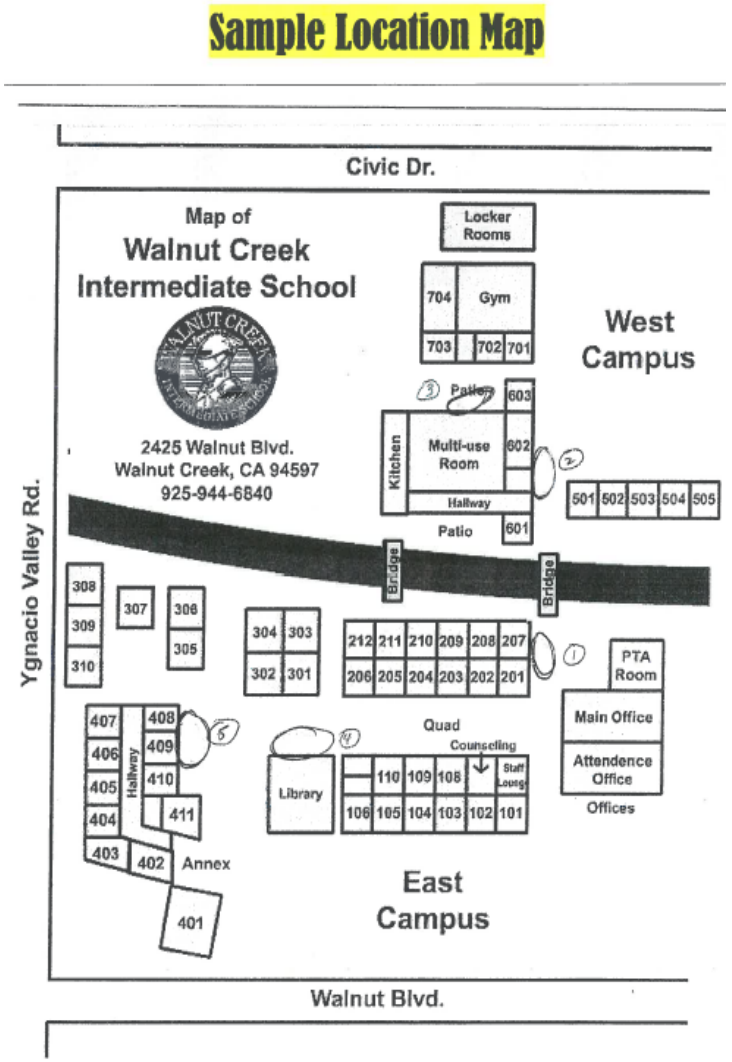
Other Lead Sampling Indicates District's water is safe

District conducts two other lead testing programs at the consumer tap:

- Federal/State requirements (Lead and Copper Rule, LCR) last sampled during summer of 2017
  - o 90% < 5 ppb, 98% < 15 ppb (published in *Consumer Confidence Report)*
- Voucher program: 79 completed, none above 5.5 ppb

Lead Sampling of Schools mandated by District's Water Supply Permit

- Voluntary (until January 1, 2018)
- 5 samples per school, busiest locations identified by school
- District has 90 days to sample after request.



Lead Sampling of Schools mandated by District's Water Supply Permit

State has adopted 15 ppb as an action level, derived from federal/state LCR for distribution systems.

When sample exceeds15 ppb:

- School responsible for replacing fixture, isolating fixture, or can request verification sample.
- District obligated to re-sample

District Support for School Staff

- Meet one-on-one or at school district level
- Proactive outreach to initiate sampling
- Technical, ‘how to’ support
- Public information support to explain program to schools, media and students/parents

Status

Lead Sampling in K-12 Schools Status *as of 11/7/17*						
	# K-12 Schools	% (District Total)	Sampling Completed* # Schools	Sampling Active # Schools	Sampling Being Scheduled # Schools	Awaiting Response # Schools
Totals	549	100%	57	55	252	185
Public Schools			57	54	245	26
Private Schools				1	7	159

*School buildings which have otherwise met state requirements,either through upgraded plumbing or through separate sampling efforts, are considered complete.

November/December 2017

- Active sampling this fall:
  - West Contra Costa Unified (53)
  - Oakland Unified Elementary (56)
  - Albany Unified SD (6)
  - San Ramon Valley Unified (30)
  - Alameda (21)
  - Moraga (4)
- Actively working to improve response rate from private schools and charter schools.

Questions?

????

Lead Drinking Water Regulations

- No Maximum Contaminant Level (MCL)
- EPA working on health-based standard
- Calif. Public Health Goal (PHG): 0.2 ppb
- Lead Action Level (AL): 15 ppb

EPA Purpose: Corrosion Control

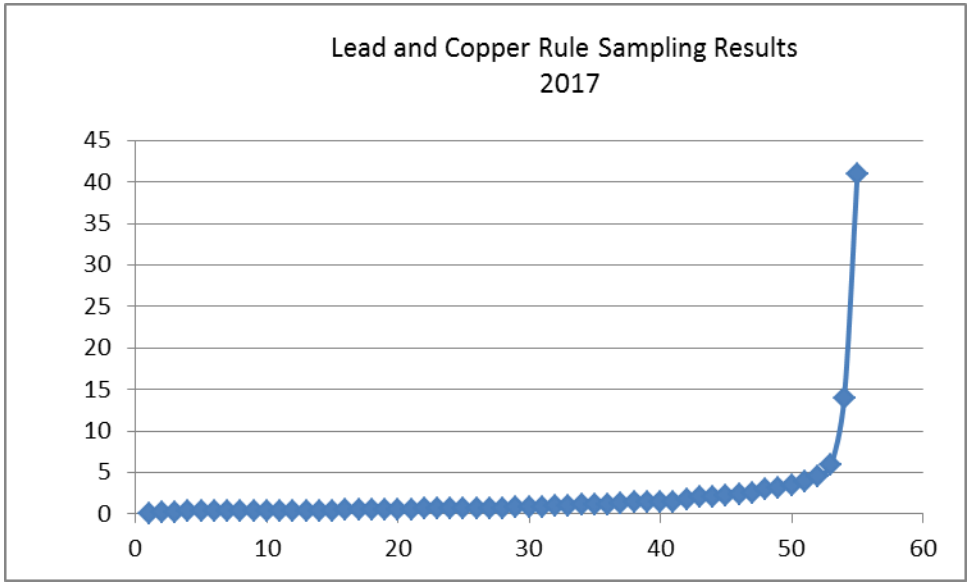
LCR Evaluated at 90th percentile

Image 100 students lined up by height, short to tall

Background: Other Lead Sampling

Lead and Copper Rule (LCR) Sampling:

- Last sampled summer 2017



Lead Sampling Chronology

- Permit Amendment: December 2016
- First Request Letter: February 2017
- Pilot Sampling: March – May 2017
- Sampling Resumed: September 2017
- Outreach Letters: September 2017
- Terraphase sampling: October 2017 +