Executive Board Meeting
AGENDA
Friday, January 20, 2023 9:00 AM - 12:30 PM (PDT)

To attend the meeting via Zoom or submit a comment please request access.

Agenda Item		Time	Pages
ROLL CALL, INTRODUCTIONS, AND TELECONFERENCE ETIQUETTE		**9:00 AM**	
PUBLIC COMMENT	Guidelines	**9:05 AM**	
CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER			
CONSENT CALENDAR		**9:15 AM**	
1 Resolution to continue teleconferencing Executive Board meetings (AB361)			**3-4**
2 December 16, 2022 BACWA Executive Board meeting minutes			**5-10**
3 January 6, 2023 NST Special Executive Board meeting minutes			**11-12**
4 November 2022 Treasurer's Report			**13-23**
APPROVALS AND AUTHORIZATIONS		**9:25 AM**	
5 Approval: NMS Steering Committee Designates			**24**
6 Approval: Installment 2 of FY23 NMS Payment, $800,000			**25-27**
POLICY/STRATEGIC		**9:30 AM**	
7 Discussion: Winter storm impacts roundtable	Chronicle article with map of spills		**28-34**
8 Discussion: Nutrients			
a. Technical Work			
i. Science plan direction post HAB - discussion with science manager			
ii. Review of recent NMS deliverables - Mike Connor presentation			**35-53**
b. Regulatory			
i. 2022 GAR Update	Link to draft GAR		
ii. Nutrient reduction POTW meeting schedule update			**54**
iii. Legal opinion on use of antidegradation			**55-88**
iv. Engagement on solid waste contribution to nutrients			
BREAK		**10:45 AM**	
c. Governance			
i. January 4 Planning Subcommittee minutes			**89-90**
ii. December 9 Steering Committee meeting minutes			**90-96**
d. Communications and lobbying			
i. Communications RFP			
ii. Nutrient FAQ - final			**97-98**
9 Discussion: Debrief from January 17 Joint meeting with R2			**99**
10 Discussion: SSS WDR next steps			
11 Discussion: SFEP/TRUW Equity Workshop for Wastewater - March 7			**100-106**
12 Informational: NPDES Compliance Letter			**107-116**
13 Informational: Air toxics testing update			
OPERATIONAL		**11:45 AM**	
14 Discussion: Annual Meeting Planning			**117**
15 Informational: BACWA Executive Board designates			**118**
16 Informational: BACC Update			
REPORTS		**12:20 PM**	
17 Committee Reports			**119-121**
18 Member highlights			
19 Executive Director Report			**122-123**
20 Board Calendar and Action Items			**124-125**
21 Regulatory Program Manager Report			**126**
22 Other BACWA Representative Reports			
a. RMP Technical Review Committee	Mary Lou Esparza, Yuyun Shang, Samantha Engelage		
b. RMP Steering Committee	Karin North; Amanda Roa; Eric Dunlavey		

c. Summit Partners	Lorien Fono; Amit Mutsuddy		
d. ASC/SFEI	Lorien Fono; Amit Mutsuddy; Lori Schectel		
e. Nutrient Governance Steering Committee	Eric Dunlavey; alternates: Lori Schectel		
e.i Nutrient Planning Subgroup	Eric Dunlavey		
f. SWRCB Nutrient SAG	Lorien Fono		
h. BAIRWMP	Cheryl Munoz; Florence Wedington; Lorien Fono		
i. NACWA Emerging Contaminants	Karin North; Melody LaBella		
j. CASA State Legislative Committee	Lori Schectel		
k. CASA Regulatory Workgroup	Lorien Fono; Mary Cousins		
l. RMP Microplastics Liaison	Artem Dyachenko		
m. Bay Area Regional Reliability Project	Jackie Zipkin		
n. WateReuse Working Group	Cheryl Munoz		
o. San Francisco Estuary Partnership	Lorien Fono; Jackie Zipkin		
p. CPSC Policy Education Advisory Committee	Colleen Henry		
q. California Ocean Protection Council	Lorien Fono		
r. Countywide Water Reuse Master Plan	Karin North, Pedro Hernandez		
s. CHARG - Coastal Hazards Adaptation Resiliency Group	Jackie Zipkin		
t. California Water Quality Monitoring Council	Lorien Fono		
23 **SUGGESTIONS FOR FUTURE AGENDA ITEMS**		**12:29 PM**	
NEXT MEETING			
The next meeting of the Board is scheduled for February 17, 2023			
ADJOURNMENT		**12:30 PM**	

BAY AREA CLEAN WATER AGENCIES
RESOLUTION NO. R-23-07

RESOLUTION AUTHORIZING REMOTE TELECONFERENCE MEETINGS PURSUANT TO AB 361

WHEREAS, all Bay Area Clean Water Agencies (BACWA) meetings are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code 54950 – 54963), so that any member of the public may attend, participate, and watch BACWA's legislative bodies conduct their business; and

WHEREAS, on March 4, 2020, Governor Newsom declared a State of Emergency to make additional resources available, formalize emergency actions already underway across multiple state agencies and departments, and help the State prepare for an anticipated broader spread of the novel coronavirus disease 2019 ("COVID-19"); and

WHEREAS, On March 17, 2020, in response to the COVID-19 pandemic, Governor Newsom issued Executive Order N-29-20 suspending certain provisions of the Ralph M. Brown Act in order to allow local legislative bodies to conduct meetings telephonically or by other means; and

WHEREAS, as a result of Executive Order N-29-20, staff set up virtual meetings for all BACWA Executive Board meetings; and

WHEREAS, on June 11, 2021, Governor Newsom issued Executive Order N-08-21, which, effective September 30, 2021, repealed the provisions of Executive Order N29-20 that allowed local legislative bodies to conduct meetings telephonically or by other means; and

WHEREAS, on September 16, 2021, Governor Newsom signed AB 361 (2021), which allows for local legislative bodies and advisory bodies to continue to conduct meetings via teleconferencing under specified conditions and includes a requirement that the BACWA Executive Board make specified findings. AB 361 (2021) took effect immediately; and

WHEREAS, in order for legislative bodies to continue to conduct meetings via teleconferencing pursuant to AB 361 (2021), a proclaimed State of Emergency must exist; and

WHEREAS, AB 361 (2021) further requires that State or local officials have imposed or recommended measures to promote social distancing, or, requires that the legislative body determines that meeting in person would present imminent risks to the health and safety of attendees; and

WHEREAS, such conditions now exist in BACWA's jurisdiction, specifically, Governor Newsom has declared a State of Emergency due to COVID-19; and

WHEREAS, the Centers for Disease Control and Prevention ("CDC") continues to recommend physical distancing of at least 6 feet from others outside the household; and

WHEREAS, local county health jurisdictions continue to recommend physical and social distancing as a COVID-19 mitigation strategy and

WHEREAS, because of the prevalence of highly contagious variants of COVID-19, the BACWA Executive Board is concerned about the health and safety of all individuals who intend to attend BACWA Executive Board and Committee meetings; and

WHEREAS, the BACWA Executive Board desires to provide a way for Executive Boarders, staff, and members of the public to participate in meetings remotely, without having to attend meetings in person; and

WHEREAS, the BACWA Executive Board hereby finds that the presence of COVID-19 and the prevalence of cases due to the Omicron variant would present imminent risks to the health or safety of attendees, including the legislative bodies and staff, should BACWA's legislative bodies hold in person meetings; and

WHEREAS, BACWA shall ensure that its meetings comply with the provisions required by AB 361 (2021) for holding teleconferenced meetings.

BAY AREA CLEAN WATER AGENCIES
RESOLUTION NO. R-23-07

NOW, THEREFORE, BE IT RESOLVED that the Executive Board of the Bay Area Clean Water Agencies hereby declares as follows:

1. The above recitals are true and correct, and incorporated into this Resolution.
2. In compliance with AB 361 (2021), and in order to continue to conduct teleconference meetings without complying with the usual teleconference meeting requirements of the Brown Act, the BACWA Executive Board makes the following findings:
    a. The BACWA Executive Board has considered the circumstances of the State of Emergency; and
    b. The State of Emergency, as declared by the Governor, continues to directly impact the ability of the BACWA Executive Board and BACWA's legislative bodies, as well as staff and members of the public, from meeting safely in person; and
    c. The CDC continues to recommend physical distancing of at least six feet due to COVID-19 and as a result of the presence of highly contagious variants of COVID-19, meeting in person would present imminent risks to the health or safety of attendees, the legislative bodies and staff.
3. The BACWA Executive Board may continue to meet remotely in compliance with AB 361, in order to better ensure the health and safety of the public.
4. The BACWA Executive Board will revisit the need to conduct meetings remotely within thirty (30) days of the adoption of this resolution.

PASSED AND ADOPTED THIS 20th DAY OF JANUARY, 2023.

Amit Mutsuddy
Chair of the Bay Area Clean Water Agencies Executive Board

ATTEST:

Lorien J. Fono
Executive Director, Bay Area Clean Water Agencies

BACWA Executive Board Meeting Minutes

December 16, 2022

ROLL CALL AND INTRODUCTIONS

Executive Board Representatives: Amy Chastain (San Francisco Public Utilities Commission); Eric Dunlavey (City of San Jose); Jackie Zipkin (East Bay Dischargers Authority); Lori Schectel (Central Contra Costa Sanitary District); Amit Mutsuddy (East Bay Municipal Utility District).

Other Attendees and Guests:

Name	Agency/Company
Amanda Roa	Delta Diablo
Azalea Mitch	City of San Mateo
Blake Brown	CCCSD
Dave Richardson	Woodard & Curran
Don Gray	EBMUD
Irene Chu	Hazen and Sawyer
Jennifer Dyment	BACWA
Jennie Pang	SFPUC
Jordan Wells	National Stewardship Action Council
Lorien Fono	BACWA
Mary Cousins	BACWA
Mary Lou Esparza	CCCSD
Meg Herston	FSSD
Melody Tovar	City of Sunnyvale
Michael Connor	Consultant
Mike Falk	HDR
Talyon Sortor	FSSD
Teresa Herrera	Silicon Valley Clean Water
Tom Hall	EOA
Syed Murtuza	City of Burlingame

Amit started meeting at 9:02 am

Agenda Item

ROLL CALL, INTRODUCTIONS, AND TELECONFERENCE ETIQUETTE

PUBLIC COMMENT

CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER Item 5 and Item 6bi

CONSENT CALENDAR

1 Resolution to continue teleconferencing Executive Board meetings (AB361)

2 November 18, 2022 BACWA Executive Board meeting minutes

3 October 2022 Treasurer's Report

Consent Calendar Items 1 thru 3: A motion to approve was made by Lori Schectel (Central Contra Costa Sanitary District) and seconded by Amy Chastain (San Francisco Public Utilities Commission). The motion was approved unanimously.

APPROVALS AND AUTHORIZATIONS

4 Authorization: EDAR Chemval contract

BACWA ED explained the Lab Committee training program and ChemVal contract which she had authorized.

POLICY/STRATEGIC

5 Presentation: National Stewardship Action Council update - Jordan Wells shared slides that summarized the structure and purpose of the National Stewardship Action Council , their staff & board, along with their recent successes. There was a discussion about PFAS source control efforts. A general question and answer period followed.

Action item: BACWA staff will connect Jordan Wells with the NGO/POTW group working to propose PFAS source control legislation.

6 Discussion: Nutrients

a. Technical Work

i. Upcoming NMS deliverables - BACWA ED shared a list of upcoming NMS deliverables from SFEI science team. BACWA ED recommended that the NMS Consultant reviews deliverables when they are available.

Action Item: *BACWA ED to share SFEI document that contains deliverables with BACWA group. After the meeting, SFEI posted a folder containing recently completed reports at this path:* https://drive.google.com/drive/folders/1DmZeVd7HBNWXV6uRzV_t-DOnnY3VW-6W

ii. Overview of HAB Event slides 12/9 NMS SC Slides

b. Regulatory

i. 2022 GAR Preview Presentation - Mike Falk provided a summary of the draft 2022 Group Annual Report which is due February 1, 2023. His slides compared rainfall amounts, as well as ammonia, total inorganic nitrogen, and total phosphorus loads. TIN loads are slightly higher than loads the previous reporting year, but still lower than peak loads. Additional slides on recycled water followed.

Group discussed timeframe of compliance data. Mike asked that BACWA community provide feedback on the draft report and individual plant appendices around mid-January, as the reporting deadline is Feb 1.

ii. Nutrient reduction POTW meeting schedule - BACWA staff will be meeting individually with agencies to understand their nutrient reduction plans and capabilities. BACWA ED shared slide that summarized meeting schedule .

iii. January 6, 2023, NST meeting - BACWA ED shared slide that summarized the topics that will be discussed at the January NST meeting: how to calculate load caps and compliance, early actors, multi benefit projects and funding. BACWA ED asked meeting attendees 3 questions: What are our needs for the science program to justify actions post-HAB event? How best can we use the NMS reviewer Contractor to interpret those needs? What do we want to ask of SFEI in January meeting? A lengthy discussion followed.

Action items: *BACWA ED and NMS Consultant to meet with SFEI to identify opportunities to assist synthesis work.*

iv. Engagement on solid waste contribution to nutrients - Eric Dunlavey shared that City of San Jose staff works with a solid waste management commission that is made up of 15 cities in Santa Clara County. They are discussing and aware of the algae bloom & nutrients, and how food waste being disposed of via garbage disposal (vs. composted) might have contributed to algae bloom.

Action item: *BACWA ED to get report from Eric Dunlavey after commission meeting and share with BACWA group.*

c. Governance - BACWA ED shared that this item was mostly about the NMS priorities and steering committee debrief. The meeting minutes are in the packet.

i. November 18 Planning Subcommittee minutes

ii. December 7 Planning Subcommittee minutes

i. December 9 Steering Committee meeting – debrief

d. Communications and lobbying

i. Communications steering committee - BACWA ED shared a slide summarized Communication Steering Committee message, goals, and tools for outreach. The group discussed updating the BACWA website and social media presence. BACWA ED is planning for a small communication contract in FY24 which will be brought to the Executive Board for review..

ii. Nutrient FAQs - A draft nutrient FAQ was included in the packet, with some final formatting changes needed. BACWA ED thanked the Fairfield Suisun Sewer District for the use of their intern to help format the document.

BREAK 10:40-10:55 AM

7 Discussion: Engagement with BAAQMD on permit backlog and air toxics monitoring - BACWA ED shared summary of meeting with BAAQMD leadership where solutions to permit backlog and air toxics monitoring at BAAQMD were discussed. BACWA will follow up with the new BAAQMD

Executive Officer once they have begun in their new role. BACWA ED also shared slides in packet from a meeting to engage BAAQMD in the proposed CASA two-step process, as well as that agencies will need to budget for participation in that process. A general group discussion followed.

8 Discussion: SSS WDR adoption debrief and next steps - BACWA RPM shared slides that summarized on SSS-WDR Adoption. The final order will be released by the end of December. The order effective date is in June 2023. The order will increase capital and administrative costs for enrollees. However, there are a few areas where costs will decrease. BACWA RPM asked for guidance on how BACWA should focus assistance to members. BACWA group thanked BACWA RPM for successfully organizing and producing this report.

Action item: *BACWA RPM to propose work on statewide SSMP template or guidance materials to assist with SSS-WDR implementation.*

9 Informational: Solano County Biosolids report - BACWA RPM shared that report is in the packet. RPM briefly summarized report for the group, including trends in biosolids reuse. In November there was a BACWA Biosolids Committee roundtable with BABC where agencies shared the latest news from their biosolids management programs.

10 Discussion: Draft agenda for R2/BACWA joint meeting Jan 10 - BACWA ED shared the draft agenda for next joint meeting. The agenda will be refined at NMS Meeting on January 6, 2023.

11 Discussion: Hg/PCB Watershed Permit Adoption - BACWA RPM shared that the permit was adopted on December 14, 2022, and that BACWA plans to support risk reduction activities on behalf of its members during the coming 5-year permit term. A contract for risk reduction activities will be scoped later in 2023. BACWA ED recommended that a petition that had originally been filed against the 2012 issuance of the permit be dismissed.

OPERATIONAL

12 Discussion: Meeting schedule for calendar year 2023 - With the expiration of the Governor's emergency order at the end of February 2023, BACWA will no longer rely on AB361 to allow meetings to be held via teleconference. BACWA ED shared that locations are needed for hybrid BACWA meetings in March, April & June 2023. SFPUC and Central San offered their facilities. EBMUD offered Oakland and Orinda meeting locations. BACWA ED suggested that March be held at EBMUD, and April be held at SFPUC.

13 Discussion: Annual Meeting Speakers - BACWA ED and group discussed potential speakers for the annual meeting in May 2023.

Action item: *BACWA ED to reach out to a few potential speakers and bring list of potential Annual Meeting speakers to January BACWA Board Meeting.*

14 Discussion: FY24 Budget planning schedule - BACWA ED shared that the schedule is in packet.

15 Informational: BACWA Executive Board designates - BACWA ED slide that summarized BACWA Executive Board designates.

Action item: *BACWA ED and AED to confirm CCCSD designates and committee representatives by next meeting.*

16 Informational: BACC Update - BACWA AED shared new informational BACC webpage and that the first draft of FY23-24 bid documents are available on the working BACC webpage.

Action Item: *BACWA AED to post BACC price history on webpage.*

REPORTS

17 Committee Reports - In the packet.

18 Member highlights - No member highlights this year.

19 Executive Director Report - In the packet.

20 Board Calendar and Action Items - In the packet.

21 Regulatory Program Manager Report -In the packet.

22 Other BACWA Representative Reports

a. RMP Technical Review Committee Mary Lou Esparza, Yuyun Shang, Samantha Engelage

b. RMP Steering Committee Karin North; Amanda Roa; Eric Dunlavey

c. Summit Partners Lorien Fono; Amit Mutsuddy

d. ASC/SFEI Lorien Fono; Amit Mutsuddy; Lori Schectel

e. Nutrient Governance Steering Committee Eric Dunlavey; alternates: Lori Schectel

e.i Nutrient Planning Subgroup Eric Dunlavey

f. SWRCB Nutrient SAG Lorien Fono

h. BAIRWMP Cheryl Munoz; Florence Wedington; Lorien Fono

i. NACWA Emerging Contaminants Karin North; Melody LaBella

j. CASA State Legislative Committee Lori Schectel

k. CASA Regulatory Workgroup Lorien Fono; Mary Cousins

l. RMP Microplastics Liaison Artem Dyachenko

m. Bay Area Regional Reliability Project Jackie Zipkin

n. WateReuse Working Group Cheryl Munoz

o. San Francisco Estuary Partnership Lorien Fono; Jackie Zipkin

p. CPSC Policy Education Advisory Committee Colleen Henry

q. California Ocean Protection Council Lorien Fono

r. Countywide Water Reuse Master Plan Karin North, Pedro Hernandez

s. CHARG - Coastal Hazards Adaptation Resiliency Group Jackie Zipkin

t. California Water Quality Monitoring Council Lorien Fono

23 **SUGGESTIONS FOR FUTURE AGENDA ITEMS**

NEXT MEETING

The next meeting of the Board is scheduled for January 20, 2023

ADJOURNMENT **12:50 PM**

Nutrient Strategy Team
January 6, 2023 Meeting Summary

ATTENDEES:

Executive Board Representatives: Lori Schectel (Central Contra Costa Sanitary District); Amit Mutsuddy (EBMUD), Eric Dunlavey (San José); Jacqueline Zipkin (East Bay Dischargers Authority); Amy Chastain (San Francisco Public Utilities Commission)

Other Attendees:

Name	**Agency/Company**
Lorien Fono, Mary Cousins	BACWA
Mary Lou Esparza, Blake Brown	CCCSD
Amanda Roa	Delta Diablo
Alicia Chakrabarti, Don Gray	EBMUD
Tom Hall	EOA
Talyon Sortor, Jordan Damerel	FSSD
David Donovan	Hayward
Jennie Pang, Nohemy Revilla	SFPUC
Anir Bhagwat	Silicon Valley Clean Water
Cameron Kostigen Mumper	Sunnyvale
Armando Lopez	Union Sanitary District
Jennifer Harrington	Vallejo Flood & Wastewater District

Amit Mutsuddy called the meeting to order at 10:04 am, and led introductions. There was no public comment.

The primary purpose of the meeting was to discuss BACWA's positions on nutrient caps and reduction actions to be included in the 3rd Nutrient Watershed Permit. Regional Water Board staff have publicly shared their intent to include load reduction requirements in the 3rd Nutrient Watershed Permit (See October 2022 slides from Regional Water Board), but the format, timing, and implementation details are as yet unknown. Attendees discussed and agreed upon a proposed agenda for the January 17th meeting between Regional Water Board staff and the BACWA Executive Board.

For discussion purposes, the term "load caps" describes effluent limitations that apply upon the effective date of the permit. These caps are expected to be based on baseline loading conditions. The term "load reductions" describes additional requirements to lower nutrient loads compared to baseline conditions.

CONSIDERATIONS FOR LOAD REDUCTIONS

Some of the views shared at the meeting included:

- If load reductions are required, they should be supported by model runs that indicate

there will likely be a concomitant water quality benefit. Even if the model runs are not exhaustive, they are essential to provide confidence to agencies that money spent will not be wasted.

- To facilitate these model runs being done in time for the 3rd Watershed Permit, it would be helpful if the science team began completing sensitivity analysis runs in the near future. Some agencies would support a delay in the issuance of the 3rd Watershed Permit to allow these model runs to be completed and reviewed.
- We do not expect NMS science work to have progressed to the point of being able to provide scientifically-derived load limits by 2024. In addition, it will not be feasible for most agencies to complete large capital projects by 2029 (end of the 3rd Watershed Permit) if they are not already in the planning stages. Therefore, proposed load reductions will have to be based primarily on what is feasible.
- Some members supported re-examining the legal basis of load reductions if they are based on antidegradation policy.
- There was strong support for continuing discussions with Regional Water Board staff as long as required to reach agreement on terms before the permit is reissued.

FORMAT OF LOAD REDUCTION REQUIREMENTS

Attendees discussed several ways that load reductions requirements could be formatted in the 3rd Watershed Permit. Attendees noted that long construction timelines have become the norm due to supply chain disruptions. In addition, it may not make sense to tie project requirements to a specific year (e.g., 2029) because each load reduction project will have its own implementation timeline. Annual reporting through the Group Annual Report may be a helpful way to track load reduction projects that are implemented during the term of the 3rd Watershed Permit.

CONSIDERATIONS FOR LOAD CAPS

Attendees revisited the discussion about the preferred statistical method to establish load caps based on past loading data. It may be possible to use a simplified approach to setting load caps now that load reductions may be required in the permit, rather than being triggered by a load cap exceedance as previously envisioned.

NEXT STEPS

- The BACWA Executive Board will continue the discussion with Regional Water Board staff at a meeting currently scheduled for the January 17th.
- Internal discussions will also continue at the January 20th Executive Board meeting and the next NST meeting on February 3rd.

Bay Area Clean Water Agencies
A Joint Powers Public Agency
Leading the Way to Protect our Bay

December 20, 2022

MEMO TO: Bay Area Clean Water Agencies Executive Board

MEMO FROM: Samuel Feldman-Crough, Treasurer, East Bay Municipal Utility District

SUBJECT: Fifth Month FY 2023 Treasurer's Report

As required by section eight of the Joint Powers Agreement establishing the Bay Area Clean Water Agencies (BACWA) and California Government Code Sections 6500 et seq., attached is the BACWA Treasurer's Report for the period covering **July 1, 2022 through November 30, 2022** (Five months of Fiscal Year 2023). This report covers expenditures, cash receipts, and cash transfers for the following BACWA funds:

- Bay Area Clean Water Agencies (BACWA),
- BACWA Legal Reserve Fund (Legal Rsrv),
- Water Quality Attainment Strategy (WQA CBC),
- Bay Area Biosolids Coalition (BABC),
- Bay Area Chemical Consortium (BACC),
- Water/Wastewater Operator Training (WOT),

Houck, Matt

From: Feldman, Samuel
Sent: Wednesday, December 21, 2022 8:25 AM
To: Houck, Matt
Subject: RE: November 2022 Treasurer's Report

Approved. Thank you and happy holidays to you as well!

Sam Feldman (he/him/his)
Manager of Budget
office: (510) 287-0441
mobile: (510) 882-6860

From: Houck, Matt <matt.houck@ebmud.com>
Sent: Tuesday, December 20, 2022 10:00 AM
To: Feldman, Samuel <samuel.feldman@ebmud.com>
Subject: November 2022 Treasurer's Report

Hi Samuel,

Please approve BACWA – November 2022 Treasurer's Report for distribution.

Happy Holidays!!

Thanks,

Matt Houck
Accountant II
East Bay Municipal Utility District
375 11TH St, MS 402, Oakland, CA 94607
P 510-287-0238

Fund Balances

In FY23 BACWA has three operating funds (BACWA, Legal, and CBC) and three pass-through funds for which BACWA provides only contract administration services (WOT, BABC & BACC). As of October 31st, 2021, revenues are recognized when billed, not when payments are received.

BACWA Fund: This fund provides resources for BACWA staff, its committees, and other administrative needs. The ending fund balance on November 30, 2022, was $859,747 which is significantly higher than the target reserve of $229,098 which is intended to cover 3 months of normal operating expenses based on the BACWA FY22 budget. $465,432 of the ending fund balance is shown on the BACWA Fund & Investments Balance Report November 30, 2022, as encumbered to meet ongoing operating line-item expenses for BAPPG Committee Support, Legal services, IT services, Board meeting expenses, accounting services and BACWA staff support. This leaves an actual unencumbered reserve of $165,217 (i.e., actual fund balance of $394,315 less target reserves) as of November 30, 2022.

CBC Fund: This fund provides the resources for completing special investigations as well as meeting regulatory requirements. The ending fund balance on November 30, 2022, was $3,125,329 which is higher than the target reserve of $1,000,000. $609,976 of the ending fund balance is encumbered to meet line-item expenses for completion of the Group Annual Report contract, completion of the NBS Study, Recycled Water Evaluation, and the PFAS Regional Study. This leaves an actual unencumbered reserve balance of $1,515,353 (i.e., actual fund balance of $2,515,353 less target reserves) as of November 30, 2022. As directed by the BACWA Executive Board, the CBC fund has diminished over time due to BACWA's ongoing funding of the NMS program to comply with the Nutrient Watershed Permit.

Legal Fund: This fund provides for needed legal services. The ending balance was $300,000 which is at the target reserve of $300,000.

Budget to Actual

The BACWA Annual Budget includes all expected revenues as well as budgeted expenses. Transfers are made from the BACWA Fund and/or the CBC Fund to balance the Annual Budget if expenses exceed revenues and vice versa. It is therefore important to achieve the anticipated revenues and not exceed the budgeted expenses on an annual basis to maintain the BACWA and CBC Fund balances at the levels projected in the 5 Year Plan.

Revenues as of November 30, 2022 (42% of the FY) are at 99%

Expenses as of November 30, 2022 (42% of the FY) are at 39%

FY 2023
BACWA BUDGET to ACTUAL

BACWA BAY AREA CLEAN WATER AGENCIES

BACWA FY23 BUDGET	*Line Item Description*	FY 2023 Budget	Projected Revenue as of Nov 2022 Changes from budget in blue	Actual Nov 2022	Actual % of Budget Nov 2022	Variance	NOTES
REVENUES & FUNDING							
Dues	Principals' Contributions	$527,250	$527,250	$527,250	100%	$0	FY23: 2% increase 5 @ $105,450
	Associate & Affiliate Contributions	$187,793	$187,793	$186,845	99%	-$948	FY23: 2% increase. 12 Assoc: $8702; 47 Affiliate: $1743
Fees	Clean Bay Collaborative	$675,000	$675,000	$674,250	100%	-$750	Prin: $450,000; Assoc/Affil: $225,000
	Nutrient Surcharge	$1,400,000	$1,400,000	$1,399,980	100%	-$20	See Nutrient Surcharge Spreadsheet
	Voluntary Nutrient Contributions			$0	0%	$0	
Other Receipts	AIR Non-Member	$7,217	$7,217	$7,217	100%	$0	2% increase (Santa Rosa)
	BAPPG Non-Members	$4,033	$4,033	$4,033	100%	$0	2% increase (Sta Rosa, Sac Reg'l, Vacaville) $1,344/each
	Other			$2,653		$2,653	
Fund Transfer	Special Program Admin Fees (WOT)	$5,202	$5,202	$0	0%	-$5,202	
	Special Program Admin Fees (BACC)	$36,000	$36,000	$0	0%	-$36,000	400 hours of AED support $90/hr
	Special Program Admin Fees (BABC)	$6,000	$6,000	$0	0%	-$6,000	ED, AED and RPM support
Interest Income	LAIF	$4,000	$4,000	$12,151	304%	$8,151	BACWA, Legal, & CBC Funds invested in LAIF
	Higher Yield Investments						
	Total Revenue	**$2,852,495**	**$2,852,495**	**$2,814,379**	**98.66%**	**-$38,116**	

BACWA FY23 BUDGET	*Line Item Description*	FY 2023 Budget	Projected Expense as of Nov 2022 Changes from budget in blue	Actual Nov 2022	Actual % of Budget Nov 2022	Variance	NOTES
EXPENSES							
Labor							
	Executive Director	$204,250	$204,250	$68,083	33%	-$136,167	7.5% increase (flat in FY22)
	Assistant Executive Director	$86,004	$86,004	$30,757	36%	-$55,247	7.5% over FY21; $71.67/hour; Reflects 1200 hours
	BACC Administrator	$36,000	$36,000	$9,900	28%	-$26,100	400 hrs AED support at $90 per hr
	Regulatory Program Manager	$142,223	$142,223	$47,153	33%	-$95,070	7.5% increase (flat in FY22); $103.35/hour, Reflects 1350 hours
	Total	**$468,477**	**$468,477**	**$155,894**	**33%**	**-$312,583**	
Administration							
	EBMUD Financial Services	$43,297	$43,297	$13,339	31%	-$29,958	2% increase
	Auditing Services	$5,452	$5,452	$0	0%	-$5,452	Finanical Auditors through EBMUD; per auditor rate schedule
	Administrative Expenses	$8,118	$8,118	$0	0%	-$8,118	2% increase over FY22
	Insurance	$8,132	$8,132	$7,571	93%	-$561	15% increase over FY22 actual
	Total	**$64,999**	**$64,999**	**$20,910**	**32%**	**-$44,089**	
Meetings							
	EB Meetings	$2,706	$2,706	$15	1%	-$2,692	2% increase from FY22
	Annual Meeting	$14,369	$14,369	$0	0%	-$14,369	2% increase from FY22
	Pardee	$6,668	$6,668	$3,432	51%	-$3,236	2% increase from FY22
	Misc. Meetings	$5,412	$5,412	$2,639	49%	-$2,773	2% increase from FY22
	Total	**$29,155**	**$29,155**	**$6,086**	**21%**	**-$23,069**	
Communication							
	Website Hosting	$714	$714	$61	9%	-$653	2% increase from FY22, Go Daddy website hosting and domain registration
	File Storage	$780	$780	$0	0%	-$780	2% increase from FY22, box.net
	Website Development/Maintenance	$1,561	$1,561	$0	0%	-$1,561	2% increase from FY22
	IT Support	$2,705	$2,705	$0	0%	-$2,705	2% increase from FY22
	Other Commun	$1,821	$1,821	$404	22%	-$1,417	2% increase from FY22; MS Exchange, Survey Monkey, PollEv, Zoom, Netfile
	Total	**$7,581**	**$7,581**	**$464**	**6%**	**-$7,116**	

FY 2023
BACWA BUDGET to ACTUAL

EXPENSES							
Legal							
	Regulatory Support	$2,871	$2,871	$0	0%	-$2,871	2% increase from FY22, Downey Brand LLP
	Executive Board Support	$2,309	$2,309	$0	0%	-$2,309	2% increase from FY22, Day Carter & Murphy LLP
	Total	**$5,181**	**$5,181**	**$0**	**0%**	**-$5,181**	
Committees							
	AIR	$96,000	$96,000	$29,951		-$66,049	$75k consulting support, $20k support for ACE, $1k misc expenses. Carollo Engineers
	BAPPG	$130,600	$130,600	$40,921	31%	-$89,679	Includes CPSC @ $10,000, OWOW @ $10,000, and Pest. Reg Spt. @ $60,000
	Biosolids Committee	$0	$0			$0	
	Collections System	$1,000	$1,000	$0	0%	-$1,000	Same as FY23
	InfoShare Groups	$1,000	$1,000	$492	49%	-$508	
	Laboratory Committee	$6,400	$6,400	$1,511	24%	-$4,889	TNI standard training and meetings
	Permits Committee	$1,000	$1,000	$0	0%	-$1,000	
	Pretreatment	$1,000	$1,000	$0	0%	-$1,000	
	Recycled Water Committee	$20,000	$20,000	$0	0%	-$20,000	
	Misc Committee Support	$45,000	$45,000	$0	0%	-$45,000	
	Manager's Roundtable	$1,000	$1,000	$0	0%	-$1,000	
	Total	**$303,000**	**$303,000**	**$72,875**	**24%**	**-$230,125**	
Collaboratives							
	Collaboratives						
	State of the Estuary (SFEP-biennial)	$20,000	$20,000	$0	0%	-$20,000	Bienniel in Odd Fiscal Years. (Paid bienniely in odd years for even year conference)
	Arleen Navarret Award	$2,500	$2,500	$0	0%	-$2,500	Bienniel in Even Fiscal Years. Increase in FY20. 2022 Award to be paid in FY23
	BayCAN	$5,000	$5,000	$0	0%	-$5,000	
	Bay Area One Water Network	$5,000	$5,000	$0	0%		New for FY23
	Bruce Wolf Scholarship	$4,000	$4,000	$0	0%		FY22, FY23, FY24, FY25 FY26
	Misc	$1,500	$1,500	$0	0%	-$1,500	NBWA
	Total	**$38,000**	**$38,000**	**$0**	**0%**	**-$38,000**	
Other							
	Unbudgeted Items						
	Other	$0	$0	$0	0%	$0	
		$0		**$0**	**0%**	**$0**	
Tech Support							
	Technical Support						
	Nutrients						
	Watershed	$1,800,000	$1,800,000	$1,000,000	56%	-$800,000	Advance funding for 2nd Watershed Permit Sciece Studies; Final $ TBD
	NMS Voluntary Contributions	$0	$0	$0	0%	$0	
	Additional work under permit	$100,000	$100,000	$48,040	48%	-$51,960	Includes HDR PO for $225k spread out over FY20-24.
	Regional Study on Nature based systems	$248,811	$248,811	$16,721	7%	-$232,090	SFEI $500K, expires 06/30/2023
	Regional Recycling Evaluation	$63,525	$63,525	$0	0%	-$63,525	HDR $154K, expires 12/31/2023
	Nutrient Workshop(s)	$0	$0	$0	0%	$0	Pilot Studies/Plant Review/Innovative Technologies
	NMS Reviewer	$50,000	$50,000	$0	0%	-$50,000	M. Connor Contract
	General Tech Support	$100,000	$100,000	$0	0%	-$100,000	AB617 emissions factors, PFAS, other nutrient support
	CEC Investigations	$140,000	$140,000	$9,452	7%	-$130,548	PFAS Study Phase II
	Risk Reduction	$12,500	$12,500	$0	0%	-$12,500	APA FSS completed $12,500 contract in FY20, CIEA will complete $12,500 contract in FY23
	Total	**$2,514,836**	**$2,514,836**	**$1,074,213**	**43%**	**-$1,440,623**	
	TOTAL EXPENSES	**$3,431,228**	**$3,431,228**	**$1,330,443**	**38.77%**	**-$2,100,785**	
	PROJECTED EXPENSE DEVIATION FROM BUDGET		**$0**				
	NET INCOME BEFORE TRANSFERS	**-$578,733**					
	TRANSFERS FROM RESERVES	**$578,733**					aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge
	NET INCOME AFTER TRANSFERS	**$0**					
	TOTAL OPERATING BUDGET	**$916,392**					

FY 2023

BACWA BUDGET to ACTUAL

EXPENSES							
	OPERATING RESERVE	**$229,098**					

BACWA Fund Report as of November 30, 2022

BACWA FUND BALANCES - DATA PROVIDED BY ACCOUNTING DEPT.

DEPTID	DESCRIPTION	FISCAL YEAR BEGINNING FUND BALANCE	TOTAL BILLED REVENUE TO-DATE	TOTAL DISBURSEMENTS TO-DATE	MONTH-ENDING FUND BALANCE	OUTSTANDING ENCUMBRANCES	MONTH-END UNOBLIGATED FUND BALANCE
600	BACWA	376,500	729,577	246,330	859,747	465,432	394,315
604	LEGAL RSRV	300,000	-	-	300,000	-	300,000
605	CBC	2,114,741	2,084,801	1,074,213	3,125,329	609,976	2,515,353
	SUBTOTAL 1	*2,791,241*	*2,814,378*	*1,320,543*	*4,285,076*	*1,075,408*	*3,209,668*
602	BABC	*176,260*	176,600	64,725	288,135	*80,565*	207,570
606	BACC	*29,810*	-	*44,234*	(14,424)	*26,100*	(40,524)
607	BACC LEGAL RSRV	*30,000*	*30,000*	-	60,000	-	60,000
610	WOT	270,974	-	-	270,974	-	270,974
	SUBTOTAL 2	*507,044*	*206,600*	*108,959*	*604,685*	*106,665*	*498,020*
	GRAND TOTAL	**3,298,285**	**3,020,978**	**1,429,502**	**4,889,761**	**1,182,073**	**3,707,688**

Top Chart: Reflects CASH on the Books — Includes Encumbrances
Bottom Chart: Reflects CASH in the Bank — Includes Payables (bills received but not paid)
Allocations: Priority for non-liquid investments

BACWA INVESTMENTS BALANCES - DATA PROVIDED BY TREASURY DEPT.

DEPTID	DESCRIPTION	FISCAL YEAR BEGINNING FUND BALANCE	TOTAL BILLED REVENUE TO-DATE	TOTAL DISBURSEMENTS TO-DATE	MONTH-ENDING FUND BALANCE	RECONCILIATION TO FINANCIAL STATEMENTS A/R	RECONCILIATION TO FINANCIAL STATEMENTS A/P	MONTH-END RECONCILED FUND BALANCE	UNINVESTED CASH BALANCES	LAIF INVESTMENTS AMOUNTS	LAIF INVESTMENTS PERCENTAGE	ALTERNATIVE INVESTMENTS AMOUNTS	ALTERNATIVE INVESTMENTS IDENTIFIERS	ALTERNATIVE INVESTMENT INSTRUCTIONS AND NOTES
800	BACWA	376,500	729,577	246,330	859,747	(421,132)	25,605	464,220	464,220	-	0%	-		priority # 3 for allocation
804	LEGAL RSRV	300,000	-	-	300,000	-	-	300,000	-	300,000	13%	-		priority # 1 for allocation
805	CBC	2,114,741	2,084,801	1,074,213	3,125,329	-	-	3,125,329	1,150,578	1,974,751	87%	-		priority # 2 for allocation
	SUBTOTAL 1	2,791,241	2,814,378	1,320,543	4,285,076	(421,132)	25,605	3,889,549	1,614,798	2,274,751	100%	-		
802	BABC	176,260	176,600	64,725	288,135	-	-	288,135	288,135	-	0%	-		pass-through funds, no allocation
806	BACC	29,810	-	44,234	(14,424)	-	-	(14,424)	(14,424)	-	0%	-		
807	BACC LEGAL RSRV	30,000	30,000	-	60,000	-	-	60,000	60,000	-	0%	-		
810	WOT	270,974	-	-	270,974	-	-	270,974	270,974	-	0%	-		pass-through funds, no allocation
	SUBTOTAL 2	507,044	206,600	108,959	604,685	-	-	604,685	604,685	-	0%	-		
	GRAND TOTAL	**3,298,285**	**3,020,978**	**1,429,502**	**4,889,761**	**(421,132)**	**25,605**	**4,494,234**	**2,219,483**	**2,274,751**	**-**			
							-	-	-	-	-			

To be used to cover Reconciliation to Financial Statements ($0)

Reconciliation to Trial Balance

Per Report above:						
General	2,814,378	STB	14930	2,274,751		
WOT, BABC, & BACC	206,600	STB	15050	2,219,483		
				4,494,234	-	
PROP	-	STB	16300	421,132		
subtotal	**3,020,978**	STB	21350	(25,605)		
				4,889,761	-	

Trial Balance Revenue Accounts

40100	Interest	(12,151)
40101	Mem Contrib	(1,378,100)
40102	Transfer	(30,000)
40103	Assoc Contrib	(186,845)
40104	Other	(1,413,882)
47310	State Grant	-
47320	Grant Retention	-
subtotal		**(3,020,978)**
Difference		**-**

BACWA Revenue Report as of November 30, 2022

Cost Center Code	Cost Center Description	Program Segment Description	Program Segment Value	Amended Budget	Current Period	FY23 - Year to Date	Unobligated
600	Bay Area Clean Water Agencies	BABC - AED and RPM Support	6200	(6,000.00)	-	-	6,000.00
		BACC - AED Support	6199	(36,000.00)	-	-	36,000.00
		BDO Affil/CS/Assoc Dues	6104	-	-	(38,846.00)	(38,846.00)
		BDO Affiliate/Associate Dues	6103	-	-	(43,575.00)	(43,575.00)
		BDO Assoc.&Affiliate Contr	6102	(187,793.00)	-	(104,424.00)	83,369.00
		BDO Fund Transfers	6141	(5,202.00)	-	-	5,202.00
		BDO Member Contributions	6101	(527,250.00)	-	(527,250.00)	-
		BDO Non-Member Contr AIR	6136	(7,217.00)	(5,873.00)	(7,217.00)	-
		BDO Non-Member Contr BAPPG	6135	(4,033.00)	5,873.00	(4,032.00)	1.00
		BDO Other Receipts	6105	-	-	-	-
		BDO Other Receipts (Misc)	6140	-	-	(2,653.00)	(2,653.00)
		BDO- Interest Income from LAIF	6142	(4,000.00)	-	(1,579.60)	2,420.40
		BDO-Alternative Investment Inc	6143	-	-	-	-
600 Total				**(777,495.00)**	**-**	**(729,576.60)**	**47,918.40**
602	Bay Area Biosolids Coalition	BDO Fund Transfers	6141		-	-	-
		BDO Member Contributions	6101		-	(176,600.00)	(176,600.00)
602 Total				**-**	**-**	**(176,600.00)**	**(176,600.00)**
605	Clean Bay Collaborative	BDO Fund Transfers	6141	-	-	-	-
		BDO Member Contributions	6101	(675,000.00)	-	(674,250.00)	750.00
		BDO Other Receipts	6105	(1,400,000.00)	-	(1,399,980.00)	20.00
		BDO- Interest Income from LAIF	6142	-	-	(10,571.17)	(10,571.17)
605 Total				**(2,075,000.00)**	**-**	**(2,084,801.17)**	**(9,801.17)**
606	Bay Area Chemical Consortium	BDO Member Contributions	6101	-	-	-	-
606 Total				**-**	**-**	**-**	**-**
607	BACC Legal RSRV	BDO Fund Transfers	6141	-	-	(30,000.00)	(30,000.00)
607 Total				**-**	**-**	**(30,000.00)**	**(30,000.00)**
Grand Total				**(2,852,495.00)**	**-**	**(3,020,977.77)**	**(168,482.77)**

BACWA Expense Detail Report for November 30, 2022

Cost Center Code	Program Segment Description	Program Segment Value	Balance Type	Current Period Activity	FY23 - Year to Date
600	AIR-Air Issues&Regulation Grp	6153	Actual	3,787.50	29,951.00
			Encumbrance	(3,712.50)	65,124.00
			Obligated	75.00	95,075.00
	AS-Assistant Executive Directo	6175	Actual	6,091.95	30,757.18
			Encumbrance	(6,091.95)	55,246.82
			Obligated	-	86,004.00
	AS-Audit Services	6180	Actual	534.00	-
			Encumbrance	(534.00)	-
			Obligated	-	-
	AS-BACWA Admin Expense	6173	Actual	-	-
			Obligated	-	-
	AS-EBMUD Financial Services	6176	Actual	13,339.03	13,339.03
			Encumbrance	(13,339.03)	29,957.97
			Obligated	-	43,297.00
	AS-Executive Director	6174	Actual	34,041.66	68,083.32
			Encumbrance	(34,041.66)	136,166.68
			Obligated	-	204,250.00
	AS-Insurance	6177	Actual	-	7,571.20
			Obligated	-	7,571.20
	AS-Regulatory Program Manager	6179	Actual	10,541.70	47,153.44
			Encumbrance	(10,541.70)	95,069.56
			Obligated	-	142,223.00
	Administrative Support	6178	Actual	-	-
			Obligated	-	-
	BC-BAPPG	6152	Actual	12,949.96	40,921.67
			Encumbrance	(12,949.96)	65,347.91
			Obligated	-	106,269.58
	BC-InfoShare Groups	6148	Actual	491.73	491.73
			Obligated	491.73	491.73
	BC-Laboratory Committee	6149	Actual	-	1,511.25
			Encumbrance	-	3,688.75
			Obligated	-	5,200.00
	BC-Manager's Roundtable	6154	Actual	-	-
			Obligated	-	-
	BC-Miscellaneous Committee Sup	6150	Actual	-	-
			Encumbrance	-	-
			Obligated	-	-
	BC-Permit Committee	6145	Actual	-	-
			Obligated	-	-
	BC-Pretreatment Committee	6151	Actual	-	-
			Obligated	-	-
	BC-Water Recycling Committee	6146	Actual	-	-
			Encumbrance	-	9,650.00
			Obligated	-	9,650.00
	CAR-BACWA File Storage	6165	Actual	-	-
			Obligated	-	-
	CAR-BACWA IT Software	6167	Actual	-	403.64
			Obligated	-	403.64
	CAR-BACWA IT Support	6166	Actual	-	-
			Encumbrance		
			Obligated	-	-
	CAR-BACWA Website Dev/Maint	6163	Actual	-	-
			Obligated	-	-
	CAR-BACWA Website Hosting	6164	Actual	60.85	60.85
			Obligated	60.85	60.85
	CAS-Arleen Navaret Award	6160	Actual	-	-

Cost Center Code	Program Segment Description	Program Segment Value	Balance Type	Current Period Activity	FY23 - Year to Date
			Obligated	-	-
	CAS-BayCAN	6204	Actual	-	-
			Obligated	-	-
	CAS-Misc Collaborative Sup	6162	Actual	-	-
			Obligated	-	-
	CAS-Stanford ERC	6159	Actual	-	-
			Obligated	-	-
	GBS-Meeting Support-Annual	6170	Actual	-	-
			Obligated	-	-
	GBS-Meeting Support-Exec Bd	6169	Actual	14.50	14.50
			Obligated	14.50	14.50
	GBS-Meeting Support-Misc	6172	Actual	-	2,639.15
			Obligated	-	2,639.15
	GBS-Meeting Support-Pardee	6171	Actual	-	3,432.19
			Obligated	-	3,432.19
	LS-Executive Board Support	6156	Actual	-	-
			Encumbrance	-	2,309.00
			Obligated	-	2,309.00
	LS-Regulatory Support	6155	Actual	-	-
			Encumbrance	-	2,871.00
			Obligated	-	2,871.00
	WQA-CE-Nature Based Solutions	6196	Actual	-	-
			Obligated	-	-
	Write-Off Doubtful Accounts	6208	Actual	-	-
			Obligated	-	-
600 Total			**Actual**	**81,852.88**	**246,330.15**
600 Total			**Encumbrance**	**(81,210.80)**	**465,431.69**
600 Total			**Obligated**	**642.08**	**711,761.84**
602	AS-Assistant Executive Directo	6175	Actual	-	-
			Obligated	-	-
	AS-Regulatory Program Manager	6179	Actual	-	-
			Obligated	-	-
	Academia Research & Development	6203	Actual	25,000.00	25,000.00
			Obligated	25,000.00	25,000.00
	Administrative Support	6178	Actual	-	289.88
			Obligated	-	289.88
	BDO Contract Expenses	6186	Actual	-	-
			Obligated	-	-
	Collateral Development	6197	Actual	-	-
			Obligated	-	-
	Program Manager Expense	6202	Actual	10,945.00	39,435.04
			Encumbrance	(10,945.00)	80,564.96
			Obligated	-	120,000.00
	Technology Research & Development	6206	Actual	-	-
			Obligated	-	-
602 Total			**Actual**	**35,945.00**	**64,724.92**
602 Total			**Encumbrance**	**(10,945.00)**	**80,564.96**
602 Total			**Obligated**	**25,000.00**	**145,289.88**
605	Recycled Water Evaluation	6198	Actual	-	-
			Encumbrance	-	23,992.35
			Obligated	-	23,992.35
	WQA - CEC Investigations	6201	Actual	9,452.30	9,452.30
			Encumbrance	(9,452.30)	251,173.70
			Obligated	-	260,626.00
	WQA-CE Addl Work Under Permit	6191	Actual	-	48,040.00
			Encumbrance	-	43,398.00
			Obligated	-	91,438.00
	WQA-CE Risk Reduction	6190	Actual	-	-
			Encumbrance	-	-

Cost Center Code	Program Segment Description	Program Segment Value	Balance Type	Current Period Activity	FY23 - Year to Date
			Obligated	-	-
	WQA-CE Voluntary Nutr Contrib	6193	Actual	-	-
			Obligated	-	-
	WQA-CE-Nature Based Solutions	6196	Actual	-	16,721.17
			Encumbrance	-	241,412.33
			Obligated	-	258,133.50
	WQA-CE-Nutrient WS Permit Comm	6188	Actual	-	1,000,000.00
			Obligated	-	1,000,000.00
	WQA-CE-Technical Support	6181	Actual	-	-
			Obligated	-	-
	WQA-NMSReviewer	6205	Actual	-	-
			Encumbrance	-	50,000.00
			Obligated	-	50,000.00
605 Total			**Actual**	**9,452.30**	**1,074,213.47**
605 Total			**Encumbrance**	**(9,452.30)**	**609,976.38**
605 Total			**Obligated**	**-**	**1,684,189.85**
606	Administrative Support	6178	Actual	8,456.40	14,196.52
			Encumbrance	(3,870.00)	26,100.00
			Obligated	4,586.40	40,296.52
	BDO Fund Transfers	6141	Actual	-	30,000.00
			Obligated	-	30,000.00
	GBS-Meeting Support-Misc	6172	Actual	37.50	37.50
			Obligated	37.50	37.50
606 Total			**Actual**	**8,456.40**	**44,234.02**
606 Total			**Encumbrance**	**(3,870.00)**	**26,100.00**
606 Total			**Obligated**	**4,623.90**	**70,334.02**
610	Administrative Support	6178	Actual	-	-
			Obligated	-	-
	BDO Contract Expenses	6186	Actual	-	-
			Obligated	-	-
610 Total			**Actual**	**-**	**-**
610 Total			**Encumbrance**	**-**	**-**
610 Total			**Obligated**	**-**	**-**
Grand Total Actual				**135,706.58**	**1,429,502.56**
Grand Total Encumbrance				**(105,478.10)**	**1,182,073.03**
Grand Total Obligated				**30,265.98**	**2,611,575.59**

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 5
MEETING DATE: Jan 20, 2023

TITLE: Request for Board Approval of NMS Steering Committee Representatives from BACWA

☐ **RECEIPT** ☐ **DISCUSSION** ☐ **RESOLUTION** ☒ **APPROVAL**

RECOMMENDED ACTION
Designate BACWA Representatives to the NMS Steering Committee. .

SUMMARY: BACWA has two seats on the Bay Area Nutrient Management Strategy (NMS) Steering Committed (SC), the group that oversees the nutrient science plan and makes recommendations to the San Francisco Bay Water Board on regulatory policy issues regarding nutrients. Given the volume of information to be considered and various demands on SC Members' schedules, per the NMS Charter, Alternates may be used by a participating organization. Alternates must be identified in advance, fully briefed, and able to represent the Member and the Member's constituents during decision-making.

After discussion within the BACWA Executive Board, it was decided that a currently vacant position on the NMS Steering committee will be filled by Amit Mutsuddy (EBMUD). Eric Dunlavey (San Jose) will continue to fill the other BACWA NMS Steering Committee position. The two Alternates positions will continue to be filled by Jackie Zipkin (EBDA) and Lori Schectel (Central San)

Per BACWA's Representative Policy BAP 1.01, these positions will be reviewed every two years.

FISCAL IMPACT
No fiscal impact to BACWA.

ALTERNATIVES
This action does not require consideration of alternatives.

Approved:

Date: January 20, 2023

Amit Mutsuddy, Chair
BACWA Executive Board

BACWA EXECUTIVE BOARD AUTHORIZATION REQUEST

AGENDA NO.: 6

MEETING DATE: January 20, 2023

TITLE: Request for BACWA 2nd Watershed Permit funding commitment - second installment of $800,000

☐ **RECEIPT** ☐ **DISCUSSION** ☐ **RESOLUTION** ☒ **APPROVAL**

RECOMMENDED ACTION

Authorize second installment of payment in the amount of $800,000 to San Francisco Estuary Institute (SFEI) to comply with the provisions of the 2nd Watershed Permit for FY20.

SUMMARY

The Watershed Permit for Nutrients from Municipal Wastewater Dischargers to San Francisco Bay, NPDES Permit No. CA 0038873 adopted May 8, 2019, requires the commitment of $2,200,000 per year from POTW Dischargers as a collective effort to fund needed scientific studies as part of the implementation of the Regional Water Quality Control Board's Nutrient Management Strategy. The commitment is on a fiscal year basis and began July 1, 2019. BACWA's role in meeting this commitment is to collect the needed funds from its membership and provide those funds for the undertaking of the scientific studies. The identification of the studies to be undertaken is through a stakeholder governance Steering Committee on which BACWA holds two seats. Several studies are ongoing as a result of approvals of programs and projects by the Steering Committee.

Due to the importance of accelerating the pace of the scientific studies to obtain results that will inform management actions in the 3rd Watershed Permit, BACWA reallocated how the funds have been delivered to SFEI over the five-year permit term. The $2,200,000 per year over five years totals $11,000,000. The following chart reflects BACWA's planned schedule to deliver the $11,000,000 to make the bulk of the funds available sooner:

FY19 (advance)	FY20	FY21	FY22	FY23	FY24	Total
$200,000	$2,400,000	$2,600,000	$2,200,000	$1,800,000	$1,800,000	**$11,000,000**

At the August 19, 2022, BACWA Executive Board meeting, the Board approved a first payment of $1,000,000 to the NMS. The current requested authorization of payment in the amount of $800,000 to SFEI will meet the obligation for the second year of the Discharger's annual obligation under the five-year Watershed Permit per the above schedule. The purpose of delivering the payment in two installments was to ensure continuity in the Science Program in FY23. The second installment of $800,000 is being brought to the Executive Board for approval now that the bulk of the FY23 nutrient surcharge revenues have been received from member agencies.

FISCAL IMPACT

Annual payments to fund the scientific studies are collected from the BACWA membership through a Nutrient Surcharge that is included on the annual dues invoices to the BACWA members, as well as a drawdown of BACWA reserves, as authorized by BACWA's Executive Board. Funds are currently available in the BACWA CBC Fund to pay the $800,000 invoice.

ALTERNATIVES

1. No alternatives are considered for this item, as the payment is a permit requirement.

Attachments: SFEI Invoice

Approved: Date:

Amit Mutsuddy, Chair
BACWA Executive Board

Invoice

San Francisco Estuary Institute
4911 Central Ave.
Richmond, CA 94804
EIN 94-2951373

January 13, 2023
Project No: 1092.23
Invoice No: 1092232

Bay Area Clean Water Agency
PO Box 24055, MS702
Oakland, CA 94623

Project 1092.23 SF Bay Nutrient Strategy Support FY2023
Attn:Lorien Fono

Professional Services from July 01, 2022 to June 30, 2023

Fee	**$800,000.00**
Total this Invoice	**$800,000.00**

Contact Meredith Lofthouse at 510-746-7357 or contracts@sfei.org for questions.

‘Don’t jump in puddles’: Sewage overflowing

By Tara Duggan and Claire Hao

Gabrielle Lurie/The Chronicle

AT&T workers pump water out of a sewer to keep service running near the Embarcadero on Jan. 4.

Millions of gallons of storm water mixed with raw sewage made its way into creeks, the bay and city streets during recent heavy rainstorms that overwhelmed dozens of Bay Area sewers and some treatment plants.

Some raw sewage seeped out of manholes or backed up sewer drains, calling into question even the idea of kids splashing in their rainboots.

“Don’t jump in puddles. Especially in San Francisco — you want to be careful that there (could be) sewage in that,” said Eileen White, executive officer of the San Francisco Bay Regional Water Quality Control Board, referring to flooded areas when the city’s unique sanitary system that combines storm water and wastewater is backed up during heavy rain.

It’s too early to know the full impact of the atmospheric rivers that have hit the region recently, because complete records are not yet available. But municipalities are required to report to the state when they discharge untreated wastewater — and some information is emerging, especially about sewage spills during the New Year’s Eve storm, the second-wettest day on record in San Francisco and the wettest for Oakland since at least 1970. Ongoing storms could cause similar incidents, creating public safety concerns.

Sejal Choksi-Chugh, executive director of advocacy organization San Francisco Baykeeper, said she “highly, highly recommends” that people avoid contact with the water in the bay right now, because untreated sewage contains bacteria and viruses that can cause sickness. Raw sewage can also cause sickness in fish and other wildlife, she said.

“Having this much raw sewage in the water at one time, it’s not a good thing,” she said. Once the sun comes out briefly, many people flock to beaches, where there may be discharge pipes from treatment plants.

White also recommended that even die-hard swimmers and surfers avoid the water. As for little kids playing in San Francisco puddles near backed-up storm drains, “You wouldn’t want them to go eat hot dogs (afterward) without washing their hands.”

So far, there have been 90 reports of unauthorized wastewater or raw sewage discharges around the Bay Area that occurred from Dec. 30 to Jan. 3, totaling 14 million gallons, White said. Another 30 incidents involving 8 million gallons of unauthorized discharges were reported for the storm on Jan. 4-5, she added.

That’s not a full picture, however, because San Francisco has not yet made its report about New Year’s Eve, when it experienced extensive flooding in homes, restaurants and grocery stores, White said.

“The Bay Area saw very large, unprecedented rainfall,” White said. “There were lots of violations, and there are more storms in the forecast.”

In the East Bay, 4.7 million gallons of stormwater mixed with raw sewage overflowed into the environment around New Year’s Eve. That’s a large amount but not unheard of; during a significant storm in October 2021, the East Bay Municipal Utility District discharged 4.3 million gallons of partially treated wastewater from one of its facilities, according to a report from the San Francisco Regional Water Quality Control Board.

The recent spills were the result of aging wastewater infrastructure and the intense downpour, according to EBMUD spokesperson Andrea Pook.

During heavy rain, the sanitary system designed to be large enough to hold wastewater from toilets, showers and sinks becomes inundated with stormwater that finds its way into cracks and holes in old sewer pipes, both from various Bay Area cities and private property owners.

Because of that extra water, EBMUD was handling 13 times its average volume on New Year’s Eve, a “very, very extreme” amount, Pook said. If pipes fill up, manholes can leak or sewage can get into creeks, then flow into the bay.

“It’s the really big storms that make a disproportionate impact,” said Mary Cousins, regulatory program manager at Bay Area Clean Water Agencies, which represents 37 Bay Area treatment plants. “The capacity is based on a moment in time. It’s the peak flows that really matter the most.”

East Bay Municipal Utility District reported a total of three wastewater spillages on the morning of Dec. 31 from its overflow facilities, according to a sanitary sewer spill advisory. These occurred around 9:30 a.m. into San Leandro Creek in Oakland, around 10:30 a.m. into the Oakland estuary near the Barnhill Marina and around 10 a.m. into the Oakland estuary at the foot of Alice Street in Oakland.

The spillages were untreated because the wastewater “didn’t make it to the wet weather facility or the wastewater treatment plant; it overflowed before it got there,” Pook said.

Sewage also overflowed out of three manholes in the East Bay, according to the advisory: near 1056 Eastshore Highway in Albany; at Page and Second streets in Berkeley; and at Broadway and Clement Avenue in Alameda.

No spills occurred as a result of the Jan. 4 and 5 storms, Pook said.

The San Francisco Public Utilities Commission did not provide details on any sewage incidents that occurred during the Dec. 31 storm.

Based on past experience, however, San Francisco’s Marina Green is not a place you want to go when it’s pouring rain. During the October 2021 deluge, SFPUC reported a release of 1.4 million gallons of wastewater that overflowed its collection system and flooded Marina Boulevard, then entered the bay via storm drains in the Marina Green parking lot, according to the report from the San Francisco Regional Water Quality Control Board.

That was an “unauthorized discharge,” according to the water board. But the city has a permit to discharge stormwater mixed with a small percentage of wastewater in 36 places on the perimeter of the city when

intense rainfall exceeds the capacity of its system, said Joseph Weiss, press secretary at the San Francisco Public Utilities Commission, in an email.

However these so-called combined sewer discharges do not contain raw, untreated sewage, but rather partially treated wastewater. SFPUC updates a San Francisco Beach Water Quality Map to inform the public where these discharges have occurred recently and where bacteria levels remain high, according to regular water safety testing.

Treated or not, sewage can take from 72 hours to a week to get diluted and flushed out with the tides, Choksi-Chugh said.

“With these kinds of continuous rains back to back, we’re definitely looking at taking longer (for the pollution to dissipate) just because there’s a new inflow of pollution every few hours. Staying out of the water is definitely a good idea for the time being,” Choksi-Chugh said.

The recent sewage spills add to growing concerns about wastewater treatment after nutrient-rich wastewater-fueled algae blooms led to the deaths of tens of thousands of fish in the bay last summer. Similar to the problem of capping nutrients, reducing spills would require expensive upgrades to dozens of the Bay Area’s aging wastewater treatment facilities.

White noted that there is “major investment occurring at the state and federal levels” to prepare infrastructure like wastewater treatment for the extremes associated with climate change.

But much more needs to be done, Choksi-Chugh said.

“Otherwise we’re looking at pollution getting into the bay and into our communities every single time it rains, and that’s just not the way we want our community to have to be surviving,” Choksi-Chugh said.

One of the issues for an agency like EBMUD is that it operates large sewage facilities by the bay that are fed by sewage systems from multiple cities, which is where a lot of stormwater gets into the system, said Cousins of Bay Area Clean Water Agencies.

“Many are in bad shape and more than 50 years old and have to be gradually replaced, but it might take decades,” she said.

Still, Cousins said there has been a 50% reduction in sewer spills in the last 15 years, mostly due to fewer blockages in the system.

Going forward with the coming storms, it’s unclear how many more sewage spills could happen, said White. Because the ground is saturated, the rain doesn’t have to be as intense as on New Year’s Eve to cause major flooding. And if power goes out, that can slow down operations at treatment plants.

“I’m hoping that the worst is behind us,” she said. “But it’s still early January. Who knows what the rest of the month has in store.”

Claire Hao and Tara Duggan are San Francisco

Chronicle staff writers.

Email: **claire.hao@sfchronicle.com**, **tduggan@sfchronicle.com**

Did sewage spill in your Bay Area neighborhood during the recent storms? Check this map

sfchronicle.com/bayarea/article/sewage-spill-storm-wastewater-17717255.php

January 14, 2023

San Francisco Public Utilities Commission employees clean a clogged storm drain on Park Presidio Bypass on Jan. 9.
Michaela Vatcheva, Freelance / Special to The Chronicle

Millions of gallons of sewage have overflowed into Bay Area streets and water bodies since the first atmospheric river made landfall on New Year's Eve, inundating local wastewater systems not built to withstand intense storm after storm.

Preliminary reports of just how much sewage spilled — and where these spills occurred — are coming in from around the Bay Area. The Chronicle has mapped the data. While incomplete, readers can begin to get a sense of whether spills occurred in their neighborhood. Past spills may or may not indicate a chronic problem in a neighborhood or region, that could recur in another bout of heavy rain.

The data, from California State Water Resources Control Board, focuses on one type of spill called sanitary sewer overflows (SSOs). These are spills that involve sewage coming up out of a manhole or sewer pipe onto city streets and into streams and creeks — before the sewage would have gone into a wastewater treatment plant.

Public agencies are required to report such spills. From Dec. 26 to Jan. 23, nearly 6 million gallons of wastewater from SSO spills have been reported across the state, including more than 5.5 million gallons from the nine Bay Area counties alone. Of those spills, about 240,000 gallons have been recovered across the state — meaning that the sewage eventually got to the wastewater treatment plant after workers vacuumed it up or took other cleanup measures — including about 150,000 gallons in the Bay Area.

Eileen White, executive officer of the San Francisco Bay Water Board, cautioned that the data is "very preliminary," as agencies have up to 30 days to report the spills, depending on various factors. Most agencies, scrambling to keep up with wastewater flows while also possibly facing power outages and flooding, are making rough estimates to meet draft reporting requirements, White said.

"A lot of times, the numbers turn out to be a lot bigger," White said.

SSOs occur when the manholes or pipes carrying wastewater to wastewater plants are full or clogged, White said. They can also occur when wastewater plants are at full capacity, White said.

"It's like your sink at home. You fill it up, and it's about ready to overflow, so you turn off the water and you let it drain," White said.

SSOs don't include releases of raw or partially treated wastewater from wastewater treatment plants, White said. These releases, which can total up to millions of gallons on their own, occur when facilities are overwhelmed by the inflow of wastewater, when something breaks down at the plant or when a plant loses power, White said. White said some spills of this nature occurred in the Bay Area, though she declined to specify where each occurred or the amount, citing the preliminary nature of the reports.

Most of the SSO spills reported so far are the most severe spills, known as Category 1. A Category 1 spill — the type shown on the above map — means sewage likely reached rivers, streams and ultimately the Bay.

In the coming month, more data will become available about the smaller and less severe Category 2 and 3 spills, because agencies don't have to report these spills immediately, said Mary Cousins, regulatory program manager at Bay Area Clean Water Agencies, which represents 37 Bay Area treatment plants.

Relative to the rest of the state, “the Bay Area has historically had higher rates of sanitary sewer spills,” Cousins said, adding that the current situation appeared to be in line with those trends. That’s because Bay Area sewer systems are generally older than other systems around the state, Cousins said. The Bay Area was also hit particularly hard during the New Year’s Eve storm, which accounts for most of the reported spills.

The higher number of reports seen in Alameda, San Mateo and Contra Costa counties in particular could be due to more spills, more thorough reportingor both, Cousins said.

“Many agencies here feel that they actually do a better job of reporting than other systems around the state do. There's a bias towards reporting even the very smallest incidents,” Cousins said.

Close observers may notice that there’s only been one reported SSO in San Francisco — on Marina Blvd on Dec. 31 — despite widespread reports of street flooding and backed-up manholes. That’s because most of San Francisco’s sewage system isn’t technically considered a sanitary sewer system, which just carries wastewater. Instead, the city is unique in the Bay Area for largely having a combined sewer system, which carries a mix of stormwater and wastewater.

San Francisco’s combined system makes it even more prone to backups and flooding during heavy rainstorms, but information about potential sewage on the city’s streets is harder to come across, said Sejal Choksi-Chugh, executive director of Baykeeper, an advocacy group that tracks pollution in the Bay.

“It is a little bit of a black box in San Francisco,” Choksi-Chugh said.

Spills from San Francisco’s combined sewer system since Dec. 26 have occurred in several locations, according to San Francisco Public Utilities Commission press secretary Joseph Sweiss: Alemany Blvd., a Mission District area near 15th & 17th streets and the Islais Channel area at Marin St. & Indiana streets and Custer & Quint streets.

The city is currently analyzing its data to estimate the volume of stormwater mixed with wastewater that was spilled to report to the state later this month, Sweiss wrote in an email to the Chronicle.

When localized flooding occurs in San Francisco, the water is about 90% stormwater, Sweiss wrote. The amount of sewage, if any, is very low and highly diluted,” Sweiss wrote. Even still, Sweiss advised people to stay away from stormwater, which “can contain harmful pollutants and contaminants picked up from roofs, parking lots, sidewalks, and roadways,” Sweiss wrote.

The SFPUC is “proud” of its combined sewer system, which treats stormwater and thus “minimizes pollutants entering San Francisco Bay and the Pacific Ocean,” Sweiss wrote. Sweiss noted that San Francisco received more than 11 inches of rain over 10 days, “which is about 50% of our average annual rainfall.”

“While we are pursuing every tool possible to prepare for and mitigate the effects of climate change — from capital investments to green infrastructure and more — localized flooding will undoubtedly occur when an extreme, intense, and historic volume of rain greatly exceeds the capacity of any urban wastewater or stormwater system. This is happening all over the Bay Area and state,” Sweiss wrote.

With storms to continue through the weekend, the possibility of sewage spills in the Bay Area depends on the intensity of the rains and if there are breaks in between, Cousins said. “What causes the SSOs is very intense rainfall over a short amount of time, rather than just the fact that there is rainfall,” Cousins said.

Looking forward, “the only way to correct these problems is through upgrades to pipelines that are in the street,” both those operated by public agencies and on private property, Cousins said.

San Francisco has committed $600 million through 2032 to improve its stormwater management system, White noted. Several East Bay agencies, including the East Bay Municipal Utility District, Oakalnd, Alameda and Berkeley, have been ordered to update aging sewage infrastructure under a 2014 consent decree with the U.S. Environmental Protection Agency.

“It's typically not one or two little problems that need to be fixed. It's miles and miles of pipeline that needs to be slowly replaced. It's hundreds of millions to billions of dollars. We need the support of the public and we need their patience as these repairs are made,” Cousins said.

Chronicle deputy data editor Yoohyun Jung contributed to this report.

*Claire Hao is a San Francisco Chronicle staff writer. Email: claire.hao@sfchronicle.com, Twitter: @clairehao_*

Review of 2022 SFEI Reports

1. Introduction and Structure

This technical memorandum proposes some recommendations for BACWA's Nutrient Technical team to consider in their role as participants in the Nutrient Management Steering committee discussions of the latest SFEI monitoring and modeling findings, taken from a review of selected SFEI 2022 reports and other activities. It does not comprise a formal peer review, but rather extracts portions of the publications' texts and figures to emphasize points of particular relevance to the BACWA agencies.

The tech memo begins with a list of overall comments for the BACWA Nutrient Technical Team. Those comments are followed by discussions of publications, webtools, and a Modeling Advisory Group (MAG) meeting summary. The discussions are organized to present a brief statement of the study's goals, major findings, and results that are most relevant to BACWA priorities. The following reports and the summary of the MAG meeting were used to generate the overall Nutrient Technical Team recommendations:

1. Delta Net Ecosystem Metabolism 2021 manuscript
2. Delta Net Ecosystem Metabolism 2022 Year 2 report
3. Zooplankton Community Assemblage and Grazing Rates in Central Bay pilot study
4. Nitrogen Removal Rates in the South Bay report
5. Virginia Province Approach (VPA) to Setting DO Standards in Lower South Bay report
6. Phytoplankton/HABs web data viewer: flow cytometer and molecular sequencing data
7. MAG Meeting summary

Last year's summary of 2021 SFEI reports recommended BACWA attention to six major themes:

1. Structure the science program on a specific management approach, e.g., "no net loading increase."
2. Focus Nutrient Assessment Framework on dissolved oxygen (DO) for the next permit cycle and delay harmful algal blooms (HAB) focus to the next round.
3. Use the results of the Regional San nutrient-reduction project to compare to model predictions as a framework for Region 2 management and monitoring.
4. Update monitoring design to provide more effective model-data comparisons, particularly
    - Comparing model's continuous data stream to point data collection.
    - Nitrogen metabolism processes in the shoals.
    - Improved light and sediment resuspension measurements in the shoals.
    - Integration of the data and modeling collected for the North Bay.
5. Develop ways to evaluate "green engineering" or increased recycled water solutions.
6. Incorporate water quality into salt pond management strategies.

The last two of those six themes are still relevant but were not addressed in the reports reviewed in this tech memo. The first and second themes were dramatically affected by the August 2022 *Heterosigma* bloom and accompanying low DO levels, and the third and fourth theme are reinforced by the reviews of this year's publications.

2. Overall Comments for BACWA's Nutrient Technical Team

- These projects fill several gaps discussed in last year's 2021 recommendations and the SFEI annual workplan. For instance, the estimates of denitrification and zooplankton grazing rates will be crucial grounding for the model's characterization of algal bloom control and die-off and will improve the credibility of the model results. The Sacramento River data show the importance of year-to-year variability and other anthropogenic factors that can drive DO response beyond what would be predicted solely by nutrient loads and that will be important to interpretation of monitoring results and model predictions. The VPA develops a clear goal for oxygen concentrations that fit the need for characterizing the Bay's compliance with Water Quality Standards.

- The data viewer web tools give agencies a way to quickly see phytoplankton data and get a "heads up" on whether significant problems may be occurring or upcoming.

- The MAG meeting summary suggests specific approaches for improving the model.

- It is time to expand beyond the Lower South Bay (LSB) focus. Much of the initial monitoring and modeling focus has been on the LSB, because its nutrient loads and limited circulation exchange have made it the leading candidate for biological impacts from nutrient loads. LSB has also been the focus of the most extensive nutrient reduction efforts from San Jose, Sunnyvale, and Palo Alto. The marginal effect from the VPA approach on DO standards non-compliance and the potential for better integration with salt pond management suggest rethinking specific goals of LSB modelling and monitoring. In addition, the August 2022 algal bloom, which caused mortality throughout the Bay, was not linked to as much damage in LSB where ambient nutrients are higher, perhaps because LSB's shallow depth reduced the biological advantage of a swimming harmful algal bloom (HAB) phytoplankton. Some future LSB questions to address:

    - What more do we need to know about the suitability of LSB habitat for salmon and sturgeon that would affect local DO standards?
    - What is the DO impact in the LSB using % saturation data?
    - How do changing loads affect DO and HAB species in the LSB?
    - How do different salt pond flow release strategies affect LSB water quality?
    - How do changing LSB loads affect the processes on the eastern shoals?

- The counterpart of the LSB focus is whether the bigger risk to the Bay from nutrient loading is from trends of increasing hypoxia or from HAB bloom events. As the MAG has noted, predicting HAB events could be beyond the capability of any modeling effort. While it is probably impossible to predict future HAB blooms as a result of nutrient management—probably even more difficult than predicting hurricanes as a result of climate change actions—SFEI's data set has already yielded some insight into what are the critical Bay climatic conditions and locations where HAB blooms are likely to be problematic. IEP, which spends 5–10 times more on research funding than the SFEI Regional Monitoring Program, has been able to document the importance of wet and dry water years, and there should be some equivalency for the Bay's risk from HAB blooms.

- Whether or not modeling can sufficiently predict the ecosystem response to different future nutrient loads, it is absolutely crucial that some biologically robust measures of Bay water quality be adopted and tracked over time. The "assessment framework" strategy has floundered. But without an assessment framework, it will be impossible for the rate-paying public to understand how their funding has impacted the health of the Bay.

- The old way of collecting estuarine data by organizing research cruises is rapidly being replaced by real-time data collection from satellites, buoys, and towed or self-propelled samplers. These tools produce exponentially more data much more cost-effectively, but create new challenges for data evaluation and interpretation. Satellite data were crucial to SFEI's interpretation of the bloom, and previous SFEI projects have shown the promise of buoys and towed sensors.

- Much of the debate over the assessment framework revolved around how best to use chlorophyll as a tool. The MAG noted that the chlorophyll-carbon ratio can be quite variable, especially for quick-growing HAB species. Chlorophyll data are quite easy to generate and helpful in interpretation. Chlorophyll may be less valuable as an absolute standard unless used in concert with other tools. Certainly, more measurements of chlorophyll/carbon ratios are warranted. In addition, there is some evidence of other benthic forms of carbon may be more significant than phytoplankton carbon in shallow waters with extensive fringing wetlands. Carbon and nitrogen isotope measurements may also be helpful in distinguishing sources.

3. Individual Summaries

This section discusses key points of the SFEI publications, related web tools, and MAG summary. It includes some of the SFEI figures, which have been renumbered for this review. Some of the SFEI conclusions have been edited for relevance to BACWA.

3.1 Manuscript: Interannual Ecosystem Metabolism of an Urban Delta Measured Using a High Frequency Sensor Array

3.1.1 Goals

This project used USGS deployments upstream and downstream of the Sacramento Regional Wastewater Treatment Plant (SRWTP) plant to develop methodology that could be used to quantify ecosystem metabolism to measure changes due to the plant's capital upgrades for nutrient removal. While this is primarily a modeling methods paper that can be used by SFEI at the similar USGS deployments throughout the Bay, its findings also show some of the challenges of documenting Bay improvements. The lead author was funded by a California Sea Grant Delta Science fellowship, so this report was a good example of RMP funding leverage.

3.1.2 Summary of Results

The team compared three ways of comparing sensor data (DO, chlorophyll (chl a)), water temperature, and turbidity to estimate gross primary productivity (GPP), respiration (R), and the resulting net ecosystem metabolism (NEM). The USGS sites were at upstream of the plant (Freeport), downstream (Walnut Grove) and three sites further down estuary (Liberty Island, Ryer Island, and Jersey Point). The methods for calculating NEM included (1) a "diel open-water" technique based on temporal changes in DO; (2) a novel DO mass balance technique based on using tidal movement of water masses, and (3) a previously established (Jassby, Cloern, and Cole 2002) empirical relationship based on chl a. The diel and tidal estimates showed strong agreement with tidal estimates at 60–105% of diel estimates, but the traditional chlorophyll method was much lower, ranging from 1–23% of the diel measurements. The team argued that high frequency array metabolism approaches with data collected during routine monitoring efforts can surpass the chlorophyll strategies currently favored by resource managers, because these DO studies suggest that Delta metabolism is largely driven by benthic processes rather than pelagic processes.

This study demonstrates the difficulty of distinguishing the effect of a simple change like the Sacramento plant upgrade from naturally-occurring or other human-derived processes. For instance, precipitation significantly impacted annual metabolism estimates, with both R and GPP decreasing in magnitude with increased precipitation (Figure 1), suggesting higher metabolism during drought versus wet years. This pattern persisted despite wetter years having higher discharge, and thus greater depth, which would increase areal metabolism values if per volume rates are held constant. Increased water column depth diminishes benthic GPP by limiting the amount of light that reaches the sediment surface, while increased turbidity from surface runoff can limit light and both pelagic and benthic GPP. This decrease in GPP can result in decreased R, as GPP and R in aquatic systems tend to be highly correlated due to organic matter fixed by GPP sustaining DO consumption by R. The impact of drought on Delta metabolism is likely to involve a complex interplay between diminished areal production and larger wetted area.

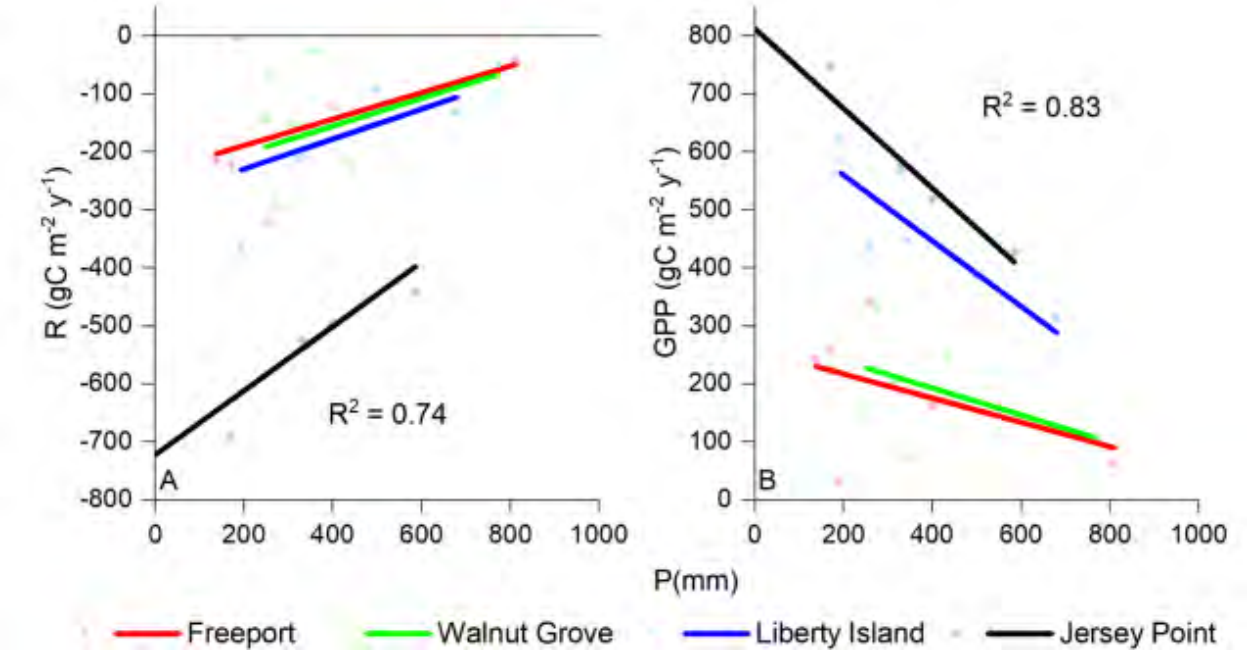

*Figure 1. (**A**) The relationship of precipitation (P) to respiration (R) and (**B**) gross primary production (GPP) at four Delta sites. P had significant impacts on fixed R and GPP effects with more varied impacts on site-specific random effects.*

While past studies of Delta metabolism have relied primarily on the chl a approach, which captures phytoplankton functioning but neglects benthic processes, DO-based estimates in this study suggest that Delta metabolism and carbon cycling are largely driven by benthic processes.

The results show how environmental pressures such as changing rainfall patterns and the establishment of invasive benthic species have impacted Delta metabolism, with implications for food web dynamics and carbon cycling. Despite large outflows of organic material from the SRWTP, R and NEM values were similar between Freeport and Walnut Grove (Figure 2), suggesting minimal impacts by carbon released from the treatment plant.

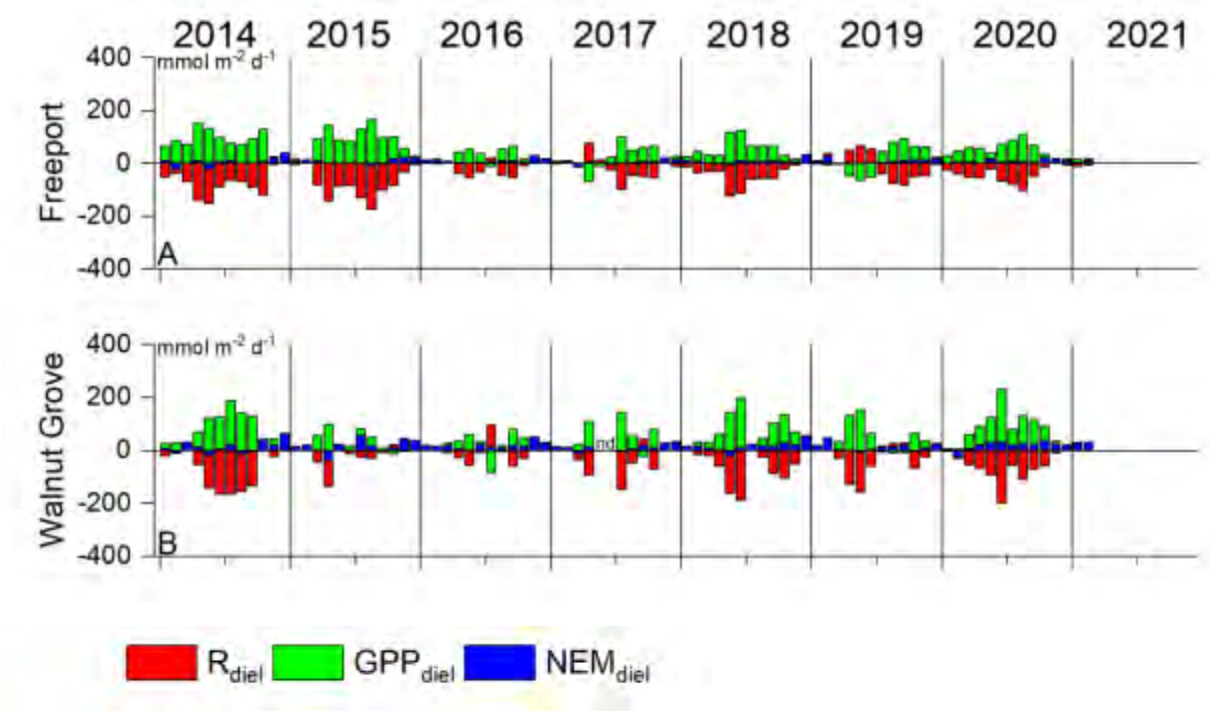

Figure 2. Diel metabolism results at Freeport (upstream of SWTP) and Walnut Grove (downstream). There was a strong seasonal signal, with enhanced metabolic rates in the summer, as well as substantial interannual variability that overwhelmed the difference in wastewater impacts.

3.1.3 Importance to BACWA

This publication summarizing methodology for evaluating the effect of the Sacramento upgrade shows

- The daunting challenge of demonstrating the impact of a large capital program.
- The importance of high frequency sensor arrays in documenting management effectiveness and how SFEI could use the data generated more effectively.
- The importance of benthic processes in shallow waters such as those found in the LSB and the eastern shoals of the South Bay.
- The necessity for determining how to remove confounding factors like climate change, freshwater flow management, salt pond management, and invasive species from the determination of impact of nutrient load management.

3.2 Delta Net Ecosystem Metabolism 2022 Year 2 Report: Nitrogen Cycling and Ecosystem Metabolism in the Sacramento-San Joaquin Delta Measured Before and After a Key Regulatory Action

3.2.1 Goals

This project is the second year of the previous report with the goal of quantifying the impacts of major upgrades to the SRWTP on carbon and dissolved inorganic nitrogen (DIN) cycling downstream of the plant's discharge. Year 2 focused on characterizing nitrification rates, which were expected to change after the SRWTP upgrade in October 2020.

3.2.2 Summary of Results

Results from the DIN analysis suggested that previously high nitrification rates in the Sacramento River have been substantially diminished (Figure 3) following upgrades to the SRWTP Plant, which included adding nitrification of effluent prior to discharge to the Sacramento River.

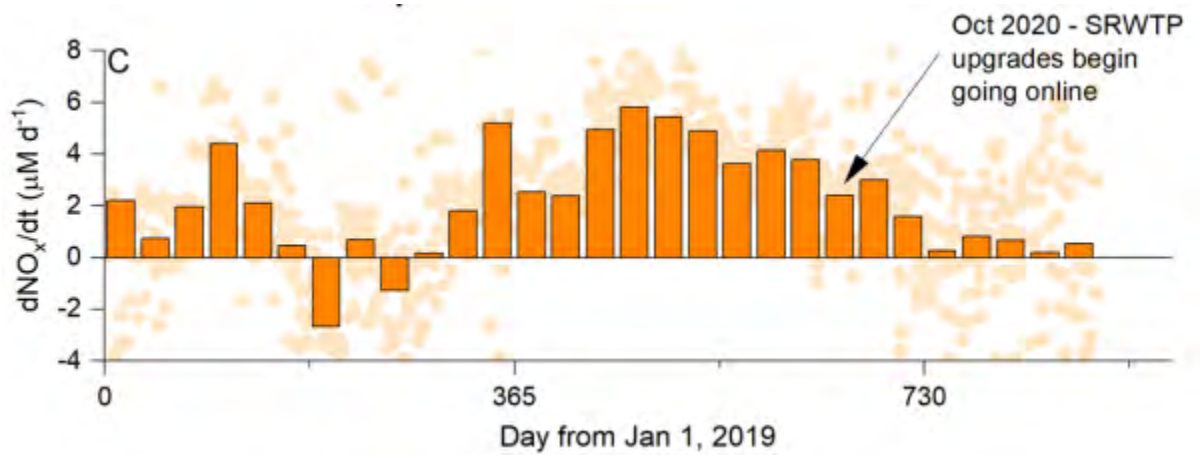

Figure 3. Nitrification rate difference between USGS monitoring stations at Freeport and Walnut Grove, with the SRWTP located between the two. The SRWTP upgrade included internal nitrification (microbial transformation of NH4+ to NO3-), which appears to have replaced natural nitrification that previously occurred along this stretch of river.

3.2.3 Importance to BACWA

It was useful to see that the methodology worked to verify the impact on in-river nitrification rates after the SRWTP upgrade, though the broader impacts on net ecosystem metabolism are less clearcut.

3.3 Pilot Study: Zooplankton Community Assemblage and Grazing Rate Estimates in Central Bay and South Bay

3.3.1 Importance of Grazing estimates

Recent numerical modeling work suggests that zooplankton grazing plays a quantitatively-important role in regulating phytoplankton biomass in South Bay and Central Bay. Zooplankton have been identified as a high-priority data gap. Most recently, the quick die-off of the algal species *Heterosigma* after last summer's bloom event has been hypothesized due to a rapid build-up of zooplankton predators. No consistent zooplankton monitoring has been conducted in Central Bay or South Bay since the 1990s, and therefore no community data or grazing-rate estimates exist for these important sub-embayments, even though the Interagency Ecological Program (IEP) has routinely collected these data in the Delta. With the lead investigator coming from the San Francisco State lab that provides expertise to IEP, this study was able to incorporate zooplankton data for all parts of the bay to compare to these new data and to use a standard methodology to estimate the total amount of zooplankton grazing pressure.

3.3.2 Summary of Results

This study divided zooplankton into two major groups meso-(>200 µm in length) and micro- (20–200 µm), and this distinction was used in calculating their relative grazing pressure. Copepods (particularly *Acartia* spp., whose adult are the dominant meso-zooplankton) tended to have the greatest abundance and biomass for all study regions and months. For several other taxa, abundance varied seasonally and by study region. In winter and spring, rotifer and larval annelid abundance and/or biomass was often high in South Bay, Central Bay and San Pablo Bay. In spring and occasionally fall, larval bivalve abundance was high in Central Bay and San Pablo Bay. Sacramento River and Suisun Bay samples had greater variation in species composition and were quite distinct from the San Pablo, Central Bay and South Bay samples. In general, there is a gradient of abundance from the delta to the LSB, which concurs with the general concerns of regional fisheries managers.

Kimmerer has found that copepods may be chronically food limited except when chlorophyll levels reach >12 µg/L chl, which is at the higher end of seasonal Bay concentrations. Early life stages are less food-limited than later (adult) stages so the study evaluated when the South Bay is dominated by meso-zooplankton compared to micro-zooplankton (Figure 4). The ranges of maximum grazing impacts observed in the South Bay in 2021 suggest mesoplankton dominate the grazing rates in both shoals and channels, which is consistent with the higher chlorophyll concentrations found there. The range of maximum grazing impacts overall, for a given region or year, was from 19 to 5,738 µg C/L/day (mean 760) (Figure 5).

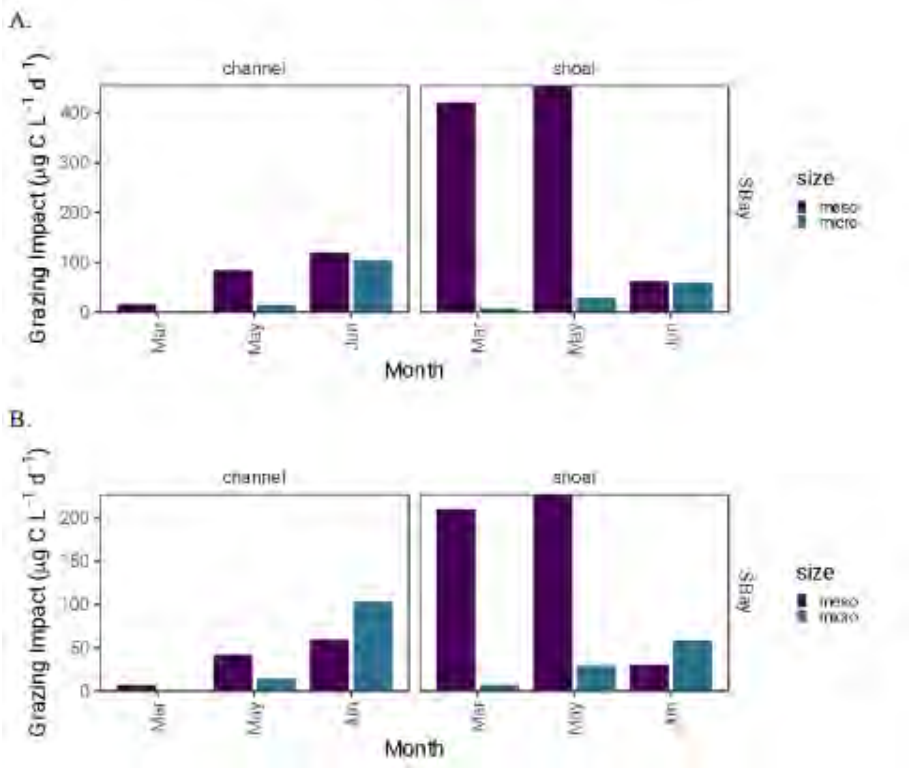

Figure 4. Mesoplankton and microplankton grazing impact (µg C/L/day) in South Bay shoals and channels, 2021 only; (A) maximum estimated impact, (B) conservative estimated impact.

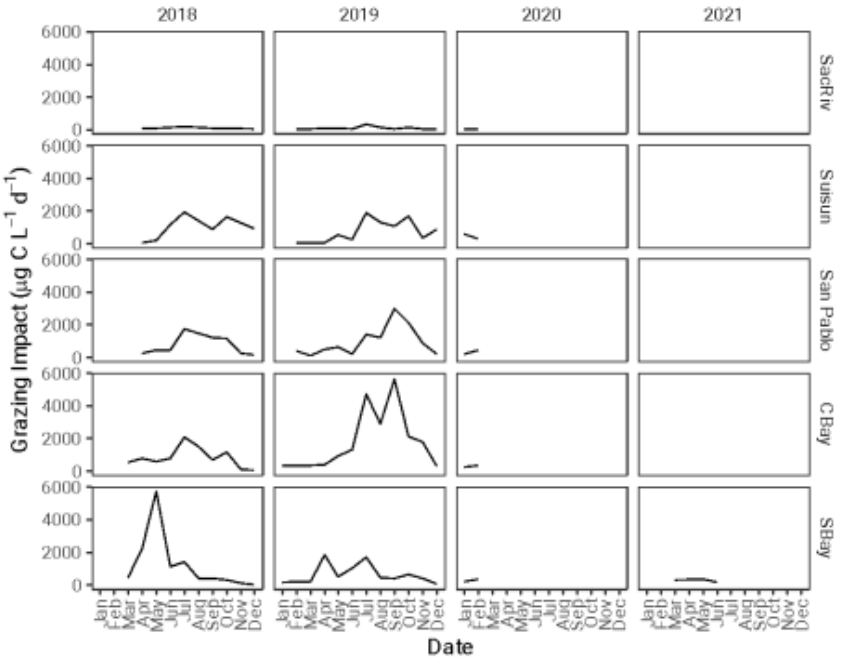

Figure 4. Total maximum grazing impact all years (2018–2021) and regions. Incomplete data exist for 2020–2021.

3.3.3 Importance to BACWA

The zooplankton composition and abundance data suggest that there are sufficient higher trophic levels naturally occurring in the bay. These estimated grazing rates overlap the high end of phytoplankton production rates of 1000–10,000 µg C/L/day, which suggests that rapid zooplankton growth can sufficiently catch up to a phytoplankton bloom to provide a grazing control. Zooplankton growth often lags a few days behind phytoplankton growth rates, but the data suggest that modeling a bloom could allow a way to rapidly control it by grazing.

3.4 Report: Geochemical Drivers of Nitrogen Removal Rates in South San Francisco Bay

3.4.1 Goals

The goal of this study was to increase understanding of N cycling and removal dynamics in South San Francisco Bay. This study was designed to determine:
1) Rates of denitrification and N_2O production across South San Francisco Bay
2) Drivers of spatial and temporal variation of denitrification rates across South San Francisco Bay
3) The importance of N removal via denitrification relative to the N loading to the Bay

Data produced by this study will be used to calibrate a predictive San Francisco Bay biogeochemical-hydrodynamic, nitrogen-cycling model.

3.4.2 Summary of Results

It was important for SFEI to provide the first direct measurement of these nitrogen removal processes because they show how the natural South Bay system is providing "ecosystems services" that mitigate the large nitrogen loadings entering the system. The South Bay is functioning somewhat as a natural tertiary treatment plant. The study helped characterize a number of trends that must be captured by the model.

Higher rates of ecosystem metabolism in the shoals as measured by Sediment Oxygen Demand (SOD). are driven by carbon originating from POTW BOD discharges, and the primary production stimulated by nutrient discharges in salt marshes, benthic algae, and phytoplankton. These measurements showed

- High biological activity in the shoals (Figure 6).
- Denitrification and N_2O production rates in South San Francisco Bay that were both on the high end of the typical range previously observed across other estuaries.
- Denitrification greatest in the Lower South Bay and maybe driven by temperature, % clay content, and potential denitrification rates, and potential denitrification driven by temperature and SOD. While the correlation to sediment organic matter was not strong, it has been shown elsewhere. (Potential denitrification is a quicker, cheaper way to measure denitrification, but may not perfectly convert quantitatively).
- Up to 62% of N loaded to the South San Francisco Bay may be removed via denitrification (Table 1).

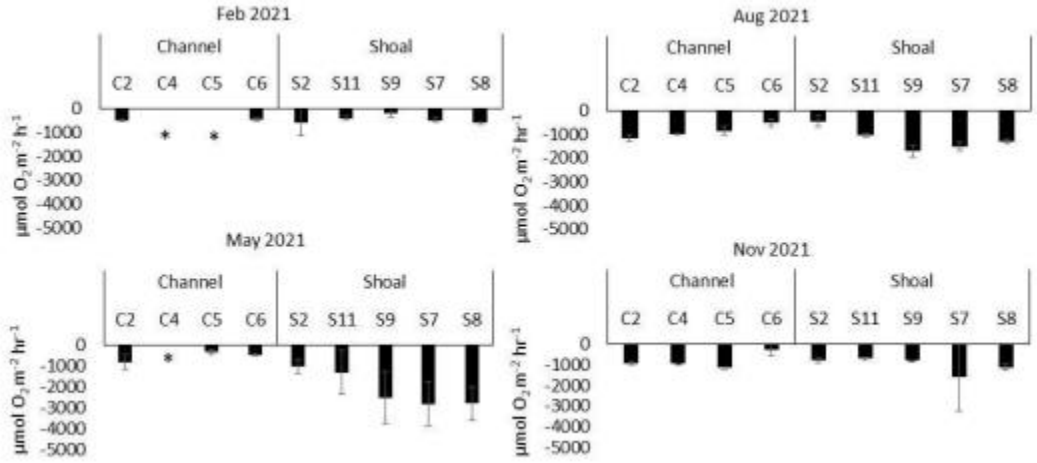

*Figure 6. Sediment oxygen demand as measured in sediment cores with a FireSting O2 sensor. Error bars = SE. * = no data.*

Table 1. N loading and removal rate seasonal comparison. N loading rates are averaged over the years 2012-2020 ± SE. N removal is derived from IPT rates. N loading standard error represents interannual variability, and N removal ranges were derived from the minimum and maximum rates observed at any site within the embayment during the specified season. Summary of SFEI Table 2.

Embayment (Area)	Annual Avg N Loading (kg/m^2-d)	Annual Avg N Removal (kg/m^2-d)	% N Loading Removed (annual avg)
Lower South Bay 30 km^2	380 ± 11	9.1 - 34	2.4 - 8.9
South Bay (RMP) 250 km^2	31 ± 0.8	2 - 19	6.5 - 62
South Bay (WB) 460 km^2	68 ± 1.5	2 - 19	2.9 - 28

3.4.3 Importance to BACWA

The results suggest that the South Bay has adjusted to meet its heavy nitrogen loads by developing a microfauna that can mostly assimilate and convert these inputs productively, removing more than half the nitrogen loads by denitrification processes, which is consistent with the lack of an historical management focus on nutrient reduction. These high metabolic rates also suggest that the ecosystem processes may be fairly responsive to load reductions, but overall biomass may also be reduced. However, as the 2022 bloom demonstrated, this system is fragile, and its average response can be overwhelmed by an outlier climatic event or invasive, fast-growing HAB species from offshore.

One concern with denitrification is its association with N_2O production. Fortunately, the study found that denitrification rates in the South Bay were within the range reported elsewhere, but the extent of other geographic data for N_2O production is not as strong as for denitrification.

3.5 Report: Virginian Province Approach to Dissolved Oxygen in Lower South San Francisco Bay Sloughs

3.5.1 Goals

This report evaluates DO objectives for South San Francisco Bay sloughs using the U.S. Environmental (EPA) VPA approach, a well-established regulatory tool that provides DO sensitivity information for many species. With some modifications and incorporation of other site-specific lines of evidence, this approach may provide appropriate DO criteria for LSB sloughs. A draft version of this report was reviewed last year.

3.5.2 Summary of Results

Results of VPA analyses suggest that an appropriate acute DO criterion for the sloughs is between 3.7 and 3.8 mg/L (46% saturation) depending on whether juvenile sturgeon are included in the calculation. Some jurisdictions express the acute criterion as an instantaneous threshold; any observation below this value, regardless of duration, is considered as possible impairment of aquatic life uses. However, laboratory data on which this criterion is based were derived from testing conducted over at least a 24-hour period (in many cases up to 96 hours for fish). In addition, most jurisdictions acknowledge that aquatic life can tolerate brief periods below the acute criterion as discussed in EPA's VPA document (USEPA 2000). Therefore, many states express the acute criterion as a daily average or in some cases hourly average (e.g., one hour average). If an instantaneous threshold is desired, further analyses and discussion of the available DO data compiled in this report could be used to derive such a value for the Lower South Bay sloughs.

The VPA analyses in this report identified a chronic DO criterion between 4.3 and 5.7 mg/L (corresponding to 53–70% saturation) depending on whether juvenile salmonids and/or sturgeon are included in the calculation. Chronic sensitivity data on which these criteria are based were generally derived from tests conducted over a few weeks or more. Therefore, the chronic criterion is often expressed as a monthly or perhaps weekly average. The larval recruitment criterion of 4.3 mg/L derived in this report, could also be used as a weekly average particularly during the spawning and larval period of biota if appropriate.

These limits would replace the current year-round limit of 5 mg/L, which essentially functions as a chronic standard. Some states use DO saturation rather than DO concentration to set DO criteria, and several studies of the sloughs have examined percent saturation as well as DO concentration. Incorporating site specific temperature data into the VPA as percent DO saturation increases the ecological relevance of VPA DO criteria for LSB sloughs and would be easier for BACWA compliance particularly as the climate warms.

3.5.3 Importance to BACWA

This final report is not significantly different from the draft reviewed for 2021, although it has more significantly incorporated the fish data from UC Davis funded by San Jose and DO data collected as part of SFEI's intensive monitoring. The VPA process show that setting the goal for what species to protect—specifically juvenile salmonids and sturgeon—is probably more important than any difference in evaluating more sophisticated methodology. The salmon/sturgeon issue is complicated by the high temperatures now and in the future in Lower South Bay, which limit the times that these sensitive species are able to use that habitat.

Of most interest to the South Bay BACWA agencies might be the last two figures in the report which compare species composition and abundance of the invertebrates and fish (Figure 7; Figure 8) that live in the different Lower South Bay sloughs and salt ponds. The species richness and abundance in the LSB is quite striking despite the high concentrations of nutrients and chlorophyll found there. In addition, statistical analyses conducted by UC Davis on their extensive fish and macroinvertebrate dataset were unable to distinguish significant relationships between assemblage structure observed and specific water quality conditions observed in each slough.

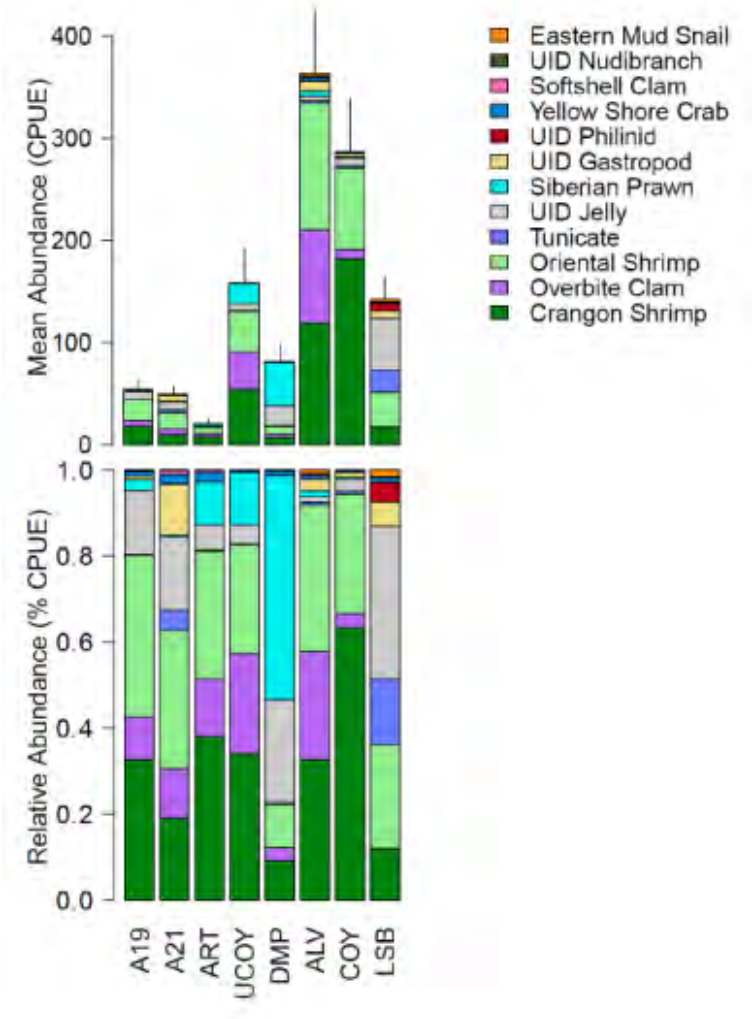

Figure 7. Spatial variation among sites in mean annual catch per unit effort (CPUE) (top) and percent composition (bottom) for the 12 most abundant macroinvertebrate taxa (paracarids omitted) at all sites from the 2015–2018 UC, Davis otter trawl. Error bars reflect 2 standard error for the total combined abundance. UID-unidentified. Sites include Ponds A19 and A20, Artesian Slough (ART), Upper Coyote Creek (UCOY), Dump Slough (DMP), Alviso Slough (ALV), Coyote Creek (COY), and Lower South Bay (LSB).

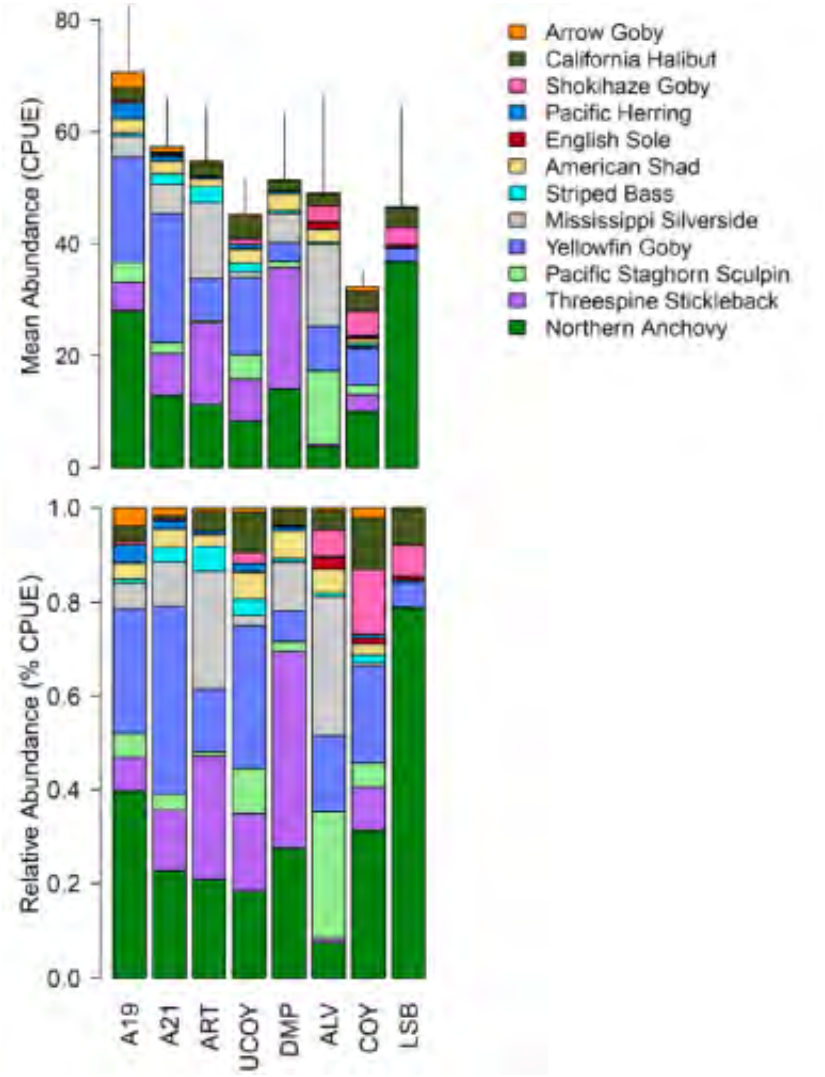

Figure 8. Spatial variation among sites in mean annual CPUE (top) and percent composition (bottom) for the 12 most abundant fish taxa at all sites from the 2015–2018 UC, Davis otter trawl. Error bars reflect 1 standard error for the total.

3.6 Data Viewer Web Tools: Phytoplankton/HABs Data Viewer Dec 2022 Imaging Flow Cytobot and Phytoplankton/HABs (based on DNA-sequencing)

https://sfeinms.shinyapps.io/IFCBviewer/ *and* https://sfeinms.shinyapps.io/MolecularViewer/

3.6.1 Goals

These two web tools are closely related and discussed together. They make use of open-source software that allows users to quickly view phytoplankton data collected with either UCSC's Imaging Flow Cytobot deployed on biweekly-monthly cruises from 2020–2022 or from DNA-sequencing-based estimates of phytoplankton and HAB occurrence/abundance from 2014–2020. Both methods capture a couple dozen phytoplankton groups, and the IFCB tool also allows linkage to the UCSC website where the pictures of the organisms captured by the camera at each station can be viewed.

3.6.2 Examples of Outputs

Figure 9 presents a time series from 2014–20 of the molecular sequencing data for two HAB groups (*Heterosigma* and *Akashiwo*) and a major diatom group (*Thalassiosira*, a nutritious source of food for zooplankton) from stations in the Central Bay (Station 18), South Bay (Station 22), and LSB (Station 36). The plot demonstrates the general predominance of diatoms and their high abundance in the Lower South Bay, correlating with the high abundance of fish found there. The plot also shows the regular but episodic nature of the common "red tide" species *Akashiwo* and provides evidence that *Heterosigma,* the species of concern in 2022 has also appeared in the Central Bay, so is unlikely to have originated in LSB.

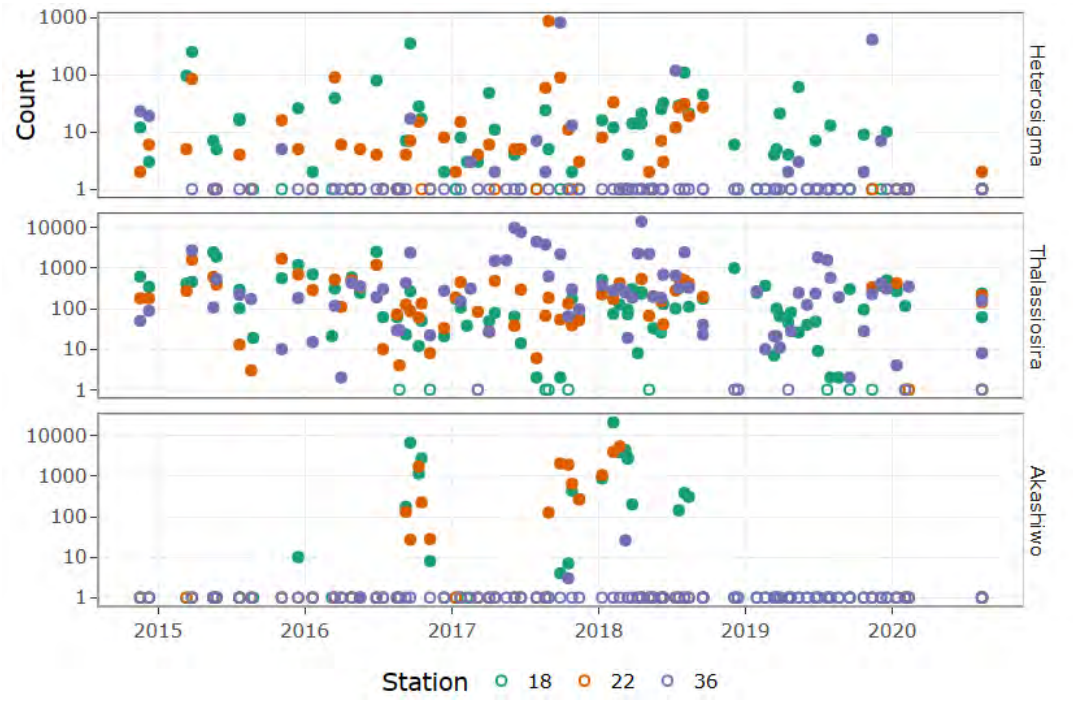

Figure 9. Abundance of three algal groups at two Central Bay stations (18 and 22) and one LSB (36) from 2016–2020 based on molecular sequencing.

Figure 10 shows the IFCB data for February to October 2022, along a transect of samples from near the Contra Costa outfall station (Station 9) to the LSB (Station 36). It documents the summer bloom in the Central Bay of "unclassified". Figure 11 shows a picture from August 19, 2022 that indicates that the category of "unclassified" cells is dominated by thousands of *Heterosigma* cells.

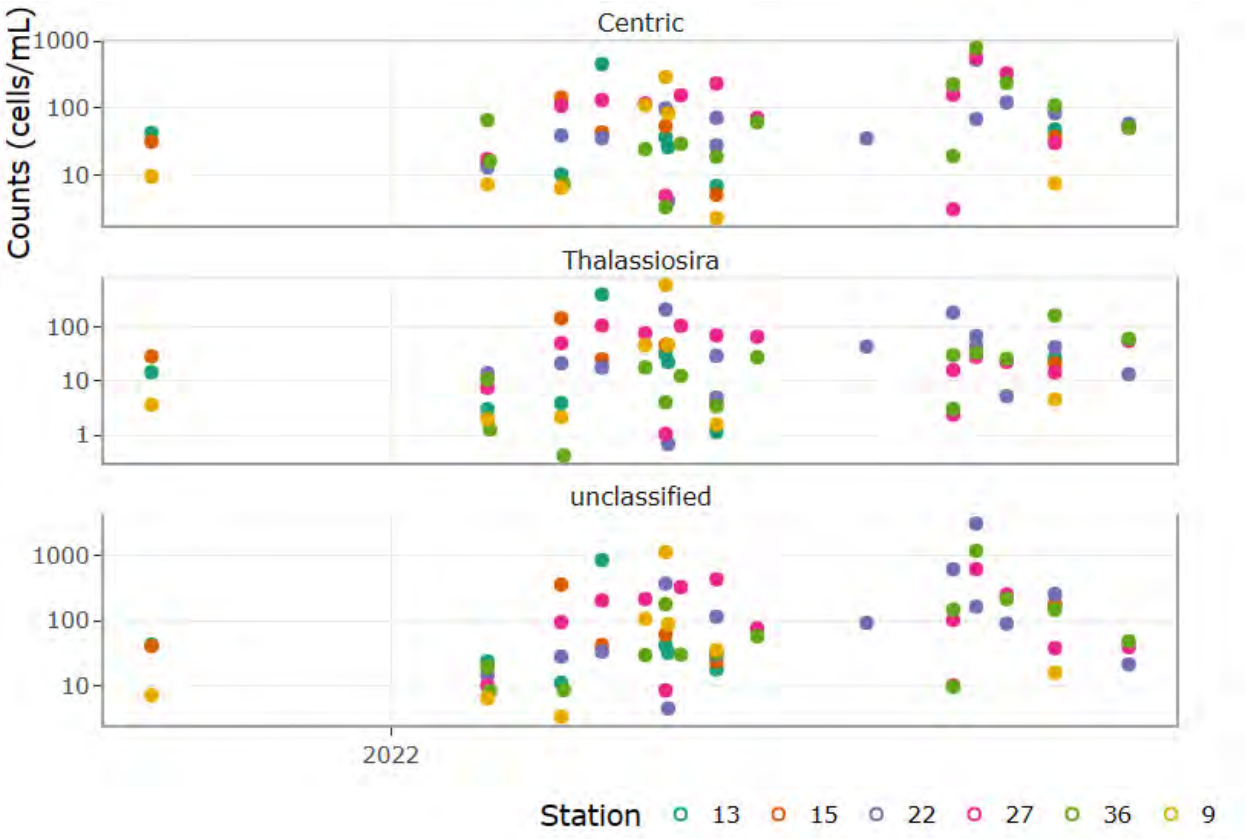

Figure 10. Abundance of two diatom groups and Heterosigma (as classified later) during 2022 for a transect of stations from Suisun Bay (Station 9) to LSB (Station 36).

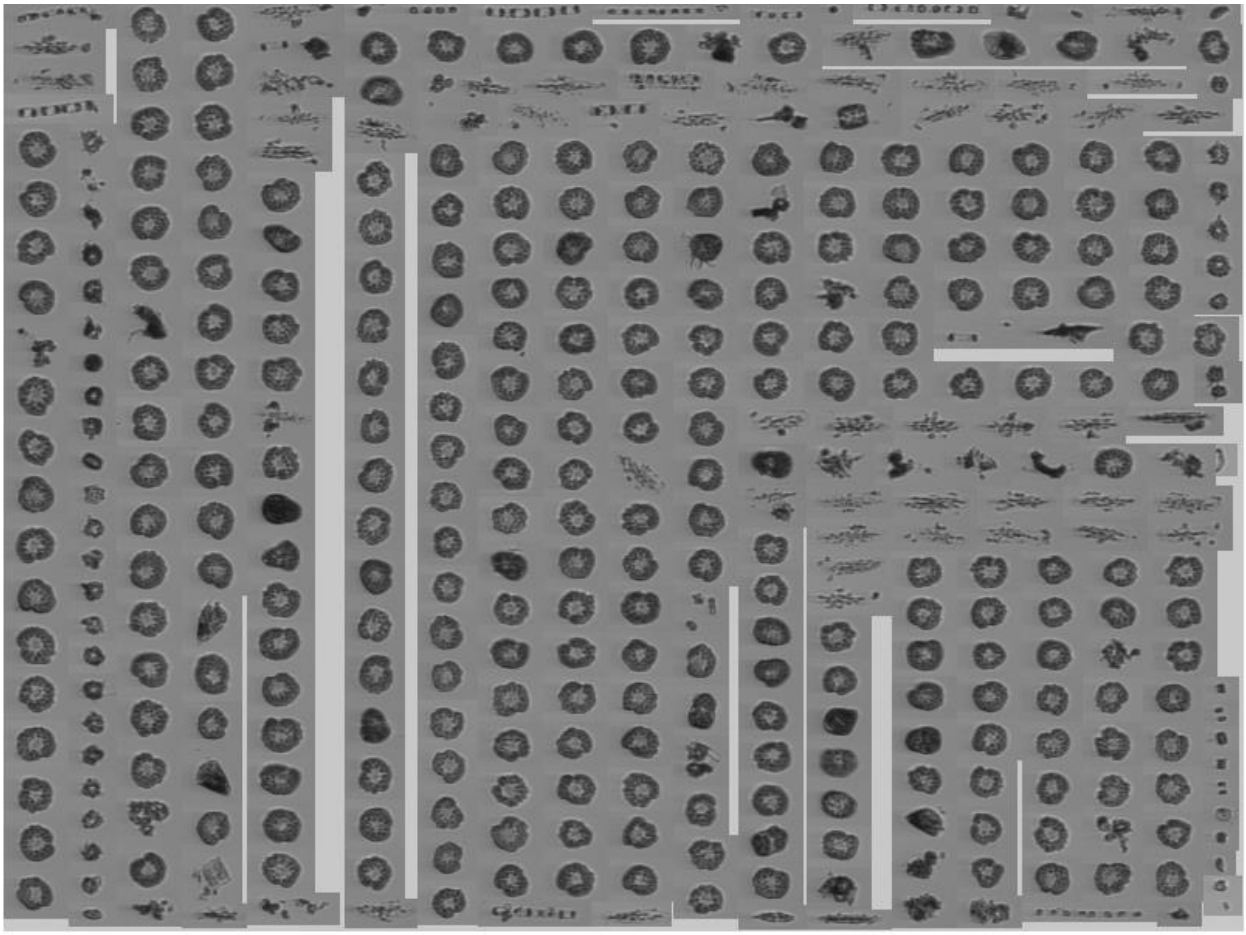

Figure 11. Example from Raphe Kudela's UCSC web site showing species found in the Central Bay at the height of the bloom.

3.6.3 Importance to BACWA

The tool allows very quick access to data that most concern a BACWA agency. It takes less than a minute to effectively use it. Hopefully, if the data could be available close to "real time" it would give agencies a warning of upcoming risks of blooms, just as agencies use radar data to prepare for atmospheric river responses.

3.7 Meeting: Modeling Advisory Group (MAG)

The MAG had two recommendations, based on insights into the model and about how the Bay functions:

- *Don't try to focus on one HAB species.* There are so many possible HAB blooms that could occur, and each of the species will have a unique set of attributes as to how salinity, nutrients and turbidity affect its growth rate and its sensitivity to grazers. The MAG suggested a focus on what caused the August 2022 bloom to die out. Was the bloom limited by nutrients, grazing, or light?
- *Don't focus on chlorophyll, but oxygen.* Species can have very different ratios of chlorophyll to carbon, and it is the overall amount of carbon produced that will impact DO. DO levels provide the more useful measure of effects on the environment.

Agency	2021 TIN Load (kg/	Meeting date
EBMUD	8,410	
EBDA (Oro Loma, USD, SL, Hayward)	6,870	n/a
OLSD		**22-Dec**
Hayward		
San Leandro		**9-Jan**
USD		
SFPUC Southeast	**6,840**	**15-Dec**
CCCSD	**3,900**	**11-Jan**
San Jose	3,430	
SVCW	2,500	
Palo Alto	**2,000**	**6-Jan**
San Mateo	1,230	reschedule
South SF	**1,220**	**5-Jan**
CMSA	**1,100**	**19-Dec**
Delta Diablo	**979**	**12-Dec**
FSSD	905	18-Jan
Vallejo	814	31-Jan
West County (WCWD, Richmond)	**734**	**11-Jan**
Sunnyvale	**446**	**13-Jan**

MEMORANDUM

To: David Williams, Executive Director, BACWA

From: Samuel Brown, Hunton & Williams LLP

Date: September 7, 2016 ***(DRAFT)***

Re: Overview of Regional Board Authority to Use Antidegradation to Establish Water Quality-Based Effluent Limitations in the Reissued Watershed Permit.

Executive Summary.

This memorandum examines the authority of the San Francisco Regional Water Quality Control Board ("Regional Board") to impose water quality-based effluent limitations ("WQBELs") for nutrients based on federal and state antidegradation policies when Order No. R2-2014-0014, NPDES No. CA0038873 (Waste Discharge Requirements for Nutrients from Municipal Wastewater Discharges to San Francisco Bay) ("Watershed Permit") is reissued in 2019.

BACWA's concern is that the Regional Board may require new permit limits for nutrients that would likely require millions of dollars in capital improvements and/or operational modifications to existing municipal wastewater treatment plants discharging treated effluent into San Francisco Bay. BACWA has asked whether the Regional Board has the legal authority to require new permit limits for nutrients; specifically, whether the Regional Board can rely on the federal and/or state antidegradation policies to impose such limits.

The application of antidegradation often will hinge on the technical-, water-, and project-specific facts. The facts presented by BACWA are atypical for purposes of antidegradation. It appears the existing discharges in this case are static. Antidegradation is typically applied where the proposed discharges change in some way that increases the level of pollutants discharged into the receiving water, resulting in an impact to the receiving water quality. For example, antidegradation policies typically apply to the issuance, reissuance, or modification of NPDES permits when there are new discharges or an expansion of existing facilities, a reduction in the level of treatment of an existing discharge, the relocation of an existing outfall, a substantial increase in mass

emissions, or a change in water quality from a point source or non-point source discharge or water diversion.[1]

Due to the atypical facts and lack of on-point precedent for application of the antidegradation policies in similar circumstances, it is not possible at this time to provide a definitive answer whether application of the federal and state antidegradation policies by the Regional Board in this situation would be authorized or the outcome of any legal challenge(s). However, this memorandum provides an outline of the requirements of the federal and state antidegradation policies, the potential Regional Board rationale for any new permit limits based on antidegradation, and BACWA's potential legal arguments to challenge the reissuance of a Watershed Permit that includes WQBELs for nutrients. Additional detail on the relevant background and legal issues is provided in Attachment A.

- *Regional Board Argument for Permit Limits*.

In California, when the receiving water is a "waters of the United States," as defined by the federal Clean Water Act ("CWA"), both the federal and state antidegradation policies are applicable.[2] The federal antidegradation policy requires states adopt an antidegradation policy consistent with the federal policy, and requires protection for three categories of waters, or "tiers."[3] Tier 1 requires the protection of "existing uses" and the water quality needed to support those uses.[4] Tier 2 requires the protection of "high quality waters," where water quality is better than the minimum level necessary to support protection and propagation of fish, shellfish and wildlife, and recreation in and on the water (*i.e.*,"fishable / swimmable").[5] Unlike other states, California does not designate receiving water a particular "tier" until an activity is proposed that would degrade the receiving water quality.[6]

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[1] *See* Administrative Procedures Update No. 90-004 at 3, Cal. State Water Resource Control Bd. (July 2, 1990) ("APU No. 90-004"); Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12 at 2-3, U.S. EPA Region 9 (June 3, 1987) ("Region 9 Guidance").

[2] *See In the Matter of the Petition of Rimmon C. Fay*, Order No. WQ 86-17 (Nov. 19, 1986) ("*Fay*").

[3] *See* 40 C.F.R. § 131.12(a)(1)-(3).

[4] *Id*. at § 131.12(a)(1).

[5] *Id.* at § 131.12(a)(2).

[6] *See* NPDES Permit Writer's Manual at 6-8, U.S. Environmental Protection Agency, EPA-833-K-10-001 (Sept. 2010) ("PWM").

Based upon the information we currently have available, in setting new permit limits, the Regional Board would likely argue that the existing discharges of nutrients from the municipal wastewater treatment plants threaten existing uses and the water quality necessary to support those uses or threaten "high quality water" and any degradation of the receiving water associated with the existing discharges is not necessary to accommodate important economic or social development.[7] The Regional Board would likely cite to existing State Water Resources Control Board ("State Board") and U.S. Environmental Protection Agency ("EPA") antidegradation guidance and policies and the Water Quality Control Plan for the San Francisco Bay Basin ("Basin Plan") to support its position. Further, the Regional Board would likely rely on the deference it would likely be accorded in the event of a legal challenge, for its interpretation of the statutory and regulatory requirements and the associated technical fact-specific determinations associated with the permit reissuance.

While not discussed in detail in this memorandum, BACWA should also consider whether the Regional Board would even be required to rely on antidegradation to include permit limits for nutrients or whether the Regional Board could accomplish the same goal using other legal authorities. EPA's regulations, for example, require NPDES permit limits that control all pollutants that the permitting authority "determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."[8] This is otherwise known as a "reasonable potential analysis," and it could be used by the Regional Board to determine whether discharges of nutrients, alone or in combination with other sources of nutrients to the San Francisco Bay, could lead to an excursion above an applicable water quality standard.[9] The Regional Board may be able to perform a reasonable potential analysis and potentially avoid the need to engage in an antidegradation analysis. This alternative Regional Board rationale should be explored further by BACWA to fully evaluate the scope of the Regional Board's authority to adopt new permit limits for nutrients.

- *BACWA Legal Challenges to Regional Board Reliance on Antidegradation.*

If the Regional Board relies on antidegradation to establish WQBELs for nutrients it would be applying antidegradation in a unique and novel manner (*i.e.*, the application of antidegradation based on receiving water quality changes unrelated to the proposed activity). BACWA would also likely rely on State Board and EPA antidegradation guidance, policies, and administrative decisions. There is little federal or state case law

[7] *See* William R. Attwater Memorandum: Federal Antidegradation Policy at 4-5, Cal. State Water Resources Control Bd. (Oct. 7, 1987) ("Attwater Memorandum"); 40 C.F.R. § 131.12(a).

[8] 40 C.F.R. § 122.44(d)(1).

[9] *See* PWM at 6-23.

on antidegradation implementation to inform the legal analysis. Attachment B identifies the EPA and State Board analytical framework for implementing the antidegradation policies, which would be relevant to constructing BACWA's legal arguments. If BACWA were to challenge the use of antidegradation as a basis to adopt new permit limits for nutrients, available legal arguments would likely generally fall into the following categories:

- The antidegradation policies are not applicable to the reissuance of the Watershed Permit.

  State Board guidance says "the federal antidegradation policy ordinarily does not apply to consideration of existing discharges."[10] Further, the Regional Board would need to provide a rational basis (with administrative record support) for changing its position in the current Watershed Permit that none of the considerations in determining whether to perform an antidegradation analysis are applicable and the Watershed Permit "does not allow for any increase in permitted design flow or allow for any reduction in treatment; therefore, no increase in nutrient discharges already taking place are foreseeable, and no findings justifying degradation are necessary."[11] This argument may be broken down into various sub-arguments, including:

  i. The proposed activity (*i.e.*, the existing discharges) is not an activity that implicates an antidegradation analysis.

  ii. The baseline receiving water quality for nutrients is not reduced.

  iii. Even if the Regional Board can demonstrate that the baseline receiving water quality is reduced, the proposed activity is not what is causing the reduction.

- Even if the antidegradation policies were applicable to the reissuance of the Watershed Permit, including permit limits for nutrients, that would be inconsistent with the antidegradation policies based on the to-be-determined fact-specific arguments associated with the Regional Board's findings. BACWA would need to make fact-specific arguments that the antidegradation policies for allow the reduction in the receiving water quality that is alleged by the Regional Board.

[10] Attwater Memorandum at 5.

[11] Watershed Permit, Fact Sheet at F-13-14.

- Any permit limits for nutrients are unfunded state mandates and the cost of compliance on the owners and operators of the municipal wastewater treatment plants must be reimbursed by the State. This would *not* be a challenge to the legal authority of the Regional Board to include the permit limits via application of antidegradation, but a legal challenge that would make it difficult as a matter of policy and politics to include the permit limits because recent California Supreme Court case law would arguably require the State to fund any necessary costs to comply with the new limits.

As discussed in Attachment A, the Regional Board would likely have counterarguments to each of these potential legal arguments.

The bottom line is that the federal and state antidegradation policies have never been used by a Regional Board in California to justify permit limits for nutrients based on antidegradation in this type of circumstance. BACWA and the Regional Board can both find support in the State Board and EPA antidegradation guidance and policies for their likely opposing legal positions. However, the Regional Board will receive deference on its interpretation of the legal requirements, its findings of fact associated with the permit reissuance, and it could also cite to the overarching goals of the CWA and Porter-Cologne Water Quality Control Act ("Water Code") to support its claimed authority.[12] The Regional Board would likely have an advantage in a legal challenge, but it is a novel issue with associated uncertainty and any BACWA legal challenge has a chance of success, assuming the facts are favorable to support the legal arguments (*e.g.*, no municipal wastewater treatment plant significantly increased its volume of discharge or its mass loading of nutrients, etc.).

[12] *See e.g.*, 33 U.S.C. § 1251 ("The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters"); Wat. Code § 13000 ("The Legislature further finds and declares that activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.").

Attachment A

I. Background.

a. *Federal Antidegradation Framework.*

Congress introduced the concept of non-degradation of the Nation's waters pre-modern CWA with its passage of the Water Quality Act of 1965 aimed at "prevention and control" as well as treatment of water pollution.[13] The concept of antidegradation was re-emphasized through the promulgation of regulations and policy by the U.S. Department of the Interior ("Interior") in 1966 and 1968.[14] The policy of the Interior was subsequently adopted by the EPA after the agency was established in 1970 and the amendments to the CWA were passed in 1972. The CWA at Section 101(a) states that the objective of the CWA is to "restore and *maintain* the chemical, physical and biological integrity of the Nation's waters."[15] (emphasis added). The federal antidegradation policy is meant to implement the "maintenance" aspect of CWA Section 101(a).[16] In the Water Quality Act of 1987, Congress expressly affirmed the principle of antidegradation reflected in CWA Section 101(a) by incorporating a reference to antidegradation policies in CWA Section 303(d)(4)(B).[17]

EPA's regulations require states to adopt an antidegradation policy and identify implementation methods for that policy.[18] An antidegradation policy is part of states' water quality standards.[19] The federal antidegradation policy serves as a "catchall" water

[13] Pub. L. 89-234(a)(1), 79 Stat. 903 (codified as amended in scattered sections of 33 U.S.C.).

[14] *See* 63 Fed. Reg. 36,742, 36,746 (July 7, 1998).

[15] 33 U.S.C. § 1251(a).

[16] *See* 78 Fed. Reg. 54,518, 54,526 (Sept. 4, 2013).

[17] 33 U.S.C. § 1313(d)(4)(B) ("For waters … where the quality of such waters equals or exceeds levels necessary to protect the designated use for such waters or otherwise required by applicable water quality standards, any effluent limitation based on a total maximum daily load or other waste load allocation established under this section, or any water quality standard established under this section, or any other permitting standard may be revised only if such revision is subject to and consistent with the antidegradation policy established under this section.").

[18] *See* 40 C.F.R. §§ 131.6(d), 131.12.

[19] *See* 63 Fed. Reg. at 36,779-80 ("Designated uses establish the water quality goals for the water body, water quality criteria define the minimum conditions necessary to achieve the goals and an antidegradation policy specifies the framework to be used in making decisions regarding changes in water quality.").

quality standard, to be applied where other water quality standards are not specific enough for a particular water body or portion of that water body, or where other water quality standards do not address a particular pollutant.[20] Antidegradation also serves to provide guidance for regulatory decisions to determine when additional control measures should be required to maintain instream beneficial uses or to maintain high quality waters.[21] The current federal antidegradation policy is contained at 40 C.F.R. § 131.12. The existing policy is largely the same policy as first promulgated by the EPA in 1975,[22] reaffirmed in 1983,[23] and slightly revised in 2015.[24] The federal antidegradation policy has three levels, or "tiers."[25]

1. Tier 1 requires the protection of "existing uses" and the water quality needed to support those uses.[26] EPA defines "existing uses" as "those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards."[27] Tier 1 is intended to establish an absolute requirement that existing uses attained must be maintained.[28] EPA has consistently stated that Tier 1 establishes the "absolute floor of water quality in all

[20] Attwater Memorandum at 2.

[21] *Id*. at 2.

[22] *See* 40 Fed. Reg. 55,334, 55,340-41 (Nov. 28, 1975) (final rule adopting the EPA antidegradation policy and required the States to develop an antidegradation policy and implementation procedures); proposal at 40 Fed. Reg. 29,882 (July 16, 1975).

[23] *See* 48 Fed. Reg. 51,400, 51,403 (Nov. 8, 1983) (final rule retaining, with certain changes, the existing 1975 antidegradation policy), proposal at 47 Fed. Reg. 49,234, 49,238-39 (Oct. 29, 1982).

[24] *See* 80 Fed. Reg. 51,020, 51,030-035 (Aug. 21, 2015) (final rule revising water quality standards regulations), proposal at 78 Fed. Reg. 54,518, 54,526-531 (Sept. 4, 2013), advance notice of proposed rulemaking at 63 Fed. Reg. 36,742 (July 7, 1998); *see also* 64 Fed. Reg. 46,058 (Aug. 23, 1999) (proposal to revise federal antidegradation policy).

[25] *See* 40 C.F.R. § 131.12(a)(1)-(3).

[26] *Id*. at 131.12(a)(1) ("Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected").

[27] 40 C.F.R. § 131.3(e).

[28] 48 Fed. Reg. at 51,409; *see also* Attwater Memorandum at 11 ("Reductions in water quality should not be permitted if the change in water quality would seriously harm any species found in the water.").

waters of the United States."[29] In construing the Tier 1 requirement, EPA has said that there may be circumstances "where the antidegradation rule's requirements require more stringent limits than would be required by the otherwise applicable water quality 'criteria[,]'" or in California, water quality objectives in a basin plan.[30]

2. Tier 2 protection applies to "high quality waters," where water quality is better than the minimum level necessary to support protection and propagation of fish, shellfish and wildlife, and recreation in and on the water (*i.e.*, "fishable / swimmable").[31] Tier 2 waters may be identified on a parameter-by-parameter basis or on a water body-by-water body basis.[32] In most cases, where instream beneficial uses will not be impaired and no Tier 3 waters will be affected, the federal antidegradation policy is *not* an absolute bar to reductions in water quality.[33] Rather, the policy requires that reductions in water quality be justified as necessary to accommodate "important social and economic development."[34] The outcome of a Tier 2 analysis will often depend upon a balancing of competing interests by the permitting authority, and according to the State Board, "the decision resting in the sound judgment of the State and Regional Boards."[35] The State Board, when discussing the federal antidegradation policy, has said that the "greater the impact on water quality, the greater the justification in terms of economic or social development necessary to justify the change" and that "the burden of proof to demonstrate that the change in water quality is justified, should

[29] *In re: Teck Cominco Alaska Inc., Red Dog Mine*, 11 E.A.D. 457 at *24 (EAB 2004); *see also* 48 Fed. Reg. at 51,403; 63 Fed. Reg. at 36,781.

[30] *Id*. at *24.

[31] *Id*. at 131.12(a)(2) ("Where the quality of the waters exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.").

[32] *Id*. at 131.12(a)(2)(i).

[33] Attwater Memorandum at 2-3.

[34] 40 C.F.R. § 131.12(a)(2).

[35] Attwater Memorandum at 3.

be on the project proponent."[36] Practically, there will likely be a high bar to demonstrate through the federal policy that degradation of a Tier 2 receiving water is necessary and consistent with federal policy.

3. Tier 3, also known as "Outstanding National Resource Waters," are those water bodies of exceptional recreational or ecological significance where no long term or permanent reduction is allowed, even if social or economic benefits would result.[37] In California, the only Tier 3 waters are Lake Tahoe and Mono Lake, therefore the Tier 3 provisions are not relevant to this memorandum.

NPDES permits must include WQBELs, as necessary, in order for authorized discharges to be consistent with water quality standards and the CWA.[38] Since antidegradation policies are part of water quality standards, the practical relevance of an antidegradation analysis is that it could require WQBELs to be included in NPDES permits. WQBELs must be derived consistent with applicable state antidegradation policies.[39] For example, if through an antidegradation analysis the permitting authority determines that a discharge of pollutants will lower receiving water quality and impact beneficial uses, the NPDES permit must include WQBELs in order to be consistent with the antidegradation policy. While this has been EPA's "long-standing interpretation of the CWA," in 2016 EPA proposed to revise 40 C.F.R. § 122.44(d)(1)—the regulatory provision that requires WQBELs in NPDES permits—to expressly include a reference to 40 C.F.R. § 131.12 to ensure that in the future limits in NPDES permits derive from and comply with antidegradation requirements.[40]

Additionally, EPA's regulations, require permit limits that control all pollutants that the permitting authority "determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."[41] This

[36] *Id*. at 12; *see also*, Region 9 Guidance at 9.

[37] 40 C.F.R. § 131.12(a)(3) ("Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.").

[38] *See* 33 U.S.C. § 1311(b)(1)(C) ("CWA section 301(b)(1)(C) requires that NPDES permit limits be as stringent as necessary to meet water quality standards."); 40 C.F.R. § 122.44(d).

[39] *See* 81 Fed. Reg. 31,344, 31,352 (May 18, 2016) ("EPA expects permitting authorities to develop NPDES permit terms and conditions consistent with and in consideration of applicable state antidegradation policies and/or requirements.").

[40] *Id*. at 31,353 (This revision to the NPDES regulations has not yet been finalized by EPA).

[41] 40 C.F.R. § 122.44(d)(1).

is otherwise known as a "reasonable potential analysis," and it could be used by the Regional Board to determine whether discharges of nutrients, alone or in combination with other sources of nutrients to the San Francisco Bay, could lead to an excursion above an applicable water quality standard.[42] The Regional Board may be able to perform a reasonable potential analysis and potentially avoid the need to engage in an antidegradation analysis. This alternative Regional Board rationale has not been fully examined in this memorandum as it was outside the scope of the work, but it should be explored further by BACWA to fully evaluate the scope of the Regional Board's authority to adopt new permit limits for nutrients.

b. *State Antidegradation Framework.*

The Water Code, enacted by the State in 1969, assigns to the Regional Boards the responsibility of developing water quality control plans, or "basin plans," which identify "beneficial uses of water" and set "water quality objectives."[43] The State Board is charged with approving these regional water quality control plans and formulating "state policy for water quality."[44] The beneficial uses for San Francisco Bay as contained in the Basin Plan are identified in the table below.[45]

Table F-5. Basin Plan Beneficial Uses

Receiving Water	Beneficial Uses
San Francisco Bay and its Tidally-Influenced Tributaries	Ocean, Commercial, and Sport Fishing (COMM) Estuarine habitat (EST) Industrial Service Supply (IND) Marine Habitat (MAR), Fish Migration (MIGR) Navigation (NAV) Preservation of Rare and Endangered Species (RARE) Water Contact Recreation (REC1) Noncontact Water Recreation (REC2) Shellfish Harvesting (SHELL) Fish Spawning (SPWN) Wildlife Habitat (WILD)

After the 1972 amendments to the CWA, the California Legislature amended the Water Code to require the State Board and Regional Boards to issue waste discharge permits ("WDRs").[46] The EPA subsequently gave the State Board and Regional Boards approval to issue NPDES permits. Hence, the WDRs issued by Regional Boards

[42] *See* PWM at 6-23.

[43] Wat. Code §§ 13241-13242.

[44] Wat. Code §§ 13142, 13245.

[45] Watershed Permit, Fact Sheet at F-12, Table F-5.

[46] Wat. Code § 13370 *et seq*.

ordinarily also serve as NPDES permits under federal law.[47] Regional Boards are required to determine that a WDR is consistent with any applicable basin plan and is in the public interest. The state antidegradation policy has been incorporated into the Basin Plan and is state policy, therefore, the Regional Board is required to consider whether issuing a WDR is consistent with the state antidegradation policy.[48]

In 1968, the State Board adopted its state antidegradation policy through State Board Resolution No. 68-16.[49] The State Board took this action in response to the requirements imposed by the Interior on the states in response to the Water Quality Act of 1965, as noted above. State Board Resolution No. 68-16 satisfies the requirement that the State have a policy which, at a minimum, is consistent with the federal antidegradation policy.[50] The state antidegradation policy mandates that:

> Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water and will not result in water quality less than that prescribed in the policies.[51]
>
> Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.[52]

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[47] Wat. Code § 13374

[48] Attwater Memorandum at 2 ("State Board Resolution No. 68-16 is part of state policy for water quality control, which guides the regulatory programs for the State and Regional Boards and is binding on all state agencies.").

[49] State Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (Oct. 28, 1968).

[50] Attwater Memorandum at 2.

[51] State Board Resolution No. 68-16, ¶ 1.

[52] *Id*. at ¶ 2.

The water quality protection afforded by the state antidegradation policy is dependent on the baseline receiving water quality.[53] The relevance of the baseline receiving water quality is as follows:[54]

- "If baseline water quality is equal to or less than the quality as defined by the water quality objective, water quality shall be maintained or improved to a level that achieves the objectives. Baseline water quality should be compared to all numerical and narrative objectives that protect the actual and potential beneficial uses which would be affected by the proposed discharge. The discharge may be prohibited or allowed as described under 40 CFR 130.7."

- "If baseline water quality is better than the water quality as defined by the water quality objective, the baseline water quality shall be maintained unless poorer water quality is necessary to accommodate important economic or social development and is considered to be of maximum benefit to the people of the State."

The first category above addresses Tier 1 waters and the second category addresses Tier 2 waters. Recent state court decisions have established the following two-step framework for applying the state antidegradation policy to Tier 2 or "high quality waters" and the necessary findings that must be made by the Regional Board.[55]

- Step One. If a discharge will degrade high quality water, the discharge may be allowed if the Regional Board determines any change in water quality:

    - will be consistent with maximum benefit to the people of the State;
    - will not unreasonably affect present and anticipated beneficial use of such water; and
    - will not result in water quality less than that prescribed in State policies (*e.g.* water quality objectives in the Basin Plan).

- Step Two. If Step One is satisfied, any activities that result in discharges to such high quality waters are required to:

    - use the best practicable treatment or control of the discharge necessary to assure no pollution or nuisance; and

[53] APU No. 90-004 at 3.

[54] *Id*. at 4.

[55] *AGUA*, 210 Cal.App.4th at 1268; *Cal. Sportfishing Protection Alliance, et al. v. Cal. Regional Water Quality Control Bd., Central Valley Region, et al.*, No. 2013 34-2012-80001186 (Super. Ct. Sacramento Cnty., May 21, 2013) (Consolidated Case No. RG12632180).

- maintain the highest water quality consistent with the maximum benefit to the people of the State will be maintained.[56]

While the state antidegradation policy is itself very brief—and there have been few state court decisions outlining implementation of the state policy—the State Board has issued guidance documents and made permit-specific decisions that shed further light on the framework above, which are discussed and cited below.[57]

II. Relationship Between Federal and State Antidegradation Policies.

The federal and state antidegradation policies include similar requirements and are both triggered by changes in water quality.[58] However, the question of which policy applies is answered by examining the nature of the receiving water. The federal antidegradation policy is triggered by reduction in surface water quality. Specifically, the State and Regional Boards must apply the federal antidegradation policy to all "waters of the United States" within the State.[59] Where the federal antidegradation policy does apply, both the three-part test at 40 C.F.R. § 131.12 established by the federal antidegradation policy *and* the express requirements of State Board Resolution No. 68-16 should be considered by the Regional Board.[60] The state antidegradation policy incorporates the federal antidegradation policy.[61] As the NPDES permitting authority, when reissuing the Watershed Permit the Regional Board "[b]efore approving any reduction in water quality, or any activity that would result in a reduction in water quality

[56] Questions and Answers on Resolution No. 68-16 at 2, State Board (Feb. 16, 1995) ("State Board Q&A").

[57] *See generally*, State Board Order No. WQ-86-17; Region 9 Guidance (guidance on the application of the federal antidegradation policy to actions by the State and Regional Boards); APU No. 90-004; and State Board Q&A.

[58] Attwater Memorandum at 5 ("Application of the federal antidegradation policy is triggered by a lowering of surface water quality.").

[59] *Id*. at 2-3 ("The State Board has interpreted State Board Resolution No. 68-16 to incorporate the federal antidegradation policy in situations where the federal antidegradation policy is applicable.").

[60] *Fay* at 23, n.11 (The State Board found that "it is in the maximum benefit of the people of the State that the State and Regional Boards ensure that the State's water quality programs are consistent with the federal antidegradation policy" and therefore the state antidegradation policy incorporates the federal antidegradation policy); *see also*, Attwater Memorandum at 17; Watershed Permit Fact Sheet at F-12.

[61] Attwater Memorandum at 2; *see also Fay* at 18.

… must first determine that the change in water quality *would not be in violation of State Board Resolution No. 68–16 or the federal antidegradation policy*."[62] (emphasis added).

The federal antidegradation policy is more specific than the state policy. Compliance with the federal policy should in most circumstances satisfy the state policy. However, there may be cases where federal policy may not fully satisfy the requirements of State Board Resolution No. 68-16 (*e.g.*, the state policy expressly provides protection for *potential* beneficial uses, whereas the federal policy does not; the state policy applies to water quality changes *since 1968*, not 1975, etc.).[63] Further, the state antidegradation policy has broader applicability and applies to all "waters of the State, not just "waters of the United States."[64] Where the federal antidegradation policy does not apply (*e.g.*, discharge of pollutants to groundwater, which is not a "waters of the United States"),[65] the Regional Board is to apply the general test set forth in State Board Resolution No 68–16, without addressing the specific, three-part test established by the federal antidegradation policy at 40 C.F.R. § 131.12.[66] For purposes of this memorandum and the Regional Board's reissuance of the Watershed Permit, since the receiving water is the San Francisco Bay, a "waters of the United States," both the federal and state antidegradation policies must be considered in any antidegradation analysis.

III. Potential Legal Arguments to Challenge the Regional Board Establishing Water Quality-Based Effluent Limits Based on Antidegradation.

As noted above, the application of antidegradation policies often will hinge on technical-, water-, and project-specific facts. Decisions made by the Regional Board (*e.g.*, designating the San Francisco Bay a Tier 1 versus a Tier 2 water for nutrients, etc.) and critical facts (*e.g.*, will any of BACWA's members modify their facilities or discharges before 2019, etc.) could significantly impact any potential legal argument(s) and their viability.

[62] *Fay* at 17.

[63] Attwater Memorandum at 17.

[64] *Id*. at 17.

[65] *See AGUA*, 210 Cal.App.4th at 1261 ("The [state antidegradation policy applies to both groundwater and surface water although the [EPA's] antidegradation policy applies only to surface water.").

[66] *See Fay* at 19.

In any legal challenge, BACWA's first step would be to seek review before the State Board in order to exhaust all potential administrative remedies.[67] Assuming the State Board upheld the Regional Board's decision to include WQBELs for nutrients in the Watershed Permit based on the antidegradation policies, BACWA's next step would be to file a petition for writ of mandate and complaint for declaratory and injunctive relief against the State and the Regional Board to challenge the adoption and approval of the nutrient-based WQBELs.[68] As noted above, there have been limited state court decisions related to challenges of the Regional Board's implementation of the antidegradation policies and these decisions do not squarely address the issues that would be critical in any BACWA legal challenge.[69]

The Regional Board will enjoy deference from the reviewing state court. Under Water Code Section 13330(e), a court is authorized to exercise its "independent judgment" on the evidence.[70] However, "even where the independent judgment test applies, the factual findings of the agency come before the court with a presumption of correctness … [and] [t]he burden falls on the petitioner attacking the administrative decision to convince the court that the administrative proceedings were unfair, were in excess of jurisdiction, or that the agency's findings are contrary to the weight of the evidence."[71] Where "an agency is charged with enforcing a statute or regulation," like with the Regional Board with the CWA and the Water Code, "[the agency's] interpretation is entitled to considerable weight."[72] The reasoning is "the administrative

[67] Wat. Code, § 13320, subd. (a); *see also*, *Hampson v. Superior Court*, 67 Cal.App.3d 472 (1977) (Petitioner failed to exhaust administrative remedies because he did not seek State Board review of Regional Board's decision).

[68] *See* Wat. Code. § 13330(e); *see also* Cal. Code of Civil Procedure § 1094.5 (A state court will inquire whether the agency has prejudicially abused its discretion, which is established if the Regional Board "has not proceeded in the manner required by law, the order or decision is not supported by the findings, or the findings are not supported by the evidence.").

[69] *See AGUA*, 210 Cal.App.4th at 1268; *Monterey Coastkeeper et. al. v. Cal. State Water Resources Control Bd.*, No. 2015 34-2012-80001324 (Super. Ct. Sacramento Cnty., May 15, 2015) ("Monterey Coastkeeper"); *Cal. Sportfishing Protection Alliance, et al. v. Cal. Regional Water Quality Control Bd., Central Valley Region, et al.*, No. 2013 34-2012-80001186 (Super. Ct. Sacramento Cnty., May 21, 2013) (Consolidated Case No. RG12632180).

[70] *See Monterey Coastkeeper* at 19 ("In applying the independent judgment test, the trial court reweighs the evidence from the hearing and makes its own determination as to whether the administrative findings are supported by the weight (*i.e.*, preponderance) of the evidence.") (citation omitted).

[71] *Id*. at 19; *see also Fukuda v. City of Angels*, 20 Cal.4th 805, 811-12, 817 (1999).

[72] *Family Planning Associates Med. Group, Inc. v. Belshe,* 62 Cal.App.4th 999, 1004 (1998).

agency has an interpretive advantage over the court because of the scientific and technical nature of the issues."[73]

The legal arguments discussed below include (1) the antidegradation policies are not applicable to the reissuance of the Watershed Permit; (2) even if the antidegradation policies were applicable to the reissuance of the Watershed Permit, including permit limits for nutrients would be inconsistent with the antidegradation policies; and (3) any permit limits for nutrients are unfunded state mandates and the cost of compliance on the owners and operators of the municipal wastewater treatment plants must be reimbursed by the state.

1. **Argument 1**: The antidegradation policies are not applicable to the reissuance of the Watershed Permit.

BACWA could argue that the federal and state antidegradation policies do not apply to the reissuance of the Watershed Permit. This argument would rely on EPA, State Board, and Regional Board guidance, policies, and administrative decisions. If the federal and state antidegradation policies are inapplicable, they presumably could not be used as justification for WQBELs for nutrients. On the issue of judicial deference to the Regional Board, there is potentially helpful case law that states that "the question whether the antidegradation policy *applies* to the Regional Board's Order does not implicate any particular scientific or technical expertise" and therefore the court will not give "considerable weight to the administrative construction of [the] agency."[74] (emphasis added).

a. *The proposed action is not the type of regulated action that triggers antidegradation*.

An antidegradation analysis is needed to support all regulatory actions that, in the Regional Board's judgement, "will result in a *significant increase* in pollutant loadings."[75] (emphasis added). However, an antidegradation finding based on the federal and state antidegradation policies is not required for every Regional Board action.[76] If the Regional Board has no reason to believe that existing water quality will be reduced

[73] *AGUA*, 210 Cal.App.4th at 1268.

[74] *Id.*

[75] APU No. 90-004 at 1.

[76] *Id*. at 1 (The Regional Board when implementing the antidegradation policies "must *consider the need to include a finding* that specifies that water quality degradation is permissible when balanced against benefit to the public of the activity in question.") (emphasis added).

due to the proposed action, "no antidegradation analysis is required."[77] The Regional Board would need to make this determination when reissuing the Watershed Permit.[78]

The State Board has given examples of actions that will result in a "significant increase" in pollutant loadings that require Regional Boards to consider antidegradation effects and conduct an antidegradation analysis. The actions include:

> A substantial increase in mass emissions of a pollutant, even if there is no other indication, that the receiving waters are polluted; mortality or significant growth or reproductive impairment of resident species; issuance of a permit for any new discharge; material and substantial alterations to the permitted facility, such, as relocation of an existing discharge; or reissuance or modification of permits which would allow a significant increase in the concentration or mass emission of any pollutants in the discharge.[79]

For example, when the State Board reviewed WDRs issued to the municipal sewage treatment plants owned and operated by the cities of Sunnyvale, Palo Alto, San Jose and Santa Clara it held that the federal and state antidegradation policies *did* apply to the issuance of the WDRs.[80] In that case, the critical facts for the State Board were that the WDRs "allow both an increase in the volume of the discharge, as well as an increase in the mass emissions of toxic pollutants over current levels."[81] Since "the permits allow a lowering of surface water quality below the highest levels achieved since 1975 … the federal test must be applied …[l]ikewise, [the state policy is applicable]."[82]

None of those actions identified by the State Board are applicable to BACWA's facts. In contrast to *CBE*, as part of a challenge to the City of Watsonville's WDR for its municipal wastewater treatment plant, an argument was made that the WDR failed to

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[77] *Id*. at 2; *see also* Attwater Memorandum at 3 ("…only if there is reduction in water quality must the three-part test be applied to determine if the activity may be permitted.").

[78] *Id*. at 1 ("The determination as to whether a finding is needed must be made when issuing, reissuing, amending, or revising an NPDES permit.").

[79] *Id*. at 3.

[80] *In the Matter of the Petition of Citizens for a Better Environment*, Order No. WQ 90-5 at *30 (Oct. 4, 1990) ("CBE")

[81] *CBE* at *30

[82] *CBE* at *30 (The State Board held that since the permits are based upon performance and are higher than those in the Basin Plan and EPA water quality criteria, the limits do not necessarily ensure protection of existing instream beneficial uses and are not consistent with Tier I protection).

comply with the federal antidegradation policy and in that case, the "Regional Board and EPA concluded that an antidegradation analysis was *unnecessary* because the Watsonville discharge would not lower water quality." [83] (emphasis added). Specifically, the Regional Board found that the WDR "would not increase the mass emission," and while there would be a small increase in suspended solids "[t]his increase was considered insignificant."[84] Further, the Regional Board found the effluent limitations for toxics "were generally more restrictive than the effluent limitations in the prior [WDR]" and "the new outfall configuration would improve water quality by providing for a greatly improved disposal configuration, allowing for better mixing and dilution of effluent with the receiving waters."[85] The State Board found the Regional Board's conclusions "reasonable," focusing on a comparison of the proposed discharge authorized by the WDR "with the existing discharges[,]" which "indicates that there should be no lowering of water quality … [and] the Regional Board fulfilled the requirements of the federal antidegradation policy."[86]

Similar potential antidegradation triggering "actions" were identified in the Fact Sheet to the existing Watershed Permit.[87] However, the Regional Board found that "[n]one of these conditions apply to this Order."[88] Further, the Regional Board cited to State Board guidance that states "the federal antidegradation policy ordinarily does not apply to consideration of *existing* discharges."[89] (emphasis added). The Regional Board would need to provide a rational basis (with administrative record support) in 2019 for any change in its position from the existing Watershed Permit. Further, the State Board has questioned the ability to apply APU 90-004 and perform antidegradation analyses for "discharges from diffuse sources, conveyed through multiple outfalls, with multiple pollutants impacting multiple water bodies within a municipality, or in this case, region,

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[83] *See In the Matter of Petitions of Friends of the Sea Otter and Department of Fish and Game*, Order No. WQ 90-1 (Jan. 18, 1990) ("Sea Otter") (challenges brought by environmental organization and the California Department of Fish and Game, now known as Fish and Wildlife).

[84] *Id*.

[85] *Id*.

[86] *Id*.

[87] *See* Watershed Permit, Fact Sheet at F-13-14 ("whether there are new discharges or an expansion of existing facilities, whether there would be a reduction in the level of treatment of an existing discharge, whether an existing outfall has been relocated, whether there has been a substantial increase in mass emissions, and whether there has been a change in water quality from a point source or non-point source discharge or water diversion.").

[88] *Id*. at F-13.

[89] *Id*. at F-13 (citing to Attwater at 5).

especially given that reliable data on the baseline water quality from 1968 is not available."[90]

In response, the Regional Board may argue that the list of "actions" in the EPA and State Board guidance cited above is a non-exclusive list of actions that may trigger antidegradation. For example, it may argue that the EPA guidance says the list of actions "include, but are not limited to the following…[,]" making the list of triggering events non-exclusive.[91] Further, the Regional Board may argue that the cited guidance does not bind the Regional Board to conduct an antidegradation analysis in *only* those circumstances when it is otherwise appropriate to do so based on conditions in the receiving water. The Regional Board could also cite to subsequent—and arguably contrary—State Board guidance that says "[t]he Regional Board should also make this [antidegradation] finding when an *existing discharge* has reduced water quality, since the facility was last permitted and the reduction is not authorized by the permit." [92] (emphasis added). Further, EPA has said that "if the action *could* or will lower water quality, and the affected water is not a Tier 1 or Tier III water, then the steps to be followed to determine whether or not 40 CFR 131.12 is satisfied are described, in the following sections of this guidance [for Tier 2 waters]." [93] (emphasis added). Finally, the Regional Board would likely argue that it has the discretion as the implementing agency to determine that an antidegradation analysis is necessary to support a finding under federal or state antidegradation policies given the goals of the CWA and Water Code, with "the decision resting in the sound judgment of the State and Regional Boards."[94]

b. *The baseline receiving water quality is not reduced.*

Another relevant factor in determining whether the antidegradation policies are applicable to the reissuance of the Watershed Permit is whether the proposed activity reduces the baseline receiving water quality. The first step in any antidegradation analysis is to determine whether or not the proposed action will lower receiving water quality.[95] The baseline quality of the receiving water determines not only the level of

[90] *In the Matter of Review of Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges Within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating From The City of Long Beach MS4*, Order No. WQ 15-75 at *16 (June 16, 2015) ("LA MS4").

[91] Region 9 Guidance at 2-3.

[92] APU No. 90-004 at 1.

[93] Region 9 Guidance at 4 (the steps include those laid out in Attachment B to this memorandum).

[94] Attwater Memorandum at 3.

[95] Region 9 Guidance at 3.

water quality protection, but *whether* antidegradation analysis is necessary.[96] As noted above, if the Regional Board has no reason to believe that existing water quality will be reduced due to the proposed action, "no antidegradation analysis is required."[97] EPA says that if "the action will not lower water quality, no further analysis is needed and EPA considers 40 CFR 131.12 to be satisfied."[98] In order to successfully make the argument that antidegradation isn't applicable, BACWA will likely need to argue that the existing discharges will not reduce the baseline receiving water quality (or refute the Regional Board claims that it does) and support the arguments with data and other technical information.[99]

Baseline receiving water quality is pollutant specific, not waterbody specific.[100] Baseline receiving water quality is defined as the best quality of the receiving water that has existed since 1968 (under the state policy), or since 1975 (under the federal policy), unless subsequent lowering was due to regulatory action consistent with federal and state antidegradation policies.[101] The Regional Board will need to identify the baseline receiving water quality to be able to compare it to the proposed action (*i.e.*, the existing discharges) to determine whether the proposed action will reduce the receiving water quality and determine whether an antidegradation analysis is necessary.[102]

In the Fact Sheet to the Watershed Permit, the Regional Board took the position that "[b]ecause all the individual NPDES permits [for BACWA's members] were adopted in accordance with the antidegradation policies, the baseline for evaluating antidegradation is the existing water quality resulting from the individual permits."[103] According to the Regional Board, the baseline would be set at the dates of the existing individual NPDES permits (instead of 1968 or 1975), presumably based on the "subsequent lowering … due to regulatory action consistent with federal and state

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[96] APU No. 90-004 at 4.

[97] *Id*. at 2; *see also* Attwater Memorandum at 3 ("…only if there is reduction in water quality must the three-part test be applied to determine if the activity may be permitted.").

[98] Region 9 Guidance at 3-4.

[99] *See id*. at 7; *see also* Region 9 Guidance at 10.

[100] *Id*. at 4.

[101] *Id*. at 4.

[102] As discussed *supra* at page 11-12, determining the baseline receiving water quality will also be necessary to determine the level of protection for the receiving water (*i.e.*, is the water Tier 1 or Tier 2); *see also* APU No. 90-004 at 4.

[103] Watershed Permit, Fact Sheet at F-14.

antidegradation policies [*i.e.*, the individual NPDES permits]."[104] This would likely be the Regional Board's position in any future challenge to the Watershed Permit.

Without knowing the comparative data associated with the receiving water quality for nutrients in 1968, 1975, and the dates of the existing individual NPDES permits, the implications of the Regional Board's position is currently unclear clear. However, a similar issue on the proper baseline was addressed in a recent State Board decision reviewing the Los Angeles MS4 NPDES permit. The State Board was not persuaded that "the level of control achieved under the [prior NPDES permit] necessarily represents the baseline for purposes of an antidegradation analysis."[105] The State Board found the prior permit "had only minimal findings regarding antidegradation and it is not apparent that any degradation that may have continued under the conditions of the [prior permit] was anticipated by the [Regional Board] and supported with appropriate analysis regarding economic and social benefits and best practicable treatment or control."[106] The State Board found that "the appropriate baseline remains 1968 or the highest quality of receiving waters attained since 1968."[107] BACWA should consider the existing receiving water quality data for nutrients in San Francisco Bay in order to determine the implications for antidegradation purposes if the baseline is the receiving water quality associated with the date of the existing individual NPDES permits, 1968, or some date in-between.

BACWA could argue that the baseline receiving water quality is not reduced and therefore "no antidegradation analysis is required" since "the Regional Board has no reason to believe that baseline water quality will be reduced."[108] This argument will require supporting factual and technical rationale that is outside the scope of this memorandum in order to refute any adverse determinations made by the Regional Board. BACWA should begin to think through what is the appropriate "baseline receiving water quality," how it should be calculated, what technical support can be included and/or developed, and what it means for antidegradation decision making and any associated legal arguments.

[104] APU No. 90-004 at 4.

[105] *LA MS4* at *16 (June 16, 2015).

[106] *Id*.

[107] *Id*.

[108] Watershed Permit, Fact Sheet at F-14.

c. *The proposed action is not what is causing the reduction in the baseline receiving water quality.*

If there is a reduction in the baseline receiving water quality for nutrients, BACWA could argue that the proposed action (*i.e.*, the existing discharges) is not what is causing the reduction and therefore antidegradation is not triggered.

In response, the Regional Board could cite to provisions in the Basin Plan on its authority to address "controllable" water quality factors when "uncontrollable" water quality factors result in the degradation of water quality. For example, the Basin Plan states:

> When uncontrollable water quality factors result in the degradation of water quality beyond the levels or limits established herein as water quality objectives, the Regional Board will conduct a case-by-case analysis of the benefits and costs of preventing further degradation. In cases where this analysis indicates that beneficial uses will be adversely impacted by allowing further degradation, then the Regional Board will not allow controllable water quality factors to cause any further degradation of water quality. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the state and that may be reasonably controlled.[109]

The Regional Board could argue that even when reductions in baseline receiving water quality are caused by "uncontrollable" water quality factors (*i.e.*, natural oceanic oscillations or reductions in suspended sediment concentrations) it has the authority to address any reductions through the regulation of "human activities that may influence the quality of the waters of the state and that may be reasonably controlled" (*i.e.*, municipal wastewater treatment plants through WDRs).[110] The Regional Board's counterargument could likely be supported by the lack of anything in the federal or state antidegradation policies explicitly limiting the Regional Board from adopting this approach, and the fact that the federal or state antidegradation policies are incorporated into the Basin Plan. The Regional Board would likely argue that this position is supported by the State Board and EPA since both of those agencies reviewed and approved the Basin Plan. Additionally, the State Board in interpreting the federal policy states that "[t]he critical issue in determining whether the three-part test established by the [federal] policy must be applied is not the level of treatment provided, but *whether receiving waters will be affected*."[111]

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[109] Basin Plan at 3-2.

[110] The Regional Board would be required to conduct a case-by-case analysis of the benefits and costs of the decision. *See* Basin Plan at 3-2.

[111] Attwater Memorandum at 5.

(emphasis added). Further, with 63% of the annual nitrogen load to San Francisco Bay coming from municipal wastewater treatment plants,[112] it may be difficult for BACWA to argue that the municipal wastewater treatment plants are not the cause (at least in part) to any reductions in receiving water quality.

2. **Argument 2**: Even if the antidegradation policies were applicable to the reissuance of the Watershed Permit, including permit limits for nutrients would be inconsistent with the antidegradation policies.

Assuming the federal and state antidegradation policies apply to the reissuance of the Watershed Permit, BACWA would need to work within the framework of the federal and state antidegradation policies in order to argue that degradation of the receiving water quality is necessary and appropriate. The framework is represented in Attachment B. The federal and state antidegradation policies must both be satisfied, but each uses slightly different terms and it isn't always clear if there are practical substantive differences in the policies when implemented. In this context, the likely appropriate approach is to use the federal antidegradation policy and then supplement it with any specific provisions of the state antidegradation policy that may also be applicable, but are not addressed in the federal policy (*e.g.*, the required use of "best practicable treatment or control"). The specific legal challenge(s) that BACWA could bring would be to challenge the record-based determinations made by the Regional Board on the designation of the receiving waters and the decisions associated with whether BACWA's members may reduce the receiving water quality as opposed to complying with any WQBELs.

a. *Tier 1 versus Tier 2.*

The tier of antidegradation protection is important for determining what, if any, WQBELs may be required.[113] EPA advises that prior to proceeding with a detailed analysis associated with NPDES permit reissuance, the affected water body should be assessed to determine whether or not it falls into Tier 1 or Tier 2.[114] As noted above, determining the baseline receiving water quality will be important to making this determination. If the receiving water falls into Tier 1 or Tier 3 for a specific pollutant, a proposed action that would lower the baseline receiving water quality is prohibited.[115] In contrast, where instream uses will not be impaired [Tier 1] and no outstanding national resources waters will be affected [Tier 3], the federal antidegradation policy *allows*

[112] Watershed Permit, Fact Sheet at F-8.

[113] PWM at 6.6.

[114] Region 9 Guidance at 3.

[115] *Id*. at 3.

reductions in water quality."[116] (emphasis added). As noted above, all waterbodies receive at least Tier 1 protection.[117] Tier 1 protection means that the permit writer "must include limits in the permit sufficient to maintain and protect water quality necessary to protect existing uses."[118]

California does not appear to designate a receiving water a particular "tier" until an activity is proposed that would degrade the receiving water quality,[119] and it does not appear that the Regional Board has specified whether San Francisco Bay is a Tier 1 or Tier 2 water for nutrients or nutrient-related parameters. If that is correct, the Regional Board during permit reissuance will need to evaluate whether the receiving water is a "high water quality" for the parameters of concern, and thus require Tier 1 or Tier 2 protection.[120]

Further strategic analysis is likely necessary, but it may be preferable for BACWA to argue that San Francisco Bay is a Tier 2 water for nutrients. If it is a Tier 1 water, it would mean the receiving water quality is "just barely" in compliance with the applicable water quality standards.[121] In that scenario, the Regional Board may have an easier argument that the existing discharges must be subject to WQBELs in order to protect existing uses.[122] In short, Tier 1 likely means the existing discharges must be prohibited unless WQBELs are imposed, whereas Tier 2 may mean BACWA at least has *a chance* to argue based on the administrative record that degradation of the receiving water quality is appropriate and consistent with federal and state antidegradation policies, discussed further below. The actual tier determination will be made by the Regional Board and informed by the relevant monitoring data and existing uses for the receiving water.

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[116] *CBE* at *30.

[117] PWM at 6.6.1.

[118] PWM at 6.6.1.

[119] *See* PWM at 6-8.

[120] *Id*. at 6.6.

[121] *See In the Matter of the Petitions of Napa Sanitation District*, Order No. WQ 2001-16 at 21 (Dec. 5 2001) ("Napa").

[122] Region 9 Guidance at 3.

b. *Tier 2 Analysis*.

Assuming the San Francisco Bay is a "high quality water" (Tier 2), those waters are expressly protected under both the federal and state antidegradation policies.[123] EPA defines "high quality waters" to mean "waters in which water quality is better than necessary to support propagation of fish, shellfish and wildlife, and recreation in and on the water body."[124] The State Board defines high quality waters to mean "waters that contain levels of water quality constituents or characteristics that are better than the established water quality objectives."[125] Under both federal and state antidegradation policies, high quality waters "shall be maintained unless poorer water quality is necessary to accommodate important economic or social development [the federal standard] and is considered to be of maximum benefit to the people of the State [the state standard]."[126] In short, for Tier 2 waters, the Regional Board must balance the proposed action against the public interest.[127] In making that decision, according to EPA, the Regional Board is supposed to make the decision through "a systematic, public decision making process for determining whether or not to allow limited deterioration of water quality in high quality waters."[128]

The federal and state antidegradation policies for high quality waters are similar, but they are not the same. BACWA should examine both policies to determine the likely applicable findings that the Regional Board will or should incorporate into any antidegradation analysis. In all cases where the federal antidegradation policy is applicable, "State Board Resolution No. 68-16 requires that, at a minimum, the three-part test established by the federal antidegradation policy must be satisfied.[129] Under the Tier 2 framework, high quality waters shall be maintained unless the findings in the table below are made by the Regional Board. The findings below are the ones that BACWA should prepare to incorporate into any analysis as part of the permit reissuance process in order to advocate for lowering of the receiving water quality consistent with the federal and state policies.

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[123] State Board Resolution 68-16; 40 C.F.R. § 131.12(a).

[124] 63 Fed. Reg. at 36,782.

[125] State Board Q&A at 5.

[126] APU No. 90-004 at 4.

[127] *Id*. at 4.

[128] 63 Fed. Reg. at 36,782.

[129] Attwater Memorandum at 17.

Federal Antidegradation Policy for Tier 2 Waters[130]	State Antidegradation Policy for Tier 2 Waters[131]
"necessary to accommodate important economic or social development"	"consistent with the maximum benefit to the people of the state"
"water quality adequate to protect existing uses fully"	"will not unreasonably affect beneficial uses"
"highest statutory and regulatory requirements for all … existing point sources"	"will not violate water quality standards"
"analysis of alternatives … a range of practicable alternatives that would prevent or lessen the degradation associated with the proposed activity."	"undergo the best practicable treatment or control"
-	"no pollution or nuisance will occur"
-	"the highest water quality consistent with the maximum benefit to the people of the state will be maintained"

Examining the table, it is clear that some of the federal findings are more stringent than the State's findings (*e.g.*, "protect existing uses *fully*" v. "not *unreasonably affect* beneficial uses"), some of the federal findings are unique (*e.g.*, analysis of practicable alternatives)[132] and some of the state findings are unique (*e.g.*, "undergo the best practicable treatment or control"). Should BACWA find itself navigating a Tier 2 analysis, it should be prepared to address the most stringent and all unique findings from the federal and state antidegradation policies.

In particular, BACWA should begin thinking about how the discharges are necessary to accommodate important social or economic development and are consistent with the maximum public benefit to the State. It is important to keep in mind that the State Board says the "severity and extent of water quality reduction should be weighed when evaluating the benefits required to compensate for that degradation."[133]

[130] 40 C.F.R. § 131.12(a)(2), (a)(2)(ii).

[131] State Board Q&A at 2.

[132] *See* 40 C.F.R. § 131.3(n) ("Practicable, in the context of § 131.12(a)(2)(ii), means technologically possible, able to be put into practice, and economically viable.").

[133] APU No. 90-004 at 5.

The State Board has provided guidance on the factors that should be considered as part of examining important social or economic development and the maximum public benefit to the State:

- Past, present, and probable beneficial uses of the water.
- Economic and social costs, tangible and intangible, of the proposed discharge compared to benefits. The economic impacts to be, considered are those incurred in order to maintain existing water quality. The financial impact analysis should focus on the ability of the facility to pay for the necessary treatment. The ability to pay depends on the facility's source of funds. In addition to demonstrating a financial impact on the, publicly or privately-owned facility, the analysis must show a significant adverse impact on the community. The long-term and short term socioeconomic impacts of maintaining existing water quality must be considered. Examples of social and economic parameters that could be affected are employment, housing, community services, income, tax revenues, and land value. To accurately assess the impact of the proposed project, the projected baseline socioeconomic profile of the affected community without the project should be compared to the projected profile with the project.
- The environmental aspects of the proposed discharge must be evaluated. The proposed discharge—while actually causing a reduction in water quality in a given water body—may be simultaneously causing an increase in water quality in a more environmentally sensitive body of water from which the discharge in question is being diverted (*e.g.*, changing the location of San Francisco's outfall from the Bay to the ocean.).
- The implementation of feasible alternative control measures which might reduce, eliminate, or compensate for negative impacts of the proposed action.[134]

There is other EPA and State Board guidance and associated documents that further expand on the terms and concepts identified in 40 C.F.R. § 131.12(a)(2), State Board Resolution No. 68-16, and the table above. For example, the State Board's Questions and Answers on Resolution No. 68-16 (Feb. 16, 1995) elaborates on the meaning of "degradation," "maximum benefit to the people of the State," "best practicable treatment or control," among other issues. This memorandum does not fully expand on the necessary requirements of a Tier 2 antidegradation analysis, as it will be a highly fact-specific analysis. However, given that the burden will be on BACWA to demonstrate that the degradation of the receiving water quality is necessary and consistent with antidegradation policies,[135] it may want to begin to consider what supporting technical, policy, and legal materials will be necessary as part of the permit reissuance.

[134] *Id*. at 5.

[135] Attwater Memorandum at 12; Region 9 Guidance at 9.

The specific legal challenges by BACWA would be to any findings made by the Regional Board in the Tier 2 framework that result in the Regional Board determining that the receiving water quality cannot be reduced consistent with the federal and state antidegradation policies, and therefore the existing discharges must be subject to new WQBELs. The Regional Board will likely argue that consistency with the antidegradation policies requires WQBELs. There would likely be a high bar to overcome for BACWA to successfully convince the Regional Board to make a finding in its favor or convince a state court to overturn adverse Regional Board findings that are part of a Tier 2 analysis given the deference the Regional Board will receive on its findings. The likelihood of success would likely depend on the facts and technical support that BACWA can develop in support of its arguments within the framework above.

3. **Argument 3**: any permit limits for nutrients are unfunded state mandates and the cost of compliance on the owners and operators of the municipal wastewater treatment plants must be reimbursed by the state.

The California Constitution, Article XIII B, Section 6(a), requires the State to reimburse municipal governments for the cost to comply with programs mandated by state law. The purpose of Section 6 is to prevent "the state from shifting financial responsibility for carrying out governmental functions to local agencies, which are 'ill equipped' to assume increased financial responsibilities because of the taxing and spending limitations that articles XIII A and XIII B impose."[136] One exception to this general requirement is when the program is a "federal mandate" required by federal law. The Commission on State Mandates ("Commission") is a quasi-judicial body in California that receives "test cases" from entities that believe there is a state unfunded mandate.

A number of municipal governments who are permittees under the Los Angeles MS4 NPDES permit filed a test claim with the Commission alleging specific permit provisions were unfunded state mandates. The focus of the challenge was on the stormwater program, CWA Section 402(p)(3)(B)—the meaning of the statutory term "maximum extent practicable" ("MEP")—and EPA's implementing regulations at 40 C.F.R. § 122.26. The Commission found the permit provisions were unfunded state mandates, relying on "the plain language of the federal statute and regulations," and that finding federal law does not specifically require the permit provisions at issue. On appeal, the California Superior Court and the California Court of Appeals overturned the Commission's decision and held the permit provisions were federal mandates under the CWA.[137] The lower courts viewed CWA Section 402(p)(3)(B) and the EPA's implementing regulations as establishing a "flexible regulatory program" that allowed the

[136] *Cnty. of San Diego v. State of California* 15 Cal.App.4th 68, 81 (1997).

[137] *See State Dep't of Fin. et al., v. Comm'n on State Mandates et al.*, 220 Cal.App.4th 74 (2013).

Regional Board as the permitting authority the "discretion" to determine what specific permit conditions are necessary to meet the MEP statutory standard.[138]

The case was appealed to the California Supreme Court and on August 29, 2016, in a 4-3 decision, the Court overturned the Appellate Court and upheld the Commission's decision finding that the permit requirements were unfunded state mandates.[139]

- *Majority Opinion*. The Majority opinion framed the issue as "how to apply that [federal] exception when federal law requires a local agency to obtain a permit, authorizes the state to issue the permit, and provides the state discretion in determining which conditions are necessary to achieve a general standard established by federal law, and when state law allows the imposition of conditions that exceed the federal standard."[140] In other words, "whether federal statutory, administrative, or case law imposed, or compelled the Regional Board to impose, the challenged requirements [in the WDR]."[141]

  The Majority held that "[i]t is clear [that] federal law did not compel the Regional Board to impose these particular requirements. There was no evidence the state was compelled to administer its own permitting system rather than allowing the EPA do so under the CWA."[142] Instead, "the state chose to administer its own program, finding it was 'in the interest of the people of the state, in order to avoid direct regulation by the federal government of persons already subject to regulation' under state law."[143] The Majority focused on the fact that "the Legislature … directed that state and regional boards issue waste discharge requirements 'ensur[ing] compliance with all applicable provisions of the [CWA] *. . . together with any more stringent effluent standards or limitations* necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.'"[144] (emphasis in original).

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[138] *Id*.

[139] *State Dep't of Fin. et al., v. Comm'n on State Mandates et al.*, Case No. S214855 (Aug. 29, 2016).

[140] *Id*. at 15.

[141] *Id.* at 20.

[142] *Id*.

[143] *Id*. at 21.

[144] *Id*. at 5.

The Court goes on to say that "EPA's regulations gave the board discretion to determine which specific controls were necessary to meet that standard … [and] the State was not compelled by federal law to impose any particular requirement."[145] Also relevant is that the Court held that "[w]e also disagree that the Commission should have deferred to the Regional Board's conclusion that the challenged requirements were federally mandated … [and] the State has the burden to show the challenged conditions were mandated by federal law … [as] the State must explain why federal law mandated these requirements, rather than forcing the Operators to prove the opposite."[146]

- *Concurring and Dissenting Opinion*. The concurring and dissenting opinion (hereinafter referred to as the "Dissent") agreed that the Appellate Court's analysis was wrong, but dissented strongly against the majority's interpretation of the CWA, its relationship to state unfunded mandates law, and the implications for regulatory programs in California.

  The Dissent argued that the Majority's "[i]nterpretation of the CWA failed to account for the complexities of the statute … [and the] implementation of the federal mandate requires the state agency—here, the Regional Board—to exercise technical judgments about the feasibility of alternative permitting conditions necessary to achieve compliance with the federal statute."[147] The Dissent strongly objected to the standard that "[u]nless the requirement in question [in the permit] is referenced explicitly in a federal statutory or regulatory provision … the requirement cannot be a federal mandate."[148] The Dissent argued "…past decisions emphasize the need to consider the implications of multiple statutory provisions and broader statutory context when interpreting federal law to determine if a given condition constitutes a federal mandate."[149]

  Practically, the Dissent found the "…overly narrow approach to determining what constitutes a federal mandate [a] risk[] [to] creating a standard that will never be met so long as the state retains any shred of discretion to implement a federal program. It cannot be that so long as a federal statute or regulation does not expressly require every permit term issued by a state agency, then the permit is a

[145] *Id*. at 21; *see also id*. at 22 ("It is simply not the case that, because a condition was in the Permit, it was, ipso facto, required by federal law.").

[146] *Id*. at 22-23.

[147] *Id*. at Dissent 2-4

[148] *Id*. at Dissent 5.

[149] *Id*. at Dissent 6.

> state, rather than a federal, mandate. But this is precisely how the Commission analyzed the issue—an analysis that, remarkably, the majority does not even question."[150] Finally, the Dissent found that "given the nature of the relevant CWA provisions—and particularly the maximum extent practicable standard—it is wrong to assume that the conditions [in the permit] at issue in this case exceed what is necessary to comply with the CWA simply because neither the statute nor its regulations explicitly mention those conditions. The consequence of that assumption, moreover, risks discouraging the state from assuming cooperative federalism responsibilities—and may even encourage the state to withdraw from administering the NPDES."[151]

This decision has the potential to have significant implications for a wide range of regulatory programs in California that impact municipal entities, beyond those requirements associated with the CWA and the Water Code. The State Board may request for rehearing at the California Supreme Court (a rehearing motion would be due by Sept. 12, 2016). Further, the United States is deliberating whether it will weigh into this matte, as there are similar state matter pending in Hawaii and New Jersey associated with NPDES permits.[152] If the decision stands, it could strongly support a related argument that WQBELs are discretionary state requirements and state unfunded mandates.

BACWA's general fact pattern is the same as that in *State Dep't of Fin*, "federal law requires a local agency to obtain a permit, authorizes the state to issue the permit, and provides the state discretion in determining which conditions are necessary to achieve a general standard established by federal law, and when state law allows the imposition of conditions that exceed the federal standard."[153] The difference would be the federal "requirement." Instead of CWA Section 402(p)(3)(B) and 40 C.F.R. § 122.26, the relevant federal requirement that would be the focus would be, in part, CWA Section 301(b)(1)(C) and 40 C.F.R. §§ 122.44(d), 131.12. The analysis could be complicated by the fact that the State Board incorporated the federal antidegradation policy into the state antidegradation policy. However, the general argument by BACWA would be that water quality standards (*i.e.*, uses, objectives and antidegradation policies) are established by the states and while the CWA requires the State Board to establish water quality standards, generally, it is up to the State to establish the *specific* water quality standards, including its antidegradation policy. The State Board was not compelled to incorporate

[150] *Id*.

[151] *Id*. at Dissent 10-11.

[152] Hawaii, Haw. Const. Art. VIII, § 5, and New Jersey, N.J. Const. Art. VIII, ¶ 5; N.J.S.A. § 52:13H, have similar state "unfunded mandates" provisions.

[153] *State Dep't of Fin* at 15.

the federal antidegradation policy into the state antidegradation policy, and the state antidegradation policy is what ultimately is the authority for Regional Boards to establish WQBELs in NPDES permits and WDRs. Additionally, while the CWA and EPA's regulations require NPDES permits to include WQBELs, as necessary,[154] per the Majority opinion in *State Dep't of Fin*, the State was not compelled to administer its own permitting program rather than allowing the EPA do so under the CWA. Any WQBELs included in the Watershed Permit would be discretionary requirements that are based on the state antidegradation policy, based on state law, and not explicitly required by the CWA or EPA's regulations.

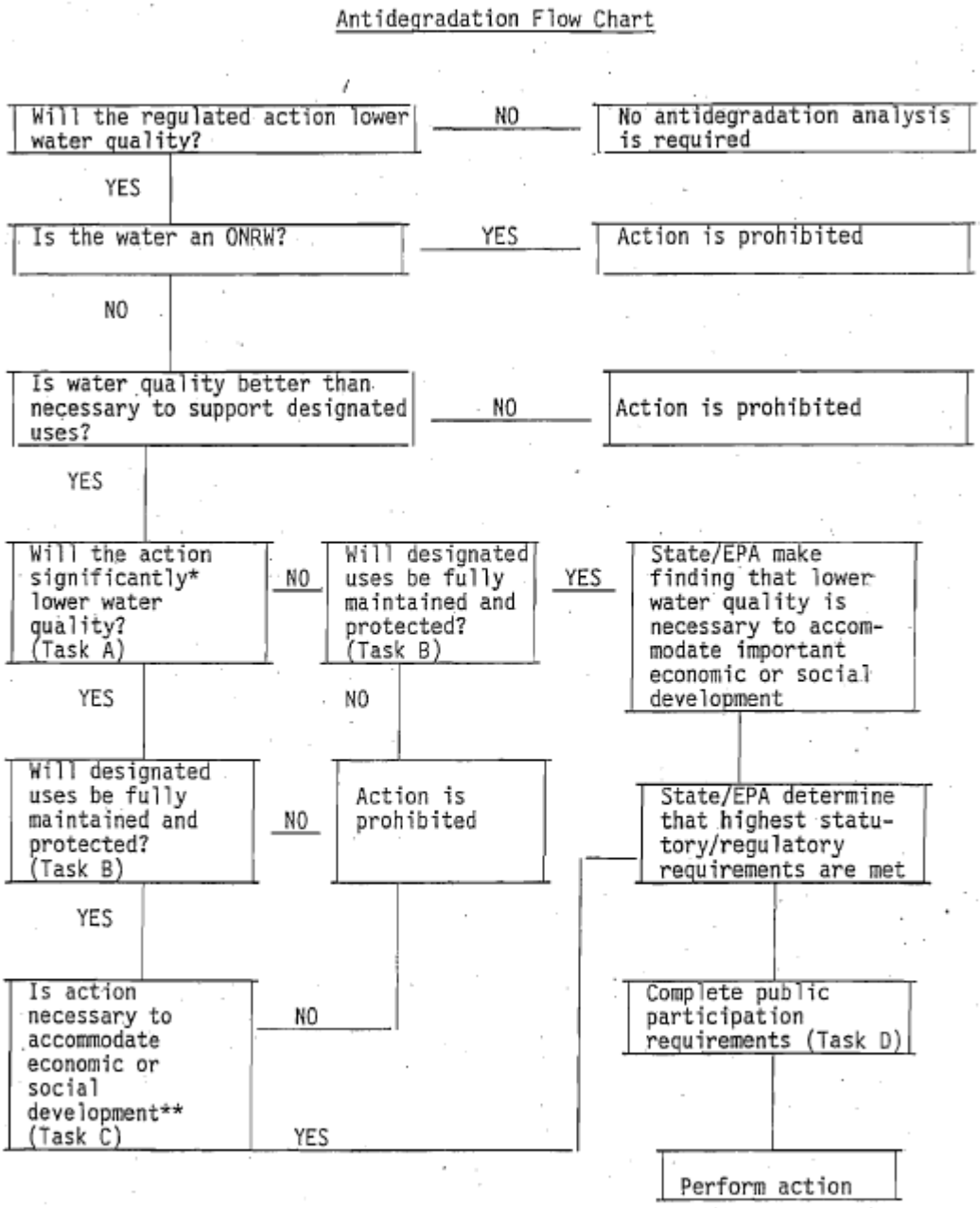
In response, the Regional Board would likely make the same arguments the State Board made in *State Dep't of Fin* as reflected in the Dissent's opinion. At this time, it is not clear how lower state courts will interpret *State Dep't of Fin*. However, it should be clear shortly as almost every Phase I MS4 permit is in the queue for a state unfunded mandates challenge and these challenges will reach the state courts in short order. The Regional Board would likely try and distinguish the CWA provisions at issue. The CWA and EPA regulatory provisions noted are different, with the stormwater requirements arguably more ambiguous and unclear on exactly what they "require" compared to the water quality standards requirements, which was on purpose by EPA in order to create an "flexible" stormwater program.[155] However, if the state courts apply the principles in the Majority opinion in *State Dep't of Fin* BACWA would likely have an argument that WQBELs are also state unfunded mandates, though the argument would likely be one of first impression for state courts and a more difficult argument than that made in the context of the federal stormwater program.

Any state unfunded mandates challenge would be a separate and distinct legal challenge from Argument 1 and 2 above, needing to first go through the procedural steps with the Commission. A noteworthy wrinkle is that even if BACWA was successful in bringing a state unfunded mandates action, it would *not* prevent the Regional Board from legally including WQBELs for nutrients in the Watershed Permit. The permit and its terms would still be an enforceable NPDES permit, subject to EPA and/or environmental organization enforcement actions, though unless the State reimbursed the municipal governments the State would not be able to enforce the permit limits for nutrients. While this legal argument wouldn't as a matter of law prohibit the Regional Board from including WQBELs for nutrients in the permit, it could be used as leverage in any pre-reissuance discussions with the Regional Board and as a matter of politics and policy, the Regional Board would be in a difficult position promulgating a permit that is in violation of state mandates law and that it can't enforce.

[154] *See* 33 U.S.C. § 1311(b)(1)(C); 40 C.F.R. § 122.44(d).

[155] *See* 55 Fed. Reg. 47,990, 48,038 (Nov. 16,1990) (final rule for EPA's Phase I stormwater regulatory program).

Attachment B



156

[156] Region 9 Guidance at 10 (this is the EPA's version of the analytical framework that should be applied when implementing antidegradation).

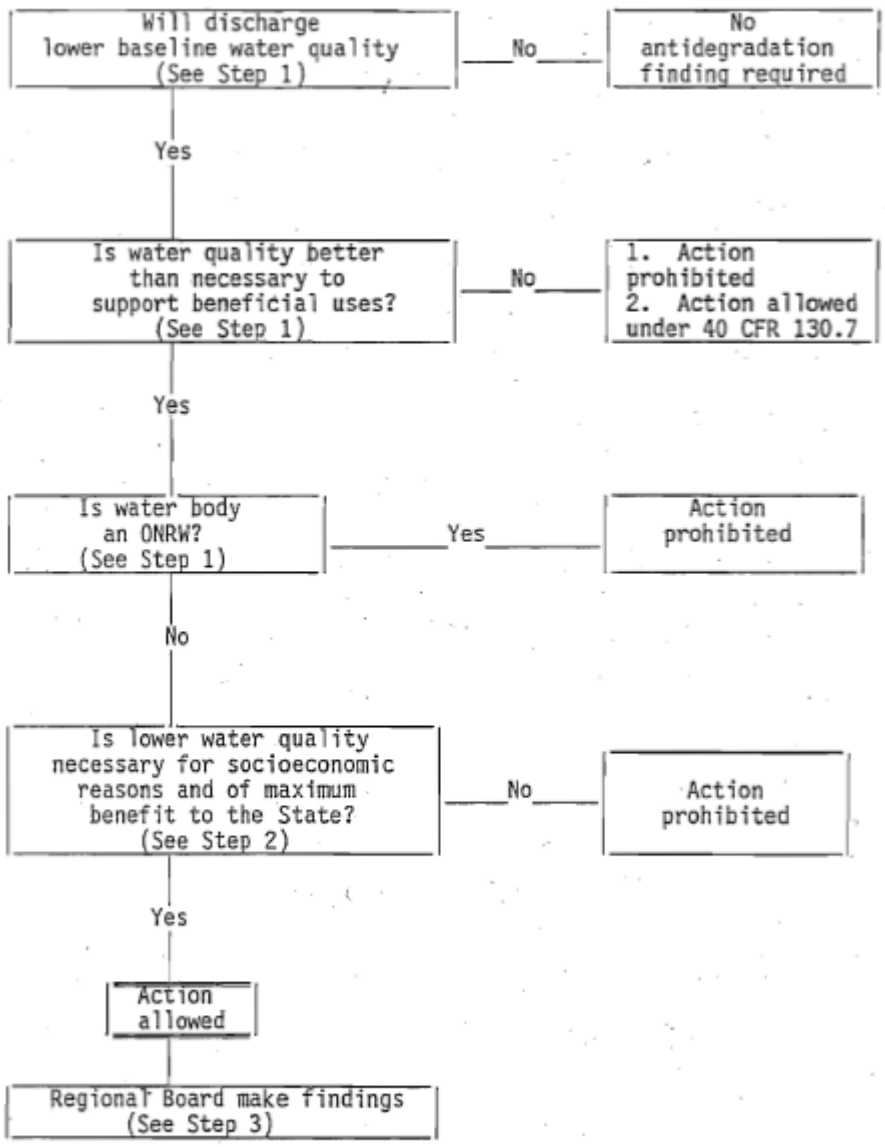


Figure 1 - Decision making flow chart.

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[157] APU No. 90-004 at 7 (this is the State Board's version of the analytical framework that should be applied when implementing antidegradation).

Planning Subcommittee (PSC) Meeting No. 73
January 4, 2022
9:30 am – 12 pm
Teleconference
Chair: Ian Wren
Meeting Notes

Attendees: Eric Dunlavey, Dave Senn, Kevin Lunde, Ian Wren, Richard Looker, Lorien Fono.

1. *Previous Action items from the planning subcommittee:*

- Water Board to synthesize Lake Merritt Monitoring data – haven't yet been able to work on this because of 303(d) lists. We would expect to have the data to share in about 1 month.
- BACWA to deliver short term scenarios to the NMS for testing by the end of March
- Restart steering committee action item table – Ian will take this on.

December 7 Steering committee action items

- Agendize nutrient reduction planning discussion – could do at the subsequent meeting.
- Build up stated priorities for HAB investigations should additional resources become available – ongoing.

2. *Science Program Update*

SFEI's RMP/NMS WQIF grant was funded at $3M, as was the SFEP funding for the NBS implementation. There may not be a grant solicitation next year since there was a good pool of candidates this year.

Dave and Ian walked through the tasks in the WQIF proposal, highlighting which ones will contribute to NMS efforts. The sediment transport model work will be a combined effort between hired experts and SFEI staff.

There was a discussion about the use of remote imaging, and how we could collaborate with the State Water Board on enhancing that part of the program. Tom will work with Dave to engage with them and make connections with the right staff. There was a discussion of the importance of using NOAA remote sensing data in partnership with the NOAA modeling team, particularly for suspended sediment modeling. The goal would be to validate the satellite data and shift away from the cruise data. NOAA's model was originally developed for the Chesapeake Bay and would need to be calibrated for the SF Bay. NOAA has expressed skepticism about our local model and we will need to respond to that. Kevin will help coordinate with NOAA staff to accomplish this.

There is funding for modeling and planning future scenarios, including factors out of our control, nutrient management alternatives, and nature based solutions. There is also the funding for launching a community open source model platform. Ian and Lorien will work to increase engagement among BACWA members for NBS planning at their facilities.

The group is in progress of submitting a proposal to NOAA MERHAB for $3M for harmful algae monitoring. The solicitation is heavily geared to the work we're doing. If funded, one of the goals would be to acquire an imaging flow cytobot. There would be a managers advisory group chaired by R2 and R5 to help direct this work.

3. *Priority Updates*
   N/A

4. *Discussion/Planning Topics*

   Dave queued up a discussion about what fraction of resources should be directed toward the HAB event compared to chronic SF Bay conditions. We won't be able to model the probability of reoccurrence, but we would like to be about to simulate the bloom and test different load reduction scenarios. Richard expressed support for modeling the bloom but cautioned about putting too many eggs in that basket. This is setting up a framework for how to think about event-based modeling investigation, and many of the lessons from this exercise will be generalizable. Ultimately event-based events may be the basis for future regulation. Modeling this event will help us understand whether planned reductions will make a difference.

   We need to have clarity on what metrics are being targeted (i.e. DO vs. chlorophyll or biomass). The duration of the bloom is tied to DO loss, as is biomass.

   The science work is going to inform both load reduction targets and the pace to achieve those targets. In terms of pace, the timing of nutrient reductions are driven by both feasibility and whether there is another bloom. We will need to look at this summer's conditions and estimate reoccurrence. There was a discussion about trading off between getting projects done soon and what is the optimal solution. Dave's team can turn loads up and down in the model. One of the tricky pieces is flux from the sediment. They will get feedback from MAG (meeting to be scheduled) and use that to make a proposal on how to proceed over the next few months.

5. Action items (ongoing from last month):

- Water Board to synthesize Lake Merritt Monitoring data (approx. 1 months)
- BACWA to deliver short term scenarios to the NMS for testing by the end of March
- Restart steering committee action item table

San Francisco Bay Nutrient Management Strategy (NMS) Steering Committee Meeting Draft Minutes

Date/Time: December 9, 2022, 9:00 AM to 1:00 PM

Location: WEBCONFERENCE

Chair: Thomas Mumley

Steering Committee Attendees

Organization	First	Last	Role	Present	Comments
BASMAA	Adam	Olivieri	Member		
	Tom	Hall	Alternate	X	
	Matt	Fabry	Alternate		
	Geoff	Brosseau	Alternate		
BACWA	Jackie	Zipkin	Member	x	
	Lori	Schectel	Alternate		
	Eric	Dunlavey	Member	x	
Cal DFW	Becky	Ota	Member		
U.S. Geological Survey	Mike	Chotkowski	Member		
NOAA Fisheries	Joe	Dillon	Member	x	
	Brian	Meux	Alternate	x	
Regional San	Lisa	Thompson	Member		
San Francisco Baykeeper	Ian	Wren	Member	x	
South Bay Salt Pond Restoration Project	David	Halsing	Member	x	
Interagency Ecological Program	Steve	Culberson	Member	x	
SFCWA	Lynda	Smith	Member		
	Frances	Brewster	Alternate		
U.S. EPA	Terry	Fleming	Member	retired	
	Luisa	Valiela	Alternate	x	
U.S. FWS	Leanna	Zweig	Member		
WSPA	Kevin	Buchan	Member	x (joined late)	
Ocean Protection Council	Kaitlyn	Kalua	Member	x	
Central Valley Water Board	Adam	Laputz	Member		
	Janis	Cooke	Alternate	x	

	Christine	Joab	Alternate		
SF Bay Water Board	Tom	Mumley	Member	X	
	Richard	Looker	Alternate	X	

Additional Attendees
Lorien Fono, BACWA
Mary Cousins, BACWA
David Senn, SFEI, Science Manager, Program Coordinator Team
Robert Schlipf, Water Board
Don Grey, EBMUD
Lilia Mourier, SFEI
Farid Karimpour, SFEI
Dan Killam, SFEI
Allie King, SFEI
Ariella Chelsky, SFEI
Amit Mutsuddy, EBMUD
Blake Brown, Central San
Dana Michaels, EPA
Kristen Isom, EPA
Eileen White, Water Board
Martin Volaric, SFEI
Mike Connor
Pradeep
Mary Lou Esparza, CCCSD

1. **Welcome, Introductions and Agenda Review**

   The Chair led an introduction of participants on the call. The main item for today's agenda is to understand the shift in science program resources in response to the summer 2022 algal bloom. We will also discuss actions to be ready for future algal bloom.

2. **Decision: Approve Prior SC Meeting Summaries**

   Lisa noted that Steve Culberson's name is misspelled in the May 3 meeting summary, and that Regional San's upgrade description should include disinfection and filtration.

   A motion to approve the May 3, 2022 meeting summary with the above corrections was made by Eric Dunlavey (BACWA), and seconded by Kaitlyn Kalua (OPC). The motion passed unanimously.

3. **Information: Action items**

   - Develop high level synthesis material to communicate nutrient science program to decision makers – To be covered later in the agenda.
   - Tom will communicate about the SEP fund allocation once the settlement is finalized – Back in May there was an ongoing settlement action, which was finalized and noticed after the May meeting.

4. Information: Planning Subcommittee Report Out

The Planning subcommittee met four times and were discussing HAB response, as will be covered in today's meeting.

5. Information: NMS Program Update

- *Program Update* – Martin Volaric has rejoined the team.
- *Workflow* – Will discuss during item 7.
- *Funding and proposals* – The program received $175K in 2022 for Shoal mapping. An NSF rapid response HAB proposal was turned down. A NOAA rapid-HAB proposal was successful.

  The NMS and RMP submitted a WQIF proposal for $3M, which will have an emphasis on creating a modeling toolbox. The group is in progress of submitting a proposal to NOAA MERHAB for $3M for harmful algae monitoring. The LOI was provided in the meeting materials packet.
- *Model advisory group* – The group was convened on an emergency basis on 11/14. A report-out from the meeting is available in the meeting folder.
- *Products* – A few items are ongoing in terms of developing a high-level synthesis. Some of those work products have been delayed due to the algal bloom. There has also been ongoing work on sequencing HABs, and output from the imaging flow cytobots that are on the monitoring cruises. After the meeting, Dave will share a series of work products. Dave clarified that synthesis work related to the bloom will be separate from the synthesis work products that will be provided in this list.
- Dan Killam shared the ShinyApp dashboard for ecological data that are being developed in conjunction with USGS, USCS, and Bend Genetics. UCSD is working with imaging flow cytobots that can automatically identify and quantify algal species in samples collected on cruises. There was a discussion about how this work could be incorporated into an early warning system. It was noted that imaging algae doesn't give us information about whether they are producing toxins. Dave noted that harmful algae often produce toxins once they are running out of nutrients. In the future, we may install an imaging flow cytobot into the Bay on a permanent basis to get real time telemetry. The group will need to decide whether that will be useful information in real time. The public has increased interest in timely information about algal species. Eileen noted that we need to be careful about communication and whether we are able to take meaningful action to control it. It would be important to have this tool for communication if there were a harmful algal bloom that was toxic to human.

  Kaitlyn Kalua expressed appreciation for the ShinyApp application and the OPC's interest in partnering with that work.

  Action: Agendize discussion of nutrient reduction planning at a future meeting

6. Discussion: Update on the summer 2022 algal bloom

A presentation of the current understanding of the algal bloom was provided for participants to review in advance. Discolored waters in the Oakland estuary served as

an early indication of the event, and the algae species was identified as *Heterosigma akashiwo*. The bloom subsequently spread throughout South Bay (between Bay Bridge and Dumbarton Bridge), and also extended into other regions of the Bay. The bloom peaked in late August, and by mid-September, the bloom had dissipated.

POTWs have discussed the probability of recurrence and the possibility of mitigating a future event. The next steps in the science program will be tuned at addressing these questions. Data collection and interpretation tools are a combination of water quality moorings, water quality mapping cruises, long-term deep channel monitoring, remote sensing, and numerical modeling.

Imaging flow cytobot data collected from cruises were compared to chlorophyll concentrations and remote sensing data. 100 ug/L chlorophyl increase is equivalent to 5-8 mg/L oxygen demand. This translates to 2-4 mg/L/d decrease in DO. Oxygen dropped from 8-9 mg/L to 2.5 mg/L for 2 two three days.

We don't have an ability to understand what caused the event to kick off since we didn't have the observational resources in that area. Heterosigma has been in the system for >1 decade, and we don't know why that organism took off. Temperature stratification was not a significant factor. Wind and tides, nitrogen gradient, light transmission, grazer populations, climate forcings, depth, and the organism's mobility are all important factors to be tested by the models.

Some preliminary conclusions are that including mobility is key to modelling Heterosigma, and 12 of the 14 species of concern. Also, turbidity was observed to be inverse to chlorophyll. There was a couple of day lag between drop on nitrate and drop in chlorophyl. However, the rate of chlorophyll increase dropped with nitrate. Dave clarified that high nitrate did not spark the event as nitrate has been high for decades, but was the fuel for the event. Light penetration and low mixing were related to the event.

Farid covered the mechanistic investigation of the termination of the HAB event. They explored a series of mortality rates, which can be explained by grazing. The goal will be to use the assumptions in this model to determine whether we could have prevented or mitigated the bloom. There was a question about how the targeted nutrient load scenarios would play out – would it be total loads, or spatially targeted loads. We will decide how to proceed. There was also a discussion about the contribution of ammonium to DIN, which is being investigated.

Would it make a difference if we reduced nutrient discharges based on the reservoir in suspended sediments. We can approach it from the observational data set, as well as from the modeling standpoint. We will pair this effort with information from BACWA on what types of management actions are feasible.

7. Discussion and Decision: Implications of HAB event for NMS science priorities

Dave provided a memo summarizing proposed changes to the science program in response to the bloom. **Proposed Changes to Project Scopes**

C3 Core Modeling:

- During Jul-Aug, C3 work focused on the projects identified in the FY2023 Program Plan; work proceeded well.
- Beginning in late Aug, work shifted to modeling related to the HAB event, including numerical experiments to evaluate key processes or forcings, and/or model development to simulate the HAB event (e.g., hydrodynamics for May-Sep 2022; tracer studies and other numerical experiments, hypothesis testing, including evaluating the importance of

phytoplankton-swimming; testing/implementing refinements to simulate event: capture key features of the HAB event and water quality responses. (~2-3 months of 2 FTEs, Sep-Dec 2022).

- For Jan-Dec2023, an increasing portion of the modeling team's effort will return to pursuing the original FY2023 work (25-50%).
- Further proposed changes to the FY2023 Core Modeling scope include:
  - continued HAB-event modeling work to increase understanding of the event
  - continued model development toward predictive-mechanistic model
  - apply model to assess whether any future events, in the near-term, could be mitigated with emergency management actions
- *Proposed change in scope and timeline*: Authorization to invest C3 effort on HAB event interpretation, and HAB model development for the Aug-2022 event.

C4 Program Coordination:

- The primary changes to C4's scope stem from DS's time being shifted primarily to working on the HAB event from Aug-Dec 2023:
  - this impacted engagement on other projects, i.e., initiating synthesis work, making technical contributions to on-going projects, etc., which led to some of the delays in other projects in Table 1;
  - putting other program management activities on the back-burner (e.g, website content, recruiting a program manager, etc.).
- *Proposed change in scope and timeline*: Authorization to invest C4 effort on HAB event interpretation.

P2 Deep Subtidal AF Development

- Although some work moved ahead on this project in July and August 2022, work was paused by mid-August, resulting in P2 being 4-5 months behind the schedule proposed in the FY2023 Program Plan.
- In addition, the management implications of the HAB event may change the approach or focus of the Deep Subtidal AF development. Through discussions with WB staff it is clear that, at a minimum, it is necessary to reevaluate and potential rescope
  - *Proposed change in scope and timeline*: Jan-Feb 2023: Convene 3-4 meetings with WB staff to : assess how/if the HAB event affects the focus or approach to AF development, in particular in terms of WB needs related to decisions for Permit #3; develop a revised approach and timeline by end of Feb 2023; Mar 2023: begin implementing revised plan.

2. HAB-response Project: field studies, data analysis/synthesis, report preparation

- *Field Work, Sample Analysis, and Aug-Sep data management and analysis*:
  - 5 mapping surveys (including additional staffing); discrete sample analysis (nutrients, chl-a, 18s/16s sequencing, viruses, microscopy, and processing of analysis if IFCB and molecular data for quantifying protists/grazers)
  - Estimated Cost: $135,000
- *Data Analysis/Synthesis, and technical report/manuscript preparation*
  - Estimated Cost: $100,000
- *Total:* $235,000
- *Source of funds:* We are continuing to evaluate options (including fundraising), and will update the NMS-SC at the Feb/Mar 2023 meeting. [Worst case scenario: use funds from FY2024 to cover any remaining funding shortfalls]

The Steering Committee decided to move ahead with making a decision based on the information provided. Tom asked for a motion to approve the proposed reallocation. Joe Dillon (NMFS) made a motion and Jackie Zipkin (BACWA) seconded. The motion passed unanimously.

Dave then moved on to discuss what it would take to implement an early warning system, and what would need to happen this and next fiscal year. Tom noted that there is a parallel discussion ongoing at the RMP about setting aside funds for event-based emergency response. The State

may also invest in HAB early warning infrastructure. There was a comment that we should make sure that we pay sufficient attention to the North Bay. Tom proposes that we agree that the near term projects for emergency response are priorities that should move forward should funding become available. There was a discussion about hosting a regional forum to discuss how future climate scenarios would impact the likelihood of a bloom recurrence. We could use the Bay-Delta Conference or State of the Estuary to host these discussions. We also need to consider how much confidence we need to support funding nutrient reductions.

At the subsequent meeting we will host the discussions which will set the stage for making financial decisions for FY24.

8. Future meeting schedule

- At previous meetings, it was agreed that we would reduce steering committee meetings to 3x per year, with one NTW meeting prior to the adoption of the annual program plan. It was proposed that steering committee meetings be held in October, February, and Early May. We will default to the 2nd Friday except when key participants can't make it, in which case we'll push to the 3rd Friday. The dates for the next year will be October 21, February 10, and May 12.

9. Other Business

Updates from NMS Steering Committee member agencies

Tom: There will be a HAB session in the State of the Estuary meeting. There will be an opportunity for those who are interested to help formulate this. We'll figure out how to engage in the Bay Delta.

Steve Culberson: Volunteered to be a conduit to the Bay Delta conference.

10. Action items and wrap-up

- Agendize nutrient reduction planning discussion
- Build up stated priorities for HAB investigations should additional resources become available.

Adjourned at 12:53pm

FAQs

BACWA BAY AREA CLEAN WATER AGENCIES

NUTRIENTS IN SAN FRANCISCO BAY REGION WASTEWATER

A harmful algae bloom event occurred in San Francisco Bay (SF Bay), beginning in late July 2022. Discolored waters in the Oakland estuary were an early indication of the presence of the algae species *Heterosigma akashiwo*. This species of algae may produce substances that are toxic to fish, but has not been shown to be harmful to humans. The algae bloom subsequently spread between the Bay Bridge and the Dumbarton Bridge, and extended into other regions of the Bay.

The bloom peaked in late August and began to die off by August 31, which caused substantial decreases in the amount of dissolved oxygen in the water. As oxygen levels declined, a significant fish die-off was observed in multiple locations around the Bay.

Since algae need nutrients to grow, regulators, wastewater agencies, and scientists are continuing to examine how nutrients are managed in the SF Bay region. **Below are answers to frequently asked questions about nutrients in the SF Bay.**

What are "nutrients" and why are they in wastewater?

Nutrients, along with light exposure, are essential to the process of photosynthesis which is how plants like algae grow. In the San Francisco Bay ecosystem, nitrogen is the primary nutrient of concern since decreasing nitrogen can limit algal growth. Nitrogen in wastewater mostly comes from human urine.

What role did nutrients play in the 2022 algal bloom?

We don't know what started the algal bloom, but once it began, the algae were able to use nutrients in the SF Bay to grow and extend throughout much of the region. In recent years, wastewater treatment plants have decreased the amount of nitrogen they add to the SF Bay, so we know that the bloom was not triggered by an increase in nitrogen in 2022.

What role do nutrients play in nature?

Nutrients are necessary for healthy ecosystems to produce algae, which are necessary to support life in all water bodies. However, under certain conditions, over-enrichment of nutrients can lead to too much algal growth. As the algae die off and decompose, oxygen in the water is depleted, causing harm to fish and wildlife. In addition, some algal species can produce toxins that directly harm aquatic life.

What fraction of nutrient loads to the Bay are from wastewater treatment plants?

Approximately 2/3 of the nutrients that are added to the SF Bay come from the 37 wastewater treatment plants in our region that discharge to SF Bay. The remaining 1/3 comes from the Sacramento River Delta and stormwater runoff.

What role did climate change play in the 2022 SF Bay algal bloom?

Algae are plants, and need light to grow.

During Summer 2022, there were two unusual conditions in the SF Bay – less fog and clearer water than usual. These two factors are linked to climate change and increased the amount of sunlight available to the algae, potentially contributing to the start of and growth of the bloom.

FAQs

BACWA BAY AREA CLEAN WATER AGENCIES

NUTRIENTS IN SAN FRANCISCO BAY REGION WASTEWATER

Why don't wastewater treatment plants around the SF Bay remove nutrients?

14 of the 37 wastewater treatment plants in the region have enhanced nutrient removal, and several more are in the process of implementing upgrades to further reduce nutrients. Enhanced nutrient removal is very costly and has not historically been required in the SF Bay, because the ecosystem had been considered resilient to harmful algae blooms. This resilience has been attributed to tidal mixing, low water clarity which limits algal growth, and a large population of organisms, such as clams, that feed on algae. With water clarity increasing due to upstream dams capturing sediment, and a decrease in clam populations, this resiliency may be decreasing, as shown by the 2022 algal bloom.

What will it cost to reduce nutrient loads from wastewater treatment plants?

Upgrading all wastewater treatment plants to remove nutrients to the lowest levels feasible could cost the region over twelve billion dollars. Unless significant federal or state infrastructure grants become available to our region for nutrient removal, ratepayers would need to pay for these upgrades through increases in their wastewater bills.

How are nutrients in wastewater regulated in the SF Bay Area?

Nutrients are regulated via a Watershed Permit, which is administered by the San Francisco Regional Water Quality Control Board. The current Watershed Permit requires wastewater treatment plants to:

1. Measure and report the amount of nutrients they discharge to the SF Bay;
2. Provide financial support to a Nutrient Management Strategy (NMS) Science Program to understand the impacts of nutrients on the SF Bay water quality; and
3. Investigate alternatives for reducing nutrients in wastewater discharge.

The next Watershed Permit, which will be adopted in 2024, is currently under development and will further address nutrient management in the SF Bay region.

How can the investments that SF Bay Area wastewater agencies have made in the NMS Science Program help us understand the bloom, and plan our next steps?

Over the past decade, wastewater agencies have invested more than $14 million dollars in science programs to study the impacts of nutrients in the SF Bay. The scientists involved with the NMS, a science program housed at the San Francisco Estuary Institute, have:

1. Developed a monitoring network to observe impacts that may be linked to nutrients;
2. Performed studies to better understand the biological and chemical processes affecting nutrients in the SF Bay; and
3. Built a numerical model to better understand and predict the impacts of nutrients on biological and chemical processes in the SF Bay.

As wastewater agencies move to implement projects that will reduce nutrients in the SF Bay, they will work closely with the NMS science program and use the tools and monitoring stations in place to understand how these changes will benefit water quality in the SF Bay.

Executive Board Special Meeting Agenda

SF Bay Regional Water Board /
BACWA Executive Board Joint Meeting
Tuesday, January 17, 2023, 3 PM – 5 PM
Join Zoom Meeting

ROLL CALL AND INTRODUCTIONS – 3 p.m.

PUBLIC COMMENT – 3:03 p.m.

DISCUSSION/OTHER BUSINESS- 3:04 p.m.

Topic	Goal	Time
1. Agency Updates	• Roundtable from BACWA and Regulators about COVID-19 impacts, staffing, and other updates	3:05
2. Storm management	• Regulator perspective • Impacts roundtable	3:15
3. Nutrients	• Update on planning for 3rd Watershed Permit o How will the requirement for reductions be reflected in the permit o Discussion of goals for initial caps o Science program - change in focus post-bloom o Schedule for agreement on key tenets • Agency approvals for Recycled Water and NBS Evaluations	3:25
4. Recycled Water	• Update on State Water Board "strike team" on recycled water • POTW goals and barriers to recycled water	4:10
5. Air permitting	• Update on engagement with BAAQMD	4:20
6. Climate Change Resilience	• Coordination on keeping up-to-date information on adaptation planning for each agency • BCDC Regional Shoreline Adaptation process	4:25
7. Miscellaneous Coordination	• Rollout of new SSS-WDR (effective June 2023) • Diversity, Equity, Inclusion, and Justice initiatives – March 7 SFEP wastewater workshop update • AB2108 - New DEIJ requirements for standards actions • Toxicity Policy implementation • Chlorine Basin Plan Amendment	4:35
8. Annual Events	• BACWA Annual Meeting – May 5, 2023 • Pardee Technical Seminar – Sept 8, 2023	4:50
9. Future meetings	• Transition to in-person joint meetings per end of State of Emergency	4:55

ADJOURNMENT

Transforming Shorelines Social and Racial Equity Workshop

Pre-workshop Survey

As a representative of a wastewater agency in the San Francisco Bay area, we are asking for your help in developing a Workshop on Social and Racial Equity to be held in-person in San Francisco on March 7, 2023. As part of the planning process we would like to hear about your experiences and ideas about social and racial equity in your agency's policies, practices, and community engagement activities.

This work is being led by the Transforming Urban Water (TRUW) initiative that advances innovative nature-based solutions for the San Francisco Bay shoreline in conjunction with wastewater treatment facilities. The initiative is led by the San Francisco Estuary Partnership, in close collaboration with the East Bay Dischargers Authority, Oro Loma Sanitary District, San Francisco Estuary Institute and UC Berkeley. It grew out of the development of the Oro Loma Living Laboratory, built in 2018 to study the concept of a horizontal levee and its associated benefits.

Wastewater agencies around the Bay Area are designing and implementing innovative technologies and strategies to address sea level rise and other climate change adaptation, including nature-based solutions. As their work moves beyond the walls of the treatment plant, wastewater agencies are finding that more community interaction and engagement is needed than ever before. These new practices

require different skills, including training to support wastewater agencies in adopting best practices for racial and social justice. The organizing team is hopeful that these skills can be put to use by all wastewater agencies, irrespective of whether they are engaging directly in climate adaptation.

For more information please reach out to Liz Juvera (liz.juvera@sfestuary.org) or Sasha Harris Lovett (sasha.harris-lovett@sfestuary.org) at the San Francisco Estuary Partnership or Marcus Griswold at Calm Waters Group (mgriswold@calmwatersgroup.com)

1. Name (optional):

2. Organization (optional):

3. Role/Position:

Evaluate and rate your understanding of the questions below

4. To what extent does your agency take steps to understand the needs and priorities of the community you serve?

- ◯ 1 = Not addressed/Not achieved/Inadequate
- ◯ 2 = Insufficiently addressed/Insufficiently achieved
- ◯ 3 = Adequately addressed/Adequately achieved
- ◯ 4 = Sufficiently addressed/Sufficiently achieved
- ◯ 5 = Exemplary practice
- ◯ NA =Not applicable

5. To what extent does your agency involve the community in decisions and priority setting?

- ◯ 1 = Not addressed/Not achieved/Inadequate
- ◯ 2 = Insufficiently addressed/Insufficiently achieved
- ◯ 3 = Adequately addressed/Adequately achieved
- ◯ 4 = Sufficiently addressed/Sufficiently achieved
- ◯ 5 = Exemplary practice
- ◯ NA =Not applicable

6. To what extent do you feel supported by your agency's management and governing council/board in community engagement efforts?

- ◯ 1 = Inadequate/Not addressed/Not achieved/Inadequate
- ◯ 2 = Insufficiently addressed/Insufficiently achieved
- ◯ 3 = Adequately addressed/Adequately achieved
- ◯ 4 = Sufficiently addressed/Sufficiently achieved
- ◯ 5 = Exemplary practice
- ◯ NA =Not applicable

7. To what extent does your agency have policies that address racial and social equity?

- ◯ 1 = Inadequate/Not addressed/Not achieved/Inadequate
- ◯ 2 = Insufficiently addressed/Insufficiently achieved
- ◯ 3 = Adequately addressed/Adequately achieved
- ◯ 4 = Sufficiently addressed/Sufficiently achieved
- ◯ 5 = Exemplary practice
- ◯ NA =Not applicable

8. To what extent does your agency have access to social and racial equity training and resources?

- ◯ 1 = Inadequate/Not addressed/Not achieved/Inadequate
- ◯ 2 = Insufficiently addressed/Insufficiently achieved
- ◯ 3 = Adequately addressed/Adequately achieved
- ◯ 4 = Sufficiently addressed/Sufficiently achieved
- ◯ 5 = Exemplary practice
- ◯ NA =Not applicable

9. To what extent is your agency evaluating your progress on social and racial equity outcomes?

- ◯ 1 = Inadequate/Not addressed/Not achieved/Inadequate
- ◯ 2 = Insufficiently addressed/Insufficiently achieved
- ◯ 3 = Adequately addressed/Adequately achieved
- ◯ 4 = Sufficiently addressed/Sufficiently achieved
- ◯ 5 = Exemplary practice
- ◯ NA =Not applicable

10. If you have anything you would like to share on the above questions, feel free to provide your thoughts.

11. How many times have you received training on racial or social equity and/or community engagement? If any, provide details (the resource used and/or the organization who led it)

12. Is your agency part of a City government or an independent agency such as a special district? If part of a City, have you engaged with other departments on social/racial equity?

13. Would you be interested in participating in a workshop on the topics above? If so, please provide your email.

14. Optional: Do you have resources, ideas, or questions you would like to discuss before or at the workshop? If so, please share any information and/or links. If you would like us to contact you, please provide your email.

Done

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January 6, 2023

Eileen White, Executive Officer
San Francisco Bay Regional Water Quality Control Board
1515 Clay Street, 14th Floor
Oakland, CA 94612

VIA EMAIL: Eileen.White@Waterboards.ca.gov

Subject: NPDES Permit Requirements for Receiving Water Quality Monitoring, TMDL/SSO Support, Mercury and PCBs Watershed Permit Support, and Implementation of Copper Action Plans

Dear Eileen White:

I am writing on behalf of the Bay Area Clean Water Agencies (BACWA) and its members that own and operate publicly-owned treatment works (POTWs) and that have National Pollutant Discharge Elimination System (NPDES) permits to discharge to San Francisco Bay Area waters. The NPDES permits issued to these agencies impose some requirements that are most efficiently fulfilled as a group. The purpose of this letter is to report on behalf of BACWA members that those requirements are being met, including permit provisions related to: (A) Receiving Water Quality Monitoring; (B) Support for the RMP for supplemental monitoring of constituents of emerging concern; (C) Mercury and PCBs Watershed Permit Support; (D) Cyanide Action Plan; (E) Copper Action Plan; (F) Nutrient Watershed Permit Support; and (G) Total Maximum Daily Load Support.

A. Receiving Water Quality Monitoring

Various NPDES permits require that the permittees support the Regional Monitoring Program for Water Quality in the San Francisco Estuary (RMP), administered by the San Francisco Estuary Institute (SFEI), and established by San Francisco Bay Regional Water Quality Control Board (Regional Water Board) Resolution 92-043, adopted April 15, 1992. BACWA members have and continue to fulfill this requirement by participating in and providing funding to the RMP. A letter from SFEI, dated December 16, 2022, confirming BACWA member agencies' contributions to the RMP, is attached for reference.

B. Support for Monitoring of Constituents of Emerging Concern

Two orders adopted by the Regional Water Board in 2016 (Order No. R2-2016-0008) and 2021 (Order No. R2-2021-0028) provided a mechanism for POTWs to reduce monitoring frequencies for specific pollutants in exchange for increased funding to the RMP. POTWs that made

supplemental contributions to the RMP under these two orders are listed in the attached December 16, 2022 letter from SFEI.

In addition to the special studies supported by these supplemental funds (listed below), the priorities of the RMP are migrating away from legacy contaminants in favor of CECs. The RMP will continue to evaluate the status of legacy contaminants in all matrices, and CECs are being added based on the results of an extensive review of the RMP's Status and Trends (S&T) Program. As of 2022, the following CECs have been added to the S&T Program: PFAS (water, sediment, prey fish, sport fish, marine mammals), bisphenols (water, sediment, prey fish), and organophosphate esters (water).

Supplemental fees fully or partially funded the following projects in 2022:

- CECs in Stormwater (Year 4 of a 4-year study; analytes include bisphenols, organophosphate esters, ethoxylated surfactants, PFAS, and a suite of urban road runoff chemicals; $100k)
- Stormwater Monitoring Strategy for CECs ($50k)
- Tire-related Contaminants in Bay Water (wet season; $50k)
- Ethoxylated Surfactants in Bay Water, Margin Sediment, and Wastewater (Part 2; $30k)
- Tires Strategy ($25.5k)
- CEC Stormwater Load Modeling Exploration ($25k)

Reports on emerging and legacy contaminants published in 2022:

- Davis, J., et al. 2022. *2022 Pulse of the Bay*. San Francisco Estuary Institute: Richmond, California. SFEI Contribution No. 1095. https://www.sfei.org/documents/2022-pulse-bay
- Jones, C.; Davis, J.; and Yee, D. 2022. *Strategy for In-Bay Fate Modeling to Support Contaminant and Sediment Management in San Francisco Bay*. San Francisco Estuary Institute: Richmond, California. SFEI Contribution No. 1090. https://www.sfei.org/documents/strategy-bay-fate-modeling-support-contaminant-and-sediment-management-san-francisco-bay
- Mendez, M., et al. 2022. *Bisphenols in San Francisco Bay: Wastewater, Stormwater, and Margin Sediment Monitoring.* San Francisco Estuary Institute: Richmond, CA. SFEI Contribution No. 1093. https://www.sfei.org/documents/bisphenols-san-francisco-bay-wastewater-stormwater-and-margin-sediment-monitoring
- Mendez, M. et al. 2022. PFAS in San Francisco Bay Water. San Francisco Estuary Institute: Richmond, CA. SFEI Contribution No. 1094. https://www.sfei.org/documents/pfas-san-francisco-bay-water
- Moran, K. and Askevold, R. 2022. *Microplastics from Tire Particles in San Francisco Bay Factsheet*. San Francisco Estuary Institute: Richmond, CA. SFEI Contribution No. 1074. https://www.sfei.org/documents/microplastics-tire-particles-san-francisco-bay-factsheet-0
- Shimabuku, I., et al. 2022. Occurrence and risk assessment of organophosphate esters and bisphenols in San Francisco Bay, California, USA. *Science of the Total Environment*, 813, 152287. https://doi.org/10.1016/j.scitotenv.2021.152287

- Wang, M., et al. 2022. Suspect Screening and Chemical Profile Analysis of Storm-Water Runoff Following 2017 Wildfires in Northern California. *Environmental Toxicology and Chemistry*, 41(8), 1824-1837. https://doi.org/10.1002/etc.5357

C. Mercury and PCBs Watershed Permit Support

The Mercury and PCBs Watershed Permit (NPDES No. CA 0038849) was reissued in 2017 as Order No. R2-2017-0041, with an effective date of January 1, 2018. The permit was reissued in late 2022 as Order No. R2-2022-0038 with an effective date of February 1, 2023, so all activities in 2022 were conducted under the 2017 permit. The Mercury/PCB Watershed Permit requires source control and risk reduction activities by the permittees.

In 2022, BACWA's Bay Area Pollution Prevention Group (BAPPG) continued to reach out to dental assistant and dental hygienist students to educate them about proper amalgam management and disposal. Classroom visits resumed this year, following two years of outreach solely via virtual platform. This campaign reached approximately 110 students and instructors at the following institutions:

- San José City College
- Santa Rosa Junior College
- City College of San Francisco
- College of Marin, Novato

The instructors have come to rely on these annual visits and have incorporated BAPPG's program into their instructional calendar. Further, this is a relevant audience for other messages, such as wipes, microplastics, and flea control.

The Mercury and PCB Watershed permit requires that permittees conduct or participate in programs to reduce mercury-related risks to humans from the consumption of Bay fish. In 2019, the APA Family Support Services completed a $25,000 contract to conduct risk reduction activities related to fish consumption in vulnerable populations, in compliance with the permit. A contract for $25,000 with the California Indian Environmental Alliance for similar activities was ongoing as of December 2022. In early 2023, BACWA will reach out to the Water Board to schedule a presentation wrapping up these efforts. Materials generated with support from BACWA's previous grants are available on BACWA's website at https://bacwa.org/mercurypcb-risk-reduction-materials/.

As part of the RMP, SFEI published an updated report on PCBs and mercury in stormwater samples collected from sites around the Bay (water years 2015 to 2020) and in priority margin units (2019 to 2020).

- Gilbreath, A. and Davis, J. 2022. *Priority margin unit stormwater monitoring to support load estimates of PCBs into San Leandro Bay and the Emeryville Crescent*. SFEI Contribution No. 1088. San Francisco Estuary Institute: Richmond, CA. https://www.sfei.org/documents/priority-margin-unit-stormwater-monitoring-support-load-estimates-pcbs-san-leandro-bay-and

- McKee, L; Gilbreath, A.; and Sabin, L. 2022. *Small Tributaries Pollutants of Concern Reconnaissance Monitoring: Application of Storm-event Loads and Yields-Based and Congener-Based PCB Site Prioritization Methodologies.* SFEI Contribution No. 1067. San Francisco Estuary Institute: Richmond, CA. https://www.sfei.org/documents/small-tributaries-pollutants-concern-reconnaissance-monitoring-application-storm-event

D. Cyanide Action Plan

As part of the site-specific objective (SSO) for cyanide, NPDES dischargers are required to calculate the 3-event rolling average of total cyanide concentrations in each segment of the Bay, based on RMP data. In 2021, the RMP published results from the cyanide sampling completed during the 2019 water cruise:

- Yin, J. 2021. *2019 Update to Cyanide Rolling Average.* San Francisco Estuary Institute: Richmond, CA. https://www.sfei.org/documents/2017-update-cyanide-rolling-average-0

Results indicate that ambient cyanide concentrations are below the trigger level of 1.0 µg/L in all five segments of the Bay. Due to delays in reporting, results from the 2021 water cruise will be published in 2023 rather than 2022. The next round of sampling will occur in summer 2023.

E. Copper Action Plan

The copper action plan contained in many Bay Area POTW permits requires permittees to implement a plan to reduce copper discharges, conduct studies to reduce copper pollutant impact uncertainties, and implement additional measures should the three-year rolling mean in various parts of the Bay exceed site-specific concentration triggers. In 2021, the RMP published results from the copper sampling completed during the 2019 water cruise:

- Yin, J. 2021. *2019 Update to Copper Rolling Average.* San Francisco Estuary Institute: Richmond, CA. https://www.sfei.org/documents/2017-update-copper-rolling-average

Results indicate that ambient copper concentrations are below the respective trigger levels for all five segments of the Bay. Due to delays in reporting, results from the 2021 water cruise will be published in 2023 rather than 2022. The next round of sampling will occur in summer 2023.

The BAPPG-hosted website Baywise.org contains resources for plumbers that focus on the key messages pertaining to copper control: use of ASTM B813 flux, and other best management practices to reduce pipe corrosion. Outreach materials are available at https://baywise.org/business/plumbing-resources.

F. Nutrient Watershed Permit Compliance

The 2nd Nutrient Watershed Permit (NPDES No. CA0038873) was adopted on May 8, 2019 as Order No. R2-2019-0017, with an effective date of July 1, 2019. Through the nutrient surcharge

levied on permittees, BACWA is funding compliance with the following provisions of the Nutrient Watershed Permit on behalf of its members:

- Group Annual Reporting – BACWA submitted the seventh Group Annual Report in February 2022 on behalf of all the permittees under the Nutrient Watershed Permit. The next Group Annual Report will be submitted by the February 1, 2023 deadline. The 2022 Group Annual Report is available at https://bacwa.org/wp-content/uploads/2022/02/2021_BACWA_GAR_20220228_wAppendix.pdf
- Nutrient Reduction by Recycled Water and Nature Based Systems Special Studies – Both studies are underway and final reports are expected to be completed by the July 1, 2023 due date. The 2019 Scoping and Evaluation Plans and July 2022 status updates for these two special studies are available at https://bacwa.org/document-category/2nd-watershed-permit-studies/.
- Support of scientific studies as part of the Nutrient Management Strategy (NMS) – BACWA is providing a total of $1,800,000 to SFEI in Fiscal Year 2023, as required by the Permit.
- An update on the science plan reflecting the 2022 calendar year will be submitted by the February 1, 2023 deadline.

G. Total Maximum Daily Load Support

Some POTW permits previously included a requirement that permittees report to the Regional Water Board any actions taken in support of Total Maximum Daily Loads (TMDLs) for 303(d) listed pollutants. Support for these efforts has been provided largely through support of the RMP.

In 2014, the RMP convened a Selenium Strategy Team and developed a Selenium Strategy in the Multi-Year Plan. In 2022, the RMP conducted the following activities implementing the Strategy:

- Continued implementation of the Selenium Strategy to track the implementation of the North Bay Selenium TMDL.
- Continued the monitoring program for selenium in clams and water in 2022 to support the North Bay selenium TMDL (sampling in Jun-Aug and Dec-Jan).

Please contact me if you have any questions about the information contained in this letter.

Respectfully Submitted,

Lorien Fono, Ph.D., P.E.
Executive Director
Bay Area Clean Water Agencies

Encl: SFEI Letter regarding RMP Participation, December 16, 2022

cc: Thomas Mumley, Assistant Executive Officer, Regional Water Board
Bill Johnson, Chief, NPDES Wastewater and Enforcement Division, Regional Water Board
Xavier Fernandez, Chief, Planning and TMDL Division, Regional Water Board
BACWA Executive Board
Jennie Pang, BACWA Permits Committee Chair

SFEI AQUATIC SCIENCE CENTER
4911 Central Ave, Richmond, CA 94804, p: (510) 746-7334, f: (510) 746-7300 www.sfei.org

December 16, 2022
Lorien Fono
Executive Director
Bay Area Clean Water Agencies PO Box 24055, MS 702
Oakland, CA 94623

Dear Dr. Fono,

The Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) is the only comprehensive environmental monitoring program to measure pollutants and trends in the Bay. The RMP, which began in 1993, is a successful partnership of scientists, government, municipalities, and industry to understand and improve the health of the Bay.

The goal of the RMP is to collect data and communicate information about water quality in the San Francisco Estuary in support of management decisions. The accomplishments of the RMP are summarized in the RMP Update and the Pulse. The Pulse was published in October 2022. Current and past Pulses can be downloaded here; RMP Updates can be found here.

In 2022, 35 wastewater treatment facilities collectively contributed the full amount of the core RMP program costs assigned to publicly owned treatment works ($1,794,459; see Table 1 for a complete list of agencies). The process used to determine the core fees for each participant group are outlined in the Program Charter: http://www.sfei.org/documents/charter-regional-monitoring-program-water-quality-san-francisco-bay.

In December 2021, the Water Board adopted Order R2-2021-0028, amending the 2016 order that originally established an alternative monitoring requirement for municipal wastewater discharges to San Francisco Bay and its tributaries, in exchange for a set schedule of increased payments to the RMP for five years. Under the 2016 order, participating wastewater treatment facilities opted-in to this alternative were able to reduce their effluent monitoring costs for most organic priority pollutants and chronic toxicity sensitive species rescreening. In exchange for the reduced monitoring requirements, facilities made supplemental payments to the RMP for regional studies to inform management decisions about water quality in the Bay. Under the 2021 Order, monitoring reductions were implemented as amendments to individual NPDES permits, and the program no longer operates on an opt-in basis. For calendar year 2022, Order R2-2021-0028 established a collective contribution of $320,000 from dischargers to support monitoring of Constituents of Emerging Concern (CECs). In 2022, 35 wastewater treatment facilities made supplemental contributions to the Program under Order R2-2021-0028 ($320,480 see Table 1).

Your support is essential to the RMP. Through these financial contributions, the RMP is able to conduct regional monitoring to assess the cumulative impact of multiple sources of

pollutants to the Bay, including the growing number of emerging contaminants that are a concern. We thank you and your members for the support and look forward to serving you in 2023.

Sincerely,

Melissa Foley, PhD
RMP Manager

Table 1

Wastewater Treatment Dischargers Contributing to the RMP in 2022

POTW Dischargers	Core RMP Fees	Supplemental Fees for CECs
American Canyon, City of	NO	YES
Benicia, City of	YES	YES
Burlingame, City of	YES	YES
Calistoga, City of (1)	YES	YES
Central Contra Costa Sanitary District	YES	YES
Central Marin Sanitation Agency	YES	YES
Crockett Community Services District, Port Costa Sanitary Department	NO	(2)
Delta Diablo	YES	YES
East Bay Dischargers Authority	YES	YES
East Bay Municipal Utility District	YES	YES
Fairfield-Suisun Sewer District	YES	YES
Las Gallinas Valley Sanitary District	YES	YES
Marin County (Paradise Cove), Sanitary District No. 5	NO	(2)
Marin County (Tiburon), Sanitary District No. 5	YES	YES
Millbrae, City of	YES	YES
Mt. View Sanitary District	YES	YES
Napa Sanitation District (1)	YES	YES
Novato Sanitary District	YES	YES
Palo Alto, City of	YES	YES
Petaluma, City of	YES	YES
Pinole/Hercules, City of	YES	YES
Rodeo Sanitary District	YES	YES
San Francisco, City and County Of, San Francisco International Airport	YES	YES
San Francisco (Southeast Plant), City and County of	YES	YES
San José-Santa Clara Regional Wastewater Facility	YES	YES
San Mateo, City of	YES	YES
Sausalito – Marin City Sanitary District	YES	YES
Sewerage Agency of Southern Marin	YES	YES

Silicon Valley Clean Water	YES	YES
Sonoma Valley County Sanitation District	YES	YES
South San Francisco and San Bruno, Cities of	YES	YES
St. Helena, City of	YES	YES
Sunnyvale, City of	YES	YES
Union Sanitary District	YES	
Treasure Island	YES	YES
Vallejo Flood and Wastewater District	YES	YES
West County Agency	YES	YES
Yountville, Town of	YES	YES

(1) Calistoga and Napa contributed supplemental monitoring fees based on the 2016 order (2022 was their 5th year). They will transition to the new order in 2023.

(2) This facility is listed in the 2021 Order requiring supplemental funding of CEC monitoring, but its requested contribution was $0 due the agency's small size.

BACWA Annual Meeting

Friday May 5th

David Brower Center – Berkeley

David Brower Center – rental options & costs

Upstairs Only (Half day up to 8hrs) - $1265

Extended Occupancy Upstairs Only - $195 per hour

Upstairs Only (Full day up to 12hrs) - $1750

Full Building (Half day up to 8hrs) - $2800

Extended Occupancy Full Building - $390 per hour

Full Building (Full day up to 12hrs) - $3775

In 2022 we rented the full building for 9 hrs.

Capacity

Full building 178

Upstairs only with classroom seating in conference room and standing reception on terrace ~100

BAY AREA CLEAN WATER AGENCIES
SUCCESSION PLANNING
Fiscal Year 2023

A. BACWA Principal Representatives

Agency	Representatives	Title & Roles	Succession Planning
CCCSD	Lori Schectel	CASA State Legislative Committee, Nutrient Governance Steering Committee Alternate	
	Roger Bailey (Alternate)		
	Mary Lou Esparza (Alternate)	RMP TRC representative	
EBDA	Jacqueline Zipkin	BACWA Executive Board Vice-Chair, Nutrient Governance Steering Committee Alternate, BARR representative, SFEP representative, CHARG representative	
	David Donovan (Hayward) (Alternate)		
EBMUD	Amit Mutsuddy	BACWA Executive Board Chair, Nutrient Management Strategy Governance Steering Committee, Joint SFEI/ASC Board	
	Alicia Chakrabarti (Alternate)		
	Yun Shang (Alternate)	RMP TRC representative	
SFPUC	Amy Chastain	BACWA Executive Board Rep,	
	Greg Norby (Alternate)		
	Jennie Pang (Alternate)	BACWA Permits Committee chair	
San Jose	Eric Dunlavey	RMP Steering Comm; Nutrient Management Strategy Comm;	
	Jennifer Voccola-Brown (Alternate)		

Changes to Principal Representation require submission of a Designation Letter and a Statement of Economic Interest Form within 30 days

Meeting Date: December 7, 2022
Executive Board Meeting Date: January 20, 2023
BAPPG Chairs: Robert Wilson, Autumn Cleave

Committee Request for Board Action: None
Detailed Committee Notes are available online.

Regional Water Board Announcements

Alessandra Moyer (RWQCB) provided a presentation with tips for preparing 2023 Pollution Prevention Reports. The presentation on "How to be a Pollution Prevention Princess" is available here. For most agencies, annual Pollution Prevention reports are due February 28th.

Updates on Committee Activity and Announcements

- Budget: Joe Neugebauer reported that 29% of budget has been used for FY23.
- Pesticides Subcommittee: Stephanie Hughes' update on pesticides regulatory work to the BACWA Executive Board is available here. Her flea and tick presentation to the Santa Clara library is available here. The Pesticides Subcommittee will be meeting with CA DPR in December. The City of Palo Alto will be setting up a meeting with Pets in Need to discuss flea and tick control practices.
- Outreach / Marketing: The fall FOG campaign facilitated by SGA is complete, and Robert Wilson will share final statistics on the campaign's performance soon.
- BACWA Announcements: The National Stewardship Action Council, which BAPPG supports with a small annual contribution, will be presenting to the BACWA Executive Board on December 16th. BACWA is also convening a Communications Steering Committee to discuss broader public outreach on wastewater. The Mercury and PCBs Watershed permit was reissued in December.
- CWEA. The P3S Conference will be held in Monterey from Jan 30 – Feb 1, 2023.

Social Media Presentation and Discussion

Donovan Gomez from SFPUC provided a presentation outlining his agency's social media strategy. The presentation slides are available here. SFPUC uses social media in several content categories including thought leadership, promotional, customer service (including real-time responses!), and brand identity. SFPUC employees often serve as brand ambassadors via "employee spotlights" and help share messaging. Donovan discussed how SFPUC manages its social media content using software. SFPUC has two full-time staff focused on social media. Agencies discussed whether they have to archive social media posts in order to facilitate compliance with sunshine law requests. Some agencies do archival and some do not.

BAPPG members discussed how to better coordinate to share social media and content. The group agreed that it would be a good idea to start sharing about 4-5 preplanned messages each year. Each member agency would be responsible for posting to their agency-run social media feeds, if desired. Some of the messages could be focused on specific events (such as National Drug Takeback Day) or other standard messages (don't flush trash, etc.). We would need a hub for the content that would include a place to store unbranded graphics (each agency would add its own logo, if desired). Baywise.org could be used as the landing page for additional information. The group was in favor of developing a social media work plan with a budget and outreach plan. The steering committee will discuss next steps at its Jan. 4th meeting.

Sewer Science Curriculum

Susan Hiestand (SCVW) shared an update on the curriculum she uses to teach high school students about municipal wastewater treatment. Although the lessons were originally provided in-person, she also created video versions during the pandemic so that the lab can be conducted remotely. The curriculum takes about a week, and Susan uses it in several local high schools. Students make their own fake wastewater, then go through the steps of treating it and testing the water chemistry. There is also a section that includes identifying microorganisms under the microscope. The sewer science booklet and videos are available here.

Next BAPPG General Meeting: February 1, 2023, 10am – 12pm, Zoom

Laboratory Committee –
Report to BACWA Board

Laboratory committee meeting on: December 13, 2022
Executive Board Meeting Date: January 20, 2023
Committee Chair: Samantha Bialorucki, City of Palo Alto

Committee Request for Board Action: None

Regular meeting: 24 attendees via Zoom representing 20 agencies

Member Reports on Recent Audits and Certifications

Members shared lessons learned from recent TNI audits and ELAP certifications.

- Mark Koekemoer (CMSA) reported on a recent TNI-2 audit. To prepare for the audit, the CMSA lab first conducted an internal audit and gave themselves 11 findings, which they corrected. The external auditor reviewed the internal audit and also spent two days in the lab. The auditor identified 9 new findings, which included findings about temperature exceedances. No temperature exceedances are acceptable; if there are exceedances, they need to be noted in the laboratory report. In response, CMSA adjusted its temperature monitoring to longer intervals between readings for devices such as the coliform incubator. The temperature logs are saved in the LIMS system and used to qualify data. Members discussed other best practices for temperature control and monitoring, such as putting a large thermal mass in the incubator.
- Blake Brown (Central San) discussed their recent ELAP renewal application. They received feedback from Steve Boggs that acute toxicity control charts must include the laboratory name and species name. They also received feedback that all results – both valid and invalid – need to be reported in self-monitoring reports per the acute toxicity method (§9.16.2). Regional Water Board staff instructed Central San that a discussion in the cover letter was acceptable for reporting of invalid bioassays. Attaching the reports and/or entering the data into CIWQS with an "invalid" comment was not required or necessary. Contact your permit writer to confirm these instructions, as reporting preferences may vary.
- ELAP is conducting additional training of third party assessors with respect to bioassays, so ELAP staff may be present at third party assessments.
- Members reported that third-party assessors and auditors are able to provide reports within 30 days. When ELAP staff conduct audits it generally takes longer than a third-party assessor (several months). For third party assessors, the laboratory visits need to be scheduled at least a few months in advance.

Members discussed workload and staffing impacts of TNI. Some agencies are adding a QC officer job classification (either in planning stages or already approved), while others are shuffling job duties so that one of the existing job classifications includes QC officer duties. One agency is creating a limited-term position while the long-term impacts of TNI are still being figured out. Members should add additional details to a Google sheet survey that was distributed by email on December 19th.

Other Announcements

- The Division of Drinking Water is circulating a survey about Metal Detection Limits for purposes of reporting (see email forwarded from Josie Tellers, December 12th). Responses are due by Dec 23, 2022.
- ELTAC held a meeting on December 5th. An ELTAC subcommittee is preparing a New Methods Validation Guide that should be finalized by the end of 2023; it will apply to constituents without approved methods. Also, there is a position opening up on the ELTAC board (replacing Josie Tellers).
- CWEA is planning to modify the eligibility requirements for the laboratory analyst technical certification program. Beginning July 1, 2023, CWEA will not allow members to skip grade 2 or 3 (Grade 1 can still be skipped). Committee members plan to coordinate with CWEA to obtain more information, as this plan may stall the progression of members through the certification levels.

BACWA Updates:

- The Mercury and PCBs Watershed Permit was adopted by the Regional Water Board at its December meeting. Agencies should use the "PCB Template" version of the PET tool version which is available here. The "PCB Template" version has the correct method of reporting PCB congeners and their co-elutes.
- Nutrient Data have been compiled for the Group Annual Report, which will be finalized by February 1st.
- Data from Phase 2 of the PFAS Regional Study will be available in early 2023. EPA's draft Method 1633 will likely not be finalized until the end of 2023.
- The Statewide Toxicity Provisions may be approved by USEPA s early as February 2023. The chlorine basin plan amendment is also under review by USEPA but there is no timeline for approval (mid-2023 at earliest).
- The State Water Board recently released a statewide strategy for monitoring CECs in aquatic ecosystems (see Draft Report)

TNI Training and Implementation

- The 18th TNI training session with Diane Lawver is December 20th. Recordings of previous sessions are available through the BACWA website (password required). January and February will feature training sessions on microbiology and toxicity testing by John and Kathi Gumpper of ChemVal, Inc.

Next Regular Meeting : February 14th, 2023, 10 AM on Zoom

Permits Committee –
Report to BACWA Board

Permits Committee Meeting on: December 13, 2022
Executive Board Meeting Date: January 20, 2023
Committee Chair: Jennie Pang, SFPUC

Committee Request for Board Action: None
Regular meeting: 30 attendees via Zoom, representing 16 member agencies and the Regional Water Board

Regional Water Board Report-Out
Staff members from the Regional Water Board NPDES Division attended and reported out:

- The Chlorine Basin Plan Amendment continues to be delayed, as EPA has to do a formal consultation with US Fish & Wildlife Service. Approval is expected no sooner than April or May 2023. The Chlorine Blanket Permit Amendment does not become effective until the Basin Plan Amendment is approved.
- EPA may approve the Statewide Toxicity Provisions as soon as February 2023. New Tentative Orders are being issued with language that will automatically transition dischargers to the new toxicity provisions upon EPA approval.
- James Parrish has been promoted to Senior Environmental Scientist in the NPDES Wastewater and Enforcement Division. Two positions are now available in the division: see job postings for Environmental Scientist and Water Resource Control Engineer. Applications close January 20th.

Tentative Orders
A Tentative Order individual NPDES Permit for Vallejo Sanitation and Flood Control District will be considered at the February 8th Regional Water Board meeting. District staff reported that they are still evaluating the private sewer lateral ordinance requirement in the Tentative Order.

Mercury and PCBs Watershed Permit
The Mercury and PCBs Watershed Permit was on agenda at the December 14th Regional Water Board meeting (Note: it was subsequently adopted as Order R2-2022-0038). BACWA staff plan to attend to express support for the permit. BACWA plans to continue supporting risk reduction activities required by the reissued permit. A template for reporting PCB Congener data to CIWQS is available here.

Nutrients Update

- Slides from the December 9th Nutrient Management Strategy meeting, including a preliminary analysis of the August 2022 algae bloom, are available here.
- BACWA will be meeting individually with about 15 member agencies responsible for most of the nitrogen loading to San Francisco Bay to discuss the status of nutrient reduction opportunities and capital planning.
- BACWA is also wrapping up a nutrient FAQ document and other communications materials, which will be distributed soon.
- The BACWA Executive Director shared slides regarding modeling of eutrophication, acidification, and hypoxia in Southern California. There is concern over the way that the current modeling characterizes the effects of water recycling projects.

PFAS

- Results from Phase 2 of BACWA's regional PFAS study have been delayed by the analytical laboratory, but are anticipated to be available in early 2023.
- EPA has released industrial and municipal wastewater NPDES permitting guidance for PFAS. The guidance recommends use of Draft Method 1633, which may be approved by the end of 2023. The Regional Water Board does not currently have plans to apply this guidance, but individual agencies may find it useful for pretreatment program implementation.

Other Items

- Results from Phase 2 of BACWA's regional PFAS study have been delayed by the analytical laboratory, but are anticipated to be available in early 2023.
- The State Water Board reissued the statewide SSS-WDR on December 6th. The effective date is 6/5/2023.
- The next 303(d) listing and 2024 Integrated Report for Region 2 is expected to be released for a 45-day public comment period from approximately February through April 2023.
- Congratulations to Jennie Pang, Chris Dembiczak, and the Union Sanitary District laboratory staff for winning the holiday social photo contest!

Next Permits Committee Meeting: February 14th, 2023, 12:00 PM via Zoom

Executive Director's Report to the Board

December 2022

EXECUTIVE BOARD MEETING AND SUPPORT

- Worked with BACWA staff to plan and manage 12/16 Executive Board meeting
- Conducted the Executive Board meeting agenda review with the BACWA Chair
- Hosted 12/16 Executive Board meeting and distributed draft meeting notes
- Met with individual Board members to discuss regulatory issues
- Continued to track all action items to completion

COMMITTEES:

- Attended Permits Committee meeting, 12/13

REGULATORY:

- Met with R2 EO to discuss strategy, 12/2
- Hosted planning meeting with AIR comm members on BAAQMD engagement on permitting backlog, 12/2
- Met with BAAQMD leadership to discuss permit backlog, 12/5
- Met with CASA to discuss engagement on statewide air toxics strategy, 12/7
- Met with BAAQMD to discuss state 2-step process, 12/7
- Attended SWB CEC Expert Panel Workgroup, 12/12

NUTRIENTS:

Completed a variety of tasks and activities associated with BACWA's interests on nutrients and collaborating with the Water Board including:

- Discussed nutrient strategy with member staff
- Met individually with four agencies to understand nutrient reduction planning
- Discussed OAH issues with CASA staff
- Participated and prepared summary for NMS planning subcommittee meetings, 12/7
- Participated and developed meeting notes for NMS steering committee meeting, 12/9
- Finalized nutrient FAQ
- Developed strategy for individual agency meetings on nutrient reductions
- Discussed nutrient issues and engagement with BACWA Board with NMS science manager and BACWA's NMS reviewer
- Developed communications RFP

FINANCE:

- Reviewed the monthly BACWA financial reports
- Reviewed and approved invoices

COLLABORATIONS:

- Developed opinion piece on PFAS for CWEA newsletter
- Attended California Water Quality Monitoring Council meeting, 12/1
- Attended IRWMP Prop 1 Round 2 project scoring meeting, 12/1
- Attended in-person CASA RWG meeting, 12/8
- Attended BAOWN meetings to discuss planning workshop for treatment of alternative water sources, 12/13
- Attended CASA Air Toxics subgroup, 12/14

ASC (AQUATIC SCIENCE CENTER)

- Reviewed materials sent via email by ASC ED

BABC (BAY AREA BIOSOLIDS COALITION)

- Attended 12/19 meeting and drafted meeting summaries

BACC (BAY AREA CHEMICAL CONSORTIUM)

- Discussed administrative and policy issues with administrator

BACWWE (BAY AREA COALITION FOR WATER/WASTEWATER EDUCATION)

- No update

ADMINISTRATION:

- Planned for and conducted the monthly BACWA staff meeting to prepare for the Board Meeting and to coordinate and prioritize activities.
- Met with RPM to discuss progress on regulatory issues
- Signed off on invoices, reviewed correspondence, prepared for upcoming Board meetings, responded to inquiries on BACWA efforts, oversaw and participated in updating of web page and provided general direction to BACWA staff.
- Worked with RPM in the preparation of the monthly BACWA Bulletin.
- Developed and responded to numerous emails and phone calls as part of the conduct of BACWA business on a day-to-day basis.

MISCELLANEOUS MEETINGS/CALLS:

- Submitted performance plan to Executive Board
- Worked with BACWA Chair and Committee Chairs on items that arose during the month
- Other miscellaneous calls and inquiries regarding BACWA activities
- Responded to Board members' requests for information

Board Calendar

February 2023 – April 2023 Meetings

DATE	AGENDA ITEMS
February 17, 2023	**Approvals & Authorizations:** • **Policy / Strategic Discussion:** • **Operational:** • 1st Draft FY24 Budget
March 17, 2023 *Hybrid & In person at EBMUD Orinda*	**Approvals & Authorizations:** • **Policy / Strategic Discussion:** • **Operational:** • Draft Annual Meeting Program • 2nd Draft FY24 Budget
April 21, 2023 *Hybrid & In person at SFPUC Hetch Hetchy*	**Approvals & Authorizations:** • **Policy / Strategic Discussion:** • **Operational:** • Final Annual Meeting Program • Final Approval FY24 Budget

BACWA
BAY AREA
CLEAN WATER
AGENCIES

BACWA ACTION ITEMS

Number	Subject	Task	Responsibiity	Deadline	Status
	Action Items from Nov 2022 BACWA Executive Board Meeting		**resp.**	**deadline**	**status**
2022.10.21	BACWA Communications Policy	BACWA ED will bring a revised draft Communication Policy to the Executive Board for approval at a future meeting.	ED		WIP
2022.10.22	BACWA Reserve Policy	BACWA ED will bring a revised draft Reserve Policy to the Executive Board for approval at a future meeting.	ED		WIP
2022.11.26	SSS WDR - BACWA engagement with State Water Board	BACWA RPM to produce a high-level summary of differences between the current permit and new permit once adopted.	RPM		WIP
2022.11.27	Teleconferencing per AB 361	BACWA staff to investigate hardware to improve hybrid meetings. (OWL)	ED / AED	1/4/2023	complete
2022.11.28	Teleconferencing per AB 361	BACWA staff determine meeting dates and locations for remainder of FY23.	ED / AED	1/4/2023	complete
2022.12.30	January 6, 2023, NST meeting	BACWA ED and NMS Consultant to meet with SFEI to assist in moving towards synthesis science	ED	1/3/2023	complete
2022.12.31	January 6, 2023, NST meeting	BACWA ED to share SFEI document that contains deliverables with BACWA group.	ED	1/3/2023	complete
2022.12.32	Engagement on solid waste contribution to nutrients	BACWA ED to get report from Eric Dunlavey after commission meeting and share with BACWA group.	ED	1/14/2023	complete
2022.12.33	PFAS advocacy	BACWA to include NSC representative to NGO/POTW coalition on pfas advocacy	ED	1/19/2023	complete
2022.12.34	Annual Meeting Speakers	BACWA ED to reach out to a few potential speakers and bring list of potential speakers to January BACWA Board Meeting.	ED	1/19/2023	complete
2022.12.35	BACWA Executive Board designates	BACWA ED and AED to confirm CCCSD designates and committee representatives by next meeting.	ED / AED	1/19/2023	complete
2022.12.36	BACC Update	BACWA AED to post BACC price history on webpage.	AED	1/19/2023	complete
	Action Items Remaining from Previous BACWA Executive Board Meetings				
2022.3.42	Plain-language review of nutrient science program	BACWA ED to work with SFEI to augment plain-language review to include graphics, simplified text, and a summary of what we have learned so far.	ED		on going

FY23: 33 of 36 Action Items are complete
FY22: 51 of 52 Action items are completed

FY21: 51 of 51 Action items completed

FY20: *70 of 70 Action Items completed*

FY19: *110 of 110 action Items completed*
FY18: *66 of 66 Action Items completed*
FY17: *90 of 90 Action Items completed*

Regulatory Program Manager's Report to the Executive Board

December 2022

BACWA BULLETIN: Completed and circulated December Bulletin.

MERCURY & PCBS: Attended Regional Water Board adoption hearing to express support for the permit's reissuance. Worked with Regional Water Board staff and laboratory committee on technical details of CIWQS reporting.

NUTRIENTS: Attended Nutrient Management Strategy meeting; attended meetings to discuss the potential for nutrient load reductions at three individual member agencies.

SSS-WDR: Met with Clean Water Summit Partners and State Water Board staff to discuss late changes to the revised draft SSS-WDR issued by the State Water Board in late October. Prepared and delivered testimony requesting additional late changes at the December 6th State Water Board adoption hearing in Sacramento. Discussed training and financial assistance approaches for implementation of the reissued SSS-WDR.

COMMITTEE SUPPORT:

AIR – Attended CASA air toxics subgroup meeting to discuss fiscal impacts to BACWA members.
Asset Management – Assisted with planning for February 2023 meeting.
Biosolids – Finalized and submitted "Land Application of Biosolids in Solano County" report, and circulated to BACWA members.
BAPPG – Participated in steering committee and pesticides committee meetings.
Collection System – Prepared summary information about SSS-WDR for committee members. See also SSS-WDR item, above.
Laboratory – Assisted with planning for December meeting and holiday social. Attended and prepared meeting notes from December meeting. Assisted with monthly TNI training session and with contracting for January and February TNI training sessions.
Permits – Assisted with planning for December meeting and holiday social. Attended December meeting and began preparing meeting notes.
Recycled Water –Participated in planning meetings for site supervisor training video. Finalized notes from November meeting.
Executive Board – Prepared biosolids, SSS-WDR and other regulatory updates for December meeting; reviewed meeting notes.

ADMINISTRATION/STAFF MEETING – Participated in Staff Meeting.

BACWA MEETINGS ATTENDED:
BAPPG (12/7)
BAPPG Pesticides Subcommittee (12/13)
Lab Committee (12/13)
Permits Committee (12/13)
Nutrient Discussions with Individual Agencies (12/12, 12/15, 12/22)
Executive Board (12/16)
Lab Committee TNI Training (12/20)

EXTERNAL EVENTS ATTENDED:
State Water Board Staff SSS-WDR meetings (12/2, 12/21)
CASA Collection Systems Workgroup SSS-WDR Meeting (12/5)
State Water Board adoption hearing for SSS-WDR (12/6)
CASA Regulatory Workgroup and Holiday Party (12/8)
Nutrient Management Strategy meeting (12/9)
CASA Air Toxics Subgroup (12/14)