

#### Executive Board Meeting AGENDA Friday, November 17, 2023 9:00 AM - 12:00 PM (PDT) EBMUD Watershed HQ 500 San Pablo Dam Rd., Orinda

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

<u>/</u>	Agenda Item		<u>Time</u>	Pages						
ROLL	CALL, INTRODUCTIONS, AND HYBRID MEETING ETIQUETTE		9:00 AM							
PUBL	IC COMMENT	Guidelines	9:05 AM							
CON	SIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER		9:10 AM							
CON	SENT CALENDAR		9:15 AM							
1	October 20, 2023 BACWA Executive Board meeting minutes			3-7						
2	October 20, 2023 BACWA NST Special Executive Board meeting minutes			8-9						
3	October 31, 2023 BACWA Jt meeting R2 Board meeting minutes			10-12						
4	September 2023 Treasurer's Report			13-23						
APPF	APPROVALS AND AUTHORIZATIONS									
5	Approval: SFEI NBS no-cost extension			24-37						
6	Approval: BACWA FY23 Annual Report			38-60						
7	Approval: BACWA FY23 Audit and financial statement			61-91						
8	Approval: Contingent Support for EBMUD/WRF Heterosigma Study, \$150,000K			92-114						
POLICY	/STRATEGIC		9:30 AM							
9	Informational: Chlorine Permit Amendment Adoption 11/8			115-138						
10	Informational: PFAS Fact Scheet Outline									
11	Informational: CASA Air Toxics Update	link to Program Management RFQ								
12	Informational: Recycled Water collaboration workshop summary and follow-up			139-148						
13	Discussion: Next steps on wastewater communications									
BREAK			10:30 AM							
14	Informational: Notes from October 27, 2023 NMS Steering Committee meeting			149-153						
15	Informational: Notes from November 6, 2023 PSC meeting #80			154-155						
16	Informational: Risk reduction workshop	EDA Creat Dragram		156-157						
1/	Informational: workforce development update	EPA Grant Program								
10	Informational: Followup from March SFEP/BACWA DEll meeting									
			11.20 414							
OPERA	IIUNAL		11:30 AM	159 150						
20	<u>Informational</u> : Revised BAR for Nutrient Reduction Study Amendment #7			150-155						
21	<u>Discussion</u> , waste reduction at board meetings			160						
23	Discussion: Role of BACWA Biosolids Committee vs. BABC			100						
24	Informational: BACC Update			161						
			11.50 DM							
25	Committee Reports		11.50 FIV	162-168						
26	Member highlights									
27	Executive Director Report			169-171						
28	Board Calendar and Action Items			172-173						
29	Regulatory Program Manager Report			174						
30	Other BACWA Representative Reports									
		Samantha Engelage, Alicia Chakrabarti								
	a. RMP Technical Review Committee									
1		karin North; Amanda Roa; Eric Dunlavey								
		Lorien Fono: Amit Mutsuddy Lori Schootel								
	e. Nutrient Governance Steering Committee	Fric Dunlayey: alternates: Lori Schectel								
	e. Nutrient Governance Steering Committee Eric Dunlavey; alternates: Lori Schectel e.i Nutrient Planning Subgroup Eric Dunlavey									

ADJOURNMENT	12:00 PM		
The next meeting of the Board is scheduled for December 15, 2023 at SFPUC			
NEXT MEETING			
31 SUGGESTIONS FOR FUTURE AGENDA ITEMS	11:59 PM		
t. California Water Quality Monitoring Council	Lorien Fono		
s. CHARG - Coastal Hazards Adaptation Resiliency Group	Jackie Zipkin		
r. Countywide Water Reuse Master Plan	Karin North, Pedro Hernandez		
q. California Ocean Protection Council	Lorien Fono		
p. CPSC Policy Education Advisory Committee	Colleen Henry		
o. San Francisco Estuary Partnership	Lorien Fono; Jackie Zipkin		
n. WateReuse Working Group	Cheryl Munoz		
m. Bay Area Regional Reliability Project	Jackie Zipkin		
I. RMP Microplastics Liaison	Artem Dyachenko		
k. CASA Regulatory Workgroup	Lorien Fono; Mary Cousins		
j. CASA State Legislative Committee	Lori Schectel		
i. NACWA Emerging Contaminants	Karin North; Melody LaBella		
h. BAIRWMP	Cheryl Munoz; Florence Wedington; Jac	ckie Zipkin	
f. SWRCB Nutrient SAG	Lorien Fono		



# **Executive Board Meeting Minutes**

# Friday October 20, 2023

### **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
Aaron Winer	West County Wastewater District
Amanda Roa	CCCSD
Blake Brown	CCCSD
Crystal Zhu	SFO
David Richardson	Woodard & Curran
Jay Davis	SFEI
Jennifer Dyment	BACWA
Jennifer Voccola-Brown	City of San Jose
Julie Wiess	City of Palo Alto
Lorien Fono	BACWA
Mary Cousins	BACWA
Meg Herston	Fairfield-Suisun Sewer District
Mike Falk	HDR
Patrica McGovern	McGovern McDonald Engineers
Rita Chang	CCCSD
Rion Merlo	Hazen & Sawyer
RJ Suokko	SD2, Marin County
Sarah Scheidt	SFO
Teresa Herrera	Silicon Valley Clean Water
Tom Hall	EOA

Amit called the meeting to order at 9:03 am.

### ROLL CALL, INTRODUCTIONS, AND HYBRID MEETING ETIQUETTE

#### PUBLIC COMMENT None.

### CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER None.

#### **CONSENT CALENDAR**

1 August 18, 2023 BACWA Executive Board meeting minutes

- 2 August 18, 2023 BACWA NST Special Executive Board meeting minutes
- 3 September 15, 2023 BACWA NST Special Executive Board meeting minutes
- 4 August 2023 Treasurer's Report

**Consent Calendar items 1 thru 4:** A motion to approve was made by Jackie Zipkin (East Bay Dischargers Authority) and seconded by Amy Chastain (SFPUC). The motion was approved by 4 and Central Contra Costa Sanitary District abstained from items 1 & 2.

### APPROVALS AND AUTHORIZATIONS

# 5 Approval: Contract Amendment for Civic Edge Communications Support, \$68,748 through FY25

**Item 5:** A motion to approve was made by Eric Dunlavey (East Bay Municipal Utility District) and seconded by Lori Schectel (CCCSD). The motion was approved unanimously.

# 6 Approval: Contract for Rich Cunningham to provide SSMP guidance.

**Item 6:** A motion to approve was made by Amy Chastain (SFPUC) and seconded by Jackie Zipkin (East Bay Dischargers Authority). The motion was approved unanimously.

## 7 Approval: HDR Recycled Water follow on Amendment #1, not to exceed \$35,000 for FY24

**Item 7:** A motion to approve was made by Jackie Zipkin (East Bay Dischargers Authority) and seconded by Lori Schectel (CCCSD). The motion was approved unanimously.

# 8 Approval: HDR Permit support Amendment #7, increase to \$295,000 though FY24

**Item 8:** A motion to approve conditionally based on Executive Director bringing total amended contract amount on this project to the November 2023 BACWA Executive Board Meeting was made by Amit Mutsuddy (EBMUD) and seconded by Lori Schectel (CCCSD). The motion was approved unanimously with the conditions above.

Action item: BACWA Executive Director to review HDR Permit Support/Nutrient Reduction study contract history and present the total amended contract amount as an informational item at the November 2023 meeting.

# POLICY/STRATEGIC

**9 Discussion: RMP Annual Priorities** – Jay Davis from SFEI gave a presentation about the 2024/5 priorities for the Regional Monitoring Program. Jay summarized priority management drivers and potential future drivers, and took suggestions from attendees. Jay continued with program highlights that included completion of the 2023 RMP Update and hosting the RMP Annual Meeting, as well as submitting WQIF applications for Destination Clean Bay (last year's successful \$3M proposal) and PFAS Sources to Solutions (this year's application; pending). The 2024 status and trends include the implementation of a new design to focus on CECs, sampling for USGS and wildlife monitoring. Jay also summarized a list of special studies slated for completion in 2024, and shared key topics to be discussed at the multi-year planning workshop on November 1, 2023. General questions followed.

**10** Informational: BAPPG Image Licensing and Sharing - The BACWA Executive Director and Regulatory Program Manager shared that in the past, BAPPG and other agencies were using images that were copyrighted. A BACWA agency was sued by Getty Images for improper use so BACWA is seeking legal opinion on how agencies can share images appropriately.

**11** Informational: Chlorine Basin Plan Amendment Adoption **11/8** - The BACWA Regulatory Program Manager shared a summary of the amendment, the adoption and effective date. The comment letter is in the packet.

**12** Informational: BAAQMD 9/18 Workgroup meeting debrief - The BACWA Executive Director shared that the minutes & highlights from the meeting are in the packet. BACWA will be hosting a source testing workshop with BAAQMD in November. General discussion followed.

Action Item: BACWA Executive Director to request a meeting with BAAQMD's Executive officer.

**13** Informational: CASA Air Toxics Update - The BACWA Executive Director shared information summarizing CASA's 2-step process for conducting a study of air toxics. BACWA plans to verify participation with individual agencies before providing funds to CASA on any agencies' behalf.

**14 Discussion: Nutrient Communications update** - The BACWA Executive Director summarized the ongoing work of Civic Edge and the strategy ideas from 10/16 meeting. The group discussed external and internal efforts that BACWA and agencies could implement.

## BREAK 10:45-10:55

**15** Informational: Notes from October 4 NMS Planning Subcommittee meeting - The BACWA Executive Director said notes are in the packet.

**16** Informational: PFAS - Phase 2 draft report and Summit Partners Workshop - The BACWA Executive Director shared that Diana Lin has distributed the draft report to study participants. The BACWA Executive Director shared a summary of the report. The BACWA Executive Director & RPM will provide guidance on how best to use the information from the report.

Action Item: BACWA Executive Director and RPM to produce a FAQ sheet on the PFAS Phase 2 Study

**17 Discussion: Debrief from Recycled Water Interagency Workshop Sept 20** - The BACWA Executive Director shared that the workshop was successful in that water and wastewater agencies discussed limits and abilities of their recycled water programs.

Action Items: BACWA Executive Director to send out a survey about next steps.

**18** Informational: NPDES Permit amendment - The BACWA RPM shared the schedule and summary of a draft basin plan amendment to address NPDES permitting needs that included 4 regulatory changes. Comments are due November 7<sup>th</sup>.

**19 Discussion: Update of fecal coliform limits in permits** - The BACWA RPM shared a slide summarizing changes to the Basin Plan that have resulted in the removal of coliform limits for some Bay dischargers. The group discussed the scope of a potential permit amendment to remove coliform limits for several additional dischargers. This topic will be included on the agenda of the next meeting with the Regional Water Board.

**20 Discussion: Draft agenda for 10/31 Joint meeting with R2** - The BACWA RPM reviewed the draft agenda for the next meeting with the Regional Water Board on October 31, 2023.

Action Item: BACWA staff to review agenda with RWB and share with BACWA community.

**21 Discussion - Recap of Strategy meeting at Pardee** - BACWA Executive Director shared a recap of BACWA strategy at Pardee.

Action Item: BACWA Executive Director will share next Bay Area Consortium for Water & Wastewater Education (BACWWE) meeting date with the group.

### OPERATIONAL

**22 Discussion: Feedback from Pardee Technical Seminar, and dates for 2024** - BACWA Executive Director shared the available dates at Pardee Watershed in September 2024 – the 4 & 5 and 12 & 13.

Action Item: BACWA Staff to hold September 12 & 13, 2024.

**23 Discussion: BACWA Holiday lunch and leadership/representative appreciation** - BACWA Executive Director shared that we should send cards and chocolates as a thank you to BACWA's volunteers.

24Discussion: Dates and locations for future FY24 Board meetings- BACWAExecutive Director asked for feedback on meeting locations for January to June. Group agreed onEBMUD downtown & Orinda, Central San and SFPUC.

Action Items: BACWA AED to book locations for meetings January – June.

**25** Informational: BACC Update - BACWA AED shared there is a list of the chemicals that we will prepare bid documents for next cycle and a timeline of the bid process.

- 26 Committee Reports In the packet
- 27 Member highlights Agencies shared highlights.
- **28 Executive Director Report** In the packet.
- 29 Board Calendar and Action Items In the packet.
- **30 Regulatory Program Manager Report** In the packet.
- 31 Other BACWA Representative Reports
  - a. RMP Technical Review Committee Samantha Engelage, Alicia Chakrabarti
  - 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; Jackie Zipkin
- i. NACWA Emerging Contaminants Karin North; Melody LaBella
- j. CASA State Legislative Committee Lori Schectel
- k. CASA Regulatory Workgroup Lorien Fono; Mary Cousins
- I. 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

### 32 SUGGESTIONS FOR FUTURE AGENDA ITEMS

#### NEXT MEETING The next meeting of the Board is scheduled for November 17, 2023

#### ADJOURNMENT



### ATTENDEES:

**Executive Board Representatives:** Amit Mutsuddy (EBMUD), Amy Chastain (SFPUC), Eric Dunlavey (San José), Jackie Zipkin (East Bay Dischargers Authority) and Lori Schectel (Central Contra Costa Sanitary District)

### **Other Attendees:**

Name	Agency/Company
Lorien Fono, Mary Cousins	BACWA
Andre Gharagozian	Carollo
Blake Brown, Dan Frost, Rita Chang	CCCSD
Amanda Roa	Delta Diablo
Don Gray	EBMUD
Tom Hall	EOA
Talyon Sortor, Jordan Damerel, Emily Corwin	FSSD
Denise Conners	LWA
Monty Dill	Richmond / Veolia
Nohemy Revilla, Humphrey Ho, Daniela Brandao	SFPUC
Cameron Kostigen Mumper	Sunnyvale
Anir Bhagwat	SVCW
Armando Lopez, Tim Grillo	USD
Jennifer Harrington	Vallejo FWD

Amit Mutsuddy called the meeting to order at 12:35 pm and led introductions. The meeting was conducted in hybrid format, with participants joining virtually and in-person at from Central San's District Offices. There was no public comment.

### UPDATE ON EBMUD'S PROPOSED HETEROSIGMA STUDY

Don Gray (EBMUD) provided an update on the District's proposal to conduct studies of *Heterosigma akashiwo*, the mixotroph responsible for algae blooms in San Francisco Bay in 2022 and 2023. The proposal includes monitoring at several nearshore locations in the Bay; dosing of clay or powdered activated carbon to prevent growth of blooms (pending permission from regulatory authorities); and laboratory studies to determine growth factors such as sensitivity to dissolved inorganic nitrogen. The District has submitted a full proposal to the Water Research Foundation (WRF) and expects a final decision in November. BACWA has provided a letter of support pledging matching funds. If the proposal receives WRF funding, the project would take about 18 months to complete. The project concept will be shared at the next Nutrient Management Strategy (NMS) steering committee meeting on October 27<sup>th</sup>.

### UPDATE ON SCIENCE PROGRAM

Participants discussed BACWA's position regarding support for science in the 3<sup>rd</sup> Nutrient Watershed Permit. The group strongly supported inclusion of communications and program

management elements as enhancements to the program, which could be laid out in the Fact Sheet of the permit. The enhancements should be worked into the 5-year science program for the NMS, which will be discussed at an NMS Steering Committee meeting in February 2024. The NMS modeling team continues to work on model runs to support the 3<sup>rd</sup> Watershed Permit, including a high-resolution model run.

# COST OF NUTRIENT UPGRADES

The BACWA Executive Director shared a draft survey intended to allow BACWA to (a) compare the magnitude of nutrient-related expenditures to overall wastewater budgets, and (b) communicate the costs of compliance with the 3<sup>rd</sup> Nutrient Watershed Permit. The group discussed the complexities of translating capital expenditures into rate increases. SFPUC and EBMUD offered to meet with BACWA staff to discuss the rate-setting process in more detail. BACWA may decide to compile costs another way in lieu of a survey.

# UPDATE ON BACWA'S KEY TENETS

Attendees discussed considerations for establishing final effluent limits in the 3<sup>rd</sup> Watershed Permit. The Executive Director shared a proposal to establish limits based on currently proposed projects; for agencies with no projects underway, limits would be based on a standardized regional formula. Three options for standardized formulas were shared with Nutrient Strategy Team members ahead of the meeting.

Attendees discussed a proposed special study for the 3<sup>rd</sup> Watershed Permit to compile agency planning efforts, coordinating phasing of nutrient reductions, provide cost information, and support a trading framework. Most of the effort would involve compiling the efforts of individual BACWA members (i.e., not generating new information, other than the trading framework).

# ENGAGEMENT WITH REGIONAL WATER BOARD

BACWA's Executive Board will next meet with Regional Water Board staff on October 31<sup>st</sup>. BACWA has circulated a draft memo summarizing currently planned nutrient removal projects and has requested member feedback on the memo before the meeting, although some members have requested additional time.

# **NEXT STEPS**

- Prepare for engagement with Regional Water Board staff on October 31st
- Incorporated suggested edits from member agencies into the draft memo summarizing planned nutrient reduction projects.
- Circulate information to member agencies comparing planned nutrient loads with standardized regional formulas that could be used to establish final load limits.
- Begin compiling capital and O&M costs, through a survey or other means.

Amit Mutsuddy adjourned the meeting at 2:58 PM.



Special Executive Board Meeting Minutes Joint Meeting with Regional Water Board Staff

October 31, 2023

### **ROLL CALL AND INTRODUCTIONS**

**Executive Board Representatives:** Amit Mutsuddy (EBMUD), Jackie Zipkin (East Bay Dischargers Authority); Eric Dunlavey (San José), Lori Schectel (Central Contra Costa Sanitary District); Amy Chastain (SFPUC).

Other Attendees: Lorien Fono, BACWA Mary Cousins, BACWA Tom Hall, EOA Eileen White, Regional Water Board

Tom Mumley, Regional Water Board Bill Johnson, Regional Water Board Robert Schlipf, Regional Water Board James Parrish, Regional Water Board

Amit Mutsuddy began the meeting at 9:07 am and led introductions. The meeting was conducted in-person at the Regional Water Board's offices in Oakland. There was no public comment.

### AGENDA ITEMS

### Agenda Item 1 – Agency Updates

Eileen White reported that the <u>Regional Water Board</u> has a new member, Mark Ransom, with professional expertise in groundwater remediation.

### Agenda Item 2 – PFAS

BACWA staff shared that a written report summarizing Phase 1 and Phase 2 of the PFAS Regional Study is nearly complete, and will be shared with Regional Water Board staff soon. The group discussed the recent failure of legislative efforts to ban PFAS in consumer products, and ongoing work by the Department of Toxic Substances Control to regulate PFAS in specific products.

### Agenda Item 3 – Recycled Water

The group discussed potential next steps following the workshop on interagency collaboration on recycled water that was held at the Regional Water Board's offices in September. Tom Mumley noted that the State Water Board's "strike team" has compiled information about planned recycled water projects and expects that the State will comply with the 2030 target of 800,000 acre-feet (per the <u>CA Water Supply Strategy</u>), but staff are still assessing the feasibility of meeting the 2040 goal of 1.8 million acre-feet. A funding proposal for the Bay Area One Water Network has been submitted to the EPA's Water Quality Improvement Fund.

### Agenda Item 4 – Basin Plan Amendment

Regional Water Board staff have released a draft Basin Plan Amendment related to NPDES permitting. BACWA plans to submit a brief comment letter expressing support and noting minor requested changes to the draft staff report.

# Agenda Item 5 – Chlorine

The blanket NPDES permit amendment for residual chlorine and oil & grease is on the agenda for the November Regional Water Board meeting. BACWA staff will attend to testify in support.

# Agenda Item 6 – Bacteria

BACWA staff noted that due to a Basin Plan Amendment to Table 4-2A, NPDES permits for most deep water dischargers no longer contain coliform limits. For a short list of dischargers that are still subject to the coliform limits, it would be beneficial to have these limits removed due to the cost of compliance for chemical dosing. Regional Water Board staff agreed with the sentiment but cannot commit to an amendment due to staffing resource constraints.

# Agenda Item 7 – Sea Level Rise

BACWA is participating as stakeholder in BCDC's development of a Regional Shoreline Adaptation Plan. Per recently adopted legislation (SB272), BCDC must adopt guidelines for subregional sea level rise adaptation plans by the end of 2024. Regional Water Board staff also have developed a climate action plan for their agency, and they will need to work with BACWA to identify a way to update responses to the <u>2021 climate change questionnaire</u>.

# Agenda Item 8- Nutrients

Regional Water Board staff expect to have an administrative draft of the 3<sup>rd</sup> Nutrient Watershed Permit available by approximately January 2024. The following permit details were discussed:

- Effluent Limits. Regional Water Board staff shared that they may prefer to use an Upper Confidence Level on the mean, or another statistical characterization of current performance, instead of an Upper Tolerance Level to establish interim limits. BACWA and Regional Water Board staff will meet separately to discuss technical details of this new proposal. Regional Water Board staff confirmed that anti-backsliding rules would apply to the interim limits. Recent modeling work conducted by SFEI supports the concept that Bay water quality would be improved by nutrient load reductions of various levels, but the simplicity of the current model will limit its usefulness in establishing final load limits.
- **Special Studies.** BACWA is proposing a special study to coordinate nutrient load planning in the region, including preparation of information about project costs. The study would also support lobbying for additional state and/or federal funding.
- Fact Sheet. BACWA is preparing a memo summarizing nutrient load reduction plans of the largest dischargers, and will share it with Regional Water Board staff soon. Regional Water Board staff requested that BACWA include information about 'early actors' in the memo. BACWA will also provide information about the potential range of impacts on customer rates / affordability due to the cost of nutrient reduction projects.
- **Support for Science.** The group agreed that the next 5-year science plan developed by the Nutrient Management Strategy should be accompanied by project management and communications elements.

# Agenda Item 7 – Upcoming Events

The group agreed to reconvene in early- to mid- January, before the administrative draft of the 3<sup>rd</sup> Nutrient Watershed Permit is released. The meeting was adjourned by Amit Mutsuddy at

10/31/23 Joint RB2 Meeting Summary

11:10 am.





October 23, 2023

MEMO TO:	Bay Area Clean Water Agencies Executive Board
MEMO FROM:	Phoebe Grow, Treasurer, East Bay Municipal Utility District
SUBJECT:	Third Month FY 2024 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**, **2023 through September 30**, **2023** (Three months of Fiscal Year 2024). 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),
- BACC Legal Reserve Fund (BACC Legal Rsrv),
- Water/Wastewater Operator Training (WOT),

## Houck, Matt

From:	Grow, Phoebe
Sent:	Tuesday, October 31, 2023 8:27 AM
То:	Houck, Matt
Subject:	RE: September 2023 Treasurer's Report

Hi Matt- Thanks for the reminder and apologies for the delay. Report approved.

Phoebe Grow, P.E. (she/her) | Principal Management Analyst | 510.287.0205 | phoebe.grow@ebmud.com

From: Houck, Matt <matt.houck@ebmud.com> Sent: Tuesday, October 31, 2023 8:23 AM To: Grow, Phoebe <phoebe.grow@ebmud.com> Subject: FW: September 2023 Treasurer's Report

Morning,

I just wanted to follow up on if you had a chance to review this.

Thanks,

# Matt Houck

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

From: Houck, Matt Sent: Wednesday, October 25, 2023 8:57 AM To: Grow, Phoebe <<u>phoebe.grow@ebmud.com</u>> Subject: September 2023 Treasurer's Report

Hi Phoebe,

Please approve BACWA - September 2023 Treasurer's Report for distribution.

Let me know if you have any questions.

Thanks,

# Matt Houck

Accountant II East Bay Municipal Utility District 375 11TH St, MS 402, Oakland, CA 94607



September 2023

### **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 September 31, 2023, was \$759,262 which is significantly higher than the target reserve of \$366,899 which is intended to cover 3 months of normal operating expenses based on the BACWA FY24 budget. \$610,034 of the ending fund balance is shown on the BACWA Fund & Investments Balance Report September 31, 2023, 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 negative \$217,671 (i.e., actual fund balance of \$149,228 less target reserves) as of September 31, 2023. Reserves will increase as agencies remit their FY24 BACWA dues payments.

<u>CBC Fund</u>: This fund provides the resources for completing special investigations as well as meeting regulatory requirements. The ending fund balance on September 31, 2023, was \$3,427,163 which is higher than the target reserve of \$1,000,000. \$293,426 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 \$2,133,737 (i.e., actual fund balance of \$3,133,737 less target reserves) as of September 31, 2023. 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.

<u>Legal Fund</u>: 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 September 31, 2023 (25% of the FY) are at 67%

Expenses as of September 31, 2023 (25% of the FY) are at 6.15%

#### FY 2023 BACWA BUDGET to ACTUAL

	C 11/ A						
BA	CWA						
BAY							
CLEAN	WATER						
AGE	NCIES						
			Projected				
			Revenue as of		Actual %		
BACWA FY24 BUDGET	Line Item Description	FY 2024 Budget	Sept 2023	Actual Sept	of Budget	Variance	NOTES
			Changes from	2023	Sept 2023		
			budget in blue				
<b>REVENUES &amp; FUNDING</b>							
Dues	Principals' Contributions	\$537,795	\$537,795	\$537,795	100%	\$0	FY24: 2% increase 5 @ \$107.559
	Associate & Affiliate Contributions	\$190.078	\$190.078	\$0	0%	-\$190.078	FY4: 2% increase. 1 Assoc: \$8876: 47 Affiliate: \$1778
Fees	Clean Bay Collaborative	\$675,000	\$675,000	\$450.000	67%	-\$225,000	Same as EV33 Prin: \$450,000: Assoc/Affil: \$225,000
	Nutrient Surcharge	\$1,400,000	\$1,400,000	\$956,824	68%	-\$443 176	Sea Nutriant Surcharde Spreadsheet
	Voluntary Nutriant Contributions	\$1,400,000	\$1,400,000	¢0.024	00%	¢0	See Martene Sureninge Spreadsneet
Other Bessints	AID Non Member	ć7 261	ć7 261	30 ¢0	0%	نې د ج	20/ instance (Spate Deco)
Other Receipts	AIR NOI-Weinber	\$7,501	\$7,501	ېں دە	0%	-\$7,501	2% increase (sanita Rosa)
	DAFEG NUII-WIEMDERS	\$4,114	\$4,114	\$U	0%	->4,114	2% IIICIEdse (Sta Rusa, Sac Reg I, VacavIIIe) \$1,580/Edch
Frend Transfer	Other		ć. 000	\$0	001	\$0 \$1.000	
Fund Transfer	Special Program Admin Fees (WOT)	\$1,000	\$1,000	\$0	0%	-\$1,000	
	Special Program Admin Fees (BACC)	\$38,250	\$38,250	\$0	0%	-\$38,250	400 nours of AED support \$96.30/hr
	Special Program Admin Fees (BABC)	\$6,000	\$6,000	\$0	0%	-\$6,000	ED, AED and RPM support
Interest Income	LAIF	\$60,000	\$60,000	\$18,076	30%	-\$41,924	BACWA, Legal, & CBC Funds invested in LAIF
	Higher Yield Investments						
	Total Revenue	\$2,919,598		\$1,962,695	67.22%	-\$956,903	
		1	Projected				
			Expense as of		Actual %		
BACWA FY24 BUDGET	Line Item Description	FY 2024 Budget	Sept 2023	Actual Sept	of Budget	Variance	NOTES
			Changes from	2023	Sept 2023		
			budget in blue				
EXPENSES							
Labor							
Labor	Executive Director	\$218 5/18	\$218 5/18	\$36 121	17%	-\$182 124	7% (incl. 4.9% CPLSE Ray Metro Area Dec 2022)
	Assistant Executive Director	\$210,540	\$210,548	\$10,424	21%	-\$102,124	7% (incl. 4.9% CPI SE Bay Metro Area Dec 2022) \$76.69/hour: Reflects 1200 hours
	RACC Administrator	\$32,024	\$32,024	¢2 177	21/0	¢2E 242	
	Bace Administrator	\$38,320	\$38,320	\$3,177	0/0	\$120.017	400 his ALD support at \$30.50 per in 1. 7% (incl. 4.9% (PI) SE Bay Metro Area Dec 2022): \$112.72/hour. Reflects 1350 hours.
		\$152,175	\$152,175	\$22,202	15/0	-\$125,517	
	lotal	\$501,271	\$501,271	\$81,342	16%	-\$419,929	
Administration							
	EBMUD Financial Services	\$43,297	\$0	\$0	0%	-\$43,297	FY24 no change
	Auditing Services	\$5,561	\$0	\$0	0%	-\$5,561	Finanical Auditors through EBMUD; per auditor rate schedule
	Administrative Expenses	\$8,118	\$0	\$0	0%	-\$8,118	FY24 no change
	Insurance	\$9,351	\$0	\$8,169	87%	-\$1,182	15% increase over FY23 (10-15% est. increase per Alliant)
	Total	\$66,327	\$0	\$8,169	12%	-\$58,158	
weetings							
		A		÷ -			
	EB Meetings	\$2,760	\$0	\$647	23%	-\$2,113	2% increase from FY23
	EB Meetings Annual Meeting	\$2,760 \$14,369	\$0 \$0	\$647 \$0	23% 0%	-\$2,113 -\$14,369	2% increase from FY23 FY24 no change
	EB Meetings Annual Meeting Pardee	\$2,760 \$14,369 \$6,801	\$0 \$0 \$0	\$647 \$0 \$2,567	23% 0% 38%	-\$2,113 -\$14,369 -\$4,234	2% increase from FY23 FY24 no change 2% increase from FY23
	EB Meetings Annual Meeting Pardee Misc. Meetings	\$2,760 \$14,369 \$6,801 \$7,500	\$0 \$0 \$0 \$0 \$0	\$647 \$0 \$2,567 \$2,484	23% 0% 38% 33%	-\$2,113 -\$14,369 -\$4,234 -\$5,016	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences
	EB Meetings Annual Meeting Pardee Misc. Meetings Total	\$2,760 \$14,369 \$6,801 \$7,500 <b>\$31,430</b>	\$0 \$0 \$0 \$0 <b>\$0</b> <b>\$0</b>	\$647 \$0 \$2,567 \$2,484 <b>\$5,698</b>	23% 0% 38% 33% 18%	-\$2,113 -\$14,369 -\$4,234 -\$5,016 - <b>\$25,732</b>	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences
Communication	EB Meetings Annual Meeting Pardee Misc. Meetings Total	\$2,760 \$14,369 \$6,801 \$7,500 \$ <b>31,430</b>	\$0 \$0 \$0 \$0 \$0	\$647 \$0 \$2,567 \$2,484 <b>\$5,698</b>	23% 0% 38% 33% <b>18%</b>	-\$2,113 -\$14,369 -\$4,234 -\$5,016 - <b>\$25,732</b>	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences
Communication	EB Meetings Annual Meeting Pardee Misc. Meetings Total Website Hosting	\$2,760 \$14,369 \$6,801 \$7,500 <b>\$31,430</b>	\$0 \$0 \$0 \$0 \$0 \$0	\$647 \$0 \$2,567 \$2,484 <b>\$5,698</b>	23% 0% 38% 33% 18%	-\$2,113 -\$14,369 -\$4,234 -\$5,016 - <b>\$25,732</b>	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences 2% increase from FY23. Go Daddy website hosting and domain registration 2% increase from FY23. Go Daddy website hosting and domain registration
Communication	EB Meetings Annual Meeting Pardee Misc. Meetings Total Website Hosting File Storage	\$2,760 \$14,369 \$6,801 \$7,500 \$31,430 \$728 \$728	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$647 \$0 \$2,567 \$2,484 \$5,698 \$0 \$0	23% 0% 38% 33% 18%	-\$2,113 -\$14,369 -\$4,234 -\$5,016 -\$25,732 -\$728 -\$728	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences 2% increase from FY23, Go Daddy website hosting and domain registration 2% increase from FY23, Go Daddy website hosting and domain registration 2% increase from FY23 has net
Communication	EB Meetings Annual Meeting Pardee Misc. Meetings Total Website Hosting File Storage Website Development/Maintenance	\$2,760 \$14,369 \$6,801 \$7,500 \$31,430 \$728 \$728 \$728	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$647 \$0 \$2,567 \$2,484 \$5,698 \$0 \$0 \$0 \$0	23% 0% 38% 33% 18% 0% 0%	-\$2,113 -\$14,369 -\$4,234 -\$5,016 -\$25,732 -\$728 -\$728 -\$796 -\$1592	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences 2% increase from FY23, Go Daddy website hosting and domain registration 2% increase from FY22, box.net 2% increase from FY22
Communication	EB Meetings Annual Meeting Pardee Misc. Meetings Total Website Hosting File Storage Website Development/Maintenance IT Sunport	\$2,760 \$14,369 \$6,801 \$7,500 \$31,430 \$728 \$7728 \$7796 \$1,592 \$2,750	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$647 \$0 \$2,567 \$2,484 \$5,698 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	23% 0% 38% 33% 18% 0% 0% 0%	-\$2,113 -\$14,369 -\$4,234 -\$5,016 - <b>\$25,732</b> -\$728 -\$778 -\$796 -\$1,592 -\$2,750	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences 2% increase from FY23, Go Daddy website hosting and domain registration 2% increase from FY22, box.net 2% increase from FY22 2% increase from FY22 2% increase from FY22
Communication	EB Meetings Annual Meeting Pardee Misc. Meetings Total Website Hosting File Storage Website Development/Maintenance IT Support BACWA Value of Water Communication	\$2,760 \$14,369 \$6,801 \$7,500 \$31,430 \$728 \$728 \$728 \$796 \$1,592 \$2,759	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	\$647 \$0 \$2,567 \$2,484 \$5,698 \$0 \$0 \$0 \$0 \$0 \$0	23% 0% 38% 33% 18% 0% 0% 0%	-\$2,113 -\$14,369 -\$4,234 -\$5,016 -\$25,732 -\$728 -\$796 -\$1,592 -\$2,759 -\$2,759	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences 2% increase from FY23, Go Daddy website hosting and domain registration 2% increase from FY22, box.net 2% increase from FY22, box.net 2% increase from FY22 2% increase from FY22 2% increase from FY22 2% increase from FY22
Communication	EB Meetings Annual Meeting Pardee Misc. Meetings Total Website Hosting File Storage Website Development/Maintenance IT Support BACWA Value of Water Communication Others Communication	\$2,760 \$14,369 \$6,801 \$7,500 <b>\$31,430</b> \$728 \$778 \$778 \$796 \$1,592 \$2,759 \$40,000 \$1,672	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$647 \$0 \$2,567 \$2,484 \$5,698 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	23% 0% 38% 33% 18% 0% 0% 0% 0%	-\$2,113 -\$14,369 -\$4,234 -\$5,016 - <b>\$25,732</b> -\$728 -\$796 -\$1,592 -\$2,759 -\$2,759 -\$40,000	2% increase from FY23 FY24 no change 2% increase from FY23 30% increase from FY23 to accommodate conferences 2% increase from FY23, Go Daddy website hosting and domain registration 2% increase from FY23, Go Daddy website hosting and domain registration 2% increase from FY22, box.net 2% increase from FY22 2% increase from FY22 New line in FY24 2% increase from FY24 New Strease from FY24 2% increase

#### FY 2023 BACWA BUDGET to ACTUAL

<u>EXPENSES</u>							
	Total	\$47,732	\$0	\$160	0%	-\$47,572	
Logal							
Legal	Pogulaton/Support	\$2.020	έŋ	¢ο	0%	\$2.020	JW instructo from EV32 Downov Prand LLD
	Executive Board Support	\$2,325	\$0 \$0	\$0 \$0	0%	-\$2,525	2% increase from FV2, Downey Drank CLI
	Total	\$5,333	\$0 \$0	0¢ \$0	0%	-\$5 284	
		<b>33,204</b>	ŞU	ŶŬ	070	-33,204	
Committees							
	AIR	\$76,000	\$0	\$9,006	12%	-\$66,994	\$75k consulting support, \$1k misc expenses. Carollo Engineers
	AIR Support for ACE	\$20,000	\$0	\$0	0%	-\$20,000	New in FY23
	BAPPG	\$159,000	\$0	\$23,790	15%	-\$135,210	17% increase from FY23. Includes CPSC @ \$5,000, OWOW @ \$10,000, NSAC @ \$10,00 and Pest. Reg Spt. @ \$71,500
	Biosolids Committee	\$0	\$0	\$0		\$0	
	Collections System	\$56,000	\$0	\$0	0%	-\$56,000	SSS WDR Support
	InfoShare Groups	\$500	\$0	\$0	0%	-\$500	\$500 decrease from FY23
	Laboratory Committee	\$4,050	\$0	\$1,121	28%	-\$2,929	\$2350 less than FY23, TNI Training
	Permits Committee	\$500	\$0	\$0	0%	-\$500	\$500 decrease from FY23
	Pretreatment	\$500	\$0	\$0	0%	-\$500	\$500 decrease from FY23
	Recycled Water Committee	\$10,000	\$0	\$0	0%	-\$10,000	Carry forward from FY23
	Misc Committee Support	\$45,000	\$0	\$3,740	8%	-\$41,260	Same as FY23
	Manager's Roundtable	\$1,000	\$0	\$254	25%	-\$746	Same as FY23
	Total	\$372,550	\$0	\$37,912	10%	-\$334,638	
e Halandi a							
Collaboratives	e. Hete and an						
	Collaboratives	<u> </u>	ćo	ćo	001	ćo	
	State of the Estuary (SFEP-biennial)	\$0	\$U	\$U	0%	\$U	Bienniel in Oda Hscai Years. (Pala bienniely in oda years for even year conference)
	Arleen Navarret Award	\$2,500	\$U	Ş0	0%	-\$2,500	Bienniel in Even Fiscal Years. FY24 Award likely to be paid in FY24
	BayCAN	\$5,000	\$0	\$0	0%	-\$5,000	
	Bay Area One Water Network	\$5,000	\$0	\$0	0%	-\$5,000	Same as F723
	Bruce Wolf Scholarship	\$4,000	\$0	\$0	0%	-\$4,000	FY22, FY23, FY24, FY25 FY26
	Passthrough for CASA for air toxics	\$425,000	\$0	\$0	100%	-\$425,000	Estimate - new line in FY24
	Misc	\$1,500	Ş0	\$0	0%	-\$1,500	NBWA (\$1,500)
	Total	\$443,000	Ş0	Ş0	0%	-\$443,000	
Other							
	Unbudgeted Items						
	Other	\$0	\$0	\$0	0%	\$0	
		\$0		\$0	0%	\$0	
Task Current							
Tech Support	Technical Convert						
	Nutrients	¢1,000,000	ćo	ćo	001	ć1 000 000	
	watershed	\$1,800,000	\$U	\$U	0%	-\$1,800,000	Advance funding for 2nd watershed Permit Sciece studies; Final \$ 180
<b>├</b> ────	Additional work under a servit	\$0	\$0 ¢0	\$0 ¢0	0%	\$0 \$100.000	Includes HDD DQ for \$22Ek encode out over EV20.24
	Additional work under permit	\$100,000	\$U	\$U	0%	-\$100,000	Includes HDK PO TOT \$225K Spread out over Fr20-24.
	Regional Study on Nature based systems	\$80,000	\$U	\$30,538	38%	-\$49,462	Shell \$500K, expires 06/30/2023: Possible runds left over from FF23 to be spent on additional work
	Regional Recycling Evaluation	\$0	\$0	\$0	0%	\$0	HDR \$154K, expires 12/31/2023
	Nutrient Workshop(s)	\$0	\$0	\$0	0%	\$0	Pilot Studies/Plant Review/InDecative Technologies
	NMS Reviewer	\$50,000	\$0	\$2,210	4%	-\$47,790	M. Connor Contract
	General Tech Support	\$100,000	\$100,000	\$7,580	8%	-\$92,420	AB617 emissions factors, PFAS, other nutrient support
	CEC Investigations	\$60,000	\$0	\$52,002	87%	-\$7,999	PFAS Study Phase II
	Risk Reduction	\$12,500	\$0	Ş0	0%	-\$12,500	APA FSS completed \$12,500 contract in FY20, CIEA will complete \$12,500 contract in FY23
	Total	\$2,202,500	\$100,000	\$92,330	4%	-\$2,110,170	
	TOTAL EXPENSES	\$3,670,094	\$601,271	\$225,611	6.15%	-\$3,444,483	
	PROJECTED EXPENSE DEVIATION FROM BUDGET		-\$3,068,823				
	NET INCOME BEFORE TRANSFERS	-\$750,496					
	TRANSFERS FROM RESERVES	\$750.496				17	aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge
I		<i>,</i>					

FY 2023							
BACWA BUDGET to ACTUAL							

<b>EXPENSES</b>					
	NET INCOME AFTER TRANSFERS	\$0			
	TOTAL OPERATING BUDGET	\$1,467,594			
	OPERATING RESERVE	\$366,899			

#### BACWA Fund Report as of September 30, 2023

		BACWA FUND BALANCES - DATA PROVIDED BY ACCOUNTING DEPT.													
DEPTID	DESCRIPTION	FISCAL YEAR BEGINNING FUND BALANCE	AL YEAR ING FUND LANCE TOTAL BILLED REVENUE TO-DATE TO-DATE		MONTH-ENDING FUND BALANCE	OUTSTANDING ENCUMBRANCES	MONTH-END UNOBLIGATED FUND BALANCE								
600	BACWA	347,671	540,431	128,840	759,262	610,034	149,228	Top Chart:							
604	LEGAL RSRV	300,000	-	-	300,000	-	300,000	Bottom Chart:							
605	CBC	2,097,905	1,422,550	93,292	3,427,163	293,426	3,133,737	Allocations:							
	SUBTOTAL 1	2,745,576	1,962,981	222,132	4,486,425	903,460	3,582,965								
602	BABC	190,244	73,500	19,831	243,913	90,761	153,152								
606	BACC	31,025	-	33,178	(2,153)	35,342	(37,495)								
607	BACC LEGAL RSRV	60,000	30,000	-	90,000	-	90,000								
610	WOT	253,257	-	(10,000)	263,257	-	263,257	]							
	SUBTOTAL 2	534,526	103,500	43,009	595,017	126,103	468,914								
	GRAND TOTAL	3,280,102	2,066,481	265,141	5,081,442	1,029,563	4,051,879	1							

Reflects CASH on the Books Reflects CASH in the Bank Priority for non-liquid investments

Includes Encumbrances Includes Payables (bills received but not paid)

		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
600	BACWA	347,671	540,431	128,840	759,262	(431,922)	1,700	329,040	-	329,040	14%	-		priority # 3 for allocation
604	LEGAL RSRV	300,000	-	-	300,000	-	-	300,000	-	300,000	13%	-		priority # 1 for allocation
605	CBC	2,097,905	1,422,550	93,292	3,427,163	(1,076,681)	-	2,350,482	749,251	1,601,231	69%	-		priority # 4 for allocation
	SUBTOTAL 1	2,745,576	1,962,981	222,132	4,486,425	(1,508,603)	1,700	2,979,522	749,251	2,230,271	96%	-		
602	BABC	190,244	73,500	19,831	243,913	(73,500)	-	170,413	170,413	-	0%	-		pass-through funds, no allocation
606	BACC	31,025	-	33,178	(2,153)	-	-	(2,153)	(2,153)	-	0%	-		
607	BACC LEGAL RSRV	60,000	30,000	-	90,000	-	-	90,000	-	90,000	4%	-		priority # 2 for allocation
610	WOT	253,257	-	(10,000)	263,257	-	-	263,257	263,257	-	0%	-		pass-through funds, no allocation
	SUBTOTAL 2	534,526	103,500	43,009	595,017	(73,500)	-	521,517	431,517	90,000	4%	-		
	GRAND TOTAL	3,280,102	2,066,481	265,141	5,081,442	(1,582,103)	1,700	3,501,039	1,180,768	2,320,271	100%			

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

-

Reconciliation to Trial Balance	ce in the second se			
Per Report above:		STB	14930	2,320,271
General	1,962,981	STB	15050	1,180,768
WOT, BABC, & BACC	103,500			3,501,039
PROP		STB	16300	1,582,103
subtotal	2,066,481	STB	21350	(1,700)
				5,081,442

#### Trial Balance Revenue Accounts

40100	Interest	(18,076)
40101	Mem Contrib	(1,061,295)
40102	Transfer	(30,000)
40103	Assoc Contrib	
40104	Other	(957,110)
47310	State Grant	-
47320	Grant Retention	-
subtotal		(2,066,481)

Difference

19

# BACWA Revenue Report as of September 30, 2023

			Program				
Cost Center Code	Cost Center Description	Program Segment Description	Segment	Amended Budget	Current Period	FY24 - Year to Date	Unobligated
			Value				
600	Bay Area Clean Water	BABC - AED and RPM Support	6200	(6,000.00)	-	-	6,000.00
	Agencies	BACC - AED Support	6199	(38,250.00)	-	-	38,250.00
		BDO Affil/CS/Assoc Dues	6104		-	-	-
		BDO Affiliate/Associate Dues	6103	-	-	-	-
		BDO Assoc.&Affiliate Contr	6102	(190,078.00)	-	-	190,078.00
		BDO Fund Transfers	6141	(1,000.00)	-	-	1,000.00
		BDO Member Contributions	6101	(537,795.00)	-	(537,795.00)	-
		BDO Non-Member Contr AIR	6136	(7,361.00)	-	-	7,361.00
		BDO Non-Member Contr BAPPG	6135	(4,114.00)	-	-	4,114.00
		BDO Other Receipts	6105	-	(286.00)	(286.00)	(286.00)
		BDO Other Receipts (Misc)	6140	-	-	-	-
		BDO- Interest Income from LAIF	6142	(60,000.00)	-	(2,349.85)	57,650.15
		BDO-Alternative Investment Inc	6143	-	-	-	-
600 Total				(844,598.00)	(286.00)	(540,430.85)	304,167.15
602	Bay Area Biosolids Coalition	BDO Fund Transfers	6141		-	-	-
		BDO Member Contributions	6101		-	(73,500.00)	(73,500.00)
602 Total				-	-	(73,500.00)	(73,500.00)
605	Clean Bay Collaborative	BDO Fund Transfers	6141	-	-	-	-
		BDO Member Contributions	6101	(675,000.00)	-	(450,000.00)	225,000.00
		BDO Other Receipts	6105	(1,400,000.00)	-	(956,824.00)	443,176.00
		BDO- Interest Income from LAIF	6142	-	-	(15,725.92)	(15,725.92)
605 Total				(2,075,000.00)	-	(1,422,549.92)	652,450.08
606	Bay Area Chemical	BDO Member Contributions	6101	-	-	-	-
	Consortium						
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				(2,919,598.00)	(286.00)	(2,066,480.77)	853,117.23

# BACWA Expense Detail Report for September 30, 2023

Cost Center Code	Program Segment Description	Program Segment Value	Balance Type	Current Period Activity	FY24 - Year to Date
600	AIR-Air Issues&Regulation Grp	6153	Actual	5,362.50	9,006.25
			Encumbrance	(5,362.50)	78,742.09
			Obligated	-	87,748.34
	AS-Assistant Executive Directo	6175	Actual	9,739.63	19,479.26
			Encumbrance	(9,739.63)	72,544.74
			Obligated	-	92,024.00
	AS-Audit Services	6180	Actual	-	(545.00)
			Encumbrance		. ,
			Obligated	-	(545.00)
	AS-BACWA Admin Expense	6173	Actual	-	
			Obligated		
	AS-EBMUD Financial Services	6176	Actual		
	As Ebimob Financial Scivices		Encumbrance		/13 297 00
			Obligated		43,237.00
	AS-Executive Director	6174	Actual	36 424 00	36 424 00
		01/4	Engumbranco	(26, 424,00)	182,124.00
			Obligated	(30,424.00)	182,124.00
		6477	Obligated	-	218,548.00
	AS-Insurance	61//	Actual	8,168.68	8,168.68
			Obligated	8,168.68	8,168.68
	AS-Regulatory Program Manager	6179	Actual	15,273.56	22,262.20
			Encumbrance	(15,273.56)	118,548.30
			Obligated	-	140,810.50
	Administrative Support	6178	Actual	-	-
			Obligated	-	-
	BC-BAPPG	6152	Actual	4,450.91	23,790.41
			Encumbrance	(3,945.00)	106,715.50
			Obligated	505.91	130,505.91
	BC-InfoShare Groups	6148	Actual		-
			Obligated	-	-
	BC-Laboratory Committee	6149	Actual	-	1,121.25
			Encumbrance	-	2,778.75
			Obligated	-	3,900.00
	BC-Manager's Roundtable	6154	Actual	-	254.34
			Obligated	-	254.34
	BC-Miscellaneous Committee Sup	6150	Actual	-	3.740.15
	BC-Permit Committee		Encumbrance		
			Obligated	-	3.740.15
		6145	Actual		-
		0145	Obligated		
		6151	Actual		-
		0151	Obligated		
	PC Water Depugling Committee	6146	Actual		
	BC-water Recycling Committee	0140	Actual	-	-
			Chlimated	-	-
		C4.05	Obligated		-
	CAR-BACWA File Storage	6165	Actual		(720.00)
			Obligated	-	(720.00)
	CAR-BACWA IT Software	6167	Actual	-	159.79
			Obligated	-	159.79
	CAR-BACWA IT Support	6166	Actual	-	-
			Encumbrance		
			Obligated	-	-
	CAR-BACWA Website Dev/Maint	6163	Actual	-	-
			Obligated	-	-
	CAR-BACWA Website Hosting		Actual	-	-
			Obligated	-	-
	CAS-Arleen Navaret Award	6160	Actual	-	-

Cost Center Code	Program Segment Description	Program Segment Value	Balance Type	Current Period Activity	FY24 - Year to Date
			Obligated	-	-
	CAS-BayCAN	6204	Actual	-	-
			Obligated	-	-
	CAS-Misc Collaborative Sup	6162	Actual	-	-
			Obligated	-	-
	CAS-PSSEP	6157	Actual	-	-
			Obligated	-	-
	CAS-Stanford ERC	6159	Actual	-	-
			Obligated	-	-
	GBS-Meeting Support-Annual	6170	Actual	-	-
			Obligated	-	-
	GBS-Meeting Support-Exec Bd	6169	Actual	-	647.16
			Obligated	-	647.16
	GBS-Meeting Support-Misc	6172	Actual	1,257.04	2,484.33
			Obligated	1.257.04	2.484.33
	GBS-Meeting Support-Pardee	6171	Actual	2.566.70	2.566.70
			Obligated	2 566 70	2 566 70
	I S-Executive Board Support	6156	Actual		_,
		0100	Encumbrance		2 355 00
			Obligated		2,355.00
	LS Pagulatony Support	6155	Actual		2,355.00
	Lo-Regulatory Support	0155	Freumbrance	-	-
			Chligated	-	2,929.00
		C10C	Obligated	-	2,929.00
	WQA-CE-Nature Based Solutions	6196	Actual	-	-
			Obligated	-	-
	Write-Off Doubtful Accounts	6208	Actual	-	-
			Obligated	-	-
600 Total			Actual	83,243.02	128,839.52
600 Total			Encumbrance	(70,744.69)	610,034.38
600 Total			Obligated	12,498.33	738,873.90
602	AS-Assistant Executive Directo	6175	Actual	-	-
			Obligated	-	-
	AS-Regulatory Program Manager	6179	Actual	-	-
			Obligated	-	-
	Academia Research & Development	6203	Actual	-	-
			Obligated	-	-
	Administrative Support	6178	Actual	-	-
			Obligated	-	-
	BDO Contract Expenses	6186	Actual	-	-
			Obligated	-	-
	Collateral Development	6197	Actual	-	-
			Obligated	-	-
	Program Manager Expense	6202	Actual	9,436.50	19,831.50
			Encumbrance	(9,436.50)	90,761.10
			Obligated	-	110,592.60
	Technology Research & Development	6206	Actual	-	-
			Obligated	-	-
602 Total			-		
602 Total			Actual	9,436.50	19,831.50
			Actual Encumbrance	9,436.50 (9,436.50)	19,831.50 90,761.10
602 Total			Actual Encumbrance Obligated	9,436.50 (9,436.50) -	19,831.50 90,761.10 110,592.60
602 Total	Recycled Water Evaluation	6198	Actual Encumbrance Obligated Actual	9,436.50 (9,436.50) -	19,831.50 90,761.10 110,592.60
602 Total 605	Recycled Water Evaluation	6198	Actual Encumbrance Obligated Actual Encumbrance	9,436.50 (9,436.50) - - -	19,831.50 90,761.10 110,592.60 - 17,492.35
602 Total 605	Recycled Water Evaluation	6198	Actual Encumbrance Obligated Actual Encumbrance Obligated	9,436.50 (9,436.50) - - - - -	19,831.50 90,761.10 110,592.60 - 17,492.35 17,492.35
<b>602 Total</b> 605	Recycled Water Evaluation	6198 6201	Actual Encumbrance Obligated Actual Encumbrance Obligated Actual	9,436.50 (9,436.50) - - - - - - -	19,831.50 90,761.10 110,592.60 - 17,492.35 17,492.35 52,001.50
602 Total 605	Recycled Water Evaluation WQA - CEC Investigations	6198 6201	Actual Encumbrance Obligated Actual Encumbrance Obligated Actual Encumbrance	9,436.50 (9,436.50) - - - - - - - - - -	19,831.50 90,761.10 110,592.60 - 17,492.35 17,492.35 52,001.50 61.733 90
602 Total 605	Recycled Water Evaluation WQA - CEC Investigations	6198 6201	Actual Encumbrance Obligated Actual Encumbrance Obligated Actual Encumbrance Obligated	9,436.50 (9,436.50) - - - - - - - - - - - - - -	19,831.50 90,761.10 110,592.60 - 17,492.35 17,492.35 52,001.50 61,733.90 113,735.40
<b>602 Total</b> 605	Recycled Water Evaluation WQA - CEC Investigations WQA-CE Addl Work Linder Permit	6198 6201 6191	Actual Encumbrance Obligated Actual Encumbrance Obligated Actual Encumbrance Obligated Actual	9,436.50 (9,436.50) - - - - - - - - - - - - - -	19,831.50 90,761.10 110,592.60 - 17,492.35 17,492.35 52,001.50 61,733.90 113,735.40
602 Total 605	Recycled Water Evaluation WQA - CEC Investigations WQA-CE Addl Work Under Permit	6198 6201 6191	Actual Encumbrance Obligated Actual Encumbrance Obligated Actual Encumbrance Obligated Actual Encumbrance	9,436.50 (9,436.50) - - - - - - - - - - - - - - - - - - -	19,831.50 90,761.10 110,592.60 - 17,492.35 17,492.35 52,001.50 61,733.90 113,735.40 -
<b>602 Total</b> 605	Recycled Water Evaluation WQA - CEC Investigations WQA-CE Addl Work Under Permit	6198 6201 6191	Actual Encumbrance Obligated Actual Encumbrance Obligated Actual Encumbrance Obligated Actual Encumbrance	9,436.50 (9,436.50) - - - - - - - - - - - - - - - - - - -	19,831.50 90,761.10 110,592.60 - 17,492.35 17,492.35 52,001.50 61,733.90 113,735.40 - 8,398.00

Cost Center Code	Program Segment Description	Program Segment Value	Balance Type	Current Period Activity	FY24 - Year to Date
	WQA-CE Risk Reduction	6190	Actual	-	-
			Encumbrance		
			Obligated	-	-
	WQA-CE Voluntary Nutr Contrib	6193	Actual	-	-
			Obligated	-	-
	WQA-CE-Nature Based Solutions	6196	Actual	30,538.17	30,538.17
			Encumbrance	(30,538.17)	148,827.24
			Obligated	-	179,365.41
	WQA-CE-Nutrient WS Permit Comm	6188	Actual	-	-
			Obligated	-	-
	WQA-CE-Technical Support	6181	Actual	962.50	8,542.50
			Encumbrance	(962.50)	9,184.25
			Obligated	-	17,726.75
	WQA-NMSReviewer	6205	Actual	1,700.00	2,210.00
			Encumbrance	(1,700.00)	47,790.00
			Obligated	-	50,000.00
605 Total			Actual	33,200.67	93,292.17
605 Total			Encumbrance	(33,200.67)	293,425.74
605 Total			Obligated	-	386,717.91
606	Administrative Support	6178	Actual	2,022.30	3,177.90
			Encumbrance	(2,022.30)	35,342.10
			Obligated	-	38,520.00
	BDO Fund Transfers	6141	Actual	-	30,000.00
			Obligated	-	30,000.00
	GBS-Meeting Support-Misc	6172	Actual	-	-
			Obligated	-	-
606 Total			Actual	2,022.30	33,177.90
606 Total			Encumbrance	(2,022.30)	35,342.10
606 Total			Obligated	-	68,520.00
610	Administrative Support	6178	Actual	-	-
			Obligated	-	-
	BC-BAPPG	6152	Actual	-	(10,000.00)
			Obligated	-	(10,000.00)
	BDO Contract Expenses	6186	Actual	-	-
			Obligated	-	-
610 Total			Actual	-	(10,000.00)
610 Total			Encumbrance	-	-
610 Total			Obligated	-	(10,000.00)
Grand Total Actual				127,902.49	265,141.09
Grand Total Encumbrance				(115,404.16)	1,029,563.32
Grand Total Obligated				12,498.33	1,294,704.41

# **EXECUTIVE BOARD AUTHORIZATION REQUEST**



AGENDA NO.: <u>5</u>

**MEETING DATE:** November 17, 2023

TITLE: Request for BACWA Executive Board Approval for no-cost extension to Agreement with the San Francisco Estuary Institute (SFEI) for the completion of a Study of Nature Based Solutions for Reducing Nutrients in an amount not to exceed \$500,000.

<b>RECEIPT</b>	<b>DISCUSSION</b>	□ <b>RESOLUTION</b>	APPROVAL
----------------	-------------------	---------------------	----------

# **RECOMMENDED ACTION**

Approve a no-cost extension to the agreement with SFEI completion of the Nature Based Solutions Study.

# SUMMARY

The 2<sup>nd</sup> Nutrient Watershed Permit was adopted by the San Francisco Water Board on May 8, 2019. The Permit requires that, individually or in collaboration, the major Dischargers shall develop planninglevel costs for nutrient discharge reductions by natural systems. It also states that the BACWA members have identified \$500,000 to conduct the study and the Water Boards feels that is a reasonable amount. The Permit language outlining the content of the study is attached.

BACWA in 2019, BACWA selected SFEI to carry out the required work. A contract was approved on May 17, 2019. As required by the permit, final progress update on the Nature Based Solutions study was submitted to the Water Board in June 2023. However, work is still ongoing to complete the anticipated tasks, and the Water Board agrees to let the work continue until the permit expiration on June 30, 2024, with the stipulation that dischargers spend the \$500,000 identified in the permit. The proposed no-cost extension to the contract will allow the work to be completed.

# FISCAL IMPACT

The BACWA 5 Year Plan anticipated spending \$500,000 for the study, which is required by the Watershed Permit. Funds to complete this work were anticipated in the approved April 21, 2023 FY23 BACWA Budget.

# ALTERNATIVES

1. No alternatives need be considered for this action, as the study is required by the Watershed Permit.

Attachments:

Amendment #1 Agreement 1: SFEI Contract, with Attachment A: Scope of Work

Approved:

Date: \_\_\_\_

Amit Mutsuddy, Chair, BACWA Executive Board Executive Board

# AMENDMENT NO. 1 TO AGREEMENT BETWEEN BAY AREA CLEAN WATER AGENCIES and SAN FRANCISCO ESTUARY INSTITUTE

This Amendment No. 1 is made this 17th day of November 2023, in the City of Orinda and County of Contra Costa, State of California, to that certain agreement of May 17, 2019 (original agreement), by and between San Francisco Estuary Institute and Bay Area Clean Water Agencies, (BACWA) (the "Agreement") in consideration of the covenants hereinafter set forth.

- 1. BACWA and the San Francisco Estuary Institute agree to a new contract period which terminates June 30, 2024.
- 2. There is no change to the contract amount.
- 3. Except as herein expressly modified, the Agreement will remain in full force and effect.

BAY AREA CLEAN WATER AGENCIES

By \_\_\_\_\_

November 17, 2023

Date \_\_\_\_\_

Amit Mutsuddy, Chair BACWA Executive Board

By \_\_\_\_\_ Warner Chabot SFEI Date \_\_\_\_\_

## BAY AREA CLEAN WATER AGENCIES PROFESSIONAL SERVICES CONTRACT

This PROFESSIONAL SERVICES CONTRACT, effective 5/17/2019, is between Bay Area Clean Water

Agencies ("BACWA"), a joint powers agency which exists as a public entity separate and apart from its Member Agencies, created January 4, 1984 by a Joint Powers Agreement between Central Contra Costa

Sanitmy District, East Bay Dischargers Association, East Bay Municipal Utility District, the City and County of San Francisco and the City of San Jose, with a mailing address of P.O. Box 24055, MS 702, Oakland, CA 94623, and the San Francisco Estuaty Institute ("Consultant"), a 501 (c)3 Non-Profit doing business at 4911 Central Ave., Richmond, CA 94904 for professional services as described in any Exhibit A attached hereto.

In consideration of the mutual covenants, stipulations and agreements, the parties agree as follows:

Description and Standard of Sewices to be Performed

- 1. Consultant will pelfonn the Services as described by and in accordance with Exhibit A in a manner acceptable to BACWA.
- Consultant shall not contract with or otherwise use any subconsultants, subcontractors or other nonemployee persons or entities ("Subconsultants") to perform the Services without the prior written approval of BACWA. If Consultant and BACWA agree that Subconsultants shall be used, Consultant shall ensure Subsconsultants' compliance with all the terms and conditions of this agreement.
- 3. Consultant will exercise that degree of care in performing the Services in accordance with that prevailing among firms of comparable standing in the State of California ("Professional Standard"). Consultant will promptly correct or re-pelform those Services not meeting the Professional Standard without additional compensation.
- 4. Consultant warrants that it is fully licensed, registered and othe1Vise fully authorized to pelfonn the Services in the State of California to the extent applicable law requires such licensure, registration or authorization.
- 5. BACWA's review, approval, acceptance, use, or payment for all or any part of the Services hereunder will not alter the Consultant's obligations or BACWA's rights hereunder, and will not excuse or diminish Consultant's responsibility for performing all Services consistent with this Contract.

Payment for Services

- 6. BACWA will pay Consultant based on the lump sum amounts for the various tasks shown in the scope of work in Exhibit A, up to a maximum amount payable of \$500,000. Consultant will not exceed the maximum amount payable without obtaining prior written approval from BACWA.
- 7. Consultant shall submit invoices quarterly (March, June, September, December) with progress made on each task as indicated by a percent of task completed. Payment will be made based on the lump sum for the task and the percentage of the task completed. Invoices shall include the lump sum amount requested and a brief description of the work performed.

 Payments under this Contract will be due thirty (30) days after BACWA's receipt of invoices. BACWA may withhold from any progress or final payment any damages, backcharges or claims incurred or anticipated by BACWA to the extent caused by Consultant.

Document Ownership and Retention

- 9. Consultant will maintain all financial records relating to this Contract in accordance with generally accepted accounting principles and for at least three years following termination of this Contract. Consultant will grant BACWA and its representatives access upon request to all such records and all other books, documents, papers, drawings, and writings of Consultant that refer or relate to this Contract.
- 10. All drawings, specifications, reports, programs, manuals, and other work product of Consultant that result from this Contract ("Work Product") will be considered the exclusive property of BACWA. Consultant agrees that it will not use, disclose, communicate, publish or otherwise make available to third patties any products, analyses, data, compilations, studies, proposals, technical or business information, and any other information related to the Services provided to BACWA without BACWA's prior written approval.

Indemnification

I 1. To the fullest extent allowed by law, Consultant will indemnify, hold harmless, reimburse and defend BACWA, its Member Agencies, and each of their officers, directors, employees and agents from, for and against any and all claims, demands, damages, losses, expenses, liabilities and penalties, including but not limited to reasonable attorneys' and expert witnesses' fees, arising out of or relating to the Services but only to the extent caused by the negligent or other wrongful acts or omissions of Consultant or any person or entity for whose acts or omissions any of them are responsible, or by the failure of any such patty to perform as required by this Contract.

### Insurance

- 12. Consultant will purchase and maintain, at Consultant's expense, the following types of insurance, covering Consultant, its employees and agents:
  - a. Workers' Compensation Insurance as required by law, subject to a waiver of subrogation in favor of BACWA•,
  - Employers Liability Insurance with a per accident value at \$1,000,000, Policy Limit of \$1,000,000 and Each Employee of \$1,000,000, subject to a waiver of subrogation in favor of BACWA.
  - c. Comprehensive General Liability Insurance covering personal injulY and property damage with a combined single limit, or the equivalent, of not less than \$1 000,000.00 each occunence, \$2,000,000.00 general aggregate, and naming BACWA as an additional insured.
  - d. Business Automobile Liability Insurance with combined single limit coverage of not less than \$,000,000.00 aggregate for each claim, incident, or occurrence; and naming BACWA as an additional insured.

### Assignment

13. Consultant will not assign or transfer any of its interest in this Contract, in whole or in part, without the prior written consent of BACWA. BACWA may assign this Conå•act and any rights relating to this Contract (including but not limited to its right to assert claims and defenses against Consultant) at BACWA's discretion.

Independent Contractor

14. Consultant will pelfonn the Services as an independent contractor. Although Consultant will perform its Services for the benefit of BACWA, and although BACWA reserves the right to determine the schedule for the Services and to evaluate the quality of the completed performance, BACWA does not control the means or methods of Consultant's performance. Consultant is solely responsible for determining the appropriate means and methods of performing the Services, and Consultant's liability will not be diminished by any review, approval, acceptance, use or payment for the same by BACWA or any other party.

## Termination of Contract; Suspension of Services

15. This contract shall automatically terminate on December 31, 2023 Either palty may also terminate this Contract in whole or in part at any time for its convenience. For a terminati011 for convenience, the termination will be effective thirty (30) days following receipt of a written notice of termination by one party from the other. BACWA may terminate this Contract in whole or in palt for cause, in which event the termination will be effective ten (10) days after Consultant's receipt of BACWA's written notice and Consultant's failure during that period to cure the default.

# **Dispute Resolution**

- 16. Consultant will give prompt written notice to BACWA of any claim, dispute or other matter in question, but in no event will Consultant give such notice later than ten (10) days after Consultant's becoming aware of the event or circumstance giving rise to the claim, dispute or matter in question.
- 17. All claims, disputes and other matters in question between BACWA and Consultant arising out of or relating to this Contract will be subject to alternative dispute resolution. If both parties agree to arbitration it will be conducted in accordance with the Commercial Arbitration Rules of the American Arbitration Association then in effect. Notice of the demand for arbitration will be filed in writing with the other party to this Contract and with the American Arbitration Association. Any arbitration arising out of or relating to this Contract will include, by consolidation, joinder or joint filing, any other person or entity not a party to this Contract that is substantially involved in a common issue of law or fact and whose involvement in the consolidated arbitration is necessary to achieve a final resolution of a matter in controversy therein. This agreement to arbitrate will be specifically enforceable by any court with jurisdiction thereof.
- 18. A demand for dispute resolution by either party will be made within a reasonable time after the claim, dispute, or other matter in question has arisen, and in no event will it be made after the date when institution of coult litigation based on such claim, dispute or other matter in question would be barred by the applicable period of limitations. For all claims by BACWA against Consultant, the applicable period of limitations will not commence to run, and any alleged cause of action will not be deemed to have accmed (whether such action is based on negligence, strict liability, indemnity, intentional tort or other tort, breach of contract, breach of implied or express warranty,

or any other legal or equitable theoty), unless and until BACWA is fully aware of all three of the following: (1) the identity of the palty(ies) responsible, (2) the magnitude of the damage or injuly and (3) the cause(s) of the damage or injury. The contractual limitations period and discovery rule provided herein applies in lieu of any otherwise applicable statute or related case law.

19. The failure of either party to enforce any provision of this Contract will not constitute a waiver by that party of that or any other provision of this Contract.

Severability

20. BACWA and Consultant agree that if any tenn or provision of this Contract is determined to be illegal, in conflict with any law, void or otherwise unenforceable, and if the essential terms and provisions of this Contract remain unaffected, tllen the validity of the remaining terms and provisions will not be affected and the offending provision will be given the fullest meaning and effect allowed by law.

Survival

21. All rights and obligations set out in this Contract and arising hereunder will survive the termination of this Contract (i) as to the parties' rights and obligations that arose prior to such termination and (ii) as is necessary to give effect to rights and obligations that arise after such termination but derive from a breach or performance failure that occurred prior to the termination.

This Contract constitutes the entire, legally binding contract between the patties regarding its subject matter. No waiver, consent, modification or change of terms of this Contract is binding unless in writing and signed by both parties.

The following documents are incorporated into and made a part of this Contract. Any conflicts between these documents and this Contract will be resolved in favor of this Contract.

Exhibit A — Scope of Work

Exhibit B — Hourly Rates/Reimbursable Expenses

CONSULTANT: San Francisco Estuary Institute

4911 Central Ave.

Street Address

Richmond, CA 94904

City, State, Zip Code

94-2954-373 Tax Identification No. 1 -

**Consultant Signature** 

Warner Chabot Executive Director\_\_\_\_\_ Name, Title

7-1-19

Date

May 17, 2019

7/6/2019

Date

David R. Williams

BACWA Signature

David R. Williams, Executive Director

Name, Title

### EXHIBIT A

#### SCOPE OF WORK

Professional Services by San Francisco Estuaty Institute Fiscal Year: 5/17/19 - 12/31/2023 San Francisco will provide professional services to Bay Area Clean Water Agencies (BACWA) for the following activities, the costs of which are not to exceed \$500,000.00

#### Scope of Work.' Nature-Based Nutrient Reduction Study

#### 1. Task 1: Project Administration and Management

- Within ten (10) working days from the issuance of the notice to proceed, Consultant will provide a workflow diagram for completion of Tasks 2 through 4 of this Scope of Work, with key decision points noted and an associated schedule;
- The Consultant will prepare monthly status reports and patticipate in as-needed meetings with a dedicated committee from the Bay Area Clean Water Agencies (BACWA), designed to track progress and engage with the Consultant regarding this Project, continuing throughout the term of the contract;
- Bi-annual presentations to either the Nutrient Management Strategy (NMS) Steering Committee, BACWA, or Regional Water Board, from June 2020 to June 2023. Additional engagement may include participation in multi-benefit planning exercises organized by the San Francisco Estual Y Partnership, San Francisco Bay Restoration Authority, or others; • The Consultant will conduct project management activities, including:
  - Supervise, coordinate and monitor project progress and sub-consultants for conformance with best practices and other governing agency requirements;
  - 0 Notify BACWA of any changes in scope or budget as soon as possible and propose actions if necessary to correct these changes;
  - Maintain communication by being available by phone or e-mail and responding in a timely fashion;
  - o Maintain project files; and
  - 0 Provide monthly written progress reports and invoices to BACWA.

#### Schedule:

- Workflow diagram, schedule, and identification of decision points: June 15, 2019
- Biannual presentations: June 2020 to June 2023

• Monthly progress reports and invoices over the duration of the Project, which in anticipated to take place from July 2019 to June 2023,

#### Budget: \$45,000

- 2. Task 2: Scoping Plan and Evaluation Plan Development
- By November 1, 2019, SFEI shall submit a combined Scoping and Evaluation Plan to BACWA, establishing the methods and approach to evaluating site-specific opportunities and constraints to implementing nature-based strategies for nutrient load reduction at each major Discharger listed in Table I of the 2<sup>nd</sup> Nutrient Watershed Permit (Permit). SFEI proposes the development of a combined Scoping and Evaluation Plans to minimize redundancy and accelerate the timing of Discharger-specific evaluation efforts.
- At a minimum, the scoping elements of the combined Scoping and Evaluation Plan will include the level of work to complete the following for each Discharger facility and subembayment:
  - Identification of candidate sites, if any, for potential wetlands treatment systems;
  - Identification of candidate sites, if any, for potential wetlands creation or enhancement;
  - Identification of candidate sites, if any, for potential horizontal levee creation;
  - The situation of all candidate sites within their respective Operational Landscape Unit (OLU), drawing on data synthesized through Phase I of SFEI's on-going OLU Project; and
  - Schedule to complete, within one year of submitting the joint Scoping and Evaluation Plan, the identification of all candidate sites.

The evaluation section of the joint Scoping and Evaluation Plan shall describe the approach for evaluating candidate sites, including, but not limited to:

- The method and assumptions associated with establishing the basis for screening sites deemed suitable as candidate nature-based treatment systems;
- Estimation of nitrogen (total inorganic nitrogen) and phosphorous (total phosphorus) discharge reductions associated with each project or associated OLU;
- Identification of ancillary adverse effects and ancillary benefits from each project (e.g., removal of emerging contaminants, the creation of habitat, or protection against sea level rise) or associated OLU;
- The approach and assumptions associated with perfonning cost estimates for candidate sites and alternatives, based on input received in consultation with an engineering firm with relevant experience in the design and implementation of wastewater treatment wetlands in California; and;
- Assessment of the feasibility, efficacy, reliability, and cost-effectiveness of each project; and

•Identification of potential challenges to implementing each project (e.g., regulat01Y

ban•iers).

Additional elements of the Scoping Plan shall include the approach to characterizing the following:

- Outstanding data and steps required to identify potential sites for nature-based nutrient load reduction, where site-specific uncenainty remains (e.g., focused site inspections, interviews, data analysis);
- Approach for integrating the Water Board-funded Phase 2 efforts of the OLU Project, pending
   Water Board approval. SFEI anticipates Phase 2 of the OLU project to begin in mid- to late2019. Opportunities to leverage Phase 2 OLU efforts will be documented in a joint internal work plan for Phase 2 of the OLU Project as well as the project described in this Scope of Work. A joint work plan shall reflect all the elements of this Scope of Work, in consultation with the Regional Advis01Y Committee (RAC) convened to support the OLU Project;
- Approach to coordinating with existing treatment wetland operators throughout California, and other applicable regions, to obtain information regarding nutrient (N+P) load reduction performance, as well as ancillary benefits/effects of each project (e.g., removal of emerging contaminants, the creation of habitat, sea level rise adaptation, the release of greenhouse gases);

• Literature review of nutrient (N+P) load reduction performance, as well as ancillary . benefits/effects of each project (e.g., removal of emerging contaminants, the creation of habitat, sea level rise adaptation, the release of greenhouse gases);

- Opportunities and constraints analysis of implementation, including considerations of environmental constraints (e.g., contamination, sensitive wildlife habitat), regulatory considerations, land use, and land ownership;
- Identification of synergistic and antagonistic effects on OLUs, as a result of implementing each nature-based nutrient load reduction alternative;
- Identification of recommended data needs from existing and candidate wetlands and openwater systems receiving wastewater effluent (e.g., influent/effluent nutrient chemistty, influent/effluent chemistry data for select contaminants of emerging concern, flow rates, physical characteristics, maintenance requirements); and
- Recommended policy recommendations regarding permitting, monitoring, and maintenance, suitable for Regional Water Board review and comment.

#### Schedule and Deliverables:

- Monthly Status Reports (assuming a start date of July 1, 2019)
- Draft Scoping and Evaluation Plan: October 15, 2019; comments expected by November 7, 2019
- Final Scoping and Evaluation Plan: November 21, 2019

Budget: \$75,000

#### 3. Task 3: Integrated Planning for Multi-Benefit Nutrient Load Reduction Alternatives

- This task involves the development of a Scoping and Visioning document suitable for leveraging external funding to integrate disparate efforts regarding the quantification of nutrient load reduction alternatives. Pursuant to the first Nutrient Watershed Pennit, Dischargers funded an Optimization and Upgrade Report. The second iteration of the Permit involves two efforts to quantify nutrient reduction alternatives achievable via nature-based solutions (the subject of this scope of services), as well as wastewater recycling. In parallel, SFEI is pursuing the OLU Project, involving multiple phases to assess landscape-scale opportunities for shoreline resiliency.
- To facilitate integrated multi-benefit planning initiatives, SFEI will seek key partnerships with regulators, economists, academics, and the private sector to integrate these solutions into alternatives best suited for particular Dischargers and the region at large. Additional funding is required to pursue this strategy, for the ptuposes of identifying the optimal mosaic of grey- and green-infrastructure alternatives, including wastewater recycling; as well as developing funding and policy mechanisms to realize this vision.
- SFEI envisions developing the outputs of this task in parallel with Tasks I and 3, to assist in fundraising and partnership building opportunities as they arise. This task is consistent with one or more of the main NMS management questions.

#### Schedule:

• Scoping & Visioning Repon regarding multi-benefit load reduction alternatives: June 2020

#### Budget: \$20,000

- 4. Task 4: Evaluation Plan Implementation
- Implementation of the Evaluation Plan shall commence upon approval by the Regional Board of the Scoping and Evaluation Plan (Task 1). Involves SFEI performing, with engineering support, planning-level evaluations of locations potentially suitable for enhancement or conversion to nature-based nutrient load reduction installations (i.e., open water treatment wetlands and horizontal levees).

Phases of this task follow accordingly:

#### Task 4.1 : Discharger Survey

Initial outreach to major Dischargers, in coordination with BACWA, to identify opportunities and constraints to implementation of nature-based systems, on a site-specific basis.

Potential survey questions include:

- Short- and long-term planning efforts for green infrastructure, habitat restoration, sea level rise adaptation;
- Available information regarding land ownership/use of, special studies regarding, and master planning eff01ts involving lands in proximity to a POTW with potential for conversion to treatment wetland uses;
- Relative interest in, and internal expertise available, to advance nature-based solutions for nutrient load reductions; and

• Information regarding governance-, regulatory-, and policy-based challenges to implementing nature-based nutrient load reductions.

This assumes early BACWA panicipation and limited commitment from BACWA staff to assist in the dissemination of smveys and collection of data.

#### Task 42: Desk-Based Analysis to Identify Candidate Sites

The first step towards the evaluation of suitable sites considered candidates for enhancement or conversion to nature-based load nutrient load reduction installations is to perform a desk-based analysis of sites, informed by prior work and work products developed in support of Phase 1 of the OLU Project. Various

data sources shall be employed to identify candidate sites, in practicable proximity to each major Discharger, of the following categories of nature-based systems:

• Wetlands treatment systems; • Wetlands

creation or enhancement; and

- Horizontal levee creation.
- The OLU(s) associated with each candidate site shall be identified, and a summalY of this information shall be provided in the 2020 Annual Report, consistent with Permit requirements, at VI.C.2.a.

#### Task 4.3: Site-Specific Outreach and Investigation

Following the identification of candidate sites, site-specific outreach will be conducted at up to fifteen (15) major dischargers identified as maintaining significant load reduction potential through the application of nature-based systems. Site visits and interviews with Discharger staff will be conducted to survey candidate sites and gather infomation to inform suitability, feasibility, planning-level designs, and estimated construction costs.

Site visits are assumed to take place at up to fifteen (15) major Discharger facilities and require up to two (2) days per Discharger. A memo shall document the outcomes and findings from each site-specific investigation, which will infoml the identification of targeted site-specific evaluations.

#### Task 4.4: Site-Specific Evaluations

- Following the completion of Tasks 3.1 through 3.4, this Scope of Work assumes detailed evaluations will take place at ten (10) major Dischargers. For each of the ten Dischargers where nature-based systems show the strongest potential for nutrient load reduction, conceptual designs, and planning-level cost estimates shall be provided. Supporting information shall include those elements identified in the Scoping and Evaluation Plan (Task 1). Particular site-specific information includes:
  - Opportunities and constraints (e.g., design flow rates, proximity to wastewater source, slopes, land ownership, elevation, and various environmental conflicts)
  - Projected nutrient load reduction (i.e., total inorganic nitrogen and total phosphorus), according to the following scales:

- by project or alternative; o by each major Discharger involved; and o according to each related OLU.
- Planning-level assessment of the feasibility, efficacy, reliability, and cost-effectiveness of the project, compared to the suite of grey infrastlucture solutions identified in the Nutrient Optimization and Upgrade Report, with input from an engineering flim with experience designing and implementing grey- and green-infrastructure based solutions for the wastewater industry;
- Planning-level cost estimates associated with elements including mobilization, earthwork (cut, fill, placement, compaction), import of rock and other materials, infrastructure improvements (pump stations, pipelines, and discharge infrastructure), trail relocation, and revegetation (seeding and planting);
- Best professional judgment-based assessments, from a contracting engineer with applicable expelience and expeltise, concerning the relative feasibility, reliability and cost effectiveness of the various alternatives; and
- Readily identified governance issues and possible permitting strategies,

#### Schedule and Deliverables:

- Annual Status Repolts: due June 1 of 2020 through 2023
- Draft Evaluation Report: April 1, 2022
- Response to comments on the Draft Evaluation Report: June 1, 2022
- Final Evaluation Report: June 15, 2022

Budget: \$360,000
{00916913} EXHIBIT B

#### SFEI HOURLY RATES/REIMBURSABLE EXPENSES

Consultant	Hourly Rate*
Full Job Category	Thru 6/23
Admin	\$119.52
Assoc Sci I&II/Assoc Tech Specialist I&II	\$146.44
Environmental/Tech Analyst	\$104.33
Manager/Sr Scientist I	\$222.95
Program Director/Sr Scientist II	\$302.82
Project Manager	\$141.72
Scientist I/Tech Specialist I&II	\$170.09
Scientist II/Sr Tech Specialist I&II	\$225.84
Sr Environmental/Sr Tech Analyst	\$118.17
	a the second

\*Hourly Rates listed above represent the maximum billing rates for each position. Invoices will reflect the actual billing rates for staff working on the project during that period.

#### BUDGET

Task 1	Project Administration & Management	SFEI	lan Wren	HDR	TOTAL
Task 2	Scoping Plan & Evaluation Plan Development	\$19,001	\$11,330	\$14,669	\$45,000
Task 3	Integrated Planning for Multi-Benefit Nutrient Load Reduction Alternatives	\$47,642	\$16,480	\$75,000	\$10,8781
Task 4	Evaluation Plan Implementation	\$8,820	\$11,180		\$20,000
		\$201,417	\$104,130	i3 \$54,453	
		\$276,880	\$143,120	)0 \$360,000	
				\$80,000	\$500,000

{00916913}

## BACWA

#### **BACWA EXECUTIVE BOARD AUTHORIZATION REQUEST**

AGENDA NO.: 6 MEETING DATE: November 17, 2023

#### TITLE: Approval of the BACWA Annual Report to its Members for FY2023.

□ RECEIPT □ DISCUSSION	□ <b>RESOLUTION</b>	APPROVAL
------------------------	---------------------	----------

#### **RECOMMENDED ACTION**

Approve the BACWA Annual Report to its membership for FY2023.

#### SUMMARY

At the end of each fiscal year BACWA is required to prepare and Annual Report to its membership which describes the technical and financial activities of the Association for the preceding year.

#### FISCAL IMPACT

The Annual Report to its members is prepared by BACWA staff.

#### ALTERNATIVES

Do not approve the Annual Report to the membership. This is not recommended as the Annual Report is required by the BACWA JPA.

Attachment: BACWA FY2023 Annual Report to Members

**Approved:** 

Date: \_November 17, 2023\_\_\_\_\_

Amit Mutsuddy, BACWA Chair



#### **BACWA Annual Report**

#### **Fiscal Year 2022/2023**

The clean water community is successfully addressing an array of interconnected environmental issues in our region. Within this evolving landscape, the Bay Area Clean Water Agencies (BACWA) is fulfilling its mission to provide an effective voice for clean water agencies' stewardship of the San Francisco Bay's ecological, community, and economic resources. The clean water community's focus has shifted rapidly from industrial pollutant reduction to renewable resource generation, climate change mitigation and adaptation, and understanding the potential impacts of nutrients and emerging contaminants on the aquatic ecosystem. Increasingly stringent and sometimes conflicting air quality and biosolids management regulations are producing cross-media challenges to our members' operations. BACWA provides technical expertise and a venue for collaboration to its membership, and a public utility perspective to negotiations and partnerships with regulators.

With over forty Publicly Owned Treatment Works (POTWs) and more than a hundred collection systems in the San Francisco Bay (SF Bay) region, BACWA provides a needed forum for effective coordination to ensure science-based regulations and continued water quality improvements throughout the Bay Area. Member dues and fees support BACWA's goal of ensuring that water, biosolids, and air quality regulations are well-supported by science. Even as the regulatory landscape shifts, BACWA continues to offer the services to our members and the public that have garnered the organization much respect and success.

#### 2022 Strategic Plan Update

The BACWA Strategic Plan was substantially updated in 2020, representing the first major change since 2009. Minor changes were approved by the BACWA Executive Board in January 2022. The <u>2022 Strategic Plan</u> reflects both the current drivers impacting BACWA's members, such as nutrients and climate change, as well as our values which remain constant even as the issues evolve. The progress made by BACWA in Fiscal year 2022/2023 towards meeting the objectives in our Strategic Plan is described in Attachment A.

#### Links to Key BACWA Products

BACWA provides a variety of resources to its members for regulatory compliance, education, and information sharing. Links to key work products associated with these efforts are provided below:

#### Regulatory Compliance

• <u>Annual NPDES Compliance Letter</u> – submitted to the Regional Water Board on behalf of our members, demonstrating compliance with special studies required by NPDES



permits. We also report contributions to the Regional Monitoring Program to the Regional Water Board.

- <u>Nutrient Group Annual Report</u> submitted to the Regional Water Board in compliance with the Nutrient Watershed Permit.
- Nutrient Watershed Permit Special Studies The 2019 Nutrient Watershed Permit required completion of a Regional Evaluation of Potential Nutrient Discharge Reduction by Natural Systems (Provision VI.C.2) and a Regional Evaluation of Potential Nutrient Discharge Reduction by Water Recycling (Provision VI.C.3). BACWA completed these tasks on behalf of its member agencies, and the final reports were submitted to the Regional Water Board in late June 2023. The final reports are available on the BACWA website, as listed below.
  - o Potential Nutrient Discharge Reduction by Natural Systems
    - <u>Phase 1 Opportunities and Constraints Analysis</u>
    - <u>Phase 2 Site Evaluations</u>
  - o <u>Potential Nutrient Discharge Reduction by Water Recycling Final Report</u>
- <u>Land Application of Biosolids Annual Report</u> submitted to the Solano County Board of Supervisors.
- Bay Area Pollution Prevention Group (BAPPG) Annual Report Developed to assist member agencies in Pollution Prevention annual reporting.
- PFAS Regional Study, Phase 2 To address monitoring needs of the State Water Board, BACWA contracted with SFEI to begin this regional study of PFAS in Fiscal Year 2020/21. <u>Phase 1</u> of the study was completed in 2021, and sampling for Phase 2 was completed in 2022. The Phase 2 study will conclude in late 2023 with the release of the Final Report.
- <u>BACWA Fact Sheet on Nutrients in the SF Bay</u> BACWA staff worked with member agencies to communicate what is and is not known about the impact of nutrients and their linkage to the summer 2022 harmful algal bloom.

#### Information sharing

- <u>BACWA Bulletin</u> Distributed monthly to keep members and the community up to date on BACWA's and our partners' activities.
- <u>Regulatory Issues Summary matrix</u> Updated three times per year to give members an accessible overview of important issues impacting the clean water community.
- <u>BACWA website</u> Maintained for information sharing with members.
- <u>Baywise website</u> Maintained for public-facing pollution prevention messaging.
- <u>2021 Biosolids Trends Survey Report</u> Updated every two to three years to help agencies understand their biosolids handling programs within a regional context.
- Information Sharing Hosted events to share best practices on issues such as climate change adaptation planning, and incorporating Diversity/Equity/Inclusion/Justice into agency actions.
- Laboratory Accreditation Offered monthly trainings for BACWA members on the 2016 TNI standards, which go into full effect in 2024.



• <u>Annual Meeting</u> – The Annual Meeting was held in-person in May 2023, and included updates from regulators, Nutrient Management Strategy scientists and consultants, representatives from San Francisco Estuary Institute assisting with the PFAS Regional Study, a panel on wet weather management, and more. Meeting materials and recordings were shared with members afterwards.

#### **Regulatory Advocacy**

BACWA works with its member agencies to develop positions on proposed regulations and advocates on behalf of the regional POTW community. In Fiscal Year 2022/23, BACWA submitted 13 <u>comment letters</u> to EPA, Regional Water Board, Bay Area Air Quality Management District (BAAQMD), and the California Department of Pesticide Regulation (DPR).

- Nutrient Management. BACWA continues to engage with the Regional Water Board to negotiate the key tenets of the 3<sup>rd</sup> Nutrient Watershed Permit, which is expected to be issued in May 2024. BACWA staff have also engaged through the Nutrient Management Strategy to direct science work in response to the 2022 harmful algal bloom in SF Bay.
- **Pesticides.** BAPPG maintains a consultant team dedicated to engagement with EPA and the DPR through the pesticide registration review process, including review of documents such as ecological risk assessments and risk management decisions. In Fiscal Year 2022/2023, the consultant team also provided input on DPR's Sustainable Pest Management Roadmap.
- Air Emissions. BACWA continues to advocate for BAAQMD and the California Air Resources Board to consider the duty of essential public services when establishing air emissions requirements. BACWA and BAAQMD staff have continued to participate in a Workgroup that meets quarterly to discuss how public agencies can participate in the development, and comply with, emerging air toxics regulations. BACWA has advocated for an increase in staffing at BAAQMD to improve the air permitting process.
- Sanitary Sewer Systems General Order. The State Water Board reissued the Sanitary Sewer Systems Waste Discharge Requirements General Order in December 2022. BACWA worked with CASA and other clean water partner agencies to provide three free webinars explaining the General Order's new requirements for enrollees
- Chlorine Residual Blanket Permit Amendment. BACWA engaged with the Regional Water Board to find workable solutions to remove the 0.0 mg/L instantaneous chlorine limit from NPDES permits.

#### BACWA Staffing

In FY2022/2023, BACWA retained contract staff to provide Executive Director, Assistance Executive Director, and Regulatory Program Management services.



#### BACWA Committees and Executive Board

Support for BACWA's committees is a key means for BACWA to ensure communication between our members and to formulate positions on emerging issues that accurately reflect the needs of our membership. Members receive educational contact credits for attending committee meetings in which there is an educational component. BACWA maintains the following active committees:

- Air Issues and Regulations (AIR)
- Asset Management
- Bay Area Pollution Prevention Group
- Collection Systems
- Laboratory
- Operations/Maintenance Infoshare
- Permits
- Pretreatment
- Recycled Water

BACWA's Biosolids committee is currently on pause, but meeting with the Bay Area Biosolids coalition on an ad hoc basis for the purposes of information sharing.

The BACWA Executive Board meets on a monthly basis to discuss policy, strategy, and operational issues impacting the organization. Executive Board meetings are held in compliance with the California Brown Act (Government Code sections 54950-54963).

#### External Representation and Collaboration

BACWA provides representation at external groups such as:

- o Regional Monitoring Program (RMP) Technical Review Committee
- RMP Steering Committee
- o Clean Water Summit Partners
- Aquatic Science Center (ASC)/SFEI Governing Board
- o San Francisco Bay Nutrient Governance Steering Committee
- o San Francisco Bay Nutrient Planning Subcommittee
- o Bay Area Integrated Regional Water Management Plan (BAIRWMP)
- o California Association of Sanitation Agencies (CASA) State Legislative Committee
- o CASA Regulatory Workgroup
- o Bay Area One Water Network
- o RMP Microplastics Workgroup
- o Bay Area Regional Reliability Task Force
- o San Francisco Estuary Partnership
- o California Product Stewardship Council
- o Valley Water Countywide Reuse Master Plan



- o Ocean Protection Council
- o Bay Area Climate Adaptation Network
- Coastal Hazards Adaptation Resiliency Group (CHARG)
- Bay Area Climate Adaptation Network
- o California Water Quality Monitoring Council

#### FY2022/2023 Financial Report

<u>BACWA FY23</u> <u>BUDGET</u>	Line Item Description	<u>FY 2023</u> <u>Budget</u>	<u>Actuals</u> June 2023	<u>Actual</u> <u>% of</u> <u>Budget</u> <u>June</u> <u>2023</u>	<u>Variance</u>
<u>REVENUES &amp;</u> <u>FUNDING</u>					
Dues	Principals' Contributions	\$527,250	\$527,250	100%	\$0
	Associate & Affiliate Contributions	\$187,793	\$186,845	99%	-\$948
Fees	Clean Bay Collaborative	\$675,000	\$674,250	100%	-\$750
	Nutrient Surcharge	\$1,400,000	\$1,399,980	100%	-\$20
	Member Voluntary Nutrient Contributions	\$0	\$0	0%	\$0
<b>Other Receipts</b>	AIR Non-Member	\$7,217	\$7,217	100%	\$0
	BAPPG Non-Members	\$4,033	\$4,032	100%	-\$1
	Other	\$0	\$18,489		\$18,489
Fund Transfer	Special Program Admin Fees (WOT)	\$5,202	\$1,000	19%	-\$4,202
	Special Program Admin Fees (BACC)	\$36,000	\$36,000	100%	\$0
	Special Program Admin Fees (WOT)	\$6,000	\$6,822	114%	\$822
Interest Income	LAIF	\$4,000	\$39,594	990%	\$35,594
	Higher Yield Investments	\$0	\$0	0%	\$0
	Total Revenue	\$2,852,495	\$2,901,479	101.72%	\$48,984
<u>BACWA FY23</u> <u>BUDGET</u>	Line Item Description	<u>FY 2023</u> <u>Budget</u>	<u>Actuals</u> June 2023	<u>Actual</u> <u>% of</u> <u>Budget</u> <u>June</u> <u>2023</u>	<u>Variance</u>
<u>EXPENSES</u>					
Labor					



<u>BACWA FY23</u> <u>BUDGET</u>	Line Item Description	<u>FY 2023</u> <u>Budget</u>	<u>Actuals</u> June 2023	<u>Actual</u> <u>% of</u> <u>Budget</u> <u>June</u> <u>2023</u>	<u>Variance</u>
	Executive Director	\$204,250	\$204,250	100%	\$0
	Assistant Executive				
	Director	\$86,004	\$85,934	100%	-\$70
	Assistant Executive				
	Director – BACC	¢26.000	\$26,000	1000/	¢O
	Administration Regulatory Program	\$30,000	\$30,000	100%	\$0
	Manager	\$142.223	\$138.386	97%	-\$3.837
	Total	\$468,477	\$464,569	99%	-\$3,908
Administration					
Administration	FBMUD Financial Services	\$13 297	\$37 507	87%	-\$5 700
	Auditing Services	\$5,277	\$5 542	100%	_\$0\$0
	Administrative Expanses	\$9, <del>4</del> 52 \$8,118	\$2,108	26%	-φ0 \$6.010
	Insurance	\$8,110	\$2,108 \$7,571	020/0	-\$0,010 \$561
		\$6,132	\$7,571	9370	-9301
		\$64,999	\$52,638	93%	-\$12,361
Meetings					
	EB Meetings	\$2,706	\$1,325	49%	-\$1,381
	Annual Meeting	\$14,369	\$10,561	73%	-\$3,808
	Pardee	\$6,668	\$3,432	51%	-\$3,236
	Misc. Meetings	\$5,412	\$7,440	137%	\$2,027
	Total	\$29,155	\$22,758	78%	-\$6,397
Communication					
_	Website Hosting	\$714	\$189	27%	-\$525
	File Storage	\$780	\$720	92%	-\$60
	Website				
	Development/Maintenance	\$1,561	\$1300	83%	-\$261
	IT Support	\$2,705	\$0	0%	-\$2,705
	Other Communication	\$1,821	\$1,372	75%	-\$449
	Total	\$7,581	\$3,581	47%	-\$4,00
Legal					



<u>BACWA FY23</u> <u>BUDGET</u>	Line Item Description	<u>FY 2023</u> <u>Budget</u>	<u>Actuals</u> June 2023	<u>Actual</u> <u>% of</u> <u>Budget</u> <u>June</u> <u>2023</u>	<u>Variance</u>
	Regulatory Support	\$2,871	\$320	11%	-\$2,551
	Executive Board Support	\$2,309	\$0	0%	-\$2,309
	Total	\$5,181	\$320	6%	-\$4,861

Committees					
	AIR	\$96,000	\$95,020	99%	-\$980
	BAPPG	\$130,000	\$129,087	99%	-\$1,513
	Biosolids Committee	\$0	\$0	0%	\$0
	Collections System	\$1,000	\$0	0%	-\$1,000
	InfoShare Groups	\$1,000	\$492	49%	-\$508
	Laboratory Committee	\$6,400	\$4,436	69%	-\$1,964
	Permits Committee	\$1,000	\$80	8%	-\$920
	Pretreatment	\$1,000	\$12	1%	-\$988
	Recycled Water Committee	\$20,000	\$8,999	45%	-\$11,001
	Misc Committee Support	\$45,000	\$14,130	31%	-\$30,870
	Manager's Roundtable	\$1,000	\$0	0%	-\$1,000
	Total	\$303,000	\$252,256	83%	-\$50,744
Collaboratives					
	State of the Estuary (SFEP- biennial)	\$20,000	\$20,000	100%	\$0
	Arleen Navarret Award	\$2,500	\$2,500	100%	\$0
	BayCAN	\$5,000	\$1,500	30%	-\$3,500
	Bay Area One Water Network	\$5,000	\$5,000	100%	<u>\$0</u>
	Bruce Wolf Scholarship	\$4,000	\$4,000	100%	\$0
	Misc	\$1,500	\$2,500	167%	\$1,000
	Total	\$38,000	\$35,500	93%	-\$2,500
[					
Other					
	Unbudgeted Items				
	Other	\$0	\$0		\$0
	Total	\$0	<b>\$0</b>		\$0



<u>BACWA FY23</u> <u>BUDGET</u>	Line Item Description	<u>FY 2023</u> <u>Budget</u>	<u>Actuals</u> June 2023	<u>Actual</u> <u>% of</u> <u>Budget</u> <u>June</u> <u>2023</u>	<u>Variance</u>
Technical Support					
	Nutrients				
	Watershed	\$1,800,000	\$1,800,000	100%	\$0
	NMS Voluntary Contributions	\$0	\$0	0%	\$0
	Additional work under permit	\$100,000	\$83,040	83%	-\$16,960
	Regional Study on Nature based systems	\$248,811	\$78,768	32%	-\$170,043
	Regional Recycling Evaluation	\$63,525	\$6,500	10%	-\$57,025
	Nutrient Workshop(s)	\$0	\$0	0%	\$0
	NMS Reviewer	\$50,000	\$8,480	17%	-\$41,520
	General Tech Support	\$100,000	\$11,346	11%	-\$88,654
	CEC Investigation	\$140,000	\$137,380	98%	-\$2,620
	Risk Reduction	\$12,500	\$0	0%	-\$12,500
	Total	\$2,514,836	\$2,125,514	85%	-\$389,322
	TOTAL EXPENSES	\$3,431,228	\$2,957,135	86.18%	-\$474,092
	NET INCOME BEFORE TRANSFERS	-\$578,733	-\$55,657		
	TRANSFERS FROM RESERVES	\$578,733	\$55,567		
	NET INCOME AFTER TRANSFERS	\$0	\$0		



#### List of BACWA Members as of June 30, 2023 Principals

East Bay Municipal Utility District East Bay Dischargers Authority

- Castro Valley Sanitary District
- City of Hayward
- City of San Leandro
- Oro Loma Sanitary District
- Union Sanitary District

San Francisco Public Utilities Commission Central Contra Costa Sanitary District City of San Jose

#### Associates

Central Marin Sanitation Agency City of Palo Alto City of San Mateo City of Sunnyvale Delta Diablo Dublin-San Ramon Services District Fairfield-Suisun Sewer District Napa Sanitation District Silicon Valley Clean Water South San Francisco – San Bruno Water Quality Control Plant Vallejo Flood & Wastewater District West County Agency - City of Richmond

- West County Wastewater District

#### Affiliates

City of Alameda City of American Canyon City of Albany City of Antioch City of Belmont City of Benicia City of Berkeley City of Brisbane City of Burlingame City of Calistoga City of Fairfield City of Livermore City of Millbrae City of Milpitas City of Mountain View City of Oakland City of Pacifica City of Petaluma City of Piedmont City of Pleasanton City of Redwood City City of Redwood City City of San Bruno City of San Bruno City of San Carlos City of St. Helena Town of Yountville Crockett Community Services District

9



Cupertino Sanitary District Las Gallinas Valley Sanitary District Mt. View Sanitary District North San Mateo Sanitation District Novato Sanitary District Pinole/Hercules Wastewater Treatment Plant Rodeo Sanitary District Ross Valley Sanitary District San Francisco International Airport San Mateo County, Dept. of Public Works Sanitary District of Marin County No. 2 Sanitary District of Marin County No. 5 Sausalito-Marin City Sanitary District Sewer Authority Mid-Coastside Sewerage Agency of Southern Marin Sonoma County Water Agency Stege Sanitary District Tamalpais Community Services District West Bay Sanitary District West Valley Sanitation District



#### ATTACHMENT A

### BACWA JANUARY 2022 STRATEGIC PLAN 2023 EVALUATION

11



# 2020 STRATEGIC PLAN (2022 UPDATE) FY23 Evaluation Bay Area Clean Water Agencies

#### **BACWA's Mission**

To provide an effective regional voice for clean water agencies' stewardship of the San Francisco Bay's ecological, community, and economic resources.

#### **BACWA's Vision**

To demonstrate leadership in the protection and enhancement of the San Francisco Bay ecosystem.

#### **BACWA's Values**

- Environmental stewardship
- Leadership
- Science-based decision making
- Collaboration
- Fiscal responsibility
- Watershed-based solutions

#### **BACWA's Goals**

- Advocate for regulation based on science
- Foster collaboration and relationship building with regulators and other stakeholders
- Pursue regional, multi-benefit solutions to environmental challenges
- Exemplify service and responsiveness to members and the public
- Practice good governance

#### **GOAL 1: ADVOCATE FOR REGULATION BASED ON SCIENCE**

#### Strategy 1 – Advocate for nutrient permitting based on science.

 Objective 1 – Convene the Nutrient Technical Team made up of BACWA and member agency staff to engage with the San Francisco Bay Nutrient Management Strategy (NMS) by reviewing their work products and participating in the Assessment Framework process.

Nutrient Technical Team continued to review and comment on NMS deliverables, particularly pertaining to modeling objectives and future load reduction scenarios.

• **Objective 2** – Continue to contract consultant support for review and interpretation of NMS Work Products and review of the Assessment Framework process.

*Mike Connor continued to support BACWA's nutrient technical team in reviewing and commenting on deliverables, and attending targeted meetings. He also provided technical interpretation to the BACWA Executive Board.* 

• **Objective 3** – Convene BACWA's Nutrient Strategy Team to plan BACWA position on 3<sup>rd</sup> Nutrient Watershed Permit.

Met regularly to develop key tenets for 3<sup>rd</sup> Watershed Permit. Developed material on planned nutrient load reductions and historical discharges to support BACWA's negotiating positions and inform Water Board decisions.

• **Objective 4** – Plan financial contributions to the NMS to optimize scientific study workflow.

Updated 5-year plan with scenarios for ongoing support of science program. Kicked off discussions of programmatic needs for the 3<sup>rd</sup> Watershed Permit.

#### Strategy 2 – Advocate for air regulations based on science.

• **Objective 1** – Meet regularly with Bay Area Air Quality Management District (BAAQMD) policy and permitting staff to communicate clean water agencies' perspectives and capabilities. Support BAAQMD staff by providing technical information during development of regulations for climate pollutants and air toxics.

Continued to hold Regulation 2 Workgroup as forum for discussing toxic air contaminant regulations and permitting challenges, and made progress on several action items. Commented in favor of increasing BAAQMD permitting staff. BACWA hosted BAAQMD leadership at our Annual Meeting.

• **Objective 2** – Collaborate with CASA and other clean water agencies statewide on projects to inform California Air Resources Board regulations, such as vehicle

electrification and the AB 2588 compound list update and emission factor development.

Provided supplemental funding for consultant support for air/climate change/energy issues. Worked with CASA to move ahead with 2-step process for quantifying air emissions, and provided information to members.

#### Strategy 3 – Advocate for biosolids management regulations based on science.

• **Objective 1** – Work with local, regional, and state regulators to maintain and support expansion of sustainable biosolids use alternatives.

Continued with Phase 2 of PFAS special study that analyzed PFAS in biosolids.

• **Objective 2** – Collaborate with Bay Area Biosolids Coalition to support initiatives aimed at establishing the safety and benefits of biosolids use.

Continued to provide support and information on biosolids beneficial reuse and PFAS to BABC. Hosted BACWA Biosolids/BABC joint meeting for information sharing purposes.

#### Strategy 4 – Advocate for emerging water quality regulations based on science.

• **Objective 1** – Provide support for Constituents of Emerging Concern (CEC) pollution prevention and pesticides control by state and federal agencies.

Participated in NGO/POTW collaborative workgroup targeting PFAS legislation. Participated in RMP Emerging Contaminants and Microplastic workgroups.

• **Objective 2** – Engage in State Water Board and Ocean Protection Council initiatives, such as the reconvening of the Science Advisory Panel on CECs in Aquatic Ecosystems and the Microplastic Strategy.

Provided representation for statewide POTW community on the California Water Quality Monitoring Council. Worked with Summit Partners to engage with regulators on statewide issues.

• **Objective 3** – Continue to participate actively in Regional Monitoring Program (RMP) technical and steering committees.

*Provided BACWA representation to RMP initiatives, as well as comments on RMP work products.* 

• **Objective 4** – Demonstrate that BACWA can effectively implement solutions through regional projects, such as conducting the PFAS Regional Study in lieu of being compelled via a 13267 Order.

Launched Phase 2 of PFAS special study and provided preliminary results to State Water Board staff.

## Strategy 5 – Advocate for the update of existing water quality regulations based on science.

• **Objective 1** – Support Basin Plan amendments and triennial reviews by working with the Regional Water Board.

Worked with Water Board to finalize blanket permit amendment targeting chlorine residual limitation. Provided comments on Basin Planning updates targeting RO concentrate management.

• **Objective 2** – Work with regulators to reduce low value required monitoring to enhance funding for RMP CEC studies.

Reported on alternate monitoring program payments.

## GOAL 2: FOSTER COLLABORATION AND RELATIONSHIP BUILDING WITH REGULATORS AND OTHER STAKEHOLDERS

## Strategy 1 - Maintain and broaden collaboration with regulators by engaging on existing regulatory initiatives and emerging issues.

• **Objective 1** - Continue engagement with regulators to communicate clean water agencies' challenges and opportunities related to projects of environmental benefit.

Held regular meetings with staff at the Water Board and Air District to communicate about important issues. Hosted meetings with Air District Staff that included Water Board staff to discuss cross media issues and the benefits of collaboration.

• **Objective 2** – Collaborate with regulators on emerging initiatives such as sea level rise adaptation planning, development of incentives for climate change mitigation, identification of feasible biosolids use strategies, and exploration of other resource recovery opportunities.

## Provided funding through CASA to engage regulators on Advanced Clean Fleet regulations.

• **Objective 3** – Work with Summit Partners to provide educational opportunities for State Water Board/Ocean Protection Council members and staff regarding clean water agencies' opportunities. Identify and develop a common understanding of mutual priorities.

## Collaborated with Summit Partners to plan a regulator workshop on cross media issues.

**Objective 4** – Work with BAAQMD policy and permitting staff to update standard permit conditions, with the goal of reducing permitting hurdles that impede the implementation of projects of environmental benefit.

Provided edits to standard permit conditions for BAAQMD staff review.

#### Strategy 2 - Monitor legislative efforts that impact BACWA members.

• **Objective 1** – Work with industry associations and individual members to inform their efforts on legislative advocacy.

Collaborated with CASA and NGOs to sponsor legislation to ban PFAS in cleaning products. Provided information on PFAS special study to Office of the Attorney General.

• **Objective 2** – Consider a BACWA policy or position on how to engage in targeted legislative advocacy.

Continued to work through CASA to engage with the legislature on source control issues.

## Strategy 3 - Maintain industry leadership by collaborating with other clean water associations.

• **Objective 1** – Work with Clean Water Summit Partners to define and advocate on issues of statewide importance.

BACWA staff and representatives participated in Summit Partners and CASA strategy meetings to direct resources to the most important issues. Provided information on collaborative NMS process to Summit Partners. Staff also participated in Ocean Acidification model review Steering Committee.

• **Objective 2** – Inform, learn from, and jointly advocate with clean water associations such as the other Clean Water Summit Partner organizations, NACWA, and WateReuse.

Worked with Summit Partners to produce educational workshops on PFAS and the newly adopted SSS WDR.

## GOAL 3: PURSUE REGIONAL, MULTI-BENEFIT SOLUTIONS TO ENVIRONMENTAL CHALLENGES

#### Strategy 1 - Promote integrated approach to a healthy Bay.

• **Objective 1** – Identify and establish effective collaborations with drinking water and stormwater communities to further the One Water concept and/or other multi-benefit project types.

Planned Recycled Water interagency collaboration workshop.

• **Objective 2** – Identify and establish collaborations to implement integrated approaches to sea level rise adaptation.

Participated in BayCAN and discussed climate change challenges with partner regional entities. Hosted Infoshare workshop for members on sea level rise planning.

• **Objective 3** – Identify and implement effective pollution prevention strategies in partnership with regulators and partners.

The Bay Area Pollution Prevention Group (BAPPG) continued to provide both public education and regulatory advocacy on pollution prevention issues.

• **Objective 4** – Work with members and other regional entities to maximize grant funding for projects benefiting the region.

Worked with SFEI and SFEP to strategize proposals for 2023 WQIF grant funding for initiatives related to nutrient removal and nature based solutions. Provided letters of support to several member agencies to demonstrate regional support for various grant proposals.

## Strategy 2 - Support innovation to better address water quality and other ecological challenges.

• **Objective 1** – Provide membership with information on technology pilot opportunities.

Discussed piloting opportunities with vendors.

• **Objective 2** – Establish and continue partnerships with universities and other research institutions and initiatives to develop collaborative approaches to issues of importance to the clean water community.

Discussed nutrient issues with academics at UC Berkeley. Continued engagement in the NMS and RMP through SFEI. Served as a community sponsor to a member agency Board member's Sea Grant fellowship that is measuring the impacts of shallow groundwater rise on wastewater infrastructure.

• **Objective 3** – Support existing coalitions and agencies that are pursuing regional solutions to challenges impacting the San Francisco Bay clean water community.

Participated in Estuary Blueprint update and reported progress on actions through the San Francisco Estuary Partnership.

#### Strategy 3 - Provide value to members through facilitating regional solutions.

• **Objective 1** – Continue to provide joint compliance activities on behalf of members, such as reporting via the Annual NPDES compliance letter to the Regional Water Board.

Submitted the annual NPDES compliance letter for use in members' NPDES Annual Reports, BAPPG Annual report for use in member's Pollution Prevention reports, the Solano County Biosolids report, as well the Nutrient Group Annual Report, Special Studies (Recycled Water and Nature Based Solutions), and Science Plan progress updates required by the Nutrient Watershed Permit.

• **Objective 2** – Continue to support and report compliance with the Mercury/PCB and Nutrient Watershed Permits.

Discussed updated mercury and PCB reporting requirements and developed analysis of PCB data to support monitoring frequency reductions. Worked with community-based organization to complete BACWA grant work on mercury and PCB risk reduction education to fish consumers

• **Objective 3** – Engage with regulators on behalf of individual member agencies when issues of regional importance arise.

Provided comments on CMSA permit on behalf of satellite collection system agencies.

• **Objective 4** – Coordinate regional solutions to comply with new Environmental Laboratory Accreditation Program (ELAP) regulations.

Provided monthly training sessions through its Laboratory Committee to help agencies comply with TNI.

• **Objective 5** – Support members' biosolids programs via data-gathering, reporting, and information exchange related to biosolids management.

Completed and submitted 2022 Solano County Biosolids report.

#### GOAL 4: EXEMPLIFY SERVICE AND RESPONSIVENESS TO MEMBERS AND PUBLIC

## Strategy 1 - Ensure members are knowledgeable about critical issues and activities.

• **Objective 1** – Communicate timely regulatory and technical information and events via BACWA committees, the BACWA Bulletin newsletter, and emails to members.

Hosted Annual Meeting for members, including regulators and updates on important topics. Sent out monthly bulletins and as-needed emails. Supported eight active BACWA committees and held regular committee meetings. Developed and distributed three regulatory issues summaries.

• Objective 2 – Ensure that BACWA contact lists are up to date.

Reached out to agencies to ensure new staff are added to distribution lists and Committee Google Groups.

#### Strategy 2 - Provide education and outreach to members and the public.

• **Objective 1** – Provide support for pollution prevention messaging to the public via BAPPG.

Continued outreach on FOG, wipes, pharmaceutical disposal, veterinary medicines, and other pharmaceuticals. Public outreach has been conducted via advertising and the Baywise website. Conducted veterinary outreach to professional organizations.

• **Objective 2** – Explore ways to support members' public communication on nutrients and other issues.

Developed BACWA fact sheet on nutrients and the algal bloom. Launched new communication initiative to provide education on the value of wastewater in general, and on nutrient removal specifically.

• **Objective 3** – Support justice/equity/diversity/inclusion in both wastewater workforce development and community engagement efforts.

Contributed to Bruce Wolfe Memorial Scholarship to provide scholarships to students from backgrounds that are underrepresented in the Clean Water field. Worked with SFEP to host special workshop on equity in wastewater.

#### Strategy 3 - Provide forum to hear all member voices.

• **Objective 1** – Conduct outreach to all members to inform them about opportunities for participation via committees and other events.

Conducting outreach to individual agencies to inform them about opportunities for engagement.

• **Objective 2** – Ensure that each member agency is knowledgeable about and engaged in negotiations on the 3rd Nutrient Watershed Permit so that BACWA's position reflects the interests of our members.

Provided a general forum for discussion on the 3rd Nutrient Watershed Permit via the Nutrient Strategy Team, and conducted permitting outreach via discussion with member agency managers. Met with all large agencies individually to discuss planning for nutrient removal.

• **Objective 3** – Provide forums and opportunities for information-sharing among members on issues of importance.

Implemented Google Group for BACC member agencies to discuss the impacts of chemical shortages as well as other chemical supply issues as they arise. Co-hosted a meeting on workforce development with BACWWE. Hosted sea level rise planning Infoshare workshop.

• **Objective 4** – Use technology to maximize member participation in committee meetings.

Began hosting hybrid Executive Board meeting meetings. Recorded Annual Meeting and posted proceedings online.

#### Strategy 4 - Provide support for Projects of Special Benefit to assist membership.

• **Objective 1** – Continue to support the Bay Area Biosolids Coalition (BABC).

BACWA provided administrative support to BABC, and acted as a liaison between the coalition and BACWA members who are not part of the coalition when issues of common concern arose.

• Objective 2 - Continue administration of the Bay Area Chemical Consortium (BACC).

Continued support of BACC. Provided venue for communication between members and with suppliers when supply chain issues and other problems arose.

• **Objective 3** – Support Bay Area Consortium for Water/Wastewater Education (BACWWE) as they transition to a scholarship-based system and continue collaboration with BAYWORK.

Provided administrative and communications support for BACWWE. Began brainstorming next steps for the project to increase its impact.

• **Objective 4** – Consider any new requests for BACWA support based on members' benefits and potential costs to BACWA.

Approved BACWA funding for CASA 2-step process for quantifying air toxics. Provided support for a WEF David Jenkins scholarship endowment.

#### **GOAL 5: PRACTICE GOOD GOVERNANCE**

Strategy 1 - Ensure BACWA Policies and Procedures conform to applicable laws and best practices.

• **Objective 1 –** Regularly review and update BACWA Policies and Procedures.

Discussed updating BACWA Reserves Policy.

#### Strategy 2 - Enhance fiscal transparency.

 Objective 1 – Work with EBMUD to improve readability and transparency of treasurer's reports in Executive Board Packet.

Worked with EBMUD to better understand reporting after transition to new accounting system.

• **Objective 2** – Continue to update budget 5-Year Plan to ensure BACWA can develop its financial goals and has capacity for future initiatives to meet the objectives of the Strategic Plan.

Provided 5-year planning update as part of budgeting process, incorporating high and low revenue/expense scenarios to reflect uncertainty in level of 3<sup>rd</sup> Watershed Permit support for the science.

• **Objective 3** – Continue to practice internal controls on chain of custody to enhance transparency and security of authorizations and invoice approval process.

Continued implementing a chain of custody system that meets our needs for reliability and transparency. Provided timely information to audit through EBMUD.

## BACWA

#### BACWA EXECUTIVE BOARD AUTHORIZATION REQUEST

AGENDA NO.: 7 MEETING DATE: November 17, 2023

#### TITLE: Approval of Audited Financial Reports for the Year Ended June 30, 2023

<b>RECEIPT</b>	□ DISCUSSION	<b>RESOLUTION</b>	APPROVAL
----------------	--------------	-------------------	----------

#### **RECOMMENDED ACTION**

Approve the Audited Financial Report for Fiscal Year 2023 (BACWA Audit Communication Letter and BACWA Basic Financial Statement) provided by EBMUD acting as Treasurer of BACWA.

#### SUMMARY

At the end of each fiscal year EBMUD requests an audit of the BACWA financials and provides the reports to BACWA. The audit are provided for Board approval. There were no significant issues found in the audit.

#### FISCAL IMPACT

Audits are prepared by Auditors engaged by EBMUD and paid for under the budgeted Audit Fees.

#### **ALTERNATIVES**

Do not approve the audited financial reports. This is not recommended as the audits are required by the BACWA JPA.

Attachments: BACWA Financial Statement

**Approved:** 

Date: \_\_\_\_November 17, 2023\_\_\_\_\_

Amit Mutsuddy, BACWA Chair

## LSL

October 11, 2023

To the Board of Directors Bay Area Clean Water Agencies Oakland, California

We have audited the financial statements of the Bay Area Clean Water Agencies ("BACWA") for the year ended June 30, 2023. Professional standards require that we provide you with information about our responsibilities under generally accepted auditing standards (and, if applicable, *Government Auditing Standards* and the Uniform Guidance), as well as certain information related to the planned scope and timing of our audit. We have communicated such information in our letter to you dated April 26, 2023. Professional standards also require that we communicate to you the following information related to our audit.

#### Significant Audit Matters

#### Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. The significant accounting policies used by BACWA are described in Note 1 to the financial statements. No new accounting policies were adopted and the application of existing policies was not changed during the fiscal year ended June 30, 2023. We noted no transactions entered into by BACWA during the year for which there is a lack of authoritative guidance or consensus. All significant transactions have been recognized in the financial statements in the proper period.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected. We noted no significant estimates pertaining to BACWA during fiscal year 2022-2023.

The financial statement disclosures are neutral, consistent, and clear.

#### Difficulties Encountered in Performing the Audit

We encountered no significant difficulties in dealing with management in performing and completing our audit.

#### Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audit, other than those that are clearly trivial, and communicate them to the appropriate level of management. We are pleased to report that no such misstatements were identified during the course of our audit.

#### Disagreements with Management

For purposes of this letter, a disagreement with management is a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

www.lslcpas.com

203 N. Brea Blvd, Suite 203 Brea, CA 92821 (714) 672-0022 24422 Avenida de la Carlota, Suite 275 Laguna Hills, CA 92653 (949) 829-8299 311 E. Fourth Street, Suite 20 Santa Ana, CA 92701 (714) 569-1000 2151 River Plaza Dr., Suite 150 Sacramento, CA 95833 (916) 503-9691

PrimeGlobal The Association of Advis and Accounting Firms

> 21 Waterway Avenue, Suite 30089 The Woodlands, TX 77380 (936) 828-4587



To the Board of Directors Bay Area Clean Water Agencies Oakland, California

#### Management Representations

We have requested certain representations from management that are included in the management representation letter dated October 11, 2023.

#### Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to BACWA's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

#### Other Audit Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as BACWA's auditors. However, these discussions occurred in the normal course of our professional relationship and our responses were not a condition to our retention.

#### Other Matters

We applied certain limited procedures to management's discussion and analysis, which is required supplementary information (RSI) that supplements the basic financial statements. Our procedures consisted of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We did not audit the RSI and do not express an opinion or provide any assurance on the RSI.

#### Restriction on Use

This information is intended solely for the information and use of the board of directors and management of BACWA and is not intended to be, and should not be, used by anyone other than these specified parties.

Very truly yours,

Tance, Soll & Lunghard, LLP

Sacramento, California



For the Years Ended June 30, 2023 and 2022

**Basic Financial Statements** 





#### Basic Financial Statements Fiscal Years Ended June 30, 2023 and 2022

#### Table of Contents

	Page
Independent Auditors' Report	1
Management's Discussion and Analysis	4
Basic Financial Statements	
Statements of Net Position	7
Statements of Revenues, Expenses and Changes in Net Position	8
Statements of Cash Flows	9
Notes to the Basic Financial Statements	10
Independent Auditors' Report on Internal Control Over Financial Reporting And on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with Government Auditing Standards	15

## LSL

#### INDEPENDENT AUDITORS' REPORT

To the Board of Directors Bay Area Clean Water Agencies Oakland, California

#### **Report on the Audit of the Financial Statements**

#### Opinion

We have audited the accompanying financial statements of the Bay Area Clean Water Agencies ("BACWA"), as of and for the year ended June 30, 2023 and 2022, and the related notes to the financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of BACWA as of June 30, 2023 and 2022, and the changes in financial position, and, cash flows thereof, as listed in the table of contents, for the year then ended in accordance with accounting principles generally accepted in the United States of America.

#### **Basis for Opinion**

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of BACWA and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

#### Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about BACWA's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

#### Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material

www.lslcpas.com

203 N. Brea Blvd, Suite 203 Brea, CA 92821 (714) 672-0022

24422 Avenida de la Carlota, Suite 275 Laguna Hills, CA 92653 (949) 829-8299 611 E. Fourth Street, Suite 20 Santa Ana, CA 92701 (714) 569-1000 2151 River Plaza Dr., Suite 150 Sacramento, CA 95833 (916) 503-9691 21 Waterway Avenue, Suite 30089 The Woodlands, TX 77380 (936) 828-4587

PrimeGlobal The Association of Advisory and Accounting Firms



To the Board of Directors Bay Area Clean Water Agencies Oakland, California

misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are
  appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of
  BACWA's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about BACWA's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

#### **Required Supplementary Information**

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.



To the Board of Directors Bay Area Clean Water Agencies Oakland, California

#### Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated October 11, 2023, on our consideration of BACWA's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of BACWA's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering BACWA's internal control over financial reporting and compliance.

Lance, Soll & Lunghard, LLP

Sacramento, California October 11, 2023

#### Management's Discussion and Analysis June 30, 2023 and 2022

This section presents management's analysis of the Bay Area Clean Water Agencies (BACWA) financial condition and activities as of and for the years ended June 30, 2023 and 2022. Management's Discussion and Analysis (MD&A) is intended to serve as an introduction to BACWA's basic financial statements. The MD&A represents management's examination and analysis of BACWA's financial condition and performance.

This information should be read in conjunction with the audited financial statements that follow this section. The information in the MD&A is presented under the following headings:

- Organization and Business
- Overview of the Financial Statements
- Financial Analysis
- Request for Information

#### **Organization and Business**

The Bay Area Clean Water Agencies (BACWA) is a local government agency created by a joint powers agreement in 1984. Our membership includes local clean water agencies that provide sanitary sewer services to the more than seven million people living in the nine county San Francisco Bay Area. BACWA was founded, and continues, to assist agencies in carrying out mutually beneficial projects, and to facilitate the development of scientific, economic and other information about the San Francisco Bay environment and the agencies that work to protect it and public health.

BACWA is governed by a five-person Executive Board comprised of one representative from each of the joint powers agreement signatory agencies: Central Contra Costa Sanitary District, East Bay Dischargers Authority, East Bay Municipal Utility District, the City and County of San Francisco, and the City of San Jose. BACWA members contribute funds to cover operating expenses based on an annual work plan and budget, in accordance with sections 9 and 10 of BACWA's Joint Powers Agreement. There are twelve associate members and forty-seven affiliate members that contribute a minimum of \$8,876 and \$1,778 annually, respectively.

For additional information, please see the notes to the basic financial statements.

#### **Overview of the Financial Statements**

The financial statements include *statements of net position*, *statements of revenues, expenses, and changes in net position, statements of cash flows,* and *notes to the financial statements.* The report also contains other required supplementary information in addition to the basic financial statements.

BACWA's financial statements include:

The *Statements of Net Position* present information on BACWA's assets and liabilities, with the difference between the two reported as net position. It provides information about the nature and amount of resources and obligations at year-end.

The *Statements of Revenues, Expenses, and Changes in Net Position* present the results of BACWA's operations over the course of the fiscal year and information as to how the *net position* changed during the year.

The *Statements of Cash Flows* present changes in cash and cash equivalents resulting from operational and investing activities. This statement summarizes the annual flow of cash receipts and cash payments, without consideration of the timing of the event giving rise to the obligation or receipt.

#### Management's Discussion and Analysis June 30, 2023 and 2022

The *Notes to the Basic Financial Statements* provide additional information that is essential to a full understanding of the data provided in the basic financial statements. The notes to the basic financial statements can be found on pages 10 to 14 of this report.

#### **Financial Analysis:**

Table 1 summarizes net position at June 30, 2023 and 2022, and Table 2 summarizes revenues, expenses and changes in net position for the years ended June 30, 2023 and 2022. Both tables also include changes from the prior year.

## Table 1Summary of Net PositionJune 30, 2023 and 2022

	2023	2022	Variance
Current assets	\$ 3,394,489	\$ 3,513,115	\$ (118,626)
Current liabilities	97,127	210,564	(113,437)
Net position: Unrestricted	3,297,362	3,302,551	(5,189)
Total net position	\$ 3,297,362	\$ 3,302,551	\$ (5,189)

- Current assets decreased by \$118,626 primarily due to a decrease in member contributions.
- Current liabilities decreased by \$113,437 primarily due to a decrease in accounts payable.

#### Management's Discussion and Analysis June 30, 2023 and 2022

## Table 2Summary of Revenues, Expenses, and Changes in Net PositionYears ended June 30, 2023 and 2022

	2023	2022	Variance
Operating revenues	\$ 3,080,655	\$ 3,346,123	\$ (265,468)
Operating expenses	(3,138,434)	(3,263,818)	125,384
Net operating income/(loss)	(57,779)	82,305	(140,084)
Nonoperating revenues	52,590	8,477	44,113
Change in net position	\$ (5,189)	\$ 90,782	\$ (95,971)

- Operating revenues decreased by \$265,468 primarily due to a decrease in member contributions.
- Operating expenses decreased by \$125,384 primarily due to a decrease in professional services.
- Non-operating revenues for the years ended June 30, 2023 and 2022 consisted of interest income. The increase of \$44,113 is due to an increase in interest rates.

#### **Request for Information**

This financial report is designed to provide viewers with a general overview of The Bay Area Clean Water Agencies' finances and demonstrate BACWA's accountability for the assets and liabilities it manages. If you have any questions about this report, or need additional information, please contact: the BACWA Treasurer, Phoebe Grow, PO Box 24055, MS 809, Oakland, California 94623.

#### BAY AREA CLEAN WATER AGENCIES Statements of Net Position June 30, 2023 and June 30, 2022

	2023	2022
ASSETS		
Cash and cash equivalents (Note 2)	\$ 1,073,205	\$ 1,168,225
Investments (Note 2)	2,302,195	2,262,600
Accounts receivable	1,830	78,025
Accrued interest receivable	17,259	4,265
Total assets	3,394,489	3,513,115
LIABILITIES		
Accounts payable	97,127	210,564
Total liabilities	97,127	210,564
NET POSITION (Note 1B)		
Unrestricted	3,297,362	3,302,551
Total net position	\$ 3,297,362	\$ 3,302,551

See accompanying notes to financial statements
# BAY AREA CLEAN WATER AGENCIES Statements of Revenue, Expense, And Changes in Net Position For Years Ended June 30, 2023 and June 30, 2022

	2023	2022
Operating income:		
Member contributions	\$ 1,456,269	\$ 1,439,676
Other receipts	1,624,386	1,906,447
Total operating revenue	3,080,655	3,346,123
Operating expense:		
Professional services	(2,647,703)	(2,778,265)
General and administrative	(490,731)	(485,553)
Total operating expense	(3,138,434)	(3,263,818)
Operating income (loss)	(57,779)	82,305
Nonoperating revenue:		
Interest income	52,590	8,477
Changes in net position	(5,189)	90,782
Total net position - beginning	3,302,551	3,211,769
Total net position - ending	\$ 3,297,362	\$ 3,302,551

See accompanying notes to financial statements

# BAY AREA CLEAN WATER AGENCIES Statements of Cash Flows For the Years Ended June 30, 2023 and June 30, 2022

	2023	2022
Cash flows from operating activities:		
Cash received from member contributions	\$ 1,532,464	\$ 1,368,829
Cash received from other receipts	1,624,386	1,906,447
Cash paid for supplies and services	(3,251,871)	(3,251,358)
Net cash provided (used) by operating activities	(95,021)	23,918
Cash flows provided by investing activities:		
Interest received on investments	39,596	6,311
Net increase (decrease) in cash and equivalents, and		
investments	(55,425)	30,229
Cash and equivalents, and investments at beginning of period	3,430,825	3,400,596
Cash and equivalents, and investments at end of period	\$ 3,375,400	\$ 3,430,825
Reconciliation of cash and cash equivalents, and investments to		
amounts reported on the statement of net position		
Cash and cash equivalents	1,073,205	1,168,225
Investments	2,302,195	2,262,600
Cash and equivalents, and investments at end of period	\$ 3,375,400	\$ 3,430,825
Reconciliation of net operating income (loss) to net cash provided (used)		
by operating activities:		
Operating income	\$ (57,779)	\$ 82,305
Adjustments to reconcile operating loss to cash flows		
from operating activities:		
Changes in operating assets and liabilities:		
Accounts receivable and other receivables	76,195	(70,847)
Accounts payable	(113,437)	12,460
Net cash flow provided (used) by operating activities	\$ (95,021)	\$ 23,918

See accompanying notes to financial statements

#### Notes to Basic Financial Statements For the Years Ended June 30, 2023 and 2022

#### NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

#### A. Description of Reporting Entity

The Bay Area Clean Water Agencies (BACWA) is a local government agency created by a joint powers agreement in 1984. Our membership includes local clean water agencies that provide sanitary sewer services to the more than seven million people living in the nine county San Francisco Bay Area. BACWA was founded, and continues, to assist agencies in carrying out mutually beneficial projects, and to facilitate the development of scientific, economic and other information about the San Francisco Bay environment and the agencies that work to protect it and public health.

BACWA is governed by a five-person Executive Board comprised of one representative from each of the joint powers agreement signatory agencies: Central Contra Costa Sanitary District, East Bay Dischargers Authority, East Bay Municipal Utility District, the City and County of San Francisco, and the City of San Jose. BACWA members contribute funds to cover operating expenses based on an annual work plan and budget, in accordance with sections 9 and 10 of BACWA's Joint Powers Agreement. There are twelve associate members and forty-seven affiliate members that contribute a minimum of \$8,876 and \$1,778 annually, respectively.

BACWA has the following special programs in the fiscal year 2023. Each special program's revenues and expenses are tracked separately from BACWA's other revenues and expenses.

- The Clean Bay Collaborative (CBC) is a program to develop and fund regional projects that benefit participants. Revenues come from contributions from program participants and expenditures are determined by the BACWA principals.
- Water/Wastewater Operator Training (WOT) was a program formed with Solano County Community College to
  provide water operators with educational training to help them understand the standard environmental rules and
  regulations related to water and wastewater. Revenues are provided by participating agencies and expenditures
  determined by those agencies. BACWA continues its educational relationship with Solano Community College.
- Bay Area Biosolids Coalition (BABC) became a Special Benefits Program in fiscal year 2020, where the participants establish their budget and associated revenue needs. BABC is a regional collaboration between San Francisco Bay Area wastewater agencies that are working to develop sub-regional projects with a primary focus on beneficial use of biosolids.
- Bay Area Chemical Consortium (BACC) became a Special Benefits Program in fiscal year 2020. BACC is an
  administrative program governed by BACWA and supported by the BACWA ED and AED. BACC solicits
  chemical bid information from more than 60 member agencies, then arranges a group bid. BACC participant
  agencies are invoiced for BACWA labor and other expenses related to bid administration at the end of each
  fiscal year.

#### B. Basis of Accounting and Presentation

The accompanying financial statements report the financial position of BACWA in accordance with accounting standards generally accepted in the United States of America. As BACWA is exclusively comprised of governmental entities, the preparation of its financial statements is governed by the pronouncements of the Governmental Accounting Standards Board (GASB).

BACWA as a proprietary enterprise is accounted for on a flow of economic resources measurement focus using the accrual basis of accounting. Measurement focus refers to what is being measured; basis of accounting refers to when revenues and expenditures are recognized in the accounts and reported in the financial statements.

#### Notes to Basic Financial Statements For the Years Ended June 30, 2023 and 2022

#### NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

BACWA distinguishes *operating* revenues and expenses from *nonoperating* items. Operating revenues and expenses generally result from providing services and producing deliverable goods in connection with a proprietary fund's principal ongoing operations. Operating expenses for BACWA include the cost of sales and services and administrative expenses. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses.

Statement of Net Position – The statement of net position is designed to display the financial position of BACWA. BACWA's fund equity is reported as net position, which is the excess of all the agency's assets and deferred outflows over all its liabilities and deferred inflows. Net position is divided into three captions under GASB Statement 34. As of June 30, 2023 and 2022, BACWA reported the following classifications of net position:

• Unrestricted describes the portion of Net Position which is not restricted to use.

Statement of Revenues, Expenses, and Changes in Net Position – The statement of revenues, expenses, and changes in net position is the operating statement for proprietary funds. Revenues are reported by major source. This statement distinguishes between operating and non-operating revenues and expenses and presents a separate subtotal for operating revenues, operating expenses, and operating income. When both restricted and unrestricted resources are available for use, it is BACWA's policy to use restricted resources first, then unrestricted resources as they are needed.

#### C. Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

#### D. Cash and Cash Equivalents

BACWA considers all highly liquid investments with original maturities of three months or less when purchased to be cash equivalents.

#### E. Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. BACWA categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The fair value hierarchy categorizes the inputs to valuation techniques used to measure fair value into three levels based on the extent to which inputs used in measuring fair value are observable in the market.

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2 inputs are inputs other than quoted prices included within level 1 that are observable for an asset or liability, either directly or indirectly.
- Level 3 inputs are unobservable inputs for an asset or liability.

If the fair value of an asset or liability is measured using inputs from more than one level of the fair value hierarchy, the measurement is considered to be based on the lowest priority level input that is significant to the entire measurement.

#### Notes to Basic Financial Statements For the Years Ended June 30, 2023 and 2022

#### NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

#### F. <u>Allocation of Costs</u>

In accordance with the adopted work plan and approved budget for the year ended June 30, 2023, all costs incurred by BACWA for general overhead and for programs with general benefit are shared by BACWA members consistent with the terms of the Joint Powers Agreement establishing the agency, between each of the original signatory members.

Costs incurred for programs of special benefit are allocated in direct proportion to the benefits received as approved by BACWA's Executive Board.

BACC, WOT and BABC have their own budgets, and their expenditures are funded from their own separate revenues. BACC maintains a legal reserve fund that whose revenue is collected from its members and is held separately from other BACWA funds.

#### NOTE 2 - CASH AND INVESTMENTS

#### A. Composition

BACWA's cash and cash equivalents at June 30 consisted of the following deposits and investments held by EBMUD on the BACWA's behalf:

	 2023	 2022
Demand deposits with banks	\$ 1,073,205	 \$ 1,168,225
Local Agency Investment Fund	 2,302,195	2,262,600
Total cash and cash equivalents	\$ 3,375,400	\$ 3,430,825

#### B. Collateralization of Cash and Cash Equivalents

California Law requires banks and savings and loan institutions to pledge government securities with a market value of 110% of BACWA's cash on deposit or first trust deed mortgage notes with a value of 150% of BACWA's cash on deposit as collateral for these deposits. Under California Law this collateral is held in an investment pool by an independent financial institution in BACWA's name and places BACWA ahead of general creditors of the institution pledging the collateral. BACWA has waived collateral requirements for the portion of deposits covered by federal deposit insurance.

BACWA's investments are carried at fair value, as required by generally accepted accounting principles. BACWA adjusts the carrying value of its investments to reflect their fair value at each fiscal year end, and it includes the effects of these adjustments in income for that fiscal year.

#### C. Credit Risk

Credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. This is measured by the assignment of a rating by a nationally recognized statistical rating organization. As an external investment pool, the Local Agency Investment Fund was not rated as of June 30, 2023 and 2022.

#### Notes to Basic Financial Statements For the Years Ended June 30, 2023 and 2022

#### NOTE 2 - CASH AND INVESTMENTS (CONTINUED)

#### D. Fair Value Hierarchy

BACWA categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure fair value of the assets. Level 1 inputs are quoted prices in an active market for identical assets; Level 2 inputs are significant other observable inputs; and Level 3 inputs are significant unobservable inputs. The California Local Agency Investment Fund is exempt from classification for fair value hierarchy.

#### E. Interest Rate Risk

Interest rate risk is the risk that changes in market interest rates will adversely affect the fair value of an investment. Normally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. BACWA generally manages its interest rate risk by purchasing a combination of short-term and long-term investments and holding investments to maturity. BACWA's only investment is in the California Local Agency Investment Fund which can be withdrawn at any time usually within a day.

#### F. Local Agency Investment Fund (LAIF)

BACWA is a participant in the Local Agency Investment Fund (LAIF), which is regulated by California Government Code §16429 under the oversight of the Treasurer of the State of California. The value of the pool shares in LAIF is determined on an amortized cost basis, which is different from the fair value of its position in the pool. BACWA's investments with LAIF at June 30, 2023 and 2022 included a portion of the pool funds invested in Structured Notes and Asset-Backed Securities. These investments included the following:

- Structured Notes are debt securities (other than asset-backed securities) whose cash-flow characteristics (coupon rate, redemption amount, or stated maturity) depend upon one or more indices and/or that have embedded forwards or options.
- Asset-Backed Securities, the bulk of which are mortgage-backed securities, entitle their purchasers to receive
  a share of the cash flows from a pool of assets, such as principal and interest repayments from a pool of
  mortgages (such as Collateralized Mortgage Obligations) or credit card receivables.

As of June 30, 2023 and 2022, BACWA had investments of \$2,302,195 and \$2,262,600, respectively, invested in LAIF, which had invested 2.78% and 1.88% of the pooled investment funds in Structured Notes and Asset-Backed Securities.

#### NOTE 3 – RELATED PARTY TRANSACTION

As BACWA does not have any employees, EBMUD provides BACWA with ongoing treasury, accounting, and auditing pass-through costs, which are reimbursed by BACWA and the related organizations on no less than a quarterly basis. Total reimbursements for the year ended June 30, 2023 and 2022, were \$39,021 and \$33,838 respectively, and are primarily reflected in the general and administrative expenditures on the Statement of Revenues, Expenditures, and Changes in Net Position.

#### Notes to Basic Financial Statements For the Years Ended June 30, 2023 and 2022

#### NOTE 4 – RISK MANAGEMENT

BACWA's liability and property risks are insured by commercial insurance carriers. Selected insurance coverage includes:

Coverage	P	olicy Limit
Bodily injury	\$	5,000,000
Property damage		5,000,000
Personal injury		5,000,000
Non-owned and hired automobile liability		5,000,000
Public officials, errors, and omissions		5,000,000
Fire damage liability		1,000,000
Employment practices liability		2,000,000
Security and privacy liability		10,000,000

Any liability BACWA may have for uninsured claims are limited to general liability claims. However, BACWA has experienced no losses from such claims during the preceding three years and it therefore believes there is no liability for claims incurred but not reported.



#### INDEPENDENT AUDITOR'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH GOVERNMENT AUDITING STANDARDS

To the Board of Directors Bay Area Clean Water Agencies Oakland, California

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the Bay Area Clean Water Agencies ("BACWA"), as of and for the year ended June 30, 2023 and 2022, and the related notes to the financial statements, which collectively comprise BACWA's basic financial statements, and have issued our report thereon dated October 11, 2023.

#### **Report on Internal Control over Financial Reporting**

In planning and performing our audit of the financial statements, we considered BACWA's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of BACWA's internal control. Accordingly, we do not express an opinion on the effectiveness of BACWA's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements, on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or, significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

#### **Report on Compliance and Other Matters**

As part of obtaining reasonable assurance about whether BACWA's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

www.lslcpas.com

203 N. Brea Blvd, Suite 203 Brea, CA 92821 (714) 672-0022

24422 Avenida de la Carlota, Suite 275 Laguna Hills, CA 92653 (949) 829-8299 611 E. Fourth Street, Suite 20 Santa Ana, CA 92701 (714) 569-1000 2151 River Plaza Dr., Suite 150 Sacramento, CA 95833 (916) 503-9691

PrimeGlobal The Association of Advis

21 Waterway Avenue, Suite 30089 The Woodlands, TX 77380 (936) 828-4587



To the Board of Directors Bay Area Clean Water Agencies Oakland, California

#### **Purpose of This Report**

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the BACWA's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the BACWA's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Lance, Soll & Lunghard, LLP

Sacramento, California October 11, 2023

# BACWA

# **EXECUTIVE BOARD AUTHORIZATION REQUEST**



AGENDA NO.: 8

MEETING DATE: November 17, 2023

TITLE: Request for BACWA Executive Board contingent approval of \$150,000 matching contribution to EBMUD-led study of the Growth and Control of *Heterosigma akashiwo* in the San Francisco Bay.

# $\Box RECEIPT \qquad \Box DISCUSSION \qquad \Box RESOLUTION \qquad \boxtimes APPROVAL$

# **RECOMMENDED ACTION**

Authorize payment in the amount of \$150,000 in matching funds to the Water Research Foundation (WRF) to support a study to evaluate the growth and control of *Heterosigma akashiwo* in the San Francisco Bay, contingent upon the selection of the proposal by the Water Research Foundation (WRF).

# SUMMARY

In August 2022, an algal bloom in the San Francisco (SF) Bay caused by *Heterosigma akashiwo* resulted in a significant fish kill. It is unknown what initiated *H. akashiwo* to activate from its resting stage and form the red tide bloom. *H. akashiwo* has been present in the SF Bay since at least 2002, but there have been no observed fish kills attributed to *H. akashiwo* in the SF Bay before 2022. Based on this event, the Water Board is planning to require nutrient load reductions from POTWs in the 3<sup>rd</sup> Nutrient Watershed Permit.

EBMUD has submitted a proposal two the Water Research Foundation that would investigate the growth conditions, life cycle triggers, and potential control measures of *H. akashiwo* in the SF Bay. This project proposal was presented to the San Francisco Bay Nutrient Management Strategy Steering committee at their October 27, 2023 meeting. While members had questions about the project, there was general support of including this study withing the body of work that will be used by the Water Board to make future regulatory decisions. EBMUD will work with the Nutrient Science Team to ensure that the work in complementary to, and not duplicative with ongoing studies.

EBMUD has requested \$150,000 in WRF Support for the project. EBMUD is contributing \$44,000 in in-kind support to the project and requesting that BACWA provide a matching \$150,000 cash contribution. BACWA would only provide this support if the project is funded by WRF. BACWA will advocate for this contribution to be recognized as part of the support for the science that is anticipated to be part of the 3<sup>rd</sup> Nutrient Watershed Permit.

# FISCAL IMPACT

Funds for this study will be paid from the Watershed Permit NMS Contribution line item in the April 21, 2023 Approved FY24 BACWA Budget.

# ALTERNATIVES

1. Do not fund the Matching Contribution. This is not recommended, since if WRF agrees to fund the study, EBMUD will not be able to provide the matching contribution required for it to proceed, and the region would not be able to make use of this external funding source.

Attachments:

EBMUD Proposal to WRF to Evaluate the Growth and Control of *Heterosigma akashiwo* in the San Francisco Bay.

Approved:

Date: \_\_\_\_\_

Amit Mutsuddy, Chair, BACWA Executive Board

# **Executive Summary**

# **Background and Research Objective**

Nitrogen is a nutrient present in wastewater that can have detrimental impacts when discharged into receiving water bodies. The growth of undesired organisms, including algae that produce harmful algal blooms (HABs), can be a consequence of excess nutrient discharges to receiving waters. *Heterosigma akashiwo* is an opportunistic marine microscopic alga capable of forming red tide HABs that can result in massive fish kills. In August 2022, this organism was responsible for a massive fish kill in the San Francisco Bay (SF Bay). Although it is unknown what initiated *H. akashiwo* to activate from its resting stage to form the red tide, many attributed the severity of the bloom to high nitrogen concentrations in treated effluent discharges from wastewater treatment plants (WWTPs) to the SF Bay. *H. akashiwo* has been present in the SF Bay since at least 2002 when it caused the first documented red tide bloom in the SF Bay; however, the bloom did not persist long enough to cause any observed fish kills. Only one other red tide has been documented between 2002 and 2022. This time caused by *Akashiwo sanguinea*, and again no fish kills were observed. Following last year's red tide (2022), another *H. akashiwo* red tide bloom was detected in the SF Bay this summer (2023), but as in 2002, no fish kills were observed.

The San Francisco Regional Water Quality Control Board (Regional Board) is planning to impose nitrogen discharge limitations on thirty-seven WWTPs in the SF Bay Area, including the East Bay Municipal Utility District (EBMUD) WWTP, starting July 1, 2024. The impact of the 2022 algal bloom has caused the Regional Board to consider more stringent nitrogen discharge limitations. Infrastructure improvements needed to remove nitrogen from WWTPs will cost billions of dollars if the expected nitrogen limits from the Regional Board go into effect. The financial burden of nitrogen removal would likely fall on ratepayers.

The objectives of this project are to: 1) determine the conditions that trigger *H. akashiwo*'s progression from cyst to lethal bloom (and back to cyst) to better understand how low nutrients must be to avoid a lethal bloom; and 2) evaluate potential control strategies to minimize its spread and environmental impact. An improved understanding of the growth and control of *H. akashiwo* will better inform wastewater treatment agencies and regulators to determine the nutrient limitations needed to both protect the SF Bay and WWTPs' ratepayers.

#### **Technical Approach**

The proposed project will be divided into four tasks:

#### Task 1: Water Quality Sampling During Red Tide Bloom

The research objective for Task 1 is to evaluate the environmental conditions during a *H. akashiwo* red tide bloom in the SF Bay through targeted water quality sampling, not currently being performed. If a bloom occurs during this project, up to a total of twelve sampling events will be conducted to track water quality changes as the bloom progresses and dies off. Samples will be analyzed using field instruments and through the Environmental Laboratory

Accreditation Program certified EBMUD laboratory. Proposed analytes include chlorophyll *a*, pH, turbidity, dissolved oxygen, salinity/conductivity, temperature, nitrate, nitrite, orthophosphate, and ammonia.

# Task 2: Laboratory-Scale Evaluation of H. akashiwo Growth, Decay, and Toxicity

The research objective for Task 2, which will be the largest task in this study, is to determine the conditions that enable and limit the growth of the SF Bay 2022 and 2023 *H. akashiwo* strains in the laboratory, as well as factors that induce cyst formation, population decline and the onset of toxicity/depleted dissolved oxygen (DO) killing other marine organisms. The laboratory-based study will start by establishing cultures of the two *H. akashiwo* strains (isolated from each SF Bay red tides in 2022 and 2023) separately in enriched seawater media. Testing both the 2022 strain (which caused fill kills) and the 2023 strain (which did not cause fish kills) side-by-side will inform whether fish kills happen as a result of particular strain characteristics. We also plan to conduct molecular work through a contract lab to better define the 2022 vs. 2023 strains. Experiments will be conducted to evaluate environmental factors that influence the growth by varying ammonia, nitrate, temperature, and light. Cell growth will be monitored through *in vivo* fluorescence with a fluorescence probe calibrated for chlorophyll *a*. A second group of experiments will be conducted to evaluate the relationship between environmental factors and the cyst formation, cell decay and toxicity potential (including DO depletion and other factors) of the two *H. akashiwo* strains.

# Task 3: Evaluation of Clay and Polyaluminum Chloride to Control H. akashiwo Blooms

The research objective for Task 3 is to determine the effectiveness of a bentonite clay and polyaluminum chloride (PAC) slurry to settle *H. akashiwo* cells and prevent or limit the spread of a red tide bloom. Preliminary testing will happen in the laboratory to evaluate optimum doses using the *H. akashiwo* cultures established in Task 2. If a bloom develops in the SF Bay in 2024, the effectiveness of the bentonite clay and PAC mixture will be evaluated in the field with prearrangement and communication with the Regional Board and any local agencies made in advance. A tank mounted on a trailer and connected to a pump will be used to prepare and apply the clay slurry. Online probes will monitor *in vivo* chlorophyll *a*, pH, turbidity, dissolved oxygen, conductivity, and temperature before, during and after the application. Samples collected at different water surface depths will be analyzed for algal species, density of cells, chlorophyll *a*, nitrate+nitrite, ammonia, and salinity/conductivity. However, if a bloom does not develop, the application of a bentonite clay and PAC slurry will be tested at the bench-scale. Laboratory experiments can be conducted to evaluate (1) bentonite clay and PAC at controlling blooms with different concentrations of algae (simulating the different stages of a bloom), (2) non-bentonite clays, and (3) other non-PAC coagulants.

# Task 4: Investigation of Seagrass Use to Minimize H. akashiwo Blooms

A literature review will be conducted on the use of seagrasses to control *H. akashiwo* blooms. A draft work plan for the selection and implementation of seagrasses in the SF Bay will be created. The draft work plan will consider site requirements, installation considerations, and how to

evaluate effectiveness in controlling HABs. Actual planting of the selected seagrass(es) is expected to take place following the completion of this task, but not as a part of this proposed work.

# **Research Originality**

The literature identifies environmental factors that are needed for *H. akashiwo* to emerge from its cyst resting stage and become active in its vegetative form, including temperature, light, and salinity. However, red tides have not occurred in the SF Bay even when the right combination of those factors have been present. In addition, the literature does not provide guidance for the level of total inorganic nitrogen needed to produce a red tide capable of causing significant fish kills. The proposed research is unique because it will investigate what site-specific conditions allow or stimulate *H. akashiwo* to form a bloom and the growth requirements that have made it more competitive than other algae in the SF Bay. The goal of this research is to provide data to help WWTP agencies and regulators select the best nutrient limits to protect both the water body the WWTP discharges to and the ratepayer, who may need to pay for this additional nutrient treatment to meet the new limits.

Previous research has found algal bloom control strategies, such as the application of a combination of clay and PAC or the planting of seagrasses, to be promising. Clay and PAC have been used in China and South Korea (and other parts of the world) for decades but has not been used in the United States because of the concern of environmental impacts and compliance with the Clean Water Act. Studies are underway in Florida, but results may not be available until 2025. The literature has also shown that certain seagrasses can produce allelochemicals capable of inhibiting the growth of *H. akashiwo* and other algae in laboratory experiments; however, further testing, including field studies, is required.

# **Anticipated Results and Benefits**

Nationwide, utilities struggle with the decision to implement nutrient removal at their WWTPs since it can be difficult to link nutrient discharges with the environmental health of the receiving water body, and the cost to reduce nutrients can be in the billions of dollars for some WWTP agencies. Water Research Foundation (WRF) currently has at least two projects focused on understanding the links between nutrient discharges and the response in the receiving water body (WRF Projects 5038 and 5078--Dr. Donald Gray, the PI for this proposed project, is currently an active member on the Project Advisory Committee for WRF's project 5078, *Linking Nutrient Reductions to Receiving Water Responses*). The findings from this proposed study will provide evidence on the relationship between nitrogen and the growth and life cycle of *H. akashiwo* in the SF Bay. EBMUD will share the research findings with the Regional Board and discuss how the research findings may inform science-based nutrient discharge limits that address the concerns related to algal blooms in the SF Bay. This will directly benefit the other thirty-six WWTPs that discharge to the SF Bay. In addition, the findings from this study will serve utilities beyond the SF Bay Area who are facing similar pressure to reduce nitrogen in their WWTP discharges due to concerns with HABs.

#### **Project Description**

#### **Research Objective**

The objectives of this project are to determine the conditions that enable *Heterosigma akashiwo*'s rapid growth and trigger its life cycle steps to forming a lethal red-tide causing massive fish kills in the San Francisco Bay (SF Bay), and elsewhere; and evaluate potential control strategies to minimize its spread and environmental impact. An improved understanding of the growth and control of *H. akashiwo* will better inform wastewater treatment agencies and regulators about the required nutrient limitations to protect water quality in the SF Bay.

#### **Background and Understanding of the Problem**

Nitrogen and phosphorus are nutrients that can become enriched in water bodies and result in an undesired environmental condition termed eutrophication. The excess nutrients are often a result of farming and aquaculture activities, and wastewater discharges, among other contributors. Plant and algal productivity increase in eutrophic waters due to the excessive availability of nutrients, which can become a nuisance resulting in hypoxic zones after dead plant and algae decompose or in harmful algal blooms (HABs). Eucaryotic algae and cyanobacteria are the two main groups of organisms that can cause HABs. Eucaryotic algae are generally involved in marine- and brackish-water toxic blooms, while cyanobacteria are the main agents in blue-green algae-HABs in freshwater systems with occasional presence in marine environments. Not all algal blooms are harmful; however, HAB-capable algae can produce toxins that can affect or kill other organisms in the ecosystem, both farmed and wild. The annual economic burden of HABs in the United States is estimated to be between 10 to 100 million dollars (National Centers for Coastal Ocean Science, 2023).

One specific phytoplankton documented in the SF Bay since 2002 is *H. akashiwo*. This organism has a complex life cycle where it exists in a cyst-resting stage in sediments when environmental conditions are not favorable for its growth. A combination of environmental factors has been identified to contribute to the activation of *H. akashiwo*; including nutrients, temperature, and light (Shikata et al., 2008, Tobin et al., 2013, Kim et al., 2015). However, research is still needed to elucidate how specific environmental variables determine the development of a bloom. Motility and cell division are key characteristics observed after environmental conditions improve for *H. akashiwo*, and this organism can grow to cover large coastal areas. *H. akashiwo* HABs are common around the world and have been documented in countries like the United States, Japan, China, and Spain lasting from weeks to months (Mehdizadeh Allaf, 2023). In some *H. akashiwo* blooms, there is a phase where massive deaths of fish, shellfish, and other benthic life forms happen. The specific mechanism of toxicity is currently unknown, although there seems to be a relationship between detrimental environmental conditions (e.g., low nutrient concentrations) and the onset of toxicity (Cochlan et al., 2013, Ikeda et al., 2016).

Asphyxiation appears to be the main cause of death for the impacted organisms, where damage to the gills through different pathways, cardiac disorders, and red blood cell lysis have been suggested as potential mechanisms (Mehdizadeh Allaf, 2023). Similarly, as for the bloom and toxicity development phases, the specific triggers for the return to the cyst stage or massive cell decay at the end of a bloom are not well understood, although they seem to also correlate with environmental conditions.

In August 2022, *H. akashiwo* was responsible for a massive fish kill in the SF Bay (California Ocean Protection Council, n.d.). Although it is unknown what initiated this organism to activate from its resting stage to form the red tide, many attributed the severity of the bloom to high nitrogen concentrations in treated effluent discharges from wastewater treatment plants (WWTPs) to the SF Bay. *H. akashiwo* has been present in the SF Bay since at least 2002 when it caused the first documented red tide bloom; however, the bloom did not persist long enough to cause any observed fish kills. Another *H. akashiwo* red tide bloom was detected in the SF Bay in 2023, but as in 2002, it did not cause massive loss of marine life. Nonetheless, the severity of the *H. akashiwo* bloom in SF Bay in 2022 further necessitates understanding of how environmental factors, including nutrients, impact the potential for future HABs.

A comprehensive strategy to manage HABs should include both preventative and corrective measures. Physical, chemical, and biological methods have been tested throughout the world for this effect. One of the strategies that has showed the best results and received the most attention is the application of modified clays containing a cationic polymer (Balaji-Prasath et al., 2022), such as bentonite with polyaluminum chloride (PAC). Modified clays bind to the suspended algal cells to form flocs that settle and are captured in the sediment layer of the water body. Countries like South Korea, China, and Japan have used clays successfully to control algal blooms for decades (Sengco & Anderson, 2004, Yu et al., 2017). This management practice has not been largely applied in the United States due to limited research, environmental concerns, and potential non-compliance with the Clean Water Act. The National Centers for Coastal Ocean Science is currently conducting an investigation to use clays to control HABs in Florida, although targeting a different alga common to that region, Karenia brevis (National Centers for Coastal Ocean Science, 2022). To date, more research is required to evaluate the effectiveness of modified clays to control diverse HABs in different geographic locations. Other strategies that involve other control mechanisms, such as growing seagrasses that inhibit algal growth through their production of allelochemicals (Wang et al., 2007), also require attention.

The study proposed here will investigate the growth conditions, life cycle triggers, and potential control measures of *H. akashiwo* to better inform regulatory requirements for WWTPs discharging to SF Bay. It will also investigate strategies to mitigate the severe impacts of red tides that may continue to develop in the near-term. The East Bay Municipal Utility District (EBMUD) is leading this research effort because it will inform science-based nutrient discharge limits for EBMUD and the other thirty-six WWTPs that discharge to the SF Bay. Starting July 1, 2024, the San Francisco Regional Water Quality Control

Board (Regional Board) is planning to impose nitrogen discharge limitations on those WWTPs in the SF Bay Area. The Regional Board has expressed intent to issue more stringent nitrogen discharge limitations given the impact of the 2022 algal bloom. Infrastructure improvements needed to remove nitrogen from WWTPs could cost billions of dollars if the expected limits go into effect. The financial burden of nitrogen removal would likely fall on ratepayers. This study will provide critical information about how to both prevent and mitigate *H. akashiwo* blooms and their impact on SF Bay.

# **Technical Approach**

This research project will be divided into four tasks. The goal for Task 1 is to expand our understanding of the environmental conditions that permitted the 2022 *H. akashiwo* bloom in Lake Merritt and the Oakland Estuary, while also to monitor future blooms in the SF Bay. Task 2 will be a laboratory-based study that will start by establishing cultures of the two *H. akashiwo* strains that separately caused either the 2022 or 2023 blooms. Experiments will be conducted to evaluate how environmental factors influence the growth, cyst formation, decay, and toxicity potential of the two strains. Task 3 will test the application of a mixture of bentonite clay and PAC to control a developing *H. akashiwo* bloom in the SF Bay if the opportunity is present. The clay slurry will also be tested in the laboratory using the *H. akashiwo* cultures established in Task 2. The laboratory testing portion of Task 3 will be expanded if blooms do not occur in the SF Bay next year. For Task 4, a draft work plan will be created for the selection and implementation of seagrasses to control *H. akashiwo* blooms in the SF Bay and will include a thorough review of the literature on the subject.

# Task 1: Water Quality Sampling During Red Tide Bloom

It is well accepted that environmental conditions play a role in regulating the life history of H. akashiwo (Shikata et al. 2008, Mehdizadeh Allaf 2023), and that current conditions are allowing more frequent algal blooms worldwide (Gobler, 2020). However, it is not understood what specific, or combination of, factors determine bloom growth and maintenance. The research objective for Task 1 is to evaluate the environmental conditions during a H. akashiwo red tide bloom in the SF Bay through water quality sampling. Changes to water conditions will be tracked as the bloom progresses and dies off. Task 1 also aims to gain insight as to why red tide blooms have started at different locations in the SF Bay in the past and have been of diverse magnitudes. The San Francisco Estuary Institute has developed a screening tool that uses satellite images to monitor the chlorophyll a concentration in water bodies, including the SF Bay (San Francisco Estuary Institute, 2023). The satellite images suggest the H. akashiwo bloom in 2022 started in or around Alameda and San Leandro and lasted about three weeks, while in 2023 the bloom occurred in the Berkeley Marina and San Pablo Bay for about one week. The chlorophyll a concentration was much higher in 2022 than in 2023, which seems to correlate with the severity of the bloom and fish kills. This tool will be used to monitor for future blooms and

inform the sampling for Task 1.

In the event that a *H akashiwo* bloom occurs in the SF Bay during this project duration, water quality samples will be collected for up to a total of twelve events. The sampling locations will be selected based on areas that have presented *H. akashiwo* blooms in the past combined with areas suspected to contain an active bloom based on satellite chlorophyll *a* level at the time. Alameda, Lake Merritt, or the Oakland Estuary will be the preferred sampling locations if a bloom occurs in those areas. Sampling frequency will depend on the magnitude and duration of the bloom. Red tide blooms are more likely to occur during warmer weather, typically June through September.

Samples will be analyzed using field instruments and through the Environmental Laboratory Accreditation Program (ELAP) certified EBMUD laboratory. Field measurements will be taken with a C-FLUOR fluorescence probe calibrated for chlorophyll *a* connected to a DataBank Datalogger (Turner Designs, California, USA) for *in vivo* chlorophyll *a*, and a ProDSS Multiparameter Digital Water Quality Meter (YSI, Ohio, USA) for pH, turbidity, dissolved oxygen, conductivity, and temperature. Both pieces of equipment have data logging capabilities, which will be used, and the data will be safely stored on a computer after each sampling campaign is completed. Representative field samples will be collected in one-liter (L) plastic bottles at each of the locations and processed in the laboratory for nitrate+nitrite, orthophosphate, ammonia, salinity/conductivity, and *in vitro* chlorophyll *a*. Additional analytes will be considered. The results are expected to inform potential strategies for the prevention and management of red tides and some of the laboratory-scale experimental conditions in Task 2.

# Task 2: Laboratory-Scale Evaluation of H. akashiwo Growth, Decay, and Toxicity

Temperature, light, and nutrient concentrations, among others, are key factors that influence the life cycle and functions of *H. akashiwo* (Mehdizadeh Allaf, 2023). Figure 1 shows the sequencing of events that took place during the 2022 red tide HAB in the SF Bay, based on how nitrate, chlorophyll *a*, DO, turbidity, and dissolved organic material varied over time. A direct relationship between the changes in environmental conditions and the progression of the bloom is not evident, highlighting the need for the research proposed here. The objective for Task 2 is to determine the conditions that enable and limit the growth of the SF Bay 2022 and 2023 *H. akashiwo* strains in a controlled environment, as well as factors that induce cyst formation, population decline and the onset of toxicity to other organisms. We also plan to conduct molecular work through a contract lab to better define the 2022 vs. 2023 strains.



**Figure 1**. (SFEI in prep) Data shows the timing of events during the *H. akashiwo* 2022 red tide HAB in SF Bay. Graphs courtesy of the San Francisco Estuary Institute (SFEI) with permission and is currently unpublished.

# Cell culture

Non-axenic unialgal *H. akashiwo* cultures isolated from the SF Bay during the 2022 and 2023 red tide blooms (kindly provided by Dr. H. Bowers, Moss Landing Marine Laboratories) will be grown and maintained separately in enriched seawater media. Water from the SF Bay will be filtered-sterilized ( $0.22 \mu m$  pore size), spiked with an f/2 media concentrate containing nitrate (NO<sub>3</sub>) as nitrogen source (Bigelow, Maine, USA) according to the manufacturer's instructions, and autoclaved (HVE-50, Hirayama Manufacturing

Corp., Japan). NO<sub>3</sub> will be replaced with ammonia (NH<sub>4</sub>) in half of the tubes. The algae cultures will be grown in 50 milliliter (mL) borosilicate glass tubes by adding 3 mL of existing culture to 47 mL of prepared media. Aseptic conditions will be maintained at all times when transferring media or cultures to prevent contamination.

An MLR-352H-PA growth chamber (PHCbi Corporation, Tokyo, Japan; Figure 2) will be used to maintain constant temperature and provide illumination with a 14:10 light dark cycle. Optimum temperature and photosynthetically active radiation (PAR) will be determined experimentally and are expected to be in relevant ranges for the SF Bay. Subculturing is expected every 10-15 days, targeting the mid-exponential growth phase of the source culture. A minimum of three replicates will be subcultured each round, and the source culture will be maintained. A tube with media but without algal culture spike will be established as negative control every subculturing cycle.



Figure 2. MLR-352H-PA chamber for growing algae.

Cell growth will be monitored through *in vivo* fluorescence with a C-FLUOR probe calibrated for chlorophyll *a* with an In-Line Adaptor and connected to a DataBank Datalogger (Turner Designs, California, USA). Samples will be well mixed by inversion before chlorophyll *a* measurements are taken. Fluorescence has been shown to strongly correlate ( $r^2 \ge 0.99$ ) with cell abundance and extracted chlorophyll *a* in *H. akashiwo* experiments with a similar setup to the proposed here (Herndon and Cochlan, 2007).

# Evaluation of factors that enable or limit the growth of H. akashiwo

The specific conditions that limit or enable the growth of the SF Bay 2022 and 2023 *H. akashiwo* strains will be evaluated in this section of the project. Three factors will be considered as the main drivers of the growth: nutrients, temperature, and light, with a focus on nitrogen as the substrate. Other environmental factors might be considered for further testing.

*H. akashiwo* has been shown to preferentially use NO<sub>3</sub> and NH<sub>4</sub> for growth (Herndon and Cochlan, 2007), and these two compounds will be the main nitrogen sources evaluated. Concentrations of 13.2 and 12.9  $\mu$ M for NO<sub>3</sub> and NH<sub>4</sub>, respectively, are known to be saturating for substrate uptake and growth, and experiments will be designed utilizing concentrations below those thresholds. Growth-evaluation tubes will contain 47 mL of media at the selected nitrogen concentration and 3 mL of source culture and will be prepared in triplicate and include negative controls (no nutrient treatment). Tubes will be kept inside the MLR-352H-PA growth chamber for the duration of the experiment at constant temperature, light cycles, and PAR.

Growth rates and nitrogen substrate consumption will be the means for evaluating how nutrients impact the growth of *H. akashiwo*. The growth of *H. akashiwo* in all tubes will be monitored once a day for *in vivo* chlorophyll a using the C-FLUOR probe setup described above. Specific growth rates will be calculated as per Herndon and Cochlan (2007), with the modification of using chlorophyll *a* readings instead of raw florescence units. Growth monitoring will end once the stationary growth phase is maintained for at least three consecutive days in two out of the three replicate tubes. The ammonia and nitrate concentrations will be tested in the seawater media before being transferred into the culture tubes and in the samples collected at the end of the growth monitoring period to determine the nutrient utilization by *H. akashiwo*. At least two technical replicates will be processed for each nutrient analysis sample. Hach kits will be used for ammonia (Method 8038) and nitrate (Methods 8192 and 8039) testing using a DR3800 spectrophotometer (Hach Company, Colorado, USA). Method blanks will be included for all testing rounds. In a similar manner to what is proposed for the nitrogen experiments above, the impact of other environmental factors on the growth H. akashiwo will be evaluated. Temperature and light will be the two other main factors, but additional environmental variables might be considered. A literature review will be conducted to inform the experimental design.

# Evaluation of factors that induce the stress response, cyst formation, decay, and onset toxicity in H. akashiwo

To date, there is no consensus on the fate of *H. akashiwo* cells towards the end of a bloom, let alone on the fish-killing mechanism. The sinking of cells and formation of cysts appear to be strategies for some of the cells, while others die as a result of detrimental conditions or infection caused by pathogens. Regardless, there seems to be a relationship between environmental conditions (light, salinity, nutrients, dissolved oxygen, etc.) and the onset and severity of the stress response by *H. akashiwo* that can result in large losses of marine-life. The environmental conditions and the fate of *H. akashiwo* cells in the final stages of a

bloom will be simulated and investigated in the laboratory using the same equipment setup described above. Three main stages in the life cycle of the organism were identified for further investigation: cyst formation, cell death, and toxicity to other marine life. It is unclear how these three stages interact for the termination of a bloom.

A thorough literature review will be conducted to inform the experimental design in this section. As a preliminary description, cells will be grown under optimum conditions as described above until a stationary growth phase is maintained for at least three consecutive days. The stationary phase will be confirmed when there is no growth as estimated from chlorophyll *a* readings with the C-FLUOR probe setup mentioned above, which will signal the depletion of nitrogen substrate. Then, cells will be exposed to detrimental environmental conditions including temperature, light, and nitrogen concentrations with the aim of inducing cyst formation, cell lysis, and/or toxicity. Morphological differences have been identified for cyst and vegetative cells (Kim et al. 2015, Mehdizadeh Allaf, 2023), and will be investigated through microscopy. At least a 100 times magnification will be used to identify and evaluate the cells (Kim et al. 2015). Methods to evaluate toxicity will be selected from the literature after a thorough evaluation to determine the most appropriate for this application. Replication and controls will be established for all experiments.

Overall, the results and conclusions from all Task 2 experiments will provide a broad understanding of the life cycle of *H. akashiwo* and how environmental conditions in the SF Bay influence the dynamics of the organism. The outcomes are expected to inform HABprevention and -mitigation strategies, with a focus on the nutrient limitations that are required for the WWTPs to prevent the impacts of future red tides.

# Task 3: Evaluation of Clay and PAC to Control H. akashiwo Blooms

One proven method for mitigating active algal blooms is the flocculation and settling of suspended cells using modified clay slurries (Balaji-Prasath et al., 2022). The addition of a cationic polymer, such as PAC, to the clay slurry enhances the effectiveness for controlling the blooms. Clays have been safely and effectively applied in South Korea, China, and Japan for decades (Sengco & Anderson, 2004, Yu et al., 2017). This approach is gaining attention in the United States; the National Centers for Coastal Ocean Science (NCCOS) is currently supporting a multi-year study in Southwest Florida on clay flocculation for HAB control (NCCOS, 2022).

The research objective for Task 3 is to determine the effectiveness of a modified clay on *H. akashiwo* cells to prevent or limit the spread of a red tide bloom. This task will encompass field and laboratory investigations. The priority for Task 3 will be to conduct the testing in the SF Bay, contingent to a bloom developing; however, the laboratory-testing portion will be expanded if one does not develop. Regardless of if a field application occurs, preliminary testing will happen in the laboratory to evaluate optimum doses using the *H. akashiwo* cultures established in Task 2.

This study will utilize modified clay consisting of bentonite and PAC. Both bentonite and PAC have been proven to be environmentally benign when applied at typical clay

flocculation doses: 10 mg/L of bentonite clay and 5 mg/L PAC (Anderson Lab, 2023). In preparation for this study, an acute toxicity test with *Menidia beryllina* (inland silverside fin fish—common to the U.S. Gulf and East Coasts, and the SF Bay) was performed by Pacific EcoRisk (California, USA) in May 2023 using 15 mg/L of PAC with bentonite clay concentrations ranging from 0 to 500 mg/L. There were no significant reductions to survival in any of the PAC and bentonite combinations tested, as shown in Table 1. This preliminary study provides supporting evidence that doses of 10 ppm clay and 5 ppm PAC would be safe to apply to the SF Bay and will not impact fish adversely. In addition, pre-arrangement and communication with the Regional Board and any local agencies will be made prior to the clay field application.

Test Treat	ment (mg/L)	Moon % Survival	
PAC	Clay	Wiean 70 Survivar	
Lab Wat	er Control	100	
15	0	95.0	
15	10	100	
15	50	100	
15	250	100	
15	500	100	

**Table 1.** Mean percent survival of *Menidia beryllina* at different PAC and bentonite clay concentrations.

Preliminary testing in the laboratory will evaluate more directly how the clay/PAC mixture interacts with the alga cells, and possibly better determine the optimum PAC and bentonite clay doses for settling and ultimately killing H. akashiwo cells. The algal cultures obtained in Task 2, including both the 2022 and 2023 SF Bay strains, will be used. Algae for this preliminary testing will be grown under the same conditions as the cell cultures in Task 2, although using 1-L working volumes with continuous mixing. The cultures will be monitored every other day using the fluorometer setup in Task 2 (C-FLUOR). The clay dosing experiments will begin once the chlorophyll a in the stock approximates  $100 \mu g/L$ , considered a concentration level of a severe bloom (Tett. 1987, Smith et al., 2020). Testing at other chlorophyll a concentrations might be conducted. Clay slurries will be prepared using dechlorinated potable water to simulate the same water source that would be used in the field experiments. Different combinations of PAC and bentonite clay in the 2.5-15 and 2-30 milligrams per liter (mg/L) ranges, respectively, will be used. One-hundred mL of H. akashiwo culture will be transferred to clean beakers and kept well mixed. The mixing will be stopped or limited prior to the dosing of the clay slurry to simulate the conditions in the field. The effectiveness of the different doses will be evaluated by measuring the chlorophyll a and turbidity in the supernatant, and any visual observations that can be made. The C-FLUOR probe described above and a calibrated 2100N Turbidimeter (Hach Company, Colorado, USA) will be used for turbidity and chlorophyll a measurements, respectively. Experiments will be run in at least duplicate, and a negative control (no clay slurry) will be used to control for cell settling without modified clay.

If a *H. akashiwo* bloom develops in the SF Bay in 2024, the effectiveness of the bentonite clay and PAC mixture for controlling the bloom will be evaluated in the field. The target dose will be within the limits specified by the Regional Board in an approval letter addressed to EBMUD for applying the clay and PAC mixture in the SF Bay (30 and 10 mg/L, respectively). Any results obtained from the previous laboratory study will be considered to refine dosing. A 500-gallon (gal) tank mounted on a trailer and connected to a pump will be used to prepare and apply the clay slurry (Figure 3). Sodium sulfite tablets will be used to dechlorinate potable water before adding the clay and PAC. Residual chlorine and sulfite will be determined using a Pocket Colorimeter II (Hach Company, Colorado, USA) and through back titration, respectively, before the clay and PAC are added. The clay application will comply with other conditions stated in the Regional Board's approval letter, such as limiting it to an area no larger than one acre and not dosing farther than 300 feet from the shoreline. The application site will not be near known eelgrass habitats, per the San Francisco Bay Eelgrass Impact Assessment Tool (San Francisco Bay Conservation & Development Commission, n.d.).

The two probes detailed in Task 1 will be deployed for field monitoring in Task 3 before the application of the clay and will continuously log the water quality conditions during and after clay/PAC application. The C-FLUOR fluorescence probe will measure in vivo chlorophyll a, and the ProDSS Multiparameter Digital Water Quality Meter will measure pH, turbidity, dissolved oxygen, conductivity, and temperature. The sensors will be calibrated before deployment and all field data will be safely stored on a computer after returning to our office. Three sampling locations within the clay dosing area will be determined before the clay application, and 1-L grab samples will be collected before and after the treatment at the surface, mid-depth, and bottom of each sampling location (n = 18). Samples will be analyzed through the ELAP certified EBMUD laboratory for chlorophyll a, nitrate+nitrite, ammonia, salinity/conductivity. Additional analytes will be considered. Algal species and density of cells will be determined by BSA Environmental Services, Inc. (Ohio, USA), and samples will be shipped with expedited service immediately after collection. The effectiveness of the clay dosing will also be evaluated by taking pictures of the water surface (iPhone, California, USA) and underwater video (GoPro San Mateo, California, USA) before and after application.

If a bloom does not develop next year, the laboratory portion of Task 3 could be expanded. The research team will confer with WRF prior to modifying the scope of Task 3. Examples of experiments that might be conducted are: evaluations of the effectiveness of (1) bentonite clay at controlling blooms with different concentrations of algae (simulating the stages of a bloom), (2) non-bentonite clays, and (3) other non-PAC coagulants. All experiments will be conducted following a similar setup to the one described for the preliminary tests in this task. Replication and controls will be established for all experiments.

The findings from Task 3 are expected to encourage wider testing and utilization of clays for controlling algal blooms in the U.S. and elsewhere.





**Figure 3.** (**A**) Modified clay dosing equipment consisting of 500-gal tank mounted on a trailer and hitched to a truck. (**B**) Modified clay slurry preparation (bentonite added to tank containing dechlorinated water).

#### Task 4: Investigation of Seagrass Use to Minimize H. akashiwo Blooms

Plants can produce allelochemicals that protect them against attacks, predation, and competition from other organisms (Kong et al., 2019). Seagrasses can generate this type of chemical, which can influence the growth and reproduction of algae that cause blooms (Balaji-Prasath et al. 2022). They can also host algicidal and growth-inhibiting bacteria (Imai, 2021). Seagrasses are a sustainable and low-cost solution that requires further attention and development. In Task 4, a literature review will be conducted on the use of seagrasses to control H. akashiwo blooms. A draft work plan for the selection and implementation of seagrasses in the SF Bay will be created. Potential planting locations would consider salinity and water clarity conditions, as well as impact on recreation or existing habitat. The draft work plan will consider site requirements, installation considerations, and how to evaluate effectiveness in controlling HABs. Local agencies and experts will also be consulted to review the document such as: SF Bay Conservation and Development Commission (BCDC), State Coastal Conservatory (SCC), San Francisco State University (SFSU) Estuary and Ocean Science Center (only marine and environmental science laboratory on the SF Bay), Lake Merritt Institute, City of Oakland, etc. Actual planting of the selected seagrass(es) is expected to take place following the completion of this task, but not as a part of this proposed work. Some laboratory testing evaluating the selected seagrass(es)'s control of *H. akashiwo*'s growth rate might be conducted under this project if budget and time allow. The SF Bay will be used as the basis for establishing protocols and methods to conduct an effort like this, but we will ensure that this work will be transferrable to other locations around the U.S. and the world.

# Deliverables

Quarterly progress reports will be completed as deliverables for the project. Quarterly progress reports will contain a summary of the work completed in the preceding three months, as well as any results or findings. Quarterly progress reports will adhere to the Water Research Foundation (WRF) Periodic Report Format and Content guidelines.

A final report will compile the results from all the four tasks of the project. The report will adhere to the WRF Guidelines for Preparing Research Reports and Products. The final report will be submitted to the WRF for review, and a 4 to 6-week review period is assumed. The final report will be edited within a month to address the reviewers' comments and submitted to the WRF for publishing. Refer to Figure 5 in the Schedule section for the proposed timing of the quarterly progress reports and final report.

# **Originality and Innovation of the Research**

Before 2022, there were only two documented red tide blooms in the SF Bay. One red tide occurred in 2002, caused by *H. akashiwo*, and the other was in 2004 caused by *Akashiwo* sanguinea. Both red tides were benign, having no fish kills observed. Red tides were not

common in the SF Bay and did not happen over the years when the combination of environmental factors seemed right. In 2022, however, a red tide, caused by *H. akashiwo*, occurred in the SF Bay resulted in a massive fish kill. This year (2023) another *H. akashiwo* red tide occurred in the SF Bay, but no observed fish kill. The literature does not provide guidance for the level of total inorganic nitrogen, among other environmental factors, needed to produce a red tide, let alone one causing significant fish kills. Therefore, this study aims to understand the SF Bay site-specific conditions that determine the fate of siterelevant *H. akashiwo* strains, and how those conditions allow this alga to be more competitive than others and cause fish kills, not only in the SF Bay, but elsewhere as well. The proposed research is also unique because it will evaluate potential differences between two *H. akashiwo* strains that caused red tides of very diverse magnitudes (2022 vs. 2023). The results and conclusions from this study will inform *H. akashiwo* bloom prevention and management strategies in the SF Bay but will also be applicable to other HAB organisms and in other areas of the country and the world. The research framework developed here will also be translatable to other scales, geographical regions and HAB algae.

Previous research has found algal bloom control strategies, such as the application of bentonite clay and PAC or the planting of seagrasses, to be promising. The combination of clay and PAC has been used in China and South Korea (and other parts of the world) for decades but has not been used in the United States because of the concern of environmental impacts and compliance with the Clean Water Act. However, there is substantial published evidence that shows the minimal ecological impact of clay application and that details how the benefits outweigh potential disadvantages. Studies are underway in Florida where they are using a kaolinite-modified clay to target K. brevis, but results may not be available until 2025. Research on bloom control strategies should be a priority, as bloom prevention, although more sustainable, requires longer implementation and evaluation periods. The application of clay and PAC in the SF Bay would contribute to the current knowledge by evaluating the efficiency of the treatment strategy in an untested location with a different clay and HAB-organism than in Florida. Published studies done on seagrasses as a bloom control strategy are primarily done in a controlled laboratory environment. The research conducted in this project will result in an evidence-based draft work plan for the selection and implementation of seagrasses in the SF Bay, which will be the first step into the future implementation of a promisingly sustainable bloom control strategy.

The work proposed here directly benefits the thirty-seven wastewater treatment agencies that discharge to the SF Bay, although it will also indirectly serve other utilities and local, state, and federal agencies around the world. Future nitrogen limits could be assessed with a better understanding of how nitrogen levels contribute to *H. akashiwo* blooms and other HABs, and their substantial impact on valuable fish populations.

This will be the first study on alga causing red tides we know of that will be led and conducted by a water utility; (with expert technical oversite from our subcontractor, Professor William Cochlan) and so, we believe this study will prove more useful to Water Research Foundation subscribers.

# **Application Potential**

The findings from this study will practically benefit utilities who are facing similar pressure like EBMUD to reduce nitrogen in their WWTP discharges due to concerns with HABs caused by *H. akashiwo* or other algal species. Nationwide, utilities struggle with the decision to implement nutrient removal at their WWTPs since it can be difficult to link nutrient discharges with the environmental health of the receiving water body. There are multiple current WRF projects focused on understanding the links between nutrient discharges and the response in the receiving water body. WRF Project 5038 recommended that future research regarding the connection between wastewater effluent discharge quality and the receiving water body quality focuses on data development and modeling, benchmarking and case studies, and collaboration and education with stakeholders (Weiss et al. 2022). WRF Project 5078 is currently investigating the link between nutrient reductions and the receiving water body response by reviewing case studies from water resources and water quality agencies in the United States (Weiss et al. 2020). The findings of this proposed project will add valuable evidence to the literature, specifically focusing on the relationship between nitrogen and the growth of *H. akashiwo* in the SF Bay, and the application of clay as a potential control strategy for *H. akashiwo* in the SF Bay.

*H. akashiwo* has created red-tide blooms beyond the SF Bay, including areas along the west coast of the United States, the east coast of the United States, the Gulf of Mexico and more. While this project will focus on the alga, *H. akashiwo* specifically, there is reason to believe the results will give insight into red tide blooms caused by other algae such as *K. brevis*, which occur during summers in the Gulf of Mexico and the west coast of Florida. When considering the characteristics of both *H. akashiwo* and *K. brevis* with respect to bloom formation and organism stages, the two algae have strong similarities (Brand et. al., 2012, Tobin et. al., 2013). Therefore, the findings from this study will be applicable beyond the SF Bay.

The findings from this research may be used to determine a science-based approach for WWTP nutrient discharge limits both in the SF Bay and in other areas around the country and the world. The products of the research will include tools to better assess causes for red tide HABs and methods for how they might be controlled. Additionally, the methods and protocols used and developed here will be clearly reported so they are translatable to other scales, geographical regions, and red tide causing algae. EBMUD will also share the research findings with the Regional Board and discuss how these findings may inform science-based nutrient discharge limits that address the concerns related to algal blooms in the SF Bay.

# **Quality Assurance/Quality Control**

The Quality Assurance/Quality Control (QA/QC) control plan will be specific for (1) processing field samples, (2) conducting laboratory experiments and sample processing, (3) field and laboratory equipment calibration and maintenance, and (4) data management and analysis. All staff involved in the sample collection, processing, and data analysis are qualified professionals and have the experience conducting the required tasks. Emphasis will be placed on collecting representative samples, conducting well designed experiments, quality sample processing, and performing complete and statistically sound data analyses.

# **Processing of field samples**

Field samples will be collected as part of Tasks 1 and 3 of this project and most of these samples will be processed at the ELAP certified EBMUD laboratory, except for the algae identification and density, which will be conducted by BSA Environmental Services, Inc. (Ohio, USA). The EBMUD Laboratory has a comprehensive QA/QC program in place that covers all aspects of the daily operations related to the production of analytical data and has the goal to generate quality data that are scientifically sound, legally defensible, and statistically reliable. Laboratory QA/QC checks include the following, although additional checks are made on certain compounds:

- Method blank
- Spike blank
- Laboratory control sample
- Matrix duplicate
- Matrix spike

The EBMUD lab has a chain of custody system in place for tracking and control of samples through their processing life cycle and will be used for the field samples collected for this project. Laboratory data reports produced by the EBMUD lab include at the minimum: sample number, site, locator, sample collection date, sample type, matrix, analyte, results, units, method detection limit, reporting limit, dilution, method, preparation date, comments, and remarks.

# Laboratory experiments and sample processing

Laboratory experiments and sample processing for Task 2 will be conducted in an EBMUD research laboratory different than the one that will process the field samples. The research laboratory is equipped to conduct all experiments and tests required and is not ELAP

certified. All methods that will be utilized are published and validated for the sample matrices required in this project, and references are provided in the Technical Approach section. EBMUD staff will keep records of samples, media preparation, experiments, results, monitoring, and incidents in a logbook or log sheets. All books and sheets will be safely stored. The following minimum controls will be followed for all experiments and tests:

- Experiments: duplicates or triplicates at each treatment level and negative control.
- Sample processing: technical duplicates or triplicates and method blank.

A 10% relative difference among replicates will be the acceptance criteria.

# Field and laboratory equipment calibration and maintenance

Field and laboratory measurements will be taken using probes and bench-scale equipment and will be part of Tasks 1, 2 and 3. Field and laboratory probes (e.g., C-FLUOR fluorescence probe and ProDSS Multiparameter Digital Water Quality Meter) will be maintained as per manufacturer's instructions and will be calibrated at least every two weeks or as recommended by the manufacturer, whichever is the higher frequency. Bench scale equipment (e.g., DR3800 spectrophotometer and 2100N turbidimeter) will be serviced according to the manufacturer's instructions or checked and calibrated periodically with known standards (e.g., Stablcal Turbidity Standards (Hach Company, Colorado, USA)).

# Data management and analysis

Results from the EBMUD ELAP-certified laboratory are stored electronically through EBMUD's internal laboratory information management system. Results generated by BSA Environmental Services, Inc. will be communicated through email. Probe measurement data will be stored in the loggers connected to the probes and safely downloaded to a computer after returning from the field. All results produced in the EBMUD research laboratory will be captured with permanent ink on paper and transferred to a computer. All data will be compiled in a single directory and stored in EBMUD's network servers. The safety of the data generated for this project will be a priority.

All data will be verified for accuracy, completeness, consistency, and validity. Data management and analysis will be conducted using tools such as Excel and Python. Statistical methods will be used to analyze the data when required. Some examples of analyses that will be considered are Student's t-test, ANOVA, linear and non-linear multiple regression analysis, among others. Data graphics and tables will be generated with the findings from this study for communication and presentation in the final report.

# **Management Plan**

The project team is made up of staff from EBMUD and an outside consultant. The Principal Investigator (PI) will maintain accountability for the individuals and organizations through regularly scheduled progress meetings, internal deliverable milestones and deadlines, and frequent review of the project findings. The PI will hold regularly scheduled progress meetings with the research team where current progress and next steps are discussed, ensuring the PI is appraised of all progress and planned work. The PI will set internal project milestones and deadlines to ensure the schedule stays on track. The PI will also participate in focused work sessions when technical details need further examination. Lastly, the PI will review all project work products for quality and technical excellence.

A summary of each team member's specific roles and responsibilities is below. Refer to Figure 4 for an organization chart of the project team. Refer to the Curriculum Vitae or Resumes for Key Team Members section for more details about key personnel experience.

# **EBMUD**

# Donald Gray, Ph.D., PE, BCEE - Principal Investigator

Dr. Gray will be responsible for the overall implementation of this project, including the technical content and project delivery. Dr. Gray has over 45 years' experience in the wastewater treatment industry and focuses on technical research related to wastewater processes. He has served as the PI on three previous Water Environment Research Foundation (WERF) grants and as a member of the WRF Research Advisory Council for 7 years. In addition to serving as PI, Dr. Gray will lead Task 4, which focuses on the potential use of seagrasses to minimize HABs and includes a literature review on the topic. Dr. Gray will commit 13% of his time to this project over the project duration.

# Kristine Yung, PE – EBMUD Project Manager

Ms. Yung will support the PI, Dr. Gray, with the managing of the project's schedule, budget, and deliverables. Ms. Yung has served as project manager for numerous engineering projects, including pilot studies, planning studies and technical design projects. Ms. Yung will commit 3% of her time to this project over the project duration.

#### Rogelio Zuniga-Montanez, Ph.D. – Laboratory Experiments Lead

Dr. Zuniga-Montanez will oversee the laboratory work in Task 2 and 3, including setting up and conducting the experiments and analyzing the results. Dr. Zuniga-Montanez will also oversee and provide direction to the Engineering Aide supporting the analytical work. Dr. Zuniga-Montanez has over 10 years of experience as a wastewater engineer and in conducting wastewater treatment research. Dr. Zuniga-Montanez will commit 17% of his time to this project over the project duration.

#### Chi (Ken) Chan – Water Quality Sampling Lead

Mr. Chan will manage the water quality sampling in Task 1 including the development of the sampling plan, coordination with the Wastewater Control Inspector collecting the samples and coordination with the laboratory conducting the analysis. Mr. Chan has over 10 years of

experience as an Environmental Engineer working on water and wastewater treatment projects. Mr. Chan will commit 3% of his time to this project over the project duration.

# Engineering Aide – Laboratory technician

The Engineering Aide will conduct laboratory analysis in support of Task 2 and Task 3, under the direction of Dr. Zuniga-Montanez. The Engineering Aide is a part-time position, and this staff member will work no more than 832 hours/year. The Engineering Aide will commit 30% of their time to this project over the project duration.

# Wastewater Control Inspector – Water Quality Sampler

This staff member will collect water quality samples in the field for Task 1. The Wastewater Control Inspector will commit 2% of their time to this project over the project duration.

# <u>Consultant</u>

# William P. Cochlan, Ph.D. – Technical Advisor on H. akashiwo

Dr. Cochlan will provide technical guidance and experience on the laboratory-scale evaluation of *H. akashiwo* Growth, Decay, and Toxicity (Task 2). Dr. Cochlan has spent his career focusing on Marine Microbial Ecology and Oceanography, especially *H. akashiwo* growth factors and algal population dynamics. As a professor at San Francisco State University, Dr. Cochlan studied toxic microalgae that form HABs in the SF Bay and other regions. Dr. Cochlan will commit 3% of his time to this project over the project duration.



Figure 4. Project Organizational Chart

# **Communication Plan**

The target audience for this project will be WRF subscribers, both from water treatment and wastewater treatment agencies, who are considering future nutrient regulations in their watershed area. This research will be specifically advantageous to the thirty-seven WWTPs that discharge to the SF Bay, and who will be receiving new nitrogen discharge limits by July 1, 2024.

In order to share this project's research findings with the intended target audiences, multiple actions are proposed, as outlined below.

- 1. **Post Final Report on the WRF Website** The Final Report, accessible by WRF subscribers via the WRF website, will include both an Executive Summary and a detailed description of the research findings. The Final Report will allow readers to get a quick high-level synopsis of the project findings and/or a deep dive into the technical details depending on their interest or capacity.
- 2. Submit an Abstract to Industry Conference(s) The research team plans to submit an abstract to well-known industry conference(s) to present the results. A presentation format, as is typically done at industry conferences, would also be helpful in communicating the results in a concise manner. Industry conferences would capitalize on the large audience of water and wastewater professionals and allow for face-to-face feedback on the findings.
- 3. **Submit a Paper for publication** The research team also plans to submit a paper, summarizing the findings of this work, to a notable research journal (to be determined).
- 4. Notify the BACWA Members Since the research is particularly relevant for wastewater treatment plants that discharge to the SF Bay, BACWA members will be notified when the research project begins and when the Final Report is available on the WRF website.

While progress updates will be given throughout the project, communication of the results at the end of the project would be the most effective. The laboratory-scale evaluation of *H. akashiwo* growth, decay, and toxicity will occur for most of the project duration, and therefore it would be most effective to communicate the findings at the end of the project.

#### References

Anderson Lab (2023). Florida Red Tide Mitigation Using Clay Dispersal. http://www2.whoi.edu/site/andersonlab

Balaji-Prasath, B., Wang, Y., Su, Y. P., Hamilton, D. P., Lin, H., Zheng, L., & Zhang, Y. (2022). Methods to control harmful algal blooms: A review. *Environmental Chemistry Letters*, 20(5), 3133-3152.

Brand, L. E., Campbell, L., & Bresnan, E. (2012). Karenia: The biology and ecology of a toxic genus. *Harmful algae*, *14*, 156-178.

California Ocean Protection Council (n.d.). *Harmful Algal Bloom in San Francisco Bay Results in Aquatic Mortality, Fish Kills*. State of California. <u>https://opc.ca.gov/2022/09/harmful-algal-bloom/</u>

Cochlan, W. P., Trainer, V. L., Trick, C. G., Wells, M. L., Bill, B. D., & Eberhart, B. T. L. (2013). Heterosigma akashiwo in the Salish Sea: defining growth and toxicity leading to fish kills. In *Proceedings of the 15th International Conference on Harmful Algae*.

Gobler, C. J. (2020). Climate change and harmful algal blooms: insights and perspective. *Harmful algae*, 91, 101731.

Herndon, J., & Cochlan, W. P. (2007). Nitrogen utilization by the raphidophyte Heterosigma akashiwo: growth and uptake kinetics in laboratory cultures. *Harmful Algae*, 6(2), 260-270.

Hou, E., Chen, C., McGroddy, M. E., & Wen, D. (2012). Nutrient limitation on ecosystem productivity and processes of mature and old-growth subtropical forests in China. *PloS one*, *7*(12), e52071.

Ikeda, C. E., Cochlan, W. P., Bronicheski, C. M., Trainer, V. L., & Trick, C. G. (2016). The effects of salinity on the cellular permeability and cytotoxicity of Heterosigma akashiwo. *Journal of phycology*, *52*(5), 745-760.

Imai, I., Inaba, N., & Yamamoto, K. (2021). Harmful algal blooms and environmentally friendly control strategies in Japan. Fisheries Science, 87(4), 437-464.

Kim, J. H., Park, B. S., Wang, P., Kim, J. H., Youn, S. H., & Han, M. S. (2015). Cyst morphology and germination in Heterosigma akashiwo (Raphidophyceae). *Phycologia*, 54(5), 435-439.

Kong, C. H., Xuan, T. D., Khanh, T. D., Tran, H. D., & Trung, N. T. (2019). Allelochemicals and signaling chemicals in plants. *Molecules*, 24(15), 2737.

Mehdizadeh Allaf, M. (2023). Heterosigma akashiwo, a Fish-Killing Flagellate. *Microbiology Research*, 14(1), 132-147.

National Centers for Coastal Ocean Science. (2022, March). *Application of Clay Flocculation for Removal of Karenia brevis Cells and Toxins in Southwest Florida Coastal Waters*. The National Oceanic and Atmospheric Administration (NOAA).

https://coastalscience.noaa.gov/project/application-of-clay-flocculation-for-removal-of-kareniabrevis-cells-and-toxins-in-southwest-florida-coastal-waters/

National Centers for Coastal Ocean Science. (2023, July). *Assessing environmental and economic impacts*. The National Oceanic and Atmospheric Administration (NOAA). https://coastalscience.noaa.gov/science-areas/habs/assessing-environmental-and-economic-impacts/

San Francisco Bay Conservation & Development Commission (n.d.) San Francisco Bay Eelgrass Impact Assessment Tool. State of California. <u>https://data-</u> bcdc.opendata.arcgis.com/apps/san-francisco-bay-eelgrass-impact-assessment-tool

San Francisco Estuary Institute (2014, October). *Science Foundation for the San Francisco Bay Nutrient Management Strategy, Draft FINAL*. San Francisco Estuary Institute, page 65.

San Francisco Estuary Institute (2023, July). *HAB Satellite Analysis Tool*. San Francisco Estuary Institute (SFEI). <u>https://fhab.sfei.org/</u>

Sengco, M. R., & Anderson, D. M. (2004). Controlling harmful algal blooms through clay flocculation 1. *Journal of Eukaryotic Microbiology*, *51*(2), 169-172.

Shikata, T., Nagasoe, S., Matsubara, T., Yoshikawa, S., Yamasaki, Y., Shimasaki, Y., Oshima, Y., Jenkinson, I.R., & Honjo, T. (2008). Factors influencing the initiation of blooms of the raphidophyte Heterosigma akashiwo and the diatom Skeletonema costatum in a port in Japan. *Limnology and Oceanography*, *53*(6), 2503-2518.

Smith, B., Domotor, D., Trice, T. M., & Michael, B. (2020). 2020 Masonville Cove – Patapsco River Shallow Water Monitoring Data Report. Maryland Department of Natural Resources. https://eyesonthebay.dnr.maryland.gov/eyesonthebay/documents/MasonvilleCoveSWMreport20 20.pdf

Tett, P. (1987). The ecophysiology of exceptional blooms. *Rapport et Proces-verbaux des Reunions. Conseil international pour l'Exploration de la Mer*, 187, 47-60.

Tobin, E. D., Grünbaum, D., Patterson, J., & Cattolico, R. A. (2013). Behavioral and physiological changes during benthic-pelagic transition in the harmful alga, Heterosigma akashiwo: potential for rapid bloom formation. *PLoS One*, *8*(10), e76663.

Wang, R., Xiao, H., Zhang, P., Qu, L., Cai, H., & Tang, X. (2007). Allelopathic effects of Ulva pertusa, Corallina pilulifera and Sargassum thunbergii on the growth of the dinoflagellates Heterosigma akashiwo and Alexandrium tamarense. *Journal of Applied Phycology*, *19*, 109-121.

Weiss, W. J. (2020). Linking Nutrient Reductions to Receiving Water Responses (Project No. 5078). *The Water Research Foundation*.

Weiss, W. J., Owen, C., Sheer, A.M., Urias, E., Eaton, D. J. (2022). Roadmap Workshop on Prioritizing Permitting and Linkages Research in Water Quality (Project No. 5038). *The Water Research Foundation*.

Wells, M.L., Trainer, V.L., Smayda, T.J., Karlson, B.S.O., Trick, C.G., Kudela, R.M., Ishikawa, A, Bernard, S., Wulff, A., Anderson, D.M., Cochlan, W.P. (2015). Harmful Algal Blooms and Climate Change: Learning From the Past and Present to Forecast the Future. *Harmful Algae*, 49, 68-93.

Yu, Z., Song, X., Cao, X., & Liu, Y. (2017). Mitigation of harmful algal blooms using modified clays: Theory, mechanisms, and applications. *Harmful algae*, 69, 48-64.
### **Budget Narrative**

EBMUD proposes that this project will be completed in 18 months. Approximately \$210,046 (70%) of the cash amount (\$150,000 from WRF and \$150,000 from BACWA) of the project is expected to be expended in the first year of the project and the remainder (\$89,954—30% of the cash amount) is expected to be expended in the last 6 months of the project. The breakdown of project costs between the years is shown in Table 2.

Table 2. Proposed Project Budget

	Total	Cash Amount	In-Kind
Year 1	\$251,098	\$210,046	\$41,052
Year 2	\$92,902	\$89,954	\$2,948
<b>Project Total</b>	\$344,000	\$300,000	\$44,000

### **Third-Party Contribution**

BACWA will contribute \$150,000 cash to this project. BACWA will send the cash to WRF directly. Refer to the Third-Party Contribution Letters of Commitment section for BACWA's letter of commitment.

### Labor

The salaries for each EBMUD employee are based on actual salaries from EBMUD as well as a 2% wage increase which is the minimum expected increase during the project duration. The salaries for the Engineering Aide and Wastewater Control Inspector II positions are based on the second step of the published EBMUD Salary Schedule for these positions and include the 2% wage increase.

Donald Gray, the project PI, will devote nearly 13% of his time (418 hours) to the oversight and direction of this project. Table 3 lists the approximate percentage of time each EBMUD staff member will devote to this project over the project duration.

	Percent
Name	Commitment
Donald Gray	13%
Rogelio Zuniga-Montanez	17%
Kristine Yung	3%
Chi Ken Chan	3%
Engineering Aide	30%
Wastewater Control Inspector	2%

Table 3. Percent Time of EBMUD Staff Devoted to Project

### **Fringe Benefits**

Fringe benefits have been applied to EBMUD staff at a rate of 97.84%. The basis for fringe benefits include paid absences, retirement, health benefits, Federal Insurance Contributions Act

contributions, life insurance, disability insurance, unemployment benefits and supplemental benefits.

### Equipment

No major equipment purchases or rentals are included in the proposed budget. EBMUD owns all major equipment required for completing the research proposed here.

# **Materials and Supplies**

Laboratory supplies for Tasks 1, 2 and 3 have been included in the proposed budget and are estimated to be \$18,427 over the life of the project. Laboratory supplies include filters, culture tubes, centrifugal tubes, bottles, syringes, pipette tips, sterile serological pipettes, reagents, chemicals, standards, and other general supplies. Material and supply costs will be donated in-kind by EBMUD.

# Travel

No projected travel expenditures are included in the proposed budget.

# Subcontractors

EBMUD will subcontract with Dr. William Cochlan for a total amount of \$15,600. Dr. Cochlan will be a technical advisor on the project and provide advice and guidance on the development of Task 2 analysis. See Subcontract Budget Justification section below for more details.

### **Other Direct Costs**

The anticipated Other Direct Costs for this project are estimated to be \$25,573 and will be donated in-kind by EBMUD. The anticipated Other Direct Costs include the follow:

- 1. Laboratory fees associated with analyzing water quality samples in Task 1. The specific analytes to be processed by the EBMUD include chlorophyl *a*, nitrite, nitrate, ammonia, orthophosphate, salinity, and conductivity. The laboratory fees are based on the specific analytes, the number of sampling events spelled out in the Task 1 technical approach, and the unit cost for each analytical test.
- 2. Laboratory fees associated with analyzing water quality samples for algal species in Task 3 by the BSA Environmental Services, Inc. The specific analyte to be processed by the BSA Environmental Services, Inc. laboratory is algal species identification. The laboratory fees are based on only two samples, and the unit cost for the algal species identification test.
- 3. Non-consumable laboratory materials needed for Task 2 and 3, including a PAR sensor, a Bunsen burner, and multiple battery-operated magnetic stirrers.

# **Indirect Costs**

The United States Department of the Interior has provided EBMUD with an Indirect Cost Negotiation Agreement dated 3/13/2023. Per the Indirect Cost Negotiation Agreement, EBMUD's indirect cost rate is 26.73%.

# Subcontractor Budget Justification

### Labor

Labor costs are based on actual rates provided by Dr. Cochlan. Dr. Cochlan will devote nearly 3% of his time (104 hours) to this project.

There are no project equipment, materials and supplies, travel, or other direct costs for Dr. Cochlan as part of this project.

### Schedule

The proposed project duration is 18 months from the actual start date of the project. For planning purposes, the project start date is considered to be March 1, 2024, although the project start date may be adjusted based on WRF's actual proposal selection and contract negotiation timeline. A schedule for each project task is shown in Figure 5. EBMUD is open to having project update meetings with the Project Advisory Committee and suggests meetings at the end of September 2024 and April 2025.

	Task						202	4											202	5					
Task	Duration (months)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Task 1: Water Quality Sampling During Red Tide Bloom	5																								
Task 2: Laboratory- Scale Evaluation of <i>H.</i> <i>akashiwo</i> Growth, Decay, and Toxicity	14																								
Task 3: Evaluation of Clay and PAC to Control <i>H. akashiwo</i> Blooms	3																								
Task 4: Investigation of Seagrass Use to Minimize <i>H. akashiwo</i> Blooms	6																								
Final Report	4																								
Quarterly Progress Reports																									

◆Indicates deliverable.

Figure 5. Proposed Project Schedule

Third Party Contribution Letters of Commitment



September 20, 2023

Water Research Foundation 6666 W. Quincy Ave. Denver, CO 80235-3098

Subject: Letter of Commitment from Third Party for Tailored Collaboration Proposal to Evaluate Growth and Control of *Heterosigma akashiwo* in the San Francisco Bay

To the Proposal Funding Committee,

The Bay Area Clean Water Agencies (BACWA) supports the proposed research for the "Growth and Control of *Heterosigma akashiwo* in the San Francisco Bay," submitted to the Water Research Foundation Tailored Collaboration program (TC 23-04). BACWA is a joint powers agency, formed under California Government Code section 6500 et seq. Our members own and operate publicly owned treatment works (POTWs) and sanitary sewer systems that provide wastewater collection and treatment services to over 7.1 million people in the nine-county San Francisco Bay Area. BACWA members are public agencies, governed by elected officials and managed by professionals charged with protecting the environment and public health. Over the past decade, BACWA has invested more than fifteen million dollars on research into the impacts of nutrients on the San Francisco Bay.

BACWA's members are in progress planning and implementing billions of dollars in infrastructure improvements to reduce nutrient discharges to the San Francisco Bay. A better understanding of *Heterosigma akashiwo*, the organism associated with harmful algal blooms in the San Francisco Bay in 2022 and 2023, is key to establishing the linkage between nutrient discharges and water quality. As such, BACWA intends to commit a \$150,000 cash contribution to the proposed research study.

Please do not hesitate to contact me at (510) 684-2993 or by email at <u>lfono@bacwa.org</u> if you have any questions.

Sincerely,

Lorien form

Lorien Fono Executive Director, BACWA

### CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION 1515 Clay Street, Suite 1400, Oakland, California 94612 waterboards.ca.gov/sanfranciscobay

### **ORDER R2-2023-0023**

### AMENDMENT OF WASTE DISCHARGE REQUIREMENTS FOR MUNICIPAL DISCHARGERS TO UPDATE TOTAL RESIDUAL CHLORINE AND OIL AND GREASE REQUIREMENTS

**WHEREAS** the California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board), finds the following:

- 1. The Regional Water Board issued waste discharge requirements that serve as National Pollutant Discharge Elimination System (NPDES) permits for the dischargers listed in Table 1 (Dischargers). These permits authorize the Dischargers to discharge treated wastewater from their respective facilities to waters of the United States under specific conditions.
- 2. On November 18, 2020, the Regional Water Board adopted Resolution R2-2020-0031 and amended the Basin Plan to remove the oil and grease limits for treatment facilities that provide secondary or advanced secondary treatment. Resolution R2-2020-0031 also amended the Basin Plan to eliminate the 0.0 mg/L chlorine effluent limit, and to establish numeric water quality objectives for chlorine and a process to implement the new objectives. On October 12, 2021, the Regional Water Board adopted a blanket permit amendment (Order R2-2021-0019) to implement Resolution R2-2020-0031 upon U.S. EPA approval of the chlorine-related Basin Plan changes. On June 5, 2023, the Regional Water Board withdrew its request for U.S. EPA approval of the chlorine water quality objectives so the requirements of Order R2-2021-0019 will not go into effect. This new Order replaces Order R2-2021-0019 and amends the orders in Table 1 to update their chlorine and oil and grease requirements based on existing Regional Water Board authority.
- **3.** The Regional Water Board developed this Order's requirements based on available information. The Fact Sheet attached to this Order as Attachment F contains background information and rationale for this Order's requirements. It is hereby incorporated into this Order and therefore constitutes part of the findings for this Order.
- **4.** This Order is exempt from the provisions of the California Environmental Quality Act pursuant to California Water Code section 13389.
- 5. The Regional Water Board notified the Dischargers and interested agencies and persons of its intent to consider adoption of this Order, and provided an opportunity to submit written comments.
- 6. In a public meeting, the Regional Water Board heard and considered all comments pertaining to this Order.

Discharger	NPDES Permit	Primary Order	Primary Order Expiration Date	Order Contains Oil and Grease Limits	Order Contains Chlorine Limits
Benicia, City of	CA0038091	R2-2019-0034	1/31/2025	Х	Х
Burlingame, City of, and North Bayside System Unit	CA0037788	R2-2023-0010	12/31/2028		Х
Calistoga, City of	CA0037966	R2-2022-0010	4/30/2027		Х
Central Marin Sanitation Agency	CA0038628	R2-2023-0006	6/30/2028		Х
Crockett Community Services District, Port Costa Sanitary Dept.	CA0037885	R2-2018-0053	1/31/2024	Х	Х
Delta Diablo	CA0038547	R2-2019-0035	1/31/2025	Х	Х
East Bay Dischargers Authority	CA0037869	R2-2022-0023	8/31/2027		X
Union Sanitary District (Wet Weather Outfall)	CA0038733	R2-2020-0027	11/30/2025	Х	Х
Dublin San Ramon Services District	CA0037613	R2-2022-0024	8/31/2027		Х
Livermore, City of	CA0038008	R2-2022-0025	8/31/2027		Х
Livermore-Amador Valley Water Management Agency (Wet Weather Outfall)	CA0038679	R2-2021-0007	6/30/2026	Х	Х
Oro Loma and Castro Valley Sanitary Districts (Wet Weather Outfall)	CA0037559	R2-2018-0010	12/31/2023	Х	Х
East Bay Municipal Utility District	CA0037702	R2-2020-0024	10/31/2025	Х	Х
Fairfield-Suisun Sewer District	CA0038024	R2-2020-0012	4/30/2025	Х	
Las Gallinas Valley Sanitary District	CA0037851	R2-2020-0022	8/31/2025	Х	Х
Marin County (Paradise Cove), Sanitary District No. 5 of	CA0037427	R2-2021-0017	11/30/2026	Х	Х
Marin County (Tiburon), Sanitary District No. 5 of	CA0037753	R2-2023-0018	11/30/2028		Х
Millbrae, City of, and North Bayside System Unit	CA0037532	R2-2019-0009	4/30/2024	Х	Х
Napa Sanitation District	CA0037575	R2-2022-0003	3/31/2027		Х
Novato Sanitary District	CA0037958	R2-2020-0019	8/31/2025	Х	
Pacifica, City of	CA0038776	R2-2022-0029	11/30/2027		Х
Palo Alto, City of	CA0037834	R2-2019-0015	5/31/2024	Х	
Petaluma, City of	CA0037810	R2-2021-0008	6/30/2026	Х	Х
Pinole, City of	CA0037796	R2-2023-0008	7/31/2028		Х
Rodeo Sanitary District	CA0037826	R2-2022-0037	1/31/2028		Х
St. Helena, City of	CA0038016	R2-2021-0004	5/30/2026	Х	Х
San Francisco, City and County of (San Francisco International Airport), and North Bayside System Unit	CA0038318	R2-2018-0045	11/30/2023	Х	Х
San Jose and Santa Clara, cities of	CA0037842	R2-2020-0001	3/31/2025	Х	Х
San Leandro, City of	CA0038881	R2-2022-0006	5/31/2027		Х
San Mateo, City of	CA0037541	R2-2023-0017	11/30/2028		Х
Sausalito-Marin City Sanitary District	CA0038067	R2-2023-0022	12/31/2028		Х
Sewerage Agency of Southern Marin	CA0037711	R2-2023-0021	12/31/2028		Х
Silicon Valley Clean Water	CA0038369	R2-2023-0003	4/30/2028		X
Sonoma Valley County Sanitation District	CA0037800	R2-2019-0019	8/31/2024	Х	Х
South San Francisco and San Bruno, cities of, and North Bayside System Unit	CA0038130	R2-2019-0021	8/31/2024	Х	Х
Sunnyvale, City of	CA0037621	R2-2020-0002	3/31/2025	Х	Х
Treasure Island Development Authority	CA0110116	R2-2020-0020	7/31/2025	Х	Х
Valleio Flood and Wastewater District	CA0037699	R2-2023-0001	3/31/2028		Х

# Table 1. Discharger Information

Discharger	NPDES Permit	Primary Order	Primary Order Expiration Date	Order Contains Oil and Grease Limits	Order Contains Chlorine Limits
West County Agency; West County Wastewater District; City of Richmond; and Richmond Municipal Sewer District No. 1	CA0038539	R2-2019-0003	3/31/2024	Х	Х
Yountville, Town of	CA0038121	R2-2020-0026	11/30/2025	Х	Х

**THEREFORE, IT IS HEREBY ORDERED** that Order R2-2021-0019 is rescinded upon the effective date of this Order, and, in order to meet the provisions contained in Water Code division 7 (commencing with § 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder, the Dischargers listed in Table 1 shall comply with their respective orders listed in Table 1, as amended by this Order. This action in no way prevents the Regional Water Board from taking enforcement action for violations of the orders listed in Table 1.

- 1. For the orders denoted by an "X" in the "Order Contains Oil and Grease Limits" column in Table 1, the oil and grease effluent limits shall be removed, except for the Treasure Island Development Authority permit (Order R2-2020-0020).
- 2. For the orders denoted by an "X" in the "Order Contains Oil and Grease Limits" column in Table 1, the oil and grease effluent monitoring requirements shall be removed from the Monitoring and Reporting Programs attached to each order, except for the Treasure Island Development Authority permit (Order R2-2020-0020).
- **3.** For the orders denoted by an "X" in the "Order Contains Chlorine Limits" column in Table 1, the total residual chlorine effluent limits shall be replaced with the one-hour average effluent limits in the table below.

Discharger	One-hour Average (mg/L)
Benicia, City of	0.38
Burlingame, City of, and North Bayside System Unit	0.48
Calistoga, City of	0.019
Central Marin Sanitation Agency	0.56
Crockett Community Services District, Port Costa Sanitary Dept.	0.27
Delta Diablo	0.43
East Bay Dischargers Authority	0.98 [1]
Union Sanitary District Wet Weather Outfall	0.019
Dublin San Ramon Services District	0.98 [1]
Livermore, City of	0.98 [1]
Livermore-Amador Valley Water Management Agency Wet Weather Outfall	0.019
Oro Loma and Castro Valley Sanitary Districts Wet Weather Outfall	0.013
East Bay Municipal Utility District	0.42
Las Gallinas Valley Sanitary District	0.013
Marin County (Paradise Cove), Sanitary District No. 5 of	0.57
Marin County (Tiburon), Sanitary District No. 5 of	0.82

Table 2. Total Residual Chlorine Effluent Limits

Discharger	One-hour Average (mg/L)
Millbrae, City of, and North Bayside System Unit	0.48
Napa Sanitation District	0.065
Pacifica, City of	0.019
Petaluma, City of	0.013
Pinole, City of	0.43
Rodeo Sanitary District	0.43
St. Helena, City of	0.019
San Francisco, City and County of (San Francisco International Airport), and North Bayside System Unit	0.48
San Jose and Santa Clara, cities of	0.013
San Leandro, City of	0.013
San Mateo, City of	0.34
Sausalito-Marin City Sanitary District	1.1
Sewerage Agency of Southern Marin	0.82
Silicon Valley Clean Water	0.53
Sonoma Valley County Sanitation District	0.013
South San Francisco and San Bruno, cities of, and North Bayside System Unit	0.48
Sunnyvale, City of	0.013
Treasure Island Development Authority	1.3
Vallejo Flood and Wastewater District	0.34
West County Agency; West County Wastewater District; City of Richmond; and Richmond Municipal Sewer District No. 1	1.8
Yountville, Town of	0.019

[1] This limitation shall be replaced by a one-hour average effluent limitation of 0.94 mg/L on the first day of the month following East Bay Dischargers Authority satisfaction of Provision 6.3.5.1 (Commencement of Cargill Brine Discharge) in Order R2-2022-0023.

- 4. Each Discharger listed in Table 2 shall implement a Chlorine Process Control Plan by January 1, 2024. The Chlorine Process Control Plan shall ensure that each Discharger adds sufficient dechlorinating chemicals to target a chlorine residual of 0.0 mg/L at the discharge points described in the individual orders listed in Table 1. Each Discharger's Operation and Maintenance Manual shall include the information necessary to implement a Chlorine Process Control Plan.
- 5. Except where indicated below, the facilities with chlorine limits (see Table 1) shall conduct continuous total residual chlorine monitoring at all monitoring locations where the Monitoring and Reporting Programs attached to each order listed in Table 1 require chlorine monitoring. Total residual chlorine results shall be recorded at a frequency of not less than once every five minutes.
  - **a.** Crockett Community Services District, Port Costa Sanitary Department shall collect grab samples for total residual chlorine at least three times per week;
  - **b.** Union Sanitary District shall collect grab samples for total residual chlorine at least once every two hours at its wet weather outfall when discharging;
  - **c.** Livermore-Amador Valley Water Management Agency shall collect grab samples for total residual chlorine at least once every two hours at its wet weather outfall when discharging;

- **d.** Oro Loma and Castro Valley Sanitary Districts shall collect grab samples for total residual chlorine at least once every two hours at their wet weather outfall when discharging; and
- e. The City of Petaluma shall collect grab samples for total residual chlorine at least twice daily, at least four hours apart, when dechlorinating naturally through the polishing wetlands. When at least a portion of the effluent is routed through the chlorine contact chamber, effluent concentrations shall be measured continuously.
- 6. For continuous monitoring, the minimum level for total residual chlorine analysis shall be no greater than 0.05 mg/L. To document compliance with the minimum level, Dischargers shall calibrate continuous total residual chlorine analyzers against grab samples as frequently as necessary to maintain accurate control and reliable operation.
- 7. To determine compliance with the one-hour average effluent limits, Dischargers shall consider all readings recorded within each hour. The monitoring period shall begin every hour on the hour. All readings below the minimum level shall be treated as zeros for compliance determination. Dischargers shall calculate arithmetic means for each hour using all the readings for that hour. Dischargers shall report through data upload to CIWQS<sup>1</sup> the maximum one-hour arithmetic mean for each calendar day and any other arithmetic mean values that exceed the effluent limit. Dischargers shall retain documentation of chlorine results for at least three years.
- 8. Dischargers may elect to use continuous on-line monitoring systems for measuring or determining that a residual dechlorinating agent (e.g., sodium bisulfite) is present. Such monitoring systems may be used to prove that anomalous residual chlorine exceedances measured by online chlorine analyzers are false positives and are not valid total residual chlorine detections because it is chemically improbable to have chlorine present in the presence of a dechlorinating agent. If the data from continuous total residual chlorine analyzers provide convincing evidence that chlorine residual exceedances are false positives, the exceedances shall not be violations of this Order's total residual chlorine effluent limits.
- **9.** If a continuous chlorine residual monitor malfunctions or is offline for essential maintenance, the Discharger shall substitute grab samples at the frequency specified in the Monitoring and Reporting Program of each order listed in Table 1 until the continuous chlorine residual monitor is back online. The Discharger shall report any substitution of grab sampling for continuous sampling in its monthly self-monitoring report.
- 10. This Order shall become effective January 1, 2024.

I hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on November 8, 2023.

### Eileen White, Executive Officer

<sup>&</sup>lt;sup>1</sup> CIWQS is the California Integrated Water Quality System (http://www.waterboards.ca.gov/water\_issues/programs/ciwqs).

# ATTACHMENT F – FACT SHEET

This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. As described in Finding 3 of the Order, the Regional Water Board incorporates this Fact Sheet as findings supporting the issuance of the Order.

# I. PERMIT INFORMATION

The following table summarizes administrative information related to the Dischargers' facilities:

Discharger	Facility Contact	Mailing Address	Effluent Description	Facility Design Flow (MGD)
Benicia, City of	Jeff Gregory, Wastewater Treatment Plant Supervisor, (707) 746-4336	614 East Fifth Street Benicia, CA 94510	Secondary	4.5
Burlingame, City of, and North Bayside System Unit	Manuel Molina, General Manager, (650) 425-0062	501 Primrose Burlingame, CA 04010	Secondary	5.5
Calistoga, City of	Derek Rayner, Public Works Director (707) 942-2828	414 Washington Street Calistoga, CA 94515	Secondary	0.84
Central Marin Sanitation Agency	Chris Finton, Treatment Plant Manager, (415) 459-1455 ext. 101	1301 Andersen Drive San Rafael, CA 94901	Secondary	10
Crockett Community Services District, Port Costa Sanitary Dept. James Barnhill, Sanitary Department Manager, (510) 787-2992		P.O. Box 578 Crockett, CA 94525	Secondary	0.033
Delta Diablo	Amanda Roa, Environmental Program Manager, (925) 756-1940	2500 Pittsburg-Antioch Highway Antioch, CA 94509	Secondary	19.5
East Bay Dischargers Authority (City of Hayward, City of San Leandro, Oro Loma Sanitary District, Castro Valley Sanitary District, Union Sanitary District, Dublin San Ramon Services District, City of Livermore, and Livermore-Amador Valley Water Management Agency)	Jacqueline Zipkin, General Manager (510) 278-5910	2651 Grant Avenue San Lorenzo, CA 94580	Secondary	107.8
East Bay Municipal Utility District	Amit Mutsuddy, Director of Wastewater (510) 287-1149	P.O. Box 24055 Oakland, CA 94623	Secondary	120
Fairfield-Suisun Sewer District	<sup>7</sup> airfield-Suisun Sewer District Meg Herston, Environmental Compliance Engineer, (707) 428-9109		Advanced Secondary	23.7
Las Gallinas Valley Sanitary District	Mel Liebmann, Plant Manager, (415) 472-1734	300 Smith Ranch Road San Rafael, CA 94903	Secondary	2.92
Livermore-Amador Valley Water Management Agency Wet Weather Outfall	Charles Weir, General Manager, (510) 410-5923	7051 Dublin Boulevard Dublin, CA 94568	Secondary	N/A
Marin County (Paradise Cove), Sanitary District No. 5 of	Tony Rubio, District Manager, (415) 435-1501 ext. 106	P.O. Box 227 Tiburon, CA 94920	Secondary	0.04

**Table F-1. Facility Information** 

Discharger	Facility Contact	Mailing Address	Effluent Description	Facility Design Flow (MGD)
Marin County (Tiburon), Sanitary District No. 5 of	Tony Rubio, District Manager, (415) 435-1501 ext. 106	2001 Paradise Drive Tiburon, CA 94920	Secondary	0.98
Millbrae, City of, and North Bayside System Unit	Sam Bautista, Public Works Director, (650) 259-2347	621 Magnolia Avenue Millbrae, CA 94030	Secondary	3.0
Napa Sanitation District	Timothy Healy, General Manager, (707) 258-6000	1515 Soscol Ferry Road Napa, CA 94558	Secondary	15.4
Novato Sanitary District	Sandeep Karkal, General Manager, (415) 892-1694	500 Davidson Street Novato, CA 94945	Secondary	7.0
Pacifica, City of	Maria Aguilar, Plant Manager, (415) 336-4750	170 Santa Maria Avenue Pacifica, CA 94044	Advanced Secondary	4.0
Palo Alto, City of	James Allen, Plant Manager, (650) 329-2243	2501 Embarcadero Way Palo Alto, CA 94303	Advanced Secondary	39
Petaluma, City of	Matthew Pierce, Operations Supervisor, (707) 776-3726	202 N. McDowell Blvd. Petaluma, CA 94954	Secondary	6.7
Pinole, City of	Josh Binder, Plant Manager (510) 724-8964	2131 Pear Street Pinole, CA 94564	Secondary	4.06
Rodeo Sanitary District	Steve Beall, District Manager, (510) 799-2970	800 San Pablo Avenue Rodeo, CA 94572	Secondary	1.14
St. Helena, City of	Helena, City of Joseph Leach, Director of Public Works, (707) 968-2629		Secondary	0.50
San Francisco, City and County of (San Francisco International Airport), and North Bayside System Unit	n Francisco, City and County of an Francisco International rport), and North Bayside stem Unit		Secondary	2.2
San Jose and Santa Clara, cities of	Eric Dunlavey, Wastewater Compliance Program Manager, (408) 635-4017	700 Los Esteros Road San Jose, CA 95134	Advanced Secondary	167
San Leandro, City of Treatment Wetland	Hayes Morehouse, Plant Manager, (510) 577-3437	3000 Davis Street San Leandro, CA 94577	Secondary	0.95
San Mateo, City of	Michael Sutter, Operations Superintendent, (650) 522-7380	330 West 20 <sup>th</sup> Avenue San Mateo, CA 94403	Secondary	15.7
Sausalito-Marin City Sanitary District	Jeffrey Kingston, General Manager, (415) 332-0244	1 East Road Sausalito, CA 94965	Secondary	1.8
Sewerage Agency of Southern Marin	Mark Rushwaya, Wastewater Treatment Plant Director, (415) 384-4825	26 Corte Madera Avenue Mill Valley, CA 94941	Secondary	3.6
Silicon Valley Clean Water	Monte Hamamoto, Chief Operating Officer, (650) 832-6266	1400 Radio Road Redwood City, CA 94065	Secondary	29
Sonoma Valley County Sanitation District	Frank Mello, Operations Coordinator, (707) 521-1843	404 Aviation Blvd. Santa Rosa, CA 95403	Secondary	3.0
South San Francisco and San Bruno, cities of, and North Bayside System Unit	Brian Schumacker, Plant Superintendent, (650) 829-3844	195 Belle Air Road South San Francisco, CA 94080	Secondary	13
Sunnyvale, City of Rohan Wikramanayake, Water Pollution Control Plant Division Manager, (408) 730-7788		P.O. Box 3707 Sunnyvale, CA 94088	Advanced Secondary	29.5

Discharger Facility Contact		Mailing Address	Effluent Description	Facility Design Flow (MGD)
Treasure Island Development Authority	Amy Chastain, Regulatory Compliance Manager, San Francisco Public Utilities Commission, (415) 554-1683	1 Avenue of the Palms, Suite 241 San Francisco, CA 94130	Secondary	2.0
Union Sanitary District Wet Weather Outfall	Armando Lopez, Treatment and Disposal Services Manager, (510) 477-7517	5072 Benson Road Union City, CA 94587	Secondary	N/A
Vallejo Flood and Wastewater District	Jennifer Harrington, Environmental Services Director, (707) 644-7806	450 Ryder Street Vallejo, CA 94590	Secondary	15.5
West County Agency; West County Wastewater District; City of Richmond; and Richmond Municipal Sewer District No. 1	Andrew Clough, Agency Manager, (510) 222-6700	2910 Hilltop Drive Richmond, CA 94806	Secondary	28.5
Yountville, Town of	John Ferons, Public Works Director, (707) 944-8851	6550 Yount Street Yountville, CA 94599	Advanced Secondary	0.55

### II. BACKGROUND

Until recently, Basin Plan Table 4-2 contained effluent limitations for oil and grease. On November 18, 2020, the Regional Water Board adopted Resolution R2-2020-0031 and amended the Basin Plan to remove the oil and grease limits for treatment facilities that provide secondary or advanced secondary treatment. The State Water Resources Control Board approved this amendment on May 18, 2021, and the Office of Administrative Law approved it on October 22, 2021.

Chlorine can be toxic to aquatic life, and Basin Plan section 3.3.18 contains a narrative water quality objective to protect aquatic life from toxicity:

All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. ... There shall be no acute toxicity in ambient waters.

Basin Plan Table 4-2 also contains an effluent limitation of 0.0 mg/L for total residual chlorine. Resolution R2-2020-0031 amended the Basin Plan to eliminate the 0.0 mg/L chlorine effluent limit, and to establish numeric water quality objectives for chlorine and a process to implement the new objectives. U.S. EPA approval is needed for these changes to become effective. On October 12, 2021, the Regional Water Board adopted a blanket permit amendment (Order R2-2021-0019) to implement Resolution R2-2020-0031 upon U.S. EPA approval.

On June 5, 2023, the Regional Water Board withdrew its request for U.S. EPA approval of the chlorine water quality objectives so the requirements of Order R2-2021-0019 will not go into effect. This new Order replaces Order R2-2021-0019 and amends the orders in Table 1 to update their chlorine and oil and grease requirements based on existing Regional Water Board authority.

### **III. RATIONALE FOR CHANGES**

### A. Oil and Grease Requirements

For the facilities listed in Table 1 of this Order (except for the Treasure Island Development Authority treatment plant), this Order eliminates effluent limits and associated monitoring requirements for oil and grease. The Basin Plan amendment that eliminated the requirement for oil and grease effluent limits became effective on October 22, 2021, the date the Office of Administrative Law approved it. Technology-based oil and grease limits are unnecessary for wastewater that undergoes at least secondary treatment because treatment facilities that achieve the Secondary Treatment Standards of 40 C.F.R. section 133 should not contain significant levels of oil and grease. Primary and secondary clarifiers have skimming devices that remove floatables from wastewater. Microorganisms in the biological portion of wastewater treatment metabolize oils attached to solids. These microorganisms settle out in secondary clarifiers. Biochemical oxygen demand and total suspended solids are better indicators of wastewater treatment performance.

The Dischargers in Fact Sheet Table F-1 provide secondary or advanced secondary treatment and, as shown in Fact Sheet Table F-2, have consistently complied with the effluent limits for oil and grease. These data show that Dischargers do not have a reasonable potential to discharge oil and grease at levels that could result in a visible film or coating on the surface of receiving waters or on objects in the waters, that cause nuisance, or that otherwise adversely affect beneficial uses (i.e., levels that exceed the narrative oil and grease objective in Basin Plan section 3.3.7). Therefore, water quality-based oil and grease limits are unnecessary for these facilities. The Treasure Island Development Authority is the one exception. It has reported oil and grease exceedances due to the skimming devices in its primary and secondary clarifiers being episodically out of service. Therefore, this Order does not remove oil and grease effluent limitations from the Treasure Island Development Authority's permit. By 2024, San Francisco plans to construct, operate, and maintain a new wastewater treatment plant (the Treasure Island Water Resource Recovery Facility) to replace the existing plant. The Treasure Island Development Authority plans to decommission the existing plant when the new plant becomes operational. Once the new treatment plant becomes operational, the Regional Water Board may reconsider the need for oil and grease effluent limitations.

Discharger	Average Monthly Limit (mg/L)	Maximum Daily Limit (mg/L)	Long-Term Average (mg/L)	Highest Value (mg/L) <sup>[1]</sup>
Benicia, City of	10	20	ND <sup>[2]</sup>	ND <sup>[3]</sup>
Crockett Community Services District, Port Costa Sanitary Dept.	10	20	1.6	7.5
Delta Diablo	10	20	1.5	2.3
Union Sanitary District Wet Weather Outfall		20		
LAVWMA Wet Weather Outfall		20	ND <sup>[2]</sup>	ND <sup>[3]</sup>

 Table F-2. Previous Oil and Grease Effluent Limits and Monitoring Data

Discharger	Average Monthly Limit (mg/L)	Maximum Daily Limit (mg/L)	Long-Term Average (mg/L)	Highest Value (mg/L) <sup>[1]</sup>
Oro Loma and Castro Valley Sanitary Districts Wet Weather Outfall	5	10	ND <sup>[2]</sup>	2.9
East Bay Municipal Utility District	10	20	ND <sup>[2]</sup>	1.8
Fairfield-Suisun Sewer District		10	ND <sup>[2]</sup>	ND <sup>[3]</sup>
Las Gallinas Valley Sanitary District	10	20	ND <sup>[2]</sup>	3.5
Marin County (Paradise Cove), Sanitary District No. 5 of	10	20	5.0	5.0
Millbrae, City of, and North Bayside System Unit	10	20	ND <sup>[2]</sup>	3.1
Novato Sanitary District	10	20	ND <sup>[2]</sup>	3.0
Palo Alto, City of	5	10	ND <sup>[2]</sup>	1.7
Petaluma, City of	10	20	ND <sup>[2]</sup>	ND <sup>[3]</sup>
St. Helena, City of	10	20	2.1	4.4
San Francisco, City and County of (San Francisco International Airport), and North Bayside System Unit	10	20	ND <sup>[2]</sup>	2.6
San Jose and Santa Clara, Cities of	5	10	ND <sup>[2]</sup>	ND <sup>[3]</sup>
Sonoma Valley County Sanitation District	10	20	2.7	11 [4]
South San Francisco and San Bruno, Cities of, and North Bayside System Unit	10	20	3.3	16 [4]
Sunnyvale, City of	5	10	ND <sup>[2]</sup>	1.5
Treasure Island Development Authority	10	20	ND <sup>[2]</sup>	35
West County Wastewater District	10	20	ND [2]	ND [3]
City of Richmond; and Richmond Municipal Sewer District No. 1	10	20	4.1	7.0
Yountville, Town of	10	20	ND [2]	ND [3]

Footnotes:

<sup>[1]</sup> The highest value is the highest reported daily maximum value from 2020 through 2022.

<sup>[2]</sup> If at least half the values were non-detect.

<sup>[3]</sup> All values were non-detect.

[4] The Discharger collected additional samples to document compliance with the average monthly effluent limitation.

#### B. Water Quality-Based Effluent Limits for Chlorine

As explained in Fact Sheet section III.C, this Order replaces effluent limitations that were based on the 0.0 mg/L residual chlorine limitation listed in Basin Plan Table 4-2 with less stringent effluent limitations as allowed by Basin Plan section 4.5.3. This Order establishes water qualitybased effluent limitations based on the Basin Plan's narrative toxicity objective. The permits denoted by an "X" in the "Order Contains Chlorine Limits" column in Table 1 of this Order have a reasonable potential to cause or contribute to exceedances of the narrative toxicity objective because these municipal wastewater treatment plants use chlorine for disinfection and must apply a dechlorinating chemical, typically liquid sodium bisulfite, to remove residual chlorine from their wastewater effluent. According to 40 C.F.R. section 122.44(d)(1)(i), permits must include effluent limitations for all pollutants that are or may be discharged at levels that have a reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric objective, water quality-based effluent limitations must be established using (1) U.S. EPA criteria guidance under Clean Water Act (CWA) section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting a narrative criterion, supplemented with relevant information. This Order establishes water quality-based effluent limits for chlorine based on a translation of the narrative toxicity objective that uses U.S. EPA criteria guidance under CWA section 304(a), specifically U.S EPA's *Ambient Water Quality Criteria for Chlorine – 1984* (EPA 440/5-84-030). These criteria are shown in Table F-3 below:

Receiving Water Type	4-Day Average (mg/L)	1-Hour Average (mg/L)
Marine or Estuarine	0.0075	0.013
Freshwater	0.011	0.019

The limits in this Order are derived from the one-hour average criterion because chlorine dissipates quickly once entering the receiving water. Thus, it is unlikely that discharges that meet one-hour effluent limitations will have chlorine concentrations that persist in the receiving water long enough to cause the four-day water quality objective to be exceeded.

This Order establishes chlorine mixing zones for deep water Dischargers and the Napa Sanitation District based on initial dilution. This is consistent with Basin Plan section 4.5.1, which allows for numeric water quality-based effluent limits to account for allowable dilution credits. Basin Plan section 4.5.3 indicates that in developing and setting water quality-based effluent limits for toxic pollutants all attempts shall be made to ensure consistency among permits when exercising best professional judgment. For total residual chlorine, a mixing zone corresponding to a conservative estimate of actual initial dilution was used to represent acute conditions. This is justified because chlorine is a non-persistent pollutant that quickly disperses and degrades to a non-toxic state.<sup>1</sup> As such, cumulative toxicity associated with chlorine from other unrelated discharges is unlikely.

These mixing zones are explained below and in the Fact Sheets attached to the orders listed in Table 1 of this Order. For each Discharger where this Order establishes a mixing zone, a site-specific mixing zone study evaluated the spatial extent of mixing under conservative conditions. The spatial extent of each mixing zone is described below (see Table F-5); the mixing zones are small and do not overlap. This Order does not establish total residual chlorine mixing zones for

<sup>&</sup>lt;sup>1</sup> U.S. EPA's *Ambient Water Quality Criteria for Chlorine* (EPA 440/5-84-030) indicates that the half-lives for total residual chlorine and chlorine-produced oxidants are short in most waters. According to the Canada Environmental Protection Act, 1999 *Priority Substances List Assessment Report*, the half-life for combined residual chlorine, total residual chlorine, and total residual oxidant usually ranges from about 0.03 to 1.0 days under natural environmental conditions.

any shallow water discharger except for Napa Sanitation District, which has a multi-port diffuser that induces rapid mixing.<sup>2</sup>

To account for the dilution that occurs within mixing zones, this Order uses a simplified equation from State Implementation Policy section 1.4 because background concentrations for total residual chlorine are assumed to be zero:

 $ECA = (D+1) \times C$ 

Where ECA = effluent concentration allowance (effluent limit), D = dilution factor (parts receiving water for each part effluent) C = water quality objective

The table below presents the applicable water quality criteria (as translated from the narrative toxicity objective), dilution factor, and effluent limit for each Discharger.

Discharger	Receiving Water Type	Water Quality Criteria (mg/L)	Dilution Factor	Effluent Limit (one-hour average, mg/L)
Benicia, City of	Estuarine	0.013	28	0.38
Burlingame, City of, and North Bayside System Unit	Marine	0.013	36	0.48
Calistoga, City of	Freshwater	0.019	0	0.019
Central Marin Sanitation Agency	Estuarine	0.013	42	0.56
Crockett Community Services District, Port Costa Sanitary Dept.	Estuarine	0.013	20	0.27
Delta Diablo	Estuarine	0.013	32	0.43
East Bay Dischargers Authority	Marine	0.013	74	0.98 [1]
Union Sanitary District Wet Weather Outfall	Freshwater	0.019	0	0.019
Dublin San Ramon Services District	Marine	0.013	74	0.98 [1]
Livermore, City of	Marine	0.013	74	0.98 [1]
Livermore-Amador Valley Water Management Agency Wet Weather Outfall	Freshwater	0.019	0	0.019

Table F-4. Water Quality Based Effluent Limits for Total Residual Chlorine

<sup>&</sup>lt;sup>2</sup> Order R2-2022-0003 (Fact Sheet section 4.3.5.2) describes mixing and dilution at the Napa Sanitation District outfall, as summarized in Fact Sheet section III.B.10 of this Order.

Discharger	Receiving Water Type	Water Quality Criteria (mg/L)	Dilution Factor	Effluent Limit (one-hour average, mg/L)
Oro Loma and Castro Valley Sanitary Districts Wet Weather Outfall	Marine	0.013	0	0.013
East Bay Municipal Utility District	Marine	0.013	31	0.42
Las Gallinas Valley Sanitary District	Estuarine	0.013	0	0.013
Marin County (Paradise Cove), Sanitary District No. 5 of	Marine	0.013	43	0.57
Marin County (Tiburon), Sanitary District No. 5 of	Marine	0.013	62	0.82
Millbrae, City of, and North Bayside System Unit	Marine	0.013	36	0.48
Napa Sanitation District	Estuarine	0.013	4	0.065
Pacifica, City of	Freshwater	0.019	0	0.019
Petaluma, City of	Estuarine	0.013	0	0.013
Pinole, City of	Estuarine	0.013	32	0.43
Rodeo Sanitary District	Estuarine	0.013	32	0.43
St. Helena, City of	Freshwater	0.019	0	0.019
San Francisco, City and County of (San Francisco International Airport), and North Bayside System Unit	Marine	0.013	36	0.48
San Jose and Santa Clara, Cities of	Estuarine	0.013	0	0.013
San Leandro, City of	Marine	0.013	0	0.013
San Mateo, City of	Marine	0.013	25	0.34
Sausalito-Marin City Sanitary District	Marine	0.013	83	1.1
Sewerage Agency of Southern Marin	Marine	0.013	62	0.82
Silicon Valley Clean Water	Marine	0.013	40	0.53
Sonoma Valley County Sanitation District	Estuarine	0.013	0	0.013

Discharger	Receiving Water Type	Water Quality Criteria (mg/L)	Dilution Factor	Effluent Limit (one-hour average, mg/L)
South San Francisco and San Bruno, Cities of, and North Bayside System Unit	Marine	0.013	36	0.48
Sunnyvale, City of	Estuarine	0.013	0	0.013
Treasure Island Development Authority	Marine	0.013	102	1.3
Vallejo Flood and Wastewater District	Estuarine	0.013	25	0.34
West County Agency; West County Wastewater District; City of Richmond; and Richmond Municipal Sewer District No. 1	Marine	0.013	140	1.8
Yountville, Town of	Freshwater	0.019	0	0.019

<sup>[1]</sup> This limitation will be replaced by a one-hour average effluent limitation of 0.94 mg/L on the first day of the month following East Bay Dischargers Authority satisfaction of Provision 6.3.5.1 (Commencement of Cargill Brine Discharge) in Order R2-2022-0023.

To ensure that the total residual chlorine within these mixing zones will not be lethal to aquatic organisms, each study used to support a dilution factor greater than zero documents that an adrift organism would pass through the mixing zone within 15 minutes or less, as recommended by U.S. EPA's *Technical Support Document for Water Quality-based Toxics Control*, March 1991, EPA/505/2-90-001. Furthermore, the mixing zones established in this Order will not harm benthic organisms because the treated effluent is discharged via deepwater and/or multiport diffusers that are above the bottom surface and are positively buoyant in the receiving waters. | Delta Diablo is one exception as it may, for short periods, have a negatively buoyant discharge, as discussed below. For discharges to relatively small receiving waters (i.e., New York Slough, Napa River, and Mare Island Strait), each mixing zone study includes an additional analysis to establish that the size of the mixing zone is small relative to the size of the water body.

- 1. **City of Benicia**. A study titled *Benicia WWTP Effluent Initial Dilution at Long-term Average, Design, and Peak Daily Flow Rates* (November 2012) used the U.S. EPA supported Visual Plumes model to support a minimum initial dilution of 29:1 (D=28) for acute water quality criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of less than 10 minutes for an organism adrift within the receiving water.
- North Bayside System Unit (including Burlingame, Millbrae, San Francisco International Airport, and South San Francisco and San Bruno). These wastewater treatment plants share an outfall in Lower San Francisco Bay. A study titled *Near-field Mixing Zone and Dilution Analysis for the North Bayside System Unit Outfall Diffuser to Lower San Francisco Bay* (May 18, 2018) used the U.S. EPA approved CORMIX model to

support a minimum initial dilution of 37:1 (D=36) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of less than two minutes for an organism adrift within the receiving water.

- 3. Central Marin Sanitation Agency. A study titled *Mixing Zone Study Report Central Marin Sanitation Agency* (September 29, 2011) used the U.S. EPA supported Visual Plumes model to support a minimum initial dilution of 43:1 (D=42) for acute criteria. The study predicted that initial dilution would occur within 13 feet of the outfall. This short distance indicates that the mixing zone would not be lethal to aquatic organisms since the travel time for organisms adrift within the receiving water is expected to be less than a few minutes.
- 4. Crockett Community Services District (Port Costa). A study titled Near-field Mixing Zone and Dilution Analysis for the Port Costa WWTP Outfall to Carquinez Strait (May 29, 2018) used the U.S. EPA approved CORMIX model to support a minimum initial dilution of 21:1 (D=20) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of less than one minute for an organism adrift within the receiving water.
- 5. Delta Diablo. A study titled Mixing Zone Modeling for Delta Diablo WWTP Outfall to New York Slough – Current and Future Discharge Conditions (August 20, 2019) used the U.S. EPA approved CORMIX model to support a minimum initial dilution of 33:1 (D=32) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of 12 minutes or less for an organism adrift within the receiving water.

The mixing zone established for Delta Diablo will not compromise the integrity of the receiving water because it is small relative to the size of New York Slough. The mixing zone extends about 150 feet from each discharge port. The average width of New York Slough in the vicinity of the discharge is about 1,000 feet.

Furthermore, the mixing for Delta Diablo will not harm benthic organisms. In October 2023, Delta Diablo may start accepting about 2.0 million gallons per day of reverse osmosis concentrate from the City of Antioch's Brackish Water Desalination Project. During the summer months when recycled water demand is high, Delta Diablo may recycle 100 percent of its treated wastewater and only discharge cooling water blowdown and industrial brine mixed with reverse osmosis concentrate. This may occur about three days of each year when the weather is very warm. During these periods, it is possible that the discharge could be negatively buoyant if salinity levels in New York Slough are near historical maximum concentrations. In these conditions, the discharge plume would rise due to momentum and then sink to the bottom of New York Slough. As this is rarely expected to occur, Delta Diablo's discharge should not prevent benthic organisms from residing near its diffuser.

6. East Bay Dischargers Authority (including Dublin San Ramon Services District and City of Livermore). Six wastewater treatment plants share the East Bay Dischargers Authority outfall. Four are regulated under Order R2-2022-0023 (the City of Hayward's Water Pollution Control Plant, the City of San Leandro's Water Pollution Control Plant, the Oro Loma and Castro Valley Sanitary Districts Water Pollution Control Plant, and the Union Sanitary District's Wastewater Treatment Plant). Two are regulated by separate orders. The Dublin San Ramon Services District's treatment plant is regulated under Order R2-2022-0024 and the City of Livermore's treatment plant is regulated under Order R2-2022-0025. A study titled *East Bay Dischargers Authority Common Outfall Summary of Dilution Modeling Conditions and Results* (April 2021) used the U.S. EPA approved CORMIX model to support a minimum initial dilution of 75:1 (D=74) and after East Bay Dischargers Authority accepts Cargill brine 72:1 (D=71) for acute criteria. To ensure the mixing zone would not be lethal to aquatic organisms, the edge of mixing zone was selected using a travel time of less than 15 minutes for an organism adrift within the receiving water.

- 7. East Bay Municipal Utility District. A study titled *East Bay Municipal Utility District Main Wastewater Treatment Plant Outfall Dilution Study Update* (May 2020) used the U.S. EPA approved CORMIX model to support a minimum initial dilution of 32:1 (D=31) for acute criteria. To ensure the mixing zone would not be lethal to aquatic organisms, the edge of mixing zone was selected using a travel time of less than 15 minutes for an organism adrift within the receiving water.
- 8. Sanitary District No. 5 of Marin County (Paradise Cove). A study titled *Mixing Zone Study Report Sanitary District No. 5 of Marin County* (January 28, 2011) used the U.S. EPA supported Visual Plumes model to support a minimum initial dilution of 44:1 (D=43) for acute criteria. The study predicted that initial dilution would occur within 10 feet of the outfall. This short distance indicates that the mixing zone would not be lethal to aquatic organisms since the travel time for organisms adrift within the receiving water is expected to be less than a few minutes.
- 9. Sanitary District No. 5 of Marin County (Tiburon) and Sewerage Agency of Southern Marin. These two wastewater treatment plants share an outfall in Raccoon Strait (within Central San Francisco Bay). A study titled Mixing Zone and Dilution Credit Study for the Sewerage Agency of Southern Marin and Sanitary District No. 5 of Marin County Combined Outfall Diffuser (July 2, 2020) used the U.S. EPA approved CORMIX model to support a minimum initial dilution of 63:1 (D=62) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of about eight minutes for an organism adrift within the receiving water.
- 10. Napa Sanitation District. A study titled Review of State Water Resources Control Board Modeling of Napa Sanitation District Discharge to the Napa River (September 19, 2009) used U.S. EPA approved CORMIX model to support a minimum initial dilution of 5:1 (D=4) for acute criteria. The study predicted the initial dilution would occur within a 23-foot radius around each of the three discharge ports of the outfall. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of less than 15 minutes for an organism adrift within the receiving water.

The mixing zone established for the Napa Sanitation District will not compromise the integrity of the receiving water because it is small relative to the size of the Napa River. The mixing zones are about 46 feet in diameter, centered on three discharge ports. The average width of the Napa River in the vicinity of the discharge is about 330 feet, and the length of the Napa River downstream of the outfall is 13 miles, or over 68,000 feet.

- 11. City of Pinole and Rodeo Sanitary District. These two wastewater treatment plants share an outfall in San Pablo Bay. A study titled *Near-field Mixing Zone and Dilution Analysis for Chronic Toxicity Discharge Conditions and Current Diffuser Characteristics* (April 14, 2017) used the U.S. EPA approved CORMIX model to support a minimum initial dilution of 33:1 (D=32) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of about seven minutes for an organism adrift within the receiving water.
- 12. City of San Mateo. A study titled City of San Mateo and Estero Municipal Improvement District Water Quality Control Plant Mixing Zone and Dilution Credit Study (July 18, 2022) used the U.S. EPA supported CORMIX model to support a minimum initial dilution of 26:1 (D=25) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of less than 15 minutes for an organism adrift within the receiving water.
- 13. Sausalito-Marin City Sanitary District. A study titled Dilution Modeling Results for Sausalito-Marin City Sanitary District Discharge to San Francisco Bay (July 5, 2007) used the U.S. EPA supported Visual Plumes model to support a minimum initial dilution of 84:1 (D=83) for acute criteria. The study predicted that initial dilution would occur within about 20 feet of the outfall. This short distance indicates that the mixing zone would not be lethal to aquatic organisms since the travel time for organisms adrift within the receiving water is expected to be less than a few minutes.
- 14. Silicon Valley Clean Water. A study titled Mixing Zone and Dilution Credit Study for the Silicon Valley Clean Water Wastewater Treatment Plant Outfall Diffuser (October 21, 2022) used the U.S. EPA approved CORMIX model to support a minimum initial dilution of 41:1 (D=40) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of about two minutes for an organism adrift within the receiving water,
- 15. **Treasure Island Development Authority**. A study titled *Dilution Model for the Treasure Island Outfall* (September 8, 2009) used the U.S. EPA supported Visual Plumes model to support a minimum initial dilution of 103:1 (D=102) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study indicated that the plume attains a maximum initial dilution within a few minutes.
- 16. Vallejo Flood and Wastewater District. This facility has two outfalls. A study titled Mixing Zone Study Report, Vallejo Sanitation District (March 22, 2011) used the U.S. EPA supported Visual Plumes model to support a minimum initial dilution at the Carquinez Strait outfall of 41:1 (D=40) for acute criteria. A study titled Mixing Zone Study Report for Mare Island Strait Diffuser (July 18, 2014) used the U.S. EPA supported Visual Plumes model to support a minimum initial dilution at the Mare Island Strait outfall of 26:1 (D=25) for acute criteria. The studies predicted that initial dilution would occur within about 56 feet of the Carquinez Strait outfall and about 40 feet of the Mare Island Strait outfall. These short distances indicate that mixing zones will not be lethal to aquatic organisms since the travel time for organisms adrift within the receiving water is expected to be less than a few minutes.

The mixing zone established for the Vallejo Flood and Wastewater District's discharge to Mare Island Strait will not compromise the integrity of the receiving water because it is small relative to the size of Mare Island Strait. The mixing zone extends about 40 feet from the diffuser. The width of Mare Island Strait in the vicinity of the discharge is about 1,300 feet.

### 17. West County Agency (including West County Wastewater District and City of

**Richmond)**. These two wastewater treatment plants share an outfall in Central San Francisco Bay. A study titled *West County Agency Common Outfall Summary of Dilution Modeling Conditions and Results* (May 2021) used the U.S. EPA approved CORMIX model to support a minimum initial dilution of 141:1 (D=140) for acute criteria. To confirm the mixing zone would not be lethal to aquatic organisms, the study estimated a travel time of about eight minutes for an organism adrift within the receiving water.

Table F-5 includes the location of each outfall, the distance the mixing zone extends from the outfall, and the distance to the closest nearby outfall. This shows that mixing zones are very small relative to the water body and do not overlap.

Discharger	Outfall Location	Distance from Shoreline (feet)	Distance from outfall to edge of mixing zone (feet)	Closest Nearby Outfall (miles)
City of Benicia	Carquinez Strait	500	50	1.8
North Bayside System Unit	Lower San Francisco Bay	5,300	97	4.15
Central Marin Sanitation Agency	Central San Francisco Bay	8,000	13	2.3
Port Costa	Carquinez Strait	60	3.4	1.8
Delta Diablo	New York Slough	500	150	17.1
East Bay Dischargers Authority	Lower San Francisco Bay	37,000	405	4.15
East Bay Municipal Utility District	Central San Francisco Bay	5,600	405	1.03
Paradise Cove	Central San Francisco Bay	400	10	1.95
Tiburon and Sewerage Agency of Southern Marin	Raccoon Strait in Central San Francisco Bay	850	285	1.95
Napa Sanitation District	Napa River	160	23	10.25
City of Pinole and Rodeo Sanitary District	San Pablo Bay	3,800	180	2.44

### **Table F-5. Extent of Mixing Zones**

Discharger	Outfall Location	Distance from Shoreline (feet)	Distance from outfall to edge of mixing zone (feet)	Closest Nearby Outfall (miles)
City of San Mateo	Lower San Francisco Bay	3,700	20	2.1
Sausalito-Marin City Sanitary District	Central San Francisco Bay	300	20	2.3
Silicon Valley Clean Water	Lower San Francisco Bay	6,700	110	2.1
Treasure Island Development Authority	Central San Francisco Bay	300	18	1.03
Vallejo Flood and Wastewater District	Carquinez Strait and Mare Island Strait	400 and 250	56 and 40	2.2
West County Agency	Central San Francisco Bay	8,200	341	2.3

### C. Replacement of Basin Plan Table 4-2 Chlorine Effluent Limits

This Order replaces the 0.0 mg/L effluent limitation for residual chlorine listed in Basin Plan Table 4-2 with the less stringent limitations discussed above. Basin Plan section 4.5.3 allows less stringent effluent limitations when certain conditions are met, stating, "The Water Board will consider establishing less stringent limitations, consistent with state and federal laws, for any discharge where it can be conclusively demonstrated through a comprehensive program approved by the Water Board that such limitations will not result in unacceptable adverse impacts on the beneficial uses of the receiving water." These conditions are met. As explained in Fact Sheet section IV, the less stringent limitations are consistent with state and federal laws. Furthermore, the requirements of this Order (specifically Provisions 4 through 9) are a comprehensive program that will ensure that these limitations will not result in unacceptable adverse impacts on the beneficial uses of receiving waters. Chlorine is a non-persistent pollutant that quickly degrades to a non-toxic state, and the mixing zones described in Fact Sheet section III.B are very small relative to the size of the receiving waters, as demonstrated by Table F-5. This Order also requires each Discharger to implement a Chlorine Process Control Plan to target a chlorine residual of 0.0 mg/L at the discharge point. This will ensure that chlorine will typically not be present in discharge and, if chlorine is detected, the duration of such discharges will be relatively short.

This Order removes the 0.0 mg/L chlorine limit to address the over-application of sodium bisulfite that results in extra operational cost and can decrease dissolved oxygen concentrations and depress pH in the effluent and receiving water. Municipal wastewater treatment plants that use chlorine to disinfect must apply a dechlorinating chemical, typically liquid sodium bisulfite, to remove residual chlorine and comply with the residual chlorine effluent limitation. Because wastewater is a complex mixture and the 0.0 mg/L effluent limitation from Basin Plan Table 4-2

is an instantaneous maximum (i.e., no amount may be discharged, ever), wastewater treatment plant operators routinely add sodium bisulfite in amounts well beyond what would theoretically neutralize residual chlorine.

Since the Regional Water Board began imposing the 0.0 mg/L instantaneous chlorine limitation, there have been significant improvements in chlorine process control. For example, instead of collecting periodic grab samples to evaluate compliance, continuous monitoring devices that evaluate chlorine residual levels at least every five minutes are now commonplace. The less stringent effluent limitations for chlorine included in this Order, coupled with the improved process control, will ensure that beneficial uses are protected.

### **D.** Chlorine Monitoring Requirements

In accordance with Water Code section 13383, this Order revises the chlorine monitoring requirements of the permits denoted by an "X" in the "Order Contains Chlorine Limits" column in Table 1 of this Order. This Order replaces all monitoring requirements for chlorine, except for how frequently dischargers must collect grab samples if continuous analyzers are offline. To ensure that Dischargers carefully manage chlorine and dechlorination dosing, Dischargers should conduct continuous monitoring to assess compliance with the total residual chlorine effluent limits, which are expressed as one-hour averages. The minimum level for continuous devices should not be greater than 0.05 mg/L to document that each Discharger uses sufficiently sensitive methods. Any measured values below the minimum level should be treated as zeros.

Since continuous monitoring devices can sometimes report false positive values, this Order allows Dischargers to use on-line monitoring systems to measure the presence of a dechlorinating agent (e.g., sodium bisulfite). The presence of a dechlorinating agent may be used to prove that anomalous chlorine results are false positives and not valid detections because it is chemically improbable to have chlorine present in the presence of a dechlorinating agent. If a continuous chlorine residual monitor malfunctions or is offline for essential maintenance, this Order allows dischargers to substitute grab samples at the frequency specified in the Monitoring and Reporting Program of each order listed in Table 1 until the continuous chlorine residual monitor is back online.

In some cases, Dischargers are unable to continuously monitor chlorine. For smaller, seasonal, or intermittent discharge facilities, or for facilities that rely on natural dechlorination in ponds or wetlands rather than chemical addition, less frequent monitoring is appropriate. These Dischargers may collect grab samples instead. The table below lists Dischargers not required to conduct continuous chlorine monitoring, the basis for their exceptions, and how frequently grab samples must be collected.

Discharger	<b>Basis for Exception</b>	Minimum Grab Sampling Frequency
City of Petaluma	This facility discharges seasonally and uses natural dechlorination by routing	Twice daily, at least four hours apart, when dechlorinating through the polishing wetlands.

### **Table F-6. Continuous Chlorine Monitoring Exceptions**

Discharger	<b>Basis for Exception</b>	Minimum Grab Sampling Frequency
	effluent through polishing wetlands.	
Crockett Community Services District, Port Costa Sanitary Dept.	This is a small facility. It has a dry weather design capacity of 33,000 gallons per day.	Three times per week
Livermore-Amador Valley Water Management Agency Wet Weather Outfall	This facility only discharges intermittently during wet weather.	Once every two hours
Union Sanitary District Wet Weather Outfall	This facility only discharges intermittently during wet weather	Once every two hours
Oro Loma and Castro Valley Sanitary Districts Wet Weather Outfall	This facility only discharges intermittently during wet weather	Once every two hours

# **IV. DISCHARGE REQUIREMENT CONSIDERATIONS**

- A. Anti-backsliding. The term "anti-backsliding" refers to statutory and regulatory provisions that prohibit, except in limited circumstances, the renewal, reissuance, or modification of an existing NPDES permit to contain effluent limitations, permit conditions, or standards less stringent than those established in the previous order. While this Order does not retain effluent limits for oil and grease and establishes less stringent water quality-based effluent limits for total residual chlorine, it meets an exception to the prohibition against backsliding. Clean Water Act section 402(o) prohibits backsliding from an effluent limitation that is based on state standards, such as water quality standards or treatment standards, unless the change is consistent with Clean Water Act section 303(d)(4). Here, the previous oil and grease and total residual chlorine effluent limitations were based on state treatment standards. Clean Water Act section 303(d)(4)(B) says, for waters that meet water quality standards, effluent limitations may be revised if such revision is consistent with antidegradation policies. Thus, backsliding is allowed because the surface waters of the San Francisco Bay region are not impaired by chlorine or oil and grease, and the relaxed effluent limits are consistent with antidegradation policies as explained below.
- **B.** Antidegradation. Federal regulations at 40 C.F.R. section 131.12 require that state water quality standards include an antidegradation policy consistent with federal requirements. The State Water Board's "Statement of Policy with Respect to Maintaining High Quality of Waters in California" (Resolution 68-16) sets forth California's antidegradation policy. A permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16. These policies require that high quality waters be maintained unless degradation is justified based on specific findings. Where the federal antidegradation policy is applicable, the State Water Board has interpreted Resolution 68-16 to incorporate the federal antidegradation policy. The discharges authorized by this Order are consistent with the antidegradation provisions of Resolution 68-16 as explained below.

Under Resolution 68-16, where a receiving water is of higher quality than applicable water quality standards, the higher water quality must be maintained unless certain conditions are met. Any decrease in water quality must be consistent with the maximum benefit to the people of the State, must not unreasonably affect any current or anticipated beneficial uses, and must not result in lower water quality than that prescribed in the policies. Activities that produce an increased volume or concentration of waste and that discharge to existing high quality waters must meet waste discharge requirements that 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."

The effluent limitations authorized by this Order are consistent with Resolution 68-18. This Order authorizes higher total residual chlorine limits, but any increases in chlorine discharges will be minor, spatially localized, temporally limited, and unlikely to be observable in the receiving waters, particularly outside the mixing zones, because chlorine dissipates rapidly in receiving waters and because this Order requires each Discharger to implement a Chlorine Process Control Plan that targets a chlorine residual of 0.0 mg/L at the discharge point. Thus, there will not be any significant reduction in water quality in receiving waters, which are high quality as it relates to chlorine. Under the State Water Resources Control Board's Administrative Procedures Update No. 90-004 on the implementation of antidegradation policies in NPDES permits, a simple antidegradation analysis is sufficient where, as here, a discharge will not be adverse to the intent and purpose of state and federal antidegradation policies and any reduction in water quality will be spatially localized or limited (e.g., confined to a mixing zone), temporally limited with no long-term deleterious effects on water quality, among other factors.

Assuming that there will be small increases in chlorine observable near discharge outfalls, they would be consistent with the maximum benefit to the people of the state because they will reduce the use and discharge of dechlorination chemicals, which generate greenhouse gas emissions during manufacturing and delivery, place oxygen demands on receiving waters when discharged, and unnecessarily generate additional costs for dischargers. The excess use of dechlorination chemicals costs Dischargers up to \$2 million per year (Bay Area Clean Water Agencies, September 29, 2023). These funds could be better invested in other important water quality projects. This revised approach for establishing chlorine effluent limitations thus reflects the updated understanding that overdosing with dechlorination chemicals is no longer the best practicable treatment or control of chlorine because of its adverse impacts to water quality.

Compliance with the new effluent limitations will not unreasonably affect current or anticipated beneficial uses because the chlorine water quality criteria implemented in this Order are protective of most aquatic life.<sup>3</sup> To ensure that any migration corridors for threatened and endangered species will not be compromised, the mixing zones established in this Order are small relative to the sizes of the receiving water bodies (including the narrowest water bodies: New York Slough, the Napa River, and Mare Island Strait), allowing passage. In addition, this Order requires implementation of a Chlorine Process Control Plan and continuous monitoring

<sup>&</sup>lt;sup>3</sup> U.S. EPA's *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (EPA 822-R-85-100) indicates that aquatic organisms and their uses should not be affected unacceptably by the 304(a) numeric criteria except possibly where a locally important species is very sensitive.

(with a few exceptions noted in Table F-6) to assess whether discharges comply with the new limits based on a one-hour average, both of which ensure improved process control.

The elimination of the oil and grease effluent limits is also consistent with Resolution 68-16. The elimination of these limits is not expected to result in an increased volume or concentration of oil and grease in the discharge because those limits did not drive the secondary or advanced secondary treatment performance at the facilities listed in Table 1 of the Order. Thus, removal of oil and grease limits will not result in any lowering of water quality.

### **V. PUBLIC PARTICIPATION**

**A.** Notification of Interested Parties. The Regional Water Board notified the dischargers listed in Table 1 of the Order, and other interested agencies and persons, of its intent to amend the permits listed in Table 1, and provided an opportunity to submit written comments and recommendations. The public had access to the agenda and any changes in dates and locations through the Regional Water Board's website at <a href="http://www.waterboards.ca.gov/sanfranciscobay">http://www.waterboards.ca.gov/sanfranciscobay</a>.

Water Code section 189.7 requires the Board to engage in certain outreach activities where waste discharges may have disproportionate water quality impacts in disadvantaged or tribal communities. This Order will not have such an impact because it will not adversely impact water quality as explained in Fact Sheet section IV.B. Water Code section 13149.2 requires specific findings related to potential environmental justice, tribal impact, and racial equity considerations for reissued individual WDRs that include time schedules for achieving compliance with water quality objectives. This Order does not contain such a time schedule; therefore, the findings are not required.

- **B.** Written Comments. Interested persons were invited to submit written comments concerning the tentative permit amendment as explained through the notification process. Comments were to be submitted either in person, by-email, or by mail to the attention of Robert Schlipf. Written comments were due at the Regional Water Board office by 5:00 p.m. on September 29, 2023.
- **C. Public Hearing.** The Regional Water Board held a public hearing on the tentative permit amendment during its meeting at the following date and time:

Date:	November 8, 2023
Time:	9:00 a.m.
Contact:	Robert Schlipf, (510) 622-2478, Robert.Schlipf@waterboards.ca.gov.

Interested persons were provided notice of the hearing and information on how to participate. During the public hearing, the Regional Water Board heard testimony pertinent to the tentative permit amendment.

Dates and venues can change. The current agenda and any changes are posted on the Regional Water Board web address is <u>http://www.waterboards.ca.gov/sanfranciscobay</u>.

**D. Reconsideration of Amendment.** Any person aggrieved by the Regional Water Board action may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050. The State Water Board must

receive the petition at the following address within 30 calendar days of the Regional Water Board action:

State Water Resources Control Board Office of Chief Counsel P.O. Box 100, 1001 I Street Sacramento, CA 95812-0100

A petition may also be filed by email at <u>waterqualitypetitions@waterboards.ca.gov</u>.

For instructions on how to file a petition for review, see <a href="http://www.waterboards.ca.gov/public notices/petitions/water quality/wqpetition">http://www.waterboards.ca.gov/public notices/petitions/water quality/wqpetition instr.shtml</a>.

- E. Information and Copying. Supporting documents and comments received are on file. To review these documents, contact Melinda Wong the Regional Water Board's custodian of records by calling (510) 622-2300 or emailing <u>Melinda.Wong@waterboards.ca.gov</u>. Document copying may be arranged.
- **F. Register of Interested Persons.** Any person interested in being placed on the mailing list for information regarding NPDES permits should contact the Regional Water Board and provide a name, address, and phone number.
- **G.** Additional Information. Requests for additional information or questions regarding this Order should be directed to Robert Schlipf at (510) 622-2478 or Robert.Schlipf@waterboards.ca.gov.

# Advancing Water Reuse in the Bay Area: Exploring Opportunities and Challenges for Interagency Collaboration

# Meeting Summary

The goal of this meeting was to bring together water agencies, wastewater agencies, consultants, regulators, and non-profits to discuss the different challenges and drivers for recycled water. Through discussion, we hope to recognize opportunities for partnerships to address current and future challenges. This meeting was hopefully the first of many similar efforts to increase collaboration and advance recycled water.

# Welcome - Melody Labella, Central Contra Costa Sanitary District (Central San)

- Attendees included representatives from water agencies, wastewater agencies, regulatory agencies, and consultant firms.
- Big picture: the Bay Area wastewater community is facing up to \$15 billion in investment costs for nutrient treatment upgrades to protect SF Bay, and we will all bear that cost
- Water recycling can help address many challenges, including:
  - Droughts and water shortages
  - o Population/demand growth
  - Ensuring adequate environmental flows
- We will review findings from the *Multi-Agency Water Reuse Programs: Lessons for Successful Collaboration* report to understand what factors help make complex, multi-partner water reuse projects happen
- Desired outcomes for the meeting include:
  - o Identify similarities and differences in issues and drivers
  - Recognize opportunities for partnerships to address current and future reuse challenges
  - Evaluate the right scale(s) for collaboration

# Drivers and Opportunities

# Wastewater Agency Perspective – Lorien Fono, BACWA

- The POTW community's mission has evolved over time
  - o At its core, the mission is to reduce public health risk from wastewater
  - o The Clean Water Act expanded the mission include protecting water in the environment
  - o Climate change is forcing them to become **resource recovery** agencies
  - Now **nutrient management** is becoming a key directive
    - Next year wastewater agencies will be required to reduce nutrient concentration in discharge
- Recycled water is just one tool to meet this mission
  - Recycled water is not the cheapest way to reduce nutrient concentrations, and traditional upgrades may be cheaper
  - However, recycled water has **multiple benefits** that must be considered, which makes it a worthwhile investment in many cases

# Water Agency Perspective – Manisha Kothari, SFPUC and Hossein Ashktorab, Valley Water

- The primary drivers for reuse among water agencies are:
  - Regulatory changes that limit availability
    - E.g., environmental flows, curtailments, etc.
  - o Climate change and the increasing frequency and severity of droughts
  - Demographic changes including population growth, changing employment patterns, housing needs, and more
- The three tenants of integrated water resources management are (water reuse is part of all three):
  - o Optimize use of all available resources,
  - Diversify water supply sources,
  - Demand management and conservation
- Considerations that determine water reuse feasibility are:
  - Nature, location, and timing of end-use demand
  - o Infrastructure needs
  - Regulator requirements
  - Costs and ratepayer impacts
  - Community acceptance
- Most easy opportunities to provide non-potable reuse are gone. Further opportunities require new/updated infrastructure. The emphasis is now on potable reuse
- Lesson learned from existing multi-jurisdictional projects include:
  - Communication is important
  - Bring in your elected officials as early as you can (bipartisan)

Regional Board Perspective – Alexis Strauss Hacker, CA State Water Resources Control Board

- The Regional Water Board can bring greater emphasis through their regulations
- They are creating a draft permit and have had great engagement on that project
- They will provide the path forward for brine residuals (what to do with RO concentrate)
- Historically, the Water Board has had regular engagement with wastewater agencies, but they are not as connected with water supply agencies
- The board wants to be part of accelerating water recycling efforts

Importance of Collaboration – Felicia Marcus, Stanford University

- Encourages empathy amongst collaborators
- This field is growing rapidly across the U.S.
- Goals in other states center around nutrient reductions and less on water scarcity
- Encourages even more communication and listening

# "Lessons Learned" in WRAP 2.16

Wrap 2.16 selected five multi-agency case studies to assess the characteristics that made projects successful. Those findings were then grouped according to five factors: governance, regulatory, economics, management, and leadership.

### Governance Lessons – Dave Smith

- Existing utilities have narrow missions, and problems evolve faster than the governance structures. We should view structures as connection points (not boundaries)
- To reuse water, utilities must reach beyond their institutional borders to develop collaborative relationships
  - o Collaboration involves reassessing organizational purpose, structure, and goals
  - Collaboration can occur at different scales (regional and subregional)
  - There are existing effective collaboration structures (ex: Bay Area Regional Reliability Process, Bay Area One Water Network, etc.)
  - Formal arrangements have also been successful
    - MOUs, JPAs, and Consolidation (not always an option)

### Regulatory Lessons – Felicia Marcus

- Successful project proponents will:
  - o Know the applicable regulations at the outset of the project
  - Engage regulators early and often
    - Not just to sell the project when it is designed, but to enlist them in helping solve a community problem
    - Not to argue about the rules, but to see how they can help give regulators what they need to get to yes
    - Remember that regulators are people, approach from a place of desired connection
- Regulators can help advance the project through early advice, project acceleration, and funding

### Economics Lessons – Bob Raucher

- Utilities can combine responsibilities to capture, treat, and reuse water more efficiently
- Recycled water is expensive due to new infrastructure, but it helps the triple bottom line:
  - Quality of life improvements, ecological benefits, avoided costs (of water supply shortfalls and others)
- Wastewater and suppliers want the other entity to pay. Consider the following:
  - Have beneficiaries pay accordingly. Identify and quantify the benefits and who receives them, they should pay in proportion
  - Prices are always passed to the customer, so we must pay attention to social equity and affordability
- Path Forward
  - Identify and quantify all the benefits (thinking across jurisdictions)
  - o Communicate the benefits to all
  - Consider who benefits (allocate costs accordingly)

# Management Lessons – Eric Rosenblum

- Mutual recognition of individual agency benefits and constraints is important
- Collaborating managers build trust to promote shared responsibility. Building trust takes time
- Pilot projects provide engineers, operators, laboratory technicians and others the opportunity to work together
- Improve formal communication with informal relationships, i.e., "get lunch"

## Leadership Lessons – Shannon Spurlock

- Balance short-term and long-term interests
- Successful leaders:
  - Meet the immediate needs of their ratepayers
  - Provide services whose long-term value extends beyond their boundaries
  - Communicate the benefits of long-term, regional planning to their constituents
- The future is uncertain, so we must plan for change and be adaptable
- Relationships are core, trust needs to be established prior to legal agreements (and legal agreements rarely result without trust)
  - Get to know people out of the office (interpersonal relationships are closely tied with successful implementation)

# See Attachments for Breakout Session Takeaways, Next Steps, and

# Commitments

Attachment1: Breakout Session Takeaways

Attachment 2: Next Steps and Commitments

# Attachment 1: Breakout Session Takeaways

# Breakout #1

## Questions

During the first breakout session, groups were asked to consider the following questions:

### 1. What are your agency's top two priorities?

- a. What are the greatest water challenges you face?
- b. What solutions are you considering?
- 2. What are your thoughts about how water reuse fits into your future plans?
  - a. If you are not considering water reuse, why not?
- 3. If you had a magic wand, what would you do today to move water reuse forward?
  - a. What obstacles would you remove to allow action?
  - b. What support do you need to allow action?

### 1. Priorities:

### Governance

- Collaborate to work across jurisdiction boundaries (boundary busting)
- Create enduring institutions that will outlast senior leaders/elected officials

### **Regulations and Policy**

- Address uncertainty around future regulations/standards for nutrients etc.
- Consider banning coastal discharge

### Economics and Financing

- Avoid to stranding assets/aging infrastructure
- Identify additional forms of funding; lock-in funding for multiple years
- Assign a monetary value to in-stream flows to allow them to compete with other priorities

### Management

- Create capacity for staff to look beyond day-to-day, allow for future focus
- Ensure equitable use/address bias towards affluent communities
- Create centralized outreach resources with a single set of messages for the entire region
  - Potable reuse will likely require additional outreach
  - o Have an individual with public respect/attention help drive outreach
  - o Water color is an issue with dual plumb facilities and public acceptance

### Leadership

- Create storage to ensure supply during droughts
- Create leadership alignment and move fast when there is alignment

### Technical Capacity

- Move beyond studies and scale up for larger projects
- Produce master plans as a tool for implementation (challenging to do)

### Water supply

• Provide a reliable and affordable water supply

2. Magic wand desires (not incorporated in priorities):

# Infrastructure and technical challenges

- Get rid of I&I
- Solve the issue of RO concentrate, PFAS and other CECs (could tie those to regulations on discharge, which would create even more challenges)

## Outreach

- Instantaneous public understanding (especially of the costs of inaction)
- Reduced NIMBY sentiment for facilities

# Governance

- More JPAs
- Consolidate agencies (or increase communication),
- Give wastewater agencies the right to distribute recycled water in their jurisdiction

# Management

• Improve collaboration and negotiation skills for staff

# Economics

• An industry standard on how to divide costs

# Regulations and policy

- Creative and pragmatic thinking from the Regional Board to create opportunities for agencies to advance these projects
- Legislation giving impacted communities a seat at the table for decision making (ex: 1383)
- Enshrine progress in regulation
- Reduce water contracts to incentivize providers to diversify their portfolios (i.e., water cuts)

# Breakout #2 Report Outs

# Questions

- 1. How is your **ability to form partnerships** impacted by governance, regulation, economics, management, and leadership?
- 2. Which **external partnerships** do you need to establish to enhance the effectiveness of your organization now and in the future for considering and advancing water reuse?
- 3. What **individuals or groups** at your agency and in the broader Bay Area community need to be brought to the table to successfully implement water reuse?

# Examples of collaborations

- North Bay Water Reuse Authority had success getting funds through lobbying and as a planning entity
- Bay Area Regional Desal project was a great research collaboration, but implementation requires further alignment
- Having BACWA as a single entity is highly valuable to centralizing discussions. ACWA Region 5 overlaps with BACWA, so a meeting between the two could be valuable
## General comments

### Governance challenges

- Involving elected officials can benefit projects due to their profile, but individual agendas may lead to conflict
- Organizations can be strengthened by regular goal setting/mission adaptation
- Agencies must work out on the edge of their mission (grow/flex)
- What form of governance fits best? Who is on the hook for compliance? Who receives the permit? Who pays?
  - JPAs are great but they have funding issues and require approval by multiple boards (droughts can accelerate approval). Renewing JPAs is complicated

### Regulatory and policy challenges

- An internal team needed to be built at the regional board to permit the first IPR project
- Facilitate innovation by increasing technologist communication with the utilities
- These projects often result in a clash of environmental values (locating near the Bay is touchy)

### Economic challenges

- How do we bring in other aspects of resiliency, fires, flooding, etc. to broaden our support base?
- Lots of entities want recycled water, but their expectations for timing and quantity are often unrealistic/cost prohibitive

### Management challenges

- Smaller communities have a hard time participating in these organizations. We need to find ways to make their involvement easier
- Staffing issues in cities limit capacity, not just funding. How to compete with other issues?
- Take advantage of formal and informal networks of association to convene people on the topic
- Building capacity: increase retention, increase mentoring/training capacity, create succession plans, designate interagency backups
- Water quality varies. Emphasis on Hetch-Hetchy water quality decreases demand for alternative water sources
- Recycling water also requires energy, so be cognizant of energy issues and bring those people to the table

## Leadership challenges

- Personalities matter (changes entire organization when there are shifts)
- Bring underrepresented groups, NGOs, Tribes, upstream users, and research organizations to have a seat at the table from the outset. They can be advocates if they are invested
- How do we keep the public engaged? During the drought, many customers were engaged, but that attention has dropped off
  - o Different kinds of ad campaigns and outreach may be helpful
  - Unified messaging across agencies is helpful, but tailored messaging is also necessary
- Water reuse is going to have to be tailored to each region/agency

## Attachment 2: Next Steps and Commitments

- 1. What would you like to see as next steps for recycled water?
- 2. What actions will you commit to?

## Collaborate with other organizations

Next Steps		Commitments	
•	Reach out to ACWA	•	Continued participation in BACWA and supporting
•	Joint meetings between ACWA and CASA, and		better integration of water supply agencies into this
	ACWA Regs and BACWA		discussion through ACWA to support regional
			project development

## Hold future meetings

## Hold future regional meetings

<ul> <li>Similar meetings – I would like to hear what other agencies are doing in terms of project and studies</li> </ul>	<ul> <li>Facilitate or help to facilitate a meeting between water agency leadership and wastewater agency leadership</li> </ul>
<ul> <li>I would love for another meeting/workshop be convened to continue this discussion in t future</li> <li>Continued reuse community events such as today</li> <li>Reconvene 2-3 times per year</li> <li>Furthering the discussion on the barriers an how to overcome them for recycled water projects This workshop was fantastic and go to be with folks facing similar issues. Another</li> </ul>	<ul> <li>Continue efforts to bridge wastewater agencies with reuse potential with water agencies that would benefit from portfolio diversification enhancing resiliency (e.g. Marin County). Efforts include bringing in Regional or State entities to facilitate dialogue</li> <li>Continue developing and expanding partnerships to promote/build reuse facilities</li> <li>Continue to engage at meetings</li> </ul>
Hold future subregional meetings	
<ul> <li>Urge RB2 or BACWA to convene a subregion focused meeting Pilot efforts to build collaboration within one region (subarea) in Bay Area</li> </ul>	<ul> <li>al,</li> <li>Connecting San Leandro and EBMUD</li> <li>I would like to talk to my wastewater agencies more often and hear what their issues are and how I can help them to come to the table for collaboration</li> <li>Follow up with at least three participants</li> <li>Continue to look for recycled water opportunities and continue the dialogue</li> <li>Coordinated meeting with vision-statement between local water and wastewater boards</li> <li>I will commit to help facilitate partnerships to accelerate recycled water projects</li> </ul>

## Enhance technical ability

## Increase technical knowledge of reuse

Next Steps	Commitments
<ul> <li>Identification of main industrial water uses and ways to supply them with recycled water</li> <li>Continue research in the subject area</li> <li>Continued development of both non-potable and potable reuse</li> <li>See indirect potable reuse and direct potable reuse more utilized throughout California and use of indirect potable reuse to replenish groundwater supplies</li> <li>Implement more recycled water projects in the Bay Area</li> </ul>	<ul> <li>Review our long-term plans in light of what was discussed today</li> <li>Work with the city to move the recycled water master plan forward</li> <li>Stay engaged at a high and impactful level</li> <li>Intentionally monitor staff and create lasting organizational culture with respect to collaborations Sharing/researching more best practices for getting talent hired (Committed actions, individual actions)</li> </ul>
Increase internal capacity for collaboration	
<ul> <li>Do some case studies of current projects and develop the critical path steps with the major agencies to ensure success and also as a training for future projects</li> <li>Take 2-3 priorities and create a framework to address each</li> <li>Training at staff level</li> <li>Break down some regional reuse projects that have real barriers and brainstorm real solutions to move forward</li> <li>Role reversal</li> </ul>	<ul> <li>I commit to building new relationships at the staff level of the agencies mine needs to partner with. All levels matter.</li> <li>Follow up to see how we can contribute to supporting collaboration that supports reuse</li> <li>Read the Plan 2.16 report</li> <li>Read the Lessons for Successful Collaboration document</li> <li>Engage my GM on establishing other collaborating groups</li> <li>Alameda LAFCO to consider contract at November meeting to do a collaborative test study</li> <li>Educate my elected officials more about recycled water</li> </ul>
Identify subregional partnerships	
<ul> <li>Create a regional map showing all the projects in concept and planning in the Bay Area</li> <li>The areas outlined where there are shared areas of interest and focus, a la, natural areas of</li> </ul>	<ul> <li>Help develop collaboration relationship map of the Bay Area (Dave Smith)</li> <li>Continue the collaborative efforts and agreements to increase recycled water usage</li> </ul>
<ul> <li>collaboration</li> <li>Some group to maintain and make public a list of high probability of proceeding recycled water projects</li> </ul>	<ul> <li>Participate on potable reuse project partnerships</li> <li>Pursue the current water reuse projects and foster the partner relationships</li> <li>Pursue recycled water or alternative water supply</li> </ul>
<ul> <li>Explore more about potential regional partnerships</li> <li>Short list of potential indirect potable reuse projects linked to ground water basins and/or surface water reservoirs</li> </ul>	<ul> <li>in areas where available Continue pursuing regional partnerships to implement reuse projects and grant funding</li> <li>Movement toward agreements</li> <li>Having regular lunch with partners</li> </ul>
Work with local potential users	More outreach to water agencies

# Enhance technical ability (con'td)

## Increase economic intelligence

Next Steps		Commitments	
•	A template for valuing projects/benefits that can be applied regionally A cost allocation template Standardized cost structures for wastewater Economic success stories of water and wastewater agencies around recycled water projects	•	Ensure that multi-benefit projects are brought to the forefront during planning exercises. The focus is too easily siloed into nutrients, aging infrastructure, etc. Research the avoided cost of curtailment and how that could help fund recycled water
•	Forum on funding opportunities		

## Engage regulators

•	Potable Reuse – ROC discharge to Bay and nutrient reduction seem to contradict. Need more alternatives for managing ROC	•	Gather lessons from indirect potable reuse projects to apply within the SF Bay Region (in particular around the permitting process
•	Regional effort in regulatory issues		
•	Compilation of California reuse rules for each		
	use type in one place		
٠	I would like to see more leadership, guidance,		
	and regulation from the State Water Board to		
	facilitate and encourage or require more water		
	recycling		

## Increase funding

•	More federal and/or grant funding	•	Investigate opportunities for funding and cost
•	More federal funding for recycled water		sharing, in view of broader social and
	projects		environmental values
•	More funding	٠	Follow up with Dave Richardson on WRF funding
•	More funding and less jurisdictional constraints		for direct potable reuse study
	(use across cities, counties, and agencies)		

## Improve outreach

•	Find universal driver for recycled water Better messaging and education to agricultural users and the public A more regional approach to messaging around purified water or reuse in general. What about a website on the BARR webpage Wastewater viewed as a resource	•	Become a bigger champion of recycled water \ Continue educating people about recycled water I will commit to look into the social acceptance of recycled water and work with experts (Data Instincts) on this subject Continue to promote/discuss importance and value of recycled water with the community Continue to provide information by publishing
		•	reports/studies or meeting/Zoom discussion
			groups





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

Date/Time: October 27, 2023, 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	Х	
	Matt	Fabry	Alternate		
BACWA	Amit	Mutsuddy	Member	Х	
	Jackie	Zipkin	Alternate	Х	
	Lori	Schectel	Alternate	Х	
	Eric	Dunlavey	Member	Х	
Cal DFW	Becky	Ota	Member		
U.S. Geological Survey	Mike	Chotkowski	Member		
NOAA Fisheries	Joe	Dillon	Member	Х	
	Brian	Meux	Alternate	Х	
Regional San	Lisa	Thompson	Member	Х	
San Francisco Baykeeper	lan	Wren	Member	Х	
South Bay Salt Pond Restoration Project	David	Halsing	Member	Х	
Interagency Ecological Program	Steve	Culberson	Member		
SFCWA	Lynda	Smith	Member		
	Frances	Brewster	Alternate		
U.S. EPA	Terry	Fleming	Member		retired
	Luisa	Valiela	Alternate		
	Dana	Michels	Alternate	Х	
U.S. FWS	Leanna	Zweig	Member	Х	
WSPA	Kevin	Buchan	Member	Х	
Ocean Protection Council	Kaitlyn	Kalua	Member		
Central Valley Water Board	Adam	Laputz	Member		
	Janis	Cooke	Alternate	Х	
	Christine	Joab	Alternate		
SF Bay Water Board	Tom	Mumley	Member	Х	
	Richard	Looker	Alternate	Х	

#### **Additional Attendees**

David Senn, SFEI, Science Manager, Program Coordinator Team Robert Schlipf, Water Board Farid Karimpour, SFEI Dan Killam, SFEI Don Grey, EBMUD Ariella Chelsky, SFEI Martin Volaric, SFEI Pradeep Mugunthan Blake Brown, CCCSD Kevin Lunde, SF Bay Water Board Lorien Fono, BACWA Mary Cousins, BACWA Megan Williams, OPC Mick Connor Rebecca Nordenholt, SF Bay Water Board

Meeting materials are available here: https://drive.google.com/drive/folders/1cZYArziJWiYUsWPPR10Euk52p9Sg7vn9

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

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

Regarding Notes from the last meeting – Eric noted that "Remote" is misspelled "remove." With that change, the motion to approve the meeting summary passed unanimously.

#### 3. Information: Action Items

Dave noted that one of the action items is to discuss better financial management. That will be addressed in February. There was a discussion about HAB response. Rebecca shared that there is now a Regional Water Board HAB Response Procedure (September 2023) which can be found here:

https://www.waterboards.ca.gov/sanfranciscobay/water\_issues/programs/HABs/SF%20Bay%20H AB%20response%20procedure%20FINAL\_website.pdf

The Regional Water Board is developing a communication strategy on algal booms, as is BACWA. In February we can review which pieces of the communications strategy are developed and what remains. Kevin Lunde is the lead on the Regional Water Board's effort and will share a draft with the Steering Committee.

The Regional Monitoring Program is holding a multi-year planning meeting next week and they are also going to be developing protocols for entertaining response to emergencies (fires, storms, etc.) for event-based monitoring.

#### 4. Information: Planning Subcommittee Report Out

MERHAB And WQIF grants were discussed. There was a 2-page summary about MERHAB that was distributed. Dave and Ari are going to present later in the agenda on how the MERHAB, WQIF and other work will all fit together.

#### 5. NMS Program Updates

Most of the Q1 work moved forward as planned. R/V Peterson is in dry dock. No cruises were missed but some of the spatial extent and instrumentation was lost due to switching boats. There were 6 South Bay surveys this year and the last one was just done in mid-October.

Dan is working on the deep subtidal assessment framework. They are using DNA-based measurements of the phytoplankton community now. The phytoplankton community was previously poorly understood, and observations focused more on blooms than baseline conditions. Some algae weren't being detected using microscopy. They are now working with Martha Sutula and others to look at the DNA evidence too.

Regarding modeling, the team has diverged from the science plan that was developed in April/May. They had a model advisory group in February. In May and June they decided to focus the entire modeling team to look at simulations and analysis of model output to make "final improvements" to the model to make runs for the decision-making for the 3<sup>rd</sup> Watershed Permit. That mid-November deadline is starting to move away from them, Dave says. They are trying to do as much as they can given the time they have.

Another thing that didn't go as planned is that there was re-emergence of *Heterosigma* in late July, which required monitoring resources Lawrence at SFEI did a good job of automation of the data processing from remote sensing European Space Agency – they can only request the data a few times per day. The NOAA Grant will use the algorithms that Lawrence has developed and will pass the algorithm to the operational remote sense modelers at NOAA who are going to pass that directly to SFEI on a daily basis. Dave provided an update of the satellite data interpretation.

The website is undergoing an extensive update. There have also been a set of recent reports published, including:

- Character
- Suspended sediment monitoring in South/Lower South Bay
- Modeling Update
- MAG Update
- Nonparametric and additive mixed meta-analysis
- Evaluation and refinement of Chl-a algorithim for high-biomass blooms
- Modeling the dispersal of the plumber over the shelf

Dave provided an update on recent fundraising efforts including MERHAB (\$3M over 5 years), EQP WQIF (\$1.8M for nutrient modeling); WQOF (in review, \$3M), DRMP (\$300K), DSP (to be submitted).

Dave showed an update on the FY24 budget.

#### 6. Technical Update: Nature Based Solutions

This item was skipped for this meeting

#### 7. Technical Update: Proposed work, Heterosigma akashiwo

Don Grey from EBMUD gave an update on the proposed study of *Heterosigma akashiwo* that has been proposed to WRF. He is investigating whether *Heterosigma's* mixotrophy explains the observed dynamics. The proposed study would grow and test *H akashiwo* strains in from 2022 and 2023, and investigate factors needed to initiated key *H. akashiwo* growth outcomes.

The final end date for the proposed study will be 1.5 years after the start date, but we expect to have preliminary results in a few months. Don will follow up with Dave and the team to make

sure that there is integration with the science program. Don will work with the science team to ensure that it is complementary with ongoing science program work. Joe Dillon said that fish and wildlife is supportive of seagrass, but is cautious about adding clay to the environment that may be harmful to aquatic organisms. This proposal would be a small, shallow area. Note that green sturgeon are endangered, and FWS is considering taking action pertaining to white sturgeon. Work in Lake Merritt would probably be an acceptable test bed for the clay settling part of the study.

#### 8. Technical Update: Recent Grants and Proposals

Ari gave an update on the current moored sensor program, indicating which water quality parameters are measured by which sites. The program has succeeded in in expanding the network, shoal monitoring, building capacity, improving collaboration/coordination, and targeted fundraising.

The WQIF proposal identifies the following tasks:

- Task 1 monitoring program integration and optimization This includes water quality dashboard, and improved monitoring program and data analysis improvement
- Task 2 Targeted analysis
- Task 3 Ecosystem Scale Long-term monitoring This includes expansion of moored sensor network, carbon chemistry, remote sensing capacity, implementation of expansion recommendation
- Task 4 Scenario modeling and Management Application Calibration and validation with existing monitoring data

Ari showed a map of where the monitoring program will expand should the proposal be successful. There was a question about ammonia monitoring. The cruises collect ammonia data.

We expect to hear about results of the grant proposal by mid-December. There was a discussion about having long term targeted, non-competitive funding from EPA that could support programs such as the RMP and NMS.

### 9. Technical Update: 2022 HAB Bloom Synthesis

Dave gave an overview of monitoring resources deployed during the bloom, including the mooring stations and mapping cruises between July 7 and September 7. They also do toxin analyses. They have also deployed remote sensing. Numerical modeling can help with forensics or diagnostics. Dave walked through the patterns of DO, chl, and NO3 throughout the Bay over the course of the event. The nitrogen was stoichiometrically converted to BOD, that then resulted in oxygen drawdown.

Dave noted that what was observed was a departure from our usual thinking about blooms, which usually occur in the spring and are tied to stratification. The team is thinking about how to use the observations to probe what factors caused and shaped the bloom. There was no smoking gun in terms of non-anthropogenic conditions that we can point to. The current hypothesis is that the organism's capacity for swimming, and simultaneous lack of perturbation from wind and tides during the daytime created the low-turbidity conditions and "window of opportunity" that were

favorable for initiation. These conditions occur yearly, and were present during the 2004 bloom, as well as the 2023 event.

A few other items are of note: The sharp decrease in chlorophyll happened at the same time across all sites and the mechanisms for this die-off is unknown. There may also have been an atypically high *heterosigma* source.

#### 10. Discussion: NMS Science Priorities

The science plan is up for adoption at the May Steering Committee meeting. Dave is recruiting for a subcommittee to start to develop a multi-year plan as well a plan for next year. This is an opportunity to revisit the status of understanding/management questions and/or work completed and invest in important but neglected items. We will revisit the management questions. We could also convene an advisory group to assess the state of the science and the program's progress. There was a discussion of how the program manager could help to support the program and how it would fit in to the current decision making.

The major goal for the program is to support the long term load reductions that will be undertaken by POTWs. There was a discussion about the difference between targeting the management questions versus systematically improving our understanding of the system. There was a question about how open we are to reevaluating the core program. We could consider bringing in outside support for guiding the Science Plan reevaluation process. It would be helpful for the team to have some synthesis materials to support planning.

Tom Hall volunteered for the effort, and Joe Dillon may be able to participate if the effort doesn't begin until January.

#### 11. Action Items and Wrap-up

- Initiate process to revise science plan
- Update financial documentation
- Kevin Lunde to share draft communications plan

Next meeting is scheduled for February 9.

## Planning Subcommittee (PSC) Meeting No. 80 November 6, 2023 9:30 am – 12 pm Teleconference Chair: Ian Wren Meeting Notes

Attendees: Dave Senn, Ian Wren, Richard Looker, Lorien Fono, Tom Mumley, Kevin Lunde, Robert Schlipf, Amit Mutsuddy, Ariella Chelsky.

### 1. Science Priorities Permit #3 Approach

Dave proposed a framework for updating science priorities. The schedule would be:

- Work with group Dec-Jan, hold biweekly meetings
- Develop 1<sup>st</sup> draft late January
- Second draft mid-March
- Final on April 15

Dave asked what level of effort and ultimate outcome needs to be defined as part of this effort. Major considerations include program/science needs, management and science questions, needed decisions and/or regulatory outcomes, monitoring as a fundamental driver of cost allocation, and how we do budget planning during the science planning process.

We would want to reevaluate what work to pursue going into the next science plan. We also want to evaluate how new funding sources will support the program. There was a discussion about whether we can meaningfully re-envision the science plan given the fixed costs.

The science plan efforts should be used to inform management decisions that the Water Board intends to make in the next 4-5 years. There was a discussion about the Lower South Bay and whether that work should be deemphasized based on the availability of potentially sufficient information to inform regulatory or management actions. Dave suggested walking through the original goals and assessing our progress.

Dave shared program cost estimates compared to the original proposed science plan. He also showed a graphic of how new funding would offset or supplement existing allocations.

We will use the December Planning Subcommittee meeting to launch the science planning effort. We will start with a regular meeting then invite the volunteers to join for a planning discussion starting in the second hour.

## 4. Modeling work, update/direction

The team is currently working on establishing initial conditions for July 2022. Richard Looker is working on a 1-pager to describe the modeling approach with respect to informing regulatory decisions.

## 5. Action items:

- Dave to develop materials to support science planning effort
- Richard to distribute 1-pager on modeling effort
- Update the budget for the December PSC meeting

## Workshop on Developing a San Francisco Bay Fish Consumption Survey Questionnaire



November 3, 2023 Workshop 12:00 PM – 5:00 PM



## HYBRID MEETING In-person: First floor conference room at SFEI 4911 Central Ave, Richmond CA

**Remote Access:** 

http://sfei.li/consumption-survey-questionnaire

Meeting ID: 876 9045 4684 Dial in: +1 669 444 9171

## AGENDA

1.	<ul> <li>Introductions and Review Goals for the Meeting Meeting goals:</li> <li>1. Become acquainted with each other</li> <li>2. Inform the group on background and overall plan for the project</li> <li>3. Consensus on basic content of the questionnaire</li> <li>4. Preliminary discussion of survey implementation</li> <li>5. Inform the group on next steps</li> </ul>	12:00 (30 min) Jenalyn Guzman
2.	<ul> <li>Project Background</li> <li>The Water Board wants to designate a subsistence beneficial use (SUB) if it is necessary for San Francisco Bay. To determine if it is necessary, they need better information on rates of consumption and contaminant exposure by groups with high consumption rates.</li> <li>Materials: Water Board Background Document (page 3 of the agenda package)</li> <li>Desired Outcome: <ul> <li>Informed group</li> </ul> </li> </ul>	12:30 (30 min) Samantha Harper, Kevin Lunde
3.	<ul> <li>General Plan for this Project</li> <li>Overview of the general goals, plan, and timeline for this project.</li> <li>Materials: Slides presented at the meeting</li> <li>Desired Outcome:         <ul> <li>Informed group</li> </ul> </li> </ul>	1:00 (30 min) Jay Davis

4.	Previous Consumption Surveys and Fish Monitoring A brief review of 1) prior surveys that have influenced the design of the draft questionnaire, especially the 2000 San Francisco Bay Consumption	1:30 (30 min)
	Survey: and 2) Bay fish monitoring	Jay Davis
	Materials: Compilation of questionnaires from prior surveys (pages 4-56)	
	Desired Outcome:	
	• Informed group	
5.	Draft Questionnaire (Part 1)	2:00
	Discussion of the goals of the survey and the questions to include in the survey.	(30 min)
	Materials: Draft list of questions to include in the survey (pages 56-60)	Martin
	Desired Outcome:	Trinh,
	<ul> <li>Inform the group and obtain input</li> </ul>	Jay Davis
6.	Break	2:30
		(20 min)
7.	Draft Questionnaire (Part 2)	2:50
		(60 min)
8	Preliminary Discussion of Survey Implementation	3.20
8.	<b>Preliminary Discussion of Survey Implementation</b> Preliminary discussion of plans and considerations for implementation of	3:50 (50 min)
8.	<b>Preliminary Discussion of Survey Implementation</b> Preliminary discussion of plans and considerations for implementation of the survey.	3:50 (50 min)
8.	<b>Preliminary Discussion of Survey Implementation</b> Preliminary discussion of plans and considerations for implementation of the survey. Materials: Slides presented at the meeting	3:50 (50 min) Martin
8.	Preliminary Discussion of Survey Implementation Preliminary discussion of plans and considerations for implementation of the survey. Materials: Slides presented at the meeting Desired Outcome:	3:50 (50 min) Martin Trinh,
8.	<ul> <li>Preliminary Discussion of Survey Implementation</li> <li>Preliminary discussion of plans and considerations for implementation of the survey.</li> <li>Materials: Slides presented at the meeting</li> <li>Desired Outcome:         <ul> <li>Inform the group and obtain input</li> </ul> </li> </ul>	3:50 (50 min) Martin Trinh, Jay Davis
8. 9.	<ul> <li>Preliminary Discussion of Survey Implementation</li> <li>Preliminary discussion of plans and considerations for implementation of the survey.</li> <li>Materials: Slides presented at the meeting</li> <li>Desired Outcome:         <ul> <li>Inform the group and obtain input</li> </ul> </li> <li>Next Steps</li> </ul>	3:50 (50 min) Martin Trinh, Jay Davis 4:40
8. 9.	Preliminary Discussion of Survey Implementation         Preliminary discussion of plans and considerations for implementation of the survey.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input         Next Steps         Review of timeline for the rest of the project.	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min)
8. 9.	<ul> <li>Preliminary Discussion of Survey Implementation</li> <li>Preliminary discussion of plans and considerations for implementation of the survey.</li> <li>Materials: Slides presented at the meeting</li> <li>Desired Outcome:         <ul> <li>Inform the group and obtain input</li> </ul> </li> <li>Next Steps         <ul> <li>Review of timeline for the rest of the project.</li> <li>Materials: Slides presented at the meeting</li> </ul> </li> </ul>	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min)
8. 9.	<ul> <li>Preliminary Discussion of Survey Implementation         Preliminary discussion of plans and considerations for implementation of             the survey.         Materials: Slides presented at the meeting             Desired Outcome:             <ul> <li>Inform the group and obtain input</li> </ul> </li> <li>Next Steps         <ul> <li>Review of timeline for the rest of the project.</li>             Materials: Slides presented at the meeting             Desired Outcome:             <ul> <li>Inform the group and obtain input</li> </ul> </ul></li> </ul>	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min) Jay Davis
8. 9.	<ul> <li>Preliminary Discussion of Survey Implementation         Preliminary discussion of plans and considerations for implementation of             the survey.         Materials: Slides presented at the meeting             Desired Outcome:             <ul> <li>Inform the group and obtain input</li> </ul> </li> <li>Next Steps         <ul> <li>Review of timeline for the rest of the project.</li> <li>Materials: Slides presented at the meeting</li> <li>Desired Outcome:                 <ul> <li>Inform the group and obtain input</li> </ul> </li> </ul> </li> </ul>	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min) Jay Davis
8. 9.	Preliminary Discussion of Survey Implementation         Preliminary discussion of plans and considerations for implementation of the survey.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input         Next Steps         Review of timeline for the rest of the project.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min) Jay Davis 4:50
8. 9. 10.	Preliminary Discussion of Survey Implementation         Preliminary discussion of plans and considerations for implementation of the survey.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input         Next Steps         Review of timeline for the rest of the project.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min) Jay Davis 4:50 (10 min)
8. 9. 10.	Preliminary Discussion of Survey Implementation         Preliminary discussion of plans and considerations for implementation of the survey.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input         Next Steps         Review of timeline for the rest of the project.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform d group         Feedback on Today's Workshop         Desired Outcome:         • Obtain feedback on the Workshop from Workshop participants	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min) Jay Davis 4:50 (10 min)
8. 9. 10.	Preliminary Discussion of Survey Implementation         Preliminary discussion of plans and considerations for implementation of the survey.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input         Next Steps         Review of timeline for the rest of the project.         Materials: Slides presented at the meeting         Desired Outcome:         • Informed group         Feedback on Today's Workshop         Desired Outcome:         • Obtain feedback on the Workshop from Workshop participants	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min) Jay Davis 4:50 (10 min) Facilitator
8. 9. 10.	Preliminary Discussion of Survey Implementation         Preliminary discussion of plans and considerations for implementation of the survey.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input         Next Steps         Review of timeline for the rest of the project.         Materials: Slides presented at the meeting         Desired Outcome:         • Inform the group and obtain input         Preview of timeline for the rest of the project.         Materials: Slides presented at the meeting         Desired Outcome:         • Informed group         Feedback on Today's Workshop         Desired Outcome:         • Obtain feedback on the Workshop from Workshop participants         Adjourn	3:50 (50 min) Martin Trinh, Jay Davis 4:40 (10 min) Jay Davis 4:50 (10 min) Facilitator 5:00



## **BACWA EXECUTIVE BOARD ACTION REQUEST**

AGENDA NO.: 8

MEETING DATE: October 20, 2023

TITLE: Approval of Amendment #7 to Optimization/Upgrade Contract with HDR, new not-to-exceed value of \$295,000.

 $\Box RECEIPT \qquad \Box DISCUSSION \qquad \Box RESOLUTION \qquad \Box APPROVAL$ 

## **RECOMMENDED ACTION**

Approve Amendment No. 7 to the HDR contract approved on September 9, 2014, increasing the contract amount of from \$225,000 to \$295,000 for services during the term of the 2<sup>nd</sup> Watershed Permit.

## SUMMARY

The first Wastershed Permit required a nutrient reduction study that evaluated opportunities for nutrient treatment via optimization, upgrades, and sidestream treatment. After a competitive selection process, BACWA selected HDR to perform the required work. The contract was amended six times as the scope of work evolved over the course of the first Watershed Permit Term.

On November 16, 2018, the BACWA Board approved Amendment No. 6 to the Optimization and Upgrade studies contract. The Amendment added three scope of work items to provide for continued support during the term of the 2<sup>nd</sup> Watershed Permit: 1) Prepare Group Annual Reports during the term of the 2<sup>nd</sup> Watershed Permit; 2) Provide As Needed Services related to the 2<sup>nd</sup> Watershed Permit; and 3) Provide Project Management. As the level of effort exceeded the originally anticipated contract level, Amendment #7 would increase the contract amount from \$225,000 to \$295,000 as follows:

	GAR	As-needed support	Project management
Amendment #6	150,000	50,000	25,000
Spent through FY23	133,352	84,085	25,000
Proposed Amendment #7 (i.e. new total)	170,000	100,000	25,000

Including the proposed Amendment #7, the contract amounts associated with this previously approved work are listed below.

Amendment Date Incre		Incremental	Purpose
		Cost	
Original Contract	Sept 11, 2014	<u>\$809,414</u>	Nutrient reduction study
Amendment #1	<u>May 15, 2015</u>	<u>\$80,000</u>	No net loading cost estimate
Amendment #2	<u>May 20, 2016</u>	<u>\$12,000</u>	Increased detail in cost estimation
Amendment #3	Never ap	proved	Increased level of effort for no net loading analysis
Amendment #4	Jul 20, 2018	<u>\$29,410</u>	Brochure and Water Board Workshop
Amendment #5	<u>Oct 23, 2018</u>	<u>\$5,000</u>	As-needed services
Amendment #6	<u>Nov 16, 2018</u>	<u>\$225,000</u>	GAR and as-needed support during WSP2.0
Amendment #7	<u>Oct 20, 2023</u>	<u>\$70,000</u>	Increased level of effort for GAR and as needed
			<u>support</u>
Total		\$1,230,824	

This agreement does not change the termination date of the agreement<u>Amendment #6</u>, which is June 30, 2024.

## FISCAL IMPACT

In the BACWA Budget Approved on April 21, 2023, \$100,000 was budgeted for this line item for FY24.

## ALTERNATIVES

 Do not proceed with this work. This is not recommended as the Group Annual report is required by the Nutrient Watershed permit. Additionally, BACWA is in need of this support as it negotiates the 3<sup>rd</sup> Watershed Permit with the Water Board.

Attachments:

- 1. Amendment #6
- 2. Scope of Work

Approved:

Date:

Amit Mutsuddy, Chair BACWA

### **BACWA Board Meetings**

### January thru December 2024

January 19<sup>th</sup> – EBMUD Downtown, Admin Bldg, Small Training Room 2<sup>nd</sup> Floor

February 16<sup>th</sup> – EBMUD Orinda

March 15<sup>th</sup> – CCCSD

April 19<sup>th</sup> - SFPUC

May 3<sup>rd</sup> – Annual Meeting, Brower Center, Berkeley

June 21<sup>st</sup> – EBMUD Orinda

July 19th

August 16<sup>th</sup>

September – 5<sup>th</sup> & 6<sup>th</sup> or 12<sup>th</sup> & 13<sup>th</sup> Pardee Technical Seminar

October 18<sup>th</sup>

November 15th

December 20th

#### **BACC Update**

#### November 2024

Based on the results of the BACC Annual Chemical Survey we will be preparing the bid documents for the following chemicals: Aluminum Sulfate Ammonium Sulfate Aqueous Ammonia Citric Acid Ferric Chloride Ferrous Chloride Hydrofluosilicic Acid (Fluoride) Liquid Chlorine Sodium Bisulfite Sodium Hydroxide Sodium Hypochlorite

BACC Agencies are currently working on their Estimated Quantities and Delivery Details spreadsheets. These are due December 1, 2023.

#### FY2024-25 BACC Bid Timeline

Sulfuric Acid

- Agency FY2024-25 Estimated Quantities, Delivery Details, Contact information due December 1, 2023
- Agencies will review and approve FY2024-25 BACC bid documents late December 2023 until first week or two of January 2024
- Bids will go live in Planet Bids on January 25, 2024
- Bids will be opened in Planet Bids on February 22, 2024
- Preliminary Bid Results reports will be available for agencies to review February 27, 2024
- Recommendations will be available for agencies to review mid March 2024
- Awards Letters will be issued to vendors late March early April 2024

#### Committee Request for Board Action: None

21 attendees participating virtually and in-person at the Regional Water Board's offices in Oakland, representing 16 member agencies, the Regional Water Board, and two guest speakers.

#### Updates on Committee Activity and Announcements

- Regional Water Board Announcements: The Regional Water Board has selected BAPPG's pesticide regulatory support consultants (Tammy Qualls, Stephanie Hughes, and Kelly Moran) to receive the 2023 Dr. Teng-Chung Wu Pollution Prevention Award. The winner will be presented at its November 8th meeting.
- 2. Pesticides Subcommittee: BAPPG representatives are preparing comment letters to the USEPA and the CA Department of Pesticide Regulation (DPR) and planning for an upcoming meeting with CA DPR.
- 3. Budget. The FY24 budget is on track.
- 4. Outreach / Marketing: SGA's fall campaign is underway, with messages focused on the "toilets aren't trash cans" theme. Social media and ad campaign materials were shared with members. BACWA will work with SGA to ensure that shared materials may be distributed without any copyright concerns.
- BACWA Announcements: The Clean Water Summit Partners is hosting a PFAS Perspectives webinar on October 5<sup>th</sup> (link to materials). The Regional Monitoring Program Annual Meeting is October 12th (link to materials).
- 6. CWEA: The <u>CWEA P3S conference</u> will be held February 4-7 in Anaheim.

### Update on BACWA Communications Plan

Amber Shipley from <u>Civic Edge Consulting</u> summarized ongoing efforts to develop and implement a communications plan for BACWA (<u>link to slides</u>). The communication plan will include targeted audiences, a refresh of the BACWA.org website, creation of collateral for key outreach messages, coordination with BACWA member agency staff, and metrics to evaluate performance. The key messages will be focused on algae blooms / nutrients, climate change / sea level rise resilience, and two topics that are likely to be of interest to BAPPG: "Clean water infrastructure 101," and PFAS. Attendees discussed the need for coordination with BAPPG since pollution prevention messages are typically hosted on Baywise.org.

### Emerging Contaminants Update

Diana Lin from SFEI provided an update on the Regional Monitoring Program's prioritization of CECs in San Francisco Bay (link to slides). She provided information about ongoing studies for two contaminants ranked as "high concern:" Organophosphate Esters (OPEs) and PFAS. The use of OPEs is increasing because they are a replacement compound for PBDE. In some fish tissue samples collected in SF Bay, concentrations of specific OPE and PFAS compounds exceed published ecotoxicity thresholds. Dr. Lin also provided information on toxicity concerns related to fipronil, imidacloprid, and microplastics (particularly <u>6PPD-quinone from tire particles</u>), all of "moderate concern," and quaternary ammonium compounds (QACs), which are a "possible concern." Dr. Lin's presentation was used to develop the list of potential pollutants for prioritization; PFAS, OPEs, Microplastics, QACs were all included.

#### Pollutant Prioritization

Attendees split into groups and discussed pollutants of concern, focusing on (1) the risk to POTWs, (2) how easily the pollutant can be diverted at the source, (3) whether there are potential regulatory issues, and (4) whether agencies are already working on the pollutant. After sharing the results of the group discussions, attendees ranked the top pollutants of concern through voting. Based on member votes, the final prioritized list for FY25 is:

### 1. PFAS and Toilets Aren't Trash Cans (Tied)

2. FOG

Microplastics, QACs, and Flea/Tick Medications ranked lower (3-way tie) and OPEs received no votes.

Next BAPPG General Meeting: December 6<sup>th</sup>, 2023, 10am – 12pm, on Zoom

#### Committee Request for Board Action: None

Regular meeting: 45 attendees via Zoom, including representatives from 30 laboratories and 3 guest speakers from the State Water Board and Regional Water Board

**Updates on Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program** Andrew Hamilton (Asst. Deputy Director of the State Water Board's <u>Office of Information Management and Analysis</u>) provided clarifications about differences between the federal and state versions of the Discharge Monitoring Report Quality Assurance (DMR-QA) program:

- California is different from EPA, and is aligned with ELAP. California follows a different schedule than the <u>USEPA DMR-QA program</u>. CA has aligned with the requirements of ELAP accreditation, so NPDES permittees are to submit data for the DMR-QA program with the proficiency test (PT) study results already needed for ELAP accreditation. PT results and any accompanying Corrective Action Reports (including repeat PT tests) are due Dec. 31<sup>st</sup> and must be completed within the calendar year (Jan 1 – Dec 31) of the DMR-QA study.
- **The EPA Checklists are not all-inclusive**: If you produce data for your NPDES reporting that is not on the EPA checklist, you still need to report the data (e.g., organics analyses).
- **Corrective Action reports.** The requirement to submit Corrective Action reports is different from the ELAP requirement; ELAP does not require the Corrective Action report to be submitted, but DMR-QA does.
- Contract Labs. PT and Corrective Action reports for contract / subconsultant labs must also be submitted. For contract labs, permittees only need to submit information for the parameters analyzed for that specific NPDES permit. ELAP regulations state that labs must report PTs, corrective actions and updated PTs to their clients.
- **Switching methods?** Labs that performed multiple PT's to support an amendment application for the 2021 Method Update Rule can submit PT's for new methods, or old methods, or both. Only one is required.
- **How to Submit.** The DMR-QA program staff prefer to receive submittals directly from permittees, <u>not</u> from contract labs or PT providers. Materials should be submitted to <u>QualityAssurance@waterboards.ca.gov</u>

#### Q&A Session on MDLs, RLs, and MLs

Andrew Hamilton (State Water Board) and Kerry O'Connor (Regional Water Board) hosted a Q&A session on Method Detection Limits (MDLs), Minimum Levels (MLs) and Reporting Limits (RLs). These terms are defined within Attachment A of individual NPDES permits in the region. Additional information on MLs is also found in the <u>2005 State Implementation Policy</u>, which establishes an ML for each priority pollutant ("SIP ML"). The attached table (pp. 2-3) contains a summary of the Q&A session. A recording is available <u>here</u>.

#### Member Roundtable Discussion - Standby Policies for Wet Weather

Attendees discussed laboratory staffing policies for wet weather. Some labs pay to keep staff on call during the entire wet season (6 months), while others actively track the weather and only put staff on call when there is a storm predicted. One lab reported shifting to 7-days-per-week staffing instead of using a standby system.

#### **BACWA Updates:**

- In September, the State Water Board raised ELAP fees by about 30% (<u>link to revised fee table</u>). ELAP staff no longer plan to mandate reporting on the number of regulatory samples, a proposal discussed at the August BACWA Lab committee meeting.
- SFEI is working on preparing a final report summarizing the findings from Phase 2 of the PFAS Regional Study. Results were also shared at the <u>2023 RMP Annual Meeting</u> (see <u>slides</u>).
- The <u>Tentative Order</u> chlorine blanket permit amendment is scheduled for adoption at the November 8<sup>th</sup> Regional Water Board meeting.

#### Agency Reports and Group Discussion

- Staff from San Jose reported out on recent audits. Some findings from the audit included having a NISTtraceable barometer, putting "Page 1 of 1" on one-page documents, and including five items on DO meters: the ID number, DO calibration date, DO calibration expiration date, barometer calibration date, and barometer calibration expiration date. The group also discussed temperature adjustment factors.
- Central San is recruiting a Lab Program Administrator.

#### **TNI Training and Implementation**

• Upcoming TNI training sessions are scheduled for October 17<sup>th</sup>, and December 19<sup>th</sup>. The sessions are now in Q&A format; submit your questions ahead of time to <u>Diane Lawver</u>.

#### Next Regular Meeting : Tuesday, December 12, 2023, in-person holiday luncheon at Central San

### Summary of Q&A Session on MDLs, RLs, and MLs

#	Question	Answer		
1.	Some contract labs would like to report a non-detect (ND) to the RL instead of the MDL. Is it acceptable for contract labs to report a non-detect at the reporting limit instead of reporting the MDL?	ELAP requires contract labs to report based on their client's needs. Permittees have to report the MDL per Attachment E of their permits (see example language in Attachment E, Section 7.2.5 of <u>Order R2-2023-0008</u> ) Therefore, contract lab should report this way; they should report the actual MDL. If you encounter a contract lab that is hesitant to do this, ELAP or Regional Water Board staff can provide assistance.		
2.	How is the SIP ML applied if the laboratory selects to have an RL <sip ML? Should labs raise their RL's to the SIP ML (even though they are calibrated and can detect lower)?</sip 	For reporting, permittees should report the actual RL, not the SIP ML. The same guidance applies to contract labs.		
3.	Do the SIP ML requirements apply to all treatment plant and collection system samples, or only to final effluent?	The SIP ML requirements apply to all NPDES permit samples, including influent and pretreatment samples. Water Boards staff understand that it may not always be possible to achieve the SIP MLs due to matrix interference.		
4.	How does implementation of 2016 TNI-2 standards impact a laboratory's determination of RLs or MDLs?	Within the parlance of TNI-2 standards, MDLs are the Limit of Detection, and RLs are the Limit of Quantitation (LoQ). Determination of MDLs is straightforward and should follow the TNI-2 standards for the Limit of Detection. The initial LoQ demonstration requires seven spikes to demonstrate abundance above a background level. After the initial demonstration, ongoing LoQ verification is required to be performed at least quarterly with one sample spike at the LoQ per instrument. Labs should make sure to use a clean wastewater matrix (such as final treated wastewater) to create the spike matrix blanks, not clean laboratory water. The LoQ is technology-specific, method-specific, and matrix-specific. The TNI-2 process sets the lower threshold for the LoQ. Drinking water or recycled water samples will have their own LoQs that differ from wastewater sample LOQs.		
5.	Does the Regional Water Board expect DNQ reporting for pre-treatment, raw influent and final effluent samples? Or only for final effluent samples where there is very little matrix interference?	The Regional Water Board expects DNQ reporting for all sample types per Attachment E of NPDES permits. They understand that not all MLs will meet the SIP standards due to matrix interference.		
6.	Is the "ML" nomenclature necessary? Could the Regional and State Water Boards simplify and just use "RL"?	The State Water Board may revise the SIP in the future; until then, we are stuck with the existing nomenclature.		
7.	Could the ML be interpreted as the base-RL (at a dilution of 1), where the RL is the base-RL multiplied by the dilution factor?	This description is consistent with <u>40 CFR 136</u> , where the ML and the RL are essentially the same and they are determined by multiplying the MDL by a factor of 3. The RL will shift depending on the dilution factor. Typically (though not in the SIP), the ML is defined as the lowest point of the calibration curve. The definition of RL doesn't have that same stipulation		
8.	If a sample is diluted and the analysis is run with an ML that meets the SIP ML criteria, but the RL is raised due to the dilution (and the result is ND) is the result still acceptable?	This is acceptable. Regional Water Board staff understand that dilution is sometimes necessary. Attendees noted that laboratory reports should always contain an explanation if a sample is diluted. When there is dilution, the MDL and the RL should both be multiplied by the dilution factor.		

9.	If a sample is diluted, does the Regional Water Board find it acceptable to adjust the MDLs?	Yes, same answer as #8, above. When there is dilution, the MDL and the RL should both be multiplied by the dilution factor.	
10.	Should permittees be asking their contract labs to raise their RL's to the SIP ML (even though they are calibrated and can detect lower) to align with the SIP ML?	No, all labs (including contract labs) should use and report the lowest RL that they can.	
12.	If samples are sent to two different labs with different RLs/MDLs, how should the maximum be determined? Lab 1: RL = 0.005, MDL = 0.001, result is 0.007 Lab 2: RL = 0.05, MDL = 0.01, result is	The answer depends on the context in which the sample results are being reported. If the results are being used to assess compliance with effluent limits, then the maximum is the highest <u>detected</u> value (0.007 in the example). If the results are being used for a Reasonable Potential Analysis in an NPDES permit reissuance, then the highest value <u>including estimated values</u> would be used (DNQ 0.02 in the example).	
	0.02(DNQ) SIP ML for analyte is 0.06		
11.	What is the procedure for developing an ML/RL for an on-line chlorine residual analyzer?	The blanket permit amendment for residual chlorine requires that the minimum level be no greater than 0.05 mg/L (see <u>Tentative Order</u> ). Section 4.2 of the Regional Water Board's November 2020 <u>Final Staff Report</u> contains some guidance, stating that "To derive a ML where promulgated MLs are not available, … [use] a multiplication factor of 3.18 and the method detection limit (MDL)."	
12.	Which MDL, RL, and/or ML values should be reported in electronic self- monitoring reports?	Although CIWQS can accept either an RL or an ML, reporting requirements are based on your permit. Most NPDES permits contain a requirement within Attachment E to report the MDL and <b>RL</b> , not the ML (sample language from <u>Order R2-2023-0018</u> : "The Discharger shall report with each sample result the Reporting Level (RL) and Method Detection Limit (MDL) as determined by the procedure in 40 C.F.R. part 136.")	
		Report the actual laboratory RL with every sample result. Do not report the SIP ML.	

#### Committee Request for Board Action: None

Regular meeting: 28 attendees via Zoom, representing approximately 20 member agencies

**Recruitment for Vice Chair** The committee is searching for a new vice chair to be promoted to committee chair in mid-2024. Contact Amanda Roa or Mary Cousins if you are able to serve in this role.

#### **Upcoming Permits / Tentative Orders**

Recently reissued NPDES permits for deep water discharges to San Francisco Bay no longer contain fecal or total coliform limits based on the shellfish beneficial use per Basin Plan Table 4-2A. This change is the result of a <u>Basin Plan Amendment</u> related to bacteria approved by the USEPA in 2022. The markup to Table 4-2A of the Basin Plan is shown in this <u>2021 Regional Water Board Resolution</u>. Attendees discussed whether BACWA should pursue a permit amendment for dischargers whose NPDES permits will not be reissued in the near future. BACWA staff will investigate further to determine which permittees would be affected by the proposal.

#### **Chlorine Blanket Permit Amendment**

The <u>Tentative Order</u> blanket permit amendment for residual chlorine is slated for adoption at the November 8<sup>th</sup> Regional Water Board meeting. The effective date is January 1, 2024. BACWA submitted a <u>letter of support</u>, since the permit amendment will allow reduced dosing of dechlorination chemicals for some dischargers. The committee discussed draft guidance for reporting to CIWQS, including which qualifiers to use (< or DNQ) and which CIWQS sample types to select (one-hour average or daily maximum). BACWA plans to formalize this guidance in coordination with Regional Water Board staff.

#### **Statewide Toxicity Provisions**

- <u>Quality Assurance Guidance Recommendations</u> for chronic toxicity testing using *Ceriodaphnia dubia* are now available from a statewide study led by SCCWRP.
- For newly reissued permits, make sure to check that DMR coding for chronic toxicity is correct.
- Until USEPA approves the Alternate Test Procedures for using a single effluent concentration, dischargers should continue to use the full five-concentration series for testing whole effluent toxicity. There is currently no timeline for this approval.

#### **Basin Plan Amendment to Address NPDES Permitting Needs**

The Regional Water Board has issued a <u>draft Basin Plan Amendment</u> to facilitate NPDES permitting of recycled water projects, including those with reverse osmosis concentrate. The Basin Plan Amendment includes a correction to freshwater water quality objectives, changes to the procedures for issuing dilution credits for cyanide and non-priority pollutants, and changes to the mercury concentration triggers listed in the Mercury TMDL. The draft is open for public comment until Tuesday 11/7.

#### Nutrients Update

- The committee discussed monitoring requirements for the 2024 reissuance of the Nutrient Watershed Permit. Participants noted that TKN influent sampling often shows anomalies, so frequent sampling is required to obtain reliable values.
- BACWA staff are working on a memo regarding agencies' plans for nutrient load reductions, which will be distributed for review by the Nutrient Strategy Team.

#### Other Updates

- A final report will soon be available summarizing BACWA's PFAS Regional Study. Legislation banning the use of PFAS in several classes of consumer products was vetoed by the governor (see veto messages for AB 246 and AB 727)
- The Regional Monitoring Program Annual Meeting was held October 12.
- The December meeting will be held in person and will include a catered holiday lunch.

Next Permits Committee Meeting: December 12, 2023, 10:30 AM in person at Central San in Martinez (joint with Lab Committee)

## Pretreatment Committee – Report to BACWA Board

## Committee Request for Board Action: None

53 attendees from 23 agencies participated virtually

## Presentation – Investigation of PFAS Sources to Municipal Wastewater

Diana Lin from the <u>San Francisco Estuary Institute</u> presented findings from Phase 1 and Phase 2 of the BACWA-funded Bay Area Regional PFAS Study. Phase 2 involved sampling of residential sewersheds in addition to influent, effluent, and biosolids, which were also sampled in Phase 1. Due to the involvement of Pretreatment Committee members, the Phase 2 study also included sampling of several types of industrial and commercial dischargers: industrial laundries, hospitals, semiconductor manufacturing, chrome plating, pulp paperboard manufacturing, car washes, a jail, and a military site. Residential loading was found to be the dominant source of PFAS to wastewater treatment plants. Among industrial dischargers, the highest PFAS concentrations were found in industrial laundries.

After the presentation, attendees discussed the complexities of sampling industrial discharges for PFAS. EBMUD staff have prepared an industrial sampling plan for their agency and recommended the <u>State of Michigan's Sampling Guidance</u> as a reference. This guidance was also used in the <u>Phase 2</u> <u>Sampling and Analysis Plan</u> for the BACWA Study.

### **BACWA Updates**

- USEPA is continuing to implement its <u>PFAS Strategic Roadmap</u>, which will include updates to the landfill effluent guidelines and standards under the <u>Effluent Guidelines Program Plan</u>. Due to resource constraints, USEPA currently has no timeline for updating the landfill standards.
- The Nutrient Watershed Permit will be reissued in 2024 and is expected to include dry season (May to Sept.) mass-based effluent limitations for Total Inorganic Nitrogen for all Bay dischargers.

## **Member Updates and Discussion**

- City of Palo Alto staff shared lessons learned from the City's pretreatment compliance audit recently completed by State Water Board staff. Most of the findings were related to ordinance revisions. City staff shared the pre-audit checklists with the committee.
- USEPA plans to host an upcoming inspector training event at Union Sanitary District.
- Sunnyvale reported increasing copper concentrations that may be related to copper water lines used in new construction. Attendees recommended relocating residential sampling locations to accurately characterize these loads. Also see <u>BACWA resources</u> related to use of ASTM B813 flux in copper water line installations.
- Attendees discussed permitting of micro-electromechanical systems (MEMS) under part 40 CFR Part 469 (Electrical and Electronic Components) vs Part 433 (Metal Finishing). This <u>1998 EPA</u> <u>Guidance</u> on semiconductor manufacturing was shared as a potential resource.
- Central San staff shared experiences with setting up <u>CROMERR</u> using <u>Shared CROMERR Services</u>, which they have recently beta-tested. The conversion will require a change to the District's ordinance. The group discussed requirements for different types of reports to be submitted through CROMERR and plans to follow up with USEPA for the next committee meeting.

### Announcements

- CWEA will be revising the exam for the <u>Environmental Compliance Inspector Certification</u> program. Attendees with expertise in this topic were invited to participate in updating the exam.
- The next committee meeting is planned for early 2024 and regulators (USEPA, Regional Water Board, State Water Board) will be invited.

## Committee Request for Board Action: None

**16 attendees representing 8 member agencies**, plus additional staff from City of Livermore. The committee is recruiting for an additional chair to help facilitate tours and lead discussions.

### City of Livermore Recycled Water Program and Current CIP Projects

Yanming Zhang from the City of Livermore shared information about the City's wastewater treatment plant, and also shared the City's public outreach video about the facility (<u>link to video</u>). The City is currently installing stainless steel screw pumps in the headworks, which were featured in the tour (see below). Anthony Smith from the City of Livermore provided an overview of the City's existing recycled water system, as well as planned changes that will decrease in-plant demand. The City's capacity to produce recycled water is higher than customer demand, and City staff plan to engage with the Council regarding recycled water planning in the coming months. Slides from the presentation are available <u>here</u>.

**Plant Tour** 



Operator Discussion Topics. Attendees discussed:

- Co-thickening of primary and secondary sludge.
- **Microscopic Examination** of sludge. Several attendees noted that they do this routinely to have advance warning of changes to operating conditions, such as a need to waste filamentous bacteria. One plant reported using a Sentry meter to monitor the bacterial community (<u>link</u>). Training from <u>Environmental</u> <u>Leverage</u> is a potential resource. This could be a good topic for a future training session.
- **Remote Access to SCADA.** Attendees discussed the pros/cons and technological implementation barriers for remote access. Many agencies have the ability for operators to view facility operating conditions remotely; relatively few facilities have remote operability at the current time.

**Next Meeting:** Tentatively Early 2024 at EBMUD. The tour will include a discussion of EBMUD's recent successes achieving split-stream biological nutrient removal.



#### EXECUTIVE BOARD MEETING AND SUPPORT

- Worked with BACWA staff to plan and manage 10/30 Executive Board meeting
- Conducted the Executive Board meeting agenda review with the BACWA Chair
- Hosted 10/20 Executive Board meeting and developed meeting notes
- Planned and held joint BACWA/R2 meeting, 10/31 and developed meeting notes
- Continued to track all action items to completion

#### COMMITTEES:

- Attended Permits Comm meeting, 10/10
- Planned and hosted Managers Roundtable meeting 10/23

#### **REGULATORY:**

- Discussed PFAS data presentation with member agency, 10/2
- Met with Summit Partners to discuss air toxics RFQ
- Developed presentation and spoke at Summit Partners PFAS Workshop, 10/5
- Met with R2 EO several times to discuss regulatory issues
- Reached out to BAAQMD staff regarding Workgroup Action items

#### NUTRIENTS:

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

- Met with member agencies to discuss nutrient permitting
- Met repeatedly with Water Board to discuss nutrient data
- Hosted "permitting office hours", 10/6
- Planned survey to collect agencies' budging information
- Reviewed memo describing nutrient reduction planning efforts
- Attended NBS CMG meeting, 10/13
- Met with members of SCCWRP OAH TAC Steering committee, 10/18, 10/26
- Participated in SCCWRP OAH TAC steering committee process, 10/18, 10/26
- Discussed nutrient special studies next steps and contract amendment with consultant
- Reviewed and updated nutrient data metrics for interim limits and final limit allocations
- Attended modelling meetings hosted by SFEI, 10/5
- Planned and hosted NST meeting, 10/20
- Attended and developed meeting summary for NMS Planning Subcommittee meeting, 10/4
- Attended and developed meeting summary for NMS Steering Committee, 10/27
- Discussed NMS programmatic issues with SFEI ED

#### COMMUNICATIONS

- Held weekly progress meetings with Civic Edge
- Reviewed key messaging materials and provided edits
- Circulated materials for subcommittee review
- Hosted meeting for subcommittee on Nutrient Communications, 10/16

#### FINANCE:

- Reviewed the monthly BACWA financial reports
- Reviewed and approved invoices
- Developed BARs and contract amendments for Civic Edge and HDR contracts

#### **COLLABORATIONS:**

- Attended CASA Air Toxics meeting 10/11
- Worked with Summit Partners to plan regulatory workshop
- Attended Regulatory Workshop at Pardee 10/24-10/26
- Attended and presented at RMP Annual meeting 10/12
- Met with Consultant team for debrief of workshop for interagency collaboration, 10/16
- Attended CASA RWG meeting at SFPUC, 10/19
- Developed letter of support for Valley Water BoR proposal on potable reuse
- Met with Summit Partners and CARB staff on 2-step process, 10/17
- Attended East Bay Leadership Council meeting, 10/17

#### ASC (AQUATIC SCIENCE CENTER)

- Reviewed materials sent via email by ASC ED
- Attended ASC/SFEI Board meeting

### BABC (BAY AREA BIOSOLIDS COALITION)

• Attended meeting and developed meeting summary, 10/16

### BACC (BAY AREA CHEMICAL CONSORTIUM)

• Discussed administrative and policy issues with administrator

#### BACWWE (BAY AREA COALITION FOR WATER/WASTEWATER EDUCATION)

- Discussed future of PSB with Director
- Started planning scoping meeting for future of program

#### 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:

- 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**

December 2023 – February 2024 Meetings

## **AGENDA ITEMS**

**Approvals & Authorizations: Policy / Strategic Discussion:** • Civic Edge Update • Update from California Product Stewardship Council **Operational:** • FY25 Budget Schedule **Approvals & Authorizations:** EBMUD Downtown, Small Training **Policy / Strategic Discussion:** • Group Annual Report **Operational: Approvals & Authorizations: Policy / Strategic Discussion: Operational:** • FY25 Draft Budget

December 16, 2023 **SFPUC** 

January 19, 2023

**Room 2nd Floor** 

DATE

February 16, 2023 **EBMUD** Orinda



#### **BACWA ACTION ITEMS**

Number	Subject	Task	Responsibiity	Deadline	Status			
	Action Items from October 20 2023 BACWA Executive Board Meeting		resp.	deadline	status			
2023.10.7	Approval: HDR Permit support Amendment #7	BACWA Executive Director to review HDR Permit Support contract history and present the total amended contract amount as an informational item at the November 2023 meeting.	ED	11/17/2023	completed			
		-			·			
2023.10.8	Informational: BAAQMD 9/18 Workgroup meeting debrief	BACWA Executive Director to request a meeting with BAAQMD's Executive officer.	ED	12/31/2023	WIP			
2023.10.9	PFAS - Phase 2 draft report and Summit Partners Workshop	BACWA Executive Director and RPM to produce a FAQ sheet on the PFAS Phase 2 Study	ED / RPM	12/15/2023	WIP			
2023.10.10	Debrief from Recycled Water Interagency Workshop Sept 20	BACWA Executive Director to send out a survey about next steps	ED	12/15/2023	WIP			
2023.10.11	Draft agenda for 10/31 Joint meeting with R2	BACWA staff to review agenda with RWB and share with BACWA community.	ED	10/27/2023	completed			
2023.10.12	Recap of Strategy meeting at Pardee	BACWA ED will share next BACWWE meeting date with the group	ED	11/17/2023	completed			
2023.10.13	Feedback from Pardee Technical Seminar, and dates for 2024	BACWA Staff to hold September 12 & 13, 2024	AED	10/23/2023	completed			
2023.10.14	Dates and locations for future FY24 Board meetings	BACWA AED to book locations for meetings January – June	AED	11/3/2023	completed			
Action Items Remaining from Previous BACWA Executive Board Meetings								
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			
2022.2.42	Disin language review of putriant science program	BACWA ED to work with SFEI to augment plain-language review to include graphics, simplified text, and a	50		en geing			
2022.3.42	Plain-language review of nutrient science program	summary of what we have learned so far.	ED		on going			

FY24: 9 of 14 Action Items are complete

FY23: 56 of 58 Action Items are complete

FY22: 51 of 52 Action items are completed

FY21: 51 of 51 Action items completed

FY20: <u>70</u> of <u>70</u> Action Items completed

FY19: <u>110</u> of <u>110</u> action Items completed

FY18: <u>66 of 66</u> Action Items completed

FY17: <u>90</u> of <u>90</u> Action Items completed



October 2023

BACWA BULLETIN: Completed and circulated October Bulletin.

**NUTRIENTS:** Completed draft memo summarizing load reduction estimates provided by BACWA member agencies; participated in Nutrient Strategy Team meeting and prepared summary; participated in Nutrient Management Strategy meeting.

**PFAS:** Reviewed draft summary report for PFAS regional study, and provided SFEI with comments.

SEA LEVEL RISE: Attended BCDC meeting and workshop on sea level rise adaptation planning.

#### **COMMITTEE SUPPORT:**

**BAPPG** – Prepared for and participated in October pollutant prioritization meeting; prepared notes; participated in pesticides subcommittee meeting with Department of Pesticide Regulation staff; assisted with preparation of comment letters.

**Collection System –** Prepared contract documents for SSMP guidance. Coordinated with Summit Partners regarding November SSS-WDR webinar.

Laboratory – Prepared for and participated in October committee meeting; prepared draft meeting summary; circulated to Water Boards staff for review; supported October TNI Training event. Permits – Prepared for and participated in October committee meeting; prepared meeting summary and circulated to committee; prepared draft comment letter on NPDES permitting Basin Plan Amendment.

Pretreatment – Assisted with preparations for November committee meeting.

**Recycled Water** – Prepared for November committee meeting; attended recycled water presentations hosted by East Bay Leadership Council.

**Executive Board** – Prepared regulatory updates for Executive Board meeting. Prepared for and participated in meeting with Regional Water Board staff and Executive Board.

ADMINISTRATION/STAFF MEETING - Participated in Staff Meeting

#### BACWA MEETINGS ATTENDED:

BAPPG Committee (10/4) Lab Committee (10/10) Permits Committee (10/10) BAPPG Pesticides Subcommittee (10/10) Executive Board (10/20)

#### **EXTERNAL EVENTS ATTENDED:**

CASA Perspectives on PFAS (Partial) (10/5) BCDC Sea Level Rise Workshop (Partial) (10/5) RMP Annual Meeting (10/12) East Bay Leadership Council (10/17) CASA Regulatory Workgroup (10/19) CASA Regulator Retreat at Pardee Center (10/25) CASA ACE (10/26) Nutrient Management Strategy (10/27)