BACWA
BAY AREA
CLEAN WATER
AGENCIES

Executive Board Meeting
AGENDA
Fri, March 19, 2021 9:00 AM - 12:00 PM (PDT)

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

Agenda Item		Time	Pages
ROLL CALL, INTRODUCTIONS, AND TELECONFERENCE ETIQUETTE		**9:00 AM**	
PUBLIC COMMENT	Guidelines	**9:03 AM**	
CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER		**9:04 AM**	
CONSENT CALENDAR		**9:05 AM**	
1 January 15, 2021 BACWA Executive Board meeting minutes			**3-8**
2 January 2021 Treasurer's Reports			**9-18**
APPROVALS AND AUTHORIZATIONS		**9:12 AM**	
3 Authorization: EDAR for Downey Brand support of BACC			**19-22**
POLICY/STRATEGIC		**9:30 AM**	
4 Discussion: SSS WDR update			**23-25**
5 Discussion: Update on R2 Climate Change survey			**26-36**
6 Discussion: BAAQMD engagement - debrief from 3/5 meeting on BACT			**37-38**
7 Discussion: Draft agenda for April 2 joint meeting with R2			**39**
8 Discussion: Pesticides Update - Presentation on Priorities and Planning for FY22			
BREAK (10min)	**10:30 AM**		
9 Discussion: Nutrients			
a. Regulatory			
i. NST meeting debrief			**40**
ii. HDR data analysis SOW			
iii. Strategy for key tenets			
b. Technical Work			
i. NMS Review - Task 1			**41-68**
ii. Letter of support for Caliskaner Water Technologies Grant Application	Link		**69**
c. Governance Structure			
i. January 6, 2021 PSC Meeting Notes			**70-73**
ii. Feb 3/16, 2021 PSC Meeting Notes			**74-77**
OPERATIONAL		**11:00 AM**	
10 Discussion: Proposed FY22 Budget and 5-yr plan			**78-83**
11 Discussion: Update on BACC Bid and proposed legal reserve			**84**
12 Discussion: Annual meeting survey results, and schedule for 2022	Link		**85-99**
13 Discussion: Results from MAZE Audit			**100-104**
14 Informational: Form 700 e-filing update			
REPORTS		**11:50 AM**	
15 Committee Reports			**105-111**
16 Member highlights and emergency response roundtable			
17 Executive Director Report			**112-114**
18 Board Calendar and Action Items			**115-116**
19 Regulatory Program Manager Report			**117-118**
20 Other BACWA Representative Reports			**119-127**
a. RMP Technical Committee	Mary Lou Esparza, Yuyun Shang, Samantha Engelage		
b. RMP Steering Committee	Karin North; Amanda Roa; Eric Dunlavey		
c. Summit Partners	Lorien Fono; Lori Schectel		
d. ASC/SFEI	Lorien Fono; Eileen White		

e. Nutrient Governance Steering Committee	Eric Dunlavey; Eileen White; Lori Schectel		
e.i Nutrient Planning Subgroup	Eric Dunlavey		
e.ii NMS Technical Workgroup	Eric Dunlavey		
f. SWRCB Nutrient SAG	Lorien Fono		
g. NACWA Taskforce on Dental Amalgam	Tim Potter		
h. BAIRWMP	Cheryl Munoz; Linda Hu; Lorien Fono		
i. NACWA Emerging Contaminants	Karin North; Melody LaBella		
j. CASA State Legislative Committee	Lori Schectel		
k. CASA Regulatory Workgroup	Lorien Fono		
l. ReNUWIt	Jackie Zipkin; Karin North		
m. ReNUWIt One Water	Jackie Zipkin, Eric Hansen		
n. RMP Microplastics Liaison	Artem Dyachenko		
o. Bay Area Regional Reliability Project	Eileen White		
p. WateReuse Working Group	Cheryl Munoz		
q. San Francisco Estuary Partnership	Eileen White; Lorien Fono		
r. CPSC Policy Education Advisory Committee	Colleen Henry		
s. California Ocean Protection Council	Lorien Fono		
t. Countywide Water Reuse Master Plan	Karin North, Pedro Hernandez		
u. CHARG - Coastal Hazards Adaptation Resiliency Group	Jackie Zipkin		

21 **SUGGESTIONS FOR FUTURE AGENDA ITEMS**	**11:55 AM**	

NEXT MEETING	**11:59 AM**	
The next meeting of the Board is scheduled for April 16, 2021		

ADJOURNMENT	**12:00 PM**	

Executive Board Meeting Minutes

January 15, 2021

ROLL CALL AND INTRODUCTIONS

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

Other Attendees and Guests:

Name	Agency/Company
Aaron Winer	West County Wastewater
Amada Roa	Delta Diablo
Azalea Mitch	San Mateo
Blake Brown	CCCSD
Crystal Zhu	SFO
Dan Frost	Central Contra Costa Sanitary District
David Senn	SFEI
Don Gray	EBMUD
Eric Dunlavey	City of San Jose
Kevin Cesar	City of Millbrae
Jared Voskuhl	CASA
Jason Dow	Central Marin Sanitation Agency
Jennifer Dyment	BACWA
Jim Graydon	Woodard & Curran
John Samuelson	City of Antioch
Karin North	City of Palo Alto
Kevin Cesar	City of Millbrae
Lilia Corona	Mt. View Sanitary District
Lorien Fono	BACWA
Mary Cousins	BACWA
Meg Herston	Fairfield-Suisun Sewer District
Melody LaBella	Central Contra Costa Sanitary District
Michael Connor	-
Mike Falk	HDR, Inc.
Robert Wilson	City of Santa Rosa
Sarah Deslauriers	Carollo
Talyon Sortor	Fairfield-Suisun Sewer District
Tom Hall	EOA

Amit Mutsuddy started meeting at 9:01

ROLL CALL - taken

PUBLIC COMMENT – None

CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER – Item 5 and Item 6bi to be presented when David Senn arrives.

CONSENT CALENDAR

1 December 18, 2020 BACWA Executive Board Meeting Minutes

2 December 28, 2020 Special BACWA Executive Board Meeting Minutes

3 November 2020 Treasurer's Reports

Consent Calendar Items 1, 2, and 3*: A motion to approve was made by Jackie Zipkin (East Bay Dischargers Authority) and seconded by Amit Mutsuddy (City of San Jose). The motion was approved unanimously.*

APPROVALS AND AUTHORIZATIONS

4 Approval: Contract with Mike Connor for NMS Review - BACWA ED summarized RFP process for support NMS work, received 4 proposals, and interviewed 2 candidates.

Approvals and Authorizations Item 4: *A motion to approve was made by Lori Schectel (Central Contra Costa Sanitary District) and seconded by Eileen White (East Bay Municipal Utility District). The motion was approved unanimously.*

5 Approval: Payment #2 to NMS - $1.6M - BACWA ED –$1m payment was disbursed in July 2020 as a first installment on the required nutrient watershed permit payment. BACWA ED and SFEI reviewed program and went over funding and arrived at revised amount of $2.6M for this FY, which was less than the budgeted $2.8M due to slower pace of work related to COVID. The ED Discussed 5-yr plan funding scenarios with low vs. high NMS funding. Dr. David Senn, SFEI presented NMS Science update. David summarized 6 high level management & sub questions from the science plan. He reviewed the NMS program structure: synthesis /conceptual monitoring, assessment framework, monitoring special studies, modeling. He discussed science focus and funding areas – Nutrient loads, Phytoplankton blooms, HABs & Toxins, Costal Ocean impacts and future scenarios. David also shared the issues, the level of funding, the type of studies, and the confidence levels for each science focus with the group. The science focus issues of Permit #2 that are targeted in 2020-21 were identified and others will be targeted in the future. Discussed ship-based monitoring and the mooring network of continuous sensors. Group recommended / requested an annual, high level summary report of work done would be helpful for their boards to justify spending.

Approvals and Authorizations Item 5: *A motion to approve was made by Amit Mutsuddy (City of San Jose) and seconded by Jackie Zipkin (East Bay Dischargers Authority). The motion was approved unanimously.*

POLICY/STRATEGIC

6 Discussion: Nutrients

a. Regulatory

i. Survey on Nutrient Planning and Implementation – BACWA ED shared the survey questions and incorporated feedback. HDR to look at historical reports to do a deep dive on the data and to determine the effects of variability on compliance under different regulatory scenarios. Group discussion followed. Group agreed to move forward with HDR on a data variability analysis contract. Deadline for survey input Tuesday January 19, 2021.

Action items: BACWA ED to 1) send survey to membership next week and 2) talk to HDR about contract.

ii. Draft 2021 Group Annual Report - Mike Falk from HDR presented the results of the draft group annual report, which had very different results from the previous year due to dry conditions and the pandemic. The average annual flows and TIN loads were the lowest they have seen since 2012. Annual report this year included influent data and trends.

iii. BACWA Participation in W&C/UMass proposal – BACWA RPM, referred to proposal for letter packet. Group is looking for a letter of support regarding the reliability of nutrient removal sensors as well as direct utility partners. Jim Graydon, Woodard & Curran, summarized the project and answered group questions. Project length is estimated at 18 months beginning in February 2021.

Action item: BACWA RPM to circulate a letter for board feedback.

b. Technical Work

David Senn, SFEI, provided an update on Coastal Modeling. A large portion of the nutrient loads to SFB are exported to the coastal ocean, rather than being taken up by phytoplankton in SFB. He summarized the project goals and approach as well as the project status and approximate schedule. Group expressed concern with use of the ROMS-BEC model, as previously discussed at the March 2020 Executive Board meeting.

i. Modeling uncertainty workshop – David announced a proposed modeling uncertainty workshop which would be a multi-day panel discussion to gather input from a diverse group of estuarine / costal modelers. David sought input from BACWA community on panelists and discussion topics. Group suggested presenting a case study with management implications, rather than just theory. The workshop is targeted for mid- to late March.

Break 10:50-11:00am

c. Governance Structure – ED referred to packet

i. December 11 SC Meeting Notes

ii. January 6 PSC Meeting Notes

7 Discussion: BAAQMD engagement – Sarah Deslauriers spoke. The partnering of BAAQMD & BACWA leadership would lead to more alignment going forward. Suggested four meetings a year. Future meeting topics may be inspector permits interpretation vs. actual language, implications of retroactive rules (e.g. BACT) and toxic air contaminant emissions testing. Next meeting TBD but possibly this quarter (March).

8 Discussion: Emergency management Roundtable (SIP and COVID) - City of San Jose has not seen increases since holidays & county guidelines keep changing. CCCSD asked other agencies if they had any guidelines regarding vaccinating staff. Wastewater and water treatment workers are essential but not in first few categories to get vaccine. BACWA members will share information about vaccine when they receive them.

OPERATIONAL

9 Discussion: BACWA Power Supply Reliability Infoshare final agenda – BACWA ED – 50 registered \ 20 agencies, link in agenda to register and in the chat. Registration is on BACWA webpage.

10 Informational: Form 700 Conflict of Interest deadline April 1 - BACWA AED shared list of names who need to submit a Form 700 by April 1, 2021. BACWA ED would be in touch via email on process.

Action item: AED shall email process to required submitters.

11 Discussion: Annual Meeting Planning – BACWA ED shared Annual Meeting Draft program and timeline. The annual meeting would be run as a webinar vs. meeting by contractual technical support. The BACWA Group agreed that a 30 min lunch was sufficient. BACWA ED requested feedback on agenda item: hot topic climate change vulnerability planning survey. Group felt climate change was especially important. Group was informed that conference seminar technical coordinator would be in touch with them and guiding presenters and moderators on the day. Annual Meeting registration was available on the website.

Action item: BACWA ED will adjust timing and post agenda next week.

REPORTS

12 Committee Reports - RPM in packet

13 Member Highlights - CCCSD hired a new Director of Operations, Steve McDonald. The mayor has appointed Newsha Ajami to be a SFPUC Commissioner, subject to confirmation by the Board of Supervisors.

14 Executive Director Report - BACWA ED stated item is in packet.

15 Board Calendar and Action Items - BACWA ED stated that item is in packet & Draft Budget to be presented at March board meeting.

16 Regulatory Program Manager Report -BACWA RPM stated item is in packet.

17 Other BACWA Representative Reports

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

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

c. Summit Partners Lorien Fono; Lori Schectel

d. ASC/SFEI Lorien Fono; Eileen White

e. Nutrient Governance Steering Committee Eric Dunlavey; Eileen White; Lori Schectel

e.i Nutrient Planning Subgroup Eric Dunlavey

e.ii NMS Technical Workgroup Eric Dunlavey

f. SWRCB Nutrient SAG Lorien Fono

g. NACWA Taskforce on Dental Amalgam Tim Potter

h. BAIRWMP Cheryl Munoz; Linda Hu; Lorien Fono

i. NACWA Emerging Contaminants Karin North; Melody LaBella

j. CASA State Legislative Committee Lori Schectel

k. CASA Regulatory Workgroup Lorien Fono

l. ReNUWIt Jackie Zipkin; Karin North

m. ReNUWIt One Water Jackie Zipkin, Eric Hansen

n. RMP Microplastics Liaison Artem Dyachenko

o. Bay Area Regional Reliability Project Eileen White

p. WateReuse Working Group Cheryl Munoz

q. San Francisco Estuary Partnership Eileen White; Lorien Fono

r. CPSC Policy Education Advisory Committee Colleen Henry

s. California Ocean Protection Council Lorien Fono

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

u. CHARG - Coastal Hazards Adaptation Resiliency GroupJackie Zipkin

SUGGESTIONS FOR FUTURE AGENDA ITEMS

NEXT MEETING

The next meeting of the Board is scheduled for March 19, 2021

ADJOURNMENT 12:12 PM

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

February 22, 2021

MEMO TO: Bay Area Clean Water Agencies Executive Board

MEMO FROM: Damien Charléty, Treasurer, East Bay Municipal Utility District

SUBJECT: Seventh Month FY 2021 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, 2020 through January 31, 2021** (Seven months of Fiscal Year 2021). This report covers expenditures, cash receipts, and cash transfers for the following BACWA funds:

- Bay Area Clean Water Agencies (BACWA),
- BACWA Legal Reserve Fund (Legal Rsrv),
- Water Quality Attainment Strategy (WQA CBC),
- Bay Area Biosolids Coalition (BABC),
- Bay Area Chemical Consortium (BACC),
- Water/Wastewater Operator Training (WOT),
- Prop84 Bay Area Integrated Regional Water Mgmt (PRP84)

Houck, Matt

From: Charléty, Damien
Sent: Tuesday, February 23, 2021 9:57 AM
To: Houck, Matt
Subject: RE: BACWA - January 2021 Treasurer's Report

Approved.

From: Houck, Matt
Sent: Tuesday, February 23, 2021 8:16 AM
To: Charléty, Damien
Subject: BACWA - January 2021 Treasurer's Report

Hi Damien,

Please approve BACWA - January 2021 Treasurer's Report for distribution.

Thanks,

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

Fund Balances

In FY21 BACWA has three operating funds (BACWA, Legal, and CBC) and two pass-through funds for which BACWA provides only contract administration services (WOT, BABC & BACC).

BACWA Fund: This fund provides the resources for BACWA staff, its committees, and other administrative needs. The ending fund balance on January 31, 2021 was $1,530,733 which is significantly higher than the target reserve of $209,430 which is intended to cover 3 months of normal operating expenses based on the BACWA FY21 budget. $289,999 of the ending fund balance is shown on the BACWA Fund & Investments Balance Report January 31, 2021 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 actual unencumbered excess funds of $941,735 (i.e., actual fund balance of $1,231,734 less target reserves) as January 31, 2021. As the details of the costs of the various regulatory requirements included in the 2nd Nutrient Watershed Permit become better defined, these excess funds may be transferred to the CBC fund and used to offset potential Nutrient Surcharge increases to the BACWA members.

CBC Fund: This fund provides the resources for completing special investigations as well as meeting regulatory requirements. The ending fund balance on January 31, 2021 was $3,011,165 which is significantly higher than the target reserve of $1,000,000. $826,403 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 fund balance of $1,358,359 (i.e., actual fund balance of $2,184,762 less $1,000,000 target reserves) as of January 31, 2021. Disbursements for FY21 from the CBC fund include $2.6m fund the nutrient scientific investigations as required by Nutrient Watershed Permit.

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

Budget to Actual

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

Revenues as of January 31, 2021 (58% of the FY) are at 96%.

Expenses as of January 31, 2021 (58% of the FY) are at 32%

FY 2021
BACWA BUDGET to ACTUAL

BACWA BAY AREA CLEAN WATER AGENCIES

BACWA FY21 BUDGET	Line Item Description	FY 2021 Budget	Actual Jan 2021	Actual % of Budget Jan 2021	Variance	NOTES
REVENUES & FUNDING						
Dues	Principals' Contributions	$516,909	$516,910	100%	$1	5 @ $103,382
	Associate & Affiliate Contributions	$187,793	$184,838	98%	-$2,955	13 Assoc @ $8,531; 45 Affiliate @ $1,708.
Fees	Clean Bay Collaborative	$675,000	$669,455	99%	-$5,545	Prin: $450,000; Assoc/Affil: $225,000
	Nutrient Surcharge	$1,700,000	$1,699,048	100%	-$952	See Nutrient Surcharge Spreadsheet
	Voluntary Nutrient Contributions	$0	$0	0%	$0	
Other Receipts	AIR Non-Member	$7,075	$7,075	100%	$0	Santa Rosa
	BAPPG Non-Members	$3,954	$3,953	100%	-$1	Stanta Rosa, Sac Reg'l, Vacaville; $1,317/each
	Other	$0	$2,601	0%	$2,601	
Fund Transfer	Special Program Admin Fees (WOT)	$5,202	$0	0%	-$5,202	Flat fee
	Special Program Admin Fees (BACC)	$20,010	$0	0%	-$20,010	300 hours of AED support, based on hours billed
	Special Program Admin Fees (BABC)	$6,000	$0	0%	-$6,000	AED and RPM support, hours billed
Interest Income	LAIF	$20,000	$16,653	83%	-$3,347	BACWA, Legal, & CBC Funds invested in LAIF
	Higher Yield Investments	$18,000	$0	0%	-$18,000	Alternative Investment Interest (Legal & CBC Funds invested in AltInv)
	Total Revenue	**$3,159,943**	**$3,100,533**	**98.12%**	**-$59,410**	

BACWA FY21 BUDGET	Line Item Description	FY 2021 Budget	Actual Jan 2021	Actual % of Budget Jan 2021	Variance	NOTES
EXPENSES						
Labor						
	Executive Director	$190,000	$95,000	50%	-$95,000	No change from FY20 contract
	Assistant Executive Director	$102,551	$59,878	58%	-$42,673	$66.7/hour; Reflects 1500 hours /yr
	Regulatory Program Manager	$141,170	$87,437	62%	-$53,733	$100.16/hour; Reflects 1375 hours/yr
	Total	**$433,721**	**$242,315**	**56%**	**-$191,406**	
Administration						
	EBMUD Financial Services	$42,448	$20,561	48%	-$21,887	
	Auditing Services	$5,345	$0	0%	-$5,345	Financial Audit Services through EBMUD
	Administrative Expenses	$7,959	$194	2%	-$7,765	Travel, Supplies, Parking, Mileage, Tolls, Misc.
	Insurance	$4,776	$4,971	104%	$195	SLIP Insurance. Alliant Insurance.
	Total	**$60,528**	**$25,726**	**43%**	**-$34,802**	
Meetings						
	EB Meetings	$2,653	$257	10%	-$2,396	Catering, Venue, other expenses
	Annual Meeting	$14,369	$0	0%	-$14,369	Catering, Venue, other expenses
	Pardee	$6,367	$0	0%	-$6,367	Catering, Venue, other expenses
	Misc. Meetings	$5,306	$406	8%	-$4,900	Hol & Comm Chair Lunch, Staff Mtgs, Fin Comm, Summit Ptnrs, CASA, NACWA Tech WS, Low Flow WS
	Total	**$28,695**	**$663**	**2%**	**-$28,032**	
Communication						
	Website Hosting	$612	$30	5%	-$582	Computer Courage
	File Storage	$765	$0	0%	-$765	Box.com
	Website Development/Maintenance	$1,530	$0	0%	-$1,530	Domain registrations, website changes
	IT Support	$2,652	$0	0%	-$2,652	As needed
	Other Commun	$1,785	$577	32%	-$1,208	MS Exchange, Survey Monkey, Carbonite, Doodle Polls, PollEv, GoToMtg, HelloSign, Zoom
	Total	**$7,344**	**$607**	**8%**	**-$6,737**	

FY 2021
BACWA BUDGET to ACTUAL

EXPENSES						
Legal						
	Regulatory Support	$2,706	$0	0%	-$2,706	Downey Brand LLP
	Executive Board Support	$2,176	$1,165	54%	-$1,011	Day Carter & Murphy LLP
	Total	**$4,882**	**$1,165**	**24%**	**-$3,717**	
Committees						
	AIR	$76,000	$25,770	34%	-$50,230	$75k consulting support, $1k misc expenses. Carollo Engineers
	BAPPG	$130,000	$87,623	67%	-$42,377	Includes CPSC @ $10,000, OWOW @ $10,000, and Pest. Reg Spt. @ $60,000. S.Hughes, TDC and SGA
	Biosolids Committee	$1,000	$0	0%	-$1,000	
	Collections System	$1,000	$0	0%	-$1,000	
	InfoShare Groups	$1,750	$0	0%	-$1,750	Funds for 2 workgroups ($750 for Asset Mgmt - new in FY21; $1,000 for O&M)
	Laboratory Committee	$1,000	$0	0%	-$1,000	
	Permits Committee	$1,300	$0	0%	-$1,300	All meetings moved to include lunch hour for commuting purposes
	Pretreatment	$1,000	$0	0%	-$1,000	
	Recycled Water Committee	$1,000	$0	0%	-$1,000	
	Misc Committee Support	$45,000	$0	0%	-$45,000	
	Manager's Roundtable	$1,000	$0	0%	-$1,000	
	Total	**$260,050**	**$113,393**	**44%**	**-$146,657**	
Collaboratives						
	Collaboratives					
	State of the Estuary (SFEP-biennial)	$20,000	$0	0%	-$20,000	Biennial in Odd Fiscal Years. (Paid bienniely in odd years for even year conference)
	Arleen Navarret Award	$0	$0	0%	$0	Biennial in Even Fiscal Years. Award amount increased in FY20
	FWQC (Fred Andes)	$7,500	$0	0%	-$7,500	
	Stanford ERC (ReNUWIt)	$10,000	$0	0%	-$10,000	
	Misc	$5,000	$0	0%	-$5,000	BayCAN, NBWA
	Total	**$42,500**	**$0**	**0%**	**-$42,500**	
Other						
	Unbudgeted Items					
	Other	$0	$0	0%	$0	
		$0	**$0**	**0%**	**$0**	
Tech Support						
	Technical Support					
	Nutrients					
	Watershed	$2,800,000	$1,000,000	36%	-$1,800,000	Advance funding for 2nd Watershed Permit Science Studies. SFEI
	NMS Voluntary Contributions	$0	$30,000	0%	$30,000	SFEI \ City of Palo Alto 2017 Lower South Bay modeling
	Additional work under permit	$100,000	$0	0%	-$100,000	Includes HDR PO for $225k spread out over FY20-24.
	Regional Study on Nature based sysemts	$200,000	$106,708	53%	-$93,292	New Line item in FY20. SFEI
	Regional Recycling Evaluation	$60,000	$6,175	10%	-$53,825	HDR PO for $154K FY20-24
	Nutrient Workshop(s)	$0	$0	0%	$0	Pilot Studies/Plant Review/InDecative Technologies
	General Tech Support	$250,000	$0	0%	-$250,000	AB617 emission factors, nutrient technical review, other nutrient support, PFAS
	CEC Investigations	$50,000	$0	0%	-$50,000	Support for studies through RMP (PFAS in FY21). SFEI
	Risk Reduction	$7,500	$0	0%	-$7,500	$50,000 over 5 years (FY19-FY23) 2 Contracts for $25,000 each over FY19, 20, & 21
	Total	**$3,467,500**	**$1,142,883**	**33%**	**-$2,324,617**	
	TOTAL EXPENSES	**$4,305,220**	**$1,526,752**	**35.46%**	**-$2,778,468**	
	NET INCOME BEFORE TRANSFERS	**-$1,145,277**				
	TRANSFERS FROM RESERVES	**$1,145,277**				aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge
	NET INCOME AFTER TRANSFERS	**$0**				
	TOTAL OPERATING BUDGET	**$837,720**				
	OPERATING RESERVE	**$209,430**				

BACWA Fund Report as of January 31, 2021

BACWA FUND BALANCES - DATA PROVIDED BY ACCOUNTING DEPT.

DEPTID	DESCRIPTION	FISCAL YEAR BEGINNING FUND BALANCE	TOTAL RECEIPTS TO-DATE	TOTAL DISBURSEMENTS TO-DATE	MONTH-ENDING FUND BALANCE	OUTSTANDING ENCUMBRANCES	MONTH-END UNOBLIGATED FUND BALANCE
800	BACWA	1,195,233	719,366	383,866	1,530,733	298,999	1,231,734
804	LEGAL RSRV	300,000	-	-	300,000	-	300,000
805	CBC	1,772,881	2,381,167	1,142,883	3,011,165	826,403	2,184,762
	SUBTOTAL 1	*3,268,114*	*3,100,533*	*1,526,749*	*4,841,898*	*1,125,402*	*3,716,496*
802	BABC	*216,514*	92,500	147,907	161,107	*54,739*	106,368
806	BACC	*(1,563)*	-	-	(1,563)	*5,000*	(6,563)
810	WOT	276,164	-	-	276,164	-	276,164
	SUBTOTAL 2	*491,115*	*92,500*	*147,907*	*435,708*	*59,739*	*375,969*
*811	PRP84	196,806	-	-	196,806	-	196,806
	SUBTOTAL 3	*196,806*	-	-	*196,806*	-	*196,806*
	GRAND TOTAL	**3,956,035**	**3,193,033**	**1,674,656**	**5,474,412**	**1,185,141**	**4,289,271**

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

BACWA INVESTMENTS BALANCES - DATA PROVIDED BY TREASURY DEPT.

DEPTID	DESCRIPTION	FISCAL YEAR BEGINNING FUND BALANCE	TOTAL RECEIPTS TO-DATE	TOTAL DISBURSEMENTS TO-DATE	MONTH-ENDING FUND BALANCE	RECONCILIATION TO FINANCIAL STATEMENTS	MONTH-END RECONCILED FUND BALANCE	UNINVESTED CASH BALANCES	LAIF INVESTMENTS AMOUNTS	LAIF INVESTMENTS PERCENTAGE	ALTERNATIVE INVESTMENTS AMOUNTS	ALTERNATIVE INVESTMENTS IDENTIFIERS	ALTERNATIVE INVESTMENT INSTRUCTIONS AND NOTES
800	BACWA	1,195,233	719,366	383,866	1,530,733	141,705	1,672,438	1,672,438	-	0%	-		priority # 3 for allocation
804	LEGAL RSRV	300,000	-	-	300,000	-	300,000	-	300,000	13%	-		priority # 1 for allocation
805	CBC	1,772,881	2,381,167	1,142,883	3,011,165	-	3,011,165	1,048,565	1,962,600	87%	-		priority # 2 for allocation
	SUBTOTAL 1	3,268,114	3,100,533	1,526,749	4,841,898	141,705	4,983,603	2,721,003	2,262,600	100%	-		
802	BABC	216,514	92,500	147,907	161,107	-	161,107	161,107	-	0%	-		pass-through funds, no allocation
806	BACC	(1,563)	-	-	(1,563)	-	(1,563)	(1,563)	-	0%	-		
810	WOT	276,164	-	-	276,164	-	276,164	276,164	-	0%	-		pass-through funds, no allocation
	SUBTOTAL 2	491,115	92,500	147,907	435,708	-	435,708	435,708	-	0%	-		
811	PRP84	196,806	-	-	196,806	-	196,806	196,806	-	0%	-		pass-through funds, no allocation
	SUBTOTAL 3	196,806	-	-	196,806	-	196,806	196,806	-	0%	-		
	GRAND TOTAL	**3,956,035**	**3,193,033**	**1,674,656**	**5,474,412**	**141,705**	**5,616,117**	**3,353,517**	**2,262,600**	**-**			
							-	-	-		-		

*Org 811 beg balance adjusted to reflect disbursement (147.7K) accrued after June 2020 TR published.

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

Reconciliation to Trial Balance - accrual basis

Per Report above:						
General		3,100,533	STB	1493	2,262,600	
WOT		92,500	STB	1505	3,353,517	
PROP		-			**5,616,117**	-
subtotal		**3,193,033**	STB	2135	(141,705)	
					5,474,412	-
Billings-Pending Receipts						
4686	Mem Contrib	6,295				
4687	Transfer	-				
4690	Assoc Contrib	5,159				
4696	Other	942				
4731	State Grant	-				
4732	Grant Retention	-				
subtotal		**12,396**				
Trial Balance Revenue Accounts						
4411	Interest	(16,653)				
4686	Mem Contrib	(1,285,160)				
4687	Transfer	-				
4690	Assoc Contrib	(189,997)				
4696	Other	(1,713,619)				
4731	State Grant	-				
4732	Grant Retention	-				
subtotal		**(3,205,429)**				
Difference		**-**				

BACWA Revenue Report as of January 31, 2021

FUND #	DEPARTMENT	JOB	REVENUE TYPE	AMENDED BUDGET	CURRENT PERIOD			YEAR TO DATE				UNOBLIGATED
					Admin & General	Contributons	Interest, Transfers,Others	Admin & General	Contributons	Interest, Transfers,Others	ACTUAL	
800	Bay Area Clean Water Agencies	0408511	Administrative & General	-	-	-	-	-	-	-	-	-
800	Bay Area Clean Water Agencies	1011099	BDO Member Contributions	516,909	-	-	-	-	516,910	-	516,910	(1)
800	Bay Area Clean Water Agencies	1011108	BDO Other Receipts	-	-	-	-	-	-	-	-	-
800	Bay Area Clean Water Agencies	1011109	BDO Fund Transfers	5,202	-	-	-	-	-	-	-	5,202
800	Bay Area Clean Water Agencies	1011117	BDO- Interest Income from LAIF	20,000	-	-	465	-	-	3,989	3,989	16,011
800	Bay Area Clean Water Agencies	1011133	BDO Assoc.&Affiliate Contr	187,793	-	8,531	-	-	112,615	-	112,615	75,178
800	Bay Area Clean Water Agencies	1014251	BDO Non-Member Contr BAPPG	3,954	-	-	-	-	3,953	-	3,953	1
800	Bay Area Clean Water Agencies	1014252	BDO Non-Member Contr AIR	7,075	-	-	-	-	7,075	-	7,075	-
800	Bay Area Clean Water Agencies	1014511	BDO-Alternative Investment Inc	18,000	-	-	-	-	-	-	-	18,000
800	Bay Area Clean Water Agencies	1015567	BACC - AED Support	20,010	-	-	-	-	-	-	-	20,010
800	Bay Area Clean Water Agencies	1015568	BABC - AED and RPM Support	6,000	-	-	-	-	-	-	-	6,000
800	Bay Area Clean Water Agencies	1015265	BDO Other Receipts (Misc)	-	-	-	-	-	2,601	-	2,601	(2,601)
800	Bay Area Clean Water Agencies	1015266	BDO Affiliate/Associate Dues	-	-	-	-	-	37,587	-	37,587	(37,587)
800	Bay Area Clean Water Agencies	1015267	BDO Affil/CS/Assoc Dues	-	-	1,709	-	-	34,636	-	34,636	(34,636)
	BACWA TOTAL			**784,943**	**-**	**10,240**	**465**	**-**	**715,377**	**3,989**	**719,366**	**65,577**
805	WQA-CBC	1011099	BDO Member Contributions	675,000	-	9,685	-	-	669,455	-	669,455	5,545
805	WQA-CBC	1011108	BDO Other Receipts	1,700,000	-	29,423		-	1,699,048	-	1,699,048	952
805	WQA-CBC	1011117	BDO- Interest Income from LAIF	-	-	-	3,114	-	-	12,664	12,664	(12,664)
805	WQA-CBC	1014528	BDO-Voluntary Nutrient Contrib	-	-	-	-	-	-	-	-	-
	WQA CBC TOTAL			**2,375,000**	**-**	**39,108**	**3,114**	**-**	**2,368,503**	**12,664**	**2,381,167**	**(6,167)**
	TOTAL			**3,159,943**	**-**	**49,348**	**3,579**	**-**	**3,083,880**	**16,653**	**3,100,533**	**59,410**

	DEPARTMENT	JOB	REVENUE TYPE	AMENDED BUDGET	CURRENT PERIOD			YEAR TO DATE				UNOBLIGATED
					Admin & General	Contributons	Interest, Transfers, Others	Admin & General	Contributons	Interest, Transfers, Others	ACTUAL	
802	BABC	1011099	BDO Member Contributions	-	-	36,000	-	-	92,500	-	92,500	(92,500)
802	BABC	1011109	BDO Fund Transfers	-	-	-	-	-	-	-	-	-
	BABC TOTAL			**-**	**-**	**36,000**	**-**	**-**	**92,500**	**-**	**92,500**	**(92,500)**
810	WOT	1011117	BDO- Interest Income from LAIF	-	-	-	-	-	-	-	-	-
	WOT TOTAL			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

	DEPARTMENT	JOB	REVENUE TYPE	AMENDED BUDGET	CURRENT PERIOD			YEAR TO DATE				UNOBLIGATED
					Admin & General	Contributons	Interest, Transfers, Others	Admin & General	Contributons	Interest, Transfers, Others	ACTUAL	
811	PROP 84	1011142	Administrative Support	-	-	-	-	-	-	-	-	-
	PROP TOTAL			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Grand Total			**3,159,943**	**-**	**85,348**	**3,579**	**-**	**3,176,380**	**16,653**	**3,193,033**	**(33,090)**

BACWA Expense Detail Report for January 31, 2021

EXPENSE TYPE	JOB	AMENDED BUDGET	CURRENT PERIOD ENC	CURRENT PERIOD PV	CURRENT PERIOD DA	CURRENT PERIOD JV	YEAR TO DATE ENC	YEAR TO DATE PV	YEAR TO DATE DA	YEAR TO DATE JV	OBLIGATED	UNOBLIGATED
LABOR						-						
AS-Executive Director	1011123	190,000	(31,667)	31,667	-	-	95,000	95,000	-	-	190,000	-
AS-Assistant Executive Directo	1011124	102,551	(8,804)	8,804	-	-	42,676	59,875	-	-	102,551	-
AS-Regulatory Program Manager	1011149	141,170	(8,869)	8,869	-	-	52,160	87,437		-	139,597	1,573
ADMINISTRATION												
AS-EBMUD Financial Services	1011125	42,448	(8,804)	8,804	-	-	21,887	20,561	-	-	42,448	-
AS-Audit Services	1014512	5,345	-	-	-	-	5,240	5,240	-	(5,240)	5,240	105
AS-BACWA Admin Expense	1011118	7,959	-	-	-	-	-	-	194	-	194	7,765
AS-Insurance	1011126	4,776	-	-	-	-	-	-	4,971	-	4,971	(195)
MEETINGS												
GBS-Meeting Support-Annual	1014514	14,369	-	-	-	-	-	-	-	-	-	14,369
GBS-Meeting Support-Exec Bd	1014513	2,653	-	-	257	-	2,653	-	257	-	2,910	(257)
GBS-Meeting Support-Misc	1014516	5,306	-	-	281	-	-	-	406	-	406	4,900
GBS-Meeting Support-Pardee	1014515	6,367	-	-	-	-	-	-	-	-	-	6,367
COMMUNICATION												
CAR-BACWA File Storage	1014518	765	-	-	-	-	-	-	-	-	-	765
CAR-BACWA IT Software	1014520	1,785	-	-	64	-	-	-	577	-	577	1,208
CAR-BACWA IT Support	1014519	2,652	-	-	-	-	2,652	-	-	-	2,652	-
CAR-BACWA Website Dev/Maint	1011116	612	-	-	-	-	-	-	30	-	30	582
CAR-BACWA Website Hosting	1014517	1,530	-	-	-	-	-	-	-	-	-	1,530
LEGAL												
LS-Executive Board Support	1011110	2,176	-	-	-	-	1,091	1,165	-	-	2,256	(80)
LS-Regulatory Support	1011107	2,706	-	-	-	-	2,626	-	-	-	2,626	80
COMMITTEES												
AIR-Air Issues&Regulation Grp	1014253	76,000	(4,400)	4,400	-	-	49,230	25,770	-	-	75,000	1,000
BC-BAPPG	1011147	130,000	(5,316)	5,316	5,000	-	23,784	64,563	25,085	(2,025)	111,407	18,593
BC-Biosolids Committee	1011101	1,000	-	-	-	-	-	-	-	-	-	1,000
BC-Collections System	1011097	1,000	-	-	-	-	-	-	-	-	-	1,000
BC-InfoShare Groups	1011102	1,750	-	-	-	-	-	-	-	-	-	1,750
BC-Laboratory Committee	1011103	1,000	-	-	-	-	-	-	-	-	-	1,000
BC-Permit Committee	1011098	1,300	-	-	-	-	-	-	-	-	-	1,300
BC-Pretreatment Committee	1011146	1,000	-	-	-	-	-	-	-	-	-	1,000
BC-Water Recycling Committee	1011100	1,000	-	-	-	-	-	-	-	-	-	1,000
BC-Manager's Roundtable	1014777	1,000	-	-	-	-	-	-	-	-	-	1,000
BC-Miscellaneous Committee Sup	1011104	45,000	-	-	-	-	-	-	-	-	-	45,000
COLLABORATIVES												
CAS-Arleen Navaret Award	1012201	-	-	-	-	-	-	-	-	-	-	-
CAS-FWQC	1012202	7,500	-	-	-	-	-	-	-	-	-	7,500
CAS-Misc Collaborative Sup	1014521	5,000	-	-	-	-	-	-	-	-	-	5,000
CAS-PSSEP	1011112	20,000	-	-	-	-	-	-	-	-	-	20,000
CAS-Stanford ERC	1011969	10,000	-	-	-	-	-	-	-	-	-	10,000
BACWA TOTAL		**837,720**	**(67,860)**	**67,860**	**5,602**	**-**	**298,999**	**359,611**	**31,520**	**(7,265)**	**682,865**	**154,855**
TECH SUPPORT												
WQA-CE-Technical Support	1011127	250,000	50,000	-	-	-	114,532	-	3,548	(3,548)	114,532	135,468
WQA-CE-Nutrient WS Permit Comm	1014021	2,800,000	-	-	-	-	-	-	1,000,000	-	1,000,000	1,800,000
WQA-CE Risk Reduction	1014023	7,500	-	-	-	-	-	-	-	-	-	7,500
WQA-CE Addl Work Under Permit	1014254	100,000	-	-	-	-	182,000	-	-	-	182,000	(82,000)
WQA-CE Voluntary Nutr Contrib	1014529	-	-	-	-	-	-	-	30,000	-	30,000	(30,000)
Nutrient Workshops	1015015	-	-	-	-	-	-	-	-	-	-	-
WQA-CE-Nature Based Solutions	1015367	200,000	(44,005)	44,005	-	-	329,212	106,708	-	-	435,920	(235,920)
Recycled Water Evaluation	1015566	60,000	-	-	-	-	135,659	6,175	-	-	141,834	(81,834)
WQA - CEC Investigations	1015569	50,000	-	-	-	-	65,000	-	-	-	65,000	(15,000)
TECH SUPPORT (CBC) TOTAL		**3,467,500**	**5,995**	**44,005**	**-**	**-**	**826,403**	**112,883**	**1,033,548**	**(3,548)**	**1,969,286**	**1,498,214**
GRAND TOTAL		**4,305,220**	**(61,865)**	**111,865**	**5,602**	**-**	**1,125,402**	**472,494**	**1,065,068**	**(10,813)**	**2,652,151**	**1,653,069**
BABC												
AS-Assistant Executive Directo	1011124	-	-	-	-	-	-	-	-	-	-	-
Administrative Support	1011142	-	-	-	-	-	-	-	-	-	-	-
BDO Contract Expenses	1011143	-	-	-	-	-	-	-	4,621	-	4,621	(4,621)
AS-Regulatory Program Manager	1011149	-	-	-	-	-	-	-	-	-	-	-
Technology Research & Developm	1015372	-	-	-	5,000	-	-	-	5,000	-	5,000	(5,000)
Academia Research & Developmen	1015373	-	-	-	-	-	-	64,500	-	-	64,500	(64,500)
Collateral Development	1015374	-	-	-	-	-	-	1,125	37,400	-	38,525	(38,525)
Program Manager Expense	1015376	-	(4,719)	4,719	-	-	54,739	35,261	-	-	90,000	(90,000)
BABC TOTAL		**-**	**(4,719)**	**4,719**	**5,000**	**-**	**54,739**	**100,886**	**47,021**	**-**	**202,646**	**(202,646)**
BACC												
Administrative Support	1011142	-	5,000	-	-	-	5,000	-	-	-	5,000	(5,000)
BACC TOTAL		**-**	**5,000**	**-**	**-**	**-**	**5,000**	**-**	**-**	**-**	**5,000**	**(5,000)**
WOT												
Administrative Support	1011142	-	-	-	-	-	-	-	-	-	-	-
BDO Contract Expenses	1011143	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-
GRAND TOTAL (BDO, CBC, BABC, BACC, WOT)		**4,305,220**	**(61,584)**	**116,584**	**10,602**	**-**	**1,185,141**	**573,380**	**1,112,089**	**(10,813)**	**2,859,797**	**1,445,423**

BACWA Expense Detail Report for January 31, 2021

DEPTID	DEPARTMENT	EXPENSE TYPE	AMENDED BUDGET	CURRENT PERIOD ENC	CURRENT PERIOD PV	CURRENT PERIOD DA	CURRENT PERIOD JV	YEAR TO DATE ENC	YEAR TO DATE PV	YEAR TO DATE DA	YEAR TO DATE JV	OBLIGATED	UNOBLIGATED
811	Prop84BayAreaIntegRegnlWtrMgmt	BDO Fund Transfers	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Administrative Support	-	-	-	5,840	(5,840)	-	-	5,840	(5,840)	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	BDO Contract Expenses	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Regional Green Infrastructure	-	-	-	118,045	(118,045)	-	-	118,045	(118,045)	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Hacienda Ave Green St Improvem	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Sears Point Wtlnd & Wtrshd Res	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Bay Friendly Landscape TP	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Weather Based Irrigation Cntrl	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	High Efficiency Toilet & UR	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	High Efficiency Toilet & UI	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	High Efficiency Clothes Washrs	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Napa Co. Rainwater HP	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Conservation Program Admin	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Flood Infrastructure Mapping T	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Stormwater Improvements & PBP	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Richmond Shoreline & San PFP	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Pescadero Integrated FRAH	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Restoration Guidance, San FC	-	-	-	15,353	(15,353)	-	-	15,353	(15,353)	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	SF Estuary Steelhead MP	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Stream Restoration in North BD	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Watershed Program Admnstrtn	-	-	-	8,463	(8,463)	-	-	8,463	(8,463)	-	-
	PRP84 TOTAL		**-**	**-**	**-**	**147,701**	**(147,701)**	**-**	**-**	**147,701**	**(147,701)**	**-**	**-**

BACWA Revenue Report as of January 31, 2021

DEPTID	DEPARTMENT	JOB	REVENUE TYPE	AMENDED BUDGET	CURRENT PERIOD			YEAR TO DATE				UNOBLIGATED
					Admin & General	Contributons	Interest, Transfers,Others	Admin & General	Contributons	Interest, Transfers,Others	ACTUAL	
811	Prop84BayAreaIntegRegnlWtrMgmt	1011117	BDO- Interest Income from LAIF	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011142	Administrative Support	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011691	Water Efficient Landscape Reba	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011702	Sears Point Wtlnd & Wtrshd Res	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011705	Regional Green Infrastructure	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011706	Hacienda Ave Green St Improvem	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011707	WQ Improve Flood Mgmt & EP	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011911	Stream Restoration w/Schools i	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011912	Flood Infrastructure Mapping	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012209	Water Efficient LRP	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012210	Bay Friendly Landscape TP	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012211	Weather Based Irrigation Cntrl	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012212	High Efficiency Toilet & UR	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012213	High Efficiency Toilet & UI	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012214	High Efficiency Clothes Washrs	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012215	Napa Co. Rainwater HP	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012216	Conservation Program Admin	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012218	Stream Restoration in North BD	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012219	Flood Infrastructure Mapping T	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012220	Stormwater Improvements & PBP	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012221	Richmond Shoreline & San PFP	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012222	Pescadero Integrated FRAH	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012223	Restoration Guidance, San FC	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012224	SF Estuary Steelhead MP	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1012225	Watershed Program Admnstrtn	-	-	-	-	-	-	-	-	-
	PROP 84 TOTAL			**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

EXECUTIVE DIRECTOR AUTHORIZATION

AGENDA NO.: 3
FILE NO.: _____
DATE: March 19, 2021

TITLE: Executive Director Authorization for Agreement with Downey Brand, LLP for Legal review of BACC Bid Documents

RECOMMENDED ACTION

BACWA Executive Director Authorization for an agreement with Downey Brand, LLP., in an amount not to exceed $5,000, to provide legal review of FY21/22 Bay Area Chemical Consortium bid documents.

SUMMARY

In Fiscal Year 2021, BACWA took over administration of the Bay Area Chemical Consortium (BACC). The previous administrator, Dublin San Ramon Services District, provided sample bid document language that was used in previous years, which was adapted by BACWA for the Fiscal Year 2021/22 bid. The attached contract authorizes Downey Brand to provide a legal review of the front end BACC bid documents with the goal of limiting BACWA's liability as the BACC administrator.

FISCAL IMPACT

BACC is a project of special benefit whose funds are held separately from BACWA's. The contract will be funded through the BACC fund and will not impact BACWA's budget.

ALTERNATIVES

No other alternatives were considered as this action is consistent with BACWA contracting policies.

Attachments:

1. BACWA Agreement for FY21 with Downey Brand, LLC to provide Review of Bay Area Chemical Consortium Bid Documents

Approved: _____ Date: 1/20/21

Lorien Fono
BACWA Executive Director

Date: 1/21/2021

BAY AREA CLEAN WATER AGENCIES

CONSULTING AGREEMENT

TO:	Scott McElhern Downey Brand LLP 621 Capitol Mall, 18th Floor Sacramento, CA 95814	smcelhern@DowneyBrand.com Phone: 916-444-1000
FROM:	Lorien Fono, Executive Director BACWA PO Box 24055, MS702 Oakland, CA 94623	lfono@bacwa.org Phone: 510-684-2993

RE: BACWA Agreement for FY21 with Downey Brand, LLP to provide Review of Bay Area Chemical Consortium Bid Documents.

This Agreement covers professional services to be performed by Downey Brand LLP in order to provide legal review of BAY AREA CHEMICAL CONSORTIUM REQUEST FOR BIDS, Section 4, Terms and Conditions. The work under this contract will be carried out under the supervision of Lorien Fono, BACWA Executive director. The total cost of professional services to be performed by Downey Brand, LLP, is not to exceed $5,000 This contract will be funded by the BACWA Budget under the Regulatory Legal Support line item.

This Agreement may be terminated by either party at any time for convenience with 30 day's notice. In the event of termination by BACWA, BACWA shall pay Downey Brand for professional and competent services rendered to the date of termination upon delivery of assigned work products to BACWA.

Downey Brand LLP shall submit invoices to the BACWA Executive Director via e-mail at lfono@bacwa.org. Invoices shall indicate hours associated with each task. Invoices will be paid within thirty (30) days of receipt.

Approved:

By Lorien Fono

Lorien Fono
BACWA Executive Director

Date 1/21/21

BACWA EIN: 94-3389334

By Scott McE

Scott McElhern
Downey Brand LLP

Date 01 / 21 / 2021

EIN/TIN: 94-0438033

TITLE	Downey Brand \ BACWA Contract
FILE NAME	Contract for revi... Bid Jan 2021.pdf
DOCUMENT ID	981869e267e01fb30dfc0ecff7e2fdc44dc52af5
AUDIT TRAIL DATE FORMAT	MM / DD / YYYY
STATUS	● Completed

Document History

SENT	**01** / **21** / **2021** 17:34:05 UTC	Sent for signature to Scott McElhern (smcelhern@downeybrand.com) and Lorien Fono (lfono@bacwa.org) from jdyment@bacwa.org IP: 157.131.142.218
VIEWED	**01** / **21** / **2021** 23:21:55 UTC	Viewed by Scott McElhern (smcelhern@downeybrand.com) IP: 12.233.206.12
SIGNED	**01** / **21** / **2021** 23:22:56 UTC	Signed by Scott McElhern (smcelhern@downeybrand.com) IP: 12.233.206.12
VIEWED	**01** / **21** / **2021** 23:44:03 UTC	Viewed by Lorien Fono (lfono@bacwa.org) IP: 135.180.44.78
SIGNED	**01** / **21** / **2021** 23:49:31 UTC	Signed by Lorien Fono (lfono@bacwa.org) IP: 135.180.44.78
COMPLETED	**01** / **21** / **2021** 23:49:31 UTC	The document has been completed.

Background

On February 12, 2021, the State Water Board released an Informal Staff Draft of a new Statewide Sanitary Sewer System General Waste Discharge Requirements (SSS-WDR), which is proposed to replace the current order adopted in 2006 (WQO No. 2006-0003) as well as the accompanying Monitoring & Reporting Program adopted in 2013 (Order No. WQ 2013-0058-EXEC) .

Program Page: https://www.waterboards.ca.gov/water_issues/programs/sso/

Link to Informal Staff Draft (PDF version):
https://www.waterboards.ca.gov/water_issues/programs/sso/docs/workshops/informal_staff_draft_statewide_sso_order.pdf
Word version: https://bacwa.box.com/s/nkfi7ova6gsmythdfd7leztioigaxvgf

The Informal Staff Draft SSS-WDR ("Draft Order") proposes many new requirements related to spill prevention and reporting. This document contains a list of the some of the notable changes and new requirements. It is not an exhaustive list of all changes.

Next Steps

- On March 26th, BACWA will be participating in a discussion with State Water Board staff organized by CASA.
- On April 13th and 16th, the State Water Board will be conducting two public outreach workshops.
- If you have comments, please reach out to Mary Cousins (mcousins@bacwa.org)

Notable Changes in rough order of appearance

Page(s) and Section(s)	Issue
Page 1, Table 1	Private entities many now be required to enroll in the SSS-WDR if the Regional or State Board determines that they need to be regulated. No minimum system size is specified. The requirement for public agencies to enroll (>1 mile of pipe) remains the same as the 2006 order.
Page 2, Table 1	The Draft Order uses the term "**Spill**" in lieu of the term "Sanitary Sewer Overflow" (SSOs) used in the 2006 order.
Page 2, Table 1; Page D-9, Section 7.1 (Condition Assessment); Page D-17, Section 12 (Spill Response)	**Exfiltration** to groundwater, the ground surface, or a surface water body is **now included in the definition of "Spill."** The Draft Order does not provide guidance on measuring or reporting exfiltration; spill reporting procedures (Page E1-2) continue to use terms such as "spill event," "spill volume," and "spill rate" that are not easily transferrable to exfiltration.
Page 2, Footnote 1 to Table 1; Page 12, Section 3.2.4; Page 21, Section 5.13.1	**Exfiltration to groundwater is now a Category 1 spill** if the groundwater is "hydraulically connected to a water of the United States." This is not the same terminology used in recent court rulings related to the Clean Water Act and its application to groundwater (i.e., Supreme Court decision in *County of Maui v. Hawaii Wildlife Fund).*
Page 4, Section 4.1	The Draft Order prohibits "**Any spill** of sewage from a sanitary sewer system." This prohibition is broader than the 2006 order, which only

Page(s) and Section(s)	Issue
	prohibits two specific types of discharges: those that reach Waters of the US and those that create a nuisance.
Page 15, Section 5.3 Page D-7, Section 7	The Draft Order emphasizes **Sewer System Resiliency,** which is proposed as a a key focus area for Sewer System Management Plans (SSMPs). The requirement to address system resiliency within the SSMP will be phased in after 2 years. SSMPs will need to include new elements related to sewer condition assessment, capacity assessment, risk assessment, and management actions.
Page 16, Section 5.5	The **Legally Responsible Official** certifying the SSMP and spill reports must now be either a Professional Engineer, or a Grade III collection system operator certified by CWEA or Sacramento State University. The Draft Order does not include a phase-in period for this requirement.
Page 18, Section 5.10; Page 23, Section 5.17; Page E1-14, Section 3.5	The Draft Order requires an **Annual Report** due February 1 in lieu of the annual SSO questionnaire required by the 2006 order. The requirements, which include a graph of spill statistics for a 10-year period, are more extensive than those found in the current SSO questionnaire.
Page 19, Section 5.11	**Internal Program Audits** are still required every two years by the Draft Order. Audit findings would have to be uploaded into CIWQS.
Page 22, Section 5.13 Page 24, Section 5.20	Spills less than 50 gallons are now categorized as "**Category 4**." Some agencies may qualify for reduced reporting of Category 4 spills (onsite recordkeeping in lieu of CIWQS). To qualify for this reduced reporting, agencies must fulfill requirements related to spill frequency, spill volume, and operator certification.
Page 22, Section 5.14	The Draft Order requires each agency to submit an electronic version of its **service area boundary map** into CIWQS. The map must be in a GIS, Google Earth, or similar geo-referenced format.
Page 23, Section 5.15	The Draft Order requires agencies to report spills from **Privately-Owned Sewer Laterals or Sewer Systems** into CIWQS, if they become aware of any such spills. The spill reports do not need to be certified.
Page 26, Section 6.16	For the purposes of **discretionary enforcement,** the Draft Order allows the Water Boards to consider whether an agency conducted water quality or biological monitoring of receiving waters; this factor is not included in the 2006 Order.
Attachment D	SSMP requirements are now included in a separate Attachment D and are more numerous and elaborate than the requirements in the 2006 Order. The most significant change to the SSMP is the need for a new section addressing Sewer System Resiliency (see table entry at the top of this page). Except for the resiliency components, no phase-in period appears to be included for the new requirements, which include: • **Budget Information.** "Detailed information regarding the Enrollee's long-term cumulative budget(s)…" which must include "a budget that accounts for, at a minimum, a 20-year timeframe." (Page D-5)

Page(s) and Section(s)	Issue
	• **Inter-Agency Coordination.** SSMPs will have to include information about drinking water system assets and stormwater networks, and a protocol for coordinating with stormwater and drinking water agencies (Page D-7). The SSMP will also have to identify **Erosion Control Measures** (page D-15) for stormwater. • **Identification of high-risk system components** (Page D-11), which will have to be prioritized for annual condition assessment (Page D-9) and capital improvements (Page D-13); • An **Adaptive Management** section (page D-20).
Attachment E	Changes to spill response, monitoring, and reporting include: • **2-hour notification** to CIWQS is required for all spills, not just Category 1 spills greater than 1,000 gallons; • Category 2 certified spill reports would be due slightly later (first day of the second month after the spill, rather than within 15 days). • **Receiving water monitoring** for field parameters like temperature, dissolved oxygen, and residual chlorine is now required for all spills that reach waters of the State (which includes groundwater). There is no minimum spill size triggering this monitoring. Additional monitoring of ammonia and bacteria continues to be required for large spills that reach Waters of the US.

March 31, 2021

To Municipal Wastewater Dischargers (see Attachment A):

By June 1, 2021, please complete the following questionnaire to provide information that describes how your agency will ensure facility operations are not disrupted by existing and future climate conditions. Climate change is shifting precipitation and temperature patterns, exacerbating extreme weather events, and causing sea level rise and groundwater rise. These conditions have significant implications for wastewater collection, treatment, and discharge operations.

This questionnaire is intended to characterize climate change planning efforts within the region's wastewater community. The results will inform our broader efforts to ensure that effective climate change planning is underway throughout the region. These efforts go well beyond the wastewater community. For example, we are seeking similar information regarding industrial and waste management sites.

With this questionnaire, we hope to better understand climate change actions agencies have already undertaken and encourage future actions based on site-specific conditions. We recognize that planning for climate change is complex. For example, in addition to anticipating sea level rise, agencies must consider site-specific information about groundwater elevations, extreme storm events, tides, wave setup and runup, and watershed flows. We consider the Ocean Protection Council's *Sea-Level Rise Guidance* to be an authoritative source supporting planning for sea level rise in California.[1] In May 2020, the California Coastal Commission adopted *Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action*, indicating there is a significant risk of up to 0.8 feet of sea level rise by 2030 and 6.9 feet by 2100 in the San Francisco Bay region.[2] Pending site-specific analyses, we advise starting with a sea level rise target of 3.5 feet by 2050. The California Environmental Protection Agency, including the State Water Resources Control Board, has endorsed such planning principles.

We hope your agency has already started at least some initial planning. You may rely on existing planning to respond to this request. For example, your agency may have

[1] https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf
[2] https://documents.coastal.ca.gov/reports/2020/5/w6g/w6g-5-2020-exhibits.pdf

developed similar information to comply with Senate Bill 379, which requires cities and counties to include climate adaptation and resiliency strategies in their general plans. If so, you may simply cite and summarize these materials to the extent that they are relevant. We also appreciate that many agencies recently contributed to the Bay Area Clean Water Agencies' *Nutrient Reduction Study*, which compiled preliminary sea level rise information (see Figures 4 and 5 of the report, shown below).[3]

In completing this questionnaire, please consider all wastewater facilities for which your agency is responsible. For example, if you operate two treatment plants, you may complete just one questionnaire that covers both. Also, you need not respond on behalf of satellite collection systems. We will address them separately. Brief answers are acceptable, as indicated by the box sizes in the questionnaire, particularly if you are able to provide hyperlinks for readily available documents. You may also attach additional pages as necessary.

Finally, please remember to update, as necessary, your agency's contingency plan, spill prevention plan, operation and maintenance manual, and wastewater facilities status report in accordance with your NPDES permit (Attachment G sections I.C and I.D) to reflect your response to this request. Likewise, remember to describe any anticipated facility modifications in future reports of waste discharge.

We appreciate your cooperation. If you have any questions, please contact Robert Schlipf at robert.schlipf@waterboards.ca.gov.

Sincerely,

Bill Johnson
Chief, NPDES Wastewater Division

[3] https://bacwa.org/wp-content/uploads/2018/06/BACWA_Final_Nutrient_Reduction_Report.pdf

CLIMATE CHANGE QUESTIONNAIRE

1. **Projections and Planning Targets**. What guidance (e.g., Ocean Protection Council guidance), projections, and assumptions is your agency using to anticipate the effects of climate change? Is your agency using a specific sea level rise projection for facility planning? If so, what specific increment of sea level rise or flood elevation is your agency planning for, what is the associated time frame (e.g., 3.5 feet by 2050), and what site-specific information did your agency include in this analysis (e.g., 100 year flood recurrence interval), if known?

Response

2. **Vulnerability Assessment**. Assess the vulnerability of your agency's collection, treatment, and discharge systems to the following: (1) sea level rise, (2) groundwater rise, (3) changing climate and weather, and (4) power outages and wildfires.

   a. ***Sea Level Rise***. If your agency's facilities are currently within the FEMA 100-year flood plain and not protected by a FEMA-accredited levee, explain how your agency manages its existing flood risks (e.g., protective measures already in place, planned, or proposed). We understand that the treatment plants listed in Table 1 (marked green and yellow on Figures 4 and 5 of the *Nutrient Reduction Study*) are probably not susceptible to existing flood risks; in these cases, your response may be particularly brief and may be limited to collection and discharge systems. If your agency's treatment plant is not listed in Table 1 but is also protected by a FEMA-accredited levee or not within the FEMA 100-year flood plain, simply explain the basis for this conclusion.

Response

If your agency's facilities are currently within the FEMA 100-year flood plain and not protected by a FEMA-accredited levee or if your facilities are projected to be affected by sea level rise within 50 years, explain how your agency intends to manage future flood risks over a 50-year time horizon (e.g., ongoing planning efforts and protective measures already in place, planned, or proposed). If your agency has not yet established a plan, explain its process and timeline for doing so in your response to item 3c, below. We understand that, with the exception of South San Francisco and San Bruno, the treatment plants listed in Table 1 are probably not susceptible to flooding related to sea level rise within 50 years. In these cases, responses may be limited to collection and discharge systems. If your agency's treatment plant is not listed in Table 1 but you believe it meets the same criteria, simply explain the basis for this conclusion.

Response

b. ***Groundwater Rise***. Groundwater rise is becoming an issue of concern. For more information, see publications from the San Francisco Estuary Institute (*Shallow Groundwater Response to Sea Level Rise*) and Hummel et al. (*Sea Level Rise Impacts on Wastewater Treatment Systems Along the US Coasts*).[4] If your agency's facilities are susceptible to flooding related to groundwater rise or if its facilities are projected to be affected by groundwater rise within 50 years, explain how it intends to manage future flood risks over a 50-year time horizon (e.g., ongoing planning efforts and protective measures already in place, planned, or proposed). If your agency has not yet established a plan, explain its process and timeline for doing so in your response to item 3c, below.

Response

[4] https://www.sfei.org/projects/shallow-groundwater-response-sea-level-rise and https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017EF000805 (Hummel, M., M. Berry, and M. Stacey. 2018. Sea Level Rise Impacts on Wastewater Treatment Systems Along the US Coasts. Earth's Future 6 (4): 622–633)

c. ***Changing Climate and Weather***. Assess how increased temperatures, greater rainfall intensity, and longer and drier summers may affect your agency's collection, treatment, and discharge systems. For example, under drought conditions, wastewater treatment plants are expected to face numerous challenges related to conveying and treating wastewater, as described in *Adapting to Change: Utility Systems and Declining Flows*.[5] Explain how your agency intends to manage future risks. If your agency has not yet established a plan, explain its process and timeline for doing so in your response to items 3b and 3c, below.

Response

d. ***Power Outages and Wildfires***. Assess how increasing stress on the power grid from more extreme heat waves and related power shutoffs, or from power shutoffs to your agency's service area to prevent wildfires, may affect critical equipment and any need for additional back-up power. Explain how your agency intends to manage future risks. If your agency has not yet established a plan, explain its process and timeline for doing so in your response to items 3b and 3c, below.

Response

3. Adaptation Strategies. Based on the vulnerabilities of your agency's collection, treatment and discharge systems, identify mitigation and control measures needed to maintain, protect, and improve its wastewater infrastructure under existing and possible future conditions.

[5] California Urban Water Agencies. 2017. *Adapting to Change: Utility Systems and Declining Flows*. https://www.cuwa.org/pubs/2018/1/10/uhjemzug04iar61oijljp8ovn67zqb

a. ***Regional and Sub-regional Collaboration***. Explain how your agency plans to work directly with regional stakeholders (e.g., Caltrans, PG&E, flood control agencies, etc.) and neighboring communities to address climate change impacts in its area. A collaborative approach may best provide cost-effective ways to manage sea level rise and groundwater rise, while ensuring that the actions of one party do not adversely affect the adaptation plans of other parties. For example, we strongly encourage collaboration within Operational Landscape Units identified in the *San Francisco Bay Shoreline Adaptation Atlas*.[6]

Response

b. ***Near-Term Measures***. Identify any critical mitigation and control measures necessary within the near-term (e.g., within the next 5 to 10 years). Does your agency's capital improvement plan account for these measures? If not, how does your agency intend to pursue them?

Response

c. ***Long-Term Design Modifications and Improvements***. Explain how infrastructure identified as vulnerable to climate change impacts will need to be modified in the future. For example, it may be necessary to relocate critical equipment above projected flood levels, waterproof facilities at risk of flooding, or construct levees or seawalls. As sea level rises, increasing pumping capacity may also be necessary to ensure your agency can discharge treated wastewater under an increased hydraulic pressure head. If planning is still underway, what options are under consideration?

[6] https://www.sfei.org/adaptationatlas

Response

d. ***Monitoring.*** Climate change may trigger new monitoring needs for your agency's collection, treatment, and discharge systems. For example, increased residence times in the collection system could cause corrosion if wastewater turns septic, and increased salinity levels could impair your ability to beneficially reuse treated wastewater. Has your agency already installed or planned new monitoring (e.g., salinity, conductivity, or hydrogen sulfide monitoring) at its treatment plant or collection system to respond to potential climate change-related impacts? What new monitoring does your agency anticipate needing to implement in the future?

Response

e. ***Emergency Response Planning.*** Has your agency updated its contingency plan, emergency response plan, or hazard mitigation plan to incorporate flood risks associated with sea level rise and groundwater rise? If so, briefly describe the updates.

Response

f. ***Financing****.* Has your agency estimated the cost of mitigation and control measures necessary to respond to climate change? If so, describe your agency's efforts to finance these improvements, including rate increases, grants, and loans.

Response

TABLE 1

Facilities Protected by FEMA-accredited Levee or
Not within FEMA 100-year Flood Plain

American Canyon	Novato Sanitary District
Delta Diablo	Petaluma
Dublin-San Ramon Services District	Richmond Municipal Sewer District
East Bay Municipal Utility District	San Francisco (Southeast Plant)
Fairfield Suisun Sewer District	San Mateo
Hayward	Sewerage Agency of Southern Marin
Las Gallinas Valley Sanitary District	Silicon Valley Clean Water
Livermore	Sonoma Valley County Sanitary District
Mt. View Sanitary District	South San Francisco and San Bruno

Note: This list is based on existing Water Board records, but is incomplete. If your agency should be listed here, please explain in response to Question 1a and cite documentation.

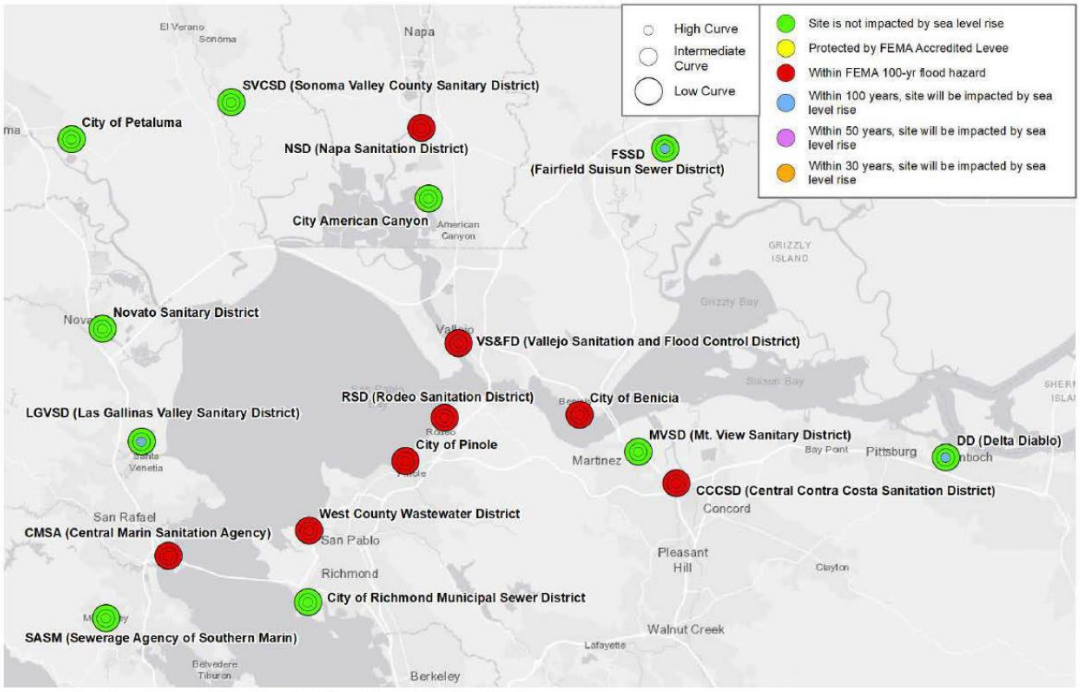

Figure 4 – Sea Level Rise Evaluation Results, North Bay

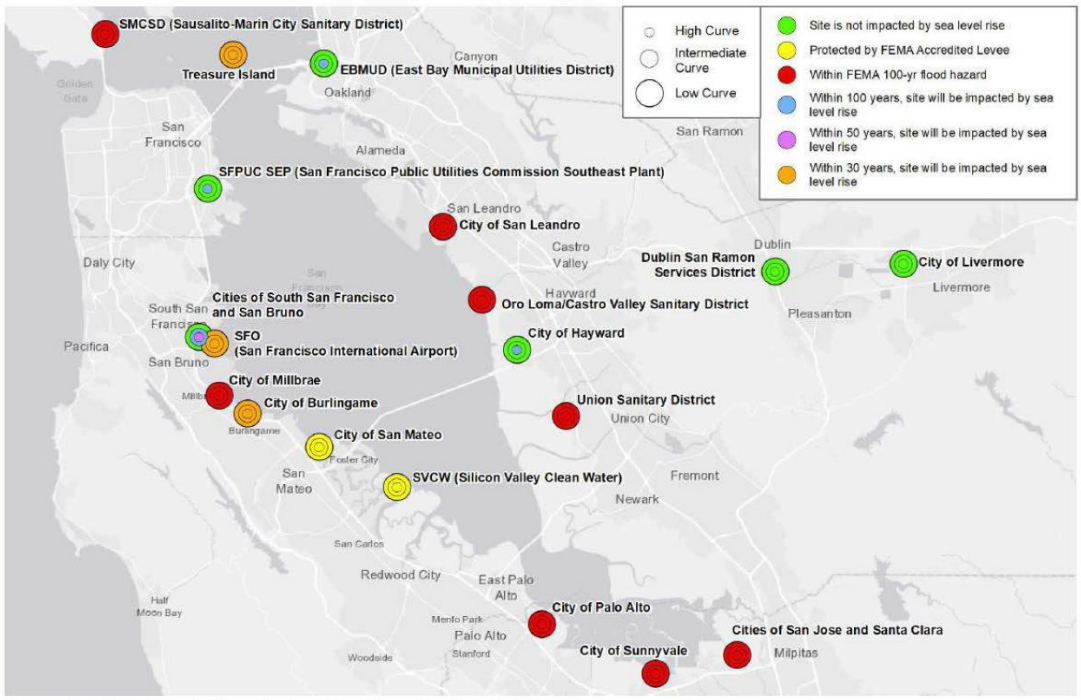

Figure 5 – Sea Level Rise Evaluation Results, South Bay

Sea Level Rise Impacts on Wastewater Treatment Systems Along the US Coasts

Attachment A

[List addressees]

In addition to those listed in the *Nutrient Reduction Study*, add:

Port Costa

Tiburon

Paradise Cove

Oceanside

North Point

NSMCSD

Pacifica

SAM

EBDA

SFIA

Calistoga

Yountville

Saint Helena

SFIA

From:	Sarah A. Deslauriers
To:	Lorien Fono; Mary Cousins; Jean-Marc Petit; Lori Schectel; Azalea Mitch; Sarah Scheidt; Mutsuddy, Amit; Courtney Mizutani; Nettleton, Jason; Raj Rangaraj (RRangaraj@YorkeEngr.com); Randy Schmidt; Revilla, Nohemy; Rita Cheng; Rothbart, David
Subject:	Summary of the March 5th BAAQMD BACT Meeting
Date:	Monday, March 8, 2021 6:39:59 AM

Hi All,

First, a very big THANK YOU to everyone's support in preparing for the meeting with BAAQMD (Damian and Pamela) on the new BACT determination for large diesel back-up generators. While it is disappointing that there continues to be a hard push for Tier 4 engines as BACT (since they believe they are achieved in practice by having been installed for at least 6 months), the discussion revealed that this has been an overall process failure and BAAQMD may have underestimated the impact this would have on projects.

We wanted to follow up with the full group to provide a summary of the discussion.

1. Lorien opened the meeting with an introduction of BACWA's concerns regarding the retroactive application of BACT for large diesel emergency generators.
2. Damian provided an overview of the new BACT determination (timeline and pressure from CARB on Air Districts including BAAQMD).
3. Central San and San Mateo summarized each of their project timelines and impacts to their time-sensitive projects.
4. BAAQMD has not updated BACT in more than 10 years for diesel generators (i.e., interestingly since 12/22/2010), so this is new for the staff in place.
5. BAAQMD is relying on the definition of "achieved in practice" for BACT from U.S. EPA Region 9, which states it is the "successful operation of a new control technology for six months"; however, different air districts have different approaches for determining if the equipment has actually been "successfully operated" or "achieved in practice." For federal BACT, technology is evaluated for each permit on a case-by-case basis, and considering economic, energy, and environmental factors. Pamela mentioned the variation in approaches by Air District. Here are some points from the discussion:
    a. It appears that BAAQMD only collected installation dates to understand how far back folks have been "using" Tier 4 engines, but did not refer to experience in hours of continuous operation. There may be something to work with legally here. We are moving into a time of higher frequency of extreme events (including PSPS events to prevent wildfire and wider spread power outages) and generators used as the sole source of back-up power must be reliable.
    b. Damian acknowledged that BAAQMD has no formal process for formally vetting BACT, however, they intend to change that going forward. Note, they have a member of their BACT staff who serves on SCAQMD's BACT scientific review committee (SRC).
    c. SCAQMD established their SRC back in September of 1995, as well as a formal process for BACT review and has very recently determined that Tier 4 engines have NOT been achieved in practice.
6. Damian stated the following throughout the discussion:
    a. The start date of January 1, 2020 was selected in order to capture all currently open permit applications versus going back to 2017 when the first Tier 4 engine was installed

(since that would require re-opening finalized applications).
   b. They may have underestimated the impact this would have.
   c. While they believe they need to stick to Tier 4 engines because of the BACT regulations (assuming that Tier 4 engines are actually achieved in practice, which we still question), they may be able to provide some flexibility with providing allowance for a temporary engine, but they want to schedule follow-up meetings directly with Central San and San Mateo on the construction details to determine if there is a way to provide more time. However, both of these projects are time-sensitive and both Central San and San Mateo stated so.
7. Follow-up items:
   a. Connect with SCAQMD to collect the data and/or summary of the reasoning for declaring that Tier 4 engines have not been "achieved in practice."
   b. Sarah to raise this as a CASA issue and reach out to CARB to understand their intent for BACT application and determining the definition of "achieved in practice".
   c. Support members (Central San and San Mateo) in their upcoming meetings.

Courtney and I will be following up on a number of items and notify you of updates as quickly as they come in – please do reach out with any questions.

Have a great Monday!
Sarah

Sarah A. Deslauriers, P.E., ENV SP
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Walnut Creek, CA 94598
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Courtney Mizutani, P.E.
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Concord, CA 94521
Main: 925-686-5533
cmizutani@sbcglobal.net

DRAFT

Executive Board Special Meeting Agenda

SF Bay Regional Water Board / BACWA Executive Board
Joint Meeting
Friday, April 2, 1 – 3 PM

ROLL CALL AND INTRODUCTIONS – 1 PM

PUBLIC COMMENT – 1:03 PM

DISCUSSION/OTHER BUSINESS- 1:05 PM

Topic	Goal	Time
1. Agency Updates	• Roundtable from BACWA and Regulators about COVID-19 impacts and other important updates	1:10
2. Nutrients	• Update on member survey and analysis of loading data • Tailoring science plan to answer management question for 3rd watershed permit	1:25
3. PFAS	• Update on results from Regional Special Study, Phase I • Discussion of timing and focus for Phase II • Update on potential PFAS source control measures	1:55
4. Alternate Monitoring Requirements overhaul	• Schedule update for new statewide toxicity provisions • Update on BACWA efforts to identify monitoring and reporting elements for reduction • Update on financial impacts on RMP CEC budget	2:10
5. Statewide Sanitary Sewer Systems General Order (SSS-WDR)	• Exfiltration • Process for engagement with State Water Board	2:25
6. Climate Change Adaptation	• Update on efforts to solicit information from BACWA members on climate change planning	2:40
7. Chlorine Residual Basin Plan Amendment	• Schedule update for State and EPA Review • Permit implementation	2:50

ADJOURNMENT

AGENDA
BACWA Nutrient Strategy Team Meeting
Monday March 15, 2020
9:00 am – 11:00 pm

1. Introductions

2. Review of data from Nutrient Planning and Implementation Survey

3. Review of proposed SOW for analysis of historic data

4. Next steps – develop BACWA key tenets document

5. Adjourn

Technical Memorandum
BACWA NMS Reviewer Task 1

Review of 17 documents published or posted in 2020 and recommendations for further consideration

Submitted by Michael Connor and Christine Werme February 19, 2021.
Revised March 8, 2021

1. Introduction and Structure

This technical memorandum proposes recommendations for BACWA's Nutrient Technical team to consider in their role as participants in the Nutrient Management Steering Committee discussions of SFEI's ongoing monitoring and modeling work. It is based on a review of 2020 publications and/or posts, and uses extracted portions of the publications' texts and figures to emphasize points of particular relevance to the BACWA agencies.

The memo begins with a list of overall recommendations for the BACWA Nutrient Technical Team (NTT). These recommendations are followed by a section discussing the five key publications (numbered according to their SFEI code) determined by the BACWA Technical Team to be the most impactful on BACWA policy determinations and used to generate the overall NTT recommendations as follows:

#1. Northern San Francisco Estuary (Delta/Suisun) biogeochemical model development (WY2016). Dec 2020
#2. Dissolved oxygen responses in Lower South Bay to wildfire smoke/low-light-levels. Nov 2020
#3. Lower South Bay tidal slough creek metabolism and DO condition (v2). Oct 2020
#4. NMS Numerical Modeling Update. Aug 2020
#11. Numerical investigations of shoal-channel exchange (journal article) Apr 2020.

The last section of the memo contains short summaries and extracts of the remaining eleven publications produced or posted by SFEI in 2020 including the following:

#5. Water quality at perimeter sites in San Francisco Bay. Aug 2020
#6. Lower South Bay hypsographic analysis (slough & creek areas and volumes). Aug 2020
#7. On-line tool for water quality trend analysis: chl-a, DO, and GPP. Aug 2020
#8. Bay-Delta chlorophyll-a in-situ sensor and sample analysis Intercomparison. Aug 2020
#9. Algal toxins in San Francisco Bay anchovy. May 2020
#10. Exploring the utility of molecular techniques for quantifying harmful algae and characterizing phytoplankton community in San Francisco Bay. May 2020
#12. Delta nutrients: response to Regional San upgrade. Mar 2020
#13. Biogeochemistry field study design (Background and Workplan v1; Revised Workplan) Dec 2019 & Feb 2020
#14. Sensitivity analysis, SFB biogeochemical model. Jan 2020
#15. Northern San Francisco Estuary (Suisun/Delta) hydrodynamics calibration, WY2016. Dec 2019
#17. LSB Transport and stratification in Lower South Bay (journal article). Dec 2019

2. Recommendations for BACWA's Nutrient Technical Team

Recommendation 1. Convene a process with RB2 and SFEI to develop an itemized, realistic timetable of the permitting process and the specific science needs from the monitoring and modeling tasks. SFEI has made significant process on regional monitoring and modeling, but the linkage to specific regulatory choices may have eluded many of the agency participants who will need to implement the findings. Possible examples of the tasks and timetable might include, for example: "By December 2022, develop a prediction comparing No Net Loading to a 5% increase (1% annually for five years) on the number of days (and its 95%ile confidence intervals) and area of the Bay that dissolved oxygen concentrations fail to meet the Assessment Framework standard." A clear goal for the modeling group will allow them not to have to guess what outputs might be relevant to regulators. As these initial goals are met, it will be clear how further goals can become more sophisticated.

Recommendation 2. Emphasize a timely implementation of an independent peer review panel of the model. SFEI's modeling program has progressed significantly. It is time for an independent scientific peer review, as is a common scientific function of EPA and California agencies when they undertake significant policy choices based on complicated science. The SFEI model will be used to set goals for potentially multi-billion-dollar capital spending. For wide public buy-in from all stakeholders, an independent peer review is crucial and commonly part of SFEI's programs. This concept was first recommended by BACWA to the Water Board in 2012 as paraphrased below:

> https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/amendments/estuarineNNE/Nutrient%20Stategy%20comments%20BACWA%202012-05-17.pdf
>
> *The panel is often called a Model Evaluation Group (MEG) in other water bodies (e.g., Long Island Sound model used to develop a nutrient TMDL; the NY/NJ Harbor model used to develop pathogen, nutrient and toxic contaminant TMDLs; the Massachusetts Bay model used to evaluate the water quality impacts of relocating the City of Boston's wastewater effluent from Boston Harbor into Massachusetts Bay; and, the Chesapeake Bay water quality model used to developed a nutrient and suspended sediment TMDL.) This panel should comprise four to six members, including scientists and modelers (both hydrodynamic and water quality practitioners) from outside the Bay Area, as well as one or two scientists from the Bay community who are not working on, nor colleagues of people who are working on, the development of the model(s)independent from the NNE process. The MEG should meet three or more times, depending on the duration of model development.*

The process is scheduled to begin in the spring of 2021 and BACWA would be well-served in formulating the group's charge and reporting framework.

Recommendation 3. Request that the model developers develop some quantitative measures of model reliability. This task would probably serve as a useful charge to the peer review panel. SFEI has instituted some good quantitative measures for its hydrodynamic models, but there should be some community buy-in so that these techniques can be applied to the water quality model. A good summary of the issue has been developed by Jim Fitzpatrick and shared with SFEI (Assessing skill of estuarine and coastal eutrophication models for water quality managers. Journal of Marine Systems. Volume 76, Issues 1–2, 20 February 2009, pages 195-211).

Recommendation 4. Request that SFEI model developers and monitoring staff develop ways to provide quantitative comparisons of the processes controlling algal growth in the bay—light limitation, grazing, nutrient limitation. SFEI has used the model outputs to evaluate when light limitation or grazing drive Bay phytoplankton and when lower nutrient concentrations would have their maximum impact, but the overall approach should be expanded and applied to the annual monitoring results to give a clear overview of the processes. It is likely that the Bay is most sensitive nutrient loads only at certain times and place. In some ways, there is an analogy to water users who think about management strategies for wet, dry, and drought years. BACWA took an early first-order look at how this issue could affect capital costs through HDR's wet versus dry weather designs.

Recommendation 5. Request that the monitoring program designers re-think how they can respond to their improved understanding of the system from the detailed studies and the need to provide more effective model-data comparisons. Four striking issues include:

- The model's continuous data stream, which is difficult to compare to a single, ship-collected, temporal sample,
- The importance of nitrogen metabolism processes in the shoals.
- The importance of having accurate light and sediment-resuspension measurements in the shoals.
- The impact of grazers over space and time.

Recommendation 6. Link "green engineering" solutions to the importance that the model demonstrates for grazing, light, and denitrification controls of eutrophication impacts. Jim Cloern of USGS has argued the importance of grazing controls. Suzanne Bricker, NOAA's eutrophication expert, has been championing the ability of shellfish grazers as eutrophication control (e.g., https://link.springer.com/article/10.1007/s10499-015-9949-9). The SFEP and the Coastal Conservancy have been promoting shellfish bed projects in the Bay. BACWA is evaluating wetlands projects that increase denitrification as nutrient removal strategies. Developing a more quantitative assessment of these alternatives would allow for better cost-effectiveness assessment. In addition, the integration of salt pond management with nutrient reduction strategies will be a more effective way to ensure overall ecological health of the South Bay.

3. Summaries and Comments on Major Publications

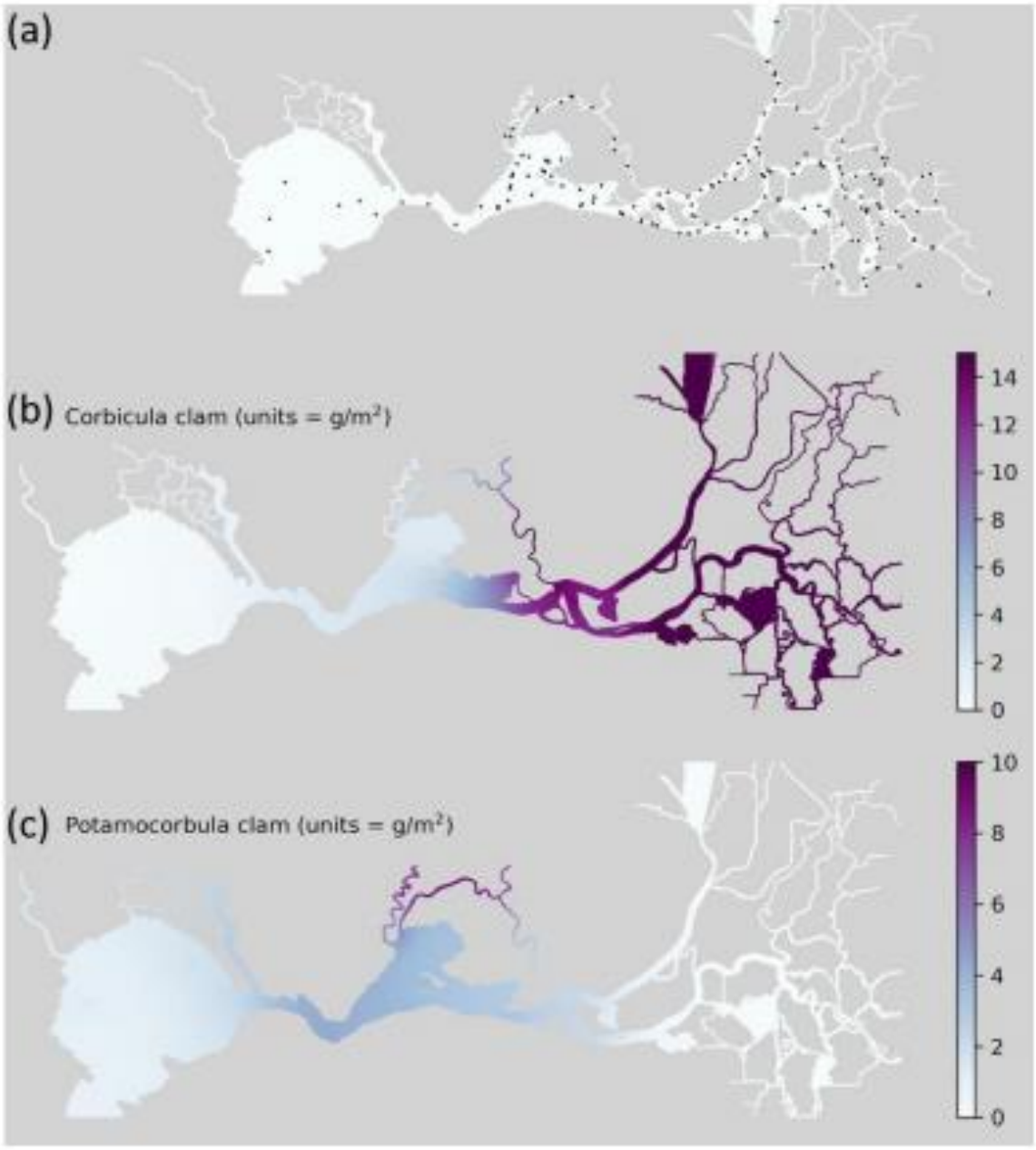
This section discusses key points of the five most-impactful SFEI publications, as determined by BACWA.

SFEI #1. Northern San Francisco Estuary (Delta/Suisun) biogeochemical model development (wy2016) Dec 2020

To evaluate the impact of nutrient discharges on the Bay, SFEI has developed the San Francisco Estuary Biogeochemical Model (SFE-BGCM), a three-dimensional, process-based, spatially-explicit model that is externally coupled to the Bay hydrodynamic model. The SFE-BGCM uses the public-domain/open-source models D-Flow Flexible Mesh (DFM, Deltares 2019a) to simulate hydrodynamics; D-Water Quality (DWAQ; Deltares 2019b) to simulate water quality; and a suite of Python-based utilities to facilitate model setup and postprocessing. SFEI maintains three branches of the overarching SFE-BGCM having that focus on different regions of the San Francisco Estuary: the northern San Francisco Estuary model (Delta, Suisun; nSFE-BGCM); the San Francisco Bay model (SFB-BGCM); and the Lower South Bay model (SFB-LSB-BGCM). The biogeochemical modules for each of the regional models have the same baseline capabilities, and relevant updates or improvements made initially within one regional model are transferred to other regional models. However, some physical and biogeochemical characteristics are distinct to, or more important within, specific regions of the San Francisco Estuary (e.g., the dominant grazing pressure from invasive clams), requiring targeted model development work that is specific to one branch of the SFE-BGCM. The impacts of the status of these different branches of the model are helpful in thinking about overall strategy for the Bay.

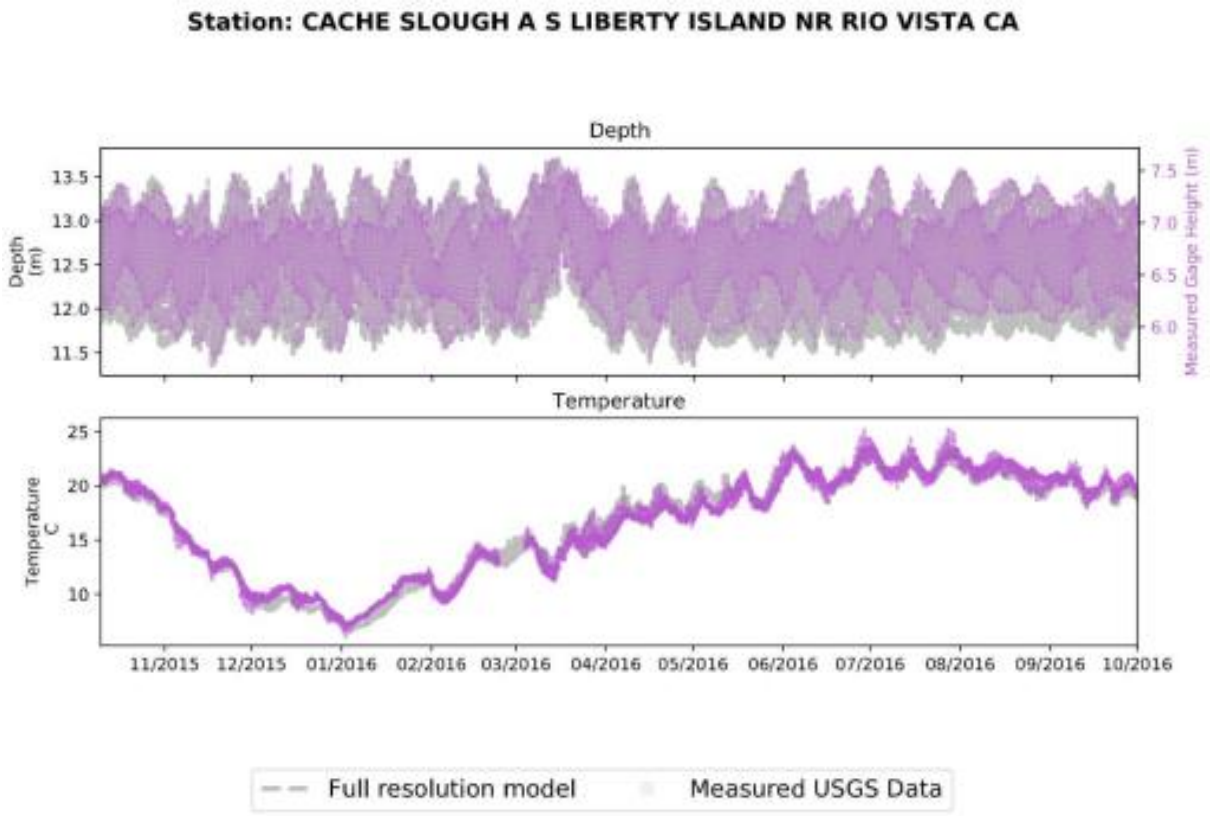
This publication focuses on the model for the North Bay. It includes two unique elements compared to the two other SFE-BGCM models that address the rest of the Bay:

- **Light attenuation.** Creating an accurate light attenuation field is vital to a functioning biogeochemical model for the Delta, where most production tends to be light-limited. However, without a mechanistic sediment transport model, capturing sharp space/time gradients of light penetration becomes nearly impossible. SFEI relied on measured data to provide estimates of light attenuation at given points in time. Compared to the sparse spatial coverage of turbidity data in the Bay, the Delta benefited from 71 monitoring stations in WY2016, which collected turbidity data at 15-minute to monthly frequencies. SFEI generated its light attenuation fields by extrapolating daily-averaged turbidity data onto the model grid and converted from turbidity (FNU/NTU) to k_d (1/m) via linear regression.
- **Grazing pressure**. Grazing can occur in the water column by zooplankton or at the sediment-water interface by benthic grazers (e.g., clams). In both cases, grazing can be modeled in DWAQ either by imposing grazing rates (constant or time-varying) or by simulating grazer abundance. SFEI used a dynamic energy budget (DEB) model to simulate grazer abundance and grazing as a function of food availability and water temperature. This model is applied to both zooplankton as well as two species of clam commonly found in the Delta: *Corbicula* (freshwater) and *Potamocorbula* (saltwater). Once validated, this DEB model could provide a valuable tool for scenario evaluation, since the model allows grazers to adapt to varying environmental forcings. In the DEB model, both clams are initialized with biomass concentrations (g/m^2) because they are treated as immobile state variables that move little in the sediments. Initial conditions were based on the dataset provided by USGS of approximately 50+ sites, which were collected randomly roughly every 4 to 5 months (see SFEI #1, Figure 2.6a). SFEI used data collected on October 15, 2015 (about 2 months after the start of the simulation) to initialize the model. The clam data are interpolated across the grid in order to produce the initial condition (see SFEI #1, Figures 2.6b and 2.6c).



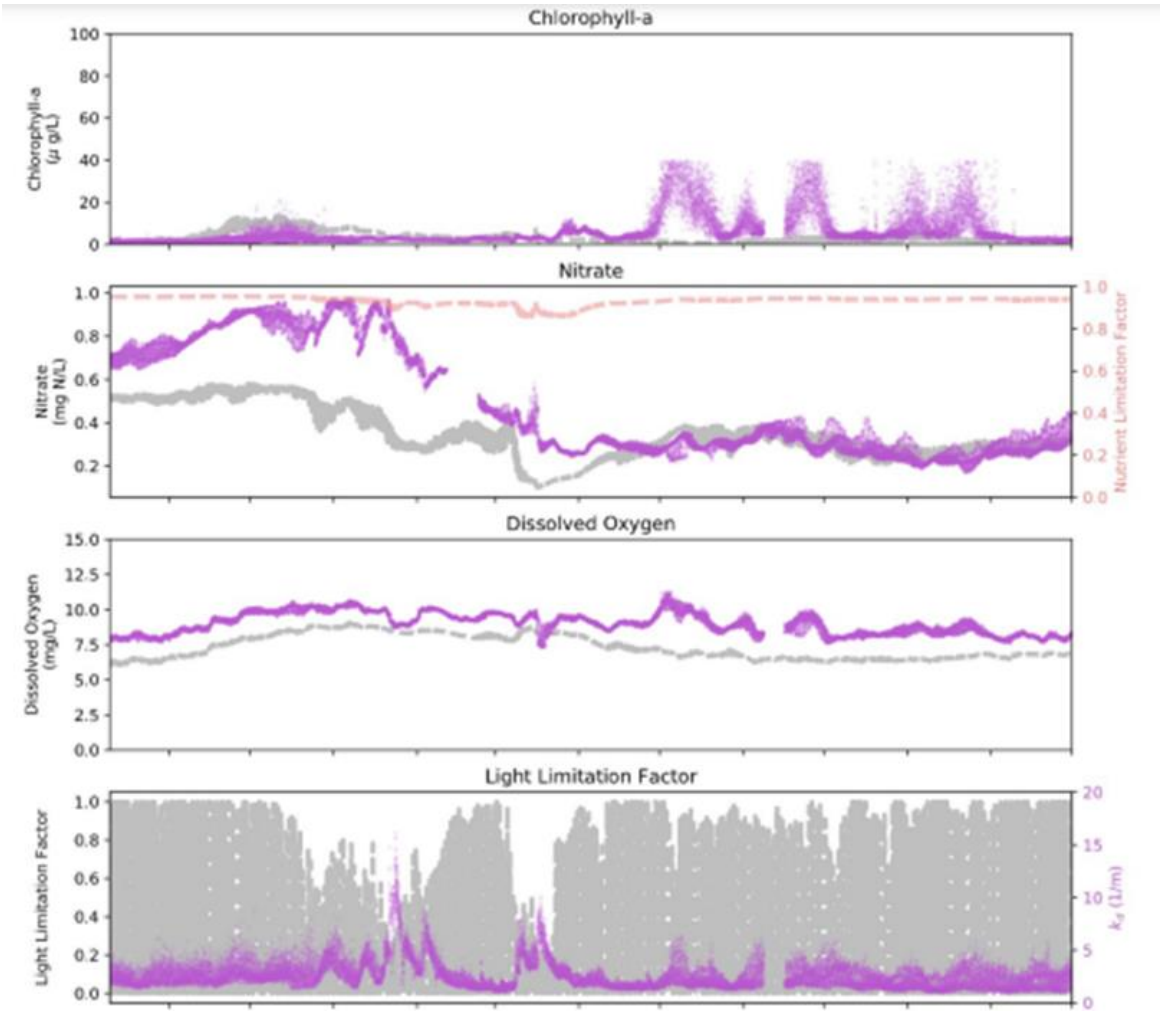
SFEI #1 Figure 2.6. (a) Sampling locations from the USGS GRTS clams mapping survey; (b) initial condition of Corbicula biomass; (c) Initial condition of Potamocorbula biomass.

The model successfully characterized the physics of the North Bay (see SFEI #1, Figure 3.8).

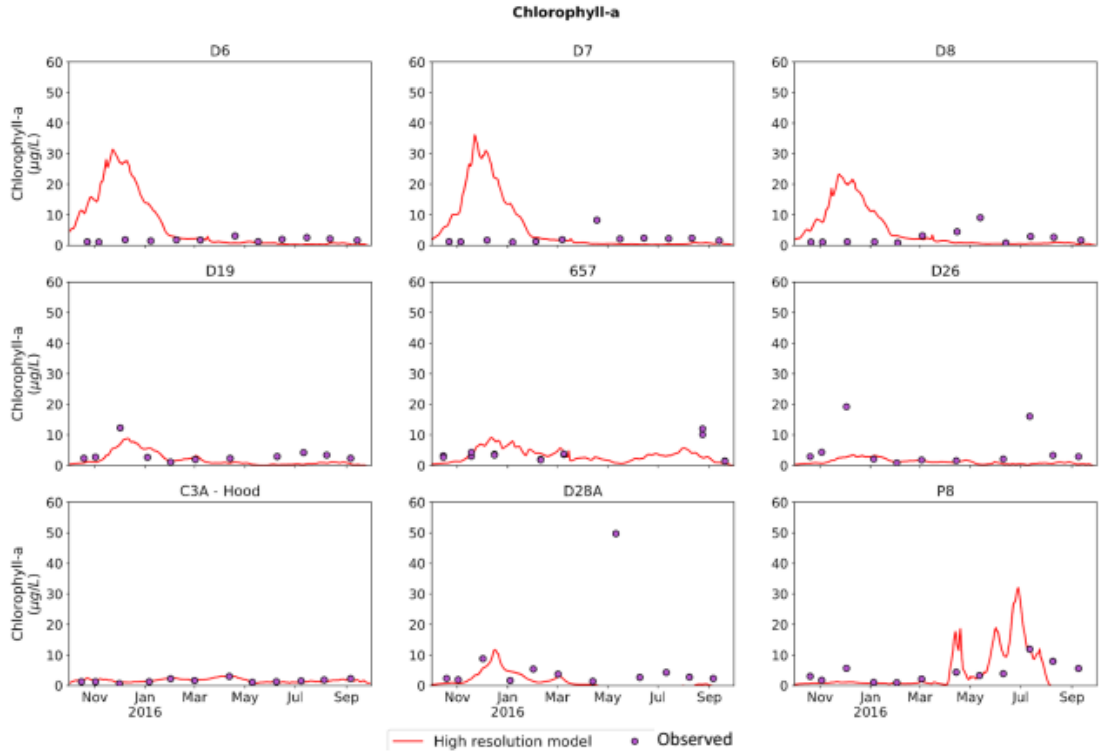


SFEI #1 Figure 3.8. Full-resolution model compared to high-frequency mooring data at Cache Slough.

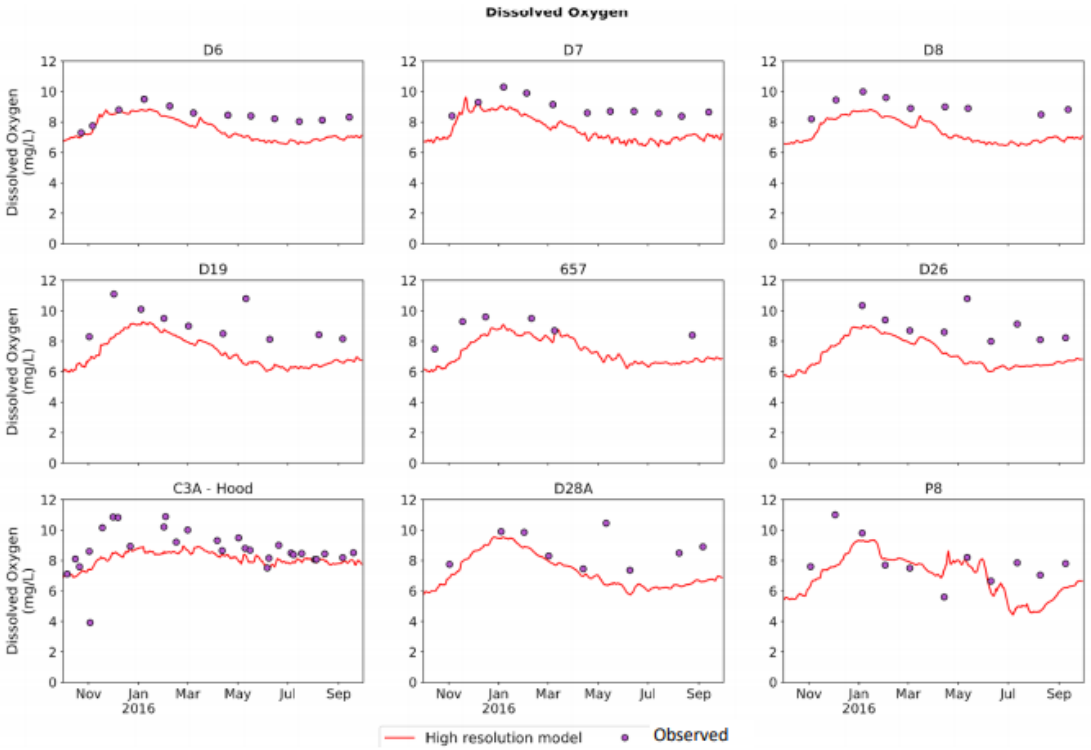
However, the model had much less success of reproducing the chlorophyll distributions in the Bay (see remainder of SFEI #1, Figure 3.8 and SFEI #1, Figure 3.6). Despite the extensive number of light stations, the light limitation calculations in the model were quite different from the actual measurements at Cache Slough. As a result, chlorophyll predictions are problematic, resulting in similar problems with nutrients and dissolved oxygen (see SFEI #1, Figure 3.7). The South Bay should have very similar dependencies on light and grazing as the North Bay, so these examples show the challenges lying ahead. The density of North Bay light, grazing, and mooring stations, though, set an appropriate example for South Bay efforts.



SFEI#1, remainder of Figure 3.8. Full-resolution model compared to high-frequency mooring data at Cache Slough.



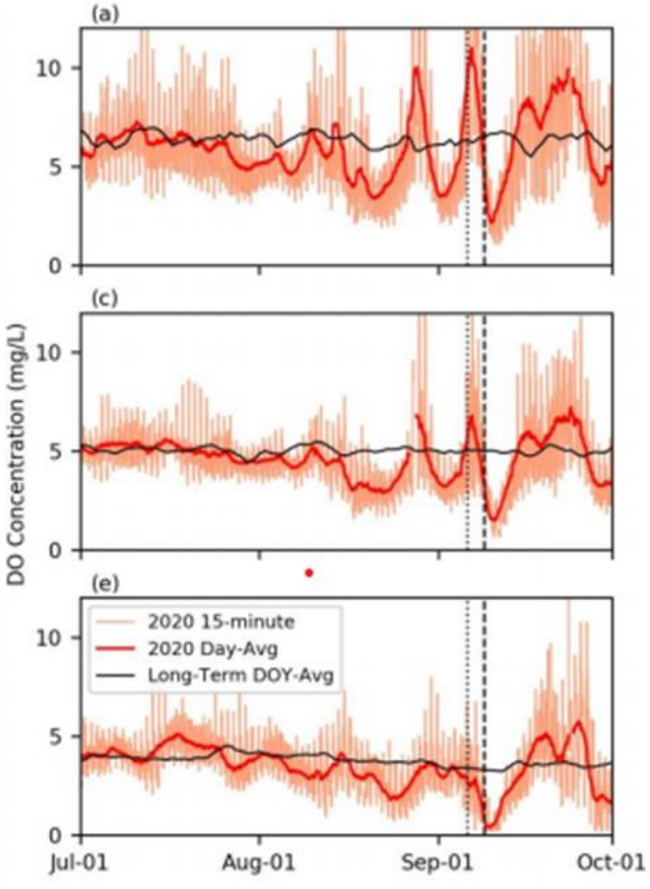
SFEI #1 Figure 3.6. Comparison of chlorophyll-a using the full-resolution model with discrete data for WY2016.



SFEI #1 Figure 3.7. Comparison of dissolved oxygen using the full-resolution model with discrete data for WY2016.

***SFEI #2*. Dissolved oxygen responses in Lower South Bay to wild-fire smoke/low-light-levels. Nov 2020**

SFEI's early summaries of Bay productivity drivers and Jim Cloern's publications emphasize the importance of light limitation and zooplankton grazing. The impact of light limitation was dramatically seen from the wildfires in September 2020 produced enough smoke to reduce the amount of sunlight reaching the Bay's water by 80%. Average incoming shortwave radiation was decreased on September 9 and 10 from normal averages of 240 W/m^2 to 20.0 and 53.3 W/m^2, the darkest and third darkest August/September days recorded since 2010. This event overlapped with a heat wave in the Lower South Bay that resulted in high water temperature. Both processes could dramatically impact dissolved oxygen concentrations through less photosynthesis from the reduced light and increased respiration from the higher temperatures. The paper shows that day-average dissolved oxygen concentrations reached record minima at all sites on September 10, the second day of severely darkened skies; 2.2, 1.64, and 0.38 mg/L at the Pond A8 outlet, Alviso, and Guadalupe stations, respectively (see SFEI #2, Figure 6(a,c,e)). Chlorophyll concentrations also declined significantly during these dark days, suggesting the dissolved oxygen decline was driven by the decreased photosynthesis and increased respiration.



SFEI #2 Figure 6. Dissolved oxygen concentration conditions at Pond A8 (a), Alviso (c), and Guadelupe (e). The graphs show 15-minute (pink) and daily-average (red) DO concentrations for 2020; black lines show long-term day-of-year average (black) from historical data. Note that the dotted and dashed vertical lines denote the September 6 air temperature peak and the September 9 sunlight minimum.

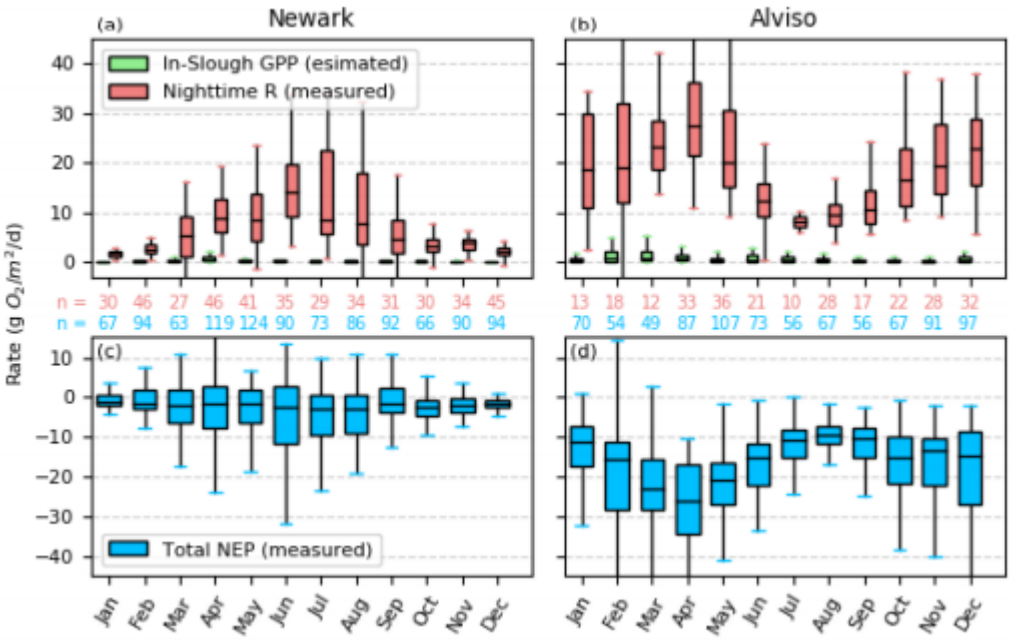
The paper is also important to BACWA in its discussion of ecosystem effects associated with wildfire smoke-induced hypoxia. To determine these impacts, it compared the data to the dissolved oxygen standard from EPA's Virginian coastal province of 2.3 ppm for 24 hours. Alviso Slough remained below the standard for 31.5 of 36 hours and Guadeloupe Slough for more than 84 hours. Fifty dead striped bass were reported in one of the restored salt ponds along the sloughs. The response of the Lower South Bay to extreme light limitation from wildfire smoke show the monitoring program can easily detect significant biological impacts at low DO concentrations there. The EPA Virginian province DO standard also proved its value. It is hard to imagine a lower DO standard being acceptable to the regulatory community without several years of additional studies.

SFEI #3. Lower South Bay tidal slough creek metabolism and DO condition (v2). Oct 2020

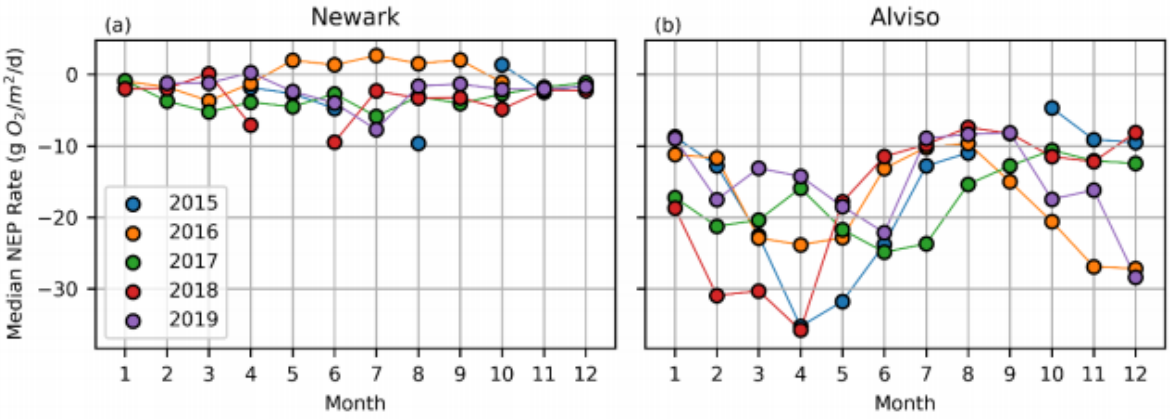
Dissolved oxygen concentrations in the Lower South Bay are usually the lowest in the Bay overall, due to the low mixing with the rest of the Bay, the high nutrient loads, and the high production of plant matter (as salt marsh plants or periphyton growing in the attached, restored salt ponds.) Photosynthesis and respiration are the biological drivers of dissolved oxygen concentrations in Lower South Bay, but measuring those rates at a significant spatial and temporal density would involve quite a bit of labor. SFEI has used an ingenuous method to estimate system respiration and net ecosystem productivity (Gross Primary Productivity – Respiration), employing in situ multi-parameter water quality sondes that provide continuous measurements of salinity, temperature, depth, chlorophyll and dissolved oxygen along two sloughs at the edge of Lower South Bay: Newark Slough and the Alviso Slough. SFEI tracks salinity and temperature measurements of the water flowing past their sensors during nighttime incoming and outgoing tides to identify parcels of water, determine how much dissolved oxygen has disappeared between tidal excursions, and calculate a nighttime respiration rate. The team can also estimate photosynthesis rates by tracking chlorophyll changes using a methodology developed for San Francisco Bay by USGS. Because the water quality sondes are operating continuously, SFEI was able to make nearly 1000 estimates of respiration and net ecosystem production at each slough.

Five things are striking about the data that are most relevant to BACWA:

- Peak respiration rates in Newark Slough (~10 g $O_2/m^2/d$) and Alameda Slough (~20 g $O_2/m^2/d$) are quite high even for highly eutrophic regions (see SFEI #3, Figure 5).
- Alviso, the salt pond-bordered slough close to a wastewater discharge, had twice the rates of Newark Slough, bordered by marsh.
- Overall, both systems are net heterotrophic—net consumers of oxygen. There is a large inter-annual variation in these NEP rates month to month (see SFEI #3, Figure 6). The large variabilities show the importance of non-nutrient drivers.
- To what extent can the water quality model capture and explain these differences?
- This method is an elegant way to capture the changes in water quality that affect BACWA. How can SFEI extend this technique more effectively to other parts of the Bay?



SFEI #3 Figure 5. Monthly distributions of high-slack-window average metabolic rates at Newark and Alviso Soughs for 2015-2019. (a-b) Nighttime respiration rates calculated using Lagrangian water mass tracking method, and gross primary production rates estimated using the empirical in-channel GPP model. (c-d) Net ecosystem production rates calculated using Lagrangian water mass tracking methods.



SFEI #3 Figure 6. Inter-annual monthly median net ecosystem production (NEP) rates at Newark and Alviso Sloughs.

SFEI #4. NMS Numerical Modeling Update. Aug 2020

As described above for SFEI #1, Northern San Francisco Estuary (Delta/Suisun) biogeochemical model development (WY2016), SFEI has developed the San Francisco Estuary Biogeochemical Model (SFE-BGCM), a three-dimensional, process-based, spatially-explicit model that is externally coupled to the hydrodynamic model. This report provides an update on four major topics: hydrodynamic modeling; development and testing of fast-running model; biogeochemical model; and nutrient and phytoplankton dynamics:

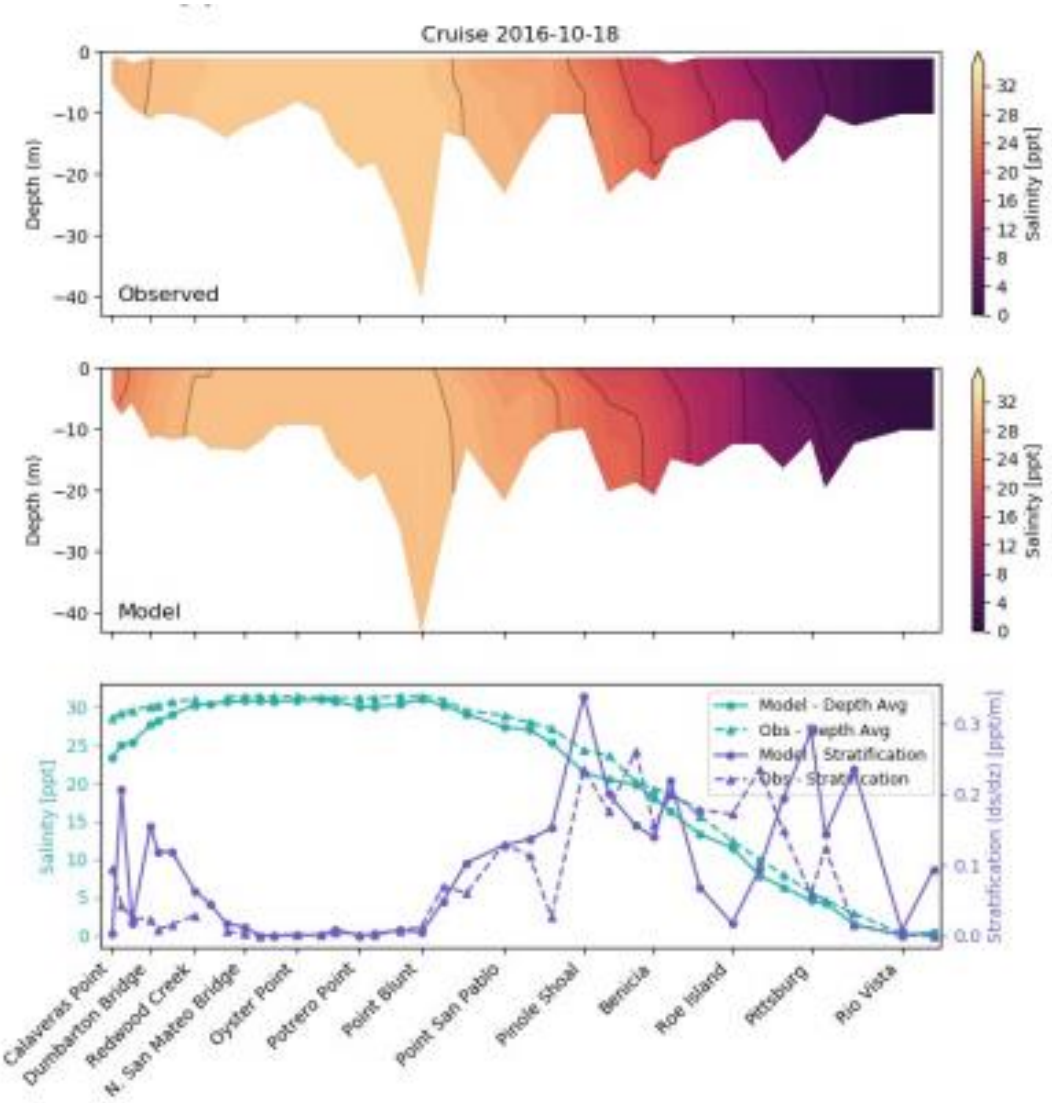
Hydrodynamic modeling

The San Francisco Bay model domain extends into the Pacific Ocean, about 20 km west of Point Reyes in the north and 40 km west of Half Moon Bay in the south, roughly encompassing the San Francisco Bight. The horizontal grid resolution varies from 20 m in select sloughs of Lower South Bay, to over 2 km at Point Reyes. Nominal grid resolution in South Bay is 250 m, and 350-500 m in North Bay, for a total of 49,996 cells in the horizontal. The three-dimensional model uses a sigma coordinate in the vertical, such that all areas have 10 layers in the vertical, with the layer thicknesses varying in accordance with the overall depth. Nominal grid resolution in South Bay is 250 m, and 350-500 m in North Bay, for a total of 49,996 cells in the horizontal. The three-dimensional model uses a sigma coordinate in the vertical, such that all areas have 10 layers in the vertical, with the layer thicknesses varying in accordance with the overall depth. Temporal runs of the model now extend to three water years (2003, 2006, and 2017).

To evaluate model effectiveness, SFEI used four numerical measures of predictive skill: skill, bias, root mean squared error, and lag—this process for the physical model would be helpful to extend to the water quality model in the future. The comparisons showed the model to be quite effective west and south of Carquinez Straits (see SFEI #4, Table 2.1), but with some difficulties at Port Chicago and further east (e.g., salinity profile and stratification from SFEI #4, Figure 2.13.)

SFEI #4 Table 2.1. Model water level performance metrics for water year 2017.

Site Name	Skill	Bias (m)	r^2	RMSE (m)	Lag (min)	Amp. factor
San Francisco	0.998	-0.012	0.992	0.049	0.9	1.00
Point Reyes	0.989	0.084	0.997	0.105	6.7	0.89
Richmond	0.998	–	0.991	0.055	-4.3	1.03
Alameda	0.997	0.016	0.991	0.061	-5.6	1.03
Redwood City	0.994	–	0.976	0.116	-15.1	1.00
Port Chicago	0.904	-0.002	0.875	0.370	-33.2	1.67



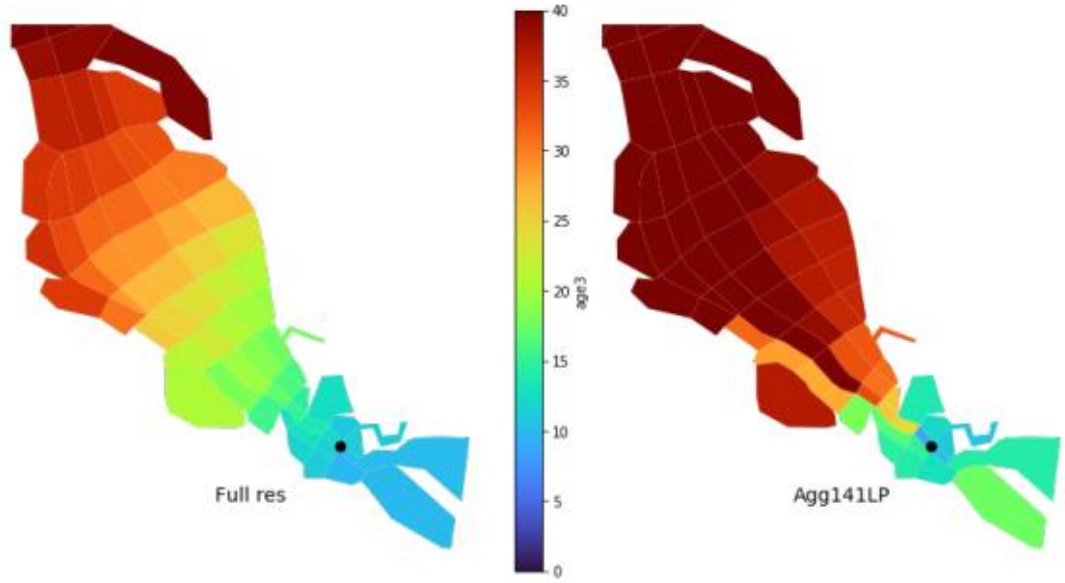
SFEI #4 Figure 2.13. Salinity profile and stratification at USGS locations, Cruise 2016-10-18.

Development and Testing of Fast-Running Model

The full-resolution NMS biogeochemical model takes approximately 10 days of wall-clock time to run a year of simulated time. To reduce DWAQ run time, SFEI spatially aggregated the original grid into 141 grid cells. This aggregation captures the large-scale features of San Francisco Bay, but removes finer scale features.

A major consequence of the drastic reduction in cell count is that numerical dispersion on the aggregated grid is a much greater issue than in the full-resolution grid. One method for decreasing the numerical dispersion is to remove tidal flows from the hydrodynamics. The aggregation process includes options for applying a low-pass de-tiding filter to the hydrodynamic fluxes and volumes. This process effectively removes tidal variation from modeled flows, volumes, and sea surface elevations. Tidal variation in scalar data can optionally be filtered as well, though it is not necessary, and for variables such as bed stress, the de-tided value may be less useful than its tidally varying counterpart. The complicating factor of this strategy is how to modify the process of tidal dispersion important to Bay mixing. SFEI made several tracer runs to see how these modified dispersion coefficients captured mixing in the Bay compared to the complete physical model.

The results of these tracer runs culminated in a spatially varying field of dispersion coefficients to use in DWAQ runs using aggregated hydrodynamics. SFEI believes these dispersion coefficients provide realistic dispersion and allow for effective use of the tidally filtered aggregated hydrodynamic output. A comparison of the distribution of water age from a point source in the Lower South Bay for the full-resolution model and the non-tidal aggregated model with additional dispersion provides a quantitative look at their success (SFEI #4, Figure 3.12).



SFEI #4 Figure 3.12, Distribution of water age from a point source in Lower South Bay for the full-resolution model (left) and non-tidal aggregated model without additional dispersion (right).

Biochemical Model

As a result of the model aggregation, SFEI was able to reduce run time of the biogeochemical model to 30 minutes. As described later (SFEI #14, also included in this publication as a 500+ page appendix), SFEI was able to do an extensive sensitivity analysis of the 25 key geochemical parameters. During the calibration process, SFEI identified three key drivers: light extinction coefficients; top-down control; and sediment initial condition. **It is important to note that nutrient-limiting growth conditions generally did not occur along the channel, except perhaps for dissolved inorganic nitrogen during the peak of the WY2013 bloom, when moderate nutrient limiting conditions may have occurred briefly.** Thus, the predominant control on phytoplankton was exerted by the grazers and light limitation. The BACWA Nutrient Tech Team should emphasize collecting better data to characterize these three model drivers:

Light Extinction Coefficients. Model predictions are sensitive to light extinction coefficients. Shifts in light limitation not only affected phytoplankton levels, but also shifted how effectively zooplankton exerted control on phytoplankton populations. Unlike the North Bay, the lack of spatial coverage in monitoring light attenuation coefficients limits the ability to determine the effectiveness of the model.

Top- Down Control (Grazers). Considering that nutrient limiting conditions seldom occurred in the model, and light limitation only diminished in summer conditions with longer photoperiod, these findings show that top-down control is essential in the model to keep phytoplankton levels within observed ranges. Sensitivity analyses showed that any factor that affected the timing of the initial zooplankton rise in spring resulted in an explosion of the phytoplankton population, with top-down control unable to catch up until later in summer. Under these conditions, the model eventually produced nutrient limiting conditions; however, these predictions were not supported by any of the observations to date.

Evidence of nutrient limiting conditions along the shoal is shown in the data and is partially captured by the model. Thus, it is likely that nutrient limiting conditions may also contribute to the seasonal decline in phytoplankton levels. In the absence of zooplankton data from the shoals, it is difficult to ascertain definitively which of these factors is the major driver. Because of its importance in nutrient cycling, such data would not only help address this key uncertainty in the model, but also improve the conceptual understanding of the process drivers in the shoals where the majority of the primary production was predicted in the model.

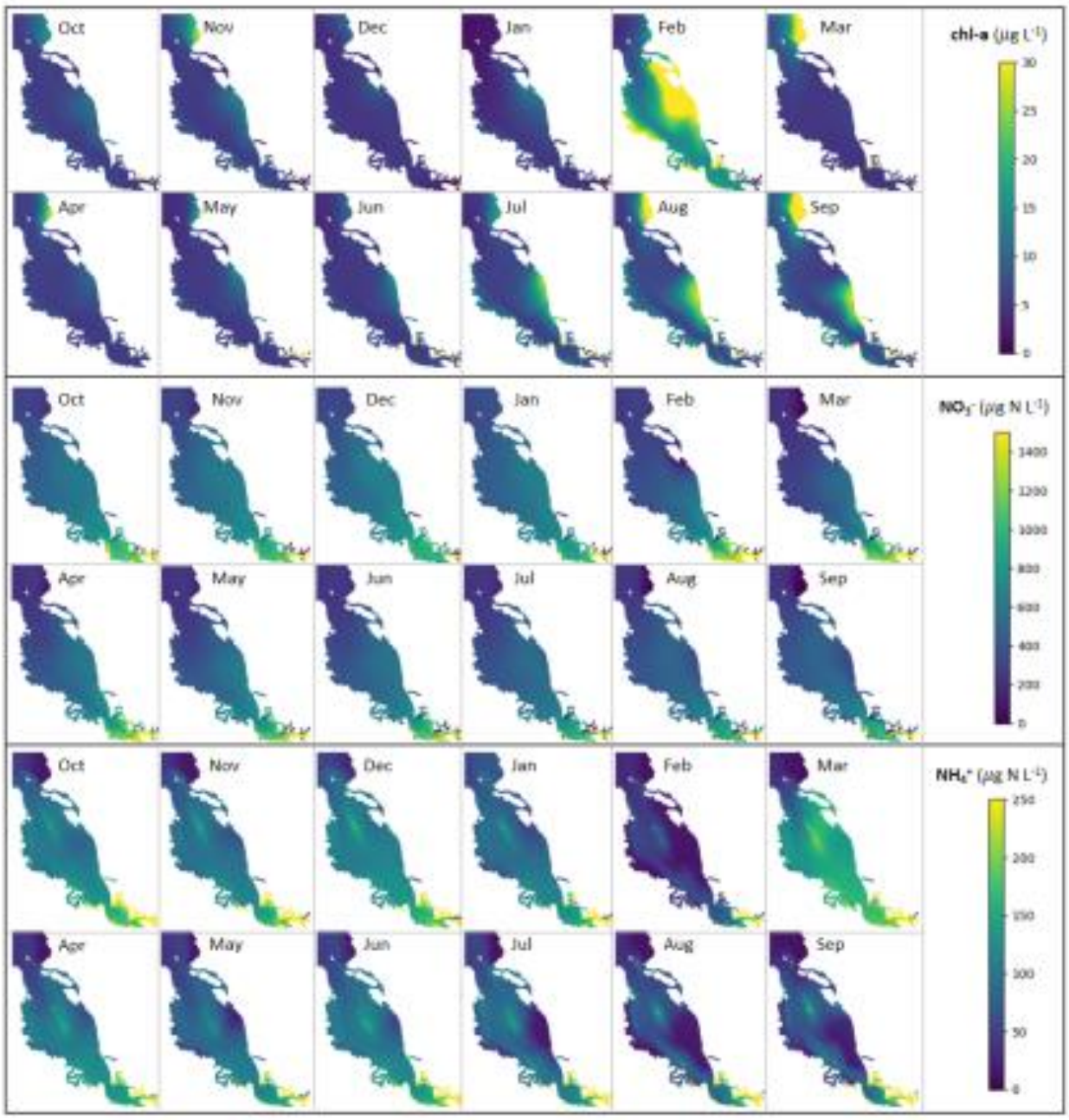
While the model emphasizes zooplankton grazing, there is an extensive national literature highlighted by forty years of publications from USGS (e.g., Cloern, Thompson) that emphasize the impact of benthic filter feeders. This role is emphasized in the North Bay model.

Sediment Initial Conditions. As discussed above, the model was only moderately sensitive to nutrient cycling processes and required large changes (outside the normal range) to produce nutrient limiting conditions for primary production. In addition, the model identified that sediments can be important in controlling water column nutrient levels. SFEI's models showed that external loading alone is insufficient to reproduce the observed water column patterns, particularly for orthophosphate and silicate. Moreover, these results also show that even with sediments completely removed, nutrient limiting conditions largely did not occur in San Francisco Bay (the lowest concentrations were all still much higher than the corresponding half-saturation coefficients). Indeed, comparison of phytoplankton levels showed almost no difference at the channel locations, and only small differences (10-15%) in the South Bay and Lower South Bay shoals. Based on these findings, SFEI has initiated an extensive set of biogeochemical field measurements (see SFEI #13).

Sediment concentrations and diagenesis rates do not vary spatially within the model, which is likely not realistic given the spatial heterogeneity in San Francisco Bay. Furthermore, dissolved inorganic nitrogen (DIN) levels in the water column are influenced to a greater extent by algal uptake relative to silicate and phosphate, which have a stronger sediment signature (as is evident from the strong seasonal pattern that is somewhat disconnected from phytoplankton uptake). Thus, in the attempts to initialize higher particulate organic matter and silicate levels within the sediments to primarily reproduce phosphate and silicate concentrations, the model may be overestimating the contribution of sediments to the water column DIN levels, including ammonia and nitrate. This overestimation may be one reason why model predictions are not as good for DIN as model predictions of silicate and orthophosphate. Subsequent refinements to the sediment flux model could yield further improvements in model-predicted DIN.

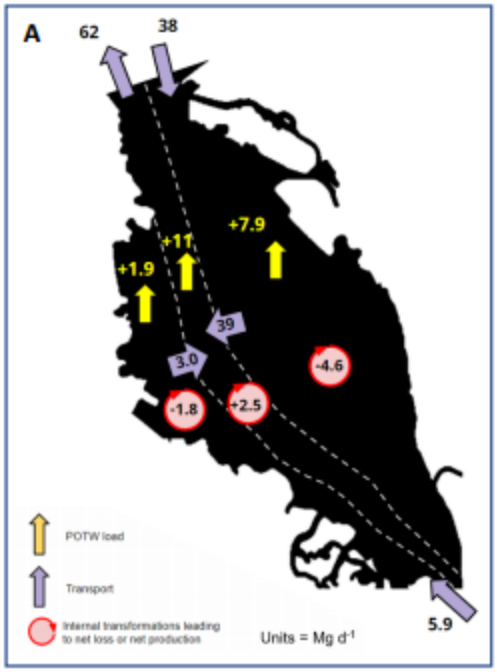
Nutrient and Phytoplankton Dynamics

A major benefit of a model is the ability to use it to explain how important processes work in the Bay. SFEI #4, Figure 5.3.A nicely shows the model's characterization of the annual cycle of chlorophyll and dissolved inorganic nitrogen over the year in San Francisco Bay. It shows the usual spring bloom in the Bay characterized by peaks along a wide swath of the eastern shoal and a narrower swath of the western shoal. SFEI has used the model to develop some analysis of how the South Bay functions in a mass balance for dissolved inorganic nitrogen, which shows how much the eastern shoals of the South Bay determines the functioning of the eutrophication process in the South Bay (see SFEI #4, Figure 5.10.A). The model calculates that denitrification in the South Bay's sediments removes more than 50% of the POTW nutrient load. A map of the entire Bay's denitrification emphasizes the South Bay shoal's impact on that process (see SFEI #4, Figure 5.14.B).

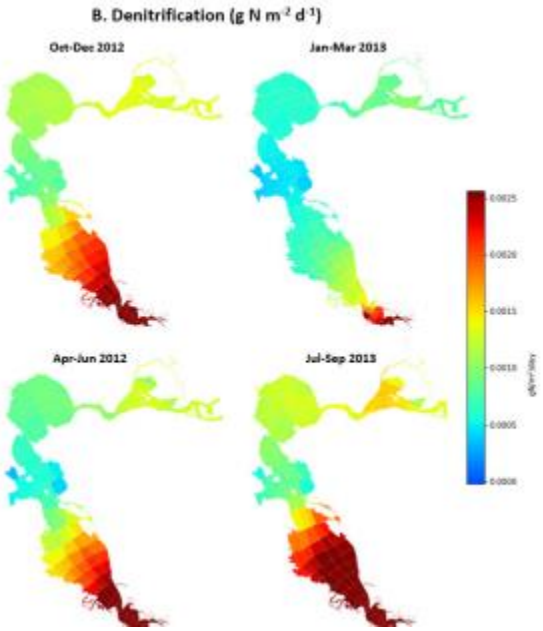


Notes: Images represent predicted conditions at individual timepoints (first day of month, 00:00) over 12 months.

SFEI #4 Figure 5.3.A. Depth-average chlorophyll-a, nitrate, and ammonium in South Bay and Lower South Bay.



SFEI #4 Figure 5.10.A. Annual dissolved inorganic nitrogen mass balance, South Bay for water year 2013, subdivided into channel, western shoal, and eastern shoal.



SFEI #4 Figure 5.14.B. Seasonal average, area-normalized denitrification rates (grams N per m^2 per day)

The difficulty with these conclusions about the role of shoals is that there are very few confirming data. Historic monitoring has mostly focused on the deep channels so there are no monitoring data to validate this important prediction. SFEI has subsequently done some shoal monitoring and will be significantly increasing those measurements as outlined in the biogeochemical studies (SFEI #14).

SFEI #11. Numerical investigation of shoal-channel exchange. Apr 2020

San Francisco Bay, like most drowned-river estuaries, has a deep channel laterally bounded by shallow shoals with a gentle slope. Many similar estuaries worldwide are experiencing eutrophication, which results in low dissolved oxygen levels and/or harmful algal blooms (HABs). Field and modeling studies have shown that the shallow shoals with higher light availability allow for faster phytoplankton growth and that the exchange between the shoals and the deeper channel can influence the occurrence, timing, and extent of large-scale phytoplankton blooms. The team created idealized numerical simulations of straight estuaries with distinct channel-shoal morphology to explore the hydrodynamic processes driven by differences in fluid density in the mixed deepwater channel-shoal system. They focused on exchange between channel and shoal and how the water on the shoal moves perpendicular to the main axis of the estuary, as the SFEI team has shown occurs along the eastern shore of South Bay. The presence of the shoal tends to enhance the net along-estuary transport of water in the central channel when the oscillating tide is filtered out.

For BACWA, an outgrowth of the model's predicted description of Bay shoal circulation has been the argument that the standard monitoring data that comes from the middle of the channel, where it is deep enough for the USGS boat, does not capture the major action in the Bay. The shallower areas, particularly on the eastern edge of the South Bay, will have better light penetration and therefore more ability for chlorophyll build up during the day and oxygen depletion at night. Alternatively, the shallow areas have better wave mixing that resuspends sediments to reduce light penetration and re-aerate the water. The relative importance of these processes is not well understood and probably changes depending on daily variations in light, winds, and temperature.

4. Summaries and Comments on Remaining 2020 Publications

This final section provides an overview of the eleven remaining SFEI publications and/or posts.

SFEI #5. Water quality at perimeter sites in San Francisco Bay. Aug 2020

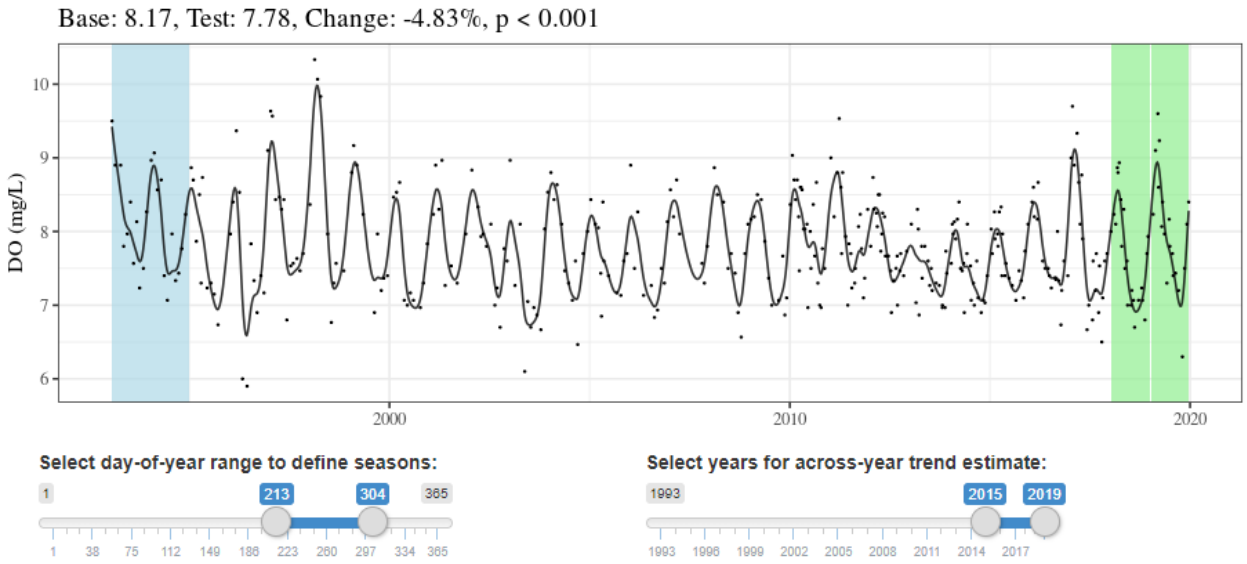
This publication reports on a 1.5-year biweekly program that compared water quality at the edge of the Bay to the regular sample collection along the bay's channel by USGS. It was an attempt to test the "shoal hypothesis," that there are higher chlorophyll concentrations and lower nutrient concentrations along the edges of the bay, because the shallow water allows more light penetration, nutrient uptake, and chlorophyll production. The sample results roughly followed those trends, but the statistical design made comparisons difficult.

SFEI #6. Lower South Bay hypsographic analyses (slough and creek areas and volumes). Aug 2020

The intention of this analysis was to provide a data product to support diverse investigations of Lower South Bay water quality and ecosystem function. This product has already played a role in understanding the interplay of tidal elevation and metabolic balances in Newark and Alviso Sloughs. It was used extensively in the ecosystem metabolism project reviewed above (SFEI #3).

SFEI #7. On-line tool for water quality trend analyses: chl-a, DO, and GPP. Aug 2020

This report consists of an easy-to-operate tool to quickly summarize data from the water quality stations around the bay (https://sccwrp.shinyapps.io/sfbaytrends/). An example output of the tool, the long-term trend of dissolved oxygen at the mouth of the Bay is plotted below. It shows a 4.8% decline in summer dissolved oxygen concentrations at the mouth of the Bay over 25 years.



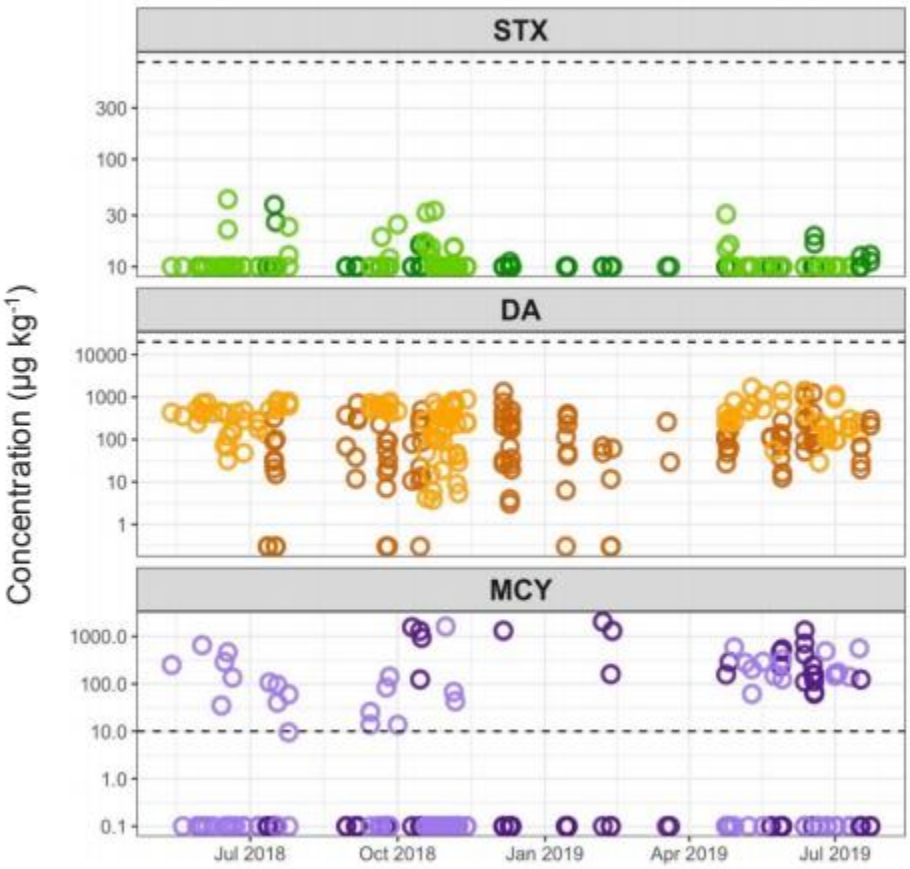
SFEI #8. Bay-Delta Chlorophyll-a in situ Sensor and Sample Analysis Intercomparison. Aug 2020

Several agencies use different methodologies for collecting chlorophyll samples around the Bay. This study makes an intercomparison of methods to develop a standardized approach or, at least a way to extrapolate data among studies.

SFEI #9. Algal Toxins in San Francisco Bay Anchovy. May 2020

By partnering with ongoing fish trawls conducted by CDFW and the Marine Sciences institute, SFEI collected Northern Anchovy over a 15-month period (May 2018-July 2019) in San Pablo Bay, Central Bay, South Bay, and Lower South Bay, and 225 composite samples were analyzed for saxitoxin (STX), domoic acid (DA), and microcystins (MCY). All three toxins were detected in composite anchovy samples, with detection frequencies of 96%, 25%, and 13% for DA, MCY, and STX respectively. Two or more toxins were detected in 35% of samples, and all three toxins were detected in 3% of samples. In general, concentrations of STX and DA were 1-10% of existing standards (see SFEI #9, Figure 3). While MCY was only detected in about 25% of the fish, when it was detected, MCY usually exceeded standards, mostly in the Lower South Bay and South Bay.

The finding is puzzling since MCY is found significantly in the Delta where it has had health impacts on bathers. It is considered a by-product of more freshwater-associated cyanobacteria and not likely to grow in more than meso-haline waters. This geographic trend for anchovy also occurs in SFEI water samples and may be associated with its export from some freshwater lakes and creeks flowing into the Lower South Bay and persistence long enough for anchovy uptake. Alternatively, MCY could be produced by cyanobacteria that can live in the South Bay. Resolving the source of MCY with the RB2 would be the most cost-effective way to solve the Bay's most visible HAB issue.



SFEI #9 Figure 3. Concentrations of STX, DA, and MCY in San Francisco Bay anchovy across all locations and dates. While not directly transferable to anchovy, the shellfish consumption thresholds (dotted lines) are included to provide a relative sense of the magnitude of the observed toxin concentrations.

SFEI #10. Exploring the utility of molecular techniques for quantifying harmful algae and characterizing the phytoplankton community in San Francisco Bay. May 2020

Harmful algae blooms (HABs) and their associated toxins are frequently observed within the San Francisco Bay and Estuary. Cyanobacterial blooms (e.g., *Microcystis* sp.) are well documented in the freshwater portions of the upper Delta, and it is known that the hepatotoxin microcystin can be transported downstream and into the Bay where it may bioaccumulate in shellfish). Additionally, coastal eukaryotic HABs such as *Pseudo-nitzschia* sp. and *Alexandrium* sp. are transported into the Bay. While multiple HAB taxa and their toxins have been detected with moderate frequency, severe HABs appear to be a rare occurrence. Microscopy techniques are best suited when there are high concentrations of phytoplankton, SFEI has been researching molecular techniques that could be less expensive and more sensitive. This study found a generally poor correlation between the molecular techniques and the microscopy cell count data for several dinoflagellate HAB genera. The comparative data seemed to suggest the dinoflagellates are often misidentified or miscounted based in samples with especially elevated signals from the DNA-based methods. Other non-dinoflagellate HAB taxa, including *Pseudo-nitzschia* and *Heterosigma*, exhibited similar detection frequencies between the microscopy and DNA-based methods. Moving from microscopy to molecular techniques will be a long process.

SFEI #12. Delta nutrients: response to Regional San upgrade. Mar 2020

With the upgrade of SacRegional to cut nutrient loads by more than 30% in 2021, there is an opportunity to evaluate the strength of the water quality model's predictions. This publication offers an expert group's list of parameters that should be evaluated and their likely success in indicating differences in Delta water quality. This exercise and its implementation will be important for BACWA in evaluating the monitoring program, modeling program, and framework analysis.

SFEI #13. Biogeochemistry field study design (Background and Workplan v1; revised Workplan). Dec 2019 & Feb 2020

Sediment metabolism parameters are a crucially important component of eutrophication models. The extent of such measurements in San Francisco Bay that could be used to calibrate the models is 10-100 times less than what exists in other estuaries. This workplan is a very nice summary of the data that do exist, mostly collected by Jane Caffrey at USGS in 1996, and lays out a data collection plan for 2020-2023. A crucial element of this proposed study will be to sample stations comparable to the early Caffrey work to determine how these parameters have changed with the different nutrient loadings today compared to 25 years ago.

SFEI #14. Sensitivity analysis, San Francisco Bay biogeochemical model. Jan 2020

This report has been included as an appendix in the modeling publication (SFEI #4, NMS Numerical Modeling Update). It reminds us of the great effort it takes to make a big, complicated model work. Within its 543 pages is an important table that summarizes the assumptions used in choosing the 25 most critical variables used in the biogeochemical model. For each parameter, the table presents the parameter value compared to its base model Delft 3D default, the values used in other models, and a summary of the ranges measured in the literature (see SFEI#14, Table 1). About half of the parameters use the model default values. The other half depend on calibrated runs and model sensitivity runs that are presented in the last several hundred pages of the report.

SFEI #14 Table 2. Parameters used in base case model for key biogeochemical processes

Process[1]	Parameter Name[2]	Parameter Value[3]	DELWAQ Default[4]	Basis[5]	Chesapeake Bay Model[6]	CE-QUAL-W2 Model Default[7]	Literature Range[8]
Water Column Nitrification	First-order rate (k1nit20)	0.1 per day	0.1 per day	Default	0.062 - 0.125 gN/m^3/d ~ 0.12 to 0.25/d at 0.5 gN/m^3	0.12/d	0.001 – 1.3/d
	Temperature correction factor (ktnit)	1.07 (36% of max @ 5 °C to 140% @ 25 °C)	1.07	Default	0.003 /°C² (15% of max @ 5 °C to 93% @ 25 °C)	10% of max @ 5 °C to 99% @ 25 °C	
Water Column Denitrification	First-order rate (k1den20)	0.005/d	0.1 per day	Calibration	Not simulated		0.05 - 0.15/d
	Temperature correction factor (ktden)	1.07 (36% of max @ 5 °C to 140% @ 25 °C)	1.07	Default	Not simulated	10% of max @ 5 °C to 99% @ 25 °C	
Sediment Denitrification	First-order rate (k1den20)	0.05 m/d	0.1 m/day	Calibration	0.1 – 0.3 m/d for aerobic layer; 0.25 m/d for anaerobic layer	0.001 m/d	1.6e-06 - 2.1 /d (Paraska et al. 2014)
	Temperature correction factor (ktden)	1.12	1.12	Default	1.08 (32% of max @ 5 °C to 147% @ 25 °C)	10% of max @ 5 °C to 99% @ 25 °C	
Diatoms Growth	Max. Growth Rate	1.85/d	2.3/d	Calibration	4/d for "spring" algae	2/d at 25 °C	0.28/d - 3.4/d (marine diatoms)
	Temperature dependence	56% at 5°C to 122% at 25°C	1.04	Default	80% at 5°C and to 62% at 25°C on either side of optimal temp = 16°C for "spring" algae	Not provided but recommends calibration of this parameter	
	Half-saturation for light	120 W/m²	25 W/m²	Calibration	95 W/m² (formulation is slightly different; light saturation derived from slope and max. growth rate)	100 W/m²	100 - 170 W/m² (EPA, 1985; Cole and Wells, 2015)
	Half-saturation for N	0.01 gN/m³	0.005 gN/m³	Calibration	0.025 gN/m³ for "spring" algae	0.014 gN/m³	0.009 to 0.2 gN/m³
	Half-saturation for P	0.003 gP/m³	0.001 gP/m³	Calibration	0.0025 gP/m³ for "spring" algae	0.003 gP/m³	0.001 to 1.52 gP/m³ with most values on the lower end
	Half-saturation for Si	0.05 gSi/m³	0.027 gSi/m³	Calibration	Not modeled	0	0.005 to 0.03 gSi/m³

Process[1]	Parameter Name[2]	Parameter Value[3]	DELWAQ Default[4]	Basis[5]	Chesapeake Bay Model[6]	CE-QUAL-W2 Model Default[7]	Literature Range[8]
Diatoms Respiration and Mortality	Basal (Maintenance) Respiration Rate	0.036/d at 20°C	0.036/d	Default	0.01/d	0.04/d	0.01 - 0.92/d
	Photorespiration (growth respiration)	11% of growth rate	11%	Default	25% of growth rate	0.04/d = 2% of default max growth rate	0.014 - 0.044/d which at a growth rate 2/d = 0.7% to 2.2% of growth rate
	Mortality rate	Base mortality of 0.07/d; salinity related mortality is disabled although possible to set up (a higher mortality when Smin > S > Smax)	0.25/d	Default	Calculates a salinity related mortality and adds to basal metabolism which ranges from 0.1/d at 2 ppt and goes down to 6% of this value at 30 ppt; a first-order mortality rate is not included	0.1/d	0.03 to 0.3/d
	Temperature Dependence for Respiration and Mortality	1.04 -> 56% at 5°C to 122% at 25°C	1.07	Calibration	Varies from 62 to 117% from 5°C to 25°C for basal metabolism	Not provided but recommends calibration of this parameter	
Diatoms Settling	Sedimentation Velocity for Diatoms	0.1 m/d	0.1 m/d	Default	0.5 m/d for "spring" algae	0.2 m/d	0.02 to 30 m/d
Zooplankton	Max. Ingestion Rate (Z_JXm)	250 J/cm²/d	58.5 J/cm²/d	Calibration	Neither CE-QUAL-W2 nor the Chesapeake Bay model use DEB. Grazers can be modeled as state variable in CE-QUAL-W2 but is only specified as a loss term on algae and is essentially a calibration parameter. Zooplankton is not modeled in the 2015 Chesapeake Bay Model (older models did have two classes of ZP).		
	Food half-saturation constant	0.25 gC/cm³	0.04 gC/cm³	Calibration			
	Mortality rate	0.0/d	0.2/d	Calibration			
Water Column Particulate Organic Matter (POM) Mineralization	First-order rate ($kmin_{min,20}$ and $kmin_{max,20}$)	0.24/d and 0.36/d	0.12/d and 0.18/d	Calibration	0.12/d for labile and 0.005/d for refractory	0.08/d for labile and 0.001/d for refractory	0.001 - 0.11 /d
	Temperature Coefficient for Mineralization (ktmin)	1.047	1.047	Default	27% @ 5 °C to 141% @ 25 °C	10% of max @ 5 °C to 99% @ 25 °C	

SFEI #14 Table 2, continued. Parameters used in base case model for key biogeochemical processes

Process[1]	Parameter Name[2]	Parameter Value[3]	DELWAQ Default[4]	Basis[5]	Chesapeake Bay Model[6]	CE-QUAL-W2 Model Default[7]	Literature Range[8]
Sediment POM Mineralization	First-order Mineralization Rate in DetC/N/P S1	0.03/d	0.03/d	Default	0.01 - 0.035/d for labile; 0.0018/d for refractory	0.1/d	
	Temperature Coefficient for Mineralization (RcDetC/N/P/ S1/S2)	1.09	1.09	Default	1.1 for layer 1 and 1.15 for layer 2	10% at 5°C and 99% at 25°C	
POM Settling	Sedimentation Velocity for POC/N/P	0.1 m/d	0.5 m/d	Calibration		0.1 m/d	

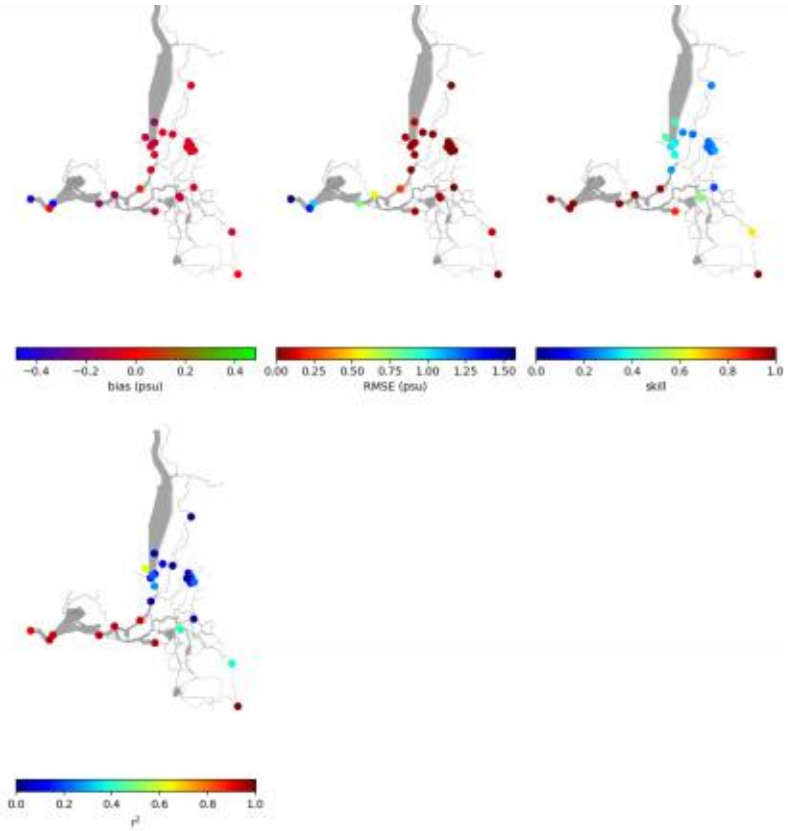
Notes:

1. Not all processes and parameters are listed here. Only the key biogeochemical processes/parameters that were evaluated in the sensitivity analyses are included in this table. Sensitivity to temperature correction factors were not evaluated but is listed here for completeness.
2. Parameter names as used in the DELWAQ Process Library Description (Deltares, 2019a)
3. As used in the base case model
4. Default value provided in DELWAQ Process Reference Tables (Deltares, 2019b)
5. Basis for establishing the base case parameter
6. Water Column parameters are from the 2017 Chesapeake Bay Modeling Report (Cerco and Noel, 2017); sediment flux model parameters are from Testa et al. (2013) and Brady et al. (2013)
7. From CE-QUAL-W2 User's Manual (Cole and Wells, 2015)
8. Unless otherwise noted, literature range were derived from the range of literature values reported in Cole and Wells (2015)

SFEI #15. Northern San Francisco Estuary (Suisun/Delta) hydrodynamics calibration, WY2016. Dec 2019

This publication describes the model development for the North Bay hydrodynamics model that was used to feed the water quality model (SFEI #1, Northern San Francisco Estuary (Delta/Suisun) biogeochemical model development (WY2016)). As with the other model runs (e.g., SFEI #4, NMS Numerical Modeling Update), SFEI uses four major statistics for validation by comparing time series of modeled and observed discharge, salinity, and temperature at measurement stations across the Delta and Suisun Bay—see SFEI #15, Figure 10 for the salinity comparisons (the color coding allows an easy differentiation where the model performs well (red) and poorly (blue).

It is helpful to the overall nutrient management process that the Delta model and the South bay model are constructed by the same SFEI team. It allows for a geographic consistency of evaluating hydrodynamic model performance.



SFEI #15 Figure 10. Validation statistics for tidally averaged salinity.

SFEI #17. **LSB transport and stratification in Lower South Bay (journal article). Dec 2019**

Given the large nutrient loads from wastewater effluent, scientists have wondered why there have not been annual phytoplankton blooms such as those observed in other estuaries with lower nutrient levels. Some have hypothesized that the lack of blooms is due to high turbidity levels and tidal breakdown of stratification- creating nonideal environments for phytoplankton growth. However, decadal trends show that the estuary is becoming less turbid, and with changes in climate patterns, there is potential for persistent stratification. SFEI's LSB team observed the development of stratification over the ebb tide and destratification in two distinct events as the tide reverses over the flood tide. At the reversal of the tides, water in the shoals exchanges with the water in the channel creating a pulse of salty water to the channel at the ebb-to-flood transition and a pulse of fresh water at the flood-to-ebb transition. Destratification occurs in the early flood tide due to a pulse of saline water received from the shoals then due to the advection of less stratified water being pulled to the center channel of the estuary. Finally, stratification is destroyed completely due to longitudinal straining and turbulent mixing.

For BACWA, the paper is important in its description at how stratification changes during the tidal cycle. Since the source of most freshwater in the Lower South Bay is from POTWs and stratification is strengthened by freshwater inputs, the paper suggests that it may be interesting to further investigate how modifying freshwater inputs (due to wastewater diversion to recycling) may modify Lower South Bay stratification and algal bloom dynamics.

Demonstration Advanced Primary Treatment Technologies

Advanced primary treatment (APT) technologies are developed to increase carbon diversion for resource and energy recovery, while simultaneously reducing secondary treatment aeration energy requirement and increasing treatment plant capacity and performance. The following three APT technologies will be demonstrated as part of this proposed demonstration project to be conducted for the California Energy Commission (CEC) at the Linda County Water District (Linda) wastewater treatment plant (WWTP).

Cloth Depth Primary Filter (CDPF)

Aqua Aerobics Systems Inc. developed CDPF to be used for APT based on the technology long established in tertiary treatment applications. The CDPF is submerged in a receiving tank. As wastewater enters the receiving tank, floatable materials (e.g., fats, oils, and grease that solidify at ambient temperatures) rise to the surface of the tank and heavy settleable solids settle to the bottom. Floatable material is skimmed from the surface and settled solids are removed with suction headers. The flow of wastewater to be filtered is from the outside through the filter cloth to the inside of the filter cloth housing. The filtered effluent, collected in a header connected to one or more discs, is discharged to the effluent channel. Through previous testing CDPF has demonstrated 40 to 60 % increased treatment performance against conventional primary treatment. Use of CDPF provides an improvement in biogas production (15 – 30%), increase secondary biological treatment capacity by 20-30 %, and lower energy demand in conventional downstream biological processes (15 – 20%). This proposed project includes the use of the first full-scale [1.5 million gallons per day (MGD) average flow capacity)] CDPF system using a fine pore cloth medium (i.e., nominal pore size of 5 micron) at the Linda WWTP.

Compressible Medium Biofilter (CMBF)

Energy savings from CMBF were quantified by deployment of a demonstration-scale biofiltration system at the Linda WWTP, operating from July 2018 through March 2020. Throughout this demonstrated project conducted for CEC, the biofilter performed at high levels in terms of total suspended solids (TSS), biochemical oxygen demand (BOD), and chemical oxygen demand (COD) removal. Analysis of approximately forty sample sets showed TSS, BOD, and COD removals of 70, 52, and 50 percent, respectively. Additionally, biological removal was observed due to biofilm development on the filter media. Results showed soluble BOD and soluble COD removals of 22 and 25 percent, respectively. The biofilter's TSS, BOD, and COD removal performance was observed to be approximately 30 to 50 percent greater than primary clarification. This proposed project includes further development of the CMBF technology by using an upgraded demonstration unit to increase its hydraulic performance while decreasing footprint requirements. Technology readiness level is expected to increase from 5 to 7 with these significant hydraulic improvements/advancements in the technology. The CMBF unit to be used in this project will be supplied by WesTech Engineering, Inc. The CMBF system is a depth filter gravity system requiring no moving parts in the flow stream other than open/close valves and a low head blower for cleaning during backwash cycles. During filtration, the influent liquid applies a hydrostatic force to an engineered bladder causing a bed of individual compressible balls of fiber media to compress before the flow enters the bed from the top. The tapered compression provides for densely compressed media at the bottom that graduates to an expanded bed with loose media in the upper zone. As the liquid flows down through the media, the larger particles become trapped in the upper portions of the filter. As the liquid works its way

down through the media, the smaller pores near the bottom of the filter capture the smaller particles. This porosity gradient allows for a more effective use of the entire media bed, which results in improved filtration performance.

Micro-screen (MS)

The characteristic feature of the Micro-screen (MS) unit supplied by HUBER Technology, Inc. is its MS basket which is horizontally installed in the receiving channel or tank. The wastewater flows through the MS basket from inside to outside. Solids that are larger than the screen openings are retained within the drum. A special sealing between the channel and the front-end screen basket opening prevents unscreened wastewater from passing through the screen basket. Solids settling on the drum surface lead to gradual blinding of the surface. As a result, the water level upstream of the screen rises. When the predefined maximum water level has been reached, the screen basket starts to rotate around its axis to clean its surface. A spray nozzle bar sprays water onto the drum surface from outside to remove the solids and flush them into a trough inside the drum basket from where the screenings (primary sludge) are discharged by gravity. The MS system to be demonstrated at Linda will be a full-scale 5.5 ft diameter unit utilizing a 200-micron stainless steel mesh to treat average flow rate of approximately 1 MGD. The MS technology is already used especially in Europe to replace conventional primary treatment. One main advantage is the footprint reduction (e.g., up to 70-80 percent) while achieving similar or higher treatment performance compared to primary clarifier. In this proposed project upstream chemical addition will be implemented to achieve similar high treatment performances mentioned above for the CDPF and CMBF technologies.

Demonstration Advanced Secondary Treatment Technologies

Main APT demonstration objective at Linda WWTP is to maximize the diversion of carbon for the production of energy (in anaerobic digester system) and to reduce secondary treatment aeration energy usage while increasing capacity and performance of the downstream biological secondary treatment systems. In this proposed project, three advanced secondary treatment (AST) technologies are also going to be demonstrated after the APT technologies described above. The proposed systems unify high performance of APT and AST systems offering the following advantages over conventional treatment method: (1) combined secondary treatment aeration energy savings as high as 40 to 50 %, (2) significant footprint reduction for primary treatment (20-30 percent for PCMF and 70-80 percent for CDPF and MS) and secondary treatment process (as high as 50 percent) , (3) 20 to 40 percent increase in secondary treatment capacity. The following three leading AST technologies will be demonstrated as part of this proposed project at Linda:

Membrane Aerated Biofilm Reactor (MABR)

The MABR process is an AST that enables the upgrade of conventional secondary treatment systems for nutrient removal and capacity expansion in existing tanks. It employs a gas permeable membrane for delivering the oxygen to a biofilm which is attached to the surface of the membrane material. Preferential growth of nitrifiers versus heterotrophs in a counter-diffusional biofilm is a key innovation of MABR as compared to secondary treatment systems employing conventional co-diffusional biofilm technology in which BOD removal is considered a necessary step to remove ammonia (i.e., nitrification). The MABR type AST system at Linda will be a full-scale system with an average flow rate capacity of 0.5 MGD. MABR will be run in parallel with the conventional secondary treatment system to draw direct conclusions about

treatment performance, energy efficiency, and capacity increase. MABR will be run downstream of the CDPF and MS type APT systems at Linda WWTP to demonstrate the maximum potential energy, treatment, and capacity benefits.

Aerobic Granular Sludge (AGS)

An AGS system will be operated and tested downstream of the CDPF system and separately from the existing PCs. AGS uses aggregated microbial granules instead of the dispersed flocs in conventional activated sludge process. The faster settling rates of the sludge granules and higher biomass concentration in aerated activated sludge basins lead to significant secondary treatment footprint and energy savings. The AGS process performance can be further improved with APT effluent consisting of soluble BOD_5 material and smaller particulates rather than insoluble BOD_5 associated with larger particulate material of primary clarifier effluent. Colloidal and exceptionally small particulate matter is readily hydrolysable by the AGS bacteria that are responsible for denitrification of oxidized nitrogen forms. As a result, the larger organic particles that represent a less efficient carbon source for the denitrifying bacteria are sent to the digester (via primary filtration) to produce energy rather than consuming it within the AGS reactor. The reduced level of larger organic particulates improves the AGS' efficiency and eliminates the additional oxygen demand required to oxidize the solids. Therefore, CDPF effluent quality would further improve the energy efficiency of AGS implemented downstream biological treatment process.

MicroNiche Engineering Biological Treatment

Microvi Biotech Inc. (Microvi) has developed a paradigm changing secondary treatment technology to intensify biological systems, increase resilience, and reduce operating costs associated with energy, chemicals, and the disposal of residual biological solids. Microvi has demonstrated the efficacy of the MicroNiche Engineering (MNE) platform across a range of secondary treatment applications. One key benefit is the separation of solids residence time (SRT) from microbial population, which removes energy intensive recycle streams and parasitic oxygen demands. The higher microbial populations (approximately tenfold) compared to conventional secondary treatment reduce reactor volumes and, in turn, land and overall capital costs. Large scale MNE pilot systems demonstrated these benefits by showing reduced biological solids production and lowered energy demand; however, the systems were limited in treating larger, biodegradable particles found in conventional primary treatment effluent that normally hydrolyze in long SRT systems. With this unique combination of technologies included in the proposed project, the APT technologies remove larger particles upstream of MNE to realize the full benefits of the MNE system. In this APT-AST process configuration, MNE is able to further drive energy efficiency through enhanced materials engineering of the MNE biocatalyst to promote high oxygen absorbance by 1) increasing mechanical aeration efficiency or 2) allowing natural ventilation to be used within the context of a high-rate process. This unique, mutually beneficial technology combination offers the potential for new and existing facilities to reduce their overall energy, chemical, and waste disposal costs of wastewater treatment.

March 7, 2021

Mr. Onder Caliskaner, PhD, PE
Caliskaner Water Technologies, Inc.
2733 Brookshire Circle
Woodland, CA 95776

Subject: Letter of support for "Demonstration of Advanced Primary and Secondary Treatment Technologies for Energy/Cost/Carbon Footprint Minimization and Performance/Capacity"

Dear Mr. Caliskaner:

BACWA is pleased to recommend the proposal by Caliskaner Water Technologies titled "Demonstration of Advanced Primary and Secondary Treatment Technologies for Energy/Cost/Carbon Footprint Minimization and Performance/Capacity" for the California Energy Commission (CEC) Grant Number GFO-20-309. BACWA is a joint powers agency, formed under the California Government Code by the five largest wastewater treatment agencies in the San Francisco Bay Area. Our members include the many municipalities and special districts that provide sanitary sewer services to more than 7.1 million people. BACWA is dedicated to working with our members, state and federal regulatory agencies, and non-governmental organizations to improve and enhance the San Francisco Bay environment.

This grant opportunity is of particular interest to BACWA since it is likely that our members will be required to control their nutrient discharges in future permits. We are keen to explore potential innovate technologies that would allow us to achieve future discharge limits while maximizing resource recovery such as biogas production. Our members will benefit from your findings regarding the impact of advanced primary treatment on the ability to remove nutrients downstream, as well as the effectiveness of membrane aerated biofilm reactors for nutrient removal.

If your team is awarded this grant opportunity to continue this work, our members would benefit from the opportunity to tour the demonstration facilities at the Linda County Water District to learn about the innovative technologies being piloted at that site.

Please contact me at lfono@bacwa.org if you have any questions.

Sincerely,

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

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Central Contra Costa Sanitary District • East Bay Dischargers Authority • City of San Jose • East Bay Municipal Utility District • City & County of San Francisco

Planning Subcommittee Meeting No. 53
January 6 2021
9:00 am – 12:00 pm
Teleconference
Chair: Eric Dunlavey
Meeting Notes

Attendees: Dave Senn, Eric Dunlavey, Kevin Lundy, Tom Mumley, Ian Wren, Robert Schlipf, Richard Looker, Lorien Fono.

1. *Agenda Modifications (All) 5 min*
   None

2. *Review Outstanding Action items (LF) 5 min*
   - Finalize and distribute Steering Committee Agenda (Dave and Ian) - complete
   - Work with Martha to deliver info on modeling uncertainty meeting to present to PSC (Dave) – complete
   - Develop priorities memo prior to Nov 17 meeting (Ian) - complete

3. *Science Program update (DS) 10 min*
   a. *Modeling* – The focus has been on the Delta this fall and will shift bay to the Bay. There has been an extension to Water Board funded delta work which will allow the program to shift staff back to work on the SF Bay in the near term. A source apportionment/zone of influence report will be delivered in mid to late Jan 2021. The report will show that many dischargers contribute to observed nutrients in subembayments. Dave reported that the modeling group is working well together.
   b. *Field work* – Three shoal moorings are now installed. The team will be adding a NO3 sensor to Dumbarton around Feb, as they have been delayed since SFEI staff have been restricted from doing field work due to COVID. There was a discussion about the feasibility of fieldwork during the current shelter in place order, and concerns if this work is delayed through the spring. Planning is underway for biogeochemical sediment collection in February or March as well as shoal mapping.
   c. *Assessment Framework* – There is a contract in place with TetraTech, and work will get started early in the year on the Virginian Province Approach. The science team has met with Levi Lewis from UC Davis on a scoping level discussion about what work could be done to analyze existing fish community data, and recommendations to bring to the expert workgroup. There is a 2-page memo reflecting this work. The DO-T metabolism work is a low cost aspect of this work. There are a handful of organisms with well-established DO-T metabolic rates, although they aren't specific to SF Bay. However, this gives a range of possible tolerances which could then be compared to observed conditions in the LSB. Kevin commented that the fish data does not have the same weight of evidence as the VPA, and that acceptable DO levels from the DO-

T approach will be much lower than VPA. The DO-T work may be more helpful for the open bay. He noted that the three approaches will give different answers and it will be difficult to harmonize results from the three approaches. Dave responded that the VPA approach is where most resources are being invested at this time. The other two items are smaller efforts at present. Dave is working to set up the expert workgroup and will send out Levi's 2-pg memo when the doodle for that meeting goes out. Dave will distribute the Tetra Tech SOW and the 2-page memo on the fish analysis to the PSC.

Two manuscripts are moving forward with NMS partners on the methods being used for the trends work. A draft will be available in May or June. The assessment framework test drive will take deep subtidal thresholds from AF 1.0 in each subembayment to see how water quality would be classified between 1980 and 2015. The AF workplan will be distributed later in January.

d. *Monitoring Program* – There is some internal conflict in the USGS about how to continue to the ship-based program and get certainty about its future.

e. *NMS Program Manager/Senior Scientist* – Seven applications were received, and interviews are scheduled for this week. Dave is hoping to get some clarity on how long the position would last for, and if it would still be relevant at the end of 2024. Tom commented that the question isn't directly answerable, but a good staff person should be retained at SFEI in some capacity.

4. NMS *Priority Updates*

a. *Report-Outs* – BACWA is bringing on Mike Connor as reviewer for NMS Work Products.
The modeling workshop is being planned for February and will include estuarine modeling.

b. *Current Issues - none*

c. *NMS Calendar Review -10 min*

i. Review future SC and PSC meeting schedules (IW)
The next PSC meeting is scheduled for February 3.

5. Other Updates

a. *Approach for clarifying permit-based specifics of science goals*
Watershed permit extension options

- Dave gave an overview of the questions he needs to have answered to target the science plan to our timing needs. We need to make real decisions about

what can be accomplished in the next 3 years. Will we be able to have enough information to support the basis for load reduction requirements.

- The proposed approach is to work with the PSC to have in-depth discussion and then bring back the issues to the larger group every few months. By this spring, we need to have resolution on approach to creek and slough questions so that we know what to do on the big questions. A top priority is to nail down indicators for a condition assessment. Should we go through the projects to reallocate priorities to reflect the antidegradation approach to permitting?
- It would be ideal to get to increased certainty on nutrient linkages and management options for the sloughs and margins. That we're going to have some results on the VPA later in 2021 helps to improve the odds of that being feasible. However, the Water Board needs to decide on the threshold for making permit decisions – for example, if one slough is impaired, would we make permitting decisions? The Water Board would want to consider whether there are other feasible mitigation measures. We can make predictions about what the data will say and then discuss outcomes based on those predictions.
- There was a discussion about the managed salt ponds in LSB that are planned for restoration over many years. It is uncertain whether the ponds will have DO impacts when they are fully restored. Are we managing for future habitat condition on these ponds? The UC Davis crew does conduct fish trawl on the periphery of the salt ponds so there is some data to support these considerations.
- Will need to go through each of the boxes on the uncertainty chart and make decisions for each indicator/work element with respect to AF/condition/linkage/management.

- The group was assigned tasks to bring back to the Feb 3 meeting for further discussion:
    - **SFEI** - materials out 3-5 days in advance of Feb 3
    - Focus will be on LSB-slough-creek DO
    - Goal: sketch out realistic decision timelines (considering if_then) to clarify as much as possible the science-answer/science-info and degree of certainty needed to inform those decisions, and iterate…ensure science timeline realistic relative to decision timeline goals, and vice versa.
    - If possible /relevant, we will also highlight some specific questions for individuals to consider pre-meeting
    - **WB**…have internal discussion about
        i. KL's point: Impairment in one slough vs. many slough to trigger management requirements, and
        ii. RS's point about how will restoration future play into decision making on load reduction if impairment is identified under current level of restoration.
    - Be prepared to work backward from D…what potential decisions could play out.

- **ED -** what type grey-area or uncertainty, e.g., related to degrees of load reduction decision, timing of decision relative to permit or SJ CIP,
- What would mitigate grey area? (e.g., even if 'bad news', would rather have fuller picture, more of the news earlier rather than later…what is earlier?)
- **LF -** Identify other (broader, beyond SJ) timing-mismatch/grey-area issues.

6. Action items:

- Distribute the Tetra Tech SOW and the 2-page memo on the fish analysis (Dave)
- Share NMS Review SOW with PSC (Lorien)
- Prior to the following meeting, work on the items identified in item 5 above (all).

7. Planning the next steering committee meeting

There were no action items from the December 11 Steering Committee meeting.

8. Adjourn or address Parking Lot items

Parking Lot of Identified PS Future Agenda Items

a. Modeling
b. Outreach to resource agencies re: DO objectives
c. Brainstorming on future priorities for the PS (ALL)
d. EPA nutrient criteria discussion
e. Discuss concept of holding an annual forum on nutrients
f. Finish

Planning Subcommittee Meeting No. 54
February 3 2021
9:00 am – 12:00 pm
Teleconference
Chair: Ian Wren
Meeting Notes

Attendees: Eric Dunlavey, Kevin Lundy, Tom Mumley, Ian Wren, Robert Schlipf, Richard Looker, Lorien Fono, Derek Roberts, Ariella Chelsky.

1. *Agenda Modifications (All) 5 min*
   Dave wasn't able to access the internet, so the meeting was cut short and discussion rescheduled to 2/16 at 8:30.

2. *Review Outstanding Action items (LF) 5 min*

   - Distribute the Tetra Tech SOW and the 2-page memo on the fish analysis (Dave) - complete
   - Share NMS Review SOW with PSC (Lorien) – Complete. Mike Connor is moving forward on the review of documents identified by BACWA and Dave.
   - Prior to the following meeting, work on the items identified for the discussion of permitting implications of the science program (all) - ongoing.

3. Other Updates

   a. CCMP Update

   - The group reviewed the nutrient-related actions in the CCMP/Estuary Blueprint through SFEP. The goal is to not convene a new workgroup, but to make use of the PSC and other existing workgroups. Ultimately the document needs to reflect the existing nutrient activities in the Bay Area. There is a balance between including items so that they can be integrated into other initiatives and be eligible for funding, but at the same time they don't force specific items to happen. There are a couple of items that are Delta-specific, so we will need to collaborate with entities in the Central Valley. Tom noted that BACWA will also be included in the actions pertaining to CECs. The next CCMP meeting will be in March. We will aim to have a draft to review at our March 3 meeting, then finalize and deliver to SFEP. The PSC will also interface with other POTW stakeholders such as EBDA. Liz dropped in on the PSC meeting and emailed the group the timeline/roadmap, the guiding principles, and the general action update strategy for the CCMP.

   b. Discussion: Lower South Bay Management & Science needs

   - Ian suggesting a 2-step process to define the science needs to support the 3rd watershed permit, then revise the Science Plan to reflect those needs. Today's discussion will focus on the Lower South Bay because it is the area that is most vulnerable to impairment. The lessons learned in the LSB can be translated to other areas that may have low DO.

- The Water Board's suggested that the Virginian Province approach will not resolve the questions about the LSB. If we're going to have to require further load reductions from San Jose, what would that mean given that they already denitrify? We need to explore what management actions would make a difference. Kevin was looking at DO reports, and especially Guadalupe slough, and doesn't see a significant eutrophic signal given the lack of diurnal variation. He would like to see an analysis of the different features that may impact DO, such as the role of nutrients, and habitat both present and in the future. The VPA would is a good first approach, to be followed by other studies.
- The Water Board is looking at different scenarios in terms of permitting approaches, with specificity about load caps and how they would be calculated. They are also considering whether to exclude small dischargers. BACWA is currently performing a survey on nutrient load increases and project planning and implementation and will also do a historical data analysis on variability. BACWA can take the Water Board's permitting scenarios and ground truth them in terms of what would they would mean on an agency level. Richard asked what the timeframe for sufficient model development for scenario planning to help explore the ecological impacts of permitting decisions.

4. Action items:

    - Send out invite for next meeting to conclude discussion of today's agenda (Ian)

5. Planning the next steering committee meeting

There were no action items from the December 11 Steering Committee meeting.

6. Adjourn or address Parking Lot items

    Parking Lot of Identified PS Future Agenda Items

    a. Modeling
    b. Outreach to resource agencies re: DO objectives
    c. Brainstorming on future priorities for the PS (ALL)
    d. EPA nutrient criteria discussion
    e. Discuss concept of holding an annual forum on nutrients
    f. Finish

Feb 16 PSC meeting, continued from Feb 3.

1. Recap: goals/timeline and action items
2. Overall Goals:
    a. Develop improved level of clarity on decisions and decision goals: what, when, confidence
    b. Science Needs: Two-way Communication | Agreement
    c. Develop more clarity about science program over time: timing, funding requirements

    Action items from Jan 6 meeting
    d. SFEI

    Sketch out example decision timelines and the science-answer/science-info (and degree of certainty) needed to inform those decisions

    Goal: Further clarity on decision timeline goals, and common understanding about what science info is needed and what's possible by when.
    e. WB: to have internal discussion regarding

    Would problematic conditions in one slough (vs. multiple) trigger decisions/requirements?

    - How will on-going restoration activities factor into decision-making? e.g., if impairment is identified based on current loads and current salt pond operation, would decisions be made based on current salt pond status/management, or would there be a need to consider future management?

    - other (what info needed to inform load caps?)

    BACWA

    [ED] what types of grey-areas or uncertainties about decisions would create challenges for San Jose planning/implementation?

    [ED] what type of information / discussions/ planning could help mitigate grey area issues?

    [LF] other examples/needs
3. Goals for today
    a. Clarity/guidance on drafting LSB-DO-slough plan(s) for FY2022 (thru 2023- 2024)?
        i. For some work, useful to get external expert input on approach, feasibility, confidence, etc.
        ii. Planning and exploring cost / feasibility may help inform what's possible
    b. Can decision timing-goals inform or help constrain what work to prioritize and by when?
        i. What decision timing-goals are possible/realistic for Permit#3 (Jul 2024)?
        ii. What are the science needs and confidence levels for those decisions?
    c. For issues that do not reach the necessary decision confidence level by end of FY2024, what next?
4. Current status of LSB sloughs/creeks

    We currently have a well established monitoring program in LSB. There was a discussion about the utility of the VPA, and it is likely that it will indicate problems in LSB, such as low reproduction rates, but not at the level of fish kills.

Based on observations, there is a strong conceptual and semi-quantitative linkable between high nutrients and high chl-a/low DO. Peak oxygen coincides with peak production is a key piece of evidence of nutrient limitation in the ponds. There was a question about what would be the effect of reducing nutrients. There was a suggestion to refer to the current nutrient condition as "current" rather than "high", especially since there are potential management actions other than reducing nutrients.

5. Hypothetical Decisions, Confidence Levels

Dave gave an overview of the science plan, and noted that it was designed based on an assumption of $16M over five years, and it's looking more like it will be $12.5M over five years. This means that we need to refocus our priorities, and have already been deprioritizing certain types of projects. Within the assessment framework, fish work has been deprioritized, as well as nutrient linkages and management options since they are expensive. Monitoring and condition are on track.

Dave laid out a series of different types of permitting decisions that could be made, along with the level of confidence that would be needed to support them. In general there would need to be a high level of confidence to support a load reduction requirement.

To get to the high level of certainty to require nutrient load reductions will require a refocusing of efforts (maybe $0.5-$1M). The Water Board's rationale is laid out in a memo circulated over the weekend. We want to develop an understanding on the degree of nutrient limitation. Derek responded that to get to the slough-level it would be a tall order to do a full dose-response study, you could calibrate a hydrodynamic model using tracers to determine change in condition with nutrients entering the systems and phytoplankton leaving. The water Board wants to retain chl-a as an indicator since the relationship with nutrients is fairly established, rather than with DO. At ebb tide, the mouth of Alviso slough is approximately half of SJ's effluent concentration. At flood tides, we see chlorophyll levels requiring a quarter strength of SJ's effluent. The data in SJ's Annual Report shows that the concentration of nitrogen was about 1/7th of SJ's effluent, which captures a range of tidal conditions. Eric sent a link to the Annual Report. This type of semi-quantitative approach allows us to do a broader, lower-cost assessment of the impact of nutrients on condition.

The two most likely decisions are some level of load cap (scenarios 1a and 1b) with a generous or less generous buffer, respectively. The Water Board stated that the work that would inform load reductions based on slough condition would influence permit four, not permit three. Getting this done in a shorter timeline would require significant redirection of resources from other projects, and instead will likely take 5-7 years. Additional data collection could be tied to mechanistic work. More DO measurements sooner would get a sense of upstream DO problems. At lease two sites would be needed to say that a water body is impaired.

The science team will update the science plan to reflect this discussion prior to the March Steering Committee meeting. This will include a cost estimate.

FY 2022
Proposed Budget compared with FY2021 Budget

BACWA BAY AREA CLEAN WATER AGENCIES

BACWA FY22 BUDGET	Line Item Description	FY 2021 Budget	Actuals January 2021	FY 21 Projected Actuals	FY 22 Proposed Budget	FY 22 NOTES
REVENUES & FUNDING						
Dues	Principals' Contributions	$516,909	$516,910	$516,909	$516,909	FY22: no increase. 5 @ $103,382
	Associate & Affiliate Contributions	$187,793	$184,838	$187,793	$187,793	FY22: no increase. 13 Assoc: $8,364; 45 Affiliate: $1,675.
Fees	Clean Bay Collaborative	$675,000	$669,445	$675,000	$675,000	Prin: $450,000; Assoc/Affil: $225,000
	Nutrient Surcharge	$1,700,000	$1,699,048	$1,700,000	$1,700,000	See Nutrient Surcharge Spreadsheet
	Member Voluntary Nutrient Contributions	$0	$0	$0		
Other Receipts	AIR Non-Member	$7,075	$7,075	$7,075	$7,075	no increase (Santa Rosa)
	BAPPG Non-Members	$3,954	$3,953	$3,954	$3,954	no increase (Sta Rosa, Sac Reg'l, Vacaville) $1,292/each
	Other	$0	$2,601	$0		
Fund Transfer	Special Program Admin Fees (WOT)	$5,202	$0	$1,000	$5,202	FY22: no increase
	BACC Admin Fees	$20,010	$0	$26,800	$27,200	400 hours of AED support $68 / hr
	BABC Admin Fees	$6,000	$0	$6,000	$6,000	ED, AED and RPM support
Interest Income	LAIF	$20,000	$16,653	$20,000	$20,000	BACWA, Legal, & CBC Funds invested in LAIF
	Higher Yield Investments	$18,000	$0	$0		
	Total Revenue	**$3,159,943**	**$3,100,523**	**$3,144,531**	**$3,149,133**	

BACWA FY22 BUDGET	Line Item Description	FY 2021 Budget	Actuals January 2021	FY 21 Projected Actuals	FY 22 Proposed Budget	FY 21 NOTES
EXPENSES						
Labor						
	Executive Director	$190,000	$95,000	$190,000	$190,000	No change from FY20/FY21 budget
	Assistant Executive Director	$102,551	$59,878	$102,551	$108,800	2.0% CPI (SF Bay Metro Area Dec 2020); $68/hour; Reflects 1600 hours (incl. 400 hours for BACC)
	Regulatory Program Manager	$141,170	$87,437	$141,170	$127,400	$98/hour, Reflects 1300 hours
	Total	**$433,721**	**$242,315**	**$433,721**	**$426,200**	
Administration						
	EBMUD Financial Services	$42,448	$20,561	$42,448	$42,448	No change from FY20/21 budget
	Auditing Services	$5,345	$0	$5,345	$5,345	Finanical Auditors through EBMUD; per auditor rate schedule
	Administrative Expenses	$7,959	$194	$7,959	$7,959	No change from FY20/21 budget
	Insurance	$4,776	$4,971	$4,971	$5,071	2% increase over FY21 actual
	Total	**$60,528**	**$25,726**	**$60,723**	**$60,823**	
Meetings						
	EB Meetings	$2,653	$257	$0	$2,653	No change from FY20/21 budget
	Annual Meeting	$14,369	$0	$2,519	$14,369	No change from FY20/21 budget
	Pardee	$6,367	$0	$0	$6,537	No change from FY20/21 budget
	Misc. Meetings	$5,306	$406	$0	$5,306	No change from FY20/21 budget
	Total	**$28,695**	**$663**	**$2,519**	**$28,865**	
Communication						
	Website Hosting / Domain registration	$612	$30	$612	$700	Website hosting $600, Go Daddy domain registration $100
	File Storage	$765	$0	$765	$765	No change from FY20/21 budget, box.net
	Website Development/Maintenance	$1,530	$0	$0	$1,530	No change from FY20/21 budget

FY 2022

Proposed Budget compared with FY2021 Budget

EXPENSES						
	IT Support (As Needed)	$2,652	$0	$2,652	$2,652	No change from FY20/21 budget
	Other Communication	$1,785	$577	$2,785	$1,785	No change from FY20/21 budget; MS Exchange, Survey Monkey, PollEv, Zoom, Netfile
	Total	**$7,344**	**$607**	**$6,814**	**$7,432**	
Legal						
	Regulatory Support	$2,760	$0	$2,760	$2,815	2% increase
	Executive Board Support	$2,219	$1,165	$2,219	$2,264	2% increase
	Total	**$4,979**	**$1,165**	**$4,979**	**$5,079**	
Committees						
	AIR	$76,000	$25,770	$76,000	$76,000	$75k consulting support, $1k misc expenses
	BAPPG	$130,000	$87,623	$130,000	$130,000	Includes CPSC @ $10,000, OWOW @ $10,000, and Pest. Reg Spt. @ $60,000.
	Biosolids Committee	$1,000	$0	$0	$0	
	Collections System	$1,000	$0	$0	$1,000	Andrew Ok amount
	InfoShare Groups	$1,750	$0	$0	$1,750	Funds for 2 workgroups ($750 for Asset Mgmt - new in FY21; $1,000 for O&M)
	Laboratory Committee	$1,000	$0	$0	$1,000	
	Permits Committee	$1,300	$0	$0	$1,300	all meetings moved to include lunch hour for commuting purposes
	Pretreatment	$1,000	$0	$0	$1,000	
	Recycled Water Committee	$1,000	$0	$0	$1,000	
	Misc Committee Support	$45,000	$0	$0	$45,000	
	Manager's Roundtable	$1,000	$0	$0	$1,000	
	Total	**$260,050**	**$113,393**	**$206,000**	**$259,050**	
Collaboratives						
	Collaboratives					
	State of the Estuary (SFEP-biennial)	$20,000	$0	$20,000	$0	Bienniel in Odd Fiscal Years. (Paid bienniely in odd years for even year conference)
	Arleen Navarret Award	$0	$0	$0	$2,500	Bienniel in Even Fiscal Years. Increase in FY20
	BayCAN		$0	$5,000	$5,000	New FY22
	Stanford ERC (ReNUWIt)	$10,000	$0	$10,000	$10,000	
	Misc	$1,500	$0	$0	$1,500	NBWA
	Total	**$31,500**	**$0**	**$35,000**	**$19,000**	
Other						
	Unbudgeted Items					
	Other	$0	$0	$0	$0	
		$0	**$0**	**$0**	**$0**	
Tech Support						
	Technical Support					
	Nutrients					
	Watershed	$2,800,000	$1,000,000	$2,600,000	$2,600,000	Advance funding for 2nd Watershed Permit Sciece Studies; Final $ TBD
	NMS Voluntary Contributions	$0	$30,000	$30,000	$0	
	Additional work under permit	$100,000	$0	$70,000	$100,000	Includes HDR PO for $225k spread out over FY20-24.
	Regional Study on Nature Based Systems	$200,000	$106,708	$200,000	$248,811	SFEI $500K, expires 06/30/2022
	Regional Recycling Evaluation	$60,000	$6,175	$60,000	$63,525	HDR $154K, expires 12/31/2023
	Nutrient Workshop(s)	$0	$0	$0	$0	Pilot Studies/Plant Review/Innovative Technologies
	NMS Reviewer				$50,000	New FY22
	General Tech Support	$250,000	$0	$100,000	$100,000	AB617 emissions factors, other nutrient support
	CEC Investigations	$50,000	$0	$70,000	$140,000	PFAS Study Phase II
	Risk Reduction	$7,500	$0	$0	$7,500	APA FSS completed $12,500 contract in FY20, CIEA will complete $12,500 contract in FY22
	Total	**$3,467,500**	**$1,142,883**	**$3,130,000**	**$3,309,836**	

FY 2022

Proposed Budget compared with FY2021 Budget

EXPENSES						
	TOTAL EXPENSES	**$4,294,318**	**$1,526,752**	**$3,879,757**	**$4,116,285**	
	NET INCOME BEFORE TRANSFERS	**-$1,134,375**		**-$735,226**	**-$967,152**	
	TRANSFERS FROM RESERVES	**$1,134,375**		**$735,226**	**$967,152**	aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge
	NET INCOME AFTER TRANSFERS	**$0**		**$0**	**$0**	
	TOTAL OPERATING BUDGET	**$826,818**		**$749,757**	**$806,449**	
	OPERATING RESERVE	**$206,704**		**$187,439**	**$201,612**	

Nutrient Surcharge; CBC reserve at $1,000,000

		2nd watershed permit calcs							
BACWA Agency	**Subembayment**	**2017/18**	**2018/19**	**2019/20**	**Average of Oct 2017 - Sept 2020 (3 Years)**	**% (based on TIN) FY21**	**% (based on TIN) FY22**	**FY 21 Nutrient Surcharge**	**FY 22 Nutrient Surcharge***
Basis for Allocation								**TIN (Oct 2016-Sept 2019)**	**TIN (Oct 2017-Sept 2020)**
Amount Needed Science Funding								**$1,700,000**	**$1,700,000**
CCCSD	Suisun Bay	3,840	3,790	3,980	3870	7.20%	7.43%	$122,471	$126,349
EBDA	South Bay	8,700	8,570	8,950	8740	15.85%	16.79%	$269,479	$285,346
EBMUD	Central Bay	10,700	9,340	9,320	9787	18.55%	18.80%	$315,393	$319,518
San Jose	Lower South Bay	4,920	5,500	4,880	5100	10.04%	9.79%	$170,702	$166,506
SFPUC Southeast	South Bay	8,860	8,850	7,210	8307	17.35%	15.95%	$294,964	$271,199
American Canyon	San Pablo Bay	36.8	37.3	33.1	36	0.07%	0.07%	$1,216	$1,167
Benicia	San Pablo Bay	251	222	211	228	0.44%	0.44%	$7,540	$7,444
Burlingame	South Bay	359	466	460	428	0.74%	0.82%	$12,542	$13,984
CMSA	Central Bay	986	1,120	1,170	1092	2.04%	2.10%	$34,604	$35,652
Crockett (Port Costa)	San Pablo Bay	1.99	0.705	1.45	1	0.00%	0.00%	$50	$45
Delta Diablo	Suisun Bay	1,520	1,500	1,330	1450	2.77%	2.78%	$47,072	$47,340
FSSD	Suisun Bay	1,320	1,130	1,040	1163	2.09%	2.23%	$35,446	$37,981
Las Gallinas[(b)]	San Pablo Bay	135	153	160	149	0.26%	0.29%	$4,486	$4,875
MSD 5 (Tiburon & Paradise Cove)	Central Bay	57.61	51.5	35.59	48	0.10%	0.09%	$1,648	$1,575
Millbrae	South Bay	261	286	288	278	0.52%	0.53%	$8,856	$9,087
Mt. View	Suisun Bay	125	115	112	117	0.26%	0.23%	$4,497	$3,831
Napa SD	San Pablo Bay	161	309	152	207	0.45%	0.40%	$7,677	$6,769
Novato SD	San Pablo Bay	130	198	112	147	0.33%	0.28%	$5,529	$4,788
Palo Alto	Lower South Bay	2,180	2,310	2,220	2237	4.37%	4.30%	$74,241	$73,023
Petaluma	San Pablo Bay	4.87	24.2	6.68	12	0.03%	0.02%	$478	$389
Pinole	San Pablo Bay	317	227	232	259	0.54%	0.50%	$9,098	$8,445
Rodeo SD	San Pablo Bay	32.6	38.3	38.7	37	0.07%	0.07%	$1,225	$1,193
SFO Airport	South Bay	139	107	25.2	90	0.29%	0.17%	$4,970	$2,951
San Mateo	South Bay	1,430	1,530	1,330	1430	2.67%	2.75%	$45,387	$46,687
Sausalito-Marin City SD	Central Bay	137	134	124	132	0.25%	0.25%	$4,286	$4,299
Sewerage Agency of SM	Central Bay	187	211	219	206	0.35%	0.39%	$5,918	$6,715
Sonoma Co Water Ag	San Pablo Bay	0	29.9	0	10	0.07%	0.02%	$1,178	$325
SVCW	South Bay	2,690	2,640	2,590	2640	4.83%	5.07%	$82,034	$86,192
South SF	South Bay	1,060	1,310	1,160	1177	2.13%	2.26%	$36,225	$38,416
Sunnyvale	Lower South Bay	878	964	810	884	1.73%	1.70%	$29,423	$28,861
Treasure Island	Central Bay	12	13.9	20.9	16	0.03%	0.03%	$444	$509
Vallejo Sanitation & FCD	San Pablo Bay	931	928	851	903	1.71%	1.73%	$29,117	$29,492
West County Agency	Central Bay	873	997	799	890	1.87%	1.71%	$31,803	$29,046
		53236	**53103**	**49872**	**52070**				
Principals Only		**37020**	**36050**	**34340**	**35803**	69.00%	68.76%	$1,173,009	$1,168,918
Total w/o principals		**16216**	**17053**	**15532**	**16267**	31.00%	31.24%	$526,991	$531,082
Total								**$1,700,000**	**$1,700,000**

	5 Year Plan to Eliminate Excess Reserves (CBC @ $1,000,000) - $2.2M/yr NMS payment through FY24								
								3rd WS PERMIT	
			2021 (adopted)	**2021 (projected)**	**2022 (proposed)**	**2023 (proposed)**	**2024 (proposed)**	**2025 proposed)**	**2026 propose**
REVENUES									
	Dues	Principals' Contributions	$516,909	$516,909	$516,909	$527,248	$537,793	$548,548	$559,519
		Assoc. & Aff. Contributions	$187,793	$187,793	$187,793	$191,549	$195,380	$199,288	$203,273
	Fees	Clean Bay Collaborative Fee	$675,000	$675,000	$675,000	$675,000	$675,000	$675,000	$675,000
		Nutrient Surcharge	$1,700,000	$1,700,000	$1,700,000	$1,700,000	$1,000,000	$850,000	$850,000
		Member Vol. Nutrient Contributions	$0	$0	$0	$0	$0	$0	$0
	Other Receipts	Non-BACWA AIR	$7,075	$7,075	$7,075	$7,216	$7,361	$7,508	$7,658
		Non-BACWA BAPPG Fee	$3,954	$3,954	$3,954	$4,033	$4,113	$4,196	$4,279
		Other	$0	$2,601	$2,653	$2,706	$2,760	$2,815	$2,872
	Fund Transfer	Special Program Admin Fees (WOT, BABC, BACC)	$31,212	$32,000	$38,402	$39,170	$39,953	$40,753	$41,568
	Investment Income	LAIF	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
		Higher Yield Investments	$18,000	$0	$0	$18,000	$18,000	$18,000	$18,000
TOTAL REVENUES		**Total**	**$3,159,943**	**$3,145,332**	**$3,151,786**	**$3,184,922**	**$2,500,360**	**$2,366,107**	**$2,382,169**
EXPENSES									
	Labor		$433,721	$433,721	$429,008	$441,878	$455,135	$468,789	$482,852
	Administration		$60,528	$60,723	$60,823	$62,039	$63,280	$64,546	$65,837
	Meetings		$28,695	$2,519	$28,865	$29,442	$30,031	$30,632	$31,244
	Communication		$7,344	$6,814	$7,432	$7,581	$7,732	$7,887	$8,045
	Legal		$4,979	$4,979	$5,079	$5,181	$5,284	$5,390	$5,498
	Committees		$260,050	$206,000	$259,050	$264,231	$269,516	$274,906	$280,404
	Collaboratives		$31,500	$35,000	$19,000	$39,380	$20,168	$40,571	$21,382
	Other		$0	$0	$0	$0	$0	$0	$0
	Technical Support	Nutrients							
		Permit Reqm't for Science Funding	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$1,100,000	$1,100,000
		NMS Advance on Future Funding	$600,000	$400,000	$400,000	($100,000)	($1,100,000)	$0	$0
		NMS Voluntary Contributions	$0	$30,000	$0	$0	$0	$0	$0
		Additional Work Under Permit	$100,000	$70,000	$100,000	$100,000	$100,000	$100,000	$100,000
		Nature Based Solutions Study	$200,000	$200,000	$248,811	$124,406	$0	$0	$0
		Regional Recycling Report	$60,000	$60,000	$63,525	$31,763	$0	$0	$0
		3rd WSP Special Studies							$200,000
		Member Voluntary Contributions	$0	$0	$0	$0	$0	$0	$0
		Nutrient Workshops	$0	$0	$0	$0	$0	$0	$0
		NMS Reviewer			$50,000	$50,000	$50,000	$50,000	$50,000
		General Tech Support	$250,000	$100,000	$100,000	$102,000	$104,040	$106,121	$108,243
		CEC Investigations	$50,000	$70,000	$140,000	$40,000	$40,000	$40,000	$40,000
		Risk Reduction	$7,500	$0	$7,500	$0	$12,500	$12,500	$0
	Total Technical Support		$3,467,500	$3,130,000	$3,309,836	$2,548,168	$1,406,540	$1,408,621	$1,598,243
TOTAL EXPENSES			**$4,294,317**	**$3,879,756**	**$4,119,093**	**$3,397,900**	**$2,257,686**	**$2,301,341**	**$2,493,505**
NET INCOME BEFORE TRANSFERS			**($1,134,374)**	**($734,424)**	**($967,307)**	**($212,979)**	**$242,674**	**$64,767**	**($111,336)**
TRANSFERS TO(+)/FROM(-) RESERVES			**($1,134,374)**	**($734,424)**	**($967,307)**	**($212,979)**	**$242,674**	**$64,767**	**($111,336)**
RESERVES	Operating Target	$200,000							
	Legal Target	$300,000							
	CBC Target	$1,000,000							
	Target Reserves	**$1,500,000**							
	Total Reserves at End of FY (projected)			**$2,680,903**	$1,713,596	$1,500,617	$1,743,292	$1,808,058	$1,696,723
	Amt. Above Target End of FY 21			**$1,180,903**	**$213,596**	**$617**	**$243,292**	**$308,058**	**$196,723**

5 Year Plan to Eliminate Excess Reserves (CBC @ $1,000,000) - $2.2M/yr NMS payment through FY26								
							3rd WS PERMIT(tbd)	
		2021 (adopted)	**2021 (projected)**	**2022 (proposed)**	**2023 (proposed)**	**2024 (proposed)**	**2025 proposed)**	**2026 propose**
Dues	Principals' Contributions	$516,909	$516,909	$516,909	$527,248	$537,793	$548,548	$559,519
	Assoc. & Aff. Contributions	$187,793	$187,793	$187,793	$191,549	$195,380	$199,288	$203,273
Fees	Clean Bay Collaborative Fee	$675,000	$675,000	$675,000	$675,000	$675,000	$675,000	$675,000
	Nutrient Surcharge	$1,700,000	$1,700,000	$1,700,000	$1,700,000	$1,700,000	$1,700,000	$1,300,000
	Member Vol. Nutrient Contributions	$0	$0	$0	$0	$0	$0	$0
Other Receipts	Non-BACWA AIR	$7,075	$7,075	$7,075	$7,216	$7,361	$7,508	$7,658
	Non-BACWA BAPPG Fee	$3,954	$3,954	$3,954	$4,033	$4,113	$4,196	$4,279
	Other	$0	$2,601	$2,653	$2,706	$2,760	$2,815	$2,872
Fund Transfer	Special Program Admin Fees (WOT, BABC, BACC)	$31,212	$32,000	$38,402	$39,170	$39,953	$40,753	$41,568
Investment Income	LAIF	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000
	Higher Yield Investments	$18,000	$0	$0	$18,000	$18,000	$18,000	$18,000
ES	**Total**	**$3,159,943**	**$3,145,332**	**$3,151,786**	**$3,184,922**	**$3,200,360**	**$3,216,107**	**$2,832,169**
Labor		$433,721	$433,721	$429,008	$441,878	$455,135	$468,789	$482,852
Administration		$60,528	$60,723	$60,823	$62,039	$63,280	$64,546	$65,837
Meetings		$28,695	$2,519	$28,865	$29,442	$30,031	$30,632	$31,244
Communication		$7,344	$6,814	$7,432	$7,581	$7,732	$7,887	$8,045
Legal		$4,979	$4,979	$5,079	$5,181	$5,284	$5,390	$5,498
Committees		$260,050	$206,000	$259,050	$264,231	$269,516	$274,906	$280,404
Collaboratives		$31,500	$35,000	$19,000	$39,380	$20,168	$40,571	$21,382
Other		$0	$0	$0	$0	$0	$0	$0
Technical Support	Nutrients							
	Permit Reqm't for Science Funding	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000	$2,200,000
	NMS Advance on Future Funding	$600,000	$400,000	$400,000	$0	$0	($100,000)	($1,100,000)
	NMS Voluntary Contributions	$0	$30,000	$0	$0	$0	$0	$0
	Additional Work Under Permit	$100,000	$70,000	$100,000	$100,000	$100,000	$100,000	$100,000
	Nature Based Solutions Study	$200,000	$200,000	$248,811	$124,406	$0	$0	$0
	Regional Recycling Report	$60,000	$60,000	$63,525	$31,763	$0	$0	$0
	3rd WSP Special Studies							$200,000
	Member Voluntary Contributions	$0	$0	$0	$0	$0	$0	$0
	Nutrient Workshops	$0	$0	$0	$0	$0	$0	$0
	NMS Reviewer			$50,000	$50,000	$50,000	$50,000	$50,000
	General Tech Support	$250,000	$100,000	$100,000	$102,000	$104,040	$106,121	$108,243
	CEC Investigations	$50,000	$70,000	$140,000	$40,000	$40,000	$40,000	$40,000
	Risk Reduction	$7,500	$0	$7,500	$0	$12,500	$12,500	$0
Total Technical Support		$3,467,500	$3,130,000	$3,309,836	$2,648,168	$2,506,540	$2,408,621	$1,598,243
ES		**$4,294,317**	**$3,879,756**	**$4,119,093**	**$3,497,900**	**$3,357,686**	**$3,301,341**	**$2,493,505**
FORE TRANSFERS		**($1,134,374)**	**($734,424)**	**($967,307)**	**($312,979)**	**($157,326)**	**($85,233)**	**$338,664**
+)/FROM(-) RESERVES		**($1,134,374)**	**($734,424)**	**($967,307)**	**($312,979)**	**($157,326)**	**($85,233)**	**$338,664**
Operating Target	$200,000							
Legal Target	$300,000							
CBC Target	$1,000,000							
Target Reserves	**$1,500,000**							
Total Reserves at End of FY (projected)			**$2,680,903**	$1,713,596	$1,400,617	$1,243,292	$1,158,058	$1,496,723
Amt. Above CBC Target End of FY 21 (projected)			**$1,180,903**	**$213,596**	**($99,383)**	**($256,708)**	**($341,942)**	**($3,277)**

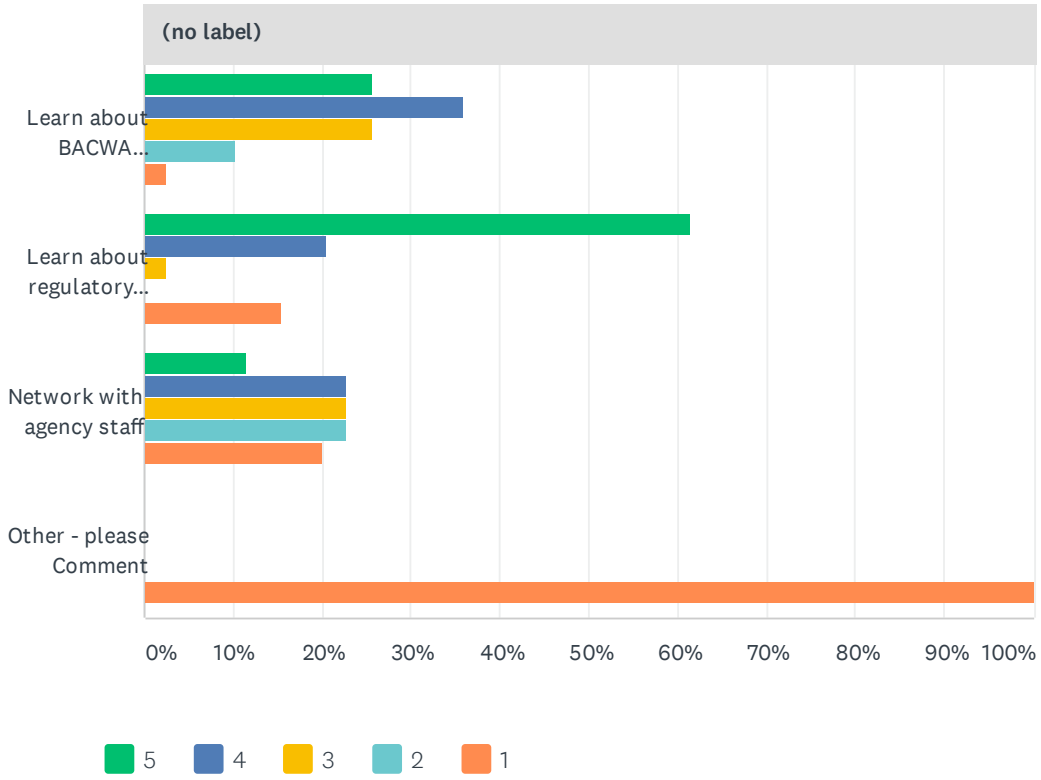
NOTICE INVITING SEALED BIDS
FOR SUPPLY AND DELIVERY OF ALUMINUM SULFATE
BAY AREA CHEMICAL CONSORTIUM (BACC)
BID NO. 01-2021

The Bay Area Chemical Consortium (BACC), a cooperative group of public agencies, is seeking competitive sealed bids for the supply and delivery of ALUMINUM SULFATE. All sealed bids to be considered for this solicitation must be received via our electronic bid platform https://bacwa.org/bacc/ by **4:00 P.M. PDT, Thursday, April 15, 2021.** Bids received after said date and time will not be considered under any circumstances. Bids submitted by mail or by facsimile will not be accepted. BACC and its member agencies reserves the right to reject any and all bids and to waive informalities and immaterial irregularities or technical defects in the bids received.

For additional information or any questions concerning this bid, use the public Q&A Forum in our electronic bid platform.

Q1 What is your main reason for attending the annual meeting? Please rank your choices, choosing 5 as the MOST important reason and 1 as the LEAST important reason (or adding our own reason).

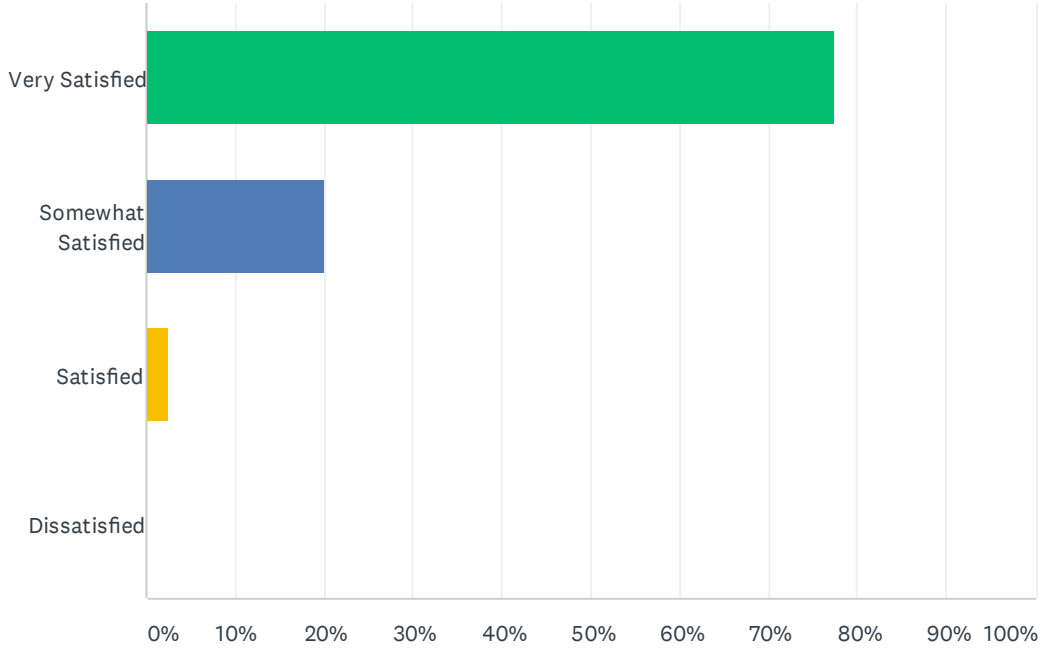
Answered: 40 Skipped: 0



(no label)						
	5	**4**	**3**	**2**	**1**	**TOTAL**
Learn about BACWA activities in the last year	25.64% 10	35.90% 14	25.64% 10	10.26% 4	2.56% 1	39
Learn about regulatory developments	61.54% 24	20.51% 8	2.56% 1	0.00% 0	15.38% 6	39
Network with agency staff	11.43% 4	22.86% 8	22.86% 8	22.86% 8	20.00% 7	35
Other - please Comment	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 1	1

Q2 How satisfied were you overall with the presentations?

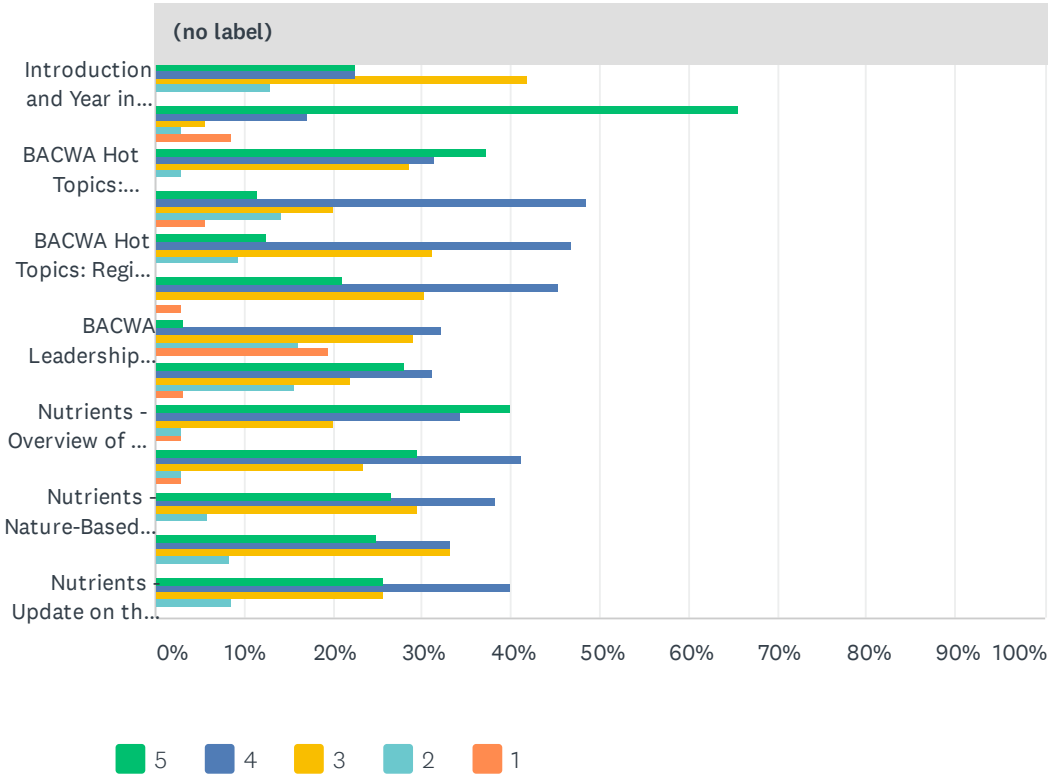
Answered: 40 Skipped: 0



ANSWER CHOICES	RESPONSES	
Very Satisfied	77.50%	31
Somewhat Satisfied	20.00%	8
Satisfied	2.50%	1
Dissatisfied	0.00%	0
TOTAL		40

Q3 What topics did you find MOST useful and/or interesting? Please rate your choices, choosing 5 as the MOST useful and/or interesting and 1 as the LEAST useful and/or interesting.

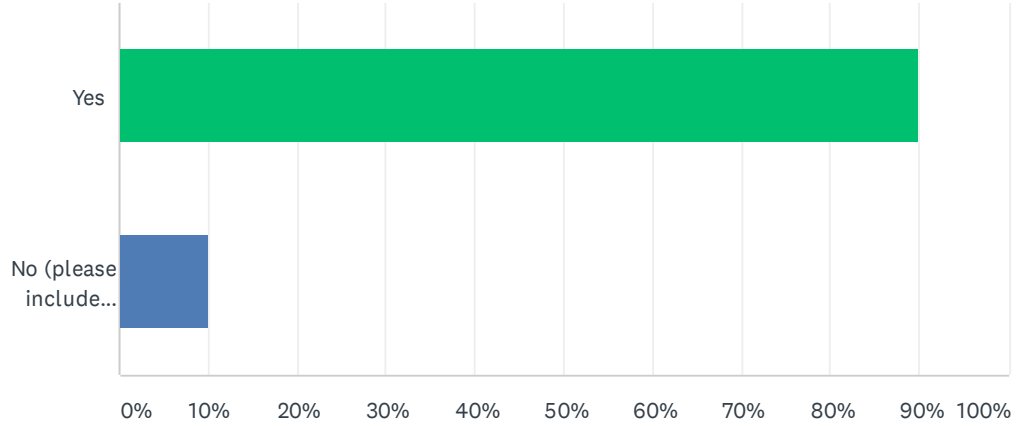
Answered: 40 Skipped: 0



(no label)						
	5	**4**	**3**	**2**	**1**	**TOTAL**
Introduction and Year in Review	22.58% 7	22.58% 7	41.94% 13	12.90% 4	0.00% 0	31
Regulatory Priorities	65.71% 23	17.14% 6	5.71% 2	2.86% 1	8.57% 3	35
BACWA Hot Topics: SARS-CoV-2 monitoring in wastewater	37.14% 13	31.43% 11	28.57% 10	2.86% 1	0.00% 0	35
BACWA Hot Topics: Managing a POTW	11.43% 4	48.57% 17	20.00% 7	14.29% 5	5.71% 2	35
BACWA Hot Topics: Region 2 PFAS Study update	12.50% 4	46.88% 15	31.25% 10	9.38% 3	0.00% 0	32
BACWA Hot Topics: Climate change vulnerability planning survey	21.21% 7	45.45% 15	30.30% 10	0.00% 0	3.03% 1	33
BACWA Leadership Recognition	3.23% 1	32.26% 10	29.03% 9	16.13% 5	19.35% 6	31
BACWA Hot Topics: AIR & biosolids issues	28.13% 9	31.25% 10	21.88% 7	15.63% 5	3.13% 1	32
Nutrients - Overview of 2nd Watershed Permit / Governance Update	40.00% 14	34.29% 12	20.00% 7	2.86% 1	2.86% 1	35
Nutrients - 2021 Group Annual Report	29.41% 10	41.18% 14	23.53% 8	2.94% 1	2.94% 1	34
Nutrients - Nature-Based Solutions Study	26.47% 9	38.24% 13	29.41% 10	5.88% 2	0.00% 0	34
Nutrients - Regional Recycled Water Evaluation	25.00% 9	33.33% 12	33.33% 12	8.33% 3	0.00% 0	36
Nutrients - Update on the Science Plan & Findings	25.71% 9	40.00% 14	25.71% 9	8.57% 3	0.00% 0	35

Q4 Did you find the overall length of the meeting to be appropriate? If not, please explain.

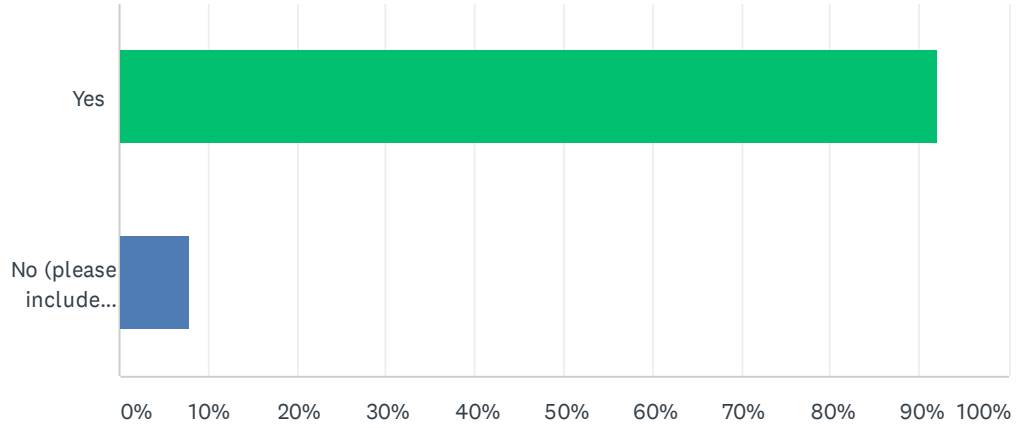
Answered: 40 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	90.00%	36
No (please include comment)	10.00%	4
TOTAL		40

Q5 Did you like the online format of the Annual Meeting? Please explain and/or suggest improvements.

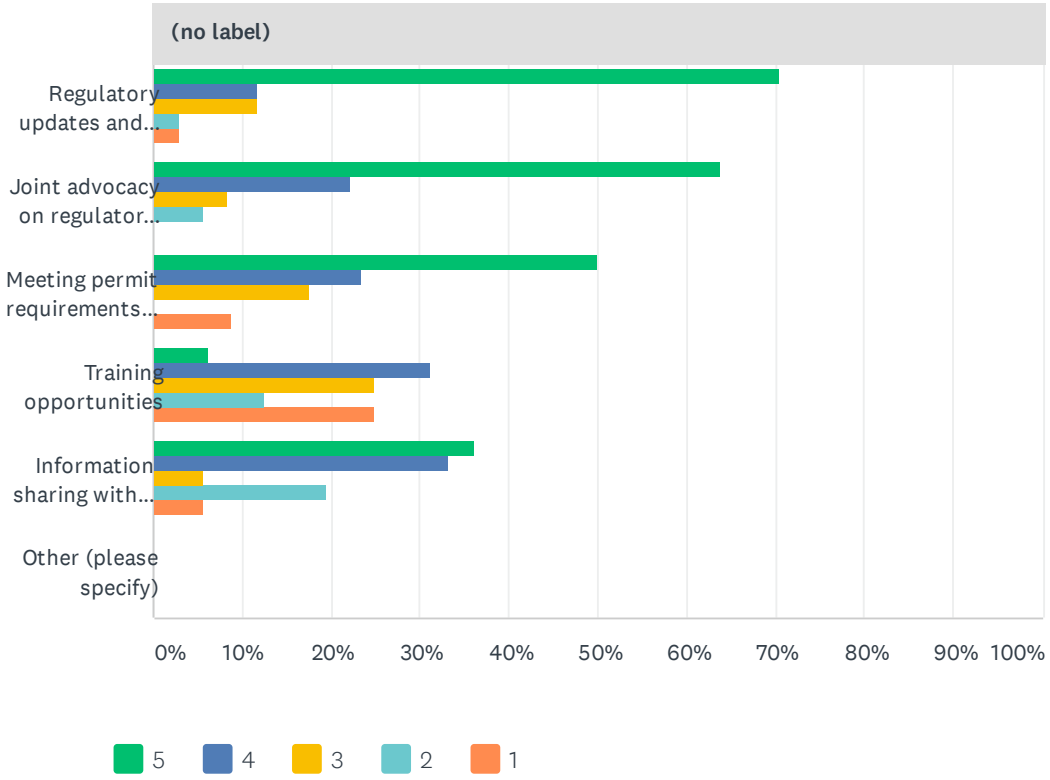
Answered: 38 Skipped: 2



ANSWER CHOICES	RESPONSES	
Yes	92.11%	35
No (please include comment)	7.89%	3
TOTAL		38

Q6 What is the most important benefit that you receive from BACWA membership? Please rank your choices, choosing 5 as the MOST beneficial and 1 as the LEAST beneficial.

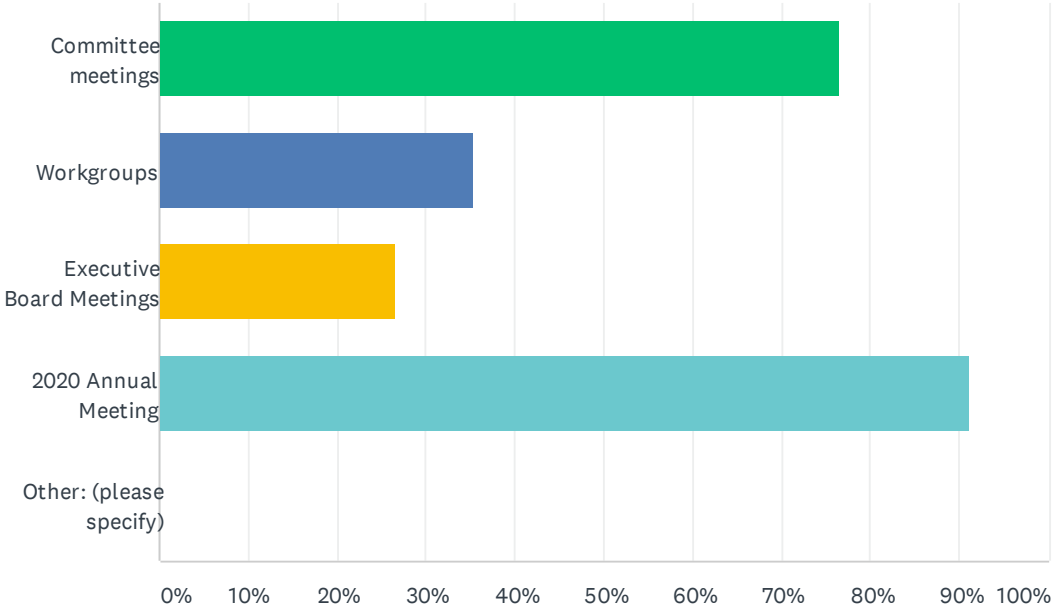
Answered: 37 Skipped: 3



(no label)						
	5	**4**	**3**	**2**	**1**	**TOTAL**
Regulatory updates and advocacy	70.59% 24	11.76% 4	11.76% 4	2.94% 1	2.94% 1	34
Joint advocacy on regulatory issues through BACWA rather than as individual agencies	63.89% 23	22.22% 8	8.33% 3	5.56% 2	0.00% 0	36
Meeting permit requirements through joint efforts on watershed permits vs. individual permits	50.00% 17	23.53% 8	17.65% 6	0.00% 0	8.82% 3	34
Training opportunities	6.25% 2	31.25% 10	25.00% 8	12.50% 4	25.00% 8	32
Information sharing with other agencies	36.11% 13	33.33% 12	5.56% 2	19.44% 7	5.56% 2	36
Other (please specify)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0

Q7 What BACWA events did you attend in 2020?

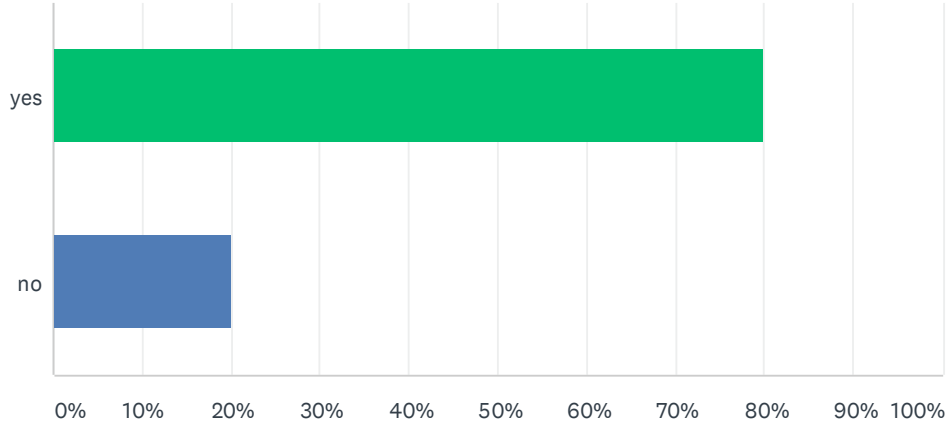
Answered: 34 Skipped: 6



ANSWER CHOICES	RESPONSES	
Committee meetings	76.47%	26
Workgroups	35.29%	12
Executive Board Meetings	26.47%	9
2020 Annual Meeting	91.18%	31
Other: (please specify)	0.00%	0
Total Respondents: 34		

Q8 After COVID, are you more likely to attend BACWA events if there is a virtual option?

Answered: 40 Skipped: 0



ANSWER CHOICES	RESPONSES	
yes	80.00%	32
no	20.00%	8
TOTAL		40

Q9 What could BACWA do to better serve your agency?

Answered: 1 Skipped: 39

Q10 Any other suggestions for improving the meeting?

Answered: 2 Skipped: 38

Q9 What could BACWA do to better serve your agency?

Answered: 1 Skipped: 39

#	RESPONSES	DATE
1	BACWA is great.	2/21/2021 7:35 AM

Q10 Any other suggestions for improving the meeting?

Answered: 2 Skipped: 38

#	RESPONSES	DATE
1	Push Jack Broadbent harder so that he understands what the impact of BAAQMD on the regulated community and how we feel about it.	2/23/2021 8:21 AM
2	Keep a virtual attendance option in the future.	2/22/2021 8:02 AM

BAY AREA CLEAN WATER AGENCIES

INDEPENDENT ACCOUNTANT'S REPORT ON APPLYING AGREED-UPON PROCEDURES FOR BACWA'S REVIEW OF THE INTERNAL CONTROL ENVIRONMENT FOR THE YEAR ENDED JUNE 30, 2019

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MAZE & ASSOCIATES

INDEPENDENT ACCOUNTANT'S REPORT
ON APPLYING AGREED-UPON PROCEDURES
FOR THE BACWA'S REVIEW OF THE
INTERNAL CONTROL ENVIRONMENT
FOR THE YEAR ENDED JUNE 30, 2019

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

We have performed the procedures described below, which were agreed to by the Bay Area Clean Water Agencies (BACWA), related to BACWA's internal control environment for the year ended June 30, 2019. BACWA's management is responsible for the design, implementation and maintenance of the internal control environment. The sufficiency of these procedures is solely BACWA's responsibility as the specified user of this report. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

The procedures and findings are as follows:

1. We obtained the BACWA Procedures (Policy) (last revised December 21, 2018) and tested BACWA's compliance with the policy and proceedures.

   Finding: No exceptions noted.

2. Gain an understanding of BACWA's internal control environment as it relates to the following areas and cycles:
   - Cash and investments
   - Disbursements
   - Control approval
   - Communication of information with East Bay Municipal Utility District (EBMUD)

   Finding: No exceptions noted.

3. Select a sample of 50 disbursement and test the following:
   - Compliance with the purchasing policy or current procedures
   - Trace to applicable back up of the transaction
   - Test the approval process
   - Trace the transaction to the general ledger for appropriate account
   - Trace the transaction to the applicable contract

   Finding: During our testing, we noted three disbursements that BACWA staff was unable to locate the supporting invoice or agreement. All disbursements made by BACWA should be supported by source documents to assess the nature of the disbursement and to give an audit trail to show the approvals and authorization of the purchase.

Accountancy Corporation
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Pleasant Hill, CA 94523

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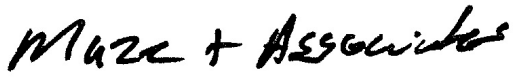
4. Complete an internal control narrative and identify internal control conflicts and the mitigating factors. Test a sample of 10% of the mitigating factors

   Finding: No exceptions noted.

*****

This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. We were not engaged to and did not conduct an examination or review, the objective of which would be the expression of an opinion or conclusion, respectively, on BACWA's internal control environment. Accordingly, we do not express such an opinion or conclusion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of management and the Board of Directors and is not intended to be and should not be used by anyone other than those specified parties; however, this restriction is not intended to limit the distribution of this report, which is a matter of public record.



Pleasant Hill, California
March 8, 2021

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AIR Committee –
Report to BACWA Board

AIR Committee Meeting on: 01/13/2021
Executive Board Meeting Date: 3/19/2021
Committee Co-Chairs: Nohemy Revilla and Randy Schmidt

Committee Request for Board Action: Letter to BAAQMD regarding BACT for large IC engines

BAAQMD-BACWA Leadership Meeting Summary

BACWA leadership held a kick-off meeting with BAAQMD leadership in early December, in the first of what we hope to become quarterly meetings. The discussion centered on where state and local regulatory efforts are not in alignment. Specific concerns were raised with the objectives of SB 1383 regulations and BAAQMD's Regulation 13, and the timing of AB 617/AB 2588 updates and BAAQMD Rule 11-18 implementation. It was agreed that BACWA and BAAQMD leadership will schedule future meetings to dig deeper into various topics.

Retroactive BACT for New Standby/Emergency IC Engines >1000 bhp

On December 22, 2020, BAAQMD issued new Best Available Control Technology (BACT2) for standby IC engines greater than or equal to 1000 bhp to require Tier 4 engines. (Please refer to the attached documents for details) According to BAAQMD, this new BACT2 even applies to new/open applications deemed complete after January 1, 2020. This has caught several facilities that were still in the application process. BACWA will draft a letter to BAAQMD to outline the impact of this change on POTWs, referencing specific member examples.

SB 1383: Short-Lived Climate Pollutant (SLCP) Reduction Regulation and Implementation Status

This regulation targets methane reduction via diversion of organic waste from landfills to anaerobic digestion or composting facilities (the products of which are to be recycled). The OAL approved the regulation November 9, 2020. State enforcement begins in January 1 2022, local enforcement begins in 2024, and compliance is required by 2025.

Air Toxics Updates

BAAQMD Rule 11-18: Risk Reduction from Air Toxic Emissions at Existing Facilities

All POTWs are in Phase II of the implementation schedule. The BAAQMD plans to send initial requests for information to Phase II facilities in Q2 2021, beginning with those plants having an estimated prioritization score >100. See the Implementation Procedures dated August 2020. POTWs are expected to respond to the data requests within 2-4 months.

Criteria Pollutant and Toxic Emissions Reporting (CTR) and AB 2588 Air Toxics "Hot Spots" Emission Inventory Criteria and Guidance (EICG) Updates

CARB is working to align the CTR and EICG programs before final approval of the regulation. While some entities will begin reporting in 2023, CARB stated the wastewater sector will have until 2026 to perform a statewide "two-step process" in collaboration with CARB and air districts to determine a shortlist of compounds relevant to the wastewater sector to report.

The 15-day changes (final draft regulations) are expected to be available for review the second week of February, with a webinar on February 11. CARB and POTW staff (CASA's Air Toxics Subgroup) will continue meeting to discuss development of formal approaches to screen and quantify emissions with CARB and Air Districts

BAAQMD and Other Efforts to Monitor/Reduce Methane and Nitrous Oxide

BAAQMD Regulation 13 rule development is currently suspended due to COVID-19 and lack of data. However, BAAQMD continues to engage with BACWA in an effort to develop a baseline understanding of current methane (and VOC) management practices. This is an excellent opportunity to continue to educate and inform BAAQMD about POTW operations and the measures already in place to capture and reduce emissions. BAAQMD may incorporate Best Management Practices (BMPs) as part of standard permit conditions.

The N2O, CH4 and NH3 research being led by Princeton and UC Riverside that began in April 2020 is resuming, and they are seeking wastewater agency partners.

CARB Advanced Clean Vehicle Regulations

The Advanced Clean Truck Rule was adopted in June 2020 and is the first of a multi-regulation effort targeting electrification. It requires one-time reporting for large entities that operate or dispatch vehicles with a manufacturer's gross vehicle weight rating (GVWR) greater than 8,500 lbs in California. It includes medium duty vehicles like vans and ¾-ton pickups such as the F250 or Ram 2500 and heavier vehicles of all configurations and fuel types, but does not apply to lighter vehicles like cars and light duty pickups. The reporting deadline is April 1, 2021.

The Advanced Clean Fleet Rule targets zero-emission truck and bus fleets by 2045, with government entities identified as early adopters. The goal is to adopt the regulation by the end of 2021, with implementation by 2024.

Member Updates

The group discussed draft permit conditions for a plant modification that limits influent concentrations proposed by BAAQMD (e.g., ammonia).

COVID-19: Regulatory Contingency Planning

The CASA website has many useful and timely resources. Members are encouraged to reach out or share information with the AIR committee.

Next AIR Committee Meeting: March 31, 2021

Recycled Water Committee –
Report to BACWA Board

Recycled Water Committee Meeting on: 01/19/2021
Executive Board Meeting Date: 03/19/21
Committee Chairs: Stefanie Olson, Reena Thomas

Committee Request for Board Action: none

Detailed notes from meetings are posted online.
34 attendees (all participating remotely) representing 14 member agencies

Regional Recycled Water Evaluation Update

Mike Falk of HDR provided an update on the Regional Recycled Water Evaluation. The project team is beginning a 2nd round of outreach to agencies, now that preparation of individual plant reports has begun. Outreach to agencies will continue through 2021 as the consultant team prepares individual plant reports on a rolling basis. Each agency will be asked for more detailed recycled water project descriptions and cost information, if available.

Inter-Agency Recycled Water Trucking MOU

Ben Glickstein of EBMUD outlined the key elements of a draft MOU for retail water and recycled water providers. The purpose of the MOU is to allow commercial and residential fill station customers to move water across jurisdictional boundaries (i.e., fill a container in Oakland and irrigate in Hayward), which is currently not allowed except in special cases. The draft MOU includes clauses related to Indemnification; Protections for Personally Identifiable Information; a 5-year extendable term; shared user agreement language, and a list of shared customer training content.

The intent is for agencies to review the draft MOU, jointly finalize the language, and then, if appropriate, distribute to Bay Area water and recycled water providers. Ben will distribute the draft MOU to the committee once internal EBMUD review is complete. A training video for recycled water fill station users would also be useful and could be shared among member agencies.

Cross Connection Control Policy Handbook Update

DDW is working to update cross connection control regulations via a Policy Handbook. The draft Policy Handbook will be posted to the DDW website within the new few weeks for public comment. Additional public workshops will be held after the draft standards are released. Stefanie Olson will alert the committee when the draft Policy Handbook is available for review.

Virtual Recycled Water Use Site Supervisor Training

Members discussed sharing content to create a virtual recycled water use site supervisor training. Stefanie Olson will convene a small group of interested participants to discuss details.

Legislation and Regulatory Update

- Potential recycled water legislation in 2021 includes: A resources bond for the 2022 ballot; Codification of Governor's Exec. Order requiring 30% conservation of land & coastal waters by 2030; Prohibitions against Ocean/bay wastewater discharge (similar to previous Hertzberg bill); and re-introduction of bill from last session regarding establishing a dedicated CEC program at SWRCB.
- The LA WaterKeeper lawsuit has been appealed by the State Water Board. See the September 2020 notes for background on the suit's contention that discharge to the Bay/Ocean is "wasteful" and "unreasonable."
- During a recent State Water Board hearing, results were shared from the 1st annual volumetric reporting period for recycled water. The State Water Board also released the data and an infographic. The largest increases since 2015 have been in potable reuse, which now makes up 26% of all recycled water use.

Member Updates

Sergio Ramirez and Jed Beyer from West Bay Sanitary District attended and the group briefly discussed permitting approaches for dual-plumbed commercial sites. The District is moving forward with a neighborhood-scale satellite recycled water treatment plant intended to provide water for indoor uses (i.e., toilet flushing), and will be in touch with Division of Drinking Water (DDW) to discuss the approval process.

Next Meeting – Tuesday, March 30, 2020, 10:30 am (date changed due to WateReuse symposium)

Meeting Date: February 3, 2021
Executive Board Meeting Date: March 19, 2021
BAPPG Chairs: Autumn Cleave, Robert Wilson

Committee Request for Board Action:

- Provide input on PFAS decontamination strategy – should POTWs accept waste from this process? Should BACWA conduct further outreach to regulators on this topic?

Detailed Committee Notes are available online.
32 attendees representing 24 member agencies

Updates on Committee Activity ***Link to 2020 BAPPG Annual Report***

- Budget is on-track with 62% spent about halfway through the fiscal year.
- OWOW is continuing to meet through FY21, hopes to continue running after the dissolution of BASMAA, and is remodeling its website to make it more mobile-friendly.
- TDC Environmental will support pesticide regulatory work through June 2021, after which Kelly Moran will be focusing exclusively on work at SFEI. The steering committee is discussing coordination opportunities with CASQA and CVCWA.
- Due to the recent PFAS ban in most fire-fighting foams (SB1044), there may be a need for decontamination of equipment that previously used PFAS-containing foams. Wastewater from this decontamination process would potentially go to POTWs, providing an overall water quality and health benefit but risk to POTWs. Executive Board guidance is requested.

RWQCB Pollution Prevention Report Update

Debbie Phan (RWQCB) provided helpful reminders for completing, formatting, and submitting annual pollution prevention reports due Mar. 1 (Feb. 28th is a Sunday). Permittees should briefly note if outreach activities were (or could be) cancelled due to COVID; a detailed explanation isn't necessary. She also encouraged permittees not to neglect the "Outreach to Employees" section.

Safer Cleaning Campaign Update

Ciara Pringle from San Francisco Dept. of the Environment provided an update on a planned outreach campaign on safer cleaning products expected to go live around April. Graphics and outreach materials will provided for use by other agencies once the campaign is underway.

Veterinary Outreach Update

Stephanie Hughes provided information about a recent outreach event with the American Veterinary Medical Association (AVMA). On Jan. 22, she and other BAPPG members presented *Introducing the Link Between Consumer Flea and Tick Control and Water Quality* to the AVMA environmental issues committee. AVMA was very receptive to the message and will be determining whether the next step is to endorse the BAPPG message about spot-on flea treatments or to link to the BAPPG website. A recent VIN article also addressed this topic.

Gel Pack Disposal Directions

Stephanie Hughes has researched proper disposal of gel packs, and provided 3 key points:

- The material inside the gel packs is not expected to be toxic.
- Most gel packs are not safe to put down the drain because they can cause drain clogs.
- Some gel packs are formulated to be "drain-safe" and can be safely put down the drain. This terminology is used by at least one company (Nordic) but is not industry-standard.

Pesticide Registration Letters **-** A cyhalothrins comment letter was submitted on 1/11/2021.

Next BAPPG General Meeting: April 7, 2021

Laboratory Committee – Report to BACWA Board

Laboratory committee meeting on: February 9, 2021
Executive Board Meeting Date: March 19, 2021
Committee Chair: Dan Jackson (Union Sanitary District)

Committee Request for Board Action: none

44 attendees (via teleconference only) representing 32 member agencies, plus 5 ELAP Representatives

ELAP Update

Jacob Oaxaca (State Water Board / ELAP) provided an ELAP update, focusing on the Roadmap to ELAP Accreditation. Additional ELAP staff Christine Sotelo, Chris Ryan, and Katelyn Hilty participated in the Q&A session. The 3-year implementation schedule for meeting the new TNI standards allows agencies to take a phased approach to accreditation. Jacob's slides are available on the BACWA website. Key points covered during his presentation and Q&A included:

- The renewal and amendment processes are now separate. Labs cannot add a Field of Accreditation (FOA) at the time of renewal.
- It is not necessary to sign or turn in blank page from the FOA tables in the application.
- Labs should carefully review their FOA submittal; applications cannot be edited once they have been submitted and accepted by ELAP. An amendment application would be required.
- Take advantage of ELAP staff by scheduling a transition appointment. ELAP staff contacts are ELAPCA@waterboards.ca.gov (general questions) or ELAPCA_technical@waterboards.ca.gov (technical questions).
- Annual ethics training is required; labs can start with their agency's ethics training content, then customize it for laboratory staff by focusing on data integrity.
- At this time, it is not possible to provide large files to ELAP via weblink. They must be emailed as ZIP files or as a series of smaller emails.
- Don't place laboratory personnel contact info within the Quality Manual; keep it in a separate document so that the Quality Manual doesn't have to be updated as often.
- ELAP has contracted with A2LA for a series of about 20 training sessions beginning in late February – make sure to sign up! BACWA committee chair and vice-chair attended a beta test session in late January and had positive reports. Training session participants will receive document templates about two weeks before the training session.

Phase 1 PFAS Sampling

Agencies that participated in Phase 1 of the PFAS study will be asked to set up their Geotracker accounts to receive the sample results via upload SFEI. Instructions will be coming soon from SFEI. Also, BAPPG plans to discuss PFAS at its April 7th meeting, and is recruiting a volunteer to share their perspective from participating in the Phase 1 Regional PFAS study. Contact Robert Wilson if interested.

Laboratory Waste

Members briefly discussed several options for disposing of laboratory waste, including using hazardous waste haulers and County-run waste disposal services.

TNI Training

Committee members held a planning discussion for the next laboratory committee meeting, which will be a TNI training workshop. Ideas for content included:

- Presentations from vendors that provide Third Party Assessments or other types of support.
- Mentorship / buddies
- Breakout rooms to discuss templates or other sub-topics related to TNI implementation
- Planning for TNI interpretation workgroups (see also TNI standards interpretation website)

Announcements

- The committee is recruiting for a new Vice Chair.
- The ELAP Conference is June 1-3, 2021.
- Palo Alto is still waiting for final verdict on whether POTWs need to register as medical waste generators. It is up to Santa Clara County.

Next meeting: April 14, 2021, 9 AM – 1 PM (Date changed from Tuesday to Wednesday to accommodate a longer TNI training session)

ermits Committee –
Report to BACWA Board

Permits Committee Meeting on: February 9, 2021
Executive Board Meeting Date: March 19, 2021
Committee Chair: Mary Lou Esparza, CCCSD

Committee Request for Board Action: None

32 attendees by teleconference, representing 20 member agencies.
Action items shown in red.

Chlorine Basin Plan Amendment

- The Basin Plan Amendment is headed to the SWRCB for approval. BACWA has submitted a comment letter supporting its adoption.
- Regional Water Board staff have provided preliminary information about dilution credits to be used in implementing effluent limits for residual chlorine, which was circulated to committee members via email.

Statewide Toxicity Provisions

- The Regional Water Board has prepared draft implementation language for the statewide toxicity provisions within Region 2, as presented at the December 2020 committee meeting.
- New toxicity language is not yet being put in administrative draft or Tentative Order permits. The RWQCB will be required to include the new language for any permits adopted after the provisions become effective (pending OAL and EPA approval, expected later in 2021). Some dischargers may see the language changed late in the permit adoption process, even if it is not included in early drafts.
- The group discussed key questions from review of the draft language. Discussion points and poll results are listed below. Presentation used during discussion of draft toxicity permit language.
  - Committee members would like more training on how to use the TST Spreadsheet tool.
  - Committee members prefer to keep using mysid, to the extent feasible, until new species sensitivity screenings are conducted (8 of 14 votes in the Zoom poll). The second preference was to use the next-most sensitive species from the most recent screening (5 of 14 votes).
  - Committee members prefer estuarine dischargers be allowed to use freshwater species in screenings and routine monitoring (9 of 17 votes were for maximum flexibility; 7 of 17 votes were for flexibility with constraints)
  - To determine whether past results were a “PASS” or “FAIL” at the IWC, committee members recommended an evaluation of results at the concentration that is closest to, but higher than, the IWC (i.e., a deep water discharger with an IWC of 2% would evaluate the 5% and 10% effluent concentration but would not consider results from the 25, 50%, or 100% effluent concentration for TST evaluation).
- BACWA will edit the draft markup of the toxicity language and provide it to Regional Water Board staff for discussion in ~late February.

Climate Change Surveys Planned by Regional Water Board

- 5 BACWA members are currently beta-testing the Regional Water Board’s draft climate change survey. The next step is to assemble the beta-test responses and brainstorm changes that could improve the survey.
- Preliminary response from one beta-tester is that some agencies have prepared planning studies that use different sea level rise projections than those described in the survey. The survey should be worded so as not to imply that this was the wrong approach, given that sea level rise projections continue to change over time.

Nutrients

- BACWA is conducting a nutrient planning implementation survey; responses are due February 16th.
- The 2020 Group Annual Report for the Nutrient Watershed Permit has been completed. The report contains influent data and removal rates for the first time. The group discussed that it could be valuable to see trends for individual plants (in addition to overall trends). BACWA plans to work with HDR to assess year-to-year variability in the loading data (individually and as a group), and the theoretical impact on compliance if load caps were in place.

Next BACWA Permits Committee Meeting: April 13, 2021

Collection Systems Committee
Report to BACWA Board

Collection Systems Committee Meeting: 02/18/2021
Executive Board Meeting Date: 03/19/2021
Committee Chair: Andrew Damron (Napa San)

Committee Request for Board Action: None

41 attendees, representing 30 member agencies, plus 4 guests.

Proposed Infiltration & Inflow (I&I) Pilot Study

Jim Jacobs and Olivia Jacobs of the Clearwater Group presented details about a proposed study to understand and better respond to sanitary sewer overflow conditions. The study is a response to the threat of rising groundwater levels on sewer collection systems. The proposed study plan is to use a network of piezometers with remote telemetry to study water movement between sewer pipes, utility trenches, and groundwater. The utility trench can act as a preferential pathway for water (if not backfilled with native clay soils), and a saturated utility trench can increase I&I. The study goal is to allow operators to distinguish conditions with a flooded utility trench or elevated groundwater levels, as the two conditions would have different operational responses.

The study team is seeking one or more collection system agencies to participate in the study. The ideal study participant would have areas with shallow groundwater, and sewer pipelines installed in a utility trench with non-native backfill.
Link to Presentation Slides

City of Alameda staff shared information about their recently completed report, "The Response of the Shallow Groundwater Layer and Contaminants to Sea Level Rise," by Silvestrum Climate Associates. The report identifies impacts from rising groundwater levels, including the mobilization of groundwater contaminants.

Leadership

Stephen Miksis, O&M Manager of Ross Valley Sanitary District, is the new vice chair of the committee.

SSS WDR Update

On February 12, the State Water Board released an Informal Staff Draft of the revised statewide Sanitary Sewer System Waste Discharge Requirements (SSS-WDR). Two public workshops will be held on March 2nd and March 4th for staff members to receive comments. BACWA members may route comments to Mary Cousins. BACWA is also working with CASA to develop a priority set of comments on the informal staff draft. These comments are likely to touch on provisions related to exfiltration, spill reporting, operator certification requirements, SSMP requirements, and private laterals, among others.
The State Water Board intends to adopt the revised SSS-WDR in 2021, with an effective date in early 2022.

Next Collection System Committee Meeting

Our next committee meeting is currently scheduled for Thursday, May 20th, but will likely be moved up to develop comments on the proposed new SSS-WDR.

Executive Director's Report to the Board

January- February 2021

NUTRIENTS:

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

- Discussed NMS issues and FY21 funding level with Science Manager
- Developed BAR for FY21 NMS funding
- Discussed agency-specific NBS desktop analyses with members and SFEI team
- Reviewed, commented on, and submitted 2021 Group Annual Report
- Worked with science manager to submit annual science plan update to Regional Water Board
- Attended 1/6, 2/3, and 2/16 Planning Subcommittee meetings, drafted and distributed meeting notes
- Distributed and compiled responses from draft member survey on nutrient planning and implementation
- Discussed SOW for data analysis with HDR
- Discussed NMS and nutrient permitting issues with individual Executive Board members
- Developed Contract and SOW, and Task 1 notice to proceed for NMS Technical Reviewer
- Reviewed NMS manuscripts

EXECUTIVE BOARD MEETING AND SUPPORT

- Edited minutes and action items from 12/20 Executive Board meeting
- Worked with BACWA staff to plan and manage 1/15 Executive Board meeting
- Conducted the Executive Board meeting agenda review with the BACWA Chair
- Continued to track all action items to completion
- Worked with media consultant to plan BACWA Annual members meeting
- Developed moderator script, Year in Review, and Watershed Permit/Governance Update presentations for Annual meeting
- Participated and managed BACWA Annual members meeting on 2/19

COMMITTEES:

- Planned and attended 2/9 Permits Committee meeting
- Attended 2/9 Lab Committee meeting
- Planned 3/1 Managers Roundtable meeting
- Met with BAPPG leadership, CVCWA, and CASQA to plan future collaboration on pesticides regulatory advocacy
- Participated in 1/13 AIR committee meeting
- Participated in 1/29 Recycled Water Committee meeting
- Planned and attended Collection Systems Committee on 2/18
- Planned and attended O&M Infoshare meeting on 2/24

REGULATORY:

- Reviewed CASA comments on OPC microplastic removal through wastewater treatment study
- Reviewed and commented on proposed language for NPDES implementation of State Toxicity Provisions; attended meeting to discuss with R2 staff on 2/25
- Reviewed proposed AB377 and discussed with members
- Participated in meeting on R2 Climate Change vulnerability survey with agencies participating in test drive

FINANCE:

- Reviewed the monthly BACWA financial reports, summary, and budget to actual tracking sheet for November 2020
- Responded to FY19 audit queries from MAZE Consultants
- Worked with AED to develop proposed FY22 budget
- Worked with RPM to update nutrient surcharge calculations for FY22
- Updated 5-year plan
- Conducted first FY22 Finance committee meeting on 2/25
- Reviewed and approved invoices

COLLABORATIONS:

- Attended CASA Winter Conference
- Attended CASA Collection Systems Workgroup meeting on 1/20
- Attended CASA RWG meetings on 1/21 and 2/18
- Attended CASA Microplastic Workgroup Meeting on 2/9
- Participating in State of the Estuary Steering Committee meetings on 1/25 and 2/25
- Discussed BACWA JPA management with BAASMA
- Developed and delivered presentation on Bay Area Nutrient Management Strategy and Watershed Permit to the Water Environment Association of Texas
- Met with Summit Partner leaders to discuss next steps on PFAS reporting
- Discussed Estuary Blueprint Recycled Water actions with SFEP staff
- Participated in IRWMP meeting to discuss use of funds from 4-party agreement

ASC

- Reviewed materials sent via email by ASC ED
- Participated in 1/29 ASC Board meeting
- Discussed ASC compliance with Brown Act with ASC ED

BABC:

- Attended meetings on 1/11, 2/1, and 2/8 and developed meeting summaries

BACC:

- Reviewed bid document language
- Developed contract for attorney review of bid documents
- Worked with AED to select electronic bid management software vendor, including vendor demo
- Discussed liability issues and approaches with BACWA Chair

BACWA Workshops

- Planned and hosted 2/5 Power Supply Reliability Infoshare meeting

ADMINISTRATION:

- Planned for and conducted the monthly BACWA staff meeting to prepare for the Board Meeting and to coordinate and prioritize activities.
- Signed off on invoices, reviewed correspondence, prepared for upcoming Board meetings, responded to inquiries on BACWA efforts, oversaw updating of web page and provided general direction to BACWA staff.
- Worked with the 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.
- Worked with AED to select form 700 e-filing vendor, including vendor demo

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 interview questions with City of Calgary on BACWA JPA structure
- Responded to Board members requests for information

Board Calendar

April 2021 – June 2021 Meetings

DATE	AGENDA ITEMS
April 16, 2021 Online Meeting 9-1pm	**Approval & Authorizations:** • Final 2022 budget and workplan **Policy / Strategic Discussion:** • Results of PFAS Phase 1 and Phase 2 discussion • PFAS - Phase 1 Study Update, and Discussion of PFAS Ban & Decontamination • Mike Connor review **Operational:** • Date of 2022 Annual Meeting
May 21, 2021 Online Meeting 9-1pm	**Approval & Authorizations:** • FY22 Staff contract amendment • FY22 Other contract amendments **Policy / Strategic Discussion:** • Mike Connor NMS review \ FY22 contract **Operational:** •
June 18, 2021 Online Meeting 9-1pm	**Approvals & Authorizations:** • Pesticides/BAPPG support contract • FY22 Contracts **Policy / Strategic Discussion:** **Operational:**

BACWA ACTION ITEMS

Number	Subject	Task	Responsibiity	Deadline	Status
	Action Items from January 2021 BACWA Executive Board Meeting		**resp.**	**deadline**	**status**
2021.1.24	Survey on Nutrient Planning and Implementation	Send survey to membership	ED	1/22/2021	complete
2021.1.25	Survey on Nutrient Planning and Implementation	HDR contract	ED	1/22/2021	complete
2021.1.26	Annual Meeting Planning	Adjust annual meeting timing and post agenda next week.	ED	1/22/2021	complete
2021.1.27	BACWA Participation in W&C/UMass proposal	Circulate a letter for board feedback	RPM	1/31/2021	complete
2021.1.28	Form 700 Conflict of Interested	Email process to required submitters.	AED	1/31/2021	complete
2021.1.29	Schedule next meeting with BAAQMD management	Work with Sarah D	ED \ RPM	1/31/2021	complete
2021.1.30	Prepare letters of support for BACWA members regarding BACT for generators	Work with Sarah D	ED \ RPM	1/31/2021	complete
2021.1.31					
	Action Items Remaining from Previous BACWA Executive Board Meetings				
2019.7.05	Sewer Rate Survey	Post as Google Sheet, and publicize update	RPM	8/31/2019	pending

FY21: 30 of 30 Action items completed
FY20: *69 of 70 Action Items completed*
FY19: *110 of 110 action Items completed*
FY18: *66 of 66 Action Items completed*
FY17: *90 of 90 Action Items completed*

Regulatory Program Manager's Report to the Executive Board

January 2021

ANNUAL MEETING: Circulated registration information for Annual Meeting to BACWA members.

ANNUAL REPORT: Completed Annual NPDES permit compliance letter.

BACWA BULLETIN: Circulated January 2021 Bulletin.

CLIMATE CHANGE: Identified climate change survey "test drivers" and coordinated with Regional Water Board to circulate draft survey.

TOXICITY: Reviewed draft NPDES permit language prepared by Regional Water Board for implementation of new statewide toxicity provisions within Region 2, compiled comments received from BACWA members, and prepared markup for discussion with Regional Water Board staff.

NUTRIENTS: Reviewed draft 2020 Group Annual Report for Nutrient Watershed Permit, and provided comments to consultant team.

REGULATORY MATRIX: Prepared draft January 2021 version of Key Regulatory Issue Summary for review by Executive Director and committee leaders.

COMMITTEE SUPPORT:
BAPPG – Attended steering committee meeting, coordinated with committee leadership regarding annual report, and discussed transition of pesticide-related tasks to new consultant team.
Collection System Committee – Recruited new vice-chair and coordinated for February 2021 meeting.
Lab Committee – Coordinated with committee leadership to plan TNI training and February 2021 committee meeting.
Permits Committee – Prepared agenda and toxicity slides for February 2021 committee meeting.
Recycled Water Committee – Prepared for, attended, and prepared notes for January 2021 committee meeting.
Executive Board – Attended Executive Board meeting and reported on letter of support for Woodard & Curran nutrient proposal.

ADMINISTRATION/STAFF MEETING – Participated in monthly staff meeting.

BACWA MEETINGS ATTENDED:
BAPPG Steering Committee (1/12)
AIR Committee (1/13)
Recycled Water Committee (1/19)
Executive Board (1/15)

EXTERNAL EVENTS ATTENDED:
Summit Partners PFAS Workshop #3 (1/6)
CASA Regulatory Workgroup - Water (1/21)
CASA Collection Systems Committee (1/20)
SB1383 Regulatory Overview (1/21)
CASA ACE Committee (1/26)
CASA-CWEA Covid-19 Update (1/27)

Regulatory Program Manager's Report to the Executive Board

February 2021

ANNUAL MEETING: Prepared for and participated in Annual Meeting for BACWA members by presenting on anticipated climate change surveys from State and Regional Water Boards.

BACWA BULLETIN: Circulated February 2021 Bulletin.

CLIMATE CHANGE: Worked with climate change survey "test drivers" to obtain draft results and summarize feedback on the format and content of the survey.

TOXICITY: Prepared for and participated in meeting with Regional Water Board staff to discuss implementation of new statewide toxicity provisions within Region 2.

NUTRIENTS: Coordinated with consultants preparing Group Annual Report, completing recycled water study, and providing nutrient technical support.

REGULATORY MATRIX: Finalized February 2021 version of Key Regulatory Issue Summary.

COMMITTEE SUPPORT:

BAPPG
- Coordinated with CASQA and CVCWA regarding scope of regulatory support for coming fiscal year.
- Attended and prepared notes for February 2021 committee meeting.

Collection System Committee
- Prepared for, attended, and prepared notes for February 2021 committee meeting.
- Reviewed Internal Staff Draft of Sanitary Sewer Systems Waste Discharge Requirements (SSS-WDR), and participated in CASA-led conference calls.

Lab Committee
- Attended and prepared notes for February 2021 committee meeting.
- Assisted with development of plan for April 2021 TNI Training session

Permits Committee
- Prepared for, attended and prepared notes for February 2021 committee meeting.

ADMINISTRATION/STAFF MEETING – Participated in monthly staff meeting.

BACWA MEETINGS ATTENDED:
BAPPG (2/3)
Power Supply Reliability Infoshare (2/5)
Lab Committee (2/9)
Permits Committee (2/9)
Collection System Committee (2/18)
Annual Members Meeting (2/19)
O&M Infoshare (2/24)

EXTERNAL EVENTS ATTENDED:
East Bay Leadership Council (2/16)
CASA OAH Subgroup (2/17)
CASA Air Quality Workgroup (2/25)
CASA SSS-WDR Review Meetings (2/23, 2/24)

Lorien Fono

From: Jared Voskuhl <JVoskuhl@casaweb.org>
Sent: Wednesday, February 3, 2021 3:32 PM
Subject: [Regulatory] CASA February 2021 Regulatory Update

Categories: Board Packet

Good Afternoon,

Please find below regulatory updates from January and for February.

Our next workgroup meetings will be through Zoom on Thursday, February 18. Please pass along items you would like agendized, and let us know if you have any problems accessing these hyperlinked materials.

Thank you,
The RWG Team

WATER QUALITY

Toxicity Provisions Cerio Study Request & Stakeholder Advisory Committee Update
On January 20, CASA reached out to our members to request funding commitments or in-kind lab contributions to support the current SCCWRP study for developing quality assurance recommendations for the ceriodaphnia dubia toxicity test. This endeavor provides a unique opportunity to CASA members to shape the final report through the scoping of the study by putting forward additional elements we want included in the study workplan and providing in-kind lab services and/or monetary contributions to ensure their delivery.

Also on January 20, the Stakeholder Committee for the *Cerio* Study met to discuss the scope and workplan and to endorse their selections for the Science Advisory Panel. The selections for the Science Advisory Panel have now been released, and they are Robert Brent, Howard Bailey, Teresa Norberg-King, Leana Van der Vliet, and John Bailer. The Stakeholder Subcommittee is expected to meet again later in February.

Please reach out to Jared Voskuhl with questions about participation, updates, or your interest to be involved.

PFAS Regional Water Board Updates – North Coast (R1) & Santa Ana (R8)

On February 4 and 5, the North Coast Region 1 and Santa Ana Region 8 Water Boards, respectively, will receive PFAS related updates by staff from the State and Regional Water Boards. For the Region 1 agenda, the update will come during Item 6 and feature a report out on the California Water Boards' PFAS Investigation. For the Region 8 agenda, the update will be heard on Item 13, and Staff will provide the status of PFAS investigations in the Santa Ana Region and some of the challenges in characterizing and cleaning up the contamination, in addition to a description of the background and historical use of PFAS, the federal and state regulatory standards for PFAS in drinking water, the available analytical and treatment methods, the evolving regulatory actions by California agencies, and the Water Board's state-wide investigations of PFAS impacts from a variety of sources.

OPC Meeting on February 16
On February 16, the Ocean Protection Council (OPC) will hold their first meeting since September 2020. The agenda is available here, and it is scheduled to feature the Top 10 recommendations of the Natural Resources Agency and Environmental Protection Agency for addressing plastic pollution in California's coastal and marine ecosystems. This document has not been released yet, but written comments on it or any other agendas items should be submitted by 9 AM on February 15, 2021 to this address. Please reach out to Jared Voskuhl with questions.

CASA Submits Remarks to the OPC Research Team for Microplastics POTW Study
On February 3, CASA submitted recommendations to the Ocean Protection Council's research team who are working on the June 2020 funded research of microplastics treatment removal efficiency of POTWs. Thank you to Shelly Walther and Violet Renick for their technical contributions and composition of our comment letter. We aim to meet with the researchers in the coming months, as their workplan is developed and finalized. Please reach out to CASA's Alma Musvosvi to be added to our Microplastics Subgroup, which is meeting next on February 9 at 3:00 PM.

CASA and WateReuse Submit Comment to SWB on Annual Volumetric Survey
On January 29, WateReuse California (WRCA) and CASA submitted a comment letter to the State Water Board, to follow-up on the recent informational item that came before the Board on January 5 featuring the results of the first annual volumetric survey for wastewater and recycled water. Please contact Jennifer West of WRCA to follow-up about her outreach and next steps, and a big thank you to her and her team for leading the efforts addressed in the letter and preparing the correspondence to the State.

CASA Submits Comments to US EPA on NWRAP Action 2.2.6
On January 22, CASA submitted comments and provided markup on the draft Questions and Answers document for US EPA's National Water Reuse Action Plan Action 2.2.6 about permitting reuse projects. Dave Smith with US EPA Region 9 will be processing the feedback he received over the coming month, and we expect a spring meeting to go onto next steps.

Related to the NWRAP, there will be a Stormwater Capture webinar in association with Action 2.3.3, for which you may register here. The program will feature stormwater management leaders from around the US discussing stormwater capture motivations and drivers, barriers to progress, and future directions. The audience will learn about the different motivators, unique strategies, and opportunities to market and advance stormwater capture across the U.S. Please reach out to Jared Voskuhl with questions about these items.

State Water Board Hearing on City of Oceanside and Fallbrook PUD Permits

On February 16, the State Water Board will hold a hearing on their Draft Order pertaining to the Petitions for Review of a batch of permits the San Diego Regional Water Board adopted last year, which impose a bevy of new obligations on the City of Oceanside and Fallbrook Public Utilities District that may total nearly two million dollars in new costs over the permits' terms and feature extensive and novel monitoring requirements for HF 183 and bacteria monitoring and plume tracking. Comment letters are due by noon on Monday, February 8, and CASA is preparing to submit remarks. Please reach out to Melissa Thorme with Downey Brand with questions or if interested in the proceedings.

Water Quality Fees Stakeholder Meeting – PFAS Site Cleanup BCP
On February 18, the State Water Board will host a stakeholder meeting for the waste discharge permit fund and associated water quality fees for fiscal year 2021-22. The supporting materials have not been released, but the Governor's January budget was released last month. Based on projections from last year, an initial increase of 8.9% in fees is anticipated this year, beyond other increases derived from Budget Change Proposals (BCPs).

You may download the current index of BCPs here from the Department of Finance which the Administration will submit to the Legislature, or search the database here. Upon review, there are 5 listed at the State Water Board (numbers 213 – 217), 3 of which are notable because they are sourced to water quality fees: Industrial Stormwater Dischargers (6 FTE / $951k), Wastewater Operator Computer-Based Certification ($150k annually), and a PFAS "Site Cleanup Program Investigation and Cleanup" (21 FTE / $4.2m annually) focused on sites such as airports, chrome plating facilities, bulk fuel terminals and refineries.

We'll reach out to our Fees Subgroup when the meeting materials are released, so please contact Alma Musvosvi if you want to be included on the distribution list.

CWSRF and WIFIA Webinar on American Iron and Steel Requirements
On February 9, US EPA is hosting a webinar for the State Revolving Fund (SRF) and Water Infrastructure Financing Innovation Act (WIFIA) programs pertaining to the American Iron and Steel (AIS) requirements. A flyer is available here, and you may register here. The topics to be discussed include AIS requirements, roles and responsibilities, project and product coverage, documenting compliance, waivers, and AIS resources. Agencies receiving SRF or WIFIA funds must comply with the mandates to buy American iron and steel, and this webinar will provide detailed information to ensure fulfillment of obligations. For more information, visit the US EPA's program page.

US EPA Releases ANPRM for PFOA and PFOS under CERCLA
On January 14, US EPA released an Advanced Notice of Proposed Rulemaking for PFOA and PFOS (ANPRM) to seek public comments and data to assist in the consideration of potential development of future regulations pertaining to PFOA and PFOS under CERCLA. Comments will be due 60-days after publication in the Federal Register, and CASA plans to coordinate with NACWA and our member agencies, as our sector was identified amongst five broad categories of entities potentially affected. Please reach out to Jared Voskuhl with your input or commentary.

US EPA PFAS Destruction Technologies Webinar
On February 17, US EPA will host a webinar on PFAS destruction technologies.
In working to find solutions to address PFAS issues in communities across the nation, US EPA established their PFAS Innovative Treatment Team (PITT) to concentrate on exploring disposal and destruction options for PFAS-contaminated waste. During the PITT's operation, the team worked together to (1) assess current and emerging PFAS

destruction technologies being explored by EPA, universities, other research organizations and industry, (2) explore the efficacy of these PFAS destruction technologies, including consideration of potentially hazardous byproducts, and (3) evaluate the feasibility, performance and cost of various PFAS destruction methods to better understand potential solutions. The presentation later this month will highlight the results of the PITT's research and next steps for PFAS waste treatment technologies. You may register here.

Central Valley Salt Control Program Webinar on February 10
On February 10, the Central Valley Salinity Coalition will host a webinar for the Salt Control Program, as permittees must select their salt control permitting pathway by July 15, 2021. You may register for it here. If you have recently received a salt control program Notice to Comply, this event will provide information about the new requirements and your compliance choices. The programming will include an overview of the CV-SALTS program, compliance options, salinity studies and management options, the fee structure, and a Q&A opportunity. Please reach out to Debbie Webster with questions or for further details.

CWQMC Meeting on February 11
On February 11, the California Water Quality Monitoring Council will hold its quarterly meeting, which will be the first for new Council co-chair, the OPC's Mark Gold. The meeting Notice is available here, and there will be updates on several items of interest, including wastewater-based epidemiology. Please reach out to Shelly Walther (Council Representative) and Jared Voskuhl (Alternate) with questions or remarks.

US EPA Webinar on Coastal Acidification Now Available Online
At the beginning of December, US EPA hosted a webinar on ocean and coastal acidification (OCA). During the event, five speakers presented on several topics including, OCA impacts and mitigation strategies, seagrass restoration, and refugia restoration. You now may access the recordings, which are available here. Please reach out to Alma Musvosvi to be added to our Ocean Acidification Subgroup.

BACWA 2021 Annual Meeting
On February 19, the Bay Area Clean Water Agencies (BACWA) will host their annual meeting virtually. The program is here, and you may register here. Please reach out to Mary Cousins with questions!

NACWA Winter Conference 2021
On February 24 and 25, the National Association of Clean Water Agencies (NACWA) will conduct their winter conference virtually. The program is here, and you may find the link to register here.

SWB 3-Yr Polices Calendar and 2021 Strategic Workplan
This winter, the State Water Board has released two comprehensive planning documents, their 2021 Strategic Work Plan and their 2021-2023 Statewide & Regional Water Policies table with contemporary updates about the latest status for numerous programs. Our Regulatory Workgroup's Water Committee will take up these two items at their February 18 meeting, to discuss the Board's planned schedule to move on multiple items of interest to CASA members. As you're able, please reach out to Jared Voskuhl with you thoughts or comments about the information contained within these materials.

SWB Meeting Agendas and Executive Director's Reports
Here are the recent State Water Board agendas for their meetings on January 5 (volumetric annual reporting for wastewater and recycled water), January 19 & 20 (WDR

for winery process water), and February 2 (total coliform rule). The Executive Director reports are available for December (statewide and regional policies and significant general permits) and January (WBE, toxicity study kick-off meeting).

BIOSOLIDS

CASA Hosts SB 1383 Webinar with CalRecycle
On January 21, CASA and CalRecycle hosted a webinar to discuss the recently approved regulations to implement SB 1383. Thank you to those who were able to participate, but if you missed it, the session was recorded and is available at this link, with the presentation slide deck available here, and the Q&A from the event available here. CalRecycle's SB 1383 homepage also provides new resources, including numerous FAQs on different elements and Model Tools. Please reach out to Greg Kester if you have further questions.

CalRecycle To Host SB 1383 Regional and Statewide Webinars
On February 2, CalRecycle kicked off their SB 1383 Q&A Regional Webinar Series taking place during February and March, in coordination with HF&H Consultants. Each regional webinar will be 3-hours and cover collection (Article 3), procurement, and edible food recovery requirements. Each topic will be covered for one hour and most of the time will be open for stakeholders to ask questions. Please note you are not limited to only attending your region's webinar; you may attend others as well. Formal agendas will be announced closer to the dates.

Additionally, on February 4, CalRecycle will also host one statewide webinar to cover solid waste facility requirements and related questions. This will include a short presentation covering the requirements with the remaining time available for questions. If there are any questions you would like to send prior to one of the webinars, please submit them to the SLCP inbox with the subject line: "[Insert Region] Regional Webinar Question" or "Solid Waste Facility Statewide Webinar Question."

Regional Webinars Dates and Times:

- Central Valley: February 2, 9:00 AM – 12:00 PM
- Statewide Solid Waste Facilities: February 4, 9:00 AM – 10:00 AM
- Los Angeles and Orange Counties: February 10, 1:00 PM – 4:00 PM
- Southern California: February 18, 9:00 AM – 12:00 PM
- Bay Area: March 11, 1:00 PM – 4:00 PM
- Central Coast: March 25, 1:00 PM – 4:00 PM
- Northern California: March 30, 9:00 AM – 12:00 PM

The GoToWebinar links are embedded for each of the dates above, but for those who only wish to watch the webinar, the customary webcast remains available here and should be used unless you intend to comment or provide questions during the webinar, in which case you should use the GoToWebinar for the respective session you are interested in attending. (The webinars also will be recorded and posted on the web as an additional implementation resource.) We will look forward to hearing the report outs from these meetings during our February workgroup meeting. Please reach out to Greg Kester with questions.

CASA Submits Comments on US EPA's Interim Guidance on PFAS Destruction and Disposal
On January 22, CASA submitted comments on EPA's Interim Guidance on PFAS Destruction and Disposal. Comments will be accepted up to February 22, however the land application of biosolids is not within the scope of this document and the interim guidance does not say anything about biosolids management except in the rare, contaminated situation. To be sure, they do not indicate any level of PFAS for which mitigation is necessary, leaving it to others, and instead only offers options for biosolids for which it has been determined mitigation is required. Please reach out to Greg Kester with your thoughts or questions.

Peer Reviewed Rebuttal Letter Published on Misguided COVID Article
On December 31, the journal *Science of the Total Environment* published this rebuttal letter in response to an article alleging danger to marine mammals from SARS-CoV-2 released to marine environments from wastewater. The rebuttal letter took exception to many of the points in the article, while acknowledging the need to ensure protection for all marine life. Many thanks to Jessica Gauger for bringing the original article to Greg Kester's attention, to Rasha Maal-Bared (EPCOR) for her leadership in drafting the rebuttal, and to all of our co-authors, each listed in the letter. Please let Greg know if you have any questions or comments.

CASA-CWEA COVID Webinar on January 27
On January 27, CWEA and CASA hosted another webinar on wastewater based epidemiology, with presentations by the CDC's Dr. Amy Kirby, amongst others. Please reach out to Greg Kester with topics you are interested in hearing about at the next event in this series.

WEF Announces New Director of Sustainable Biosolids Programs
On January 21, after a multi-month search, the Water Environment Federation (WEF) announced that Maile Lono-Batura was selected as their new Director of Sustainable Biosolids Programs. Maile previously served as the longtime executive director of the Northwest Biosolids and will transition into her new role in mid-March. We look forward to continuing to collaborate with Maile as she begins her new role as a national leader in biosolids!

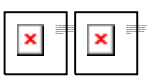
NW Biosolids Library
The first research library of 2021 from Dr. Sally Brown and NW Biosolids is available here. This month's topic is fecal indicator bacteria and the potential pathogenic contributions from stormwater and wastewater to oceans and fresh water. The introduction to the articles is available here. If you would like the complete articles, please contact Greg Kester.

DATES

Feb. 2	SWB Meeting
Feb. 3	US EPA WateReuse Stormwater Capture Webinar

Feb. 4	R1 RWB Meeting (PFAS Update)
Feb. 5	CASA Attorneys Committee
Feb. 5	R8 RWB Meeting (PFAS Update)
Feb. 9	CWQMC Environmental Flows Workgroup
Feb. 9	US EPA SRF & WIFIA Webinar on AIS
Feb. 10	Central Valley Salt Control Program
Feb. 11	CWQMC Meeting
Feb. 16	SWB Meeting
Feb. 16	OPC Meeting (Agenda)

Feb. 16	SWB Hearing on Oceanside/Fallbrook Permits
Feb. 17	US EPA PFAS Destruction Technologies Webinar
Feb. 18	CASA Regulatory Workgroup
Feb. 18	SWB WQ Fees Workshop
Feb. 19	BACWA Annual Meeting (Virtual)
Feb. 24-25	NACWA Winter Conference (Virtual)
Feb. 25	CASA ACE Workgroup
Mar. 2	SWB Meeting
Mar. 5	SCCWRP Commission (Ocean Acidification)



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