BACWA
BAY AREA
CLEAN WATER
AGENCIES

Executive Board Meeting
AGENDA
Friday, February 18, 2022 9:00 AM - 12:30 PM (PDT)

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

Agenda Item		Time	Pages
ROLL CALL, INTRODUCTIONS, AND TELECONFERENCE ETIQUETTE		**9:00 AM**	
CLOSED SESSION to discuss personnel matters pursuant to California GovernmentCode section 54957.		**9:05 AM**	
PUBLIC COMMENT	Guidelines	**9:30 AM**	
CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER			
CONSENT CALENDAR		**9:35 AM**	
1 Resolution to continue teleconferencing Executive Board meetings (AB361)			**3-4**
2 January 10, 2022 Special Executive Board meeting minutes			**5-6**
3 January 14, 2022 BACWA Executive Board meeting minutes			**7-13**
4 January 27, 2022 Special Executive Board meeting minutes			**14**
5 December 2021 Treasurer's Report			**15-22**
APPROVALS AND AUTHORIZATIONS		**9:40 AM**	
6 Authorization: Contract with Richard Cunningham			**23-24**
POLICY/STRATEGIC		**9:45 AM**	
7 Discussion: Recycled Water Committee Proposal to develop site supervisor training video			
8 Discussion: Nutrients			
a. Technical Work			**25-33**
i. Feb 15 Assessment Framework workshop debrief			
b. Regulatory			
i. 2022 GAR Submittal	2022 Group Annual Report		
ii. Update on baseline evaluation			
iii. Future funding for the NMS	2020 NMS Charter		
c. Governance Structure			
i. Feb 2, 2022 Planning Subcommittee meeting notes			
9 Discussion: BACWA recognition of Bisolids in the Baylands White Paper			**34-86**
BREAK		**10:30 AM**	
10 Discussion: Proposed agenda for BAAQMD workgroup meeting			**87**
11 Discussion: Funding for CASA engagement on ACE, and lobbying status	FPPC Lobbying Manual		**88-96**
12 Informational: Regulatory Matrix Update			**99-114**
13 Informational: PFAS Phase 2 SAP update			
14 Discussion: SSS WDR update and response	Public Draft SSS-WDR		**115**
OPERATIONAL		**11:45 AM**	
15 Discussion: FY23 Draft Budget			**116-121**
16 Informational: BACC Update			
17 Discussion: 2022 Annual Meeting Program and logistics			**122**
18 Informational: Kickoff of Bruce Wolfe memorial scholarship			
REPORTS		**12:20 PM**	
19 Committee Reports	AIR Committee Slides		**123**
20 Member highlights			
21 Executive Director Report			**124-125**
22 Board Calendar and Action Items			**126-127**
23 Regulatory Program Manager Report			**128**
24 Other BACWA Representative Reports			**129-136**
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; Amit Mutsuddy		

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; Florence Wedington		
i. NACWA Emerging Contaminants	Karin North; Melody LaBella		
j. CASA State Legislative Committee	Lori Schectel		
k. CASA Regulatory Workgroup	Lorien Fono; Mary Cousins		
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		
v. California Water Quality Monitoring Council	Lorien Fono		

25 **SUGGESTIONS FOR FUTURE AGENDA ITEMS**	**12:29 PM**	

NEXT MEETING		
The next meeting of the Board is scheduled for March 18, 2022		

ADJOURNMENT	**12:30 PM**	

BAY AREA CLEAN WATER AGENCIES
RESOLUTION NO. R-22-06

RESOLUTION AUTHORIZING REMOTE TELECONFERENCE MEETINGS PURSUANT TO AB 361

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

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

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

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

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

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

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

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

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

WHEREAS, since issuing Executive Order N-08-21, the highly contagious Delta variant of COVID-19 has emerged, causing an increase in COVID-19 cases throughout the State and local Counties; and

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

WHEREAS, because of the rise in cases due to the Delta variant of COVID-19, the BACWA Executive Board is concerned about the health and safety of all individuals who intend to attend BACWA Executive Board and Committee meetings; and

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

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

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

BAY AREA CLEAN WATER AGENCIES
RESOLUTION NO. R-22-06

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

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

PASSED AND ADOPTED THIS 18th DAY OF FEBRUARY, 2022.

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

ATTEST:

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

Nutrient Strategy Team
January 10, 2022 Meeting Summary

ATTENDEES:

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

Other Attendees:

Name	**Agency/Company**
Lorien Fono, Mary Cousins	BACWA
Linda Sawyer	Brown & Caldwell
Blake Brown, Dan Frost, Jean-Marc Petit, Mary Lou Esparza	CCCSD
Amanda Roa	Delta Diablo
Don Gray	EBMUD
Tom Hall	EOA
Jordan Damerel, Meg Herston, Talyon Sortor	FSSD
Karin North	Palo Alto
Eric Dunlavey	San José
Azalea Mitch	San Mateo
Nohemy Revilla	SFPUC
Emma Hinojosa	Sunnyvale
Connie Li, Tim Grillo	USD
Jennifer Harrington	Vallejo F&WD

Amit Mutsuddy called the meeting to order at 3:02 pm.

The primary objectives of the meeting were to (1) update the team on recent conversations with the Regional Water Board about the 3rd watershed permit, (2) provide an overview of ongoing work to statistically re-evaluate proposed load limits, and (3) plan for future engagement with the Regional Water Board.

Based on discussions with Regional Water Board staff during Fall 2021:

- The Regional Water Board intends to reissue the 3rd watershed permit on time (mid-2024).

- A "One-Bay" approach is preferred for the enforceable load cap, rather than load caps for each subembayment. Impacts to specific subembayments would still be part of the Assessment Framework and science plan, but subembayment limits are not needed in order to implement an antidegradation-based load limit.

- In addition to one load cap for the entire bay, agencies would have individual load targets that trigger planning discussions with Regional Water Board staff. These targets are not envisioned to be numeric effluent limits. Load targets should be set high enough to give sufficient time for planning, but low enough that POTWs cannot defer action indefinitely.

- Regional Water Board staff are open to re-evaluating load cap calculations, and BACWA has contracted with HDR to conduct statistical analysis for this re-evaluation. The group discussed that proposed load caps (both targets for individual agencies and the One-Bay limit) should make sure to capture:
    - Population growth, including growth that could occur to accommodate housing under the state's Regional Housing Needs Allocation (see ABAG Regional Allocation report, which calls for more than 440,000 additional housing units to be added in the Bay Area by 2031). Bay Area municipalities will be updating their Housing Elements in 2022.
    - Loading from co-digestion of diverted organics such as food waste;
    - Loading from changes to solids handling (e.g., thermophilic digestion) being implemented for SB1383 compliance;
    - A method for evaluating performance compared to the load limit and/or targets;

Based on the load planning survey conducted in 2021, BACWA will be preparing a memo summarizing individual member agencies' current plans for load reduction projects. The memo will also discuss load reductions from multi-benefit projects such as recycled water projects or nature-based treatment systems. Finally, the memo will (roughly) estimate expected changes in TIN loading due to organics diversion projects and changes in solids handling.

Separately, HDR will be preparing a presentation and memo regarding options for calculating load caps and/or targets based on the results of their statistical analysis.

The group discussed the current list of key tenets for the 3rd watershed permit, focusing in particular on the appropriate level of science funding for the 3rd watershed permit and beyond. The monitoring program and science program may ultimately be integrated into the RMP (either during or after the term of the 3rd watershed permit), and it may be helpful to have discussions with the Regional Water Board about a sustainable funding plan that extends beyond the 3rd watershed permit.

NEXT STEPS

- BACWA will prepare a draft memo regarding agencies' implementation plans, which will be circulated to the NST for review in late January or February 2022.

- The next NST meeting will include a discussion of HDR's statistical analysis of loading data to develop a proposal for load cap/target calculations.

- In April or beyond, the NST and Regional Water Board will hold a joint workshop to discuss development of load caps/targets.

Executive Board Meeting Minutes

January 14, 2022

ROLL CALL AND INTRODUCTIONS

Executive Board Representatives: 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); Amit Mutsuddy (City of San Jose).

Other Attendees and Guests:

Name	Agency/Company
Amanda Roa	Delta Diablo
Andrew Damron	Napa Sanitation
Aaron Winer	West County Water District
Blake Brown	Central Contra Costa Sanitary District
Craig Centis	City of Millbrae
Diane Griffin	DSRSD
Don Gray	EBMUD
Dave Richardson	Woodard & Curran
David Sedlak	UC Berkeley
Jared Voskuhl	CASA
Jennie Pang	SFPUC
Jennifer Dyment	BACWA
Jimmy Mach	City of Oakland
Jim Graydon	Woodard & Curran
Linda Sawyer	Brown & Caldwell
Lorien Fono	BACWA
Mary Cousins	BACWA
Meg Herston	FSSD
Melody Tovar	City of Sunnyvale
Michael Connor	Consultant
Mike Falk	HDR
Robert Wilson	City of Santa Rosa
Ryujiro Tsuchihashi	Jacobs Engineering
Sarah Deslauriers	Carollo Engineers
Samuel Feldman-Crough	EBMUD
Talyon Sortor	FSSD
Tom Hall	EOA

Amit started meeting at 9:02 am

ROLL CALL, INTRODUCTIONS, AND TELECONFERENCE ETIQUETTE

PUBLIC COMMENT Jim Graydon asked group for participants for a WRRF 5087 study. Jim to contact Mary Cousins to send survey to members.

CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER Item 19 was moved to Item 1.

CONSENT CALENDAR

1 Resolution to continue teleconferencing Executive Board meetings (AB361)

2 December 13, 2021 Special BACWA Executive Board meeting minutes

3 December 17, 2021 BACWA Executive Board meeting minutes

4 January 6, 2022 Special Executive Board meeting minutes

5 November 2021 Treasurer's Report

Consent Calendar Items 1 thru 5: *A motion to approve was made by Lori Schectel (Central Contra Costa Sanitary District) and seconded by Amit Mutsuddy (City of San Jose). The motion was approved unanimously.*

APPROVALS AND AUTHORIZATIONS

6 Approval: FY22 NMS Payment #2 $1.2M

Approval Item 6: *A motion to approve was made by Jackie Zipkin (East Bay Discharges Authority) and seconded by Amy Chastain (SF Public Utilities Commission). The motion was approved unanimously.*

7 Approval: 2021 Strategic Plan update

Approval Item 7: *A motion to approve was made by Amit Chastain (SF Public Utilities Commission) and seconded by Eileen White (East Bay Municipal Utility District). The motion was approved unanimously.*

8 Approval: FY22 One Water Invoice $5k

Approval Item 8: *A motion to approve was made by Jackie Zipkin (East Bay Discharges Authority) and seconded by Amit Mutsuddy (City of San Jose). The motion was approved unanimously.*

POLICY/STRATEGIC

9 Discussion: Nutrients

a. Technical Work

i. Jan 11 Assessment Framework workshop debrief - Executive Director shared slides summarizing the Assessment Framework for Lower South Bay margins and sloughs. The Assessment Framework is using a three-pronged approach: Virginia Province Approach, Metabolic Index and Fish Community Data. The work schedule calls for completion of the Assessment Framework by mid-2023 so it can be used in development of the 3rd watershed permit.

b. Regulatory

i. 2022 GAR Presentation - Mike Falk gave an overview of the past 9 years of nutrient effluent loading data, recent influent data, details by subembayment, and recycled water volumes. Mike summarized the trends & results from the draft 2021 Group Annual Report. With respect to the statistical analysis of past data, Mike discussed the fundamental issue – how to effectively develop a baseline and project forward based on limited historical plant data. The slides are available here. Group discussion followed.

Action item: *Executive Director to follow up with Science Manager on whether load decreases reported in GAR are observable in receiving waters.*

ii. NST meeting debrief - Executive Director shared the timeline of meetings to prepare for a Watershed Permit workshop with the Water Board in the spring.

c. Governance Structure

i. January 5, 2022 Planning Subcommittee meeting notes

ii. 2022 NMS meeting schedule - Executive Director shared slide with NMS Engagement Schedule for the remainder of FY22 to give input on the NMS FY23 Work Plan. Asked group for feedback.

10 Discussion: Biosolids Report - Regulatory Program Manager presented the biosolids trends survey report. The Regulatory Program Manager summarized the results of the survey and planned changes. The report is to serve as a resource for BACWA agencies and for statewide comparisons. General discussion followed.

Action Item*: Regulatory Program Manager to share presentation slides with the group.*

Action Item*: Regulatory Program Manager to calculate metric on cost per mile to respond to Chair's question.*

BREAK 10:30 AM

11 Discussion: Letter to respond to Dec 15 BAAQMD adoption of Reg 2 - Executive Director shared that at the hearing the central issue \ ask was that POTW designated as essential public service. However, our comments were misconstrued and BACWA sent a letter included in the packet to address this issue. The Executive Director recommended that we take advantage of the BAAQMD's resolution to form a working group with staff. Sarah Deslauriers will reach out to AIR committee & Board to develop next steps. Group discussed meeting strategies and timing.

Action item: *Executive Director to contact BAAQMD to inquire whether the Essential Public Service definition will be changed.*

12 Discussion: Funding for CASA engagement on air/biosolids/energy/climate change – Executive Director shared a slide summarizing their funding request and BACWA's funding options. Group discussion followed.

Action item: *Executive Director to move forward with approval process for a contribution for this FY.*

13 Discussion: One Water update presentation – David Sedlak, from UC Berkeley, provided a summary and update about the Bay Area One Water Network organization. David summarized sponsors, their goal of water sustainability, their output to date, tangible recommendations, and future goals. David is asking for a $5000 a year donation and hoped that BACWA group would participate in workshops, meetings, and identification of future topics and opportunities. General discussion followed.

14 Informational: NPDES Compliance Letter - Regulatory Program Manager summarized the content of the Regional Water Board compliance letter which is available in the packet.

15 Informational: BACWA endorsement for Bay Adapt - Executive Director said this issue was discussed at the last meeting. The Executive Director sent the recommended endorsement letter, and a copy of that letter is in the packet.

16 Informational: Coalition letter on Wastewater Arrearages Program - Executive Director that program guidelines will be adopted January 19th and program application period begins February 1st. Executive Director is working with other associations to get this information out to smaller agencies.

17 Informational: PFAS in Sportfish workshop registration - Executive Director shared that flyer with agenda and registration information is in the packet.

18 Discussion: SSS WDR update and response - Regulatory Program Manager expects to see public review draft of letter by January 31, 2022. This will be followed by a 60 day review period. Regulatory Program Manager is working with CASA and Collection Systems Committee to develop comments and review.

OPERATIONAL

19 Discussion: BACWA Executive Director Performance Review Discussion - Amit Mutsuddy suggested holding a closed session with board members to discuss executive director annual performance. Closed session to be held at the beginning of the February BACWA Executive Board Meeting. Group agreed.

20 Informational: BACC Update - Assistant Executive Director shared that there will be 11 chemical bids for 64 agencies. The bid will be going live via Planetbids.com on January 27, 2022 and bids will be opened on February 24, 2022.

REPORTS

21 Committee Reports - Regulatory Program Manager confirm that committee reports are in the packet.

22 Member highlights - City of San Jose summarized return to work plans and providing staff with PPE. City of San Jose received a positive assessment report for their lab to get their TNI certification. Central Contra Costa Sanitary District is seeing covid rates that mirror the community and made a position announcement. EBDA shared that Hayward had a successful lab audit and EBDA is working on integrated permitting for restoration projects. EBMUD shared back to work plans and are successfully managing operations with high covid rates. General discussion followed.

23 Executive Director Report - Executive Director report is in packet.

24 Board Calendar and Action Items - Executive Director shared it is in the packet.

25 Regulatory Program Manager Report - Regulatory Program Manager shared report is in the packet.

26 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; Amit Mutsuddy

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; Florence Wedington

i. NACWA Emerging Contaminants Karin North; Melody LaBella

j. CASA State Legislative Committee Lori Schectel

k. CASA Regulatory Workgroup Lorien Fono; Mary Cousins

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

v. California Water Quality Monitoring Council Lorien Fono

27 SUGGESTIONS FOR FUTURE AGENDA ITEMS

NEXT MEETING

The next meeting of the Board is scheduled for February 18, 2022

ADJOURNMENT **12:00 PM**

Special Executive Board Meeting
January 27, 2022 Meeting Summary

ATTENDEES:
Executive Board Representatives: Lori Schectel (Central Contra Costa Sanitary District); Amit Mutsuddy (San José); Eileen White (East Bay Municipal Utility District); Jacqueline Zipkin (East Bay Dischargers Authority).

Other Attendees:

Name	Representing
Cameron Kostigen Mumper	Sunnyvale
Courtney Mizutani	Consultant
Jason Nettleton	San José
Lorien Fono	BACWA
Mary Cousins	BACWA
Nohemy Revilla	SFPUC
Sarah Deslauriers	Carollo

Amit Mutsuddy called the meeting to order at 11:03 am.

ROLL CALL and INTRODUCTIONS - Attendance was recorded using Microsoft Teams interface.

PUBLIC COMMENT **None**

APPROVALS

1. **Resolution to continue teleconferencing Executive Board meetings (AB361)**

Approval Item 1: *A motion to approve was made by Amit Mutsuddy (*San José*) and seconded by Jackie Zipkin (East Bay Dischargers Authority). The motion was approved unanimously by the three board members present – Amit Mutsuddy (San José), Lori Schectel (Central San) Contra Costa Sanitary District) and Jackie Zipkin (East Bay Dischargers Authority).*

DISCUSSION OF BAAQMD REGULATION 2 IMPLEMENTATION WORKGROUP COORDINATION

Attendees discussed BACWA's preferred strategy for engaging with BAAQMD in a working group, as called for by BAAQMD Board of Directors in the resolution adopting Regulation 2, Rule 5. The group developed a list of key discussion topics for the working group, including BAAQMD staffing and permitting procedures, implementation of the two-step process to develop new emissions factors for air toxics, implementation of Rule 11-18 and Rule 2-5, involvement of the Regional Water Board, and meeting attendance.

ADJOURNMENT 12:00 PM

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

January 27, 2022

MEMO TO**:** Bay Area Clean Water Agencies Executive Board

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

SUBJECT: Sixth Month FY 2022 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, 2021 through December 31, 2021** (Six months of Fiscal Year 2022). This report covers expenditures, cash receipts, and cash transfers for the following BACWA funds:

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

Houck, Matt

From: Feldman-Crough, Samuel
Sent: Friday, January 28, 2022 9:08 AM
To: Houck, Matt
Subject: RE: December - December 2021 Treasurer's Report

Approved. Thank you! (And sorry for the delay.)

Sam Feldman-Crough (he/him/his)
Debt Administrator
office: (510) 287-0441
mobile: (510) 882-6860

From: Houck, Matt <matt.houck@ebmud.com>
Sent: Thursday, January 27, 2022 12:05 PM
To: Feldman-Crough, Samuel <samuel.feldman@ebmud.com>
Subject: December - December 2021 Treasurer's Report

Hi Samuel,

Please approve BACWA – December 2021 Treasurer's Report for distribution.

Thanks,

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

Fund Balances

In FY22 BACWA has three operating funds (BACWA, Legal, and CBC) and three pass-through funds for which BACWA provides only contract administration services (WOT, BABC & BACC). As of October 31st, 2021, revenues are recognized when billed, not when payments are received.

BACWA Fund: This fund provides the resources for BACWA staff, its committees, and other administrative needs. The ending fund balance on December 31, 2021, was $780,268 which is significantly higher than the target reserve of $201,612 which is intended to cover 3 months of normal operating expenses based on the BACWA FY22 budget. $411,427 of the ending fund balance is shown on the BACWA Fund & Investments Balance Report December 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 reserves of $167,229 (i.e., actual fund balance of $368,841 less target reserves) as December 31, 2021.

CBC Fund: This fund provides the resources for completing special investigations as well as meeting regulatory requirements. The ending fund balance on December 31, 2021, was $3,483,173 which is higher than the target reserve of $1,000,000. $368,606 of the ending fund balance is encumbered to meet line-item expenses for completion of the Group Annual Report contract, completion of the NBS Study, Recycled Water Evaluation, and the PFAS Regional Study. This leaves an actual unencumbered reserve balance of $2,114,567 (i.e., actual fund balance of $3,114,567 less target reserves) as of December 31, 2021. As directed by the BACWA Executive Board, the CBC fund has diminished over time due to BACWA's ongoing funding of the NMS program to comply with the Nutrient Watershed Permit.

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

Budget to Actual

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

Revenues as of December 31, 2021 (50% of the FY) are at 98%

Expenses as of December 31, 2021 (50% of the FY) are at 32%.

FY 2022
BACWA BUDGET to ACTUAL

BACWA FY22 BUDGET	Line Item Description	FY 2022 Budget	Projected Revenue as of Dec 2021 Changes from budget in blue	Actual Dec 2021	Actual % of Budget Dec 2021	Variance	NOTES
REVENUES & FUNDING							
Dues	Principals' Contributions	$516,909	$516,909	$516,910	100%	$1	FY22: no increase. 5 @ $103,382
	Associate & Affiliate Contributions	$187,793	$187,793	$183,175	98%	-$4,618	FY22: no increase. 13 Assoc: $8,364; 45 Affiliate: $1,675.
Fees	Clean Bay Collaborative	$675,000	$675,000	$675,000	100%	$0	Prin: $450,000; Assoc/Affil: $225,000
	Nutrient Surcharge	$1,700,000	$1,700,000	$1,699,999	100%	-$1	See Nutrient Surcharge Spreadsheet
	Voluntary Nutrient Contributions	$0	$0	$0	0%	$0	
Other Receipts	AIR Non-Member	$7,075	$7,075	$7,074	100%	-$1	no increase (Santa Rosa)
	BAPPG Non-Members	$3,954	$3,954	$3,954	100%	$0	no increase (Sta Rosa, Sac Reg'l, Vacaville) $1,292/each
	Other	$0	$0	$3,601		$3,601	
Fund Transfer	Special Program Admin Fees (WOT)	$5,202	$5,202	$0	0%	-$5,202	FY22: no increase
	Special Program Admin Fees (BACC)	$27,200	$27,200	$0	0%	-$27,200	400 hours of AED support $68 / hr
	Special Program Admin Fees (BABC)	$6,000	$6,000	$0	0%	-$6,000	ED, AED and RPM support
Interest Income	LAIF	$20,000	$10,000	$3,226	16%	-$16,774	BACWA, Legal, & CBC Funds invested in LAIF, LAIF yields lower than anticipated
	Higher Yield Investments						
	Total Revenue	**$3,149,133**	**$3,139,133**	**$3,092,939**	**98.22%**	**-$56,194**	

BACWA FY22 BUDGET	Line Item Description	FY 2022 Budget	Projected Expense as of Dec 2021 Changes from budget in blue	Actual Dec 2021	Actual % of Budget Dec 2021	Variance	NOTES
EXPENSES							
Labor							
	Executive Director	$190,000	$190,000	$79,167	42%	-$110,833	No change from FY20/FY21 budget
	Assistant Executive Director	$108,800	$108,800	$36,176	33%	-$72,624	2.0% CPI (SF Bay Metro Area Dec 2020); $68/hour; Reflects 1600 hours (incl. 400 hours for BACC)
	Regulatory Program Manager	$127,400	$127,400	$38,252	30%	-$89,148	$98/hour, Reflects 1300 hours
	Total	**$426,200**	**$426,200**	**$153,595**	**36%**	**-$272,605**	
Administration							
	EBMUD Financial Services	$42,448	$42,448	$10,097	24%	-$32,351	No change from FY20/21 budget
	Auditing Services	$5,345	$5,345	$0	0%	-$5,345	Finanical Auditors through EBMUD; per auditor rate schedule
	Administrative Expenses	$7,959	$7,959	$0	0%	-$7,959	No change from FY20/21 budget
	Insurance	$5,071	$7,072	$7,072	139%	$2,001	2% increase over FY21 actual, reflects actual cost
	Total	**$60,823**	**$62,824**	**$17,169**	**28%**	**-$43,654**	
Meetings							
	EB Meetings	$2,653	$2,653	$335	13%	-$2,319	No change from FY20/21 budget
	Annual Meeting	$14,369	$14,369	$0	0%	-$14,369	No change from FY20/21 budget
	Pardee	$6,537	$648	$648	10%	-$5,889	No change from FY20/21 budget
	Misc. Meetings	$5,306	$5,306	$585	11%	-$4,721	No change from FY20/21 budget
	Total	**$28,865**	**$22,976**	**$1,568**	**5%**	**-$27,297**	
Communication							
	Website Hosting	$700	$700	$0	0%	-$700	Website hosting $600, Go Daddy domain registration $100
	File Storage	$765	$765	$720	94%	-$45	No change from FY20/21 budget, box.net
	Website Development/Maintenance	$1,530	$1,530	$770	50%	-$760	No change from FY20/21 budget
	IT Support	$2,652	$2,652	$0	0%	-$2,652	No change from FY20/21 budget
	Other Commun	$1,785	$1,785	$704	39%	-$1,081	No change from FY20/21 budget; MS Exchange, Survey Monkey, PollEv, Zoom, Netfile
	Total	**$7,432**	**$7,432**	**$2,194**	**30%**	**-$5,238**	
Legal							
	Regulatory Support	$2,815	$2,815	$0	0%	-$2,815	2% increase, Downey Brand LLP

FY 2022
BACWA BUDGET to ACTUAL

EXPENSES							
	Executive Board Support	$2,264	$2,264	$120	5%	-$2,144	2% increase, Day Carter & Murphy LLP
	Total	**$5,079**	**$5,079**	**$120**	**2%**	**-$4,959**	
Committees							
	AIR	$76,000	$76,000	$39,131	51%	-$36,869	$75k consulting support, $1k misc expenses. Carollo Engineers
	BAPPG	$130,000	$130,000	$40,839	31%	-$89,161	Includes CPSC @ $10,000, OWOW @ $10,000, and Pest. Reg Spt. @ $60,000
	Biosolids Committee	$0	$0	$0		$0	
	Collections System	$1,000	$0	$0	0%	-$1,000	
	InfoShare Groups	$1,750	$0	$0	0%	-$1,750	Funds for 2 workgroups ($750 for Asset Mgmt - new in FY21; $1,000 for O&M)
	Laboratory Committee	$1,000	$1,000	$1,000	100%	$0	
	Permits Committee	$1,300	$0	$0	0%	-$1,300	All meetings moved to include lunch hour for commuting purposes
	Pretreatment	$1,000	$0	$0	0%	-$1,000	
	Recycled Water Committee	$1,000	$0	$0	0%	-$1,000	
	Misc Committee Support	$45,000	$13,600	$544	1%	-$44,456	Lab Committee TNI Training; Assistance for SSS WDR Comments
	Manager's Roundtable	$1,000	$0	$0	0%	-$1,000	
	Total	**$259,050**	**$220,600**	**$81,514**	**31%**	**-$177,536**	
Collaboratives							
	Collaboratives						
	State of the Estuary (SFEP-biennial)	$0	$0	$0	0%	$0	Biennial in Odd Fiscal Years. (Paid bienniely in odd years for even year conference)
	Arleen Navarret Award	$2,500	$2,500	$0	0%	-$2,500	Biennial in Even Fiscal Years. Award amount increased in FY20
	BayCAN	$5,000	$5,000	$0	0%	-$5,000	New in FY22
	Stanford ERC (ReNUWIt)	$10,000	$0	$0	0%	-$10,000	Renuwit is coming to an end, no invoice this year
	Misc	$1,500	$5,000	$0	0%	-$1,500	NBWA, Support for One Water
	Total	**$19,000**	**$12,500**	**$0**	**0%**	**-$19,000**	
Other							
	Unbudgeted Items						
	Other	$0	$0	$0	0%	$0	
		$0		**$0**	**0%**	**$0**	
Tech Support							
	Technical Support						
	Nutrients						
	Watershed	$2,600,000	$2,200,000	$1,000,000	38%	-$1,600,000	Advance funding for 2nd Watershed Permit Science Studies. No advance funding was sent this fiscal year.
	NMS Voluntary Contributions	$0	$0	$0	0%	$0	
	Additional work under permit	$100,000	$100,000	$0	0%	-$100,000	Includes HDR PO for $225k spread out over FY20-24.
	Regional Study on Nature based systems	$248,811	$248,811	$13,707	6%	-$235,104	SFEI PO for $500K, expires 6/30/2022
	Regional Recycling Evaluation	$63,525	$63,525	$0	0%	-$63,525	HDR PO for $154K FY20-24
	Nutrient Workshop(s)	$0	$0	$0	0%	$0	Pilot Studies/Plant Review/Innovative Technologies
	NMS Reviewer	$50,000	$50,000	$9,000	18%	-$41,000	
	General Tech Support	$100,000	$25,000	$0	0%	-$100,000	AB617 emission factors, nutrient technical review, other nutrient support. Support for state ACE engagement.
	CEC Investigations	$140,000	$140,000	$43,330	31%	-$96,670	PFAS Study Phase II
	Risk Reduction	$7,500	$12,500	$0	0%	-$7,500	APA FSS completed $12,500 contract in FY20, CIEA will complete $12,500 contract in FY22
	Total	**$3,309,836**	**$2,839,836**	**$1,066,037**	**32%**	**-$2,243,799**	
	TOTAL EXPENSES	**$4,116,285**	**$3,597,447**	**$1,322,196**	**32.12%**	**-$2,794,089**	
	PROJECTED EXPENSE DEVIATION FROM BUDGET		**-$518,838**				
	NET INCOME BEFORE TRANSFERS	**-$967,152**	**-$458,314**				
	TRANSFERS FROM RESERVES	**$967,152**	**$458,314**				aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge
	NET INCOME AFTER TRANSFERS	**$0**	**$0**				
	TOTAL OPERATING BUDGET	**$806,449**					
	OPERATING RESERVE	**$201,612**					

BACWA Fund Report as of December 31, 2021

BACWA FUND BALANCES - DATA PROVIDED BY ACCOUNTING DEPT.

DEPTID	DESCRIPTION	FISCAL YEAR BEGINNING FUND BALANCE	TOTAL BILLED REVENUE TO-DATE	TOTAL DISBURSEMENTS TO-DATE	MONTH-ENDING FUND BALANCE	OUTSTANDING ENCUMBRANCES	MONTH-END UNOBLIGATED FUND BALANCE
600	BACWA	1,320,542	715,886	1,256,160	780,268	411,427	368,841
604	LEGAL RSRV	300,000	-	-	300,000	-	300,000
605	CBC	1,172,157	3,377,054	1,066,038	3,483,173	368,606	3,114,567
	SUBTOTAL 1	*2,792,699*	*4,092,940*	*2,322,198*	*4,563,441*	*780,033*	*3,783,408*
602	BABC	*112,737*	85,800	63,295	135,242	*56,705*	78,537
606	BACC	*29,091*	-	*41,220*	(12,129)	*22,780*	(34,909)
607	BACC LEGAL RSRV	-	*30,000*	-	30,000	-	30,000
610	WOT	275,143	-	-	275,143	-	275,143
	SUBTOTAL 2	*416,971*	*115,800*	*104,515*	*428,256*	*79,485*	*348,771*
	GRAND TOTAL	**3,209,670**	**4,208,740**	**2,426,713**	**4,991,697**	**859,518**	**4,132,179**

*Begginning fund balance adjusted October 2021 due to change in reported accounting basis.

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

BACWA INVESTMENTS BALANCES - DATA PROVIDED BY TREASURY DEPT.

DEPTID	DESCRIPTION	FISCAL YEAR BEGINNING FUND BALANCE	TOTAL BILLED REVENUE TO-DATE	TOTAL DISBURSEMENTS TO-DATE	MONTH-ENDING FUND BALANCE	RECONCILIATION TO FINANCIAL STATEMENTS A/R	RECONCILIATION TO FINANCIAL STATEMENTS A/P	MONTH-END RECONCILED FUND BALANCE	UNINVESTED CASH BALANCES	LAIF INVESTMENTS AMOUNTS	LAIF INVESTMENTS PERCENTAGE	ALTERNATIVE INVESTMENTS AMOUNTS	ALTERNATIVE INVESTMENTS IDENTIFIERS	ALTERNATIVE INVESTMENT INSTRUCTIONS AND NOTES
800	BACWA	1,320,542	715,886	1,256,160	780,268	(150,894)	-	629,374	629,374	-	0%	-		priority # 3 for allocation
804	LEGAL RSRV	300,000	-	-	300,000	-	-	300,000	-	300,000	13%	-		priority # 1 for allocation
805	CBC	1,172,157	3,377,054	1,066,038	3,483,173	(382,008)	-	3,101,165	1,138,565	1,962,600	87%	-		priority # 2 for allocation
	SUBTOTAL 1	2,792,699	4,092,940	2,322,198	4,563,441	(532,902)	-	4,030,539	1,767,939	2,262,600	100%	-		
802	BABC	112,737	85,800	63,295	135,242	(27,750)	-	107,492	107,492	-	0%	-		pass-through funds, no allocation
806	BACC	29,091	-	41,220	(12,129)	-	-	(12,129)	(12,129)	-	0%	-		
807	BACC LEGAL RSRV	-	30,000	-	30,000	-	-	30,000	30,000	-	0%	-		
810	WOT	275,143	-	-	275,143	-	-	275,143	275,143	-	0%	-		pass-through funds, no allocation
	SUBTOTAL 2	416,971	115,800	104,515	428,256	(27,750)	-	400,506	400,506	-	0%	-		
	GRAND TOTAL	**3,209,670**	**4,208,740**	**2,426,713**	**4,991,697**	**(560,652)**	**-**	**4,431,045**	**2,168,445**	**2,262,600**	**-**			
						-	-	-	-					

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

Reconciliation to Trial Balance

Per Report above:		STB	14930	2,262,600	
General	4,092,940	STB	15050	2,168,445	
WOT, BABC, & BACC	115,800			**4,431,045**	-
PROP	-	STB	16300	560,652	
subtotal	**4,208,740**	STB	21350	-	
				4,991,697	-

Trial Balance Revenue Accounts

40100	Interest	(3,226)
40101	Mem Contrib	(1,277,710)
40102	Transfer	(1,030,000)
40103	Assoc Contrib	(183,175)
40104	Other	(1,714,629)
47310	State Grant	-
47320	Grant Retention	-
subtotal		**(4,208,740)**
Difference		**-**

BACWA Revenue Report as of December 31, 2021

Accounting Period Name: Dec-21

Cost Center Code	Cost Center Description	Program Segment Description	Program Segment Value	Amended Budget	Current Period	FY22 - Year to Date	Unobligated
600	Bay Area Clean Water Agencies	BABC - AED and RPM Support	6200	(6,000.00)	-	-	6,000.00
		BACC - AED Support	6199	(27,200.00)	-	-	27,200.00
		BDO Affil/CS/Assoc Dues	6104	-	(1,708.50)	(38,087.00)	(38,087.00)
		BDO Affiliate/Associate Dues	6103	-	-	(39,295.50)	(39,295.50)
		BDO Assoc.&Affiliate Contr	6102	(187,793.00)	-	(105,792.36)	82,000.64
		BDO Fund Transfers	6141	(5,202.00)	-	-	5,202.00
		BDO Member Contributions	6101	(516,909.00)	-	(516,910.00)	(1.00)
		BDO Non-Member Contr AIR	6136	(7,075.00)	-	(7,074.72)	0.28
		BDO Non-Member Contr BAPPG	6135	(3,954.00)	-	(3,953.52)	0.48
		BDO Other Receipts	6105	-	(1,000.00)	(1,000.00)	(1,000.00)
		BDO Other Receipts (Misc)	6140	-	-	(2,601.00)	(2,601.00)
		BDO- Interest Income from LAIF	6142	(20,000.00)	-	(1,171.49)	18,828.51
		BDO-Alternative Investment Inc	6143	-	-	-	-
600 Total				**(774,133.00)**	**(2,708.50)**	**(715,885.59)**	**58,247.41**
602	Bay Area Biosolids Coalition	BDO Fund Transfers	6141		-	-	-
		BDO Member Contributions	6101		-	(85,800.00)	(85,800.00)
602 Total				**-**	**-**	**(85,800.00)**	**(85,800.00)**
605	Clean Bay Collaborative	BDO Fund Transfers	6141	-	-	(1,000,000.00)	(1,000,000.00)
		BDO Member Contributions	6101	(675,000.00)	(750.00)	(675,000.00)	-
		BDO Other Receipts	6105	(1,700,000.00)	-	(1,699,999.00)	1.00
		BDO- Interest Income from LAIF	6142	-	-	(2,054.51)	(2,054.51)
605 Total				**(2,375,000.00)**	**(750.00)**	**(3,377,053.51)**	**(1,002,053.51)**
606	Bay Area Chemical Consortium	BDO Member Contributions	6101	-	-	-	-
606 Total				**-**	**-**	**-**	**-**
607	BACC Legal RSRV	BDO Fund Transfers	6141	-	-	(30,000.00)	(30,000.00)
607 Total				**-**	**-**	**(30,000.00)**	**(30,000.00)**
Grand Total				**(3,149,133.00)**	**(3,458.50)**	**(4,208,739.10)**	**(1,059,606.10)**

BACWA Treasurer's Report Expenses and Encumbrances

Period Covering July 1, 2021 through December 31, 2021

Cost Center Code	Program Segment Description	Program Segment Value	Amended Budget	FY22 - Obligated Year to Date	Unobligated
600	AIR-Air Issues&Regulation Grp	6153	76,000.00	75,000.00	1,000.00
	AS-Assistant Executive Directo	6175	108,800.00	108,800.00	-
	AS-Audit Services	6180	5,345.00	5,345.00	-
	AS-BACWA Admin Expense	6173	7,959.00	-	7,959.00
	AS-EBMUD Financial Services	6176	42,448.00	42,448.00	-
	AS-Executive Director	6174	190,000.00	190,000.00	-
	AS-Insurance	6177	5,071.00	7,072.34	(2,001.34)
	AS-Regulatory Program Manager	6179	127,400.00	114,863.50	12,536.50
	Administrative Support	6178	-	1,000,000.00	(1,000,000.00)
	BC-BAPPG	6152	130,000.00	107,885.60	22,114.40
	BC-InfoShare Groups	6148	1,750.00	-	1,750.00
	BC-Laboratory Committee	6149	1,000.00	1,000.00	-
	BC-Manager's Roundtable	6154	1,000.00	-	1,000.00
	BC-Miscellaneous Committee Sup	6150	45,000.00	3,680.00	41,320.00
	BC-Permit Committee	6145	1,300.00	-	1,300.00
	BC-Pretreatment Committee	6151	1,000.00	-	1,000.00
	BC-Water Recycling Committee	6146	1,000.00	-	1,000.00
	CAR-BACWA File Storage	6165	765.00	720.00	45.00
	CAR-BACWA IT Software	6167	1,785.00	703.79	1,081.21
	CAR-BACWA IT Support	6166	2,652.00	2,652.00	-
	CAR-BACWA Website Dev/Maint	6163	1,530.00	770.00	760.00
	CAR-BACWA Website Hosting	6164	700.00	-	700.00
	CAS-Arleen Navaret Award	6160	2,500.00	-	2,500.00
	CAS-Misc Collaborative Sup	6162	1,500.00	-	1,500.00
	CAS-Stanford ERC	6159	10,000.00	-	10,000.00
	GBS-Meeting Support-Annual	6170	14,369.00	-	14,369.00
	GBS-Meeting Support-Exec Bd	6169	2,653.00	334.50	2,318.50
	GBS-Meeting Support-Misc	6172	5,306.00	585.00	4,721.00
	GBS-Meeting Support-Pardee	6171	6,367.00	648.12	5,718.88
	LS-Executive Board Support	6156	2,264.00	2,264.00	-
	LS-Regulatory Support	6155	2,815.00	2,815.00	-
	WQA-CE-Nature Based Solutions	6196	-	-	-
	Write-Off Doubtful Accounts	6208	-	-	-
600 Total			**800,279.00**	**1,667,586.85**	**(867,307.85)**
602	AS-Assistant Executive Directo	6175	-	-	-
	AS-Regulatory Program Manager	6179	-	-	-
	Academia Research & Development	6203	-	-	-
	Administrative Support	6178	-	-	-
	BDO Contract Expenses	6186	-	-	-
	Collateral Development	6197	-	-	-
	Program Manager Expense	6202	-	120,000.00	(120,000.00)
	Technology Research & Development	6206	-	-	-
602 Total			**-**	**120,000.00**	**(120,000.00)**
605	Recycled Water Evaluation	6198	63,525.00	-	63,525.00
	WQA - CEC Investigations	6201	140,000.00	60,419.75	79,580.25
	WQA-CE Addl Work Under Permit	6191	100,000.00	-	100,000.00
	WQA-CE Risk Reduction	6190	7,500.00	25,000.00	(17,500.00)
	WQA-CE Voluntary Nutr Contrib	6193		-	-
	WQA-CE-Nature Based Solutions	6196	248,811.00	299,224.50	(50,413.50)
	WQA-CE-Nutrient WS Permit Comm	6188	2,600,000.00	1,000,000.00	1,600,000.00
	WQA-CE-Technical Support	6181	100,000.00	-	100,000.00
	WQA-NMSReviewer	6205	50,000.00	50,000.00	-
605 Total			**3,309,836.00**	**1,434,644.25**	**1,875,191.75**
606	Administrative Support	6178	-	34,000.00	(34,000.00)
	BDO Fund Transfers	6141		30,000.00	(30,000.00)
606 Total			**-**	**64,000.00**	**(64,000.00)**
Grand Total			**4,110,115.00**	**3,286,231.10**	**823,883.90**

BACWA CHAIR AUTHORIZATION REQUEST

AGENDA NO.: 6

MEETING DATE: **February 18, 2022**

TITLE: BACWA Executive Board Chair approval for Richard Cunningham to provide BACWA Collection Systems Committee on SSS WDR, not to exceed $$9,920 for FY22.

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

ACTION

Approval of a contract with Richard Cunningham for BACWA Collection Systems Committee support on State Water Board SSS WDR, not to exceed $9,920 in FY22.

SUMMARY

The State Water Board is expected to release a draft update of its Sanitary Sewer System Waste Discharge Requirements (SSS WDR) in early 2022. BACWA's Collection System Committee is collaborating with CASA to develop comments in response to the draft, but may also develop its own comments based on regional concerns. In addition to input from volunteers from BACWA's Collection System Committee, this effort will benefit from the expertise of a consultant with collection systems operational experience. At the direction of the BACWA Executive Board, BACWA staff informally reached out to several potential consultants. Richard Cunningham was selected as he has both the expertise and availability to provide the needed support.

The work under this contract will be carried out under the supervision of Mary Cousins, BACWA Regulatory Program Manager.

FISCAL IMPACT

Funds are available for this agreement and have been allocated for this project within the Miscellaneous Committee Support line item in the BACWA FY22 Budget approved April 16, 2021.

ALTERNATIVES

1. Do not complete this work – This alternative is not recommended, as BACWA requires collection system operational experience and expertise to respond to the proposed reissuance of the SSS WDR.
2. Select another consultant to conduct the work – This alternative is not recommended, as BACWA staff informally contacted several potential consultants for this work and Richard Cunningham was selected due to his expertise and availability to perform this work.

Attachments: FY 22 Contract with Richard Cunningham

Approved:

Date: 02 / 11 / 2022

Amit Mutsuddy
BACWA Chair

Date: 1/27/22

BAY AREA CLEAN WATER AGENCIES

CONSULTING AGREEMENT

TO:	Richard Cunningham 999 Victoria Ct. Lafayette, CA 94549	rc@sewers.com 925-297-9229
FROM:	Lorien Fono, Executive Director BACWA PO Box 24055, MS702 Oakland, CA 94623	lfono@bacwa.org Phone: 510-684-2993

RE: BACWA Agreement for FY22 Review of SSS WDR update.

This Agreement covers professional services to be performed by Richard Cunningham for technical support related to the State Water Board's proposed update of the Sanitary Sewer System Waste Discharge Requirements. This work is described in the attached Scope of Work and under the direction of Mary Cousins, BACWA Regulatory Program Manager. The total cost of professional services to be performed by Richard Cunningham not to exceed $9,920. This contract will be funded by the BACWA Budget under the Miscellaneous Committee 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 Richard Cunningham for professional and competent services rendered to the date of termination upon delivery of assigned work products to BACWA. The term of this agreement shall extend through June 30, 2022.

Richard Cunningham shall submit invoices to the BACWA Assistant Executive Director via e-mail. Invoices shall indicate hours associated with each task. Invoices will be paid within thirty (30) days of receipt.

BACWA Assistant Executive Director E-mail: Jennifer Dyment jdyment@bacwa.org

Approved:

By _____
Amit Mutsuddy
Chair, BACWA Executive Board

Date 01 / 28 / 2022

By _____
Richard Cunningham

Date 01 / 27 / 2022

BACWA EIN: 94-3389334

Tax ID: on file

SFEI AQUATIC SCIENCE CENTER
SAN FRANCISCO ESTUARY INSTITUTE & THE AQUATIC SCIENCE CENTER
4911 Central Ave, Richmond, CA 94804, p: 510-746-7334 f: 510-746-7300

Nutrient Management Strategy for San Francisco Bay

http://sfbaynutrients.sfei.org/

Assessment Framework Subcommittee Meeting

February 15, 2022
1-4 pm

REMOTE ACCESS
Join Zoom Meeting: https://zoom.us/my/sfeiconfcw1
One tap mobile: +16699006833,,7699356044#
To dial in by phone: 1-669-900-6833; Meeting ID: 769-935-6044

1.	**Review Meeting Objectives and Agenda**	1:00 Lisa Hunt
2.	**AF Workplan** 1. AF timeline and components (Lisa) 2. Indicators and Metrics (Dave) 3. Issues/questions for discussion (Martha) 4. Subcommittee feedback 5. Next steps Meeting materials: Draft Assessment Framework Workplan	1:10 Lisa Hunt Dave Senn Martha Sutula
3.	**VPA Progress Update** Meeting materials: Tetra Tech workplan	2:10 Ariella Chelsky TetraTech
	BREAK	2:40
4.	**Expert Workgroup Preparation** 1. Confirm Expert Workgroup participant list 2. LSB Creeks and Sloughs Workgroup a. Schedule in March/April b. Charge questions 3. AF Subcommittee Role 4. Subcommittee prep meeting in March? a. Workshop structure b. Materials c. Presentations	2:45 Lisa Hunt Ariella Chelsky

5.	**Trends Analysis Overview** 1. Approach 2. Results 3. Relevant timescales 4. Next steps Meeting materials: Shinyapp tool	3:20 Melissa Foley
6.	**Wrap up and next steps**	3:50 Lisa Hunt Ariella Chelsky
7.	**Adjourn**	4:00

Review of San Francisco Bay Nutrient Management Strategy: Work Plan for Assessment Framework Development, 2020–2024 Michael Connor

1. Introduction and Structure

This technical memorandum proposes some recommendations for BACWA's Nutrient Technical Team (NTT) for their February 15, 2022 meeting with the SF Water Board and SFEI about the Assessment Framework for determining water nutrient standards for San Francisco Bay. Section 2 presents recommendations for NTT consideration for the three major Assessment Framework components proposed by SFEI. Section 3 notes other specific items and suggests additional ways to approach the issue of how nutrient loads affect Bay beneficial uses.

2. Overall Recommendations for BACWA's Nutrient Technical Team

1. The basic challenge of the nutrient regulatory process is balancing "environmental impact" with the amount of "benefit" that can be expected from different management actions. This challenge has both ecological and public policy elements, for which different states have developed different strategies. The Assessment Framework addresses solely the "technical" side of this challenge with its three goals:

    - To provide a framework through which to interpret the status, trends, and drivers described by monitoring data and model observations.
    - To provide the ecological goals with which to derive the sustainable or allowable loads of nitrogen (N) and phosphorus (P) to the estuary .
    - To synthesize science to support Water Board policy decisions on biostimulatory targets and/or updated water quality objectives.

2. The work plan has three key elements:

    - Open Bay refinement of indicators and metrics
    - Dissolved Oxygen (DO) in Lower South Bay Sloughs and Tidal Creeks
    - Delineation of Habitat Types/Regions to be included in the Assessment Framework.

    The first element will be more clearly defined in the Trends and Condition Assessment Report due to be released this month. The third element is not discussed in depth in the work plan. The second element, delineation of habitat types/region receives the most complete discussion and is organized by its three different components for evaluating DO in the Lower South Bay. These components are discussed below.

3. The **Fish Community Data: Sloughs and Tidal Creeks** component of the Assessment Framework uses the best available data set for addressing impacts of low DO levels, the long-term UCDavis study in the Lower South Bay, where the effects of nutrient loadings are most expected. Reports by the lead investigator Levi Lewis state that "Results suggest that spatial and temporal patterns are the dominant features of the dataset, with some of these patterns likely and largely due, in part, to correlation with environmental conditions in space and time (e.g., for Longfin Smelt), but not for others (e.g., Pacific Staghorn Sculpin). For the three species examined, which included a winter, spring, and summer AMC inhabitant, we did not observe strong negative effects of low dissolved oxygen on abundance. Higher catches of Threespine Sticklebacks and Pacific Staghorn Sculpin were associated with lower DO levels, whereas Longfin Smelt exhibited no pattern with DO. Based on the analyses presented here and in MacVean et al. (2019). **DO concentration does not appear to be a major driving factor of fish abundance."** (M. Connor emphasis added).

   This evaluation is probably the most straightforward way of evaluating the problem. The conclusion comes with a number of possible caveats, but it is certainly worth further investigation and ensuring that the data set is continued to be collected given its critical relevance. Lewis's report also makes some suggestions for further funding. The most compelling idea is to increase the geographic span of fish sampling stations to include a bigger swath of the Lower South Bay. SFEI's monitoring data suggest that there is significant variation in DO around the South Bay and the ability to link these differences to fish populations in very similar habitats with different DO and chlorophyll levels would give stakeholders more confidence in determining nutrient management options.

4. The **Virginian Province Approach** (VPA) component builds on methods used with some success in other parts of the country and is also being used by the SF Water Board in Suisun Bay. It also offers a reasonable likelihood of successful implementation in the South Bay. Even if implementation is not successful for the South Bay, it will be crucial to demonstrate why it was not applicable there. A South Bay work plan exists and an experienced team is moving forward. It will be important to quickly evaluate what the VPA is showing to allow time to make further judgments.

5. The **Dissolved Oxygen, Temperature, and Metabolism** component is the most exploratory, least developed, and least practical strategy. It has a low likelihood of accomplishing a useful outcome in the time necessary to be helpful to the SF Water Board. It is an interesting basic science challenge that would most appropriately be funded by EPA's national water standards group, because it has relevance to nationwide climate change questions. Developing a new standard for DO as climate change heats the Bay waters will have more relevance in a few decades. However, for this application, answering today's questions is more important than predicting responses to climate change in 20 years. The species living in SF Bay as it warms will likely be quite different, and the extent to which DO issues will be a driver is interesting, but not crucial at this time.

3. Specific Technical Comments

1. Usually, a work plan has a budget associated with it that allows reviewers to determine the trade-offs between alternatives. Including a budget with this work plan would be helpful.

2. AF 2.0 is dividing its funding between DO and Harmful Algal Blooms (HABs). BACWA's NTT should probably evaluate how it wants to prioritize this emphasis. It is more likely to find regulatory consensus on the DO issue quickly than HABs. On the other hand, it would be possible to get consensus that DO is not too problematic (let's focus on confirming it's not worsening) and prioritize HAB funding for future permit loading concerns.

3. BACWA spent significant resources on LimnoTech's review of AF1.0. While there is a link in the appendix of the document, it is not clear how any of the comments will be reflected in future work. Several elements of the LimnoTech report that BACWA should ensure are addressed are

    - The ineffectiveness of adding additional statistical uncertainty by developing chlorophyl-based metrics based on their correlation with DO or HAB impacts rather than just using the high volume of direct measurements of those parameters.
    - The lack of a clear relationship between HAB-caused toxicity and presence of HAB species.
    - The rather haphazard choice of HAB species limits (most problematic for the Scottish-based early warning level for *Alexandrium,* which is the major driver for most of the HAB risk.
    - The Gross Primary Productivity (GPP) indicator, which is rarely measured in the Bay—SFEI's approach simply considerers calculating it based on chlorophyll and light levels. Dugdale et al. have shown this equation can vary during the year and worry about its reliability. As a result, they measure GPP directly.

4. The Assessment Framework is oriented around developing alternative nutrient standards. It is possible to frame the problem differently. Generally, standards are set to address an existing problem or prevent a future one. If there is consensus among the stakeholders that there is no existing problem, and there seems to be consensus on freezing increases in nutrient loads, then it would be possible to simply focus attention on trend detection to ensure that Bay conditions do not worsen. Much of the public discussion that precipitated the nutrient debate was not loss of seagrass beds, as in Chesapeake Bay, or vast anoxic dead zones, like the Gulf of Mexico. The concern was more driven by a worsening chlorophyll trend and its potential for future problems. If these changes have not been dramatic enough for the public to notice, then the management goal could be reframed to ensure that the current situation does not change for the worse, which is something like the no net loading increase strategy currently under consideration.

Another simple way to evaluate the problem is to use California's data on fish abundance in the Bay—one of the best long-term data sets in the country—to see how fish populations have changed since 1950 when the Bay Area population exploded. These historical changes could very well exceed the changes that could be achieved by a nutrient management strategy. Nutrient loads to the Bay have changed dramatically since 1950, and there have been many studies of the Bay since then, particularly with the beginning of USGS's Menlo Park efforts in the 1970s. A simple way to estimate the changing loadings would be to assume loading is simply proportional to population. The population of the three major metropolitan areas (San Francisco, San Jose and Concord) has grown by more than 200% since 1950 and 50% since 1970 (https://www.macrotrends.net/cities/23130/san-francisco/population). What beneficial uses has the public lost over that time that could be associated with nutrients?

Planning Subcommittee Meeting No. 65
February 2, 2022
9:30 am – 12:00 pm
Teleconference
Chair: Eric Dunlavey
Meeting Notes

Attendees: Tom Mumley, Dave Senn, Lisa Hunt, Ian Wren, Robert Schlipf, Kevin Lunde, Lorien Fono, Richard Looker, Ariella Chelsky.

1. *Agenda Modifications*
   None.

2. *Review Outstanding Action items*

- Queue up steps required for more aggressive fundraising, and what it would take to compete for EPA's Water Quality Improvement Fund grant - complete
- Ian will send out a doodle poll for the next steering committee meeting - complete
- (Ongoing) Members to collaborate on developing an NMS status document/fact sheet that pulls together planning, permitting, and science by early 2022 - ongoing

3. *Priority Updates*

Science Program update

Staffing – A new staff scientist (Dan Killam) started on January 31 and will take over some of Derek's synthesis role. Kristina and Sienna will also leave to return to graduate school. Lisa has been putting together job descriptions for up to 3 positions.

Other Report-outs

Modeling – The team has completed the model update report, and will share it in March. They have convened an expert meeting on light attenuation and sediment transport. Rusty Holloman will be on this effort, and is giving input on study design. The first MAG meeting will be March 29 to 30. The science team is determining how to structure that meeting, and need to schedule the modeling subcommittee meeting.

Assessment Framework – There was a recent AF subcommittee meeting, and a draft workplan has been sent out to the group in preparation for the Feb 15 meeting.

LSB biogeochemical work – The science team may pursue in-depth analysis/interpretation as part of informing study design.

HAB synthesis – There is still work to determine what will be part of synthesis work, and a draft is expected in June 2022.

Upcoming schedule

The next planning subcommittee meeting is March 2, prior to the March 11 NTW meeting. The next steering committee meeting is May 3. We are moving the April PSC meeting to the 14th.

4. Discussion Topics

FY2023 program plan: priorities, funds/budget

The anticipated revenues in FY2023 are $1.8M from the permit and $200K from the RMP. The cost for the core program areas is $1.52M. Special projects are $860K, for a total budget of $2.38M, which is $380 in excess of the revenues. Lisa noted that costs are increasing across the board. Dave asked the group for feedback on how to frame the need to reduce scope to the Steering Committee. We need help identifying projects that could be trimmed, versus ones that are indivisible and would need to be cut in their entirety. There was a discussion about the use of the mussels data, which was supported by the expert workgroup. The importance of a project should be assessed based on its ability to support the assessment framework. Tom mentioned that there might be SEP funds to help close the gap. We could also leverage other parties (such as SBSPRP) to help support some of these efforts, or to pursue external funding to that end (see below).

Dave shared a proposal for south bay shoal mapping. The data from this effort would be used to define a future monitoring program. Dave asked whether the PSC was supportive of building retroactive support of this year's work (2-3 winter/spring 2022 mapping surveys) into the FY23 program plan. The cost is $40-60k. We could also use SEP funds to support this. Ian requested that the importance of this work as part of the proposal secure funding.

Kevin expressed skepticism about the value of funding mussel toxin work in FY23. We need to have a discussion about the cost of skipping a year in that effort.

Fundraising/proposals

Water quality improvement funds need to be used for action in addition to science – there needs to be an implementation component. Collaborating with SBSPRP could help bolster a grant application. There is a meeting scheduled next week with Luisa at EPA to ask questions about which aspects of this program could be eligible for WQIF grants. Future scenarios would be eligible for funding. There will be a separate call about going after grant funding for nature based solutions and we'd like to tie in the science program funding needs as part of that conversation.

Public Facing Program Summary: Ian distributed a 3-page summary of the NMS status on the state of the science. PSC members will work to edit it, keeping in mind the intended audience of non-scientist stakeholders.

5. *Planning the NTW/ Steering*

Review of action items - There was a discussion about the request for synthesis from the previous Steering Committee meeting.

Meeting Structure: science priorities tech updates – The principal goal of the March NTW meeting is to get input on the program plan. There's not a whole lot of wiggle room about what to fund. Within that restriction, setting priorities should be informed by FY22 and previous findings. The different program elements should be tied into the assessment framework.

6. *Action items:*

- Schedule Modeling Subcommittee meeting for February
- Bring in Water Board to fundraising planning meetings
- Finalize public facing program summary

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 the concept of holding an annual forum on nutrients
f. Finish

Draft preamble to Biosolids in the Baylands White Paper

The Bay Area Clean Water Agencies (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 – members now include the many municipalities and special districts that provide sanitary sewer services to more than 7.1 million people. BACWA's mission is to provide an effective regional voice for clean water agencies' stewardship of the San Francisco Bay's ecological, community, and economic resources

The Bay Area Biosolids Coalition is a group of wastewater treatment agencies and industry partners in the San Francisco Bay Area formed under a joint exercise powers agreement under the California Government Code, who collaborate to advance the science of and develop solutions for biosolids management. We are people who live and work in the communities we serve, with a personal connection to what we do. While biosolids have enriched the Bay Area landscape for many decades, they can sometimes be misunderstood. We aim to increase trust and support of this environmental asset by supporting independent, peer-reviewed scientific research that examines the safety, benefits, and effectiveness of biosolids. It is this research that helps inform science-based regulations, guidelines, and best management practices for the betterment of our overall environment.

Recommended approach to introductions from core team:

The San Francisco Bay Joint Venture, part of a national network, seeks to protect, restore, increase and enhance all types of wetlands, riparian habitat, and associated uplands throughout the nine Bay Area counties. They are interested in the San Pablo Baylands...

The Bay Area Clean Water Agencies (BACWA) is a joint powers agency, which includes many municipalities and special districts that provide sanitary sewer services to the Bay Area.

The Bay Area Biosolids Coalition is a group of wastewater treatment agencies and industry partners in the San Francisco Bay Area who collaborate to advance the science of and develop solutions for biosolids management. They are interested in the San Pablo Baylands...

Sonoma Land Trust is a non-governmental, nonprofit organization funded protects the scenic, natural, agricultural, and open landscapes of Sonoma County. They are interested in the San Pablo Baylands...

Ducks Unlimited conserves, restores, and manages wetlands and associated habitats for North America's waterfowl. They are interested in the San Pablo Baylands...

San Francisco Estuary Institute (SFEI) is a nonprofit organization that provides independent science to assess and improve the health of the waters, wetlands, wildlife, and landscapes of San Francisco Bay and California Delta. They are interested in the San Pablo Baylands...

Baylands and Biosolids White Paper

1

Executive Summary

The baylands fringing San Francisco Bay (the Bay) have been largely cut off from the Bay by a system of dikes to allow farming and other land uses. While wetland scientists recognize the urgency of restoring these areas to wetland habitat to provide resiliency to sea-level rise, the diked agricultural baylands of the North Bay are also in demand for biosolids management, due to recent changes in legislation (e.g., SB 1383). The purpose of this document is to bring together existing knowledge of the baylands and biosolids management to highlight key gaps in our understanding, to start a larger conversation across stakeholders with interest in the baylands, and to make recommendations for future work. To achieve this, we need to address two questions: (1) does biosolids land application inhibit wetland restoration via the threat of contaminants? and (2) could land application benefit the restoration process? This paper was written to highlight the question of whether and how these shared community needs (biosolids use and habitat conservation, future wetlands restoration, and sea-level rise resilience) can be compatible.

Section 2 discusses how historic land use of the diked baylands could make these areas vulnerable to flooding, particularly if wetland restoration projects are not completed. Historic diking and farming have resulted in ground elevations that have subsided below mean sea level. The potential for inundation of diked baylands will increase as sea levels continue to rise in the baylands and the likelihood of overtopping existing levees will increase in turn. In comparison with the rest of San Francisco Bay, most of the diked baylands of the North Bay remain in agricultural production and are relatively undeveloped. While the diked agricultural baylands of the North Bay are in demand for biosolids management, this region provides a tremendous opportunity to restore a mosaic of habitats, connecting the Bay to its watersheds, and restoring supratidal, intertidal, and subtidal habitats.

Section 3 provides classifications of biosolids according to US Environmental Protection Agency (EPA) regulatory language and describes current uses of biosolids in the San Francisco Bay Area. Agricultural land application of biosolids is considered a beneficial use by the EPA, the California State Water Resources Control Board (SWRCB), and CalRecycle. Beneficial use of biosolids recycles carbon, organic matter, and nutrients back to soils to restore its health for agricultural purposes. About 25 percent of Bay Area biosolids on average are being applied to agricultural land, approximately 4 percent of which is applied to agricultural lands within the baylands.

Section 4 lays the groundwork to compare biosolids pollutant limits to wetland restoration pollutant criteria. Biosolids are subject to federal, state, and sometimes local regulations, primarily through the EPA at the federal level, the State and Regional Water Boards, and county-specific regulations, if applicable. Wetland restoration efforts are also highly regulated and imported soils for wetland surface material and foundation material are regulated by the Regional Water Board, Bay Conservation and Development Commission (BCDC), US Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS). Table 2 (pg. 27) compares the range of metals levels in soils across North Bay land application sites relative to guideline criteria for wetlands. While the range in most metals levels in these soils falls below

the recommended wetland criteria for both surface and foundation material, there are individual exceedances in some metals in some sites where biosolids have been applied, and additional data resolution is needed to better understand the dynamics around application and accumulation in the soils to inform practices of biosolids application in the baylands.

Section 5 discusses the past and present use of biosolids on agricultural baylands, as well as the future implications of sea-level rise where biosolids have been land-applied. As state-wide regulations to reduce methane emissions from landfills (SB 1383) require diverting biosolids from landfills, there will likely be an increased demand for land application sites as 2025 approaches. However, agricultural sites located in the diked floodplain of the Bay makes them vulnerable to unplanned levee breaches and constituents in land-applied biosolids could enter the water column via groundwater or levee breaches. This is a critical moment for communication and long-term planning between regulatory agencies, publicly owned treatment works (POTWs), farmers, landowners, and the conservation community. While there are clear benefits of biosolids land application to soil health for agricultural purposes, the impacts of biosolids application to subsided diked baylands, and to future wetland restoration sites at site- and landscape- scales are unclear and require further investigation. Additional studies to assess potential effects; bioaccumulation; and/or leachability are needed to fully inform the question of compatibility.

The questions of compatibility of biosolids use on agricultural lands in the baylands with wetland restoration could not be answered solely through researching and writing this white paper. Section 6 is a summary of findings and recommendations resulting from the research and stakeholder workshop. Recommendations address the gaps in existing research regarding fate and transport and will inform the potential for beneficial use of biosolids in and near aquatic environments. Compatibility of biosolids-amended soils with wetland and aquatic habitats remains a question. Prior to wetland restoration, planners should carefully consider the potential for contamination, or benefits, where biosolids have been land-applied. Additionally, before identifying new locations in the baylands for land application of biosolids, the potential impacts to soil, water quality, persistence in existing and restored habitats, and uptake by estuarine organisms need to be examined. Future management of the diked baylands is a regional issue requiring a collaborative planning effort involving farmers, regulators, critical infrastructure planners (including transportation, water, wastewater, etc.), and restoration practitioners.

Section 1. Introduction and Purpose

San Francisco Bay (Bay) is an estuary surrounded by low-lying marshes and mudflats. These lands comprise a continuum of habitats connecting the open waters of the Bay to terrestrial uplands and are collectively known as the baylands—the areas between high and low tide elevations. Most of the baylands have been cut off from the Bay by a system of earthen dikes to allow farming and other land uses. In recent decades, the community of wetland scientists and managers in the Bay Area have recognized and highlighted the ecological importance of the baylands (Goals Project 1999 & 2015). San Francisco Bay Joint Venture (SFBJV) has the

ambitious goal to conserve, restore, and enhance 160,000 acres of wetland habitat in the Bay, and federal, state, local, non-profit, and private partners are working collaboratively towards this goal.

While the largest restoration project in the Bay, the South Bay Salt Pond Restoration Project, continues to progress, remaining opportunities to conserve and restore baylands are predominantly in the North Bay, the northernmost of the four subembayments that comprise the Bay. The North Bay in particular presents unique opportunities to conserve and restore baylands in a manner that maintains and improves connections between baylands, subtidal habitats, open waters of the Bay, and adjacent terrestrial habitats. Nearly half of the diked baylands of the North Bay remain in agricultural production and are relatively undeveloped in comparison with the highly urbanized shoreline of the Central Bay (Goals Project 2015; Figure 1b).

Because these thousands of acres of North Bay baylands are in agricultural production and remain undeveloped, they are attractive both for agricultural operations, and, when they become available for purchase, tidal marsh restoration. Since the 1920s, biosolids have been applied to agricultural lands as standard practice across the country to offset the production, transport, and use of synthetic fertilizer, the use of unregulated manure, and irrigation demand. In the North Bay, application has occurred primarily in the lower Petaluma River Corridor, Tubbs Island/lower Tolay Creek, and near the Napa Airport (additional details are provided in Section 5 and Figure 12). Biosolids are seen as compatible with agriculture for the benefits they provide to crop production, restoring soil health, and carbon sequestration. The passage of Senate Bill 1383 Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reduction Regulation (SB 1383) limits organics disposal to reduce greenhouse gas emissions from landfills and directs that recycled organics (including biosolids) be beneficially used (for example, land application of biosolids). The need to redirect biosolids from landfills may increase the demand to place biosolids on agricultural lands in general, as well as those in the baylands.

We all contribute to the generation of biosolids, and the question of where they end up and how they are used is a community issue. Sea-level rise is also a shared concern, and it is imperative to act quickly to restore tidal wetlands along the Bay margin to protect our shoreline communities. The diked agricultural baylands of the North Bay are in demand for biosolids management and for wetland restoration. Agricultural land application of biosolids is considered beneficial use by the US Environmental Protection Agency (EPA; 40 CFR Part 503) and the California State Water Resources Control Board (SWRCB). At the same time, this region provides a tremendous opportunity to restore a mosaic of habitats connecting the Bay to its watersheds.

The diked agricultural baylands of the North Bay are protected by a system of earthen levees and berms that were not designed to accommodate sea-level rise or prolonged immersion, which is all that protects some of these low-lying lands from storm surge and sea-level rise. However, it should be noted that levees protecting agricultural lands receiving biosolids and owned by Vallejo Flood and Wastewater District or City of Santa Rosa, for example, undergo evaluation, are repaired accordingly, and are regularly maintained to prevent flooding. The costs

of planned or unplanned levee breaches need to be considered by stakeholders in both conservation and agricultural land uses. These sites are vulnerable to unplanned levee breaches and rising groundwater as sea level rises. Therefore, it is important to understand the ramifications of biosolids placement in the agricultural baylands and the potential use of biosolids in restoring these areas to tidal wetlands for mitigation of sea-level rise impacts. For both publicly and privately owned levees in the baylands where biosolids have been placed, sea level rise implications should be considered relative to whether levees need to be modified or other actions need to be taken.

The intersection of wetland restoration, biosolids application to agricultural lands, and sea-level rise in the baylands is relatively unexplored. It is incumbent on all of us to understand whether and how these shared community needs (future wetland restoration, biosolids use and habitat conservation, and sea-level rise resilience) can be compatible. For that reason, Sonoma Land Trust partnered with San Francisco Estuary Institute (SFEI) and Ducks Unlimited (DU) to research and write this white paper in collaboration with the Bay Area Biosolids Coalition and the Bay Area Clean Water Agencies. Once it became clear that biosolids management is a regional practice (i.e., beyond Sonoma County), the SFBJV became the lead sponsor of this publication. SFBJV has an urgent goal to restore tens of thousands of acres to tidal marsh, and much of the diked baylands currently or potentially available for restoration are deeply subsided below the elevations needed for tidal marsh to form (Goals Project 2015). Given the significant shortage of sediment available for that restoration, and the available organic soil amendments (including biosolids) resulting from implementation of SB 1383, it is important to discern whether land-applying biosolids in the baylands will preclude or facilitate restoring any lands identified for future restoration to tidal marsh; however, biosolids could account for less than 1% of future baylands sediment deficit at most (Dusterhoff et al. 2021).

Agricultural lands within the baylands receive various amendments such as synthetic fertilizer, manure, and biosolids—all of which contribute to soil quality. This paper addresses biosolids, the most regulated and well documented of these amendments. While we do not examine synthetic fertilizer and manure herein, our recommendations reflect the need to look at the soil as a whole and identify the various contributions from specific amendments. We therefore encourage researching other amendments, including fertilizers and manures, and extending this research to other contaminants of emerging concern to understand their contribution to soil quality.

The purpose of this document is to bring together existing knowledge of the baylands and biosolids management to highlight key gaps in our understanding and to make recommendations for future work. To achieve this, we need to address two questions: *(1) does biosolids land application inhibit wetland restoration via the threat of contaminants?* and *(2) could land application benefit the restoration process?* Answers will require engagement from the conservation community, the wastewater sector, landowners and farmers, and the regulatory agencies, all of which have common goals to improve the Bay ecosystem, and an understanding of whether and how biosolids affect water and sediment quality. Within the body of this paper we describe the value of baylands for conservation, how biosolids can be beneficially used, and the current legislation influencing and regulating these outcomes. We

then explore opportunities to manage restoration and biosolids together. Our goal is to provide actionable steps to fill data gaps and address challenges that can be addressed on a regional level. The recent changes in legislation (e.g., SB 1383) will have impacts on biosolids management, which will have implications for agricultural areas, including the North Bay. The strategies presented in this paper are meant to provide guidance for planning in the Bay Area baylands and may be referenced by other regions grappling with similar land use considerations.

Section 2. The Baylands Fringing San Francisco Bay

The Bay is the largest estuary system on the Pacific coasts of North and South America and is collectively designated as a wetland of international importance under the Ramsar Convention (Goals Project 2015). Over one million shorebirds overwinter in the Bay, and it is recognized by the Western Hemisphere Shorebird Reserve Network as a site of Hemispheric Importance. More than half of the diving duck population of the Pacific Flyway (one of four major north-south migratory corridors in North America) winter here, and the Bay provides homes for more than 1,000 animal species and 130 species of resident and migratory marine, estuarine, and anadromous fish. This high species diversity is made possible by the thriving mudflats and marshes at the edges of the Bay, comprising both historical and restored baylands.

The baylands are not only critical for sustaining biodiversity in the region, they also protect roadways and vulnerable communities around the bay from erosion and can provide resilience to rising seas. Baylands provide natural infrastructure as they have the unique capacity to improve water quality, sequester carbon, reduce flooding, and help stabilize shorelines against erosion.

Diked Baylands

Over the past 150 years, the Bay has experienced significant changes to its landscape and natural processes through land changes for agriculture, urban development, and salt production. Reclamation and conversion led to the loss of approximately 95 percent of historic tidal wetlands Bay-wide (Goals Project 2015). Diked baylands are the diked, ditched, and drained baylands that would be inundated by regular tides if they were not protected by dikes. These low-lying lands are generally the same areas vulnerable to flooding with future sea-level rise (SFEI & SPUR 2019).

Figure 1a shows the extent of the historical tidal marshes and mudflats in the early 1800s prior to significant diking and draining. Figure 1b shows the distribution of today's tidal marshes and diked baylands in the Bay. Land uses within the diked baylands vary: present and former salt ponds in the North and South Bays, agricultural land in the North Bay, flood retention basins such as the Palo Alto Flood Basin, and significant residential areas in the Central Bay such as Foster City, and Redwood Shores. In many areas, the diked baylands are used as corridors for infrastructure, including roads, rail lines, airports, wastewater lines, and transmission lines that will need to remain protected or be relocated if the dikes are breached.

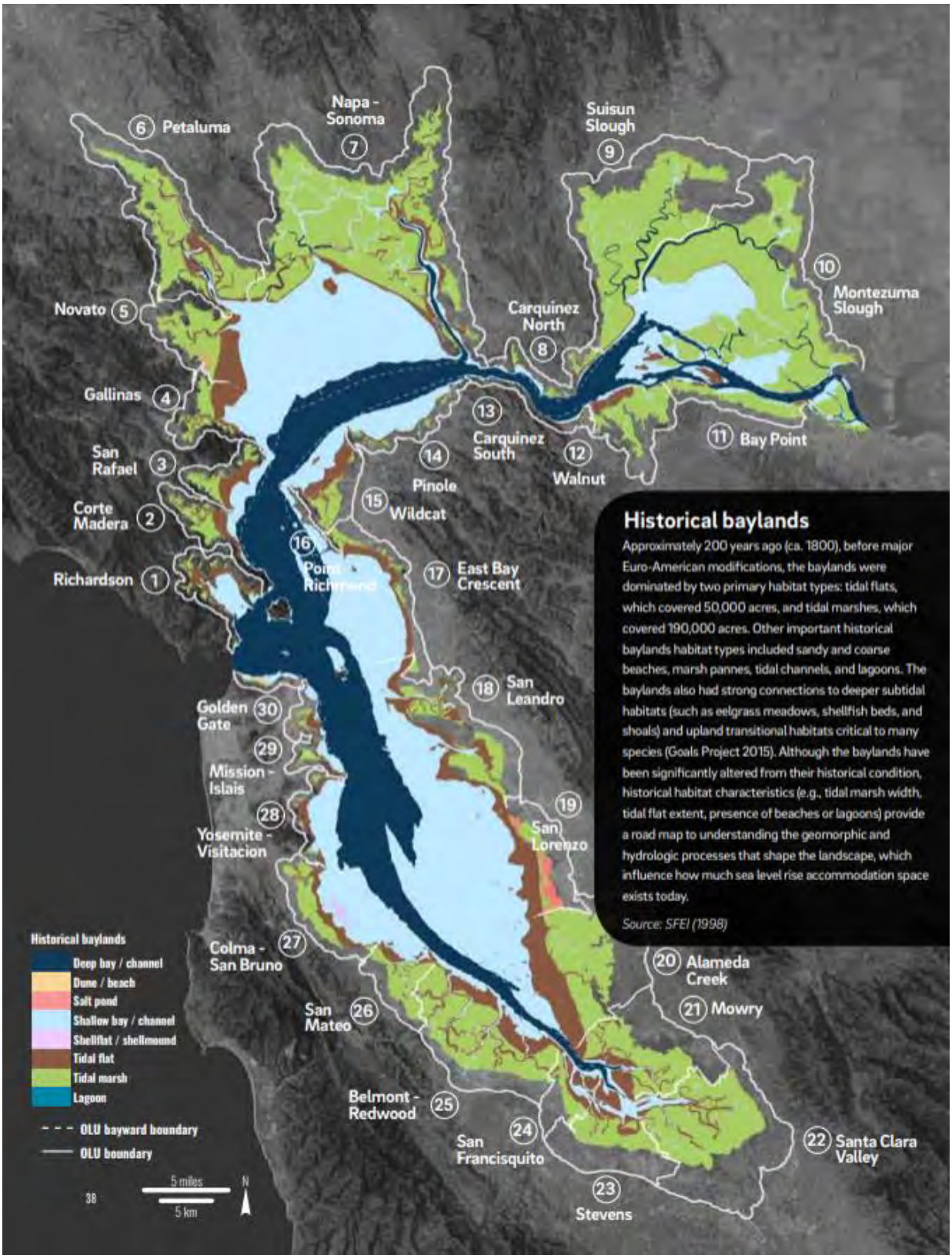

Figure 1a. Historical distribution of habitats within San Francisco Bay (SFEI & SPUR 2019).

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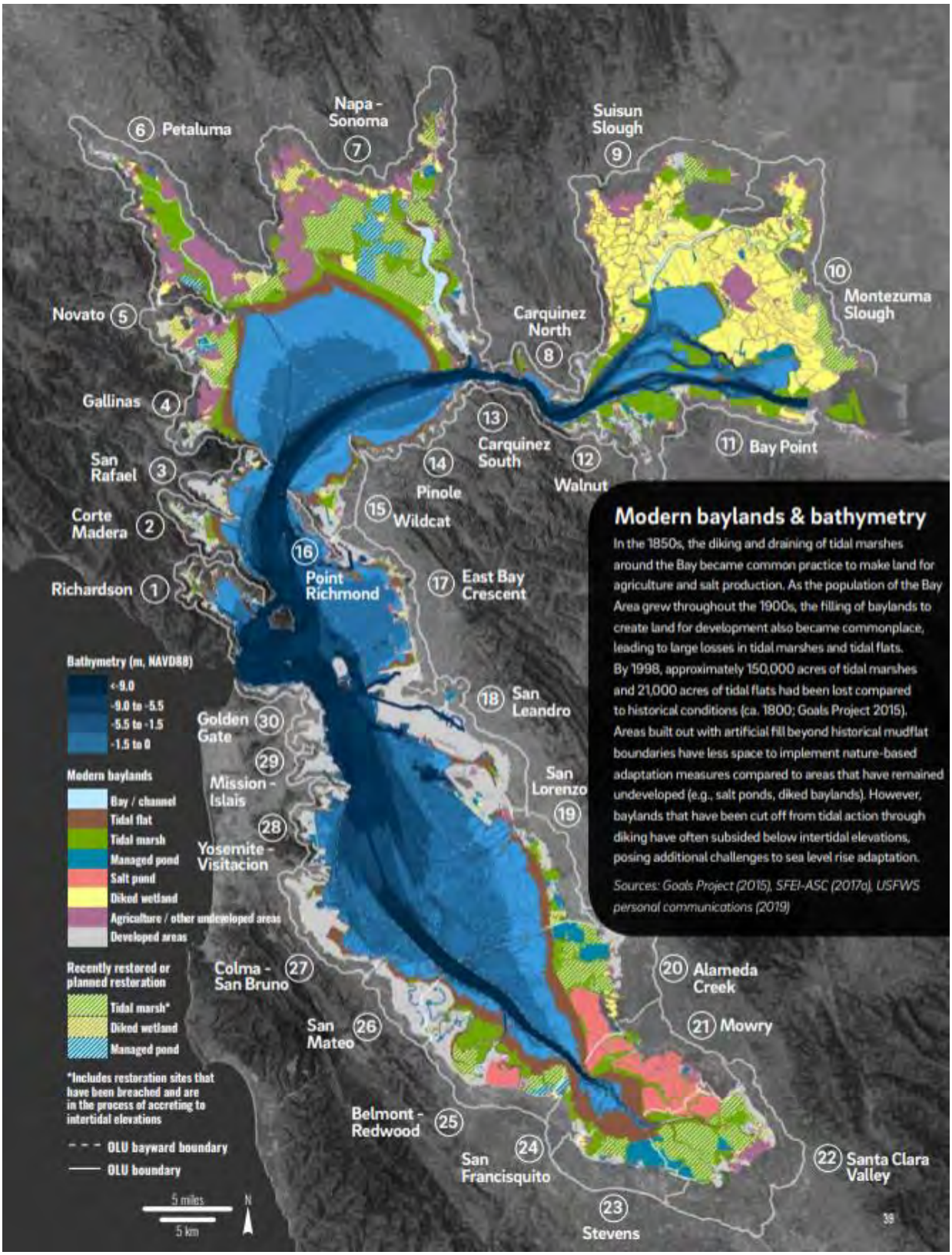

Figure 1b. Present distribution of habitats and land uses within the San Francisco Bay historic baylands margin (SFEI & SPUR 2019). SFEI is currently remapping the present-day habitats.

Nearly all the diked agricultural land that could be used for the land application of biosolids are in the North Bay (Figure 1b). Historically, there were over 50,000 acres of tidal and seasonal wetlands fringing the shores of the North Bay. Starting in the mid-1800's, 82 percent of the tidal wetlands were converted to diked baylands and drained for agriculture or used for salt production (Goals Project 2015). In comparison with the rest of San Francisco Bay, most of the diked baylands of the North Bay remain in agricultural production and are relatively undeveloped, which creates an opportunity for acquisition from willing sellers for restoration. These areas are also uniquely important from an ecosystem perspective because of the opportunity for marshes to move upslope as sea level rises. Figure 2 shows the present mosaic of tidal marshes, diked agricultural land, and planned restoration of former diked agricultural land and salt ponds in the North Bay. Also shown are biosolids land application areas in the baylands, which are described in Section 5.

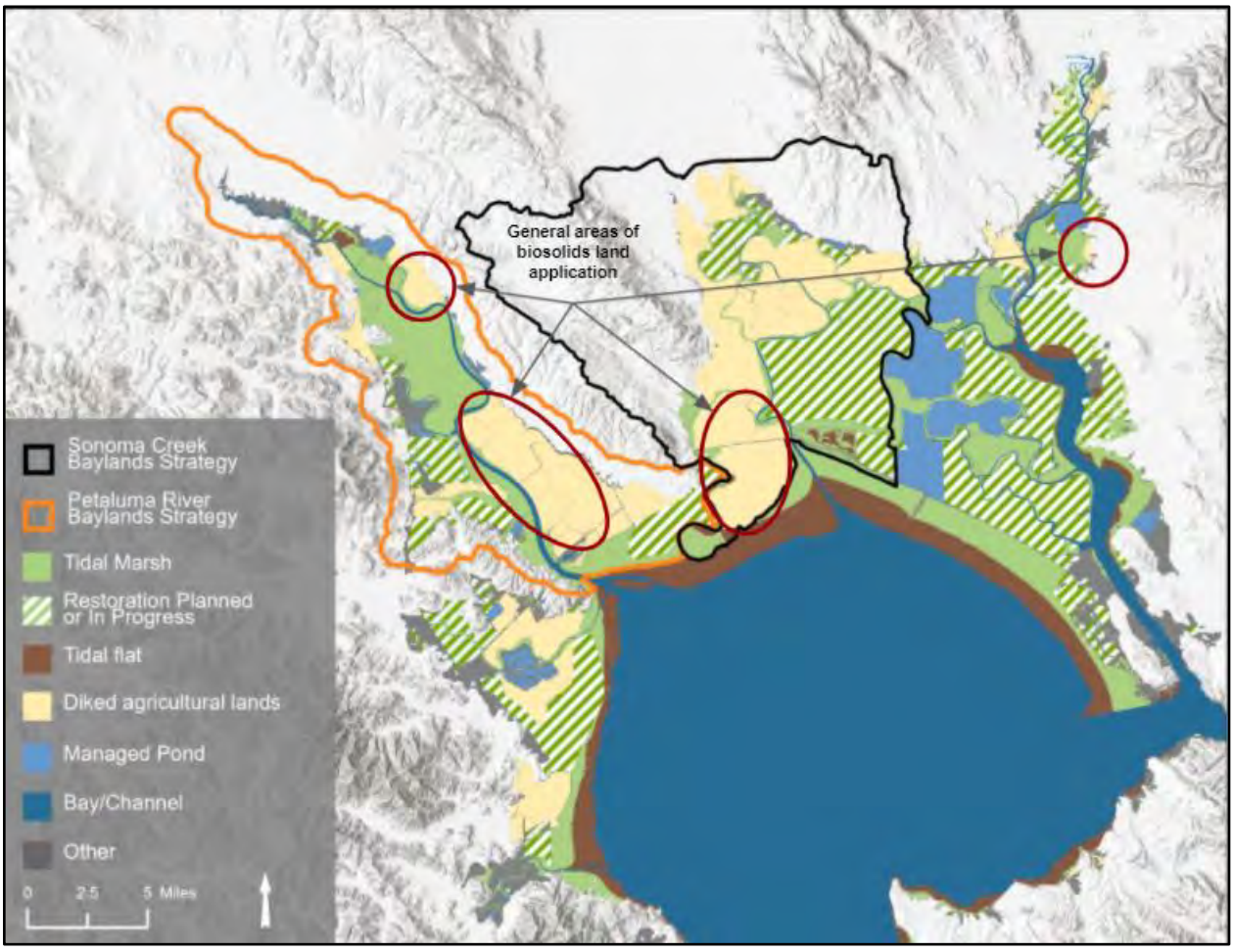

Figure 2. Distribution of diked agricultural baylands, tidal marsh, restoration planned in the North Bay, and biosolids land application sites. The Sonoma Creek Baylands Strategy and Petaluma River Baylands Strategy boundaries are areas where there are specific restoration strategies.

The diking of baylands not only changed the land uses of the North Bay. Cutting the baylands off from tidal inundation has dramatically altered the landscape. The diked baylands have

subsided due to the compaction and desiccation of exposed organic soils. Even in areas that remained wet, such as salt ponds, the marsh vegetation was lost due to increased salinity. The organic contribution to accretion was lost when marsh vegetation diminished, and the influx of sediment from the Bay was blocked by dikes. The combination of no mineral sedimentation and desiccation of soils has resulted in deeply subsided baylands (relative to the present tide elevations), which lack the ability to accrete to keep up with sea-level rise. Figure 3 shows the present ground elevations of the Petaluma River mapped using LiDAR data analyzed by the USGS (Buffington and Thorne 2019). Figure 4 shows the ground elevations for Sonoma Creek using the same data source. Along both Sonoma Creek and the Petaluma River, the diked baylands are below mean low water while the tidal marshes are generally above mean high water.

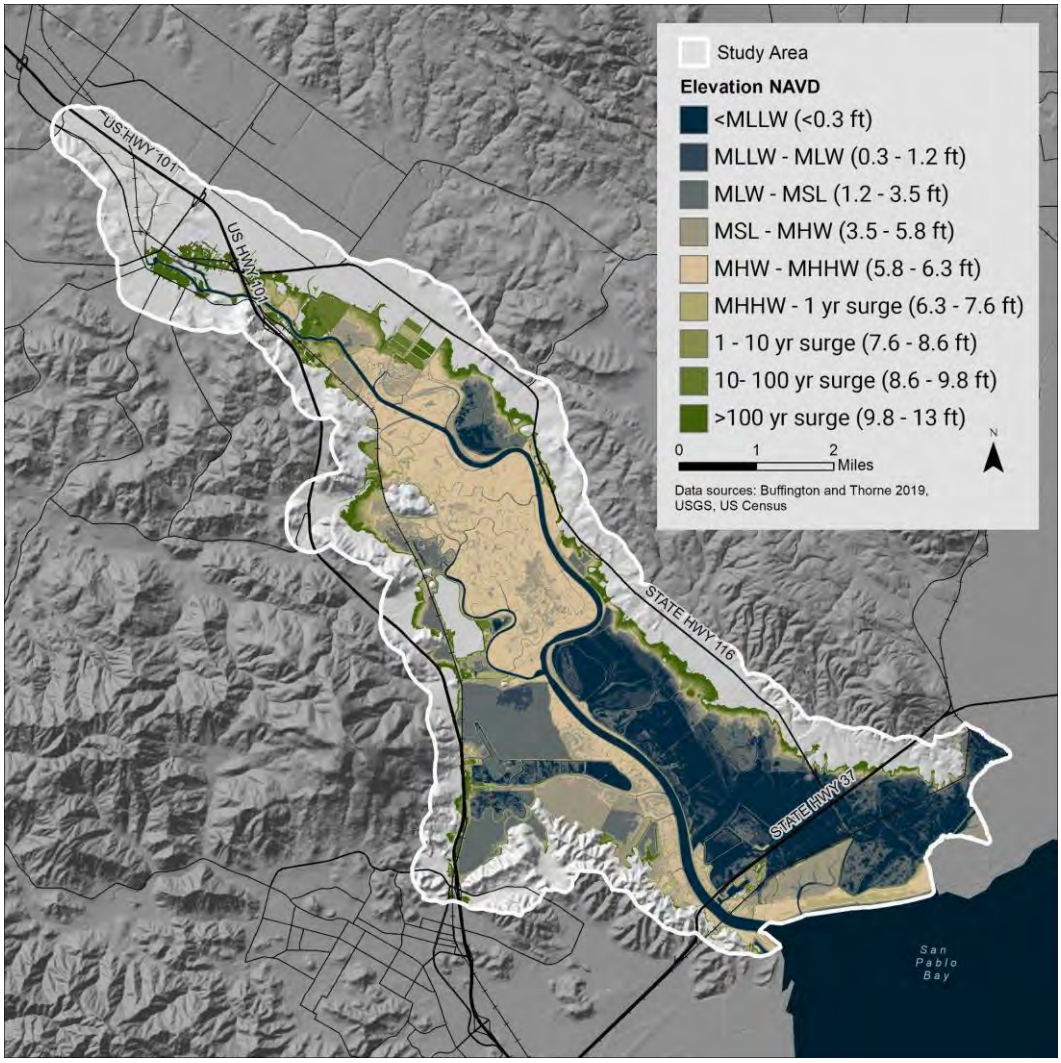

Figure 3. Ground elevations within the Petaluma River Baylands. The elevation bins are based on present day tidal datums and storm surge predictions reported in the *San Francisco Bay Tidal Datums and Extreme Tides Study* (AECOM 2016).

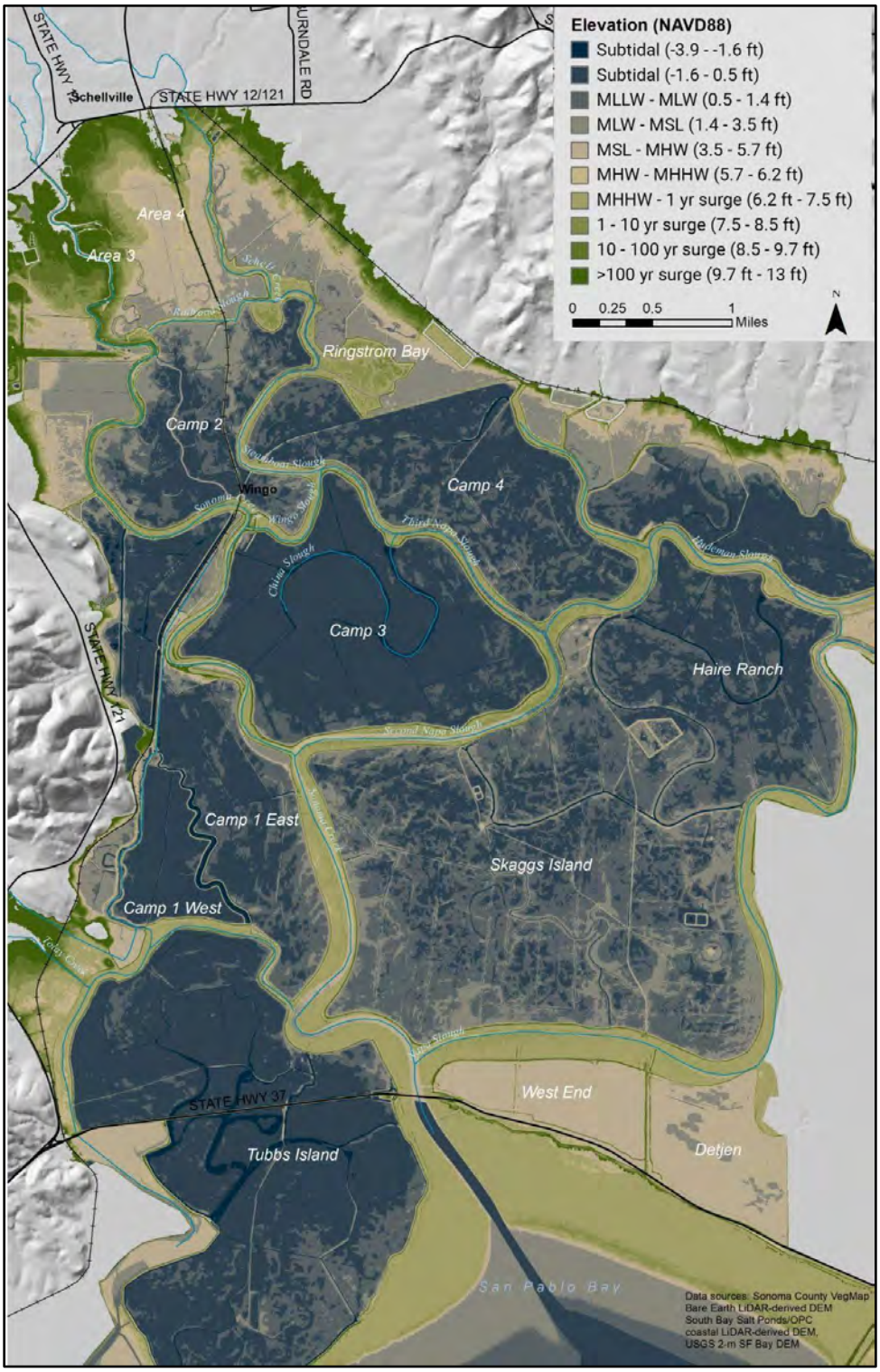

Figure 4. Ground elevations in the Sonoma Creek baylands. The elevation bins are based on present day tidal datums and storm surge predictions reported in the *San Francisco Bay Tidal Datums and Extreme Tides Study* (AECOM 2016).

The vulnerability of the area to flooding from the Bay is dependent upon the water levels, the ground elevations of the diked baylands, and the levee crest elevations. Figure 5 shows the present elevations of the ground, water, and levees for the diked baylands on the eastern side of the Petaluma River as mapped in Figure 3. The blue column shows the elevation of regular tides, highest tides, and storm surge, which, if occurring together, could result in an extreme water level of up to 10 feet NAVD. The green column shows a range of ground elevations representing some of the diked baylands at about 0 to 5 feet NAVD. The orange column represents today's levee crests between 8 and 11 feet NAVD which serve to protect the area from today's tides and storm events. Figure 5 illustrates the importance of levees, as the diked baylands are below mean sea-level and, without levees, would be inundated on every tide.

Figure 5. Ranges of water surface elevations, ground surface elevations of diked baylands, and levee crest elevations in the diked baylands of the eastern side of the Petaluma River. Elevation data from Buffington and Thorne (2019).

Managing diked baylands requires maintenance of dikes, water control structures, and pumps to manage water levels and prevent flooding. Stormwater that accumulates behind a levee can drain by gravity at low tide in some locations, but in other locations must be pumped into the Bay. The levees, constructed to varying elevations and standards, are in some cases too low to protect against more extreme storm events. While POTW's monitor and maintain levees protecting active agricultural lands they own and receive biosolids, the farmers are not required to monitor or keep records, nor are they required to maintain levees to particular standards.

Extreme events can lead to either overtopping or breaching of levees, resulting in large areas being inundated for significant periods of time.

The Bay Conservation and Development Commission (BCDC) Flood Explorer (https://explorer.adaptingtorisingtides.org/explorer) can be used to identify potential areas of vulnerability of the diked baylands to flooding today by a king tide (Figure 6) and a 5-year storm surge (Figure 7). Most of the areas flooded today by a king tide are areas already slated for restoration. Most of the diked agricultural areas remain dry in a king tide, with the exception of the area along Steamboat Slough within the Sonoma Creek watershed. With a 5-year storm surge, many more levees are overtopped, and flooding can occur for diked agricultural baylands on the eastern side of the Petaluma River and Sonoma Creek.

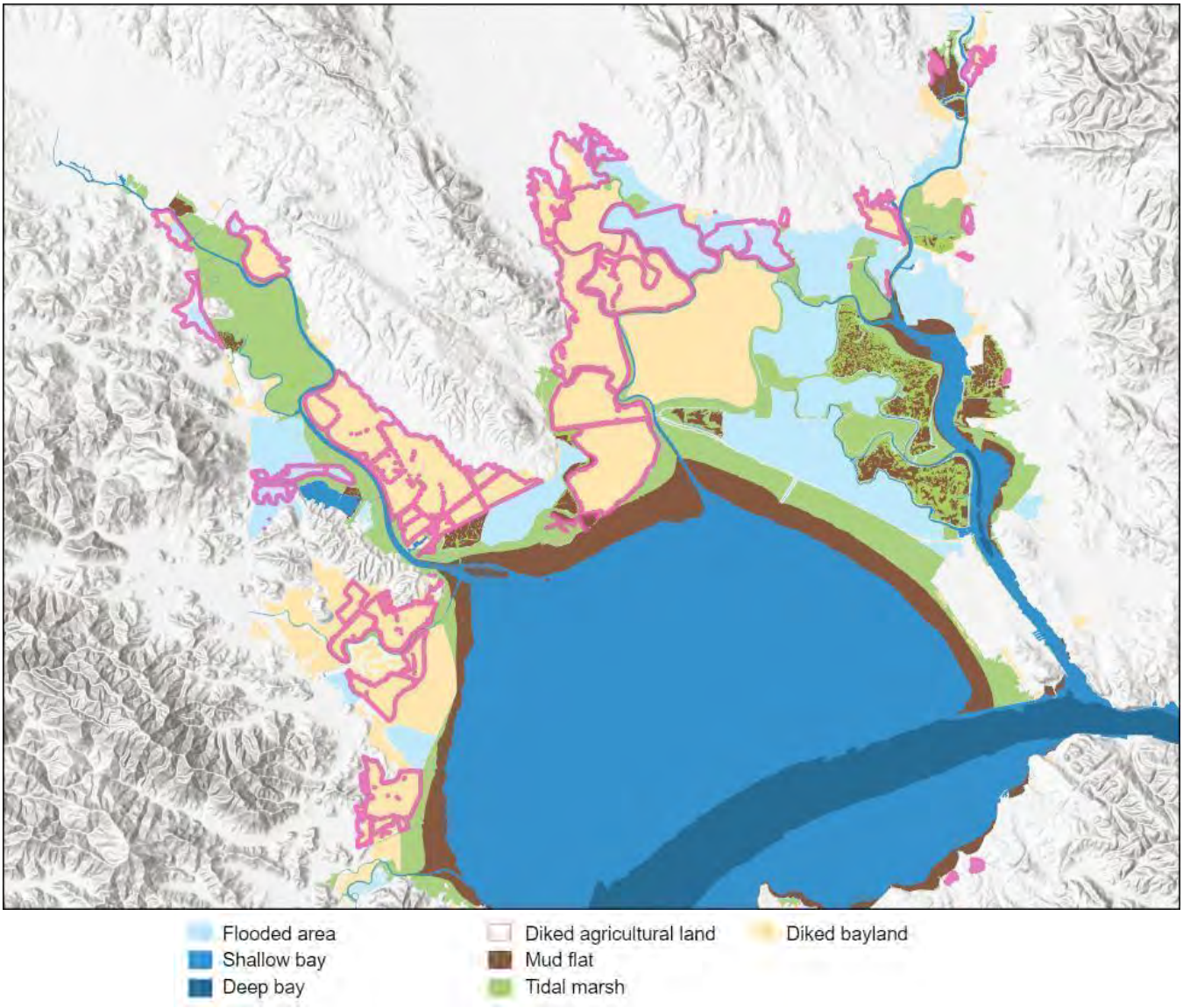

Figure 6. Present day flooding of diked baylands in the North Bay with a king tide. BCDC Flood Explorer (https://explorer.adaptingtorisingtides.org/explorer).

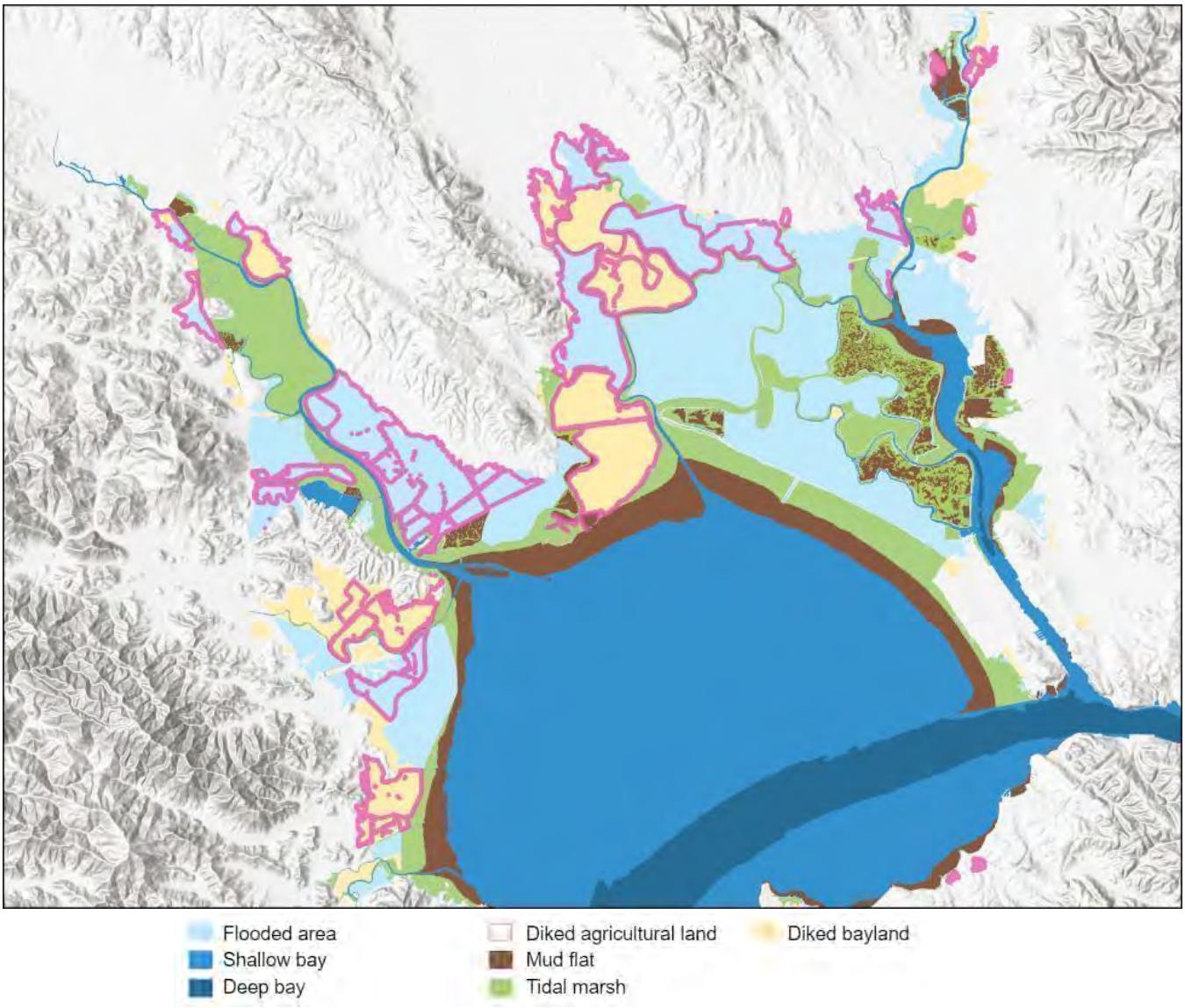

Figure 7. Present day flooding of diked baylands in the North Bay with a 5-year storm (BCDC Flood Explorer, https://explorer.adaptingtorisingtides.org/explorer).

Sea-Level Rise and Groundwater

The potential for inundation of diked baylands will increase as sea levels continue to rise in the baylands and the likelihood of overtopping existing levees will increase in turn. Sea level has risen about eight inches over the last century at the San Francisco tide gauge (NOAA gauge 9414290, www.tidesandcurrents.gov), and the rate of rise is increasing with global climate change. The most recent guidance from the State of California provides sea-level rise projections to use for local adaptation planning (CNRA-OPC 2018). The recommended projections for San Francisco are shown in Figure 8. These projections suggest we should be planning for 24 inches of sea-level rise sometime between 2050 and 2070. Water levels will reach these thresholds intermittently during storm surges prior to becoming a regular

occurrence.

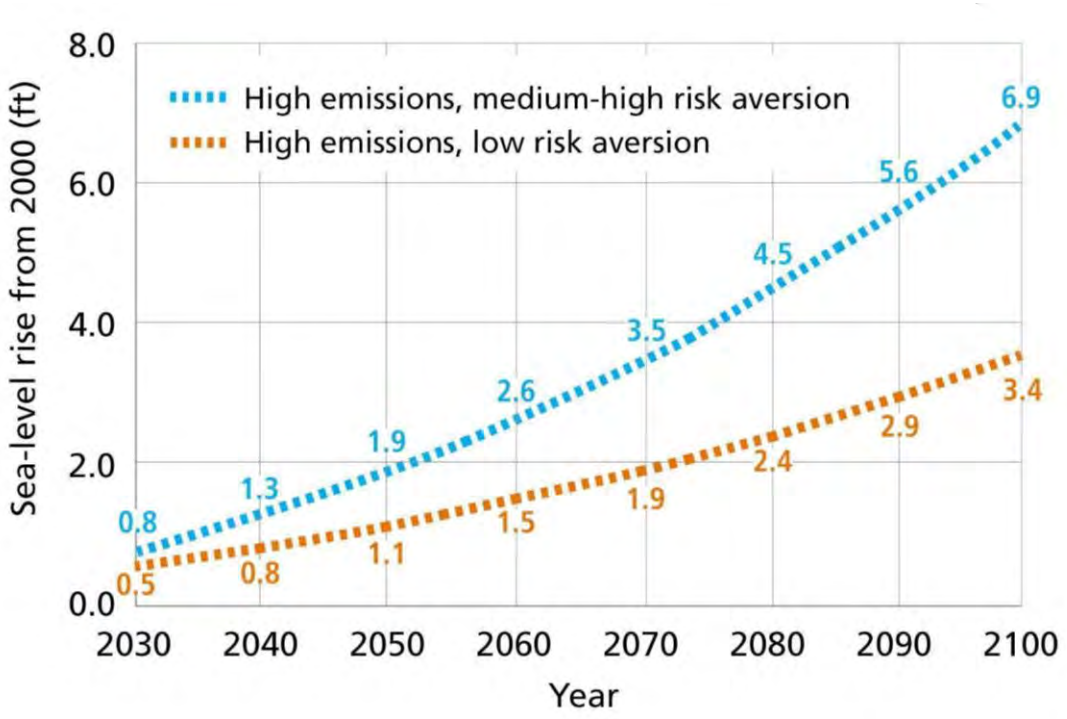

Figure 8. Sea-level rise projections for San Francisco, from the State of California Sea-Level Rise Guidance (Table 1, CNRA-OPC, 2018). Both curves shown on the chart are for a high-emissions scenario. The blue line shows the 0.5 percent probability sea-level rise curve, which is recommended for medium-to-high risk aversion planning purposes.

Figure 9 shows the areas flooded by a king tide on top of 24 inches of sea-level rise with levees at their present elevation. All the agricultural baylands on the eastern side of the Petaluma River and a significant amount in the Sonoma Creek, including Tubbs Island, could be flooded. In addition, diked agricultural lands along Novato Creek and the Napa River could also be flooded. Sea-level rise and increasing storm surges are inevitable and it is likely that overtopping and breaching of levees will occur in the next few decades. While POTWs inspect and maintain levees protecting active agricultural sites they own that receive biosolids, there is no overarching requirement for landowners to maintain levees, and it is expensive to maintain levees relative to the value of the land and its crop potential.

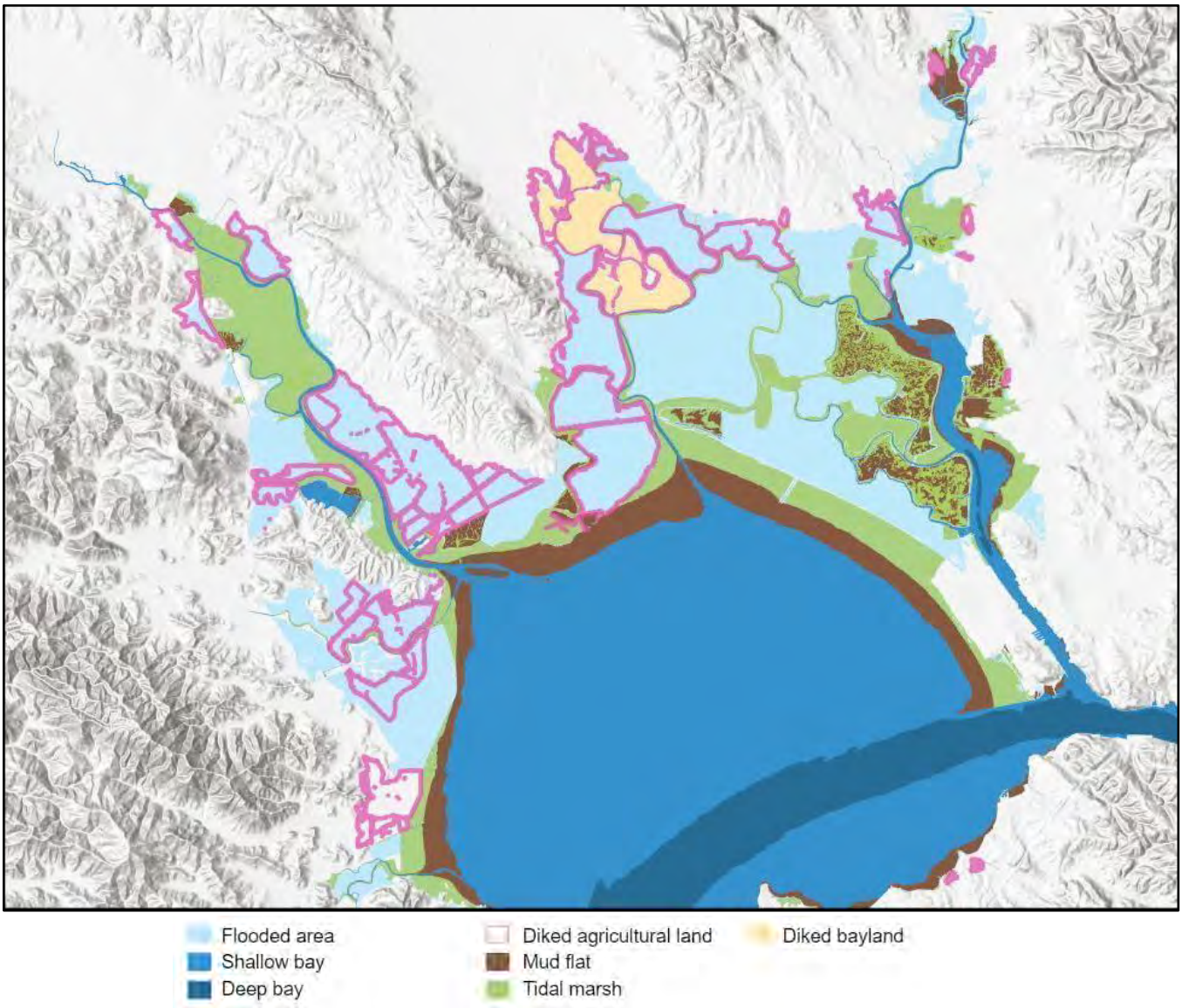

Figure 9. Potential future flooding of diked baylands in the North Bay with 24 inches of sea-level rise and a king tide (BCDC Flood Explorer, https://explorer.adaptingtorisingtides.org/explorer).

Sea-level rise also has implications for the groundwater table. Groundwater is close to the surface in many of the subsided diked baylands. The USGS incorporated depth to groundwater projections within the CoSMoS model of future sea-level rise hazards (Befus 2020). Figure 10 shows the projections from that modeling of present-day depths to groundwater.

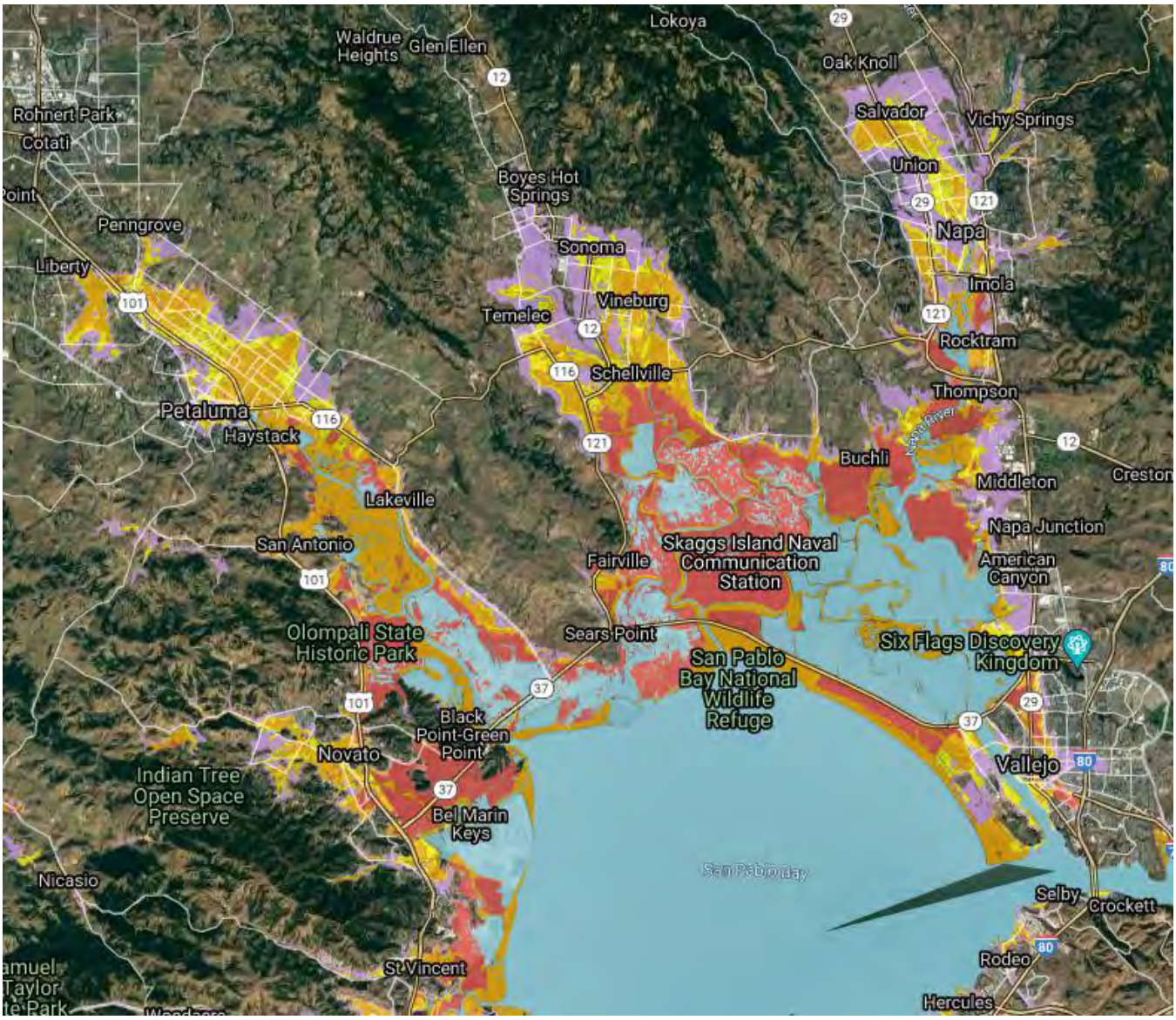

Figure 10. Present day depth to groundwater (USGS CoSMoS model, accessed via the Our Coast Our Future web platform Sept 2, 2021).

Restoration of Diked Baylands

Over the past two decades, federal, state, local, non-profit, and private partners have worked collaboratively to restore the baylands, and have ambitious goals to conserve, restore, and enhance 140,000 acres bay-wide (SFBJV, In Preparation - anticipated 2022). These actions are needed by 2030 to protect biodiversity, to continue to provide nursery and spawning grounds for

important native commercial species like Dungeness crab and Chinook salmon, to protect our shorelines, to continue to provide carbon sequestration benefits, and to increase resilience in the face of increasingly rapid rates of sea-level rise.

Extensive progress has been made to restore tens of thousands of acres of habitat. Specific restoration actions include purchasing land from willing sellers, breaching dikes to reconnect tidal hydrology, planting native species to enhance upland transition zones and to accelerate marsh species colonization, placing sediment to raise subsided areas, improving hydrology by reconnecting or creating new channels, and creating higher areas within marshes to provide high-tide refugia. In a few instances (i.e. Hamilton Airfield, Cullinan Ranch, Montezuma, Bair Island and South Bay Salt Ponds Restoration Project Phase 2), sediment has been imported from material dredged from subtidal Bay habitats, or from imported upland material to actively restore sites to elevations suitable for tidal marsh establishment. In these instances, the imported material must be evaluated to ensure it is suitable for either foundation material that will be buried under at least three feet of clean surface material, or as wetland surface material. These efforts are largely limited by the quantity of material available for wetland placement, and by the cost of transporting suitable material to wetland restoration sites. This full suite of restoration and enhancement actions is needed, and implementation must be accelerated to achieve ambitious conservation goals, to ensure these habitats can persist to support the species that rely on them, and to provide the ecosystem services all citizens of the Bay Area require.

Section 3. Biosolids

As defined by the U.S. Environmental Protection Agency (EPA), biosolids are “nutrient-rich organic material resulting from the treatment of domestic sewage in a treatment facility.” Once wastewater reaches a treatment facility, the sewage undergoes physical and biological processes that remove and separate the solids from the wastewater. The solids are then treated and stabilized through other processes to reduce or eliminate pathogens and to repel vectors, producing biosolids. Decades of studies have demonstrated that biosolids can be safely used for the production of crops. It is important to note that pretreatment standards which have been imposed since the 1980’s have lowered metal

Box 1. Are Land Applied Biosolids Safe for Wetlands? While there is confidence in the safety of land applied biosolids for agricultural use, we are still learning whether introducing biosolids to wetland ecosystems could be equally safe. At this time, 40 CFR Part 503 prohibits the application of biosolids to and establishes setback requirements from wetlands. Therefore, applying biosolids directly to wetlands would trigger additional water quality permitting. However, research has been completed in California (Foster-Martinez and Variano, 2018), Idaho (DeVolder et al, 2003), and British Columbia (Sylvis, 2022) related to implications of restoring wetlands in regions where biosolids have been land-applied or used in wetland restoration surface or foundation material. The impetus for this paper is to understand the potential impacts of biosolids in marine environments in order to mitigate risk to aquatic organisms, water quality, and wetland resilience.

concentrations in biosolids to levels comparable to those found in animal manure and synthetic fertilizer (Moss et al. 2002).

Biosolids are typically used in one of the following four forms: rich moist solid, dried pellet, liquid, or compost. Biosolids are generally recycled as a soil amendment but have also been used beneficially as alternative daily cover (ADC) at landfills. When applied to land, biosolids application rates are restricted based on the nitrogen need of the crop to be grown and characteristics of the soil at each application site. For example, by regulation the land application rate is limited to balance the nitrogen needs of the crop (taking all nitrogen sources into account), in turn offsetting the need for synthetic fertilizer. After biosolids are applied, the nutrients plants need are slowly released from biosolids throughout the growing season enabling crops to absorb available nutrients as they grow.

There is a significant body of research from across the U.S. which demonstrates the many co-benefits from land application of biosolids for agricultural use, including local research on California soils recently completed by Dr. Rebecca Ryals and Dr. Yoceyln Villa at University of California Merced (Villa et al. 2021) examining carbon sequestration resulting from biosolids use. In addition to carbon sequestration, the use of biosolids increases soil organic matter which in turn improves soil structure to enhance water retention capacity, soil tilth, crop yields, and improved tolerance to drought conditions (Zhang et al. 2009 and 2006).

An important step for many publicly owned treatment works (POTWs) is processing solids through anaerobic digestion, which stabilizes the organic matter and reduces pathogens and odors. Anaerobic digestion also produces biogas as solids degrade (~60 percent of which is methane, a potent greenhouse gas), which is captured and beneficially used for energy and heat production, export of excess electricity to the grid, or as a transportation fuel. POTWs that process their solids through anaerobic digestion must capture their biogas, and most generate electricity onsite to offset their purchased energy and increase their resilience to power outages. The state has various programs in place that incentivize the production and use of biogas to avoid fossil fuel-based energy and/or transportation fuel consumption. For example, CalRecycle's SB 1383 regulations require procurement of regenerated products including biogas generated from anaerobically digesting diverted organic waste, by jurisdictions based on their population. Additionally, the California Public Utilities Commission's SB 1440 requires (and sets goals for) the state's investor-owned utilities to procure biogas based renewable energy from POTWs to offset their fossil fuel based energy consumption. These efforts are in support of achieving the state's 2030 target for greenhouse gas emissions reductions (i.e., 40 percent below 1990 levels), including the SB 1383 target to reduce methane emissions by 40 percent by 2030 (relative to 2013), and ultimately carbon neutrality.

Bay Area POTWs (i.e., those permitted by the San Francisco Regional Water Board and Santa Rosa's wastewater treatment plant (WWTP)) have produced approximately 165,000 dry metric tons of biosolids annually on average over the past ten years.[1] Figure 11 summarizes the

[1] Biosolids production ranges between 143,000 and 172,000 dry metric tons based on data reported to EPA for years 2010 through 2020 and shows no long-term trend.

biosolids management practices of Bay Area POTWs for years 2009 through 2020. Since SB 1383 defines use of biosolids as ADC as disposal and 50 percent of biosolids have historically been used for that purpose, it is expected that POTWs will look to expand land application of biosolids, to be in compliance with SB 1383 which aims to further mitigate climate change by restoring agricultural soil health.

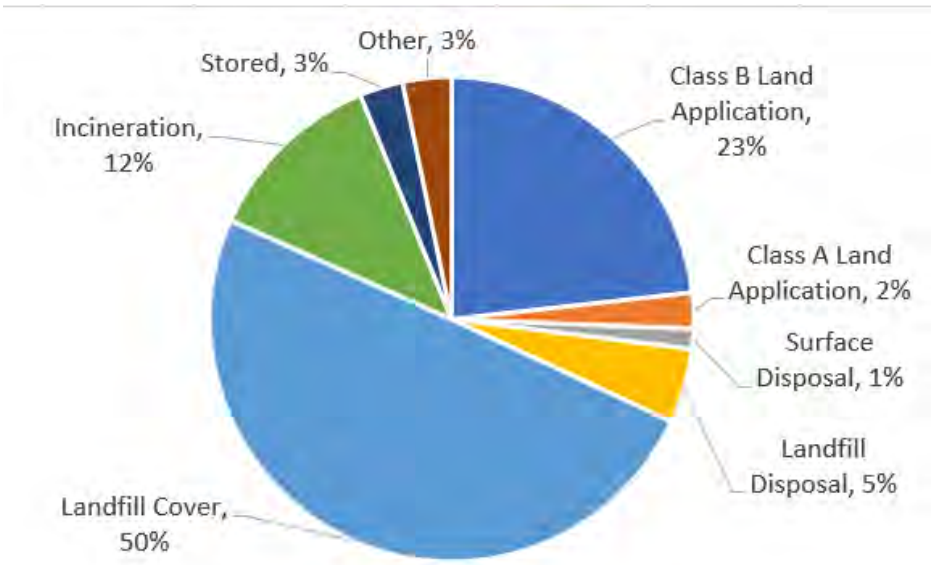

Figure 11. Bay Area POTW biosolids management practices for years 2009 through 2020. Data sourced from annual reports to the EPA, based on dry weight.

About 25 percent of Bay Area biosolids on average are being applied to agricultural land, approximately 4.5 percent of which is applied to agricultural lands within the baylands.[2] Application to agricultural baylands has been considered a standard practice for the benefits biosolids provide to crop production and benefits the baylands by displacing the unregulated application of synthetic fertilizers and manure, as well as the reduction of vehicle-miles traveled for transport of the local organic soil amendment (relative to synthetic fertilizers and manure). One of the findings in the State Water Resources Control Board's (State Water Board) Programmatic Environmental Impact Report (PEIR) is that the land application of biosolids to agricultural lands represents its highest and best use (PEIR 2004). As mentioned, the passage of SB 1383 and its supporting regulations (Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reduction Regulation, effective January 1, 2022) requires reducing the quantity of organics accepted by landfills (including biosolids for ADC or disposal) and recycling them back to soil (e.g., via land application). This puts pressure on utilities to find beneficial uses for biosolids. These regulations and the Governor's initiative to increase implementation of nature-based climate strategies (especially those that improve soil health) have renewed

[2] The percentage of biosolids applied to agricultural lands within the baylands has ranged from 3.3 to 4.8 percent for years 2010 through 2020 and remains relatively stable at 4.5 percent on average.

municipalities' interest in recycling biosolids back to soils via land application.

Section 4. Current Regulations of Biosolids & Wetlands Criteria

Federal Regulations of Biosolids

Biosolids are subject to federal, state, and sometimes local regulations, primarily through the Environmental Protection Agency (EPA) at the federal level, the State and Regional Water Boards, and county-specific regulations, if applicable. Biosolids regulations fall under the umbrella of the 1972 Clean Water Act (CWA). In 1993 the EPA adopted comprehensive risk based regulations under the CWA known as Standards for the Use or Disposal of Sewage Sludge (Title 40 of the Code of Federal Regulations [CFR], Part 503), which replaced previously existing regulations under 40 CFR Part 257. The 1993 rule (referred to herein as Part 503) established risk-based and technical requirements for biosolids that are land-applied, surface disposed, or incinerated, and was meant to prevent harm to public health and the environment from any reasonably anticipated adverse effects from potential waste constituents and pathogenic organisms present in sewage sludge. As outlined in the preamble of Part 503, the 14 pathways assessed were selected to address the potential risk to human health through contamination of drinking water sources or surface water when sludge is disposed of on the land, including the potential effects directly on crops, on cattle, on aquatic species and wildlife. Part 503 includes pollutant limits, management practices, and requirements for monitoring and reporting. The rule applies to any individual, association, corporation, municipality, or state or federal agency beneficially using or disposing of biosolids. Biosolids used or disposed of at landfills are regulated under 40 CFR part 258.

Part 503 is a self-implementing rule, meaning anyone treating, land-applying, or disposing of biosolids must comply with the Part 503 rule regardless of whether they hold a federal permit. Currently, the State Water Board (under authority delegated by the EPA) issues National Pollutant Discharge Elimination System (NPDES) permits to POTWs for wastewater treatment and effluent discharge. In California, this permit authority is often assigned to the Regional Water Boards. While EPA has delegated permit authority for wastewater treatment and effluent discharge to the State Water Board, it has not delegated such authority for biosolids management. Therefore, California POTWs and all who use or dispose of biosolids are regulated by both EPA and the State Water Board. State regulations must be at least as stringent as federal regulations, and may be more restrictive. Other state regulatory agencies in California, including CalRecycle, also regulate aspects of treatment, use, and disposal of biosolids. Due to the many agencies, perceptions, and climate mitigation opportunities associated with biosolids management, the regulatory landscape in California is dynamic.

Land-applied biosolids must meet risk-based pollutant limits specified by the Part 503 rule for nine heavy metals (arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc), and are subject to monitoring and reporting requirements. Virtually all California biosolids fall far below the risk-based “High Quality” (or pollutant concentration) limits for all pollutants as set by EPA. This is in large part due to strict pretreatment requirements

implemented in the 1980's which regulate what pollutants industries can discharge to municipal POTWs.

Federal regulations also define two classes of biosolids relative to pathogen destruction, as shown in Table 1. Pathogens in Class A biosolids are below detectable levels for essentially all pathogens. Class B biosolids may have low levels of pathogens which rapidly die off when applied to soils and are considered as safe as Class A biosolids when required management practices are followed (EPA 1994). An overarching category of biosolids is called Exceptional Quality or EQ biosolids. EQ biosolids meet the most stringent requirements for pathogens (Class A), pollutant concentrations (High Quality), and vector control (one of the defined process options), making them safe for any land application use. EPA's policy promotes the benefits of recycling biosolids to land to make use of their nutrient content and soil conditioning properties. The extent to which biosolids are treated for beneficial use to meet the appropriate class requirements is dependent on their use (e.g., whether they are sold or given away to the public, what crop is being grown) and the soil conditions. Bay Area municipalities treat biosolids to class levels driven by the use, crops and soil conditions at targeted application sites.

Table 1. EPA 40 CFR 503 Pathogen Reduction Requirements for Class A and Class B

Class A	Class B

Either fecal coliform density in the sewage sludge is less than 1,000 MPN/gram of total solids (dry weight basis), or the density of Salmonella species bacteria in the sewage sludge is less than 3 MPN/4 grams of total solids (dry weight basis).
Sewage sludge must be treated and/or meet one of the following alternatives before use or disposal. For more details on each treatment alternative, refer to 40 CFR 503.32(a):

- Thermally treated.
- High pH-high temperature treatment.
- Treatment to reduce enteric virus to less than 1 PFU per 4 grams of total dry solids and viable helminth ova to less than one per four grams of total dry solids.
- Processes to further reduce pathogens (PFRP) include treatment by composting, heat drying, heat treatment, thermophilic aerobic digestion, beta ray irradiation, gamma ray irradiation, or pasteurization. Specific operating conditions for each process has been specified in 40 CFR 503.32(a).
- Use of processes equivalent to the above (subject to authority approval).

Comply with site restrictions of land application as specified in 40 CFR 503.32(b)(2), (b)(3), or (b)(4). In summary, these restrictions limit access to animals and the public on sites where Class B material was applied.
Sewage sludge must be treated and/or meet one of the following alternatives before use or disposal. For more details on each treatment alternative, refer to 40 CFR 503.32(b):

- Geometric mean of seven samples of treated sewage sludge collected at the time of use or disposal shall meet a fecal coliform density of 2 million CFU or MPN/gram of total solids (dry weight basis).
- Processes that significantly reduce pathogens (PSRP) which include aerobic digestion, air drying, anaerobic digestion, composting, or lime stabilization. Specific operating conditions for each process has been specified in 40 CFR 503.32(b).
- Use of processes equivalent to the above (subject to authority approval).

Abbreviations:
(1) MPN = Most Probable Number.
(2) CFU = Colony Forming Unit.
(3) PFU = Plaque Forming Unit.

State and Regional Water Board Authority over Waters of the State

The Porter-Cologne Water Quality Control Act names the State Water Board the ultimate authority over the state's water quality policy (Section 401 of the CWA). Any materials discharged into Waters of the State are regulated by the State and Regional Water Boards. Any entity discharging wastewater or biosolids to land must also file a Report of Waste Discharge with the appropriate Regional Water Board (per California Water Code section 13274) for the

protection of groundwater and surface waters. By these rulings, land application of biosolids in California must comply with the California Water Code in addition to meeting the requirements specified in Part 503. When the Part 503 regulations took effect in 1993, the San Francisco Bay Regional Water Board deferred to the EPA and individual counties to regulate biosolids land application within the region; Water Board staff are currently reevaluating land application of biosolids to determine the appropriate oversight and permitting mechanism for going forward.

In 2004, the State Water Board adopted the General Order (Water Quality Order No. 2004-12-DWQ). The General Order incorporates the requirements of the Part 503 rule (as well as the California Water Code) as minimum standards and, in some respects, is more stringent than the Part 503 rule in regulating the recycling of biosolids to California lands for use as a soil amendment in agricultural, silvicultural, horticultural, and land-reclamation activities.

The State Water Board's General Order does not apply to the application of biosolids to surface waters, surface water drainage courses, and areas designated as "unique and valuable public resources" including the California Coastal Zone (Pacific shoreline), Suisun Marsh, and the jurisdiction of the San Francisco BCDC. Placement of biosolids also may require a 401 Water Quality Certification from the Water Board to demonstrate that regulated activities within its jurisdiction will not result in negative impacts to water quality and beneficial uses. Placement of biosolids in locations not covered by the General Order requires, at a minimum, preparation of an Environmental Impact Report by the project proponent and issuance of a CWA 401, 402 or 404 permit (CWA 40 CFR 503.14).

Placement of biosolids in the baylands may also require a permit from BCDC. Under the McAteer-Petris Act, BCDC regulates land use (including fill placement) within and along the Bay, including within 100 feet of the Bay shoreline, the current and former salt ponds, and certain waterways subject to tidal action, as well as consideration of the policies laid out in the Bay Plan. As POTWs seek to beneficially recycle biosolids back to land for improving soil health and possibly to aid in restoring wetlands, it is necessary to determine if land application of biosolids to agricultural baylands is compatible with future restoration activities (as referenced in Tidal Marshes and Tidal Flats Policies, found in the Bay Plan) and maintaining the water quality of the bay (as referenced in the Bay Plan's Water Quality Policies). In addition, the Bay Plan includes policies that preserve the ability to restore baylands. For example, Tidal Marshes and Tidal Flats Policy #4 declares state, regional, and local governments shall not take land that is restorable for tax purposes or other development, and that the use of these lands should not prevent potential restoration. These lands include agricultural baylands within BCDC's jurisdiction. Water Quality Policy #2 states: "water quality in all parts of the Bay should be maintained at a level that will support and promote the beneficial uses of the Bay as identified in the San Francisco Bay Regional Water Quality Control Board's Water Quality Control Plan, San Francisco Bay Basin and should be protected from all harmful or potentially harmful pollutants."

National Research Council (NRC) review of Part 503 adequacy

Public concerns about the safety of biosolids use have been rare over the decades but have generally been localized and focused mainly on land application of Class B biosolids. In

response to this concern and to verify the safety of its regulation, EPA twice commissioned the National Research Council (NRC)'s Water Science and Technology Board (WSTB) to review the adequacy of the Part 503 rule in protecting public health and safety. The first report, published in 1996, evaluated the safety of biosolids and recycled water in the production of food crops. It concluded that when handled in accordance with the 40 CFR part 503 regulations, from a public health and environment perspective, biosolids are safe for such crops. It should also be noted that the US FDA adopted regulations in 2015 under the Food Safety Modernization Act and included biosolids as safe for use as long as they are in compliance with 40 CFR Part 503.

In responding to its subsequent charge in 2000, the NRC searched for evidence on human health effects related to direct biosolids exposure, reviewed the risk assessments and technical data used by EPA to establish the chemical and pathogen standards, and reviewed the management practices of the Part 503 rule. The NRC published its findings in 2002, concluding that there was "no documented scientific evidence that the Part 503 rule has failed to protect public health" (National Research Council 2002). NRC also concluded that in order to "assure the public and to protect public health, there is a critical need to update the scientific basis of the rule to (1) ensure that the chemical and pathogen standards are supported by current scientific data and risk-assessment methods, (2) demonstrate effective enforcement of the Part 503 rule, and (3) validate the effectiveness of biosolids-management practices."

Responding to the NRC's findings, EPA released a multi-year strategy to implement NRC recommendations. This strategy has four main objectives, aimed at addressing the scientific uncertainties and data gaps in the science underlying the Part 503 rule: (1) determine potential risks of select pollutants to human health; (2) measure pollutants of interest; (3) characterize potential volatile chemicals and bioaerosols from land application sites; and (4) understand effectiveness of water/sludge treatment and risk management practices. As one member of the review committee has stated, the recommendations to update the scientific basis of the rule were not made in anticipation of finding adverse impacts, but rather because all public health and environmental regulations are dynamic and must be based on current science (Kester, personal communication 2021). It is noted that while Part 503 regulations were based on a risk assessment that took into account surface water aquatic life and wildlife, more analysis is needed to evaluate the safety of biosolids to wetland or aquatic systems.

The CWA requires EPA to review the sewage sludge regulations every two years to identify additional pollutants in sewage sludge that may warrant regulation under Section 405(d). While the Part 503 rule was promulgated in 1993, the first biennial review did not occur until 2003 (following the release of the NRC report in 2002). EPA has conducted the review every two years since and POTWs engage in the process to support EPA efforts.

The EPA recently (in 2021) solicited support for a review of pollutants in biosolids (including contaminants of emerging concern). Four teams have been selected to conduct research over the next two to three years, with each team receiving roughly $1.5 million dollars. The research will provide the best available science needed to support states, municipalities, and utilities in determining potential risk from pollutants found in biosolids and ensuring up to date standards and policies for biosolids management. More information on the selected projects can be found

here.

Multiple regulations govern soil constituents for wetland restoration

Wetland restoration efforts are also highly regulated because of the desired goals to restore wetlands and aquatic habitats, provide habitat for wildlife, provide water filtration, storm buffering, and green infrastructure. Imported soils must meet criteria for wetland surface material and foundation material placement when they are imported from offsite. Soil import criteria are regulated by the Regional Water Board, BCDC, US Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS). Any of these agencies may impose more restrictive requirements to protect natural resources.

San Francisco Bay Regional Water Board has primary oversight for constituents in imported soil for wetland restoration projects through Section 401 of the CWA and California's Porter-Cologne Water Quality Control Act. Draft Guidelines for dredged material were published by the Regional Water Board (2000); these guidelines are still in use and have been augmented by additional criteria for specific circumstances. The Regional Water Board generates additional guidelines and criteria as new information becomes available. The Water Board has not yet developed sediment Environmental Screening Limits (ESLs). For a sediment cleanup project, the responsible party must develop a site-specific risk assessment and propose any screening levels.

BCDC has authority over San Francisco Bay and its shoreline under the McAteer-Petris Act and the San Francisco Bay Plan, as described above. As part of this authority, BCDC requires permits for projects involving dredging and filling the Bay, dredged sediment disposal, and shoreline development.

Both USFWS and NMFS have jurisdiction through the federal Endangered Species Act to regulate potential harm to federally-listed species or their habitats. USFWS also has authority under the Migratory Bird Treaty Act for activities that could result in take of migratory birds. This has included requirements like the obligation to test for dioxins for placement of sediments on a National Wildlife Refuge, and a reduction in the allowable amount of Dichlorodiphenyltrichloroethane (DDT), which can bioaccumulate up the food chain.

NMFS also has authorities under the Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act to make recommendations to protect and improve habitat for several species managed under federal fishery management plans. In the event that a different agency is the federal lead as triggered by a federal action, permit, or funding, these recommendations from USFWS and NMFS must be incorporated by that agency, or the agency must provide a technical explanation in writing if they are being declined.

Comparison of wetland restoration pollutant guideline criteria with soil levels from land application sites

It is important to analyze how biosolids pollutant limits established at the federal (Part 503) and

state (General Order) levels translate to soil concentrations and compare to criteria recommended for dredged material being used in wetlands to determine what the differences are and whether current treatment practices produce a biosolids product that meets the criteria set for wetlands applications. For comparison, the ranges of metals levels in soils across a subset of land application sites are shown relative to guideline criteria for wetlands in Table 2 (see Appendix A for data broken down by site). Most of the metals levels in these soils fall below the recommended wetland criteria for both surface and foundation material; however, additional information is needed by site. There is an individual site that shows an exceedance for one criterion (selenium). Since metals accumulate over time and the total amount of biosolids that are land-applied varies from field to field, there is a need for site-specific evaluations. The source of data, including the years and locations, should be collected; indicating if it represents all available data, and if not, how and why the data included was selected. Note that the screening criteria for use of dredged material as wetland surface material are based on the greater of ambient sediment chemistry levels or levels of chemicals below which adverse effects are not likely to be observed; by contrast, the screening values for wetland foundation material are based on levels of chemicals above which adverse effects are likely to be observed. Opportunities for erosion that could expose ecological receptors to higher concentrations of contaminants in foundation material must also be evaluated (Regional Water Board 2000). Depending on the circumstances, other lines of evidence may include: bioassays to assess lethal effects; bioassays to assess reproductive effects; bioassays to assess bioaccumulation; and/or assessing leachability.

Table 2. Comparison of constituent concentration criteria for wetland surface material, wetland foundation material, and soils from biosolids land application sites. Wetland concentration criteria were developed specifically for dredged materials (Regional Water Board 2000). ND represents a non-detectable concentration.

METALS	WETLAND RESTORATION CONCENTRATION CRITERIA		RANGE OF SOIL CONCENTRATION AT BIOSOLIDS LAND APPLICATION SITES (mg/kg)	RANGE OF BIOSOLIDS CONCENTRATION (mg/kg)	COMPARISON OF SOIL CONCENTRATION TO WETLAND CRITERIA (WC) FOR SURFACE AND FOUNDATION MATERIAL
	Surface Material (mg/kg, dry)	Foundation Material (mg/kg, dry)			
Arsenic	15.3	70	Non-Detect - 11	2.3 - 8.7	Below SM & FM
Cadmium	1.2	9.6	Non-Detect - 0.96	0.4 - 3.48	Below SM & FM
Chromium	112	370	82.6 - 83.2	10.3 - 29.8	Below SM & FM
Copper	68.1	270	21.4 - 40.4	139 - 397	Below SM & FM
Lead	46.7	218	9.5 - 13.8	9.9 - 15.6	Below SM & FM
Mercury	0.4	0.7	0.05 - 0.13	0.3 - 5.1	Below SM & FM
Nickel	112	120	26.5 - 70.5	1.7 - 8.9	Below SM & FM
Selenium	1.6	1.6	Non-Detect - 2.3	9.8 - 19.8	May Exceed SM & FM
Silver	1	3.7	Non-Detect & No Data	4.6 - 18.8	Need More Data
Zinc	158	410	51.8 - 100.7	482 - 806	Below SM & FM
Organochlorine Pesticides/PCBs (µg/kg, dry weight)	6 Constituents, Set by Constituent	6 Constituents, Set by Constituent		PCB Standard[1] Other Constituents Monitored[2], Standard not Triggered[3]	Method detection limit insufficient to detect at WC limits: 6 constituents?
Polycyclic Aromatic Hydrocarbons (µg/kg, dry weight)	3390	44792		Monitored[2], Standard not Triggered[3]	1 constituent, method detection limit ?
Total Petroleum Hydrocarbons (mg/kg, dry weight)	2 groups of constituents, Set by Constituent Groups	2 groups of constituents, Set by Constituent Groups		Monitored[2], Standard not Triggered[3]	2 groups of constituents, method detection limit ?
Volatile Organic Compounds (µg/kg, dry weight)	43 Constituents, Set by Constituent	No Current Constituent Standard		Monitored[2], Standard not Triggered[3]	16 constituents have method detection limits suitable for wetland criteria; 27 constituents have either insufficient method detection limits for wetland criteria or more information is needed on method detection limits

Notes:
1) If >50 mg/kg, then follows 40 CFR Part 761.
2) The monitoring frequencies vary among dischargers and by constituent. Once per permit term is the absolute minimum. All agencies also collect effluent samples for priority pollutants at least once per permit term.
3) NPDES permits do not contain effluent limitations unless a pollutant has demonstrated reasonable potential to exceed water quality objectives.

Wetland restoration criteria for dredged and imported materials have requirements for a set of constituents that are not regulated in biosolids based on current uses and testing methods, but require new test methods at the detection levels for which the wetland restoration criteria are set. The wetland restoration criteria exist because the materials are being placed in existing and future wetlands and waters and are intended to provide wetland and aquatic habitats for fish and wildlife species, including filter feeders like scallops and mussels and other species that are harvested for human consumption. These guideline criteria are derived from a number of sources, including the Regional Water Board wetland surface and wetland foundation criteria (2000), as updated in more recently issued Quality Assurance Project Plans, such as for South Bay Salt Pond Restoration Project, and biological opinions from USFWS and NMFS. All

undeveloped diked baylands and adjacent undeveloped upland transition zones and uplands are part of the conservation acreage goal for the Bay to which these criteria would apply, either in collaboration with willing landowners, or to address the potential for an unplanned levee breach. Material used for wetlands restoration must also satisfy criteria for six organochlorine pesticides/polychlorinated biphenyls, polycyclic aromatic hydrocarbons, petroleum hydrocarbons, and 43 volatile organic compounds (RWQCB, 2000; US FWS and H.T. Harvey & Assoc. 2018)(see Appendix A for the full table of concentration limits). While concentration limits for these additional constituents have not been set for land-applied biosolids, monitoring of these constituents continues to be performed to confirm that biosolids concentrations have not changed.

Research and regulation of emerging contaminants – PFAS, Microplastics, and other CECs

Contaminants of emerging concern (CECs) received at POTWs are the subject of ongoing research and could be present in biosolids as they continue to be used in society. Examples include per- and polyfluoroalkyl substances (PFAS), microplastics, and contaminants from personal care products, pharmaceuticals, pesticides, endocrine disruptors, hormones (e.g., estrogens, progesterones, steroids), and household chemicals. Many of these have been shown to have impacts on aquatic organisms, human health, and can partition across environmental media.

PFAS

PFAS are a broad class of thousands of synthetic substances that have been manufactured in the United States since the 1940s. These compounds have served and continue to serve industrial and commercial purposes and are ubiquitous in everyday products including clothing, carpets, cosmetics, adhesives, non-stick cookware, food packaging, etc. The two most widely studied and produced PFAS in this country are perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), although they are no longer produced domestically. Certain PFAS have the potential to be toxic to humans, birds, and marine mammals. Epidemiologic research found correlations between PFOS exposure and high cholesterol and adverse reproductive and developmental effects (EPA 2016). Exposure to PFOS and PFOA is possible from food, consumer products, household dust, drinking water, etc. The research findings led to a voluntary phase-out of manufacturing both PFOS and PFOA. While they are found in human blood and are still prevalent in the environment, between 1999 and 2014 concentrations in human blood decreased by 70 and 84 percent for PFOA and PFOS, respectively.

The EPA is pursuing *Risk Assessment Work on PFAS Found in Biosolids* and has initiated a problem formulation for PFOA and PFOS biosolids risk assessments. The problem formulation process involves engagement with states and tribes, risk managers, scientists, and members of the biosolids community regarding foreseeable science and implementation issues. EPA held a meeting in November 2020 to gather stakeholder input on the PFOA and PFOS problem formulation for biosolids risk assessment.

The EPA continues to track the transport of these compounds and to study their potential toxicity in order to fully understand impacts to human health and the environment. In fact, EPA is supporting states, tribes and local communities in addressing challenges with PFAS and is taking action to identify solutions to address PFAS in the environment. The Action Plan includes:

- Issuing preliminary determinations to regulate PFOA and PFOS
- Announcing a supplemental proposal to ensure that new uses of certain persistent long-chain PFAS chemicals in surface coatings cannot be manufactured or imported into the United States without notification and review under the Toxic Substances Control Act
- Developing new validated methods to accurately test for 11 additional PFAS in drinking water
- Issued *Interim Recommendations for Addressing Groundwater Contaminated with PFOA and PFOS*
- Announced availability of $4.8 million in funding for new research on managing PFAS in agriculture
- Issued an advanced notice of proposed rulemaking that would allow the public to provide input on adding PFAS to the Toxics Release Inventory toxic chemical list
- Issued a directive to prioritize federal research on impacts to agriculture and rural economies

PFAS are received by the waste and wastewater sector (which includes POTWs). Due to the growing awareness of the potential risk of PFAS, in 2020 the State Water Board issued an Investigative Order to California POTWs to collect data from October of 2020 through September of 2021. The Order is part of a statewide effort to evaluate the presence of a set of 31 PFAS compounds in wastewater influent, treated effluent, biosolids, and groundwater monitoring wells. The Order requires POTWs that are designed to treat flows over one million gallons per day (MGD) to collect quarterly samples for influent, effluent, and biosolids (and annual monitoring for groundwater monitoring wells and biosolids if design flow is between 1 and 5 MGD) to be analyzed for 31 PFAS compounds. POTWs are required to submit a final sampling and analysis report to the State Water Board and the data collected will serve as guidance for PFAS rulemaking, if warranted. The State Water Board's Investigative Order was not applicable to Bay Area POTWs, because Bay Area POTWs, via Bay Area Clean Water agencies (BACWA), are working in partnership with the SFEI to collect wastewater samples for a PFAS Regional Study that will offer comparable data to that being provided elsewhere in the state under the Investigative Order. Phase 1 of this Regional Study showed that biosolids PFAS concentrations, while detectable, are lower than concentrations in common consumer products and in household dust (BACWA 2021). Levels in some of these other matrices are listed below, although a true apples-to-apples comparison isn't possible since different studies look at different individual PFAS analytes.

- Median sum of analytes in biosolids = 0.178 mg/kg (BACWA 2021)
- Average sum of analytes in household dust = 22 mg/kg (Hall et al. 2020)
- Median sum of analytes in cosmetics = 1.050 mg/kg (Whitehead et al. 2021)
- Median sum of analytes in takeout food packaging > 0.580 mg/kg (Stakova et al. 2021)

Additionally, preliminary findings from the Region 2 Study suggested there may be higher concentrations in biosolids resulting from anaerobic digestion (due to the breakdown of and reduction in organic matter that takes place in digesters) vs lime stabilization. However, the State Water Board showed that the ranges in levels of PFAS in biosolids fell below EPA's human health screening levels for soils in a presentation provided in March of 2021 to Regional Water Boards.

San Francisco Bay Regional Water Board (2020) provided final interim guidance for PFOS and PFOA investigation and screening levels for ground water and soil. Environmental Screening Levels were based on the potential risk associated with exposure pathways. Soil ESLs are meant to protect groundwater from chemical leaching and are calculated for both groundwater used as drinking water and groundwater discharge to aquatic habitats. The study notes that due to their widespread use, mobility and persistence, ambient levels of PFOS and PFOA in the environment may be higher than soil ESLs in certain areas. The following values define ESLs for drinking water: PFOS limit = 4.0E-04 mg/kg, PFOA limit = 9.7E-05 mg/kg; and aquatic habitat PFOS = 2.9E-07 mg/kg, PFOA: 4.2E-07 mg/kg. The lowest of the ESLs are used as the target groundwater concentration if both exposure scenarios are possible. Seafood Ingestion ESLs (risk to humans from consuming contaminated seafood; PFOS = 4.7E-06, PFOA = 2.2E-05) would be most applicable to the baylands because of both the likelihood of unintentional levee breaches and the proposed intentional restoration of these lands, and the desired restoration trajectory to tidal marsh, which will create a nursery and spawning ground for multiple commercially-harvested seafood species, including Dungeness crab, Chinook salmon, Pacific herring, halibut, and many additional recreationally harvested species.

Microplastics

The awareness of microplastics and our understanding of the potential harm from exposure is increasing; however, there are no standardized methods for monitoring microplastics content in wastewater or biosolids. Recent UCLA research suggests that biosolids could contain more microplastics than previously suspected (Koutnik et al. 2021). This is concerning because plastics are slow to degrade, and other pollutants (like heavy metals) may be absorbed by microplastics. Microplastics leaching to groundwater could affect human and environmental health although a recent study has shown that while microplastics may accumulate at plant root surfaces, there is no uptake of microplastics into plant roots (Tayloy et al. 2020).

While the State Water Board does not currently have regulatory standards for microplastics, regulatory efforts are underway and POTWs are closely engaged. In 2018 the California State Senate passed Bill 1422, California Safe Drinking Water Act. One provision of this bill required the State Water Board to adopt a definition for microplastics in drinking water by July 2020 (achieved in June 2020), and to establish a standard testing methodology for microplastics by July 2021 (now anticipated by fall 2021). The State Water Board must conduct four years of testing for microplastics in drinking water and publicly disclose the findings. In addition to the drinking water legislation, Senate Bill 1263 mandates a Statewide Microplastics Strategy to protect coastal waters. The State Water Board is collaborating with the Ocean Protection Council and the Southern California Coastal Water Research Program to study microplastics in

drinking water, surface water, sediment, and fish. Their goal is to better understand the effects of microplastics on public health and terrestrial and aquatic ecosystems. Findings from this research may also provide insight for biosolids management, including those applied in or near bayland habitats.

There is a growing body of research concerning the toxic effects of microplastics on diverse organisms and ecosystems (Huang et al. 2020). Many recent studies have investigated the impacts of microplastics on aquatic organisms from different trophic levels including zooplanktons, oysters, mussels, fish, waterbirds, and cetaceans (Wang et al. 2019; Shen et al. 2019; Wright et al. 2013). Microplastics absorb various environmental contaminants (e.g., heavy metals) which can then be transferred to aquatic organisms (Boyle et al. 2020). Research indicates that aquatic invertebrates exposed to microplastics suffer impediments to feeding, growth, reproduction and survival (Trestrail et al. 2020; de Sá et al. 2018; Foley et al. 2018; Sussarellu et al. 2016). Due to growing concern about microplastics in the Bay, the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP) assembled a Microplastic Workgroup (MPWG) in 2016 to identify management needs for microplastics in surface water and wastewater effluent in the Bay (Sedlak et al. 2019). In 2019, Bay Area scientists, led by SFEI and the 5 Gyres Institute, conducted the first comprehensive regional study of microplastic pollution in the Bay. The purpose of this research was to determine baseline levels for future monitoring of microplastics in surface waters, sediment, and fish and to come up with management strategies and policy options (Sutton et al. 2019a). The research included testing for microplastics in effluent discharge from eight POTWs and concluded that wastewater contributes an appreciable but three-hundred times lower microplastics load than urban stormwater runoff. The Ocean Protection Council is providing funding for an ongoing study entitled “Efficacy of microplastic removal from various wastewater treatment methods” that is being led by the Southern California Coastal Water Research Project (SCCWRP).

Other CECs

Since the 1960s, synthetic hormones from contraceptives, hormone replacement therapy, animal agriculture, as well as other anthropogenic compounds, have also been released into the environment. High levels of exogenous hormones activate receptors in all organisms, leading to endocrine disruption. However, the vast majority (>90 percent) of influent hormones are degraded in WWTPs (Fleming et al. 2016). Remaining hormones primarily sorb to biosolids. Biodegradation of hormones and synthetic hormones in biosolids and soils (half-lives days to weeks; Clarke & Smith 2011; Mina et al. 2016) are sufficient to prevent accumulation. Human exposure to hormones in biosolids is insignificant compared to the body’s natural hormone production. Thus, monitoring protocols and regulatory guidelines for CECs such as hormones, pharmaceuticals, and personal care products have not been triggered by biosolids, and continued to be monitored as part of EPA’s National Sewage Sludge Surveys.

However, the concern here is potential endocrine disruption to aquatic organisms, which are especially sensitive to hormones. Several factors, including rainfall intensity, soil properties, and contribution of runoff to the waterbody influence whether biosolids hormones in runoff could exceed concentrations associated with endocrine disruption in aquatic organisms (Yang et al.

2012). Site restrictions imposed on Class B biosolids are intended to prevent runoff and minimize potential impacts to aquatic ecosystems, but more research is needed to understand if these restrictions are protective in the baylands.

Research from USGS and Colorado State University suggests rainfall runoff may contain hormones from land-applied biosolids with concentrations high enough to be toxic to aquatic organisms (USGS 2018). Several different hormones (estrogens, androgens, and progesterone) were present in runoff from land application test plots. In addition, similar test plot studies illustrated that hormones (estrone and androstenedione) were mobilized from agricultural fields to runoff, showing the potential for them to enter surface waters (Yang et al. 2012). However, both sites are suspected to have received manure, which are unregulated and contain much higher concentrations of hormones, leading to the higher concentrations in runoff.

In the U.S., 90 percent of hormones present in the environment come from livestock manures, particularly pregnant and cycling dairy cows (Khanal et al. 2006; Pollard and Morra 2017). Approximately 4 million dry tons of biosolids are applied across 0.1 percent of U.S. cropland annually (Lu et al. 2012), while more than 350 million dry tons of manure are applied across 5 percent of U.S. cropland (EST 2015; MacDonald 2009). These findings agree with a comprehensive report by the Water Environment Association of Ontario, which concluded further research on risk from hormones from land-applied biosolids was not a priority. The list of conclusions from these studies across the U.S. stated:

- Hormones do not persist in soil after land application of biosolids.
- Biosolids are a minor source of hormones compared to animal manure applications.
- Hormones in biosolids are not a human health risk.
- Site restrictions imposed on Class B biosolids are designed to prevent runoff and minimize negative impacts to aquatic ecosystems.

Chemicals found in cleaners and pharmaceutical and personal care products (PPCPs) have been detected in biosolids. Twenty-five common household chemicals were found in all biosolids sampled, including antiepileptic drugs, antihistamine drugs, antidepressants, various fragrance compounds, multiple detergent metabolites, fire retardant, multiple steroids, PAH's, disinfectants, plasticizer, preservative, and fecal indicator (USGS, 2018[2]). Some studies indicate PPCPs from biosolids can persist and migrate in the soil, post land application (Xia et al. 2010; Yager et al. 2014). Compounds from antidepressants and antibacterials moved downward to soil depths of 50 inches, meaning there could be contamination of groundwater or surface water (Yager et al. 2014). Of the compounds detected, the antibacterial drug Triclosan was found at the highest concentration. There is a growing body of research on Triclosan's adverse impacts to human health and the environment, including severe impacts to multiple aquatic organisms (Tatarazako et al. 2004; Yueh & Turkey 2016). Field studies of biosolids amended soils also noted the ability of PPCPs to partition into biosolids because of their high affinity for organic matter (Xia 2010). While triclosan is known to be toxic, when in the biosolids matrix, the beneficial properties of biosolids overcome the toxicity and more dense and more diverse beneficial microbial communities thrive (Young et al 2013).

The fate and transport of PPCPs in soil is variable. Behavior is dependent on chemical, biosolids, and soil properties and is not currently well predicted by these. Morais et al. (2013) modelled fate and impact of PPCPs in biosolids runoff on freshwater ecosystems. Most PPCPs studied tended to remain in the soil system. Mefenamic acid (NSAID) had the highest probability of impacting aquatic organisms. Gottschall et al. (2017) evaluated the fate and transport of more than 80 PPCPs in a biosolids-amended field. Only miconazole, triclocarban, carbamazepine, and ofloxacin were present in soil after one year. Eight PPCPs were detected after the first rain and only carbamazepine was detected in tile during subsequent rains. Ibuprofen, triclosan, triclocarban, and o-desmethyl venlafaxine moved to 2-m depth after the first rain, but none were observed at 4 or 6 m. Injection greatly decreased PPCP concentrations in surface runoff (Topp et al. 2008). Studies reviewed by McCarthy et al. (2015) found that most PPCPs did not reach groundwater, and surface runoff and tile drainage concentrations tended to be much lower than WWTP effluent. Conclusions across these studies were:

- Field studies show loss of PPCP to surface water dissipates quickly after land application. Minimal downward movement of PPCP in field land application of biosolids studies.
- Limited data shows that runoff concentration of PPCP in surface runoff from land-applied biosolids is below aquatic ecotoxicological endpoints.
- NSAIDs, triclosan, triclocarban, o-desmethyl venlafaxine, carbamazepine, miconazole, ofloxacin propranolol (beta-blocker), acetaminophen, and caffeine identified in the reviewed studies with risk quotient (RQ) > 1 should be considered for future study focusing on ecological risk assessment.

Pesticides and their degradation products have high aquatic toxicity and can pass through POTWS, appearing in effluent and biosolids (BACWA 2021). Common treatment technologies do not effectively remove pesticides from wastewater, and levels can exceed EPA aquatic life benchmarks for chronic exposure to invertebrates (Sutton et al. 2019b). Fipronil, used in pet flea control products, is known to contribute to POTW influent pesticides loads (Teerlink et al. 2017; Sadaria et al. 2017). Pyrethriods, commonly used in urban insecticides, have also been detected in treated biosolids (Sadaria et al. 2017). In a regional study, researchers detected ubiquitous levels of fipronil in both influent and effluent of eight WWTPs in San Francisco Bay (Sadaria et al. 2017). The targeted insecticides persisted during wastewater treatment, regardless of treatment technology utilized.

Further research is needed when thinking about the fate and transport of CECs in bayland biosolids to aquatic habitats. Understanding which CEC's are present in land-applied biosolids in the baylands is necessary to follow the fate and transport of those constituents and assess risk to aquatic habitats, groundwater, and aquatic organisms, and to inform how to address CEC's in biosolids. For example, recent monitoring in the Bay suggests stormwater is a significant transport pathway for CECs to the Bay (SFEI 2019). In response to preliminary findings, the Regional Monitoring Program launched a three-year special study in 2018 to evaluate the concentrations of key CECs in stormwater (Miller et al 2020), and reporting will occur in 2022.

Section 5. Biosolids in the Baylands

For decades, portions of the San Francisco baylands have consisted of agricultural land that is of both statewide and local importance (California's Bureau of Land Management and the Department of Conservation), some of which receive biosolids as a soil amendment. Figure 12 shows past and present locations for biosolids land application to agricultural land in the baylands primarily dry farming oat hay, grain, and straw for use as fodder. Some of the farmers that manage the agricultural land have used biosolids as their soil amendment of choice to avoid synthetic fertilizer and build rich soil organic matter. In turn, the organic matter enhances the soil's water holding capacity, plant growth and crop yield. For the same reasons, farmers across the state of California have chosen to land-apply biosolids to their agricultural lands. Farmers seek sources of biosolids from a POTW within their local region or from distant ones, if necessary.

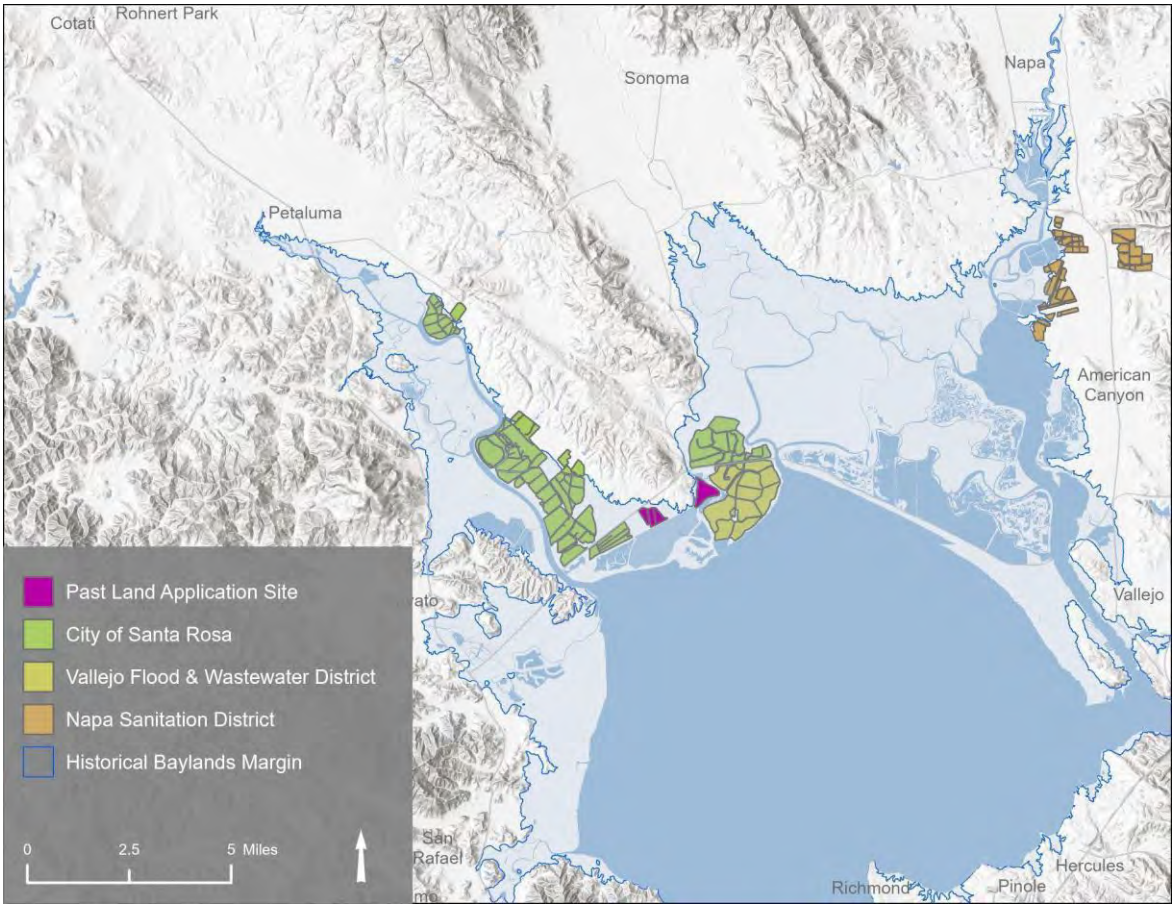

Figure 12. Past and present biosolids land application to agricultural lands within the baylands. Source: Regional Water Quality Control Board.

Influence of statewide regulations to reduce methane emissions from degradation of organic waste in landfills and legislation for nature-based climate strategies

SB 1383, Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reduction, was signed in 2016 and represents a statewide effort to reduce emissions of short-lived climate pollutants, including methane. The decomposition of organic waste in landfills is the third most significant source of methane emissions in California. SB 1383 requires a 40 percent reduction in methane emissions by 2030 relative to 2013 levels; one of the key pathways for achieving that reduction is through diverting (and recycling) 75 percent of organic waste from landfills by 2025 relative to 2014 levels.

By diverting organic waste from landfills, SB 1383 has several implications for the recycling of biosolids. As organic waste (e.g., food waste) is diverted from landfills to recycling facilities, there is an opportunity for co-digesting these materials at POTWs that have available digester capacity, resulting in an increase in production of biosolids. Additionally, biosolids used as landfill ADC will no longer be considered a beneficial use effective January 1, 2022, and this material is expected to be diverted to another beneficial use. In fact, the regulations disallow local ordinances which unreasonably restrict or prohibit the land application of biosolids in order to maximize the climate and soil benefits biosolids provide.

As shown in Figure 11, approximately 50 percent of biosolids were used as landfill ADC over the last decade and state agencies would like to see that material recycled back to soils for restoration and climate mitigation. These state agencies—CalRecycle, California Air Resources Board (CARB), State Water Board, and the California Department of Food and Agriculture (CDFA)—are tasked with enforcing and achieving the mandates established in SB 1383 regulations, as well as developing nature-based climate strategies on natural and working lands. Because land application of recycled biosolids is considered a reduction in landfill disposal per SB 1383 (s. 18983.1(b)(6)(B)) and represents an opportunity for carbon sequestration, there will likely be an increased demand for land application sites as 2025 approaches.

This is a critical moment for communication and long-term planning between regulatory agencies, POTWs, and the conservation community. Regulators of biosolids recognized the need and value to recycle biosolids and thus disallow local ordinances which prohibit or otherwise unreasonably limit or restrict the land application of biosolids in the regulations (s. 18990.1(b)(1)), with the intent to open each county to the benefits of land application. According to the most recent BACWA biosolids survey (2021, in prep), 15 of 31 survey respondents noted that some or all of their agency’s biosolids were sent to landfills in 2020. Of these 15 agencies, 8 reported that their agency is planning an increased reliance on land application in lieu of other disposal options as a direct result of SB 1383. Four others noted that their agency is planning improvements to biosolids treatment technology to expand use and disposal options.

Influence of state legislation for nature-based climate strategies on Natural and Working Lands

In October of 2020, the Governor issued Executive Order N-82-20, directing state agencies to advance strategies that will conserve at least 30 percent of California's lands and waters by 2030 as a way to combat the climate crisis, conserve biodiversity, and boost climate resilience. CARB has been collaborating with CDFA, the California Natural Resources Agency (CNRA), and California Environmental Protection Agency (CalEPA) on the Healthy Soils Initiative to quantify carbon sequestration benefits of land-applying organic soil amendments to the soil, and will begin to work with the State and Regional Water Boards to consider these soil amendments for conserving lands under the Natural and Working Lands Climate Change Implementation Plan and Forest Carbon Plan. Additionally, the Climate Action Reserve adopted its Soil Enrichment Protocol in September 2020, acknowledging biosolids as an eligible soil amendment for its climate mitigation benefits. Each of these programs individually and in combination have the intent to encourage and incentivize land application of organic soil amendments for the restoration and conservation of California lands, in order to mitigate the effects of climate change through the resulting carbon sequestration and other co-benefits.

It is within this context and considering the future impacts of sea-level rise to the baylands (and the broader Bay Area), that future viability of agricultural practices and land application of biosolids to agricultural land within the baylands must be considered. While there are clear benefits of biosolids land application to soil health for agricultural purposes, we have questions that need to be answered through research relative to the future compatibility of those lands for wetland restoration (from a regulatory perspective) and the use of biosolids in restoration efforts, especially as sea levels rise and the need for those lands as a natural buffer for Bay Area communities becomes a necessity.

Biosolids implications for surface and groundwater quality

Beneficial use of biosolids recycles carbon, organic matter, and nutrients back to soils to restore its health for agricultural purposes. Best management practices include specified setbacks from or buffers to surface waters, including wetlands. Additionally, compliance with biosolids land application requirements reduces the likelihood of runoff and land application requirements are designed to ensure biosolids physically stay in place. Agricultural sites located in the diked floodplain of the Bay makes them vulnerable to unplanned levee breaches and areas where the groundwater table could be at or within a few feet of the surface (Figure 8). Groundwater monitoring would be needed to determine the potential for leaching, which could be exacerbated if agricultural baylands are seasonally saturated. The network of earthen dikes in the North Bay was constructed between the late 1890’s to the mid 1900’s by mounding dirt at the edges of the baylands to claim the land for agriculture. These dikes are in various states of repair, and there have been failure points during large storm events, including multiple breaches in the 2005–2006 winter season as well as in March 2019 on multiple parcels in the North Bay. Dike breaches have occurred in locations intended for biosolids placement and illustrate the fragility of the earthen dikes throughout this region.

Constituents in land-applied biosolids could also enter the water column via planned or unintended levee breaches. In areas open to the Bay, the ground will be wet and subject to wave and tidal processes. At that point, the soil will be susceptible to erosion by wind waves, as well as channel formation and migration. Research should assess whether there are contaminants, if they leach into surface or groundwaters and disperse into the Bay, and how that might be accommodated in future wetland restoration design. If there are concerns about contaminants persisting and migrating, additional safeguards such as soil capping or removal should be assessed. Capping with clean soil was required at Montezuma Wetlands Restoration Project and Hamilton Airfield Wetland Restoration Project. The efficacy of capping remains uncertain and monitoring and adaptive management will need to continue due to the potential for channels to form in capped areas, particularly associated with the increased intensity and frequency of high energy storm events.

Compatibility with restoration goals and implications of sea-level rise

Overall, the impacts of biosolids application to wetland restoration sites at site- and landscape-scales are unclear. Prior to restoring sites to wetlands where biosolids were land-applied, there would need to be testing for contaminants (e.g., Table 2 criteria) as part of a risk assessment. If concentrations of contaminants posed unacceptable risk, then remedial action(s) would need to be implemented prior to restoring the site. The two most common remedial actions are capping the materials in place to prevent exposure (by three feet of suitable surface material) and excavating and disposing the materials offsite. Some of these lands have subsided approximately 7 feet on average relative to surrounding marshes (Figure 5); therefore, finding enough material suitable for capping (if necessary) could be prohibitively expensive and require transportation across long distances (Dusterhoff et al. 2021), and removing material would exacerbate the elevation deficit. This presents a significant challenge to the goal to restore the baylands prior to 2030, in order to achieve the broader goals laid out in the Baylands Ecosystem Habitat Goals Project (2015), as well as the visions laid out in the Sonoma Creek Baylands Strategy (SLT, 2020) and Petaluma River Baylands Strategy (in preparation).

If biosolids application and restoration are shown to be compatible from a contaminants perspective, then further investigation into other aspects of compatibility would be needed to fully evaluate compatibility with restoration goals. Research should consider the influence of biosolids application on vegetation establishment, sediment and water quality, above-ground and below-ground plant morphology, as well as wetland sediment shear stress and erosion potential. Research should also focus on whether there are any effects to filter-feeding organisms (e.g., clams, mussels, scallops), fish, waterbirds, and other wildlife in marshes restored or enhanced with biosolid additions. Species richness and diversity of plant, fish, and wildlife species in marshes enhanced or restored with biosolids additions should also be considered.

Studies have been performed by researchers from the University of California–Berkeley to understand and demonstrate the potential benefits of using biosolids for wetland restoration in

the Bay Area. Results from the in-situ experiment indicate the addition of a layer of biosolids can increase biomass production in dredged-material treatments. Although restoration success depends on many factors (including root depth), the organic matter and nutrient additions can help the vegetation establish, fostering marsh evolution (Foster-Martinez & Variano 2018). Use as an amendment would require further study to evaluate marsh resilience relative to biosolids application, rooting depth variability and density compared to natural marshes, potential for eutrophication, and feasibility of incorporating biosolids from an ecological perspective. Quantity-wise, biosolids comprise less than one percent of the volume of material needed to restore the baylands back to marsh elevation (Dusterhoff et al., 2021), and would likely have to be substantially dispersed through the soil profile because abundant nutrients are not desirable in restoring wetland habitats, and may have unintended consequences. High nutrient levels in marshes result in shallower root depth and can make the marsh more subject to channeling and erosion, especially as sea levels rise (Turner et al. 2009). Other consequences could include eutrophication, or over-nutrient enrichment of the Bay, the potential to favor non-native species over native species that are adapted to low nutrient conditions, the potential to reduce species diversity, the risk of changing root growth patterns either related to readily available nutrients, or to concentration of roots in the upper few inches of soil, and the threat of marsh erosion or other impacts to marsh morphology related to rooting depth and density. If marsh morphology were altered, this could have further implications within the context of sea-level rise.

Sea-level rise will exacerbate the impacts of high tides and storm surge to the baylands, increasing the likelihood and frequency of unplanned levee breaches, and is also projected to lead to higher groundwater elevation. A king tide today would flood some parcels in the absence or failure of the existing earthen dikes (Figure 6). Most parcels would also be inundated with a 5-year storm even without sea-level rise (Figure 7). All but four parcels would be flooded by 2 feet of sea-level rise and a king tide (Figure 9). All parcels would be inundated by a 100-year storm event in combination with 6 feet of sea-level rise. The diked baylands, including existing agricultural land and biosolids land-application sites, will be increasingly vulnerable to levee breaches and flooding as sea level rises.

Section 6. Recommendations for Next Steps

This paper has sought to address two key questions: (1) does biosolids land application inhibit wetland restoration via the threat of contaminants? and (2) could land application benefit the restoration process? Throughout this endeavor to address those questions, several additional considerations have been raised, such as the unknown level of protection levees provide against potential inundation of biosolids-applied baylands and implications of pumping of stormwater from the baylands where biosolids have been placed. For these and other considerations, additional information is needed. While this White Paper identifies needs for further research, responsible parties were not assigned, and methods were not proposed. Those decisions are beyond the scope of this paper.

To gather input from stakeholders, the project team convened a workshop on September 13, 2021. Invitees included Bay Area Clean Water Association and Bay Area Biosolids Coalition members, representative staff from the three north bay POTW's, research scientists, regulatory staff from San Francisco Bay Regional Water Board, USFWS, NMFS, BCDC, EPA, CDFW, NOAA, habitat-focused conservation organizations, transportation authority, and other interested parties. Meeting notes and breakout group notes are included (Appendix B).

The following is a summary of findings and recommendations resulting from the project team's work in preparation for the stakeholder workshop and the discussions and feedback received during the workshop.

A. Bay Area biosolids meet current federal and state regulations for agricultural uses.
B. Part 503 risk-based criteria and requirements do not account for land application in diked baylands. Requirements to prevent or reduce leaching to groundwater and runoff by setbacks and buffers are not necessarily applicable to diked baylands where the entire landscape is prone to inundation, and stormwater is pumped out of drainage ditches into the adjacent surface water (the Bay or Petaluma River) when needed. Site-specific risk assessment and additional monitoring of runoff and groundwater is recommended.
C. Agricultural uses of the baylands will continue until 1) landowners become willing partners for conservation / restoration, 2) sea-level rise renders these sites unavailable for agriculture, or 3) regulatory considerations dictate alternative options.
D. Landowners and farmers did not participate in developing this document and need to be included in future discussions/collaborations with the wastewater sector and restoration stakeholders.
E. For restoration, regulatory agencies will need site-specific assessments to provide appropriate site and background information for permitting purposes (as is common practice for any land application site).
F. Further study is needed on the fate and transport of soil constituents within the diked baylands, as well as the potential fate and transport into wetlands and waters if the dikes were breached.
G. There are other potential sources of contaminants being put into the diked baylands, such as manure, synthetic fertilizer, and atmospheric deposition. The relative contribution and impact of these sources also warrant further investigation.

II. Recommendations

Using existing data, stakeholder input, and research results from other regions, the project team has developed a list of recommended actions and research needs to evaluate whether biosolids use in the diked baylands could be compatible with wetland restoration. First-time biosolids land

application sites proposed within the baylands may require additional site-specific analyses to address wetland criteria or other questions raised by regulatory agencies in the context of restoration. Further research of sites that have applied biosolids and application practices is needed to determine what is appropriate for wetland restoration in the baylands, and what thresholds should be monitored/used, if any, to trigger a change in practice or termination of application. Additionally, the level of effort required to research the risks to water quality of biosolids application for use in restoration sites should be weighed against the benefits.

This section enumerates the research needed to evaluate the compatibility of soils that have received land-applied biosolids with future aquatic and wetland habitats in the baylands. The needs have been divided into near-term actions to take within one to three years, mid-term actions to be taken within three to five years, and long-term actions that should take place after year five.

1. Near-term Actions (within 1-3 years)

Formation of TAC and stakeholder group

It is recommended that a Technical Advisory Committee (TAC) of regulators, research scientists, restoration practitioners and POTW representatives be established to guide local research, including analysis of existing data and identification of additional monitoring necessary for constituents that need to be screened for aquatic environments. Bayland landowners, farmers, and The Federated Indians of Graton Rancheria should be included in the conversation about land-applied biosolids and restoration of agricultural lands to wetlands. Platforms should be created to enable representatives from the agricultural community to disclose restoration plans and exchange knowledge. To increase collaborative planning efforts, biosolids projects should be added to the EcoAtlas database

Research strategy

The TAC and stakeholder group will guide research aimed at addressing the question of compatibility of biosolids land application to agricultural lands in the baylands where there are current or future wetland restoration sites planned. Near-term actions are as follows:

<u>Constituents</u>

a. Confirm the list of constituents in the biosolids and the soils to which biosolids are land-applied that need to be screened relative to wetland criteria and aquatic environments.
b. While local research should be prioritized, literature should be reviewed to identify potential constituents in biosolids and soils that should be screened relative to wetlands and aquatic environments. This literature should include scientific, peer-reviewed research performed outside the Bay Area (e.g., research performed by Reimers of Tulane University, Martinez of University of New Orleans, and Brown of University of

Washington).

c. Wetland sediment contaminants criteria need to be updated as part of a reassessment that is being discussed by the Regional Water Board. If updated, agricultural lands receiving biosolids as a soil amendment will need to be tested for the contaminants criteria to determine compatibility for wetland restoration.
d. EPA's risk assessment approach (as referenced under the section entitled National Research County (NRC) review of Part 503 adequacy) should be examined specific to soils receiving biosolids as a soil amendment for agricultural purposes in the baylands with potential aquatic exposure (including constituents previously identified in biosolids). Identify and compare locations of dike failure points with the areas where biosolids have been placed and perform site-specific risk assessment and additional monitoring of runoff and groundwater.

Data collection

e. Collect field (parcel) level data, including the year biosolids application started, when biosolids were/are applied, the rate applied (the approach for determining that rate each year), and when testing was/is conducted. Determine baseline soil levels (from soils with no biosolids application) relative to soil levels from nearby biosolids land application sites.
f. Collect and analyze soil concentration data for constituents that would be screened for aquatic environments using method detection limits necessary for assessing wetland criteria. Monitor groundwater and surface water for the same constituents or known derivatives with high risk potential, where present.
g. Review existing soils data and consider monitoring existing restoration sites that have received biosolids as a soil amendment. Identify sites where biosolids can be applied in experimental design to evaluate fate and transport.

Fate and transport

h. Identify and perform a first set of fate and transport studies with known constituents, particularly relative to aquatic habitats. Constituent pathways may include: soil accumulation, uptake by crops, leaching into surface or groundwater, atmospheric release, or breakdown into a different compound that could follow one or more of the stated pathways. Determine if the Dickson Ranch site and Tubbs Island Setback (agricultural sites which previously received land-applied biosolids and have since been restored to tidal action) have data that can be used to perform a preliminary assessment of the fate and transport of constituents. Consider mesocosm experiments (e.g., Oro Loma horizontal levee) to gain knowledge of the fate and transport of constituents. Studies should include examining the following:

i. The impact of restoring tidal flows on opening new pathways for mobilization. Atmospheric deposition and groundwater need to also be considered as potential pathways.
ii. Examine long-term accumulation of constituents in soils within the baylands for each constituent with identification of the sources (including atmospheric deposition).
iii. Assess sediment biogeochemistry (e.g. biosentinel species), in addition to assessing impacts on higher trophic level species (specifically, birds).

CECs (PFAS, microplastics, etc.)

i. Leverage the regional and statewide sampling and analysis efforts underway by the State Water Board for both PFAS compounds and microplastics to better understand levels in biosolids (relative to background levels and other sources) and identify any remaining data gaps for those compounds with known wildlife impacts. Compare levels of PFAS and microplastics in soils where biosolids have been applied to soils that have not had biosolids land application.
j. Determine what additional studies can inform evaluation of PFAS and microplastics in biosolids (and consider other sources of microplastics, including atmospheric deposition) and determine if additional research is necessary relative to fate and transport (see section 4 for details).
k. Evaluate agricultural soils that have not had biosolids land-applied for PFAS, microplastics, and other CECs.
l. Continue to examine the presence and impacts of other constituents in biosolids (e.g., pharmaceuticals, hormones such as estrogens, progesterones, steroids, and household chemicals, pesticides, anthropogenic organic chemicals, etc.). Leverage published peer-reviewed research and the newly awarded projects by EPA that are investigating pollutants in biosolids, including CECs under those types listed as part of this effort. Determine what elements of the newly awarded research funded by EPA (National Priorities: Evaluation of Pollutants in Biosolids) pertain to CEC's, the study on the fate and transport of PFAS in land-applied biosolids led by the University of Arizona, and if additional studies are needed to screen for other CEC's.

Other potential sources of contaminants

m. There are other potential sources of contaminants in the baylands, such as manure, synthetic fertilizer, and atmospheric deposition. The relative contribution and impact of these other sources also warrants further investigation.

2. Mid-term Actions (in 3-5 years)

By performing the short-term actions, the TAC can gather information about the fate and transport of constituents present in the soil and biosolids. The mid-term actions will build on the knowledge gained from the short-term actions to address the question of compatibility of biosolids land application to agricultural lands in the baylands with wetland restoration. Continued research and monitoring of fate and transport will be guided by the TAC. Mid-term actions include:

a. Evaluate results from near-term actions to determine whether further fate and transport studies focused on contaminants of emerging concern are required.
b. TAC will review findings and recommendations from research performed under the State Microplastics Strategy (see Section 4 for more details).
c. TAC will make recommendations to the Regional Water Board about PFAS criteria based on findings from the State Water Board Investigative Order and other ongoing research (see section 4).
d. Continue monitoring soil, groundwater and surface water at and surrounding bayland agricultural sites where biosolids are land-applied.

3. Long-term Actions (year 5+)

Through the near- and mid-term actions, the TAC will gather a body of research concerning the fate and transport of constituents from soils receiving land-applied biosolids and their potential impact on or contributions to wetlands and aquatic habitat. The TAC will discern whether there is enough information to make a determination regarding the compatibility of soils on sites that have received biosolids to be returned to tidal action without harm to the aquatic environment.

a. Continue to evaluate, as needed, compatibility of soils that have been amended with biosolids with future aquatic and wetland habitats in the baylands.
b. Continue monitoring the fate and transport of constituents needing further research.

Coda

The purpose of this document was to bring together existing knowledge of the baylands and biosolids management to highlight key gaps in our understanding and to make recommendations for future work. This document will hopefully initiate and inform a discussion and increase interaction between regulators, restoration community, landowners and farmers, and the wastewater sector.

Questions remain regarding the compatibility of soils that have been amended with biosolids with wetland and aquatic habitats in instances of unplanned levee breaches, seasonal ponding,

and in locations with elevated groundwater tables, or with intentional levee breaches associated with habitat restoration projects. As discussed above, the baylands are uniquely important from an ecosystem perspective and there is an urgency for their restoration. Prior to wetland restoration, planners should carefully consider the potential for contamination, or benefits, where biosolids have been land-applied. Additionally, before identifying new locations in the baylands for land application of biosolids, the impacts to soil, water quality, and existing and previously restored habitats need to be examined. Future management of the diked baylands is a regional issue requiring a collaborative planning effort involving farmers, regulators, critical infrastructure (including transportation, water, wastewater, etc.), and restoration practitioners. The actions identified above will address the gaps in existing research regarding fate and transport and will inform the potential for beneficial use of biosolids in and near aquatic environments.

List of Acronyms and Abbreviations

ADC	Alternative daily cover (as in landfill ADC)
BAARI	Bay Area Aquatic Resource Inventory
BACWA	Bay Area Clean Water agencies
BCDC	Bay Conservation and Development Commission
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CDFA	California Department of Food and Agriculture
CECs	Contaminants of emerging concern
CNRA	California Natural Resources Agency
CWA	Clean Water Act
DDT	Dichlorodiphenyltrichloroethane
DU	Ducks Unlimited
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
ESL	Environmental Screening Level
NLCD	National Land Cover Database

NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
Part 503	EPA amendment to the Clean Water Act: “The Standards for the Use or Disposal of Sewage Sludge” (Title 40 of the Code of Federal Regulations, Part 503)
PEIR	Programmatic Environmental Impact Report
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonic acid
POTWs	Publicly owned treatment works
PPCPs	Pharmaceuticals and Personal Care Products
RMP	Regional Monitoring Program for Water Quality in San Francisco Bay
RQ	Risk quotient
SB 1383	Senate Bill 1383 Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reduction
SFBE	San Francisco Bay Estuary
SFBJV	San Francisco Bay Joint Venture
SFEI	San Francisco Estuary Institute
SLR	Sea-level rise
USFWS	US Fish and Wildlife Service

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BACWA AIR Committee
BAAQMD Regulation 2 Implementation Workgroup
Meeting Agenda

Date:	March 30, 2022, 3-4pm
Time:	(Suggest two-hour duration)
WebEx Link:	Access link in meeting invite
Call-in:	Included in meeting invite

1) **Introductions**
2) **BAAQMD Regulation 2 (Permits)**
   a) Overview of amendments to Regulation 2 – December 15th Public Hearing
      i) Essential Public Services vs Emergency Services definition
      ii) BAAQMD-BACWA Implementation Workgroup established
   b) BAAQMD response to BACWA letter clarifying comments made December 15th
   c) What was the basis for stating during the December 15th Public Hearing that the wastewater sector is a major source of risk?
3) **Wastewater Sector Considerations**
   Wastewater treatment facilities are regulated by multiple governmental agencies. While regulatory actions for each media (air, water, land) are important for protecting public health and the environment, they are more effective overall when they are viewed holistically. When implemented separately, conflicts and challenges may emerge. For example, delays and lack of clarity in the air permitting process are beginning to affect the reliability of wastewater operations to provide essential public services that are vital to life and supporting emergency services. To work through these issues, the wastewater sector is actively partnering with each regulatory agency to reveal cross-media challenges and determine pathways to successfully implement improvements without interrupting essential public services.
   a) Summary of statewide "Two-Step Process" to comply with CARB's Criteria Air Pollutant and Air Toxics Reporting (CTR) Regulation, engaging air districts, and relevance to BAAQMD Rule 11-18
   b) BAAQMD Permitting process - How POTWs and BAAQMD staff can work together to most efficiently achieve clean water/clean air goals
4) **Implementation Workgroup Details and Logistics**
   a) BAAQMD and BACWA representatives
   b) Quarterly meeting schedule
   c) Documenting minutes (including decisions/action items)
   d) Approach to providing Air District Board updates
5) **Adjourn**

SCAP
SOUTHERN CALIFORNIA ALLIANCE OF PUBLICLY OWNED TREATMENT WORKS

January 11, 2022

Re: Funding Request to Enhance CASA's Climate/Air Quality/Energy Advocacy

Dear Southern California Utility Managers:

We are at a critical point with wastewater sector advocacy needs on air quality, climate and energy regulations that if not changed will have a significant impact on our sector. Since the majority of these are Statewide policies, SCAP has been working in a supporting role closely with CASA. To be more effective we need to provide CASA with more resources. Please see the attached proposal from LACSD to enhance CASA's climate/air quality/energy advocacy resources.

We anticipate this to be a two-year campaign and are suggesting the following contribution levels:

- Large agency: $25,000 per year for two years
- Small agency: $5,000 per year for two years

LACSD will be contributing at the $25,000 per year level.

The minimum funding goal is $150,000 per year for two years. The $150,000 amount includes $100,000 for technical advocacy from Sarah Deslauriers and the Carollo team and $50,000 for a lobbyist to assist with getting access to CARB policy makers and California lawmakers (see attached enhanced scope of work from Carollo). CASA is currently attempting to identify potential lobbyists and will provide additional information to SCAP before retaining any lobbyists. SCAP will provide status reports of the funds raised to the SCAP Board and contributing agencies in February and March of 2022. If funding commitments exceed the $150,000 goal, surplus funding will be dedicated to year two, or if needed and with permission of the donors, used to improve and enhance the advocacy efforts.

To provide a greater understanding of the issues we are facing, David Rothbart, LACSD and SCAP Air Quality Committee Chair, will be providing a virtual presentation on these air quality challenges on Thursday, January 27 from 1:30 pm to 2:30 pm. Please note that this is the same presentation that was provided to the SCAP Board on December 2nd. The presentation is

P.O Box 231565
Encinitas, CA 92024

email: info@scap1.org
phone: 760.415.4332

approximately 20 minutes long and will be followed by a question and answer period. The presentation will be recorded, and a link will be provided for future viewing.

Join Zoom Meeting
https://us02web.zoom.us/j/3791213334

Meeting ID: 379 121 3334
Passcode: SCAP
One tap mobile
+16699009128,,3791213334#,,,,*795524# US (San Jose)
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+1 669 900 9128 US (San Jose)
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+1 346 248 7799 US (Houston)
+1 301 715 8592 US (Washington DC)
+1 312 626 6799 US (Chicago)
+1 646 558 8656 US (New York)
Meeting ID: 379 121 3334
Passcode: 795524

Please contact SCAP with the amount your agency is able to contribute and SCAP will follow up with an invoice. SCAP will collect the funds and distribute to CASA. We request a response by February 18, 2022 or sooner.

This request is also being made to the Bay Area Clean Water Agencies (BACWA) Board and select larger agencies in the Central Valley Area.

If there are any questions, please feel free to contact me or David.

Steve Jepsen, SCAP - Executive Director
sjepsen@scap1.org 760.415.4332

David Rothbart, LACSD - SCAP Air Quality Committee Chair
drothbart@lacsd.org 562-908-4288 ext. 2412

Sincerely,

Steve Jepsen

Executive Director - SCAP

Attachments

- LACSD Proposal to Enhance CASA's Climate/Air Quality/Energy Advocacy
- Carollo Scope of Work

P.O Box 231565
Encinitas, CA 92024

email: info@scap1.org
phone: 760.415.4332

Proposal to Enhance CASA's Climate/Air Quality/Energy Advocacy

The Los Angeles County Sanitation Districts (Sanitation Districts) are reaching out to fellow wastewater agencies to request your consideration of contributing additional resources to support CASA's advocacy efforts related to climate, air quality and energy. In recent years there has been an unprecedented surge in regulatory activity pertaining to emissions, energy and climate change issues that impacts wastewater facilities, and this is only expected to intensify in the next few years. CASA staff have done an exceptional job managing these issues and providing the wastewater perspective in important forums, but resources are stretched thin and additional funding is needed to effectively engage with regulatory policymakers to ensure that CASA members can maximize our efforts to anaerobically digest food waste and produce biogas as a renewable resource in support of achieving the State's efforts to achieve the methane reduction goals of SB 1383.

CASA staff and members have been working hard to advocate for beneficial policies that span several different proposed California Air Resources Board (CARB) regulations, California Energy Commission policies and programs, and the California Public Utilities Commission proceedings. The combined efforts of these regulatory agencies are focused on achieving full electrification of the mobile source sector (e.g., Advanced Clean Fleets, Mobile Source Strategy, Scoping Plan Update, 2022 State SIP Strategy, Small Off-Road Engines (SORE) & Tier 5 Off-Road Diesel Emission Standards), and aim to achieve statewide carbon neutrality by 2035, 10 years ahead of the original goal to achieve this by 2045. For example, as drafted, CARB's Advanced Clean Fleets – Public Fleet Requirements and other proposed regulations would require new vehicle purchases, including heavy-duty vehicles utilized by wastewater agencies, to be electric commencing in 2024. Other initiatives represent competing and conflicting priorities among regulatory agencies (e.g. organics diversion mandates under CalRecycle regulations promote increased acceptance of food waste at POTWs, but CARB regulations subjecting those very facilities to increasingly strict emissions rules end up disincentivizing the effort).

Additional climate change policies and strategies that affect CASA members are being developed and implemented by agencies that include CalRecycle, the State and Regional Water Boards, the California Coastal Commission, California Department of Food and Agriculture, and the California Environmental Protection and Natural Resources Agencies. In short, we are in a time with an unprecedented level of regulatory activity, much of which is focused on achievement of the State's ambitious climate change goals. If we do not actively and quickly engage regulatory agencies at a high level and encourage them to pursue a more cohesive approach to addressing the wastewater sector, we may miss important opportunities to ensure that CASA members can meet both the challenges and opportunities presented during this period.

Although CASA has staff and a part-time consultant dedicated to these programs, we believe these staff are stretched extremely thin and additional resources are needed to help CASA achieve the best results possible in this unique window. We propose to work with CASA's Board and staff to determine the need and willingness of member agencies to contribute funding on a temporary basis to meet this important challenge through possible staff, consulting and advocacy enhancements.

Engineers...Working Wonders With Water®

2795 Mitchell Drive, Walnut Creek, California 94598-1601
P. 925.932.1710

January 11, 2022

Mr. Adam Link
925 L Street, Suite 200
Sacramento, CA 95814
e-mail submittal: alink@casaweb.org

Subject: Scope of services and budget for providing CASA's Air Quality, Climate Change, and Energy Workgroup an enhanced level of support for calendar years 2022 and 2023

Dear Mr. Link:

Thank you for requesting a scope of services and budget to provide an enhanced level of support to CASA's Air Quality, Climate Change, and Energy (ACE) Workgroup over the next two calendar years (2022 and 2023). As requested, Carollo Engineers (CONSULTANT) is submitting the following proposed scope of services and supporting budgets for consideration.

SCOPE OF SERVICES

The Scope of Services as summarized in tasks below was originally developed for performing typical year-to-year activities in support of CASA's ACE Workgroup. However, over the next two years there is a significant increase in demand for support to adequately respond to the California Air Resources Board's (CARB's) developing vehicle electrification regulations and their subsequent implementation, as well as a higher level of simultaneous administrative activity on climate, air quality and energy issues underway by other regulatory agencies than previously anticipated. The significance of these developing regulations is compounded by the fact that they threaten the implementation of other programs critical to achieving short-lived climate pollutant reduction via WWTPs and the wastewater sector's overall resilience during power outages (which is unacceptable as an essential public service provider vital to life and health).

While the high-level task descriptions remain the same, it is estimated that an additional $100,000 is needed at minimum for each calendar year (2022 and 2023) to provide the needed enhanced level of coordination, verbal and written responses, engagement in public workshops and hearings, and outreach to state agency staff, executives, and board members. Table 1 shows the originally estimated level of effort for fiscal year 2021-2022, and Tables 2 and 3 show the estimated increase in budget ($100,000) and related level of effort for responding to the quickly developing electrification regulations in calendar years 2022 and 2023, respectively – this translates to an approximate 80% increase in hours of Carollo staff support. Carollo will provide support services for the Program Manager (Sarah Deslauriers) as needed at a lower billing rate to optimize the contract budget. Types of support services may include administrative, technician, analyst, graphics, etc. In addition, the existing coordination of activities with CASA staff under the current agreement, particularly CONSULTANT's work with CASA's Director of Renewable Resource Programs and ACE programs, will continue in a similar manner under the expanded agreement.

TASK 1 – MEETINGS

CONSULTANT will plan, organize, and lead monthly webinar/conference calls in conjunction with CASA's ACE Workgroup. To the extent needed, in-person meetings will be coordinated with video conferencing made available as appropriate in Carollo offices. Frequency of meetings and calls are flexible at the direction of the CONSULTANT, CASA, and with input from the ACE Workgroup and project funders.

TASK 2 – ISSUE REVIEW AND COMMUNICATIONS

CONSULTANT will monitor regulatory agencies that develop climate change, air quality, and applicable energy regulations, in conjunction with CASA, that may affect POTWs including, but not limited to the California State Air Resources Board (CARB), the State Water Resources Control Board (SWRCB), the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), the California Natural Resources Agency (CNRA), CalRecycle, Local Air Management Districts, and the U.S. Environmental Protection Agency (US EPA). The CONSULTANT is expected to interact with pertinent agencies, including meeting with agency staff, participating in key workshops and hearings, and drafting correspondence. Issues the CONSULTANT is anticipated to track, review, analyze, and participate in during FY 2021-2022 include, but may not be limited to:

- Informing the CARB and local Air District staff on liquids treatment in CA - with the purpose of educating staff on the variability of nitrous oxide and other process emissions.
- CARB Climate Change Scoping Plan Update and related developments.
  - CNRA Natural and Working Lands Climate Smart Strategy.
  - CARB Advanced Clean Vehicles Regulations.
  - CEC, CPUC, and CARB Clean and Renewable Electricity under SB 100.
  - Continuing work with CARB, CalRecycle, and the State Water Resources Control Board (SWRCB) staff on regulatory development and implementation of Short-Lived Climate Pollutant Reduction Strategies under SB 1383 regulations.
  - Tracking and responding to Environmental Justice Advisory Committee developments.
- Continuing work with CARB, CalRecycle, and SWRCB staff on establishing funding allocations out of the Cap-and-Trade Greenhouse Gas (GHG) Reduction Fund to wastewater projects.
- California Adaptation
  - CNRA Fourth Adaptation Strategy Update.
  - Climate change adaptation assessments and measures as they relate to permit requirements (including State Water Board, Regional Water Board and Coastal Commission activities).
- Tracking and facilitating efforts related to updates to AB 2588 Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) and the Reporting of Criteria Air Pollutants and Toxic Air Contaminants (CTR) under AB 617 to CARB and local AQMDs.
- New Best Available Control Technology (BACT) for emergency standby diesel engines in specified local air districts.
- Coordinating regional/local air district issues with state-level issues.
- Continuing to track and engage in discussions or comments on the following as necessary:
  - State legislation
  - CNRA online sea level rise database
  - CARB Mandatory GHG Reporting and Cap-and-Trade Regulations updates
  - EPA Mandatory Reporting Regulation updates
  - EPA Clean Power Plan updates
  - EPA Existing Source Performance Standards updates
  - EPA Biogenic Emissions Accounting Framework updates
  - White House Budget for Energy Efficiency and Renewable Energy Programs
  - NACWA Energy Workgroup
  - NACWA Climate & Resilience Committee

- NEPA Guidance on GHG Emissions
- CEQA Guidance on GHG Emissions
- CEC Climate Change Research Plan updates
- CalEnvironScreen Tool / EPA EJScreen Tool
- Other funding opportunities

TASK 3 - COORDINATION ACROSS WATER SECTOR ORGANIZATIONS

The CONSULTANT will coordinate with POTW and other water sector organizations on issues of mutual interest. The purpose of this coordination will be to share useful information, identify areas of joint cooperation, and prepare common responses on key issues, where technically appropriate. POTW organizations include but are not limited to the California Water Environment Association (CWEA), Bay Area Clean Water Agencies (BACWA), Southern California Alliance of POTWs (SCAP), Central Valley Clean Water Association (CVCWA), Water Environment Federation (WEF), Water Research Foundation (WRF), League of California Cities, and National Association of Clean Water Agencies (NACWA). Activities may include periodic conference calls, meetings, and exchange of draft or published materials.

CONSULTANT will also coordinate with and disseminate information to members. This may include email communications, presentations at conferences and workshops hosted by the member associations, and participation in meetings of the Clean Water Summit Partners.

Under this task, the CONSULTANT will also respond on an as-needed basis to questions from individual members.

TASK 4 – OTHER DUTIES AS ASSIGNED

The CONSULTANT will perform work under this task as directed by the CASA Executive Director or other CASA staff in consultation with the Executive Director. Duties may include limited involvement in legislative activities or other specialized services required on an ad-hoc basis.

Table 1. Estimated 2021-2022 Budget before Budget Enhancement to Respond to Proposed Electrification Regulations
Climate Change Program Manager (Air Quality, Climate Change, and Energy Workgroup Lead)
California Association of Sanitation Agencies

Task	TASK DESCRIPTION	CAROLLO TEAM LABOR HOURS					Total Estimated Costs
		PM	PP	AP	Total Labor Hours	Total Labor Costs	
1.0	**Meetings**	72	0	0	72	$16,992	$16,992
	Task 1 - Subtotal	**72**	**0**	**0**	**72**	**$16,992**	**$16,992**
2.0	**Issue Review and Communications**						
2.1	Legislative Bill Review & Input	40	0	0	40	$9,440	$9,440
2.2	2022 Scoping Plan Update	240	0	0	240	$56,640	$56,640
2.2.1	Natural & Working Lands Climate Smart Strategy						
2.2.2	Advanced Clean Vehicles Regulations						
2.2.3	Clean and Renewable Electricity (SB 100)						
2.2.4	Short-Lived Climate Pollutant Reduction (SB 1383)						
2.2.5	CARB/EJAC Engagement						
2.3	Can-and-Trade Investment Plan	8	0	0	8	$1,888	$1,888
2.4	California Adaptation	40	0	0	40	$9,440	$9,440
2.4.1	CCC Critical Infrastructure SLR Planning Guidance (coordinate SWRCB & OPC)						
2.4.2	Fourth Adaptation Strategy Update						
2.4.3	SWRCB Climate Change Preparedness Survey						
2.5	Air Toxics Statewide Two-Step Process	40	0	0	40	$9,440	$9,440
2.5.1	CARB Staff Engagement/Scope Development						
2.5.2	Participating Agency Identification/Governance Structure						
2.5.3	RFP Support/Coordination						
2.6	BACT Development/Engagement	24	0	0	24	$5,664	$5,664
2.7	Regional Air District Issue Coordination with State-Level Issues	20	0	0	20	$4,720	$4,720
	Task 2 - Subtotal	**280**	**0**	**0**	**280**	**$66,080**	**$66,080**
3.0	**Coordination with CASA Staff and Across Water Sector Organizations**	40	0	0	40	$9,440	$9,440
	Task 3 - Subtotal	**40**	**0**	**0**	**40**	**$9,440**	**$9,440**
4.0	**Other Duties as Assigned (as directed by Executive Director)**	0	0	0	0	$0	$0
	Task 4 - Subtotal	**0**	**0**	**0**	**0**	**$0**	**$0**
	SUBTOTAL	**524**	**0**	**0**	**524**	**$123,664**	**$123,664**
	Hourly Rate	$236	$280	$193			

Legend:

PM	Program Manager
PP	Project Professional
AP	Assistant Professional

Table 2. Proposed 2022 Budget to Respond to Proposed Electrification Regulations
Climate Change Program Manager (Air Quality, Climate Change, and Energy Workgroup Lead)
California Association of Sanitation Agencies

Task	TASK DESCRIPTION	CAROLLO TEAM LABOR HOURS					Total Estimated Costs
		PM	PP	AP	Total Labor Hours	Total Labor Costs	
1.0	**Meetings**	72	0	0	72	$16,992	$16,992
	Task 1 - Subtotal	**72**	**0**	**0**	**72**	**$16,992**	**$16,992**
2.0	**Issue Review and Communications**						
2.1	Legislative Bill Review & Input	40	0	0	40	$9,440	$9,440
2.2	2022 Scoping Plan Update	432	0	160	592	$132,832	$132,832
2.2.1	Natural & Working Lands Climate Smart Strategy						
2.2.2	Advanced Clean Vehicles Regulations						
2.2.3	Clean and Renewable Electricity (SB 100)						
2.2.4	Short-Lived Climate Pollutant Reduction (SB 1383)						
2.2.5	CARB/EJAC Engagement						
2.3	Can-and-Trade Investment Plan	8	0	0	8	$1,888	$1,888
2.4	California Adaptation	40	0	0	40	$9,440	$9,440
2.4.1	CCC Critical Infrastructure SLR Planning Guidance (coordinate SWRCB & OPC)						
2.4.2	Fourth Adaptation Strategy Update						
2.4.3	SWRCB Climate Change Preparedness Survey						
2.5	Air Toxics Statewide Two-Step Process	64	0	0	64	$15,104	$15,104
2.5.1	CARB Staff Engagement/Scope Development						
2.5.2	Participating Agency Identification/Governance Structure						
2.5.3	RFP Support/Coordination						
2.6	BACT Development/Engagement	24	0	0	24	$5,664	$5,664
2.7	Regional Air District Issue Coordination with State-Level Issues	64	0	0	64	$15,104	$15,104
	Task 2 - Subtotal	**472**	**0**	**160**	**632**	**$142,272**	**$142,272**
3.0	**Coordination with CASA Staff and Across Water Sector Organizations**	72	0	0	72	$16,992	$16,992
	Task 3 - Subtotal	**72**	**0**	**0**	**72**	**$16,992**	**$16,992**
4.0	**Other Duties as Assigned (as directed by Executive Director)**	0	0	0	0	$0	$0
	Task 4 - Subtotal	**0**	**0**	**0**	**0**	**$0**	**$0**
	SUBTOTAL	**816**	**0**	**160**	**976**	**$223,456**	**$223,456**
	Hourly Rate	**$236**	**$280**	**$193**			

Legend:

PM	Program Manager
PP	Project Professional
AP	Assistant Professional

Table 3. Proposed 2023 Budget to Respond to Proposed Electrification Regulations
Climate Change Program Manager (Air Quality, Climate Change, and Energy Workgroup Lead)
California Association of Sanitation Agencies

Task	TASK DESCRIPTION	CAROLLO TEAM LABOR HOURS					Total Estimated Costs
		PM	PP	AP	Total Labor Hours	Total Labor Costs	
1.0	**Meetings**	72	0	0	72	$17,502	$17,502
	Task 1 - Subtotal	**72**	**0**	**0**	**72**	**$17,502**	**$17,502**
2.0	**Issue Review and Communications**						
2.1	Legislative Bill Review & Input	40	0	0	40	$9,723	$9,723
2.2	2022 Scoping Plan Update (continued regulatory development)	400	0	160	560	$129,038	$129,038
2.2.1	Natural & Working Lands Climate Smart Strategy						
2.2.2	Advanced Clean Vehicles Regulations						
2.2.3	Clean and Renewable Electricity (SB 100)						
2.2.4	Short-Lived Climate Pollutant Reduction (SB 1383)						
2.2.5	CARB/EJAC Engagement						
2.3	Can-and-Trade Investment Plan	8	0	0	8	$1,945	$1,945
2.4	California Adaptation	40	0	0	40	$9,723	$9,723
2.4.1	CCC Critical Infrastructure SLR Planning Guidance (coordinate SWRCB & OPC)						
2.4.2	Fourth Adaptation Strategy Update						
2.4.3	SWRCB Climate Change Preparedness Survey						
2.5	Air Toxics Statewide Two-Step Process	64	0	0	64	$15,557	$15,557
2.5.1	CARB Staff Engagement/Scope Development						
2.5.2	Participating Agency Identification/Governance Structure						
2.5.3	RFP Support/Coordination						
2.6	BACT Development/Engagement	24	0	0	24	$5,834	$5,834
2.7	Regional Air District Issue Coordination with State-Level Issues	64	0	0	64	$15,557	$15,557
	Task 2 - Subtotal	**440**	**0**	**160**	**600**	**$138,762**	**$138,762**
3.0	**Coordination with CASA Staff and Across Water Sector Organizations**	72	0	0	72	$17,502	$17,502
	Task 3 - Subtotal	**72**	**0**	**0**	**72**	**$17,502**	**$17,502**
4.0	**Other Duties as Assigned (as directed by Executive Director)**	0	0	0	0	$0	$0
	Task 4 - Subtotal	**0**	**0**	**0**	**0**	**$0**	**$0**
	SUBTOTAL	**784**	**0**	**160**	**944**	**$222,381**	**$222,381**
	Hourly Rate	**$243**	**$288**	**$199**			

Legend:	
PM	Program Manager
PP	Project Professional
AP	Assistant Professional

We appreciate your consideration on this scope of services and budget and look forward to working more closely with you and your staff. Please do not hesitate to contact us if you have any questions or require additional information.

Sincerely,

CAROLLO ENGINEERS, INC.

Sarah Deslauriers, PE, ENV SP
Vice President
sdeslauriers@carollo.com
M 925-705-6404

KEY REGULATORY ISSUE SUMMARY
Updated February 2, 2022

Action items for member agencies are in **bold**

Contents

New updates in this version are shown in Purple highlighting

Background Highlights	Challenges and Recent Updates	Next Steps for BACWA	Links/Resources
NUTRIENTS IN SAN FRANCISCO BAY			
• San Francisco Bay receives some of the highest nitrogen loads among estuaries worldwide, yet has not historically experienced the water quality problems typical of other nutrient-enriched estuaries. It is not known whether this level of nitrogen loading, which will continue to increase in proportion to human population increase, is sustainable over the long term. • Because of the complexity of the science behind nutrient impacts in SF Bay, stakeholders in the region are participating in a steering committee to prioritize scientific studies and ensure that all science to be used for policy decisions is conducted under one umbrella.	• For FY22, BACWA is contributing $2.2M to fund scientific research needed to make management decisions for the 3rd Watershed Permit. This level of funding is required by the 2nd Watershed Permit. • The focus of current scientific efforts is improving model representation of biogeochemistry, light attenuation, dissolved oxygen, and Harmful Algal Bloom dynamics. Field and lab observations are supporting these improvements. • The science team is developing an Assessment Framework for deep subtidal habitats and Lower South Bay sloughs. • The science team has completed an assessment of the geographic zone of influence of each plant's discharge, which will aid in developing management approaches.	• Assist with preparation of a brief "State of the Science" document summarizing the scientific accomplishments of the Nutrient Management Strategy team for public use. • Continue to participate in steering committee, Nutrient Management Strategy, Nutrient Technical Workgroup, and planning subcommittee meetings, and provide funding for scientific studies. • Continue to engage with Nutrient Technical Team and BACWA's Nutrient Management Strategy technical consultant, Mike Connor, to provide review of recent work products and charge questions for the science team.	BACWA Nutrients Page: https://bacwa.org/nutrients/ Nutrient Management Strategy FY2021 Program Plan https://drive.google.com/file/d/1vhwNXfjBJH89sIB_XUQdyne7dK3tWjhm/view Nutrient Management Strategy FY22 Program Plan https://drive.google.com/file/d/1zUJLjdefBoFmzD0LZDMB4aH_O30wvebA/view

Background Highlights	Challenges and Recent Updates	Next Steps for BACWA	Links/Resources
SF BAY NUTRIENT WATERSHED PERMIT			
• The 1st Nutrient Watershed Permit was adopted in 2014, and required a regional study on Nutrient Treatment by Optimization and Upgrades, completed in 2018. • The 2nd Nutrient Watershed Permit was adopted in 2019. It includes: o Continued individual POTW nutrient monitoring and reporting; o Continued group annual reporting; o Significantly increased funding for science; o Regional assessment of the feasibility and cost for reducing nutrients through nature-based systems and recycled water; o Establishing current performance for TIN, and "load targets" for nutrient loads based on 2014 to 2017 load data plus a 15% buffer for growth and variability o Recognition of "early actors" who are planning projects that will substantially decrease TIN loads. • Through the nutrient surcharge levied on permittees, BACWA funds compliance with the following provisions on behalf of its members: o Group Annual Reporting o Regional Studies on Nature-Based Systems and Recycled Water o Support of scientific studies through the Regional Monitoring Program (RMP) at $2.2M per year through the five-year permit term.	• Studies related to Recycled Water and Nature-Based Systems are underway, and will be completed by the due date of July 1, 2023. • Each year by February 1, BACWA submits a Group Annual Report on behalf of its members. The report summarizes trends in nutrient concentrations and loading for each agency, and for all the agencies as a whole. The annual reporting period in the 2nd Watershed Permit is based on a water year (October 1 – September 30th). The Group Annual Report for October 2020 – September 2021 includes several new sections, including analysis of influent loading trends and data regarding recycled water diverted from San Francisco Bay. • Each year by February 1, BACWA and SFEI submit an annual science implementation plan and schedule update, as required by the 2nd Watershed Permit. • Agencies with plans to substantially reduce nutrients are recognized in the Fact Sheet of the 2nd watershed permit.	• BACWA continues to convene a Nutrient Strategy Team (NST) to develop BACWA's key tenets for the 3rd Watershed Permit. • Complete a statistical analysis of historical loading trends to support the eventual development of antidegradation-based load caps in the 3rd Watershed Permit. • Agencies continue to report nutrient monitoring to the Water Boards through CIWQS and to BACWA via the data sheet. • Agencies with plans to implement projects that will substantially reduce nutrient loads should keep the Regional Water Board and BACWA apprised, to get credit for "early actions." • Review draft reports by HDR and SFEI for the Nutrient Removal by Recycled Water Evaluation and the Nature-Based Systems study. Draft agency reports for the Recycled Water Evaluation have already begun to be distributed for agency review, and more are expected in early- to mid-2022. • Continue working with HDR to develop compliance feasibility information related to load limits in the 3rd Watershed Permit.	2nd Nutrient Watershed Permit: https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2019/May/6_ssr.pdf Special Studies of Recycled Water and Nature-Based Systems: https://bacwa.org/document-category/2nd-watershed-permit-studies/ Optimization/Upgrade Study Information: https://bacwa.org/document-category/optimization-and-upgrade-studies/ BACWA Group Nutrient Annual Reports: http://bacwa.org/document-category/nutrient-annual-reports/

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CHLORINE RESIDUAL COMPLIANCE			
• The Basin Plan chlorine residual effluent limit is 0.0 mg/L. Chlorine residual is the most frequent parameter for violations for Region 2 POTWs. Because there are 24 hourly reporting events each day, the "opportunities" for violations are enormous. However, the actual violation rates are infinitesimal (~0.001%). • Agencies are overdosing their effluent with the dechlorination agent, sodium bisulfite, to prevent chlorine violations, a practice which costs more than $1 million regionally each year.	• The Regional Water Board worked with BACWA to develop a Basin Plan Amendment (BPA) modifying the effluent limit for chlorine residual. • The BPA includes: o A 0.013 mg/L Water Quality Objective in marine and estuarine waters, which will be applied as a WQBEL in permits and calculated incorporating dilution. The WQBEL will be applied as a one-hour average. o A Minimum Level (ML), or Reporting Limit of 0.05 mg/L for online continuous monitoring system. • The BPA was adopted by the Regional Water Board in November 2020, approved by the State Water Board and Office of Administrative Law in 2021, and is now awaiting final review by EPA. • In October 2021, the Regional Water Board adopted a blanket permit amendment (Order R2-2021-0019) implementing the Basin Plan Amendment within each individual NPDES permit. The order will become effective shortly after the Basin Plan Amendment is approved by the EPA. The likely effective date is March 1, 2022.	• Prepare for a short turnaround time for implementation of the new chlorine residual limits, as follows: o Ensure compliance with the new minimum required frequency of once every 5 minutes. o Ensure the monitoring system complies with the new minimum level of 0.05 mg/L. o Members that plan to discharge detectable residual chlorine may need to adapt sampling and analysis procedures for other constituents for which residual chlorine could interfere, such as whole effluent toxicity and ammonia. o Use the highest one-hour arithmetic mean as the daily value reported into CIWQS.	Background and Status information about BPA on Regional Water Board site: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/amendments/chlorinebpa.html Final BPA adopted by Regional Water Board https://www.waterboards.ca.gov/sanfranciscobay//water_issues/programs/planningtmdls/amendments/chlorinebpa/2_Chlorine_Resolution_R2-2020-0031.pdf Blanket Permit Amendment for Chlorine and Oil and Grease https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2021/R2-2021-0019.pdf

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PESTICIDES			
• Pesticides are regulated via FIFRA, and not the Clean Water Act. POTWs do not have the authority to regulate pesticide use in their service area, but may be responsible for pesticide impacts to their treatment processes or to surface water. • Through BAPPG, BACWA aims to proactively support a scientific and regulatory advocacy program so that pesticides will not impact POTWs' primary functions of collecting and treating wastewater, recycling water, and managing biosolids, or impact receiving waters via the "down the drain" route.	• EPA reviews all registered pesticides at least once every 15 years. Each review allows opportunity for public comment. • BACWA continues to fund consultant support to write comment letters advocating for the consideration of POTW and surface water issues during EPA's risk assessments as part of reregistration. Funding for pesticide regulatory outreach in FY22 is $60K. • The Regional Water Board leverages BACWA's efforts to provide their own comment letters to EPA. • With chronic toxicity limits likely in the near term, POTWs will be in compliance jeopardy if pesticides contribute to toxicity. • Baywise.org has launched webpages on flea and tick control messaging to pet owners and veterinarians.	• Continue to comment on pesticide re-registrations. • Work with veterinary associations on messaging with respect to flea and tick control alternatives. • Continue to develop summary of EPA actions on pesticides. • Look for opportunities to work with CalDPR on pesticides research. • Work with other regional associations, such as the California Stormwater Quality Association (CASQA), to collaborate on funding pesticide regulatory outreach.	BACWA Pesticides Regulatory Update and Call to action: https://bacwa.org/wp-content/uploads/2016/02/BACWA-Pesticide-Regulatory-Update-2016-1.pdf BACWA Pesticide Regulatory Support Page: https://bacwa.org/bappg-pesticides/ Baywise flea and tick pages: https://baywise.org/residential/pets/keep-pets-free-of-fleas-and-ticks/
ENTEROCOCCUS LIMITS			
• In 2019, new statewide water quality objectives for bacteria were implemented to protect recreational users. The objectives are now part 3 of the Water Quality Control Plan for the SIP and Ocean Plan. • In February 2021, the Regional Water Board amended the Basin Plan to reflect the new statewide objectives. The same order also established a bacteria TMDL for two beaches in the Half Moon Bay area.	• The new enterococcus objective for saline waters is a six-week rolling geometric mean not to exceed 30 CFU/100 mL and a statistical threshold value of 110 CFU/100 mL • In July 2021, the State Water Board approved the Basin Plan Amendment and TMDL. The action has been approved by the OAL and is awaiting final approval by EPA, though the water quality objectives are already in effect.	• Dischargers may request dilution credits when the new objective is implemented within NPDES permits, based on a study completed by BACWA and SFEI to establish background enterococcus levels in SF Bay. • The study, completed in June 2020, showed all stations in the Bay were below the objective of 30 CFU/100 mL	SFEI Report on Enterococci in SF Bay: https://bacwa.org/wp-content/uploads/2020/08/BACWA-2020_Enterococci-report_final.pdf Regional Water Board Basin Plan Amendment: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/PPH_TMDL.html

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MERCURY AND PCBS			
• The Mercury & PCBs Watershed Permit was reissued in November 2017 with an effective date of January 1, 2018. The Watershed Permit is based on the TMDLs for each of these pollutants. • Aggregate mercury and PCBs loads have been well below waste load allocations through 2020, the last year for which data have been compiled. • Method 1668C for measuring PCB congeners has not been promulgated by EPA. Data collected during the first permit term varied widely depending on which laboratory performed the analyses. BACWA Laboratory Committee developed an updated PCB Protocol to reduce variability between laboratories running Method 1668C, effective January 1, 2014. Data have been more consistent since the distribution of this document. • In 2017, EPA adopted federal pretreatment program rules requiring dental offices to install dental amalgam separators. The rule is intended to reduce dental office discharge of mercury. The compliance date was July 14, 2020.	• The 2017 Watershed Permit requires continued risk reduction program funding. For FY22, BACWA granted an extension to an ongoing contract worth $12,500 to the California Indian Environmental Alliance to conduct risk reduction activities related to fish consumption. A previous contract for APA Family Support Services is now complete. • Beginning January 1, 2022, monitoring requirements for mercury have been reduced for most dischargers per Order R2-2021-0028 (see link at right). For most dischargers, this replaces the 2016 *Alternate Monitoring and Reporting Requirements for Municipal Wastewater Dischargers for the Purpose of Adding Support to the San Francisco Bay RMP*. • As part of the 2021 Triennial Review of the Basin Plan, the Regional Water Board has prioritized designation of three new beneficial uses: Tribal Tradition and Culture (CUL), Tribal Subsistence Fishing (T-SUB) and Subsistence Fishing (SUB). Water bodies designated these beneficial uses could also be assigned lower mercury objectives. In September 2021, this basin planning project was ranked as a "high priority" in the Triennial Review	• Synthesize PCBs loading data analyzed via Method 1668C ahead of the 2022 reissuance of the Mercury & PCBs Watershed Permit. This large data set demonstrates compliance with the TMDL, but may also be useful in assessing necessary monitoring frequencies. • The 2017 Permit expires in December 2022. Reissuance activities for the Mercury and PCBs Watershed Permit will occur in the second half of 2022. • Continue outreach to dentists BAPPG and BACWA's pretreatment committee. Under the federal pretreatment program, all dental facilities were required to submit one-time compliance reports by October 2020. • Schedule risk reduction presentations by the grantees to the Regional Water Board in 2022. • Track potential Basin Plan Amendments resulting from the Triennial Review project related to new beneficial use designations. The new designations are not expected to impact the bay-wide mercury TMDL in the near term, but there could be localized or longer-term impacts.	2017 Mercury & PCBs Watershed Permit: https://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2017/November/5b_final_to.pdf Risk Reduction Materials: https://bacwa.org/mercury pcb-risk-reduction-materials/ Updated BACWA PCBs Protocol: https://bacwa.org/wp-content/uploads/2014/02/PCBs-Sampling-Analysis-and-Reporting-Protocols-Dec13.pdf One-Time Compliance Report for Dental Offices: https://www.waterboards.ca.gov/water_issues/programs/npdes/docs/drinkingwater/one-time_compliance_report_for_dental_offices.pdf NPDES Permit Amendment for Monitoring and Reporting https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2021/R2-2021-0028.pdf

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STATE WATER BOARD TOXICITY PROVISIONS			
• The State Water Board has been working since before 2012 to establish Toxicity Provisions in the SIP that would introduce uniform Whole Effluent Toxicity Requirements for the State • During individual permit reissuances since 2015, the Regional Water Board has been performing RPAs for chronic toxicity and giving chronic toxicity limits to agencies with Reasonable Potential. • Proposed Final Statewide Toxicity Provisions were released in October 2020, incorporating revisions to previous versions from 2018 to 2020. The Provisions establish: o Use of Test of Significant Toxicity (TST) as statistical method to determine toxicity replacing EC25/IC25 (with concerns it will lead to more false positive results); o Numeric limits for chronic toxicity for POTWs >5 MGD and with a pretreatment program; smaller POTWs would receive effluent targets and only receive limits if Reasonable Potential is established; o Regional Water Board discretion on whether to require RPAs for acute toxicity; o For POTWs with *Ceriodaphnia dubia* as most sensitive species, numeric targets rather than limits until after completion of state-wide study on lab/ testing issues (Dec. 31, 2023).	• The State Water Board first adopted the Statewide Toxicity Provisions at its December 2020 meeting. In October 2021, the State Water Board affirmed that the Statewide Toxicity Provisions were adopted as state policy for water quality control for all inland surface waters and estuaries. The Toxicity Provisions are expected to go into effect no sooner than mid-2022 after approval by OAL and EPA. • Implementation will be on a permit-by-permit basis as new individual NPDES permits are issued. • Since 2016, agencies have had the option to skip sensitive species screening upon permit reissuance and pay the avoided funds to the RMP to be used for CECs studies. Once the Statewide Toxicity Provisions come into effect, agencies will once again be required by the provisions to do sensitive species screening once every 15 years. • BACWA joined SCAP, CVCWA and NACWA in a lawsuit alleging EPA did not follow proper procedure in requiring use of the TST, which has not been officially promulgated. The lawsuit was dismissed on Statute of Limitation grounds. An appeal to the 9th Circuit Court of Appeals was denied in September 2021 on the basis that the EPA guidance document is not a final agency action that can be reviewed by the courts. POTWs' only recourse is to challenge individual permits that include the procedure.	• **Continue to work with Regional Water Board on language for implementing Toxicity Provisions in Region 2 NPDES Permits.** • Regional Water Board staff provided revised draft permit language to BACWA in December 2021, and members provided feedback on this revised draft in January 2022. BACWA will work with the Regional Water Board to finalize the template in Spring 2022, ahead of its first use in mid-2022. The language will ultimately be copied into each newly adopted permit in the region, filling in details about monitoring and screening requirements that the Provisions leave to Regional Water Board discretion. • Share information on the special study on the *Ceriodaphnia dubia* test method with agencies who have that species in their permits.	SWRCB Toxicity Page: http://www.swrcb.ca.gov/water_issues/programs/state_implementation_policy/tx_ass_cntrl.shtml Toxicity Provisions adopted December 2020: https://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/provisions_final.pdf Toxicity Workshop Presentations from 2017 BACWA Workshop: https://bacwa.org/bacwa-toxicity-workshop-september-18-2017/ Regional Water Board presentation on implementation of Statewide Toxicity Provisions from December 2020 https://bacwa.org/wp-content/uploads/2021/01/Slides-from-RWQCB-Regarding-R2-Tox-Language-in-NPDES-Permits-2020-12-08.pdf

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COMPOUNDS OF EMERGING CONCERN (CECS)			
• Pharmaceuticals and other trace compounds of emerging concern (CECs) are ubiquitous in wastewater at low concentrations and have unknown effects on aquatic organisms. • The State Water Board is considering developing a Pilot CECs Monitoring Plan for the State. • Region 2's CEC strategy focuses on monitoring/tracking concentrations of constituents with high occurrence and high potential toxicity. Much of what the State Water Board is considering for its Pilot Monitoring Plan is already being implemented in Region 2 through the RMP. • Microplastics have been a focus of the RMP in recent years. BACWA has participated in the Workgroup and developed a POTW Fact Sheet. One conclusion of the RMP work is that POTWs contribute much lower microplastic loads than stormwater.	• The Regional Water Board has stated that voluntary and representative participation in RMP CECs studies is key to avoiding regulatory mandates for CECs monitoring. These studies are informational and not for compliance purposes. BACWA developed a White Paper on representative participation to be used to support facility selection for these studies. • Bay dischargers are continuing to provide supplemental funding for RMP CECs studies through the NPDES Permit Amendment for Monitoring and Reporting adopted in December 2021 by the Regional Water Board. RMP Invoices for Calendar Year 2022 will reflect the newly adopted Order. • DDW has adopted a definition of Microplastics in Drinking Water (may apply to other matrices such as wastewater and stormwater in the future). • In 2021, the OPC funded a study investigating microplastic removal through wastewater treatment processes. The study is being carried out by SCCWRP and SFEI. It commenced with pilot study, and full-scale sampling of about 15 facilities will occur in 2022. • In 2021, the Ocean Protection Council released a draft Statewide Microplastics Strategy that calls for increased water recycling, additional monitoring of wastewater, source control in wastewater, and additional scientific research.	• Continue to participate in the RMP CEC Workgroup. • Participate in studies by collecting wastewater samples at member facilities. Studies this year will include ethoxylated surfactants follow-up, sunscreens, and the OPC-funded microplastic study. • Provide ongoing updates to White Paper for use by the RMP in selecting representative POTWs for participation in CEC studies, and develop a proposal for ongoing monitoring. • Continue tracking State Water Board and Ocean Protection Council actions re: microplastics via the CASA Microplastics Workgroup.	RMP CEC Workgroup: http://www.sfei.org/rmp/ecwg#tab-1-4 BACWA CECs White Paper: https://bacwa.org/document/bacwa-cec-white-paper-updated-june-2020/ BACWA Microplastics Fact Sheet: https://bacwa.org/wp-content/uploads/2019/09/BACWA-Microplastics-flyer.pdf SFEI Microplastics Science Strategy: www.sfei.org/documents/microplastic-monitoring-and-science-strategy-san-francisco-bay SWRCB Microplastics in Drinking Water page: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/microplastics.html NPDES Permit Amendment for Monitoring and Reporting https://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2021/R2-2021-0028.pdf

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PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)			
• Per- and polyfluoroalkyl substances (PFAS) are a large group of human-made substances that are very resistant to heat, water, and oil. PFAS have been used extensively in surface coating and protectant formulations; common PFAS-containing products are non-stick cookware, cardboard/paper food packaging, water-resistant clothing, carpets, and fire-fighting foam. • Perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) are two types of PFAS that are no longer manufactured in the US; however, other types of PFAS are still produced and used in the US. • All PFAS are persistent in the environment, can accumulate within the human body, and have demonstrated toxicity at relatively low concentrations. PFOA and PFOS were found in the blood of nearly all people tested in several national surveys. • Potential regulatory efforts to address PFAS focus on drinking water in order to minimize human ingestion of these chemicals, although regulators have also expressed concern about uptake into food from land applied biosolids. • In April 2021, the formation of an "EPA Council on PFAS" was announced.	• DDW has developed drinking water notification levels (NLs) and response levels for PFOA, PFOS, and Perfluorobutane Sulfonic Acid (PFBS). • At DDW's request, OEHHA is developing NLs for seven other PFAS compounds and public health goals (PHGs) for both PFOA and PFOS as the next step in establishing drinking water MCLs. • In July 2021, OEHHA proposed a PHG of 0.007 ng/L for PFOA and 1 ng/L for PFOS. • In July 2020, the SWRCB issued an Investigative order for POTWs. Investigative orders have also been issued for landfills, airports, chrome platers, and refineries & bulk terminals. The July 2020 SWRCB investigative Order for POTWs is not applicable to Region 2 agencies. • The Summit Partners held four PFAS Workshops for POTWs in late 2020 and 2021. The most recent workshop was in September 2021. • EPA is beginning pretreatment standards rulemaking for two types of industrial users: Metal Finishing, and Organic Chemicals, Plastics and Synthetic Fibers. • In September 2021, EPA released Draft Method 1633 for analysis of PFAS in complex matrices like wastewater. • In October 2021, state legislation passed banning PFAS in children's products (AB 652) and food packaging (AB 1200).	• BACWA worked with RWB staff and obtained State Water Board approval to fund and conduct a Regional PFAS Study in lieu of the statewide investigative order. • SFEI is conducting this study in two phases: o In Phase 1, fourteen representative facilities collected samples in Q4 2020 for influent, effluent, RO concentrate, and biosolids. SFEI has uploaded the data into Geotracker and will issue a report in October 2021. BACWA has prepared a Fact Sheet regarding Phase 1 results (see link at right). o Phase 2 of the PFAS Regional Study will be conducted in Spring 2022. Preparation of the plan is underway. Phase 2 will include sampling of influent, effluent, and biosolids; residential sewersheds, commercial and industrial users; hauled waste; and groundwater. • BACWA will continue collaboration with Summit Partners and non-governmental organizations on legislation related to pollution prevention, as well as tracking developments at the State and Regional level.	Region 2 PFAS Study Phase 1 Presentation: https://bacwa.org/wp-content/uploads/2021/09/Mendez-Miguel-PFAS-Workshop-4.pdf Region 2 PFAS Study Fact Sheet: https://bacwa.org/wp-content/uploads/2021/08/PFAS-Fact-Sheet-Phase-I.pdf Summit Partners PFAS Workshop presentations: https://casaweb.org/calendar/speaker-presentations/ SWRCB Investigative Order for POTWs: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2020/wqo2020_0015_dwq.pdf OEHHA Drinking Water: https://oehha.ca.gov/water EPA PFAS Resources https://www.epa.gov/pfas EPA PFAS Strategic Roadmap (Oct 2021) https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024

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SSS WDR REISSUANCE			
• The State Water Board plans to reissue the statewide Sanitary Sewer System General Order (SSS-WDR). • State Water Board staff sought out early stakeholder engagement through outreach to CASA and the Regional Associations, and NGOs. • The State Water Board's goals for the update are: o Updating the 2006 Order o Clarifying compliance expectations and enhancing enforceability o Addressing system resiliency, including climate change impacts o Identifying valuable data and eliminating non-valuable reporting requirements	• In February 2021, the State Water Board released an informal staff draft of the updated SSS-WDR. • BACWA worked with CASA to provide proposed redlines to the informal staff draft, and discussed concerns in several meetings with State Water Board staff. BACWA also provided a comment letter on the informal staff draft. • A draft for public review and comment was released on January 31, 2022. This new draft addressed many of BACWA and CASA's comments on the February 2021 informal staff draft. The draft SSS-WDR requires careful review, as it is significantly different from the February 2021 version.	• Review and comment on the public review draft SSS-WDR, posted for public comment on January 31, 2022. Written comments are due April 8th, and a State Water Board workshop is scheduled for March 15th. • Attend and participate in SWRCB Staff Workshops scheduled for February 23 and 24, 2022. • Continue to coordinate with CASA, CVCWA, and SCAP on proposed revisions and reorganization of the SSMP requirements • Discuss response to issues such as exfiltration via BACWA's Collection Systems Committee.	SWB SSS WDR page: https://www.waterboards.ca.gov/water_issues/programs/sso/ SWB Draft for Public Comment and Workshop Instructions https://www.waterboards.ca.gov/water_issues/programs/sso/docs/2022-01-draft-sanitary-sewer-systems-general-order.pdf BACWA / CASA Comment Letter on February 2021 Informal Staff Draft: https://bacwa.org/wp-content/uploads/2021/07/6-30-21-SSS-WDR-Comment-Letter.pdf

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ELAP UPDATE			
• In May 2020, the State Water Board adopted new comprehensive regulations for the Environmental Laboratory Accreditation Program. • Adoption of the new regulations was required by AB 1438, legislation that became effective in 2018. • The new ELAP regulations will replace the current state-specific accreditation standards with a national laboratory standard established by The NELAC Institute (TNI).	• The new ELAP regulations became effective as of **January 1, 2021**. Compliance with TNI standards is required beginning **January 1, 2024**. • Adoption of TNI standards poses a challenge since there are more than 1,000 individual requirements. Setup costs may include: o Hiring and/or training staff; o Hiring consultants to set up the TNI documentation framework; o Purchasing Laboratory Information Management System (LIMS) software; o Purchasing documents and training material from TNI, etc. • The new standards will be a particular burden on small laboratories, which may choose to close if they cannot economically meet the new standards. • ELAP's "Roadmap to ELAP Accreditation" Program is the outreach and training component of the new regulations. ELAP staff have presented to the Lab Committee in June 2020, February 2021, and April 2021. ELAP has contracted with A2LA Workplace Training to provide training sessions. • The BACWA Lab Committee began providing monthly TNI training sessions beginning in July 2021.	• **Offer monthly training sessions to BACWA members.** The free virtual training sessions are open to BACWA members holding a valid copy of the 2016 TNI Standard, and are occurring on the 3rd Tuesday of each month throughout 2022. Training is provided by Diane Lawver of Quality Assurance Solutions, LLC, and other subject matter experts. • Continue to work through BACWA's Laboratory Committee to support members as they navigate laboratory accreditation under the new TNI standards. • Publicize training opportunities offered by consultants, ELAP, and others. • Provide a forum for BACWA laboratories to share experiences and lessons learned from various approaches to TNI implementation.	State Water Board's 'Roadmap to ELAP Accreditation' page: https://www.waterboards.ca.gov/drinking_water/certlic/labs/roadmap_to_elap_accreditation.html Roadmap to Accreditation Presentation to BACWA Lab Committee: https://bacwa.org/wp-content/uploads/2020/06/California-ELAP-Regulations-BACWA_06092020.pdf State Water Board's ELAP regulations page: http://www.waterboards.ca.gov/drinking_water/certlic/labs/elap_regulations.shtml Monthly Training Session flyer: https://bacwa.org/wp-content/uploads/2021/07/BACWA-Lab-TNI-Training-Series-Flyer.pdf

Background Highlights	Challenges and Recent Updates	Next Steps for BACWA	Links/Resources
PHASE-OUT OF BIOSOLIDS AS ALTERNATIVE DAILY COVER			
• Regulatory drivers are indicating that biosolids used as alternative daily cover (ADC) or disposed in landfills will be phased out: o AB 341 set a goal to recycle 75% of solid waste by 2020 and CalRecycle's plan to achieve that goal called for a marked, but unquantified, reduction of organics to landfills. o SB 1383, adopted in September 2016 requires organics diversion: -50% by 2020 (relative to 2014) -75% by 2025 (relative to 2014) • Regulations implementing SB 1383 went into effect on January 1, 2022, so the State can begin enforcement on jurisdictions. However, jurisdictions can request a one-year enforcement delay by submitting a Notice of Intent to Comply by March 1, 2022 (as allowed by SB 619). Jurisdictions can begin local enforcement January 1, 2024, and compliance is required by January 1, 2025. • While the regulations implementing SB 1383 do not explicitly forbid biosolids disposal/reuse in landfills, it is assumed that since biosolids are a relatively "clean" waste stream that can be easily diverted, landfills will stop accepting biosolids.	• BACWA's 2021 Biosolids Trends Survey Report compiles member agency activities in 2018-2020, as well as survey responses regarding SB 1383 implementation. • Requirements for SB 1383 implementation include: o Diverted biosolids must be anaerobically digested and/or composted to qualify as landfill reduction. o Beginning Jan 1, 2022, CalRecycle will consider whether other specific treatment technologies can qualify as landfill reduction (per Article 2 of SB 1383). o Local ordinances restricting land application are disallowed. o Jurisdictions that divert organic waste must also procure the end products of diversion, such as biogas, biomethane, and compost (but not biosolids). • Concerns that county ordinances will unreasonably restrict the beneficial reuse of biosolids have been partially addressed by CalRecycle in a new FAQ on SB1383. CalRecycle considers bans on land application to be unenforceable. CASA continues to conduct outreach to the California County Directors of Environmental Health (CCDEH) on this issue.	• **Follow efforts of the Regional Water Board to revise biosolids permitting requirements for land application and disposal, particularly in the Baylands.** For example, land application sites in the Baylands may be subject to additional monitoring requirements. • Actively work through CASA with California Air Resource Board, CalRecycle, State Water Board, and California Department of Food and Agriculture to develop sustainable long-term options for biosolids beneficial use. • Follow efforts of the Bay Area Biosolids Coalition (BABC) to investigate all-weather options for biosolids management. BABC is a BACWA Project of Special Benefit. • Participate in BAAQMD's Organics Recovery Technical Working Group to educate their staff on implementation of SB 1383 at the Air District level. • Meet with BAAQMD regularly in 2022 to discuss alignment of state and local regulations. • Work with CASA and others to respond to CCDEH concerns regarding safety standards for land application (see July 2021 letter, link at right).	BACWA 2021 Biosolids Trends Survey Report: https://bacwa.org/wp-content/uploads/2021/12/BACWA-2021-Biosolids-Trends-Survey-Report.pdf BABC website: http://www.bayareabiosolids.com/ CASA White Paper on SB 1383 Implementation: https://bacwa.org/document/summary-of-sb-1383-and-its-implementation-casa-2020/ CASA July 2021 Response Letter to CCDEH https://casaweb.org/wp-content/uploads/2021/07/CASA-Response-to-CCDEH-Letters-071321.pdf CalRecycle website for California Short-Lived Climate Pollutant Reduction Strategy https://www.calrecycle.ca.gov/organics/slcp CalRecycle FAQ for SB 1383 Implementation https://calrecycle.ca.gov/organics/slcp/faq

Background Highlights	Challenges and Recent Updates	Next Steps for BACWA	Links/Resources
CLIMATE CHANGE MITIGATION			
• CARB's Climate Change Scoping Plan Update lays out the approach for the State to meet its greenhouse gas (GHG) emissions reduction targets through 2030, including additional policies to achieve 40% reduction below 1990 levels by 2030: o Short-lived climate pollutants o Carbon sequestration on Natural and Working Lands o Largest emitters (transportation, electricity, and industrial sectors) The Scoping Plan will be updated in 2022 targeting carbon neutrality by 2045 and, if possible, 2035. • SB 1383 (Short-Lived Climate Pollutant Reduction) calls for: o 40% methane reduction by 2030 o 75% diversion of organic waste from landfills by 2025 o Policy / regulatory development encouraging production/use of biogas • BAAQMD developed a Clean Air Plan requiring GHG emissions supporting CARB's 2050 target. • BAAQMD has proposed the development of Regulation 13 (climate pollutants) targeting GHG reductions related to organics diversion and management. • In October 2020, Governor Newsom signed Executive Order N-82-20 calling for nature-based land management strategies to address climate change, such as natural and working lands restoration.	• CARB states POTWs are part of the solution for reducing fugitive methane, and encourages diversion of organics to POTWs to use excess digester capacity and produce biogas. • CARB is pursuing rapid fleet electrification, including medium and heavy-duty vehicles, through the Advanced Clean Fleet rule. Complete electrification will remove a potential market for biogas. CASA is engaging on this issue to request continued allowance of biogas as a sustainable transportation fuel. • Many POTWs are exploring energy generation, but BAAQMD TAC regulations could make such programs more difficult to implement. Direct injection of biogas to PG&E's pipelines or use as a transportation fuel may be more efficient. • CARB's previous interest in nitrous oxide emission estimates and/or emission factors for POTWs has shifted to toxic air contaminants. See Toxic Air Contaminants - BAAQMD Rule 11-18, AB 617, and AB 2588. • BAAQMD is developing a suite of Rules under Regulation 13 for climate pollutants methane and nitrous oxide. However, rule development has been suspended due to COVID-19 and lack of data. The delay is allowing time to summarize information about current best management practices.	• **Review the summary of the AIR committee-led survey regarding current methane management practices at anaerobic digesters and sludge lagoons.** After committee review, this summary will be shared with BAAQMD staff. • For Regulation 13, continue to work with BAAQMD staff to provide information and education about anaerobic digesters and POTW operations. Participate in the Organics Recovery Technical Working Group, as well as comment on draft Rules. • Look for ways to inform BAAQMD on opportunities and challenges for climate change mitigation by Bay Area POTWs. • Work with PG&E and BAAQMD to explore options for POTWs to inject biogas into PG&E pipelines. In February 2022, the CPUC will vote on a mandatory biomethane procurement program for CA's four large gas IOUs (including PG&E) under SB 1440. CASA has been discussing the barriers to pipeline injection with CPUC staff, proposing a reduction in their standard from 990 Btu/scf to 970 Btu/scf.	Climate Change Scoping Plan, including 2022 Update: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan CARB Short Lived Climate Pollutant Reduction Strategy: https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf CARB Advanced Clean Fleet Rule: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets/about SB 1383: https://www.calrecycle.ca.gov/organics/slcp BAAQMD Clean Air Plan: http://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans BAAQMD Regulation 13 http://www.baaqmd.gov/rules-and-compliance/rules/regulation-13-climate-pollutants

Background Highlights	Challenges and Recent Updates	Next Steps for BACWA	Links/Resources
CLIMATE CHANGE ADAPTATION			
• In 2017, the State Water Board adopted a Climate Change Resolution addressing mitigation and adaptation. One requirement is Regional Water Boards will make recommendations to modify permits and/or create other regulatory requirements to reduce vulnerability of water and wastewater infrastructure to flooding, storm surges, and sea level rise. • The Regional Water Board is planning to modify the Basin Plan under its Climate Change and Wetland Policy Update. The changes will occur through multiple Basin Plan amendments. • Climate change and water resilience continue to be a strategic priority of the Regional Water Board in 2022. • In April 2019, Governor Newsom signed Executive Order N-10-19 directing State Agencies to recommend a suite of priorities and actions to build a climate-resilient water system and ensure healthy waterways through the 21st century.	• The California Coastal Commission's November 2021 Sea Level Rise Planning Guidance recommends that agencies "understand and plan" for 2.7 feet of sea level rise by 2050. • The State Water Board is planning to send a data request to all permitted facilities (collection systems and POTWs) in the State to better understand to what extent agencies are performing climate change vulnerability assessments and/or investing in adaptation measures. They plan to use this information to determine the need for funding assistance or permit requirements for climate change planning. • In 2021, the Regional Water Board completed a detailed questionnaire of all POTWs in the region to collect information about climate vulnerability and adaptation. Results will be summarized in an Executive Officer report in early 2022. • The Regional Water Board is developing a Shoreline Resiliency Basin Plan Amendment addressing estuarine wetland protection, living shorelines, beaches, ecotone systems using treated wastewater. A draft is expected in Spring 2022. This Basin Plan Amendment could be used to incentivize the development of wetlands projects by wastewater agencies, and reduce permitting hurdles.	• **Review the Shoreline Resiliency Basin Plan Amendment** when it is released in 2022. This proposed amendment is part of a larger Climate Change and Wetland Policy Update project. • Continue to coordinate with State Water Board on the status of their data request on climate change planning, so members can provide the information they request as effectively as possible. Survey expected to be released in 2022. • Continue to work with Regional Water Board and other resource agencies to look for regulatory solutions to encourage wetlands projects for shoreline resiliency. • Coordinate with BABC, SFEI and Sonoma Land Trust on preparation of a white paper regarding biosolids management in the Baylands, an important region both for biosolids land application and wetlands restoration (see also Biosolids section, above). • BACWA recently signed a letter of support for the Bay Adapt Joint Platform. Individual agencies are also invited to endorse the Joint Platform.	California Coastal Commission's *Critical Infrastructure at Risk* https://documents.coastal.ca.gov/assets/slr/SLR%20Guidance_Critical%20Infrastructure_12.6.2021.pdf State Water Board 2017 Climate Change Resolution: https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2017/rs2017_0012.pdf Regional Water board Wetlands Policy Page: https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/climate_change/wetland_policies.html Information about Proposed Basin Plan Amendment (Issue 5.1): https://www.waterboards.ca.gov/sanfranciscobay/basin_planning.html#triennialreview Bay Adapt Joint Platform https://www.bayadapt.org/joint-platform/

Background Highlights	Challenges and Recent Updates	Next Steps for BACWA	Links/Resources
TOXIC AIR CONTAMINANTS			
• Regulation 11, Rule 18 (Rule 11-18), adopted November 15, 2017, is BAAQMD's effort to protect public health from toxic air pollution from existing facilities, including POTWs. • Per the Rule, BAAQMD will conduct site-specific Health Risk Screening Analyses (HRSAs) and determine each facility's prioritization score (PS). BAAQMD will conduct Health Risk Assessments (HRAs) for all facilities with a cancer PS>10 or non-cancer PS>1.0. After verifying the model inputs, if the facility still has PS above that threshold, that facility would need to implement a Risk Reduction Plan that may include employing Best Available Retrofit Control Technology for Toxics (TBARCT). • AB 617 (Community Air Protection Program) – requires CARB to harmonize community air monitoring, reporting, & local emissions reduction programs for air toxics and GHGs). POTWs within communities already impacted by air pollution may have to accelerate implementation of risk reduction measures. • AB 2588 (Air Toxics "Hot Spots" Program) - Establishes a statewide program for the inventory of air toxics emissions from individual facilities, as well as requirements for risk assessment and public notification of potential health risks. 2020 updates expanded compound list from >500 to >1,000.	• BACWA developed a White Paper on BAAQMD Rule 11-18 to describe its potential impacts on the POTW community. • In response to a request by BAAQMD, the AIR Committee delivered a letter report summarizing specific challenges that POTWs would face in complying with the rule due to budgeting and planning constraints related to being public agencies. • In response, BAAQMD moved all POTWs to Phase 2 to give sufficient time to update the model's inputs, and plan for emissions reduction or TBARCT, as needed. • AIR Committee gathered data on proximity factors from each facility and submitted to BAAQMD for updating prioritization scores, which will be use in HRA development. • In the *Final Statement of Reasons* for rulemaking on AB 617 and AB 2588, CARB provided the wastewater sector time to develop a short-list of relevant compounds and perform a pooled emissions estimating effort to update outdated default emission factors (through 2028). • In December 2021, BAAQMD amended Rule 2-5 to reduce allowable levels of toxic air contaminants in new source permitting. BAAQMD will also establish a working group with POTWs to address concerns related to toxic air contaminants and rule-making.	• **Priority: Agencies should use the tool developed by the AIR Committee to address emission contributions from influent flows, which will be used to update emissions inventory values.** • **Respond to BAAQMD data request beginning in 2022. There will be a 60-day turn-around to comply with the data request.** Following data collection and verification, BAAQMD will develop HRAs for facilities with a cancer PS>10 or non-cancer PS>1.0. Implementation of the Rule for Phase 2 facilities will be spread out over two years depending on the PS. • Contribute to the working group to be convened with BAAQMD staff to discuss toxic air contaminants, rule development, and related issues. • Report "business as usual" for air toxics through 2028. If BAAQMD requests additional monitoring of air toxics, member agencies should refer to the one-page handout on this topic prepared by CASA. The wastewater sector has until 2028 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.	BAAQMD Rule 11-18 page: http://www.baaqmd.gov/rules-and-compliance/rule-development/rules-under-development/regulation-11-rule-18 Rule 11-18 Process Flowchart: https://bacwa.org/document/baaqmd-11-18-process-flowchart-08-17-17/ CARB page on AB 617 and AB 2588: https://ww2.arb.ca.gov/our-work/programs/criteria-and-toxics-reporting *Final Statement of Reasons* https://ww3.arb.ca.gov/board/15day/ctr/fsor.pdf CASA One-Page Handout on Air Toxics Reporting: https://casaweb.org/wp-content/uploads/2021/06/CTR-EICG_CASAOnePageIssue-Approach_June2021.pdf BAAQMD Rule 2-5 https://www.baaqmd.gov/rules-and-compliance/rules/reg-2-permits?rule_version=2021%20Amendments

Background Highlights	Challenges and Recent Updates	Next Steps for BACWA	Links/Resources
RECYCLED WATER			
• Approximately 10 percent of the municipal wastewater of Region 2 POTWs is currently recycled. Expansion of recycled water projects is a goal of many BACWA members, but implementation is slowed by high costs, regulatory uncertainty, and administrative requirements. • As of 2020, virtually all recycled water in Region 2 was produced at centralized facilities using municipal wastewater, and was treated to meet standards for non-potable reuse.	• As of 2018, the State Water Board has adopted uniform water recycling criteria for two types of Indirect Potable Reuse: surface water augmentation and groundwater augmentation. • Regulations for Direct Potable Reuse are under development. The State Water Board is required to adopt criteria for raw water augmentation by December 31, 2023. • By the end of 2022, the State Water Board is required to adopt risk-based water quality standards for onsite treatment and reuse of non-potable water in multi-family, mixed use, and commercial buildings. San Francisco has already begun to implement a similar Onsite Non-Potable Reuse program for large developments in the city. • BACWA is currently completing a Regional Evaluation of Potential Nutrient Discharge Reduction by Water Recycling, as required by the 2nd Nutrient Watershed Permit.	• Review draft regulations for Direct Potable Reuse and Onsite Non-potable Reuse and work through Recycled Water committee to develop comments, as needed. • Track California legislation with potential impacts on recycled water funding, mandates, or regulations. • For the study of nutrient removal via recycled water, review barriers and challenges to recycled water expansion identified by the study, and strategize next steps.	Water Boards Recycled Water Policy and Regulations https://www.waterboards.ca.gov/water_issues/programs/recycled_water/ "Purple Book" of Recycled Water Regulations https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/rwregulations.pdf August 2021 Draft DPR Regulations https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2021/aug2021addendum_ep.pdf

Previously covered issues with no updates can be found in previous BACWA issues summaries.

ACRONYMS

ADC	Alternate Daily Cover
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BTU/SCF	British thermal units per standard cubic foot
CARB	California Air Resources Board
CASA	California Association of Sanitation Agencies
CAP	Criteria Air Pollutant
CEC	Compound of Emerging Concern
CIWQS	California Integrated Water Quality System

CVCWA	Central Valley Clean Water Agencies
CWEA	California Water Environment Association
DDW	Division of Drinking Water, State Water Resources Control Board
EC25/IC25	25% Effect Concentration/25% Inhibition Concentration
ELAP	Environmental Laboratory Accreditation Program
ELTAC	Environmental Laboratory Technical Advisory Committee
EPA	United States Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FY	Fiscal Year
GHG	Greenhouse Gas
HRSA	Health Risk Screening Analyses
HRA	Health Risk Assessment
MCL	Minimum Contaminant Level (Drinking Water)
MGD	Million Gallons per Day
NACWA	National Association of Clean Water Agencies
NELAC	National Environmental Laboratory Accreditation Conference
OAL	Office of Administrative Law
OEHHA	Office of Environmental Health Hazard Assessment
PCB	Polychlorinated Biphenyl
PFAS	Per- and Polyfluoroalkyl Substances
PFBS	Perfluorobutane Sulfonic Acid
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonic Acid
POTW	Publicly Owned Treatment Works
PS	Prioritization Score
RMP	Regional Monitoring Program
RPA	Reasonable Potential Analysis
SCAP	Southern California Alliance of POTWs
SF Bay	San Francisco Bay
SFEI	San Francisco Estuary Institute
TAC	Toxic Air Contaminant
TMDL	Total Maximum Daily Load
TIN	Total Inorganic Nitrogen
TNI	The NELAC Institute
TST	Test of Significant Toxicity
WQBEL	Water Quality Based Effluent Limitation
WQO	Water Quality Objective

February 7, 2022 (Revised from previous January 31 version)

Outcome of June 30, 2021 CASA/CVCWA/BACWA/SCAP Comments on Informal Staff Draft SSS-WDR

Note:
There have been numerous new changes to the SSS-WDR, so this is not a comprehensive list of concerns with the public draft released 1/31/22.

#	Comment (Brief version)	Outcome
1	Exfiltration should not be grouped together with other types of spills for reporting (Table 1)	**Improved.** The previous draft defined spills as including exfiltration to groundwater. The new public draft would only require exfiltration to be reported as a spill if it reaches a surface water.
2	The prohibition on "Any spill of sewage from a sanitary sewer system" should be removed (Section 4.1)	**Language softened but not removed.** The new prohibition reads "Any discharge from a sanitary sewer system that has the potential to discharge to waters of the State is prohibited unless it is promptly cleaned up and reported as required in this General Order."
3	The requirement for Legally Responsible Officials to hold a PE License or CWEA Certification (Section 5.5) is not necessary	**Fixed.** Per the new public draft, LROs would no longer need to hold a PE license or CWEA certification.
4	Reporting of spills from privately owned sewer laterals should be voluntary, not mandatory (Section 5.15).	**Fixed.** Reporting of spills from privately-owned laterals is now voluntary.
5	All agencies should be allowed to report Category 4 SSOs in the Annual Report rather than CIWQS. (Section 5.20 and E1 Section 3.5)	**No Change.** As in the previous draft, the new public draft requires five consecutive years of good performance before an agency qualifies for reduced reporting.
6	SSMPs should be updated every 6 years, with audits after 2 and 4 years (Section 5.2 and 5.11)	**Fixed.** The new public draft requires SSMPs to be updated every 6 years, with audits after 3 years.
7	The time window for reporting spills into CIWQS needs to be longer than 2 hours (Attachment E, Section 1.1)	**Unclear.** Numerous references to a CIWQS Spill Notification Portal that appeared in the previous draft have been removed from the new public draft. However, 2-hour reporting to CIWQS is still required for Category 1 and Category 2 spills per Table E2-1 and E2-2 of Attachment E2.
8	Financial reporting requirements for SSMPs should be simplified (Attachment D, Section 2.5 and Section 11)	**Fixed.** The previous draft included an SSMP section entirely devoted to program budgeting, but this has been removed from the new public draft.
9	SSMP Resiliency requirements should be streamlined (Attachment D, Section 7)	**Fixed.** The previous draft included an SSMP section entirely devoted to resiliency, but this has been removed. The SSMP requirements still contain limited references to resilience as an overall program goal.
10	The SSMP requirements should be re-organized to match, as closely as possible, the required elements from the 2006 WDR (Attachment D)	**Improved.** The SSMP section titles in the new public draft line up with the current requirements, but many of the details have changed within each section.

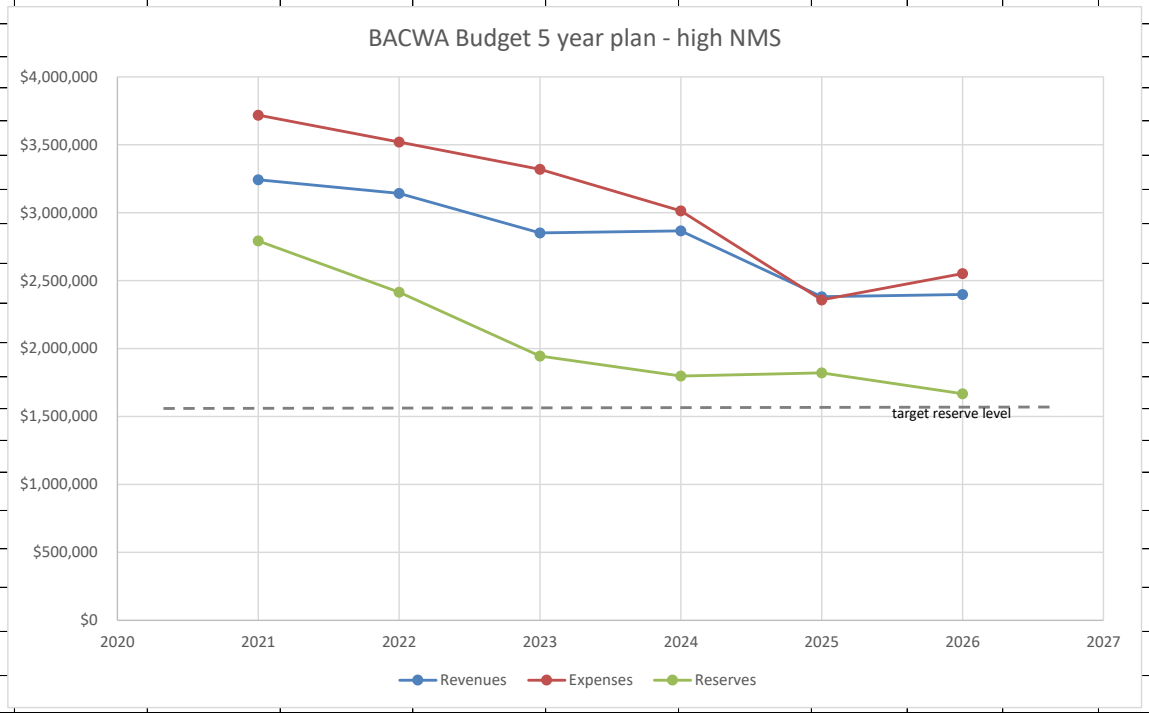
BACWA BAY AREA CLEAN WATER AGENCIES			
BACWA FY23 BUDGET	***Line Item Description***	**FY23 Budget**	**FY23 NOTES**
REVENUES & FUNDING			
Dues	Principals' Contributions	$527,250	FY23: 2% increase 5 @ $105,450
	Associate & Affiliate Contributions	$186,345	FY23: 2% increase. 12 Assoc: $8702; 47 Affiliate: $1743
Fees	Clean Bay Collaborative	$675,000	Prin: $450,000; Assoc/Affil: $225,000
	Nutrient Surcharge	$1,400,000	See Nutrient Surcharge Spreadsheet
	Member Voluntary Nutrient Contributions		
Other Receipts	AIR Non-Member	$7,217	2% increase (Santa Rosa)
	BAPPG Non-Members	$4,033	2% increase (Sta Rosa, Sac Reg'l, Vacaville) $1,344/each
	Other		
Fund Transfer	Special Program Admin Fees (WOT)	$5,202	
	BACC Admin Fees	$36,000	400 hours of AED support $90/hr
	BABC Admin Fees	$6,000	ED, AED and RPM support
Interest Income	LAIF	$4,000	BACWA, Legal, & CBC Funds invested in LAIF
	Higher Yield Investments		
	Total Revenue	**$2,851,047**	
BACWA FY23 BUDGET	***Line Item Description***	**FY 23 Budget**	**FY23 NOTES**
EXPENSES			
Labor			
	Executive Director	$197,980	4.2% CPI (SF Bay Metro Area Dec 2021)
	Assistant Executive Director	$85,020	4.2% CPI (SF Bay Metro Area Oct 2021); $70.85/hour; Reflects 1200 hours
	BACC Administrator	$36,000	400 hrs AED support at $90 per hr
	Regulatory Program Manager	$137,862	4.2% CPI (SF Bay Metro Area Dec 2021); $102.12/hour, Reflects 1350 hours
	Total	**$456,862**	
Administration			
	EBMUD Financial Services	$43,297	2% increase
	Auditing Services	$5,452	Finanical Auditors through EBMUD; per auditor rate schedule
	Administrative Expenses	$8,118	2% increase over FY22
	Insurance	$8,132	15% increase over FY22 actual
	Total	**$64,999**	
Meetings			

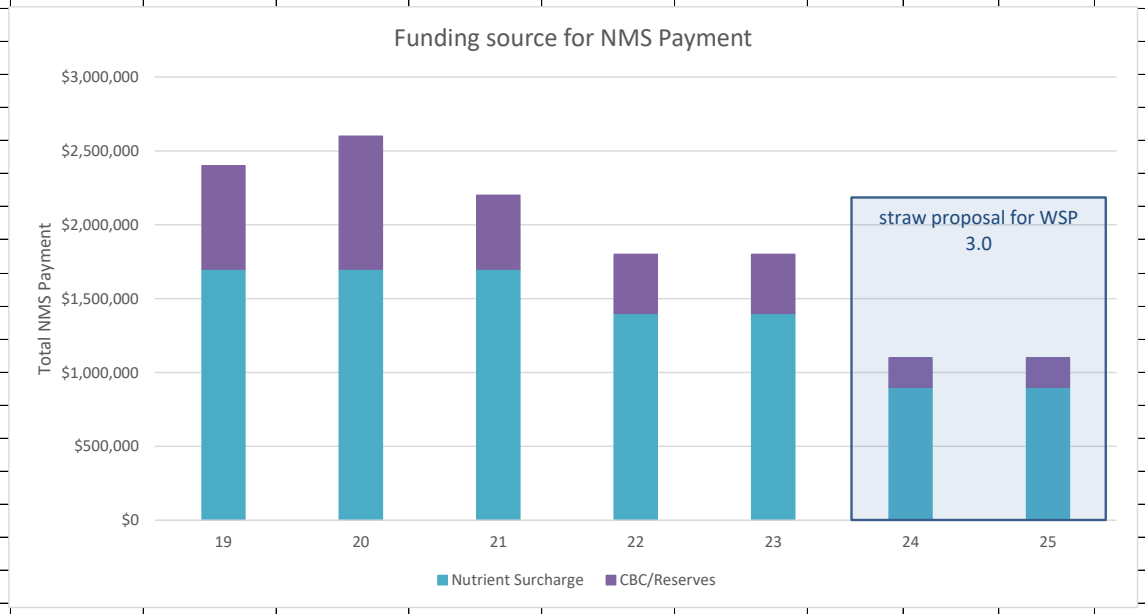
EXPENSES			
	EB Meetings	$2,706	2% increase from FY22
	Annual Meeting	$14,369	2% increase from FY22
	Pardee	$6,668	2% increase from FY22
	Misc. Meetings	$5,412	2% increase from FY22
	Total	**$29,155**	
Communication			
	Website Hosting / Domain registration	$714	2% increase from FY22, Go Daddy website hosting and domain registration
	File Storage	$780	2% increase from FY22, box.net
	Website Development/Maintenance	$1,561	2% increase from FY22
	IT Support (As Needed)	$2,705	2% increase from FY22
	Other Communication	$1,821	2% increase from FY22; MS Exchange, Survey Monkey, PollEv, Zoom, Netfile
	Total	**$7,581**	
Legal			
	Regulatory Support	$2,871	2% increase from FY22
	Executive Board Support	$2,309	2% increase from FY22
	Total	**$5,181**	
Committees			
	AIR	$76,000	$75k consulting support, $1k misc expenses
	BAPPG	$130,000	Includes CPSC @ $10,000, OWOW @ $10,000, and Pest. Reg Spt. @ $60,000.
	Biosolids Committee	$0	
	Collections System	$1,000	Same as FY23
	InfoShare Groups	$1,000	
	Laboratory Committee	$6,400	TNI standard training and meetings
	Permits Committee	$1,000	
	Pretreatment	$1,000	
	Recycled Water Committee	$20,000	
	Misc Committee Support	$45,000	
	Manager's Roundtable	$1,000	
	Total	**$282,400**	
Collaboratives			
	Collaboratives		
	State of the Estuary (SFEP-biennial)	$20,000	Bienniel in Odd Fiscal Years. (Paid bienniely in odd years for even year conference)
	Arleen Navarret Award	$0	Bienniel in Even Fiscal Years. Increase in FY20
	BayCAN	$5,000	
	Stanford ERC (ReNUWIt)	$0	
	Bay Area One Water Network	$5,000	New for FY23

EXPENSES			
	Enhanced CASA Support for ACE	$25,000	New for FY23
	Bruce Wolf Scholarship	$4,000	FY22, FY23, FY24, FY25 FY26
	Misc	$1,500	NBWA
	Total	**$60,500**	
Other			
	Unbudgeted Items		
	Other	$0	
		$0	
Tech Support			
	Technical Support		
	Nutrients		
	Watershed Permit NMS Contribution	$1,800,000	Advance funding for 2nd Watershed Permit Sciece Studies; Final $ TBD
	NMS Voluntary Contributions	$0	
	Additional work under permit	$100,000	Includes HDR PO for $225k spread out over FY20-24.
	Regional Study on Nature Based Systems	$248,811	SFEI $500K, expires 06/30/2022
	Regional Recycling Evaluation	$63,525	HDR $154K, expires 12/31/2023
	Nutrient Workshop(s)	$0	Pilot Studies/Plant Review/Innovative Technologies
	NMS Reviewer	$50,000	New FY22
	General Tech Support	$100,000	AB617 emissions factors, PFAS, other nutrient support
	CEC Investigations	$140,000	PFAS Study Phase II
	Risk Reduction	$12,500	APA FSS completed $12,500 contract in FY20, CIEA will complete $12,500 contract in FY23
	Total	**$2,413,167**	
	TOTAL EXPENSES	**$3,319,845**	
	NET INCOME BEFORE TRANSFERS	**-$468,798**	
	TRANSFERS FROM RESERVES	**$468,798**	aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge
	NET INCOME AFTER TRANSFERS	**$0**	
	TOTAL OPERATING BUDGET	**$906,677**	
	OPERATING RESERVE	**$226,669**	

	5 Year Plan to Eliminate Excess Reserves (CBC @ $1,000,000) - $2.2M/yr NMS payment through FY24								
								3rd WS PERMIT(tbd)	
			2021 (actual)	**2022 (adopted)**	**2022 (projected)**	**2023 (proposed)**	**2024 (proposed)**	**2025 proposed)**	**2026 propose**
REVENUES									
	Dues	Principals' Contributions		$516,909	$516,909	$527,250	$537,795	$548,551	$559,522
		Assoc. & Aff. Contributions		$187,793	$181,466	$186,345	$190,072	$193,873	$197,751
	Fees	Clean Bay Collaborative Fee		$675,000	$675,000	$675,000	$675,000	$675,000	$675,000
		Nutrient Surcharge		$1,700,000	$1,700,000	$1,400,000	$1,400,000	$900,000	$900,000
		Member Vol. Nutrient Contributions		$0	$0	$0	$0	$0	$0
	Other Receipts	Non-BACWA AIR		$7,075	$7,075	$7,217	$7,361	$7,509	$7,659
		Non-BACWA BAPPG Fee		$3,954	$3,954	$4,033	$4,113	$4,196	$4,279
		Other				$0	$0	$0	$0
	Fund Transfer	Special Program Admin Fees (WOT, BABC, BACC)		$38,402	$38,402	$47,202	$48,146	$49,109	$50,091
	Investment Income	LAIF		$20,000	$20,000	$4,000	$4,000	$4,000	$4,000
		Higher Yield Investments		$0	$0	$0	$0	$0	$0
TOTAL REVENUES		**Total**	**$3,242,874**	**$3,149,133**	**$3,142,806**	**$2,851,047**	**$2,866,488**	**$2,382,237**	**$2,398,302**
EXPENSES									
	Labor			$426,200	$426,200	$456,862	$470,568	$484,685	$499,225
	Administration			$60,823	$60,823	$64,999	$66,299	$67,625	$68,977
	Meetings			$28,865	$28,865	$29,155	$29,738	$30,333	$30,940
	Communication			$7,432	$7,432	$7,581	$7,732	$7,887	$8,045
	Legal			$5,079	$5,079	$5,181	$5,284	$5,390	$5,498
	Committees			$259,050	$259,050	$282,400	$288,048	$293,809	$299,685
	Collaboratives			$19,000	$19,000	$60,500	$41,710	$62,544	$43,795
	Other			$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	$400,000	$400,000		($400,000)	($400,000)		
		NMS Voluntary Contributions		$0	$0	$0	$0	$0	$0
		Additional Work Under Permit		$100,000	$100,000	$100,000	$100,000	$100,000	$100,000
		Nature Based Solutions Study		$248,811	$55,291	$248,811	$0	$0	$0
		Regional Recycling Report		$63,525	$14,931	$63,525	$0	$0	$0
		3rd WSP Special Studies							$200,000
		Member Voluntary Contributions		$0	$0	$0	$0	$0	$0
		Nutrient Workshops		$0	$0	$0	$0	$0	$0
		NMS Reviewer		$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
		General Tech Support		$100,000	$100,000	$100,000	$102,000	$104,040	$106,121
		CEC Investigations		$140,000	$140,000	$140,000	$40,000	$40,000	$40,000
		Risk Reduction		$7,500	$12,500	$12,500	$12,500	$12,500	$0
	Total Technical Support			$3,309,836	$2,714,075	$2,413,167	$2,104,500	$1,406,540	$1,596,121
TOTAL EXPENSES			**$3,718,490**	**$4,116,285**	**$4,326,973**	**$3,319,844**	**$3,013,879**	**$2,358,813**	**$2,552,286**
NET INCOME BEFORE TRANSFERS			**($475,616)**	**($967,152)**	**($377,718)**	**($468,798)**	**($147,392)**	**$23,425**	**($153,984)**
TRANSFERS TO(+)/FROM(-) RESERVES			**($475,616)**	**($967,152)**	**($377,718)**	**($468,798)**	**($147,392)**	**$23,425**	**($153,984)**
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)		**$2,792,466**		$2,414,748	$1,945,950	$1,798,558	$1,821,983	$1,667,999
	Amt. Above CBC Target End of FY 21 (projected)		**$1,292,466**		**$914,748**	**$445,950**	**$298,558**	**$321,983**	**$167,999**

	2021	2022	2023	2024	2025	2026





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

2nd watershed permit calcs

BACWA Agency	Subembayment	2018/19	2019/20	2021/2022	Average of Oct 2018 - Sept 2021 (3 Years)	% (based on TIN) FY22	% (based on TIN) FY23	FY 22 Nutrient Surcharge*	FY 23 Nutrient Surcharge*	% Change in surcharge from FY22 to FY23	$ Change from FY22 to FY23	% Change in Load FY22 to FY23	% Change in % Contribution from FY22 to FY23 (New Metric)
Basis for Allocation								TIN (Oct 2017-Sept 2020)	TIN (Oct 2018-Sept 2021)				
Amount Needed Science Funding								$1,700,000	1,400,000				
CCCSD	Suisun Bay	3,790	3,980	4,260	4010	7.43%	8.08%	$126,349	$113,059	-11%	$ (13,290)	4%	9%
EBDA	South Bay	8,570	8,950	7,710	8410	16.79%	16.94%	$285,346	$237,114	-17%	$ (48,232)	-4%	1%
EBMUD	Central Bay	9,340	9,320	8,630	9097	18.80%	18.32%	$319,518	$256,474	-20%	$ (63,044)	-7%	-3%
San Jose	Lower South Bay	5,500	4,880	4,080	4820	9.79%	9.71%	$166,506	$135,897	-18%	$ (30,610)	-5%	-1%
SFPUC Southeast	South Bay	8,850	7,210	6,500	7520	15.95%	15.14%	$271,199	$212,021	-22%	$ (59,177)	-9%	-5%
American Canyon	San Pablo Bay	37.3	33.1	17.8	29	0.07%	0.06%	$1,167	$829	-29%	$ (338)	-18%	-14%
Benicia	San Pablo Bay	222	211	228	220	0.44%	0.44%	$7,444	$6,212	-17%	$ (1,232)	-3%	1%
Burlingame	South Bay	466	460	402	443	0.82%	0.89%	$13,984	$12,481	-11%	$ (1,504)	3%	8%
CMSA	Central Bay	1,120	1,170	1,090	1127	2.10%	2.27%	$35,652	$31,766	-11%	$ (3,886)	3%	8%
Crockett (Port Costa)	San Pablo Bay	0.705	1.45	1.29	1	0.00%	0.00%	$45	$32	-28%	$ (13)	-17%	-13%
Delta Diablo	Suisun Bay	1,500	1,330	1,210	1347	2.78%	2.71%	$47,340	$37,968	-20%	$ (9,372)	-7%	-3%
FSSD	Suisun Bay	1,130	1,040	1,010	1060	2.23%	2.13%	$37,981	$29,886	-21%	$ (8,095)	-9%	-4%
Las Gallinas[(b)]	San Pablo Bay	153	160	128	147	0.29%	0.30%	$4,875	$4,145	-15%	$ (731)	-2%	3%
MSD 5 (Tiburon & Paradise Cove)	Central Bay	51.5	35.59	42.82	43	0.09%	0.09%	$1,575	$1,221	-22%	$ (354)	-10%	-6%
Millbrae	South Bay	286	288	278	284	0.53%	0.57%	$9,087	$8,007	-12%	$ (1,080)	2%	7%
Mt. View	Suisun Bay	115	112	99.2	109	0.23%	0.22%	$3,831	$3,066	-20%	$ (765)	-7%	-3%
Napa SD	San Pablo Bay	309	152	41.1	167	0.40%	0.34%	$6,769	$4,719	-30%	$ (2,050)	-19%	-15%
Novato SD	San Pablo Bay	198	112	94.5	135	0.28%	0.27%	$4,788	$3,802	-21%	$ (987)	-8%	-4%
Palo Alto	Lower South Bay	2,310	2,220	1,950	2160	4.30%	4.35%	$73,023	$60,900	-17%	$ (12,124)	-3%	1%
Petaluma	San Pablo Bay	24.2	6.68	5.31	12	0.02%	0.02%	$389	$340	-13%	$ (49)	1%	6%
Pinole	San Pablo Bay	227	232	273	244	0.50%	0.49%	$8,445	$6,879	-19%	$ (1,566)	-6%	-1%
Rodeo SD	San Pablo Bay	38.3	38.7	38.7	39	0.07%	0.08%	$1,193	$1,087	-9%	$ (105)	6%	11%
SFO Airport	South Bay	107	25.2	55.1	62	0.17%	0.13%	$2,951	$1,760	-40%	$ (1,191)	-31%	-28%
San Mateo	South Bay	1,530	1,330	1,380	1413	2.75%	2.85%	$46,687	$39,848	-15%	$ (6,839)	-1%	4%
Sausalito-Marin City SD	Central Bay	134	124	141	133	0.25%	0.27%	$4,299	$3,750	-13%	$ (549)	1%	6%
Sewerage Agency of SM	Central Bay	211	219	227	219	0.39%	0.44%	$6,715	$6,175	-8%	$ (540)	6%	12%
Sonoma Co Water Ag	San Pablo Bay	30	0	0	10	0.02%	0.02%	$325	$281	-14%	$ (44)	0%	5%
SVCW	South Bay	2,640	2,590	2,410	2547	5.07%	5.13%	$86,192	$71,802	-17%	$ (14,390)	-4%	1%
South SF	South Bay	1,310	1,160	1,160	1210	2.26%	2.44%	$38,416	$34,115	-11%	$ (4,301)	3%	8%
Sunnyvale	Lower South Bay	964	810	900	891	1.70%	1.80%	$28,861	$25,131	-13%	$ (3,731)	1%	6%
Treasure Island	Central Bay	13.9	20.9	19	18	0.03%	0.04%	$509	$506	-1%	$ (4)	15%	21%
Vallejo Sanitation & FCD	San Pablo Bay	928	851	849	876	1.73%	1.76%	$29,492	$24,698	-16%	$ (4,794)	-3%	2%
West County Agency	Central Bay	997	799	761	852	1.71%	1.72%	$29,046	$24,031	-17%	$ (5,015)	-4%	0%
Principals Only		**36,050**	**34,340**	**31,180**	**33,857**	68.76%	68.18%	$1,168,918	$954,565			-5%	
Total w/o principals		**17,053**	**15,532**	**14,812**	**15,799**	31.24%	31.82%	$531,082	$445,435				
Total		**53,103**	**49,872**	**45,992**	**49,655**	**100.00%**	**100.00%**	**$1,700,000**	**$1,400,000**				

BAY AREA CLEAN WATER AGENCIES
ANNUAL MEETING ROGRAM
May 6 2022
David Brower Center
Berkeley, CA

PRELIMINARY

TIME	DESCRIPTION	SPEAKER
9:00 am - 9:15 am	**Welcome/Introduction**	Amit Mutsuddy
	Year in Review	Lorien Fono, BACWA
9:15 am - 10:30 am	**Regulator Priorities**	**Moderator:**
	Bay Area Air Quality Management District	Jack Broadbent/Greg Nudd
	EPA	Ellen Blake
	San Francisco Water Board staff	Tom Mumley
	State Water Resources Control Board member	Nichole Morgan
	Q&A	
10:30 am - 11:00 am	**Break - Coffee and snacks on the terrace**	
11:00 am - 12:30 pm	**BACWA Hot Topics**	**Moderator:**
	PFAS Study update	
	Wastewater-based epidemiology - public health perspective	
	Climate change (Possible Topic, TBD)	
	EJI (Possible Topic, TBD)	
	Q&A	
12:30 pm - 1:15 pm	**Lunch - On the terrace**	
1:15 pm - 1:30 pm	**BACWA Leadership Recognition and Arleen Navarret Award**	**Amit Mutsuddy**
1:30 pm - 1:45 pm	**BACWA Hot Topics**	**Moderator:**
	AIR and Biosolids	Sarah Deslauriers
1:45 pm - 2:00 pm	**Nutrients - Overview**	
	Overview of 2nd Watershed Permit/Governance Update	Lorien Fono, BACWA
2:00 pm - 2:30 pm	**Nutrients - Regulatory Update**	**Moderator:**
	2021 Group Annual Report	Mike Falk, HDR
	Nature-Based Solutions Study	Ian Wren, SFEI
	Regional Recycled Water Evaluation	Mike Falk, HDR
	Q & A	
2:30 pm - 2:55 pm	**Nutrients - Technical Update**	**Moderator:**
	Update on the Science Plan and Findings	Dave Senn, SFEI
2:55 pm - 3:00 pm	**Annual Meeting Wrap-Up**	**Amit Mutsuddy**

Recycled Water Committee –
Report to BACWA Board

Recycled Water Committee Meeting on: 1/18/2022
Executive Board Meeting Date: 2/18/2022
Committee Chairs: Stefanie Olson, Reena Thomas

Committee Request for Board Action: Approval of budget request for FY23 to support Site Supervisor training video.

Detailed notes from meetings are posted online.
38 attendees (all participating remotely) representing 18 member agencies

Update on San Francisco's Onsite Water Reuse Program (Taylor Nokhoudian, SFPUC)

SFPUC provided an update on San Francisco's Non-Potable Water Ordinance (slides here). The Ordinance establishes roles and responsibilities for City agency coordination for tasks such as cross-connection control, issuing permits to operate, and inspecting plumbing installations.

In 2015, the Onsite Water Reuse program became mandatory for new development projects greater than 250,000 square feet. In 2021, the ordinance was updated, lowering the square footage requirement to apply to new buildings greater than 100,000 square feet. Revisions in 2021 also modified requirements for multi-family and mixed-used residential buildings, and removed a requirement to capture rainwater, among other changes. The City offers grants for implementation. There are currently 25 mandatory non-potable graywater projects in the City, 6 blackwater systems, 4 voluntary graywater systems, 3 foundation drainage systems, and 1 brewery process water reuse system. By 2040, the ordinance is expected to result in an ongoing water savings of about 1.5 MGD.

The State is currently developing risk-based onsite water reuse standards, which are required to be developed by December 1, 2022 per SB 966.

Salesforce Tower Cross-Connection Test for a Dual Plumbed System (Alex Bucher, West Yost)

Alex Bucher's slides are available here. Salesforce Tower has a blackwater recycling system, though it is not currently operational due to low occupancy. A cross-connection shutdown test was recently performed at the building by West Yost. Due to the logistical challenges of conducting a visual test with over 1,300 potable water fixtures and inaccessible private suites, the test was conducted using a pressure differential shutdown test. This type of test is the only test approved in Southern California by DDW for all site types (parks, schools, medians, etc.). The test utilized the PRVs that are part of the distribution system within the building (each PRV serves 7-9 floors). Only 2-3 staff were required. Protocols for future cross-connection testing should be considered during the design phase for dual-plumbed buildings.

Site Supervisor Training Update

The committee is moving forward with plans to conduct a site supervisor training video series in calendar year 2022, provided the BACWA Executive Board approves funding to hire a video editor. The initial concept is to develop 4 videos, each about 10 minutes long.

Legislative and Funding Updates

- The Infrastructure Investments and Jobs Act signed into law in November includes $1B for water recycling WIIN grants and Title XVI over five fiscal years, broken down into $550M for Title XVI and WIIN Act grants and $450M for large scale projects. For new alternative water supplies, there is no appropriation but there is an authorization for $125M. USBR has opened Title XVI funding opportunities, including a WIIN Act funding opportunities, and applications are due March 15, 2022. See Title XVI - Water Reclamation and Reuse | Bureau of Reclamation (usbr.gov) The federal "Build Back Better Act" has infrastructure funding including water recycling and appropriation of the $125M for alternative water sources. It is still under consideration by Congress.
- In December, DWR released a final solicitation package for Round 2 of IRWMP Prop 1 funding, which states that approximately $182 million will be made available for implementation grant awards in Round 2. The BAIRWMP Process and Planning Committee plans to submit an application for the solicitation and has met to discuss how projects will be selected for the application.
- Any project seeking funding through the State Revolving Fund needs to comply with the American Iron and Steel Act. Agencies should familiarize themselves with these requirements, which requires compliance documentation from vendors.

Next Meeting – Tuesday, March 15, 10:30 am by Zoom

Executive Director's Report to the Board

January 2022

EXECUTIVE BOARD MEETING AND SUPPORT

- Planned and hosted joint meeting with R2 staff, 1/6
- Worked with BACWA staff to plan and manage 1/14 Executive Board meeting
- Reviewed, updated, and distributed meeting minutes from 1/14 Executive Board meeting
- Conducted the Executive Board meeting agenda review with the BACWA Chair
- Developed preliminary program for 2022 Annual Meeting
- Reviewed catering options for 2022 Annual meeting
- Convened special Executive Board meeting to plan kickoff BAAQMD Workgroup meeting, 1/27
- Met with Board member to discuss future nutrient surcharge allocation
- Continued to track all action items to completion

COMMITTEES:

- Worked with RPM on strategy to deliver BAPPG's contribution to OWOW with CASQA
- Met with Lab Committee Chairs to discuss funding TNI Training, 1/11
- Attended Recycled Water Committee meeting, 1/18
- Developed CAR and contract for SSS WDR comment support

REGULATORY:

- Attended State Water Board workshop on Wastewater Arrearages program, 1/4
- Met with State Water Board staff on Wastewater Arrearages program, 1/12
- Met with USEPA staff to discuss priority issues
- Discussed development of Phase 2 PFAS SAP with SFEI staff

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 with Science Manager
- Participated in and drafted meeting notes for NMS Planning Subcommittee meeting, 1/5
- Planned and hosted NST meeting 1/10
- Attended NMS Assessment Framework Subcommittee meeting 1/11
- Attended quarterly NBS meeting, 1/21
- Developed BAR for FY22 NMS Payment #2
- Reviewed draft State of the Science document

FINANCE:

- Reviewed the monthly BACWA financial reports per EBMUD's new accounting system
- Worked with AED to develop draft FY23 Budget
- Worked with RPM on FY23 Nutrient Surcharge Calculations
- Updated 5-year plan with updated NMS payment schedule
- Planned, developed materials, and hosted Finance Committee meeting, 1/24
- Reviewed and approved invoices

- Discussed contracting issues with AED
- Worked with AED to reformat Budget to Actual spreadsheet

COLLABORATIONS:

- Attended CASA CS Workgroup meeting 1/12
- Discussed providing funding for enhanced regulatory engagement on air/biosolids/climate/energy via CASA
- Represented BACWA at CASA RWG Biosolids meeting and attended Water meeting 1/13
- Attended CASA ACE meeting, 1/27
- Attended BayCAN All Regions meeting, 1/20
- Attended SFEP Implementation Committee meeting, 1/24
- Participated in coordination call for PFAS in Fish Workshop, 1/24
- Drafted and delivered BACWA endorsement for Bay Adapt

ASC (AQUATIC SCIENCE CENTER)

- Reviewed materials sent via email by ASC ED
- Attended Board meeting, 1/28

BABC (BAY AREA BIOSOLIDS COALITION)

- Reviewed revised draft White Paper on Biosolids application in the Baylands
- Attended and developed summary of meeting, 1/19

BACC (BAY AREA CHEMICAL CONSORTIUM)

- Assisted AED in responding to questions about the bid

BACWWE (BAY AREA COALITION FOR WATER/WASTEWATER EDUCATION)

- Reviewed BACCWE email discussions

ADMINISTRATION:

- Planned for and conducted the monthly BACWA staff meeting to prepare for the Board Meeting and to coordinate and prioritize activities.
- Met with RPM to discuss progress on regulatory issues
- Signed off on invoices, reviewed correspondence, prepared for upcoming Board meetings, responded to inquiries on BACWA efforts, oversaw and participated in updating of web page and provided general direction to BACWA staff.
- Worked with 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.

MISCELLANEOUS MEETINGS/CALLS:

- Worked with BACWA Chair and Committee Chairs on items that arose during the month
- Other miscellaneous calls and inquiries regarding BACWA activities
- Responded to Board members' requests for information
- Met with San Mateo County Health department to discuss wastewater treatment, wastewater based epidemiology, and how to set up a WBE dashboard for SARS-CoV-2 monitoring
- Discussed fees and dues with member agency staff
- Attended USD WIFIA announcement event

Board Calendar

March 2022 – May 2022 Meetings

DATE	AGENDA ITEMS
March 18, 2022	**Approvals & Authorizations:** • SGS AXYS Contract **Policy / Strategic Discussion:** •Recycled Water Committee presentation •SSWDR Update **Operational:** •Draft budget review •BACC bid Awards
April 15, 2022	**Approvals & Authorizations:** • **Policy / Strategic Discussion:** • **Operational:** •FY23 budget approval
May 6, 2022	**Annual Meeting** **David Brower Center, Berkeley**

BACWA ACTION ITEMS

Number	Subject	Task	Responsibiity	Deadline	Status
	Action Items from Jan 2022 BACWA Executive Board Meeting		**resp.**	**deadline**	**status**
2022.1.31	Biosolids Report	Regulatory Program Manager to share presentation slides with the group	RPM	1/31/2022	Complete
2022.1.32	Funding for CASA	Executive Director to move forward with approval process for a contribution for this FY	ED		WIP
2022.1.33	BAAQMD adoption of Reg 2 Letter	Executive Director to contact BAAQMD to inquire whether the Essential Public Service definition will be changed.	ED	2/4/2022	complete
2022.1.34	GAR Presentation	Executive Director to follow up with Science Manager on whether load decreases reported in GAR are observable in receiving waters	ED	2/4/2022	Complete
2022.1.35	Biolsolids Report	Regulatory Program Manager to calculate metric on cost per mile to respond to Chair's question	RPM	2/14/2022	Complete
	Action Items Remaining from Previous BACWA Executive Board Meetings				
2022.11.23	Planning for meeting with BAAQMD leadership	Schedule a meeting with BAAQMD leadership to discuss longer-term issues such as BAAQMD staffing shortages.	ED \ RPM		complete
2022.12.28	Agency EJI initiatives - report to EPA	BACWA Executive Director will work with BACWA agencies to put together a meeting & presentation on EJI efforts.	ED		complete

FY22: 34 of 35 Action items are completed
FY21: 51 of 51 Action items completed
FY20: *70 of 70 Action Items completed*
FY19: *110 of 110 action Items completed*
FY18: *66 of 66 Action Items completed*
FY17: *90 of 90 Action Items completed*

Regulatory Program Manager's Report to the Executive Board

January 2022

ANNUAL REPORT: Completed Annual NPDES permit compliance letter.

BACWA BULLETIN: Completed and circulated January Bulletin.

NUTRIENTS: Participated in Nutrient Strategy Team meeting, and reviewed draft Group Annual Report for 2nd Watershed Permit.

REGULATORY MATRIX: Prepared February 2022 version of Key Regulatory Issues Summary for review by Executive Director and committee leaders.

TOXICITY: Continued to review draft NPDES permit language prepared by Regional Water Board for implementation of new statewide toxicity provisions within Region 2, and compiled comments received from members.

SSS-WDR: Assisted with contract review for Rich Cunningham; began review of public draft SSS-WDR.

COMMITTEE SUPPORT:

Asset Management – Conducted outreach for re-activation of committee meetings.
BAPPG – Attended pesticides committee and steering committee meeting; coordinated with committee leadership regarding annual report; reviewed draft Annual Report; conducted survey regarding Our Water, Our World participation; prepared for February 2022 committee meeting.
Biosolids – Attended Bay Area Biosolids Coalition meeting to discuss Biosolids in the Baylands white paper.
Collection Systems – Assisted with preparations for February 2022 committee meeting.
Laboratory – Prepared draft agenda for February 2022 meeting; assisted with hosting duties for January 25th Sampling and Sample Receipt TNI training session.
Permits – Prepared draft agenda for February 2022 meting; conducted outreach to Regional Water Board regarding Hg/PCBs watershed permit.
Recycled Water – Assisted with development of budget for FY23; Prepared for, attended, and prepared notes for January 2022 meeting.
Executive Board – Attended Executive Board meeting and reported on Biosolids Trends Survey report; attended Executive Board – Regional Water Board staff meeting and prepared notes.

ADMINISTRATION/STAFF MEETING – Participated in monthly staff meeting.

BACWA MEETINGS ATTENDED:
Executive Board (1/6, 1/14, 1/27)
BAPPG Steering Committee (1/11)
BAPPG Pesticides Subcommittee (1/11)
Recycled Water Committee (1/18)
Nutrient Strategy Team (1/10)
Lab Committee TNI Training (1/25)

EXTERNAL EVENTS ATTENDED:
CASA RWG Workgroup Meeting (1/13)
Breaking Down PFAS Virtual Workshop (1/18)
Bay Area Biosolids Coalition (1/19)
CASA ACE Workgroup (1/27)

Lorien Fono

From: Jared Voskuhl <JVoskuhl@casaweb.org>
Sent: Monday, February 7, 2022 1:02 PM
Subject: [Regulatory] CASA Regulatory Update - February 2022

Categories: Board Packet

Good Afternoon,

Please find below updates from January and for February. Our next Regulatory Workgroup meetings will be held on February 17, and Karen Mogus, Deputy Director of the State Water Board's Water Quality Division, will join us for a portion of the water committee meeting to share about Board priorities in 2022 including the new utility arrearages program, the new draft of the SSS WDR, the recently adopted integrated report and 303(d) list, and the biostimulatory substances & biological integrity policy development. Please let us know if you have any problems accessing the linked resources.

Thank you,
The RWG Team

WATER

Utility Arrearages Payment Program Application Portal Open until 4/1/22
On January 19, the State Water Resources Control Board (State Water Board/SWB) adopted the wastewater utility arrearages payment program guidelines (arrearages program). Previously CASA had provided comments on the draft guidelines on January 5 and testified during the workshop on January 4. The arrearages program will provide funding relief to wastewater agencies and wastewater billing entities for unpaid residential and commercial customer debt accrued during the COVID-19 pandemic for the period between March 4, 2020 and June 15, 2021. The application period runs between February 1 and April 1, with disbursements beginning March 1. A two-page fact sheet is linked about the program's eligibility, and further information is available on the program's webpage. If you do not bill customers directly, please pass this information onto your billing entity. Technical assistance is available for anyone who needs support to complete their application, so if you have general or specific questions, do not hesitate to reach out to the program's staff.

SSS WDR Draft Released by SWB
On January 31, the State Water Board released the official draft of the re-issued sanitary sewer system waste discharge requirements (SSS WDR). Per the formal notice, the SWB will host public workshops on February 23 and 24, there will be a Board workshop on March 15, and

formal comments will be due on April 8, 2022. Previously in February 2021, the Board released an informal staff draft upon which we provided comments and met with SWB staff to discuss issues with implementation. CASA is planning to hold multiple internal meetings to review the new draft to discuss its impacts and to develop our formal remarks, so if you're interested in being involved, reach out to Jared Voskuhl for updates and Cheryl Mackelvie, CASA's Executive Assistant, to be added to our Collection Systems Workgroup listserv.

CASA Submits Comments to OPC on Statewide Microplastic Strategy

On January 21, CASA submitted comments to the Ocean Protection Council (OPC) on their draft Statewide Microplastics Strategy, which had been released on December 21, 2021. The Strategy is expected to be adopted at the OPC's February 23 meeting. If you have questions or feedback, please contact Jared Voskuhl.

CASA Submits Comments to CFGC on Southern California Steelhead Petition

On February 3, CASA submitted comments to the California Fish and Game Commission (Commission) on the petition to list the Southern California steelhead under the California Endangered Species Act. The Commission will take up their petition and the Department of Fish & Wildlife's evaluation at the Commission's February 17 meeting. Please reach out to Jared Voskuhl with remarks or questions.

SWB Adopts 2020-22 303(d) List for Regions 3, 5, and 9

On January 19, the State Water Board adopted the 2020-22 integrated report and 303(d) list, adding over 1,000 new listings in Region 3 (Central Coast), Region 5 (Central Valley), and Region 9 (San Diego). Numerous stakeholders from the regulated community testified during the four-hour adoption hearing, and the Board added three recitals to the adopting resolution to assuage concerns.

The State Water Board is currently reviewing the data submissions from their 2020 solicitation from Region 2 (San Francisco), Region 4 (Los Angeles), Region 5 (Central Valley – Sacramento River), and Region 8 (Santa Ana) for the 2024 report, and the public stakeholder process for that list cycle is estimated to conclude in July 2023. More info about the upcoming listing cycle is available on the SWB's 2024 program page. Please reach out Jared Voskuhl if you have feedback or inquiries.

Water Resiliency Portfolio - Status & Progress Report

On January 12 , the Department of Water Resources (DWR) released a Progress Report for the 2020 Water Resilience Portfolio (Portfolio) on which CASA had submitted comments a couple of years ago. The Progress Report defines four stages of completion and ranks each Action in the Portfolio accordingly. As exhibited in the Progress Report, California has made considerable progress to ensure a resilient future for our water, and CASA will continue to support DWR so the remainder of the Portfolio may be achieved. Reach out to Jared Voskuhl with feedback on the Progress Report.

California Water Action Plan 2023 Update

Later this winter, DWR will convene a Policy Advisory Committee (PAC) to develop and update the 2023 California Water Plan (Plan). First introduced in 1957, the Plan is the state's strategic map for sustainably managing and developing water resources for current and future generations. It is updated every five years, and the next one is due in 2023. The PAC will hold a

kickoff meeting in the coming weeks, and it will cover the following topics: an overview of the Plan Update, the role and charge of the PAC, presentations on the three main themes of the 2023 Plan update: watershed resilience, climate change, and equity, and discussion of how those themes overlap with PAC member priorities and initiatives. CASA's Jared Voskuhl will serve on the PAC, so please reach out to him with questions or feedback.

Cerio Study SAG Meeting on 2/23

On February 23, the Stakeholder Advisory Group (SAG) for the SWB's study of variability in test results for aquatic toxicity using ceriodaphnia dubia will hold their first meeting of 2022. They are planning to discuss the historical analyses that SCCWRP performed during their first phase of this project in 2021. CASA plans to monitor the meeting, so please reach out to Jared Voskuhl with questions.

CWSRF Comments on Amending 2021-22 IUP

On January 7, the State Water Board released an amended draft of the previously adopted 2021-22 intended use plan (IUP) in order to administer the legislature's wastewater allocations from the 2021 state budget. The SWB held a workshop on January 20, and comments were due earlier today. The SWB plans to adopt the amended materials on March 15, and we expect the 2022-23 IUP will be released in April. Please contact Jared Voskuhl if you have questions.

$650 WW Infrastructure Funding – Septic to Sewer

Extending from the prior item, the State Water Board will prioritize the wastewater infrastructure funding for septic to sewer projects, as shown in this fact sheet. CASA has been actively working with SWB staff and our members to assist in developing a statewide needs assessment, and many thanks are due to Inland Empire Utilities Agency, Ross Valley Sanitary District, the City of Oakland, the City of Richmond, Coachella Valley Water District, and Woodward and Curran, for all of their assistance and support to provide their experiences towards comparable local efforts, and we anticipate reaching back out later this month to request your submission of service boundaries in order to assist the SWB with identifying eligible projects. Please contact Jared Voskuhl if you would like to discuss your participation in this project further.

Volumetric Annual Reports for 2021 due 4/30.

On January 10, the State Water Board opened the Geotracker portal for the 2021 volumetric annual report (VAR). Wastewater and recycled water permittees are required to submit their 2021 VAR report module in GeoTracker by April 30, 2022. For background, the SWB's Water Quality Control Policy for Recycled Water requires wastewater and recycled water permittees (including wastewater permittees that do not produce any recycled water) to annually report monthly volumes of influent, wastewater produced, and effluent, including treatment level and discharge type. The 2021 VAR is the same format as the previous year and requires the entry of volumes in acre-feet per month for influent, effluent, and if applicable, recycled water use. Volumetric conversion factors can be found in the SWB's Help Guide. Additional information, including the Help Guide and Webinar training for submitting the VAR, and data and infographics from 2019 and 2020 can be found on the VAR webpage. For assistance with submitting the 2021 VAR or any questions regarding this message, please email SWB staff.

CEC's Panel in Aquatic Systems

On February 10, the SWB and OPC will reconvene the 2020 Constituents of Emerging Concern (CEC) Science Advisory Panel for Aquatic Ecosystems (CEC Aquatic Ecosystems Panel), which is funded by a grant to the Southern California Coastal Water Research Project (SCCWRP). The CEC Aquatic Ecosystems Panel will assess the current state of scientific knowledge on the risks of CECs impacting human health and the environment in freshwater, coastal, and marine ecosystems of the State and will update their 2012 recommendations. The CEC Aquatic Ecosystems Panel will meet in February to begin drafting their recommendations and will report-out on their progress to the public via a Zoom webinar hosted by SCCWRP. You may register here, for additional information, visit the Southern California Coastal Water Research Project website here, and if you have questions contact Jared Voskuhl.

Comments needed on ELAP Guide to Validate Experimental Lab Methods for Regulatory Uses
Later this month, the subgroup of the Technical Advisory Committee (ELTAC) for the State Water Board's Environmental Laboratory Accreditation Program (ELAP) is expected to meet and finalize their guide and checklist to validate new experimental methods so they be used for regulatory purposes, despite them not being federally approved. You may still review the guide document and its checklist, so please send Jared Voskuhl your feedback via track changes at your earliest convenience.

Legislative Bites – CECs, Washing Machine MP Filters, PFAS
For those with an eye on the regulatory-related legislative proposals inside the capitol, here are a couple of highlights from the first month of the 2022 legislative session: SB 230 (Portantino) was amended and is moving again, which would establish a formal program at the SWB for CECs in drinking water; related to the microplastics strategy, AB 1724 (Stone), was introduced and would require new washing machines sold in the state to contain a microplastic filter beginning in 2024. Beyond these, CASA's sponsored legislation on PFAS disclosure is expected to be introduced in the coming weeks, and we are pleased to partner with Clean Water Action and the Environmental Working Group on this initiative as co-sponsors. Reach out to Jessica Gauger, CASA's Director of Legislative Advocacy and Public Affairs, with any questions or feedback on these!

SWB Agenda Roundup
Here are the recent State Water Board agendas for their meetings on January 4 (drought regulations) January 19 (Integrated Report, arrearages guidelines), February 1 (Delta updates), and February 15 (TUP). The Executive Director reports are available for December and January, which feature a link to the statewide and regional policies calendar.

BIOSOLIDS

CalRecycle Hosting Webinar on 3/1 for RDRS Reporting Requirements
On February 2, CalRecycle announced they will host a second statewide webinar on March 1 from 10 AM to 12 PM to provide additional details on changes to RDRS reporting requirements pursuant SB 1383. The webinar will highlight the entities and data required to be reported via RDRS to comply with SB 1383 regulations regarding organic material recovery and provide screen-shots of the "Organic Measurement" section in RDRS where the data will be entered.

This reporting will commence with the first RDRS reporting period for Transfer/Processors starting May 1, 2022, and every reporting period thereafter. If you would like to send questions beforehand, please submit to the SLCP inbox and indicate that the question is for this webinar. To ask clarifying questions during the webinar, please register using this GoToWebinar link. If you have questions, about this event, please contact Greg Kester.

CalRecycle Posts SB 619 Webinar Recording, Applications Due 3/1

On January 31, CalRecycle released their SB 619 webinar and PowerPoint with talking points from the January 13 meeting. Applications for enforcement flexibility of SB 1383 are due on March 1 if you are interested. Please let Greg Kester know if you have questions or comments about this item or email CalRecycle. You may also contact your Local Assistance representative, and you can find out who your representative is here.

CalRecycle Releases New Procurement Webpage and Q&As Published

On January 5, CalRecycle published a new informational webpage dedicated to the SB 1383 requirements for the procurement of recovered organic waste products. This webpage provides guidance on jurisdiction procurement targets and opportunities to procure recovered organic waste products, and can be found here. CalRecycle also has published new Q&As focused on the procurement of biomass electricity and renewable gas, which can be found here. Please let Greg Kester know if you have any questions.

CASA Submits Response to Sierra Club

On January 10, CASA provided remarks from the public wastewater sector with regard to the Sierra Club report "Sludge in the Garden: Toxic PFAS in Home Fertilizers Made from Sewage Sludge." We look forward to productive collaboration with the Sierra Club to mitigate PFAS issues while preserving the sustainability of our beneficial water and biosolids recycling programs. Please contact Greg Kester with any questions or comments.

BACWA 2021 Biosolids Report Available

Last month, the Bay Area Clean Water Agencies (BACWA) released the final version of the 2021 Biosolids Survey Report for the Bay Area. Many thanks to BACWA's Mary Cousins and Lorien Fono, as well as all the contributing Bay Area Agencies for this great resource. Please let Greg Kester know if you have any questions or comments.

February Research Library

Please find the summary (blurb) and the abstracts for this month's biosolids research library from Dr. Sally Brown (UW) and NW Biosolids. Let Greg Kester know if you would like any of the complete articles.

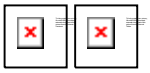
CALENDAR

February 7	CWSRF Amended IUP Comments Due

February 15	SWB Meeting
February 16	CASA Collection Systems Workgroup
February 17	CASA Regulatory Workgroup
February 23	OPC Meeting (Microplastics Statewide Strategy)
February 23	SWB Public Workshop #1 on SSS WDR
February 23	SWB Toxicity Provisions Cerio Study SAG Meeting
February 24	SWB Water Quality Monitoring Council Meeting
February 24	SWB Public Workshop #2 on SSS WDR

February 23	OPC Meeting (Microplastics Statewide Strategy)
February 24	SWB Water Quality Monitoring Council Meeting
February 24	CASA Air Quality, Climate Change, and Energy Workgroup
February 28	CASA Washington DC Forum
March 1	SWB Meeting
March 1	CalRecycle RDRS Webinar
March 1	SB 619 Enforcement Extension Application Deadline
March 15	SWB Meeting

March 15	SWB SSS WDR Workshop
March 16	CASA Collection Systems Workgroup
March 17	CASA Regulatory Workgroup Meeting



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