BACWA
BAY AREA
CLEAN WATER
AGENCIES

**Executive Board Meeting**
**AGENDA**
**Fri, April 16, 2021 9:00 AM - 12:30 PM (PDT)**

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

| | Agenda Item | | Time | Pages |
|---|---|---|---|---|
| | **ROLL CALL, INTRODUCTIONS, AND TELECONFERENCE ETIQUETTE** | | **9:00 AM** | |
| | **PUBLIC COMMENT** | Guidelines | **9:03 AM** | |
| | **CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER** | | **9:04 AM** | |
| | **CONSENT CALENDAR** | | **9:05 AM** | |
| 1 | March 19, 2021 BACWA Executive Board meeting minutes | | | **3-7** |
| 2 | March 15, 2021 NST meeting minutes | | | **8-9** |
| 3 | April 2, 2021 Special joint BACWA/RWB meeting minutes | | | **10-12** |
| 4 | February 2021 Treasurer's Reports | | | **13-22** |
| | **APPROVALS AND AUTHORIZATIONS** | | **9:12 AM** | |
| 5 | Approval: BAR to adopt FY22 budget and workplan | | | **23-38** |
| 6 | Approval: BAR to establish BACC legal reserve fund | | | **39-43** |
| | **POLICY/STRATEGIC** | | **9:30 AM** | |
| 7 | Discussion: Nutrients | | | |
| | a. Regulatory | | | |
| | i. NST meeting agenda | | | **44** |
| | ii. HDR data analysis SOW | | | |
| | b. Technical Work | | | |
| | i. NMS Review - Task 1 | | | **45-69** |
| | ii. Modeling uncertainty webinars and workshop | | | **70-74** |
| | c. Governance Structure | | | |
| | i. March 3, 2021 PSC Meeting Notes | | | |
| 8 | Discussion: SSS WDR - debrief from discussions with SWB staff | | | **75-77** |
| 9 | Informational: Update on R2 Climate Change survey | | | |
| | **BREAK (10min)** | **10:30 AM** | | |
| 10 | Discussion: BAAQMD engagement - next steps | | | |
| 11 | Informational: Alternative monitoring/CEC funding | | | |
| 12 | Discussion: PFAS Phase I results and discussion of Phase II | | | |
| | **OPERATIONAL** | | **11:00 AM** | |
| 13 | Discussion: Annual meeting schedule for 2022 | | | |
| 14 | Informational: Update on FY22 BACC Bid | Link to BACC webpage | | **79-82** |
| 15 | Discussion: Discontinuation of sewer rate survey | | | **83-84** |
| | **REPORTS** | | **11:50 AM** | |
| 16 | Committee Reports | | | **85-88** |
| 17 | Member highlights and emergency response roundtable | | | |
| 18 | Executive Director Report | | | **89-90** |
| 19 | Board Calendar and Action Items | | | **91-92** |
| 20 | Regulatory Program Manager Report | | | **93** |
| 21 | Other BACWA Representative Reports | | | **94-101** |
| | a. RMP Technical Committee | Mary Lou Esparza, Yuyun Shang, Samantha Engelage | | |
| | b. RMP Steering Committee | Karin North; Amanda Roa; Eric Dunlavey | | |
| | c. Summit Partners | Lorien Fono; Lori Schectel | | |
| | d. ASC/SFEI | Lorien Fono; Eileen White | | |
| | e. Nutrient Governance Steering Committee | Eric Dunlavey; Eileen White; Lori Schectel | | |
| | e.i Nutrient Planning Subgroup | Eric Dunlavey | | |

| | | | |
|---|---|---|---|
| e.ii NMS Technical Workgroup | Eric Dunlavey | | |
| f. SWRCB Nutrient SAG | Lorien Fono | | |
| g. NACWA Taskforce on Dental Amalgam | Tim Potter | | |
| h. BAIRWMP | Cheryl Munoz; 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 | | |

| | | |
|---|---|---|
| **22 SUGGESTIONS FOR FUTURE AGENDA ITEMS** | **11:55 AM** | |

| | | |
|---|---|---|
| **NEXT MEETING** | **11:59 AM** | |
| **The next meeting of the Board is scheduled for May 21, 2021** | | |

| | | |
|---|---|---|
| **ADJOURNMENT** | **12:00 PM** | |

# Executive Board Meeting Minutes

March 19, 2021

**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), Eric Dunlavey (City of San Jose)

**Other Attendees and Guests:**

| Name | Agency/Company |
|---|---|
| Amanda Roa | Delta Diablo |
| Autumn Cleave | SFPUC |
| Bob Hulsmann | West Bay Sanitary District |
| Dave Richardson | Woodard & Curran |
| Don Gray | EBMUD |
| Irene Chu | Hazen & Sawyer |
| Jed Beyer | West Bay Sanitary District |
| Jennifer Dyment | BACWA |
| JT Teerlink | California Department of Pesticide Regulation |
| Kelly Moran | TDC/SFEI |
| Lorien Fono | BACWA |
| Mallika Ramanathan | HDR |
| Mary Cousins | BACWA |
| Melody LaBella | Central Contra Costa Sanitary District |
| Sergio Ramirez | West Bay Sanitary District |
| Tammy Qualls | Qualls Environmental Consulting |
| Talyon Sortor | Fairfield-Suisun Sewer District |
| Tom Hall | EOA |

Eileen White started meeting at 9:03

**ROLL CALL - taken**

**PUBLIC COMMENT – None**

**CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER - Item 8 before Item 7**

**CONSENT CALENDAR**

1 January 15, 2021 BACWA Executive Board meeting minutes
2 January 2021 Treasurer's Reports

***Consent Calendar Items 1 and 2****: A motion to approve was made by Lori Schectel (Central Contra Costa Sanitary District) and seconded by Jackie Zipkin (East Bay Dischargers Authority). The motion was approved unanimously.*

**APPROVALS AND AUTHORIZATIONS**

**3 Authorization**: Executive Director Authorization for Downey Brand support of BACC – ED explained agreement for Downey Brand to provide a legal review of Bay Area Chemical Consortium bid documents to avoid potential BACWA liability for administering the program. Does not impact BACWA's budget since it is funded through the BACC fund.

**POLICY/STRATEGIC**

**4 Discussion: Interim Staff Draft SSS-WDR update** – BACWA RPM summarized important points in sanitary sewer order update. A recent informal draft was released by the State Water Board as a discussion-starter but, but it proposes significant changes such as prohibiting exfiltration from sewer systems. A lot of new requirements for Sanitary Sewer Management Plans (SSMPs). Update asks sewer agencies to identify their high-risk components and resiliency plans. Update introduces notification requirements for spills. BACWA RPM, CASA and State Water Board are meeting to discuss top concerns. Also meeting with SF Regional Water Board staff to understand enforcement implications. General discussion followed. Several stated that the 3-page summary document was extremely helpful.

**5 Discussion: Update on R2 Climate Change survey** - BAWCA RPM said that Regional Water Board provided a draft version of the survey in January. Five BACWA members performed a test drive of the survey and made suggestions for improving the questions. A revised version of the survey is in the packet. Compared to the first draft, sea level rise assumptions are more open-ended and it deemphasizes the reference to a paper on ground water level rise. Regional Board is not in a hurry to complete this, but we do expect this survey to be distributed in the near future for all agencies to respond to.

**6 Discussion: BAAQMD engagement - debrief from 3/5 meeting on BACT** - BACWA ED summarized meeting with BACWA AIR Committee & BACWA members, and a meeting summary was in the packet**.** Air District staff did not budge from their position that Tier 4 engines are BACT, dating back to January 2020, although they did offer to work with agencies impacted by this decision. AIR committee consultants will continue to follow up on how BACT is established.

**7 Discussion: Draft agenda for April 2 joint meeting with R2** - BACWA ED shared proposed agenda that is in the packet. Seeking feedback on the agenda. The Board directed the ED to rearrange some agenda items to better facilitate discussion.

**Action item:** BACWA ED to update agenda and send out to BACWA group before posting on website.

**8 Discussion: Pesticides Update - Presentation on Priorities and Planning for FY22** – Item 8 was taken before item 7. Dr. Kelly Moran introduced and Dr. Jennifer Teerlink (JT) discussed DPR's Pesticides Monitoring program update and provided historical background. JT summarized that she has been monitoring urban & stormwater irrigation run off since 2008 and wastewater effluent since 2019. All JT activities are geared towards monitoring water quality

and working on pollution prevention through pesticide registration. Discussed partnerships in state and nationwide, laboratory improvements, as well as phases and chemical levels in effluent \ influent. JT Teerlink is hoping to set up a network of long-term (at least 3 years) POTW monitoring sites and she plans to prepare a project proposal identifying sampling needs and how the data would be used. Once she sends to BACWA ED, ED will share with BACWA members.

***Action Item:*** *BACWA ED to work with JT Teerlink to identify a way to confirm operational flow and discharge flow rates from POTWs for DPR Project #19-C0031, "Quantifying California Municipal Wastewater Discharge Contributions to Streams for Pesticide Source Modeling." BACWA ED to review and/or distribute proposal to be provided by DPR for establishing long-term (approx. 3-year) sampling sites at POTWs for pesticide monitoring.*

An update on BAPG's pesticides program was delivered by Tammy Qualls and Kelly Moran. POTW's pesticides challenges was summarized and supported BACWA's proactive position on pesticides and pesticide registration. Summarized successes from comment letters to EPA, and provided highlights from 2020-2021 which included reviewing 100 EPA science assessments and writing 20 comment letters to EPA. Kelly Moran presented her work and recommendations for BACWA in 2021-22. Questions and general discussion followed.

BACWA ED and Autumn Cleave shared that BAPPG putting out a RFQ will go live next week to find a replacement for TDC Environmental for next FY, as Kelly will be closing TDC since she has joined SFEI as staff.

**BREAK (10min) 10:40 AM**

**9 Discussion: Nutrients**

**a. Regulatory**

**i. NST meeting debrief** - BACWA ED shared that at the meeting on March 15th they shared results from nutrient implementation & planning survey. They also reviewed HDR's scope of work.

**ii. HDR data analysis SOW** - BACWA ED presented slides outlining a potential procedure for historical data analysis, and general discussion followed. An updated SOW is expected in about a week.

**iii. Strategy for key tenets** – BACWA ED presented next steps to develop alternatives for different watershed permit elements, for discussion with the NST. The NST will consider key tenets, including calculating compliance, endpoint, establish subembayments, protect early adopters, and how to consider small dischargers.

**b. Technical Work**

**i. NMS Review - Task 1** - BACWA ED shared that Mike Connor reviewed NMS documents and suggested that Mike come to our April meeting to give a presentation. Next steps for Mike

are developing questions for a modeling uncertainty workshop in April & May that is co-hosted by SFEI & the Southern California Coastal Water Research Project (SCCWRP).

**ii. Letter of support for Caliskaner Water Technologies Grant Application** – BACWA ED reported that HDR requested that BACWA write a letter of support for a DOE Grant Application by Caliskaner Water Technologies. BACWA ED submitted a letter of recommendation for this grant, which if funded, will give BACWA agencies access to tour a demonstration facility for advanced primary treatment and nutrient removal.

**c. Governance Structure** - BACWA ED said the meeting notes were in the packet. The March Steering Committee meeting was cancelled. May 4th is the Nutrient Technical Workshop to review technical work products.

**i. January 6, 2021 PSC Meeting Notes**
**ii. Feb 3/16, 2021 PSC Meeting Notes**

**OPERATIONAL**

**10 Discussion: Proposed FY22 Budget and 5-yr plan** - BACWA ED & AED summarized Proposed FY22 Budget in the packet. ED summarized Nutrient Surcharge levels and allocation. The surcharge allocation model that was implemented in FY20 for 2nd WSP is to allocate to all agencies based on TIN load vs. previous model where 2/3 of the surcharge was split equally between principals. There was a discussion about equitable division of the nutrient surcharge between principals. Final budget for approval in April. There were no recommended changes to the proposed budget.

**Action item** – BACWA Staff to prepare final FY22 budget for April meeting.

**11 Discussion: Update on BACC Bid and proposed legal reserve** - BACWA AED shared FY2021-22 BACC bid program. 12 chemical and 61 agencies participated. Shared cost summary & billing summary. Discussed building a legal reserve to protect BACWA should there be a bid protest that goes to court.

**Action item** – BACWA ED to bring BAR to next meeting to direct EBMUD to establish a BACC Legal Reserve.

**12 Discussion: Annual meeting survey results, and schedule for 2022** - BACWA ED referred to packet.

**13 Discussion: Results from MAZE Audit** - BACWA ED shared that MAZE audit is complete. The Board was satisfied with the effort, and directed that it might be worth doing again some number of years in the future to make sure internal controls are well maintained.

**14 Informational: Form 700 e-filing update** – BACWA has recently implemented electronic form 700 filing via Netfile. BACWA AED shared that 10 of the 18 form 700 e-filings have been completed. Form 700 due April 1, 2021.

**REPORTS**

**15 Committee Reports**

**16 Member highlights and emergency response roundtable** – Lori Schectel spoke about a new bill AB377 (Hertzberg), which would overhaul enforcement under the Clean Water Act. CASA and many agencies are opposing the bill.

**17 Executive Director Report** - BACWA ED reported it is in the packet.

**18 Board Calendar and Action Items** - BACWA ED reported it is in the packet.

**19 Regulatory Program Manager Report** – BACWA RPM reported it is in the packet.

**20 Other BACWA Representative Reports**

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

**21 SUGGESTIONS FOR FUTURE AGENDA ITEMS**

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

**ADJOURNMENT 1:00 PM**

# Nutrient Strategy Team
# March 15, 2021 Meeting Summary

**ROLL CALL AND INTRODUCTIONS**

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

**Other Attendees:**

| Name | Agency/Company |
|---|---|
| Lorien Fono, Mary Cousins | BACWA |
| Blake Brown, Dan Frost, Mary Lou Esparza, Melody LaBella, Amanda Cauble | CCCSD |
| Amanda Roa | Delta Diablo |
| Don Gray | EBMUD |
| Jordan Damerel, Talyon Sortor, Meg Herston | FSSD |
| Mike Falk | HDR |
| Karin North | Palo Alto |
| Eric Dunlavey | San Jose |
| Azalea Mitch | San Mateo |
| Jennie Pang, Nohemy Revilla | SFPUC |
| Eric Hansen, Monte Hamamoto | SVCW |
| Cameron Kostigen Mumper, Ramana Chinnakotla | Sunnyvale |
| Tim Grillo, Armando Lopez | USD |

**RESULTS OF NUTRIENT PLANNING AND IMPLEMENTATION SURVEY**

The BACWA Executive Director shared a summary of responses from the recently completed survey that asked members to provide Total Inorganic Nitrogen (TIN) load projections and the status of nutrient reduction planning and implementation. Complete survey results were provided to NST members via email, and summarized as follows:

- 30 of 37 member agencies responded to the survey
- 17 of 30 survey respondents reported having a dry season load projection available for the next 10 years. Most of the reported values were in the range of 1 – 1.5% per year.
- 4 of 30 survey respondents currently receive organics for co-digestion; 12 agencies are considering new or expanded organics receiving projects, and 3 agencies anticipate that solids handling will increase TIN loading.
- 5 of 30 survey respondents have already identified projects that will keep TIN loads lower than the load cap identified in the Fact Sheet of the 2nd watershed permit.
- 10 projects currently being completed by survey respondents have the potential to reduce TIN load by approximately 10% of the total 2020 dry season load. These projects

have a completion date of 2020 through 2027 (for the 8 of 10 projects that had a completion date identified).
- Limited cost information provided by survey respondents indicates that costs are about the same order of magnitude as predicted by the 2018 Optimization & Upgrade studies (which included project management costs). Meeting attendees discussed that at some point it would be worthwhile to revisit those cost estimates, but right now material pricing is extremely dynamic.
- Complete results will not be shared with the Regional Water Board until individual agencies provide approval.

The survey results will be used in developing key tenets for the 3rd Watershed Permit.

**REVIEW OF PROPOSED SCOPE OF WORK FOR ANALYSIS OF HISTORICAL DATA**

Meeting attendees discussed the draft scope of work prepared by HDR to (a) evaluate how historical variability in annual loading could affect compliance with projected future load caps, and (b) revisit the loading trend statistics that are included in each Group Annual Report per provision IV.B.1.b.iii of the 2nd Watershed Permit.

Feedback from meeting attendees included:

- More clearly presenting the scenarios to be used in the analysis of historical load variability, in a table or matrix form;
- Using 2 sub-embayments instead of 5 for the analysis of load variability;
- Sophisticated statistical analysis of loading trends is not desired for the Group Annual Report; instead, it would be ideal to differentiate TIN load changes due to known upgrades from load variability due to other causes. The second portion of the draft scope of work regarding the Group Annual Report may be revised to include this concept, or deferred until a later date.

Written comments on the draft scope of work were requested by Friday, March 19th, after which HDR will prepare a revised draft scope.

**NEXT STEPS**

The next meeting to be held in mid- to late April 2021 will include discussion of draft key tenets for the 3rd watershed permit. It will also include a brief status update on the analysis of historical variability with respect to projected load caps (which is not anticipated to be complete).

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

April 2, 2021

**ROLL CALL AND INTRODUCTIONS**

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

**Other Attendees:**

| Name | Agency/Company |
|---|---|
| Lorien Fono | BACWA |
| Mary Cousins | BACWA |
| Michael Montgomery | Regional Water Board |
| Tom Mumley | Regional Water Board |
| Bill Johnson | Regional Water Board |
| Robert Schlipf | Regional Water Board |
| James Parrish | Regional Water Board |
| Richard Looker | Regional Water Board |
| Don Gray | East Bay Municipal Utility District |
| Eric Dunlavey | City of San Jose |
| Tom Hall | EOA |

**PUBLIC COMMENT –** None.

**AGENDA ITEMS**

Agenda **Item 1 –** Agency Updates

Representatives from the Regional Water Board (RB2) and BACWA agencies briefly shared how their agencies are approaching vaccination and return-to-work decisions now that many employees have been able to be vaccinated for COVID. Some employees are returning to work now, while in other cases work-from-home has been extended through September. One RB2 staff member temporarily re-assigned to contract tracing will be returning soon, and RB2 is planning to resume in-person inspections soon.

RB2 staff shared that there may need to be a need to revisit selenium water quality objectives soon, based on action at the federal level under the new administration.

Central San shared recent experience regarding BAAQMD's retroactive decision to require Tier 4 emissions controls for emergency generators, which negatively affects wastewater system reliability.

Agenda **Item 2 – Statewide Sanitary Sewer Systems General Order (SSS-WDR)**
BACWA and RB2 staff discussed how they are each engaging with State Water Board staff during the review and comment period for the Informal Staff Draft SSS-WDR. Tom Mumley is representing Region 2 and working in a sub-group with other representatives from other Regional Water Boards. BACWA's Regulatory Program Manager is representing BACWA members and working through CASA. BACWA will stay in communication with Region 2 regarding its concerns and recommendations for the SSS-WDR.

Agenda **Item 3 – Climate Change Adaptation**
The climate change vulnerability and adaptation survey is ready to release soon after the "test drive" results are completed by approximately April 9th. BACWA will provide the Regional Water Board with a distribution list for the survey.

Agenda **Item 4 – PFAS**
SFEI has received nearly all of the Phase 1 PFAS study results from the analytical laboratory. The results will be shared with BACWA staff, agencies that participated in sampling, and Regional Water Board staff prior to the RMP Emerging Contaminants working group meeting scheduled for April 12-13th. The results are likely to be shared at the RMP Emerging Contaminants working group meeting, unless precluded by data quality issues.

RB2 staff supported exploring the concept of accepting wastewater from decontamination of PFAS from fire-fighting equipment; a helpful first step would be to compare the expected load with the current influent load based on Phase 1 monitoring.

RB2 staff expect continued discussions about the impact of PFAS on biosolids land application, particularly as the State Water Board updates the statewide order for biosolids land application. PFAS source control is also likely to be a hot topic going forward.

Agenda **Item 5 – Alternate Monitoring Requirements Overhaul**
The group discussed that reduced monitoring to support RMP CEC monitoring will have dual benefits: (a) reduced monitoring costs for legacy contaminants, and (b) cost efficiency on CEC monitoring, which will likely be required in the future. Requiring CEC monitoring in individual NPDES permits would be a more costly alternative. BACWA will continue to develop a specific proposal for implementation with the statewide toxicity provisions, expected in Q3 2021. Cessation of acute toxicity monitoring will also be included in the proposal.

Agenda **Item 6 – Chlorine Residual Basin Plan Amendment**
The Chlorine Basin Plan Amendment is tentatively scheduled for the May 18th State Water Board hearing. The group discussed the possibility of developing a blanket permit amendment that would automatically go into effect with the Basin Plan Amendment.

Agenda **Item 7 – Nutrients**
The BACWA ED discussed results of a recent member survey regarding nutrient load

projections, as well as BACWA's upcoming effort to explore the effects of variability on theoretical load cap compliance. RB2 staff stated that once load caps are established, it is unlikely that they would be increased without significant new scientific information. BACWA is developing a Watershed Permit key tenets document for consideration by RB2 staff. Tangentially related to nutrients, RB2 staff also expressed interest in directly engaging with LSB stakeholders regarding reverse osmosis concentrate discharge.

Agenda **Item 8 – Future of Pretreatment Programs**
EPA has divested from pretreatment program oversight. The State Water Board is staffing up its pretreatment and CECs program, to be led by Erica Kalve. The focus of this State Water Board group is likely to be potable reuse projects rather than traditional pretreatment program concerns (e.g., metals). RB2 staff are interested in hearing ways to streamline the pretreatment auditing process now that this task will fall entirely to them.

Agenda **Item 9 – Triennial Review**
RB2 will be kicking off the 2021 triennial review process in the coming months. RB2 has limited capacity for taking on new projects, but plans to include topics such as the wetlands policy as well as housekeeping items for the Basin Plan (such as removing toxicity language that has been superseded by statewide provisions). RB2 staff also suggested that the Basin Plan could be used to establish chronic toxicity dilution credits for shallow water dischargers.

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

March 17, 2021

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

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

SUBJECT: Eighth Month FY 2021 Treasurer's Report

As required by section eight of the Joint Powers Agreement establishing the Bay Area Clean Water Agencies (BACWA) and California Government Code Sections 6500 et seq., attached is the BACWA Treasurer's Report for the period covering **July 1, 2020 through February 28, 2021** (Eight months of Fiscal Year 2021). This report covers expenditures, cash receipts, and cash transfers for the following BACWA funds:

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

## Houck, Matt

**From:** Charléty, Damien
**Sent:** Thursday, March 18, 2021 5:38 PM
**To:** Houck, Matt
**Subject:** RE: BACWA - February 2021 Treasurer's Report

Approved.

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**From:** Houck, Matt
**Sent:** Wednesday, March 17, 2021 4:24 PM
**To:** Charléty, Damien
**Subject:** BACWA - February 2021 Treasurer's Report

Hi Damien,

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

Thanks,


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

**Fund Balances**

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

BACWA Fund: This fund provides the resources for BACWA staff, its committees, and other administrative needs. The ending fund balance on February 28, 2021 was $1,505,102 which is significantly higher than the target reserve of $209,430 which is intended to cover 3 months of normal operating expenses based on the BACWA FY21 budget. $268,821 of the ending fund balance is shown on the BACWA Fund & Investments Balance Report February 28, 2021 as encumbered to meet ongoing operating line-item expenses for BAPPG Committee Support, Legal services, IT services, Board meeting expenses, accounting services and BACWA staff support. This leaves actual unencumbered excess funds of $1,026,851 (i.e., actual fund balance of $1,236,281 less target reserves) as January 31, 2021. As the details of the costs of the various regulatory requirements included in the 2nd Nutrient Watershed Permit become better defined, these excess funds may be transferred to the CBC fund and used to offset potential Nutrient Surcharge increases to the BACWA members.

CBC Fund: This fund provides the resources for completing special investigations as well as meeting regulatory requirements. The ending fund balance on February 28, 2021 was $1,340,805 which is significantly higher than the target reserve of $1,000,000. $749,576 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 PFRAS Regional Study. This leaves an actual unencumbered fund balance of negative $408,771 (i.e., actual fund balance of $591,229 less $1,000,000 target reserves) as of February 28, 2021. Our target reserve has temporarily fallen due to a planned disbursement of $1,600,000 to fund the nutrient scientific investigations as required by the Nutrient Watershed Permit. Disbursements for FY21 from the CBC fund include $2.6m fund the nutrient scientific investigations as required by Nutrient Watershed Permit.

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

**Budget to Actual**

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

Revenues as of February 28, 2021 (58% of the FY) are at 98%.

Expenses as of February 28, 2021 (58% of the FY) are at 75%

**FY 2021**
**BACWA BUDGET to ACTUAL**

BACWA BAY AREA CLEAN WATER AGENCIES

| BACWA FY21 BUDGET | Line Item Description | FY 2021 Budget | Actual Feb 2021 | Actual % of Budget Feb 2021 | Variance | NOTES |
|---|---|---|---|---|---|---|
| ***REVENUES & FUNDING*** | | | | | | |
| **Dues** | Principals' Contributions | $516,909 | $516,910 | 100% | $1 | 5 @ $103,382 |
| | Associate & Affiliate Contributions | $187,793 | $189,964 | 101% | $2,171 | 13 Assoc @ $8,531; 45 Affiliate @ $1,708. |
| **Fees** | Clean Bay Collaborative | $675,000 | $675,000 | 100% | $0 | Prin: $450,000; Assoc/Affil: $225,000 |
| | Nutrient Surcharge | $1,700,000 | $1,699,970 | 100% | -$30 | See Nutrient Surcharge Spreadsheet |
| | Voluntary Nutrient Contributions | $0 | $0 | 0% | $0 | |
| **Other Receipts** | AIR Non-Member | $7,075 | $7,074 | 100% | -$1 | Santa Rosa |
| | BAPPG Non-Members | $3,954 | $3,953 | 100% | -$1 | Stanta Rosa, Sac Reg'l, Vacaville; $1,317/each |
| | Other | $0 | $2,601 | 0% | $2,601 | |
| **Fund Transfer** | Special Program Admin Fees (WOT) | $5,202 | $0 | 0% | -$5,202 | Flat fee |
| | Special Program Admin Fees (BACC) | $20,010 | $0 | 0% | -$20,010 | 300 hours of AED support, based on hours billed |
| | Special Program Admin Fees (BABC) | $6,000 | $2,274 | 38% | -$3,726 | AED and RPM support, hours billed |
| **Interest Income** | LAIF | $20,000 | $16,633 | 83% | -$3,367 | BACWA, Legal, & CBC Funds invested in LAIF |
| | Higher Yield Investments | $18,000 | $0 | 0% | -$18,000 | Alternative Investment Interest (Legal & CBC Funds invested in AltInv) |
| | **Total Revenue** | **$3,159,943** | **$3,114,379** | **98.56%** | **-$45,564** | |

| BACWA FY21 BUDGET | Line Item Description | FY 2021 Budget | Actual Feb 2021 | Actual % of Budget Feb 2021 | Variance | NOTES |
|---|---|---|---|---|---|---|
| ***EXPENSES*** | | | | | | |
| **Labor** | | | | | | |
| | Executive Director | $190,000 | $95,000 | 50% | -$95,000 | No change from FY20 contract |
| | Assistant Executive Director | $102,551 | $69,080 | 67% | -$33,471 | $66.7/hour; Reflects 1500 hours /yr |
| | Regulatory Program Manager | $141,170 | $98,143 | 70% | -$43,027 | $100.16/hour; Reflects 1375 hours/yr |
| | **Total** | **$433,721** | **$262,223** | **60%** | **-$171,498** | |
| **Administration** | | | | | | |
| | EBMUD Financial Services | $42,448 | $20,561 | 48% | -$21,887 | |
| | Auditing Services | $5,345 | $0 | 0% | -$5,345 | Financial Audit Services through EBMUD |
| | Administrative Expenses | $7,959 | $194 | 2% | -$7,765 | Travel, Supplies, Parking, Mileage, Tolls, Misc. |
| | Insurance | $4,776 | $4,971 | 104% | $195 | SLIP Insurance. Alliant Insurance. |
| | **Total** | **$60,528** | **$25,726** | **43%** | **-$34,802** | |
| **Meetings** | | | | | | |
| | EB Meetings | $2,653 | $257 | 10% | -$2,396 | Catering, Venue, other expenses |
| | Annual Meeting | $14,369 | $0 | 0% | -$14,369 | Catering, Venue, other expenses |
| | Pardee | $6,367 | $0 | 0% | -$6,367 | Catering, Venue, other expenses |
| | Misc. Meetings | $5,306 | $406 | 8% | -$4,900 | Hol & Comm Chair Lunch, Staff Mtgs, Fin Comm, Summit Ptnrs, CASA, NACWA Tech WS, Low Flow WS |
| | **Total** | **$28,695** | **$663** | **2%** | **-$28,032** | |
| **Communication** | | | | | | |
| | Website Hosting | $612 | $30 | 5% | -$582 | Computer Courage |
| | File Storage | $765 | $0 | 0% | -$765 | Box.com |
| | Website Development/Maintenance | $1,530 | $0 | 0% | -$1,530 | Domain registrations, website changes |
| | IT Support | $2,652 | $0 | 0% | -$2,652 | As needed |
| | Other Commun | $1,785 | $1,577 | 88% | -$208 | MS Exchange, Survey Monkey, Carbonite, Doodle Polls, PollEv, GoToMtg, HelloSign, Zoom |
| | **Total** | **$7,344** | **$1,607** | **22%** | **-$5,737** | |

**FY 2021**
**BACWA BUDGET to ACTUAL**

| ***EXPENSES*** | | | | | | |
|---|---|---|---|---|---|---|
| **Legal** | | | | | | |
| | Regulatory Support | $2,706 | $0 | 0% | -$2,706 | Downey Brand LLP |
| | Executive Board Support | $2,176 | $1,165 | 54% | -$1,011 | Day Carter & Murphy LLP |
| | **Total** | **$4,882** | **$1,165** | **24%** | **-$3,717** | |
| **Committees** | | | | | | |
| | AIR | $76,000 | $33,838 | 45% | -$42,162 | $75k consulting support, $1k misc expenses. Carollo Engineers |
| | BAPPG | $130,000 | $91,675 | 71% | -$38,325 | Includes CPSC @ $10,000, OWOW @ $10,000, and Pest. Reg Spt. @ $60,000. S.Hughes, TDC and SGA |
| | Biosolids Committee | $1,000 | $0 | 0% | -$1,000 | |
| | Collections System | $1,000 | $0 | 0% | -$1,000 | |
| | InfoShare Groups | $1,750 | $0 | 0% | -$1,750 | Funds for 2 workgroups ($750 for Asset Mgmt - new in FY21; $1,000 for O&M) |
| | Laboratory Committee | $1,000 | $0 | 0% | -$1,000 | |
| | Permits Committee | $1,300 | $0 | 0% | -$1,300 | All meetings moved to include lunch hour for commuting purposes |
| | Pretreatment | $1,000 | $0 | 0% | -$1,000 | |
| | Recycled Water Committee | $1,000 | $0 | 0% | -$1,000 | |
| | Misc Committee Support | $45,000 | $0 | 0% | -$45,000 | |
| | Manager's Roundtable | $1,000 | $0 | 0% | -$1,000 | |
| | **Total** | **$260,050** | **$125,513** | **48%** | **-$134,537** | |
| **Collaboratives** | | | | | | |
| | **Collaboratives** | | | | | |
| | State of the Estuary (SFEP-biennial) | $20,000 | $0 | 0% | -$20,000 | Biennial in Odd Fiscal Years. (Paid bienniely in odd years for even year conference) |
| | Arleen Navarret Award | $0 | $0 | 0% | $0 | Biennial in Even Fiscal Years. Award amount increased in FY20 |
| | FWQC (Fred Andes) | $7,500 | $0 | 0% | -$7,500 | |
| | Stanford ERC (ReNUWIt) | $10,000 | $0 | 0% | -$10,000 | |
| | Misc | $5,000 | $0 | 0% | -$5,000 | BayCAN, NBWA |
| | **Total** | **$42,500** | **$0** | **0%** | **-$42,500** | |
| **Other** | | | | | | |
| | **Unbudgeted Items** | | | | | |
| | Other | $0 | $0 | 0% | $0 | |
| | | **$0** | **$0** | **0%** | **$0** | |
| **Tech Support** | | | | | | |
| | **Technical Support** | | | | | |
| | Nutrients | | | | | |
| | Watershed | $2,800,000 | $2,600,000 | 93% | -$200,000 | Advance funding for 2nd Watershed Permit Science Studies. SFEI |
| | NMS Voluntary Contributions | $0 | $30,000 | 0% | $30,000 | SFEI \ City of Palo Alto 2017 Lower South Bay modeling |
| | Additional work under permit | $100,000 | $34,500 | 35% | -$65,500 | Includes HDR PO for $225k spread out over FY20-24. |
| | Regional Study on Nature based sysemts | $200,000 | $106,708 | 53% | -$93,292 | New Line item in FY20. SFEI |
| | Regional Recycling Evaluation | $60,000 | $46,546 | 78% | -$13,454 | HDR PO for $154K FY20-24 |
| | Nutrient Workshop(s) | $0 | $0 | 0% | $0 | Pilot Studies/Plant Review/InDecative Technologies |
| | General Tech Support | $250,000 | $1,956 | 1% | -$248,044 | AB617 emission factors, nutrient technical review, other nutrient support, PFAS |
| | CEC Investigations | $50,000 | $0 | 0% | -$50,000 | Support for studies through RMP (PFAS in FY21). SFEI |
| | Risk Reduction | $7,500 | $0 | 0% | -$7,500 | $50,000 over 5 years (FY19-FY23) 2 Contracts for $25,000 each over FY19, 20, & 21 |
| | **Total** | **$3,467,500** | **$2,819,710** | **81%** | **-$647,790** | |
| | **TOTAL EXPENSES** | **$4,305,220** | **$3,236,607** | **75.18%** | **-$1,068,613** | |
| | **NET INCOME BEFORE TRANSFERS** | **-$1,145,277** | | | | |
| | **TRANSFERS FROM RESERVES** | **$1,145,277** | | | | aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge |
| | **NET INCOME AFTER TRANSFERS** | **$0** | | | | |
| | **TOTAL OPERATING BUDGET** | **$837,720** | | | | |
| | **OPERATING RESERVE** | **$209,430** | | | | |

# BACWA Fund Report as of February 28, 2021

## BACWA FUND BALANCES - DATA PROVIDED BY ACCOUNTING DEPT.

| DEPTID | DESCRIPTION | FISCAL YEAR BEGINNING FUND BALANCE | TOTAL RECEIPTS TO-DATE | TOTAL DISBURSEMENTS TO-DATE | MONTH-ENDING FUND BALANCE | OUTSTANDING ENCUMBRANCES | MONTH-END UNOBLIGATED FUND BALANCE |
|---|---|---|---|---|---|---|---|
| 800 | BACWA | 1,195,233 | 726,765 | 416,896 | 1,505,102 | 268,821 | 1,236,281 |
| 804 | LEGAL RSRV | 300,000 | - | - | 300,000 | - | 300,000 |
| 805 | CBC | 1,772,881 | 2,387,634 | 2,819,710 | 1,340,805 | 749,576 | 591,229 |
| | ***SUBTOTAL 1*** | *3,268,114* | *3,114,399* | *3,236,606* | *3,145,907* | *1,018,397* | *2,127,510* |
| 802 | BABC | *216,514* | 93,250 | 156,605 | 153,159 | *48,315* | 104,844 |
| 806 | BACC | *(1,563)* | - | *2,496* | (4,059) | *2,504* | (6,563) |
| 810 | WOT | 276,164 | - | - | 276,164 | - | 276,164 |
| | ***SUBTOTAL 2*** | *491,115* | *93,250* | *159,101* | *425,264* | *50,819* | *374,445* |
| *811 | PRP84 | 196,806 | - | - | 196,806 | - | 196,806 |
| | ***SUBTOTAL 3*** | *196,806* | - | - | *196,806* | - | *196,806* |
| | **GRAND TOTAL** | **3,956,035** | **3,207,649** | **3,395,707** | **3,767,977** | **1,069,216** | **2,698,761** |

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

## BACWA INVESTMENTS BALANCES - DATA PROVIDED BY TREASURY DEPT.

| DEPTID | DESCRIPTION | FISCAL YEAR BEGINNING FUND BALANCE | TOTAL RECEIPTS TO-DATE | TOTAL DISBURSEMENTS TO-DATE | MONTH-ENDING FUND BALANCE | RECONCILIATION TO FINANCIAL STATEMENTS | MONTH-END RECONCILED FUND BALANCE | UNINVESTED CASH BALANCES | LAIF INVESTMENTS AMOUNTS | LAIF INVESTMENTS PERCENTAGE | ALTERNATIVE INVESTMENTS AMOUNTS | ALTERNATIVE INVESTMENTS IDENTIFIERS | ALTERNATIVE INVESTMENT INSTRUCTIONS AND NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 800 | BACWA | 1,195,233 | 726,765 | 416,896 | 1,505,102 | 40,099 | 1,545,201 | 923,406 | 621,795 | 27% | - | | priority # 3 for allocation |
| 804 | LEGAL RSRV | 300,000 | - | - | 300,000 | - | 300,000 | - | 300,000 | 13% | - | | priority # 1 for allocation |
| 805 | CBC | 1,772,881 | 2,387,634 | 2,819,710 | 1,340,805 | - | 1,340,805 | - | 1,340,805 | 59% | - | | priority # 2 for allocation |
| | ***SUBTOTAL 1*** | 3,268,114 | 3,114,399 | 3,236,606 | 3,145,907 | 40,099 | 3,186,006 | 923,406 | 2,262,600 | 100% | - | | |
| | | | | | | | | | | | | | |
| 802 | BABC | 216,514 | 93,250 | 156,605 | 153,159 | - | 153,159 | 153,159 | - | 0% | - | | pass-through funds, no allocation |
| 806 | BACC | (1,563) | - | 2,496 | (4,059) | - | (4,059) | (4,059) | - | 0% | - | | |
| 810 | WOT | 276,164 | - | - | 276,164 | - | 276,164 | 276,164 | - | 0% | - | | pass-through funds, no allocation |
| | ***SUBTOTAL 2*** | 491,115 | 93,250 | 159,101 | 425,264 | - | 425,264 | 425,264 | - | 0% | - | | |
| 811 | PRP84 | 196,806 | - | - | 196,806 | - | 196,806 | 196,806 | - | 0% | - | | pass-through funds, no allocation |
| | ***SUBTOTAL 3*** | 196,806 | - | - | 196,806 | - | 196,806 | 196,806 | - | 0% | - | | |
| | **GRAND TOTAL** | **3,956,035** | **3,207,649** | **3,395,707** | **3,767,977** | **40,099** | **3,808,076** | **1,545,476** | **2,262,600** | **-** | | | |
| | | | | | | | - | - | - | | - | | |

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

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

**Reconciliation to Trial Balance - accrual basis**

| | | | | | | |
|---|---|---|---|---|---|---|
| Per Report above: | | | | | | |
| General | | 3,114,399 | STB | 1493 | 2,262,600 | |
| WOT | | 93,250 | STB | 1505 | 1,545,476 | |
| PROP | | - | | | **3,808,076** | - |
| **subtotal** | | **3,207,649** | STB | 2135 | (40,099) | |
| | | | | | **3,767,977** | - |

Billings-Pending Receipts

| | | |
|---|---|---|
| 4686 | Mem Contrib | - |
| 4687 | Transfer | - |
| 4690 | Assoc Contrib | 34 |
| 4696 | Other | 20 |
| 4731 | State Grant | - |
| 4732 | Grant Retention | - |
| **subtotal** | | **54** |

Trial Balance Revenue Accounts

| | | |
|---|---|---|
| 4411 | Interest | (16,653) |
| 4686 | Mem Contrib | (1,285,160) |
| 4687 | Transfer | (2,274) |
| 4690 | Assoc Contrib | (189,997) |
| 4696 | Other | (1,713,619) |
| 4731 | State Grant | - |
| 4732 | Grant Retention | - |
| **subtotal** | | **(3,207,703)** |
| **Difference** | | **-** |

# BACWA Revenue Report as of February 28, 2021

| FUND # | DEPARTMENT | JOB | REVENUE TYPE | AMENDED BUDGET | CURRENT PERIOD | | | YEAR TO DATE | | | | UNOBLIGATED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Admin & General | Contributons | Interest, Transfers,Ot hers | Admin & General | Contributons | Interest, Transfers,Ot hers | ACTUAL | |
| 800 | Bay Area Clean Water Agencies | 0408511 | Administrative & General | - | - | - | - | - | - | - | - | - |
| 800 | Bay Area Clean Water Agencies | 1011099 | BDO Member Contributions | 516,909 | - | - | - | - | 516,910 | - | 516,910 | (1) |
| 800 | Bay Area Clean Water Agencies | 1011108 | BDO Other Receipts | - | - | - | - | - | - | - | - | - |
| 800 | Bay Area Clean Water Agencies | 1011109 | BDO Fund Transfers | 5,202 | - | - | 2,274 | - | - | 2,274 | 2,274 | 2,928 |
| 800 | Bay Area Clean Water Agencies | 1011117 | BDO- Interest Income from LAIF | 20,000 | - | - | - | - | - | 3,989 | 3,989 | 16,011 |
| 800 | Bay Area Clean Water Agencies | 1011133 | BDO Assoc.&Affiliate Contr | 187,793 | - | - | - | - | 112,615 | - | 112,615 | 75,178 |
| 800 | Bay Area Clean Water Agencies | 1014251 | BDO Non-Member Contr BAPPG | 3,954 | - | - | - | - | 3,953 | - | 3,953 | 1 |
| 800 | Bay Area Clean Water Agencies | 1014252 | BDO Non-Member Contr AIR | 7,075 | - | - | - | - | 7,074 | - | 7,074 | 1 |
| 800 | Bay Area Clean Water Agencies | 1014511 | BDO-Alternative Investment Inc | 18,000 | - | - | - | - | - | - | - | 18,000 |
| 800 | Bay Area Clean Water Agencies | 1015567 | BACC - AED Support | 20,010 | - | - | - | - | - | - | - | 20,010 |
| 800 | Bay Area Clean Water Agencies | 1015568 | BABC - AED and RPM Support | 6,000 | - | - | - | - | - | - | - | 6,000 |
| 800 | Bay Area Clean Water Agencies | 1015265 | BDO Other Receipts (Misc) | - | - | - | - | - | 2,601 | - | 2,601 | (2,601) |
| 800 | Bay Area Clean Water Agencies | 1015266 | BDO Affiliate/Associate Dues | - | - | - | - | - | 41,004 | - | 41,004 | (41,004) |
| 800 | Bay Area Clean Water Agencies | 1015267 | BDO Affil/CS/Assoc Dues | - | - | - | - | - | 36,345 | - | 36,345 | (36,345) |
| | **BACWA TOTAL** | | | **784,943** | **-** | **-** | **2,274** | **-** | **720,502** | **6,263** | **726,765** | **58,178** |
| 805 | WQA-CBC | 1011099 | BDO Member Contributions | 675,000 | - | 5,545 | - | - | 675,000 | - | 675,000 | - |
| 805 | WQA-CBC | 1011108 | BDO Other Receipts | 1,700,000 | - | 922 | | - | 1,699,970 | - | 1,699,970 | 30 |
| 805 | WQA-CBC | 1011117 | BDO- Interest Income from LAIF | - | - | - | - | - | - | 12,664 | 12,664 | (12,664) |
| 805 | WQA-CBC | 1014528 | BDO-Voluntary Nutrient Contrib | - | - | - | - | - | - | - | - | - |
| | **WQA CBC TOTAL** | | | **2,375,000** | **-** | **6,467** | **-** | **-** | **2,374,970** | **12,664** | **2,387,634** | **(12,634)** |
| | **TOTAL** | | | **3,159,943** | **-** | **6,467** | **2,274** | **-** | **3,095,472** | **18,927** | **3,114,399** | **45,544** |

| | DEPARTMENT | JOB | REVENUE TYPE | AMENDED BUDGET | CURRENT PERIOD | | | YEAR TO DATE | | | | UNOBLIGATED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Admin & General | Contributons | Interest, Transfers, Others | Admin & General | Contributons | Interest, Transfers, Others | ACTUAL | |
| 802 | BABC | 1011099 | BDO Member Contributions | - | - | 750 | - | - | 93,250 | - | 93,250 | (93,250) |
| 802 | BABC | 1011109 | BDO Fund Transfers | - | - | - | - | - | - | - | - | - |
| | **BABC TOTAL** | | | **-** | **-** | **750** | **-** | **-** | **93,250** | **-** | **93,250** | **(93,250)** |
| 810 | WOT | 1011117 | BDO- Interest Income from LAIF | - | - | - | - | - | - | - | - | - |
| | **WOT TOTAL** | | | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |

| | DEPARTMENT | JOB | REVENUE TYPE | AMENDED BUDGET | CURRENT PERIOD | | | YEAR TO DATE | | | | UNOBLIGATED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Admin & General | Contributons | Interest, Transfers, Others | Admin & General | Contributons | Interest, Transfers, Others | ACTUAL | |
| 811 | PROP 84 | 1011142 | Administrative Support | - | - | - | - | - | - | - | - | - |
| | **PROP TOTAL** | | | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| | **Grand Total** | | | **3,159,943** | **-** | **7,217** | **2,274** | **-** | **3,188,722** | **18,927** | **3,207,649** | **(47,706)** |

# BACWA Expense Detail Report for February 28, 2021

| EXPENSE TYPE | JOB | AMENDED BUDGET | CURRENT PERIOD ENC | CURRENT PERIOD PV | CURRENT PERIOD DA | CURRENT PERIOD JV | YEAR TO DATE ENC | YEAR TO DATE PV | YEAR TO DATE DA | YEAR TO DATE JV | OBLIGATED | UNOBLIGATED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LABOR** | | | | | | - | | | | | | |
| AS-Executive Director | 1011123 | 190,000 | - | - | - | - | 95,000 | 95,000 | - | - | 190,000 | - |
| AS-Assistant Executive Directo | 1011124 | 102,551 | (9,205) | 9,205 | - | - | 33,471 | 69,080 | - | - | 102,551 | - |
| AS-Regulatory Program Manager | 1011149 | 141,170 | (10,707) | 10,707 | - | - | 41,454 | 98,143 | | - | 139,597 | 1,573 |
| **ADMINISTRATION** | | | | | | | | | | | | |
| AS-EBMUD Financial Services | 1011125 | 42,448 | - | - | - | - | 21,887 | 20,561 | - | - | 42,448 | - |
| AS-Audit Services | 1014512 | 5,345 | - | - | - | - | 5,240 | 5,240 | - | (5,240) | 5,240 | 105 |
| AS-BACWA Admin Expense | 1011118 | 7,959 | - | - | - | - | - | - | 194 | - | 194 | 7,765 |
| AS-Insurance | 1011126 | 4,776 | - | - | - | - | - | - | 4,971 | - | 4,971 | (195) |
| **MEETINGS** | | | | | | | | | | | | |
| GBS-Meeting Support-Annual | 1014514 | 14,369 | - | - | - | - | - | - | - | - | - | 14,369 |
| GBS-Meeting Support-Exec Bd | 1014513 | 2,653 | - | - | - | - | 2,653 | - | 256 | - | 2,909 | (256) |
| GBS-Meeting Support-Misc | 1014516 | 5,306 | - | - | - | - | - | - | 406 | - | 406 | 4,900 |
| GBS-Meeting Support-Pardee | 1014515 | 6,367 | - | - | - | - | - | - | - | - | - | 6,367 |
| **COMMUNICATION** | | | | | | | | | | | | |
| CAR-BACWA File Storage | 1014518 | 765 | - | - | - | - | - | - | - | - | - | 765 |
| CAR-BACWA IT Software | 1014520 | 1,785 | - | - | 1,000 | - | - | - | 1,577 | - | 1,577 | 208 |
| CAR-BACWA IT Support | 1014519 | 2,652 | - | - | - | - | 2,652 | - | - | - | 2,652 | - |
| CAR-BACWA Website Dev/Maint | 1011116 | 612 | - | - | - | - | - | - | 30 | - | 30 | 582 |
| CAR-BACWA Website Hosting | 1014517 | 1,530 | - | - | - | - | - | - | - | - | - | 1,530 |
| **LEGAL** | | | | | | | | | | | | |
| LS-Executive Board Support | 1011110 | 2,176 | - | - | - | - | 1,091 | 1,165 | - | - | 2,256 | (80) |
| LS-Regulatory Support | 1011107 | 2,706 | - | - | - | - | 2,626 | - | - | - | 2,626 | 80 |
| **COMMITTEES** | | | | | | | | | | | | |
| AIR-Air Issues&Regulation Grp | 1014253 | 76,000 | (8,067) | 8,067 | - | - | 41,162 | 33,838 | - | - | 75,000 | 1,000 |
| BC-BAPPG | 1011147 | 130,000 | (2,199) | 4,052 | - | - | 21,585 | 68,615 | 25,085 | (2,025) | 113,260 | 16,740 |
| BC-Biosolids Committee | 1011101 | 1,000 | - | - | - | - | - | - | - | - | - | 1,000 |
| BC-Collections System | 1011097 | 1,000 | - | - | - | - | - | - | - | - | - | 1,000 |
| BC-InfoShare Groups | 1011102 | 1,750 | - | - | - | - | - | - | - | - | - | 1,750 |
| BC-Laboratory Committee | 1011103 | 1,000 | - | - | - | - | - | - | - | - | - | 1,000 |
| BC-Permit Committee | 1011098 | 1,300 | - | - | - | - | - | - | - | - | - | 1,300 |
| BC-Pretreatment Committee | 1011146 | 1,000 | - | - | - | - | - | - | - | - | - | 1,000 |
| BC-Water Recycling Committee | 1011100 | 1,000 | - | - | - | - | - | - | - | - | - | 1,000 |
| BC-Manager's Roundtable | 1014777 | 1,000 | - | - | - | - | - | - | - | - | - | 1,000 |
| BC-Miscellaneous Committee Sup | 1011104 | 45,000 | - | - | - | - | - | - | - | - | - | 45,000 |
| **COLLABORATIVES** | | | | | | | | | | | | |
| CAS-Arleen Navaret Award | 1012201 | - | - | - | - | - | - | - | - | - | - | - |
| CAS-FWQC | 1012202 | 7,500 | - | - | - | - | - | - | - | - | - | 7,500 |
| CAS-Misc Collaborative Sup | 1014521 | 5,000 | - | - | - | - | - | - | - | - | - | 5,000 |
| CAS-PSSEP | 1011112 | 20,000 | - | - | - | - | - | - | - | - | - | 20,000 |
| CAS-Stanford ERC | 1011969 | 10,000 | - | - | - | - | - | - | - | - | - | 10,000 |
| **BACWA TOTAL** | | **837,720** | **(30,178)** | **32,031** | **1,000** | **-** | **268,821** | **391,642** | **32,519** | **(7,265)** | **685,717** | **152,003** |
| **TECH SUPPORT** | | | | | | | | | | | | |
| WQA-CE-Technical Support | 1011127 | 250,000 | (1,956) | 1,956 | - | - | 112,576 | 1,956 | 3,548 | (3,548) | 114,532 | 135,468 |
| WQA-CE-Nutrient WS Permit Comm | 1014021 | 2,800,000 | - | - | 1,600,000 | - | - | - | 2,600,000 | - | 2,600,000 | 200,000 |
| WQA-CE Risk Reduction | 1014023 | 7,500 | - | - | - | - | - | - | - | - | - | 7,500 |
| WQA-CE Addl Work Under Permit | 1014254 | 100,000 | (34,500) | 34,500 | - | - | 147,500 | 34,500 | - | - | 182,000 | (82,000) |
| WQA-CE Voluntary Nutr Contrib | 1014529 | - | - | - | - | - | - | - | 30,000 | - | 30,000 | (30,000) |
| Nutrient Workshops | 1015015 | - | - | - | - | - | - | - | - | - | - | - |
| WQA-CE-Nature Based Solutions | 1015367 | 200,000 | - | - | - | - | 329,212 | 106,708 | - | - | 435,920 | (235,920) |
| Recycled Water Evaluation | 1015566 | 60,000 | (40,371) | 40,371 | - | - | 95,288 | 46,546 | - | - | 141,834 | (81,834) |
| WQA - CEC Investigations | 1015569 | 50,000 | - | - | - | - | 65,000 | - | - | - | 65,000 | (15,000) |
| **TECH SUPPORT (CBC) TOTAL** | | **3,467,500** | **(76,827)** | **76,827** | **1,600,000** | **-** | **749,576** | **189,710** | **2,633,548** | **(3,548)** | **3,569,286** | **(101,786)** |
| **GRAND TOTAL** | | **4,305,220** | **(107,005)** | **108,858** | **1,601,000** | **-** | **1,018,397** | **581,352** | **2,666,067** | **(10,813)** | **4,255,003** | **50,217** |
| **BABC** | | | | | | | | | | | | |
| AS-Assistant Executive Directo | 1011124 | - | - | - | - | - | - | - | - | - | - | - |
| Administrative Support | 1011142 | - | - | - | - | 2,274 | - | - | - | 2,274 | 2,274 | (2,274) |
| BDO Contract Expenses | 1011143 | - | - | - | - | - | - | - | 4,621 | - | 4,621 | (4,621) |
| AS-Regulatory Program Manager | 1011149 | - | - | - | - | - | - | - | - | - | - | - |
| Technology Research & Developm | 1015372 | - | - | - | - | - | - | - | 5,000 | - | 5,000 | (5,000) |
| Academia Research & Developmen | 1015373 | - | - | - | - | - | - | 64,500 | - | - | 64,500 | (64,500) |
| Collateral Development | 1015374 | - | - | - | - | - | - | 1,125 | 37,400 | - | 38,525 | (38,525) |
| Program Manager Expense | 1015376 | - | (6,424) | 6,424 | - | - | 48,315 | 41,685 | - | - | 90,000 | (90,000) |
| **BABC TOTAL** | | **-** | **(6,424)** | **6,424** | **-** | **2,274** | **48,315** | **107,310** | **47,021** | **2,274** | **204,920** | **(204,920)** |
| **BACC** | | | | | | | | | | | | |
| Administrative Support | 1011142 | - | (2,496) | 2,496 | - | - | 2,504 | 2,496 | - | - | 5,000 | (5,000) |
| **BACC TOTAL** | | **-** | **(2,496)** | **2,496** | **-** | **-** | **2,504** | **2,496** | **-** | **-** | **5,000** | **(5,000)** |
| **WOT** | | | | | | | | | | | | |
| Administrative Support | 1011142 | - | - | - | - | - | - | - | - | - | - | - |
| BDO Contract Expenses | 1011143 | - | - | - | - | - | - | - | - | - | - | - |
| | | - | - | - | - | - | - | - | - | - | - | - |
| **GRAND TOTAL (BDO, CBC, BABC, BACC, WOT)** | | **4,305,220** | **(115,925)** | **117,778** | **1,601,000** | **2,274** | **1,069,216** | **691,158** | **2,713,088** | **(8,539)** | **4,464,923** | **(159,703)** |

# BACWA Expense Detail Report for February 28, 2021

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

# BACWA Revenue Report as of February 28, 2021

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

# BACWA EXECUTIVE BOARD ACTION REQUEST

**AGENDA NO.: 5**

**MEETING DATE:** April 16, 2021

**TITLE: Fiscal Year 2022 Budget & Workplan**

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

## RECOMMENDED ACTION

Approve the Budget and Workplan for the fiscal year covering July 1, 2021 through June 30, 2022.

## SUMMARY

The Joint Powers Agreement establishing BACWA requires approval of a Budget and Workplan for the coming fiscal year's activities no later than June of the preceding fiscal year.

Draft versions of the budget were reviewed first with the Finance Committee and then at the March 19, 2021 Executive Board meeting. There were no comments from the Board, and this final budget and workplan is ready to be approved.

## FISCAL IMPACT

The final budget has revenues of $3,149,133 and expenses of $4,116,285 resulting in a negative variance of expenses over revenues of $967,152 for FY 22 which will be transferred from reserves.

## ALTERNATIVES

Do not approve the Budget and Workplan: This is not recommended as the budget has been reviewed by the Finance committee and Executive Board.

Attachments:
FY 2022 Budget and Workplan
FY 2022 Nutrient Surcharge

Approved: _____ Date: _____
Amit Mutsuddy,
Chair, BACWA Executive Board

BACWA BAY AREA CLEAN WATER AGENCIES

| *BACWA FY22 BUDGET* | *Line Item Description* | FY22 Budget | FY 22 NOTES |
|---|---|---|---|
| ***REVENUES & FUNDING*** | | | |
| **Dues** | Principals' Contributions | $516,909 | FY22: no increase. 5 @ $103,382 |
| | Associate & Affiliate Contributions | $187,793 | FY22: no increase. 13 Assoc: $8,364; 45 Affiliate: $1,675. |
| **Fees** | Clean Bay Collaborative | $675,000 | Prin: $450,000; Assoc/Affil: $225,000 |
| | Nutrient Surcharge | $1,700,000 | See Nutrient Surcharge Spreadsheet |
| | Member Voluntary Nutrient Contributions | | |
| **Other Receipts** | AIR Non-Member | $7,075 | no increase (Santa Rosa) |
| | BAPPG Non-Members | $3,954 | no increase (Sta Rosa, Sac Reg'l, Vacaville) $1,292/each |
| | Other | | |
| **Fund Transfer** | Special Program Admin Fees (WOT) | $5,202 | FY22: no increase |
| | BACC Admin Fees | $27,200 | 400 hours of AED support $68 / hr |
| | BABC Admin Fees | $6,000 | ED, AED and RPM support |
| **Interest Income** | LAIF | $20,000 | BACWA, Legal, & CBC Funds invested in LAIF |
| | Higher Yield Investments | | |
| | **Total Revenue** | **$3,149,133** | |

| *BACWA FY22 BUDGET* | *Line Item Description* | FY 22 Budget | FY 21 NOTES |
|---|---|---|---|
| ***EXPENSES*** | | | |
| **Labor** | | | |
| | Executive Director | $190,000 | No change from FY20/FY21 budget |
| | Assistant Executive Director | $108,800 | 2.0% CPI (SF Bay Metro Area Dec 2020); $68/hour; Reflects 1600 hours (incl. 400 hours for BACC) |
| | Regulatory Program Manager | $127,400 | $98/hour, Reflects 1300 hours |
| | **Total** | **$426,200** | |
| **Administration** | | | |
| | EBMUD Financial Services | $42,448 | No change from FY20/21 budget |
| | Auditing Services | $5,345 | Finanical Auditors through EBMUD; per auditor rate schedule |
| | Administrative Expenses | $7,959 | No change from FY20/21 budget |
| | Insurance | $5,071 | 2% increase over FY21 actual |
| | **Total** | **$60,823** | |
| **Meetings** | | | |
| | EB Meetings | $2,653 | No change from FY20/21 budget |

**FY 2022 Budget**

| ***EXPENSES*** | | | |
|---|---|---|---|
| | Annual Meeting | $14,369 | No change from FY20/21 budget |
| | Pardee | $6,537 | No change from FY20/21 budget |
| | Misc. Meetings | $5,306 | No change from FY20/21 budget |
| | **Total** | **$28,865** | |
| | | | |
| **Communication** | | | |
| | Website Hosting / Domain registration | $700 | Website hosting $600, Go Daddy domain registration $100 |
| | File Storage | $765 | No change from FY20/21 budget, box.net |
| | Website Development/Maintenance | $1,530 | No change from FY20/21 budget |
| | IT Support (As Needed) | $2,652 | No change from FY20/21 budget |
| | Other Communication | $1,785 | No change from FY20/21 budget; MS Exchange, Survey Monkey, PollEv, Zoom, Netfile |
| | **Total** | **$7,432** | |
| | | | |
| **Legal** | | | |
| | Regulatory Support | $2,815 | 2% increase |
| | Executive Board Support | $2,264 | 2% increase |
| | **Total** | **$5,079** | |
| | | | |
| **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 | |
| | InfoShare Groups | $1,750 | Funds for 2 workgroups ($750 for Asset Mgmt - new in FY21; $1,000 for O&M) |
| | Laboratory Committee | $1,000 | |
| | Permits Committee | $1,300 | all meetings moved to include lunch hour for commuting purposes |
| | Pretreatment | $1,000 | |
| | Recycled Water Committee | $1,000 | |
| | Misc Committee Support | $45,000 | |
| | Manager's Roundtable | $1,000 | |
| | **Total** | **$259,050** | |
| | | | |
| **Collaboratives** | | | |
| | **Collaboratives** | | |
| | State of the Estuary (SFEP-biennial) | $0 | Bienniel in Odd Fiscal Years. (Paid bienniely in odd years for even year conference) |
| | Arleen Navarret Award | $2,500 | Bienniel in Even Fiscal Years. Increase in FY20 |
| | BayCAN | $5,000 | New FY22 |
| | Stanford ERC (ReNUWIt) | $10,000 | |
| | Misc | $1,500 | NBWA |

| | | | |
|---|---|---|---|
| ***EXPENSES*** | | | |
| | **Total** | **$19,000** | |
| | | | |
| **Other** | | | |
| | **Unbudgeted Items** | | |
| | Other | $0 | |
| | | **$0** | |
| | | | |
| **Tech Support** | | | |
| | **Technical Support** | | |
| | **Nutrients** | | |
| | Watershed Permit NMS Contribution | $2,600,000 | 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, other nutrient support |
| | CEC Investigations | $140,000 | PFAS Study Phase II |
| | Risk Reduction | $7,500 | APA FSS completed $12,500 contract in FY20, CIEA will complete $12,500 contract in FY22 |
| | **Total** | **$3,309,836** | |
| | | | |
| | **TOTAL EXPENSES** | **$4,116,285** | |
| | | | |
| | **NET INCOME BEFORE TRANSFERS** | **-$967,152** | |
| | **TRANSFERS FROM RESERVES** | **$967,152** | aligns with strategy of drawing down reserves to lessen impact of Nutrient Surcharge |
| | **NET INCOME AFTER TRANSFERS** | **$0** | |
| | **TOTAL OPERATING BUDGET** | **$806,449** | |
| | **OPERATING RESERVE** | **$201,612** | |

# Budget & Workplan

FISCAL YEAR 2022

BACWA
BAY AREA
CLEAN WATER
AGENCIES

# Table of Contents

# INTRODUCTION

The Bay Area Clean Water Agencies (BACWA) is a joint public powers agency created by a 1984 Joint Powers Agreement (JPA) between the Central Contra Costa Sanitary District (CCCSD), the East Bay Dischargers Association (EBDA), the East Bay Municipal Utility District (EBMUD), the City of San Francisco, and the City of San Jose (collectively, "the Principal Agencies"). The JPA requires approval of an annual budget and workplan divided into three parts: overhead (Part A), general benefit programs (Part B), and special benefit programs (Part C).

The JPA requires that revenues for each fiscal year be equivalent to anticipated expenditures. Expenditures for Management & Administration (Part A), and General Benefit Programs (Part B) are funded by all BACWA members because these programs are carried out on behalf of all member agencies.

Since adoption of the Annual Budget for fiscal year 1984, and each fiscal year thereafter, the Executive Board has allocated Part A and Part B costs pursuant to authority provided in Section 10 of the Joint Powers Agreement among Member Agencies in the following manner (the "Allocation Method"): a. a stated portion to the Original Signatory Members in equal shares; and b. the balance to Associate and Affiliate Members based on one or more of several factors consisting of the type of agency, size of plant, metals loadings, and total inorganic nitrogen loadings in the ratio that their share is to that of the total Associate and Affiliate Membership. On September 26, 2014 BACWA formally adopted this allocation through Executive Board Resolution R-2015-01. BACWA currently has two General Benefit Programs: the core BACWA program to support member agencies and the Clean Bay Collaborative. Expenditures for Special Benefit Programs (Part C) are funded by those agencies that elect to fund those programs because those benefits accrue primarily to those participating agencies.

In FY21 BACWA had three Special Benefit Programs, all of which conform to the JPA requirements under Part C.: Water Operator Training, the Bay Area Biosolids Coalition (BABC), and the Bay Area Chemical Consortium (BACC). The Water Operator Training program, also known as the Bay Area Consortium for Water/Wastewater Education (BACWWE) is a group of BACWA agencies who provide funding for operator educational opportunities. The Bay Area Biosolids Coalition is comprised of a subset of BACWA members who are pursuing alternatives for biosolids beneficial reuse and/or disposal in order to meet regulatory requirements for diversion of organics from landfills. The Bay Area Chemical Consortium is comprised of BACWA agencies as well as additional public water and wastewater agencies who work together to develop group chemical bids.

The purpose of this document is to fulfill the requirements of the JPA for Fiscal Year 2022 (FY22). This workplan and budget specify the purpose of each of BACWA's programs during FY22, the methods by which they will be carried out, the products that will be developed, and the persons responsible for implementation. The schedule for implementation of these programs is July 1, 2021 through June 30, 2022.

## STRATEGIC PLAN

BACWA adopted its first strategic plan and accompanying workplan in 2009 and updated it in 2020. The strategic plan states the mission, vision values and goals of the organization as demonstrated in the work undertaken annually by the agency.

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

**BACWA's Vision**
To demonstrate leadership in the protection and enhancement of the San Francisco Bay ecosystem.

**BACWA's Values**

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

**BACWA's Goals**

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

## MANAGEMENT AND ADMINISTRATION (PART A)

BACWA has administrative and management expenses that are necessary for the agency to carry out its non-program related core functions (JPA, Section 9). They include expenses related to financial management, insurance, and organizational support. Administration of BACWA is carried out under contract by an Executive Director (ED), Assistant Executive Director (AED), and Regulatory Program Manager (RPM) selected by the Executive Board. Treasurer services are provided through an agreement with EBMUD who manages BACWA's finances and oversees the annual audit which is conducted by an independent auditor. The objective of these expenditures is to ensure effective, efficient, and transparent management of BACWA, which serves BACWA's goal to practice good governance. BACWA management and administration are funded through BACWA dues.

| Management & Administration (A) | | | | |
|---|---|---|---|---|
| **Goal** | **Deliverables/Outcomes** | **Lead** | **FY 22 Budget** | **Budget Line** |
| **A.** Practice Good Governance<br><br>(**Labor, Meetings, Legal, Administration**) | **A.1.** Monthly Treasurer Reports, | ED, AED, EBMUD | $42,448 | Administration/ EBMUD Financial Services |
| | **A.2.** Annual audit | ED, AED, Auditor | $5,345 | Administration/ Auditing Services |
| | **A.3.** Miscellaneous Operational Expenses | ED, AED, RPM | $7,959 | Administration/ Administrative Expenses |
| | **A.4.** Insurance to manage organizational risk | ED, AED | $5,071 | Administration/ Insurance |
| | **A.5.** Compliance with organizational legal requirements | ED, AED | $2,264 | Legal/Executive Board Support |
| | **A.6.** Program Administration and Operations Support | ED, AED, RPM | $150,040 | Labor/<br>ED (15%),<br>RPM (10%)<br>AED (100%), |
| | **A.7.** BACWA Executive Board Meetings & Administrative Expenses | ED, AED | $2,653 | Meetings/Exec. Board Meetings |
| | **A.8.** Pardee Technical Seminar & Administrative Expenses | ED, AED | $6,537 | Meetings/ Pardee Seminar |
| | **A.9** Miscellaneous Meeting & Administrative Expenses | ED, AED, RPM | $5,306 | Meetings/ Misc. Meetings |
| | **A.10.** File Storage | ED, AED | $765 | Communications/File Storage |
| | **A.11.** IT Support (As Needed) | ED, AED | $2,652 | Communications/IT Support |
| | **A.112.** Software (As Needed) | ED, AED | $1,785 | Communications/Software |
| | | **TOTAL** | **$232,825** | |

# GENERAL BENEFIT PROGRAMS (PART B)

There are two aspects of BACWA's general benefit program: the core BACWA Member Agency program and the technically–focused Clean Bay Collaborative (CBC) program. Activities in these Programs are supported by the ED, AED, RPM, volunteers who Chair the BACWA Committees, and consultant support as needed.

## BACWA MEMBER AGENCY PROGRAM (PART B1)

The **BACWA Member Agency Program (B1)** serves BACWA's goals to (1) exemplify service and responsiveness to members and the public; and to (2) foster collaboration and relationship building with regulators and other stakeholders

These goals are accomplished by providing member agencies with information on regulations, scientific and technical developments; forums for participating in policy discussions and collaborating on mutually

beneficial projects; and opportunities to engage with the larger Bay Area environmental community. Program expenses include support for committee facilitation and special projects; member workshops and trainings; membership in state and national organizations that disseminate information to members; and communication expenses such as the website, newsletters, the annual report, and the annual meeting. The BACWA Member Agency program is funded by BACWA dues.

## CLEAN BAY COLLABORATIVE (CBC) (PART B2)

The purpose of the **CBC program (B2)** is to respond to current regulatory requirements and to develop scientific, technical, and industry information to inform future regulations and policies affecting Bay Area POTWs and the environment. These effort support BACWA's goals to: (1) Advocate for regulation based on science; (2) Foster collaboration and relationship building with regulators and other stakeholders; and (3) Pursue regional, multi-benefit solutions to environmental challenges. Program expenses include the costs of targeted special studies and reports requested by or used to inform policy discussions with regulatory agencies, policy strategy development and implementation, and collaborations with statewide organizations to do the same. The CBC program is funded through CBC fees and the Nutrient Surcharge.

| **Bay Area Clean Water Agency Program (B1)** | | | | |
|---|---|---|---|---|
| **Goal(s)** | **Deliverables/Outcomes** | **Lead** | **FY22 Budget** | **Budget Line** |
| **B1.** Exemplify service and responsiveness to members and the public; and foster collaboration and relationship building with regulators and other stakeholders (**Committees, Labor, Meetings, Administration, Communications, Collaborations**) | **B1.1.** AIR Committee Support<br>- Admin Support<br>- Technical Support | Chair, AED, RPM, Consultant | $76,000 | Committees/AIR Comm. |
| | **B1.2.** BAPPG Committee Support<br>- Multiple Programs for public education and outreach, and regulatory advocacy | Chair, AED, RPM, Consultants | $130,000 | Committees/BAPPG Comm. |
| | **B1.3.** Biosolids Comm. Support<br>- Misc. Expenses | Chair | $0 | Committees/Biosolids Comm. |
| | **B1.4.** Collection Systems Comm. Support<br>- Misc. Expenses | Chair, RPM | $1,000 | Committees/Collection Systems Comm. |
| | **B1.5.** InfoShare Groups Support (Ops & Maint/Asset Mgmt)<br>- Misc. Expenses | Chair, RPM | $1,750 | Committees/Asset Management and O&M InfoShare Groups |
| | **B1.6.** Laboratory Comm. Support<br>- Misc. Expenses | Chair, RPM | $1,000 | Committees/Laboratory Comm. |
| | **B1.7.** Permits Comm. Support<br>- Misc. Expenses | Chair, RPM | $1,300 | Committees/Permits Comm. |
| | **B1.8.** Pretreatment Committee,<br>- Misc. Expenses | Chair | $1,000 | Committees/Pretreatment Comm. |

| | | | | |
|---|---|---|---|---|
| | **B1.9.** Recycled Water Comm., Misc. Expenses | Chair, RPM | $1,000 | Committees/Recycled Water Comm. |
| | **B1.10** Misc. Committee Support | ED, AED, RPM | $45,000 | Committees/ Misc. Comm. Support |
| | **B1.11.** Manager's Roundtable, Misc. Expenses | ED, AED | $1,000 | Committees/ Manager's Roundtable |
| | **B1.12.** Executive Director | Board Chair | $161,500 | Labor/ ED (85%) |
| | **B1.13.** Legal Support, provide review of regulatory products | ED | $2,815 | Legal/ Regulatory Legal Support |
| | **B1.14.** Regulatory Program Manager | RPM | $89,180 | Labor/ RPM (70%) |
| | **B1.15.** Annual Meeting | ED, AED, RPM | $14,369 | Meetings/ Annual Meeting |
| | **B.16.** Website Hosting | ED, AED, Consultant | $700 | Communications/ Website Hosting |
| | **B.17.** Website Development/Maintenance | ED, AED, RPM, Consultant | $1,530 | Communications/ Website Dev/Maint |
| | **B1.18.** State of the Estuary | ED, AED | $0 | Collaboratives, State of the Estuary |
| | **B1.19.** Arleen Navarret Award | ED, AED | $2,500 | Collaboratives, Arleen Navarret Award |
| | **B1.20.** BayCAN | ED, AED | $5,000 | Collaboratives, New FY22 |
| | **B1.21.** Stanford ERC (ReNUWIt) | ED, AED | $10,000 | Collaboratives, ReNUWIt |
| | **B1.22.** Miscellaneous | ED, AED | $1,500 | Collaboratives, Misc. |
| **Clean Bay Collaborative (B2)** | | | | |
| **B2. Clean Bay Collaborative** (1) Advocate for regulation based on science; (2) Foster collaboration and relationship building with regulators and other stakeholders; and (3) Pursue regional, multi-benefit solutions to environmental challenges. | **B2.1.** Watershed Permit NMS Contribution | ED, RPM, Consultant | $2,600,000 | Tech. Support/ Nutrients/Watershed Permit Obligation |
| | **B2.2.** NMS Voluntary Contributions | ED, RPM | $0 | Tech. Support/ Nutrients/Watershed/Vol Contributions |
| | **B2.3.** Additional Work Needed Under Permit | ED, RPM, Consultant | $100,000 | Tech. Support/ Nutrients/Add'l Work Under Permit/ GAR etc. |
| | **B2.4.** Regional Study on Nature Based Sustems | ED, RPM, Consultant | $248,811 | Tech. Support/ Nutrients/Reg'l Study Non-Gray Scape |
| | **B2.5.** Regional Recycled Water Evaluation | ED, RPM | $63,525 | Tech. Support/ Nutrients/Member Vol Nutrient Contributions |

| | | | | |
|---|---|---|---|---|
| | **B2.6.** Nutrient Workshop(s) | ED, RPM, Consultant | $0 | Tech. Support/ Nutrient Workshop(s) |
| | **B2.7.** NMS Reviewer | Consultant | $50,000 | Tech. Support/NMS Reviewer - **New FY22** |
| | **B2.8.** General Tech Support | ED, RPM, Consultants | $100,000 | Tech. Support, General Tech Support: PEEP, PFAS, Nutrient Review |
| | **B2.9.** CEC Investigations – support for regional PFAS study | ED, RPM, Consultants | $140,000 | Tech Support/CEC studies for POTWs – **New FY22** |
| | **B2.10.** Risk Reduction | ED, RPM, Consultants | $7,500 | Tech, Support/ Risk Reduction |
| | **B2.1.** General Technical and Regulatory Support | ED, RPM | $25,480 | Labor/ RPM (20%) |
| | | **TOTAL** | **$3,883,460** | |

## SPECIAL BENEFITS PROGRAMS (PART C)

BACWA has three active special benefit programs: Water Operator Training also known as BACWWE, Bay Area Biosolids Coalition (BABC), and Bay Area Chemical Consortium (BACC). These programs are administered under Part C of the JPA Annual Budget and Workplan.

Member dues for Wastewater Operator Training (BACWWE) are optional and are established on an annual basis by its Program members with training offered at community colleges throughout the BACWA service area. In FY22, BACWWE plans to transition to a scholarship-based class reimbursement model to increase the impact of the program and the number of community college courses that qualify.

BABC became a Special Benefits Program in FY 20. BABC is governed by a Steering Committee that establishes its budget and associated revenue needs on an annual basis. BABC funds support the furthering the goal of its strategic plan, which include communicating the value of biosolids, advancing scientific research, supporting the expansion of biosolids land application, and supporting the development of biosolids management options in the Bay Area.

BACC became a Special Benefits Program in FY 20. BACC is an administrative program governed by BACWA and supported by the BACWA ED and AED. BACC solicits chemical bid information from more than 60 member agencies, then arranges a group bid. BACC participant agencies are invoiced for BACWA labor and other expenses related to bid administration at the end of each fiscal year.

| **WATER OPERATOR TRAINING (PART C1)** | | |
|---|---|---|
| **Deliverables/Outcomes** | **Manager** | **FY 22 Budget** |
| Encourage development of a skilled workforce by offering classes in conjunction with a local community college. | Program Participant Reps; ED, AED | To be determined by member interest. |

| BAY AREA BIOSOLIDS COALITION (PART C2) | | |
|---|---|---|
| **Deliverables/Outcomes** | **Manager** | **FY 22 Budget** |
| Pursue alternatives for biosolids beneficial reuse and/or disposal in order to meet future regulatory requirements for diversion of organics from landfills | Program Participant Reps; ED, RPM, AED | To be determined by member interest. |

| BAY AREA CHEMICAL CONSORTIUM (PART C3) | | |
|---|---|---|
| **Deliverables/Outcomes** | **Manager** | **FY 22 Budget** |
| Administer a series of chemical bids for participating agencies. | ED, AED | To be determined by level of effort and expenses associated with program administration and legal reserve development. |

## FISCAL YEAR 2022 BUDGET

| BACWA/CBC | 2022 Budget | Notes |
|---|---|---|
| **REVENUES** | | |
| BACWA Principals' Contributions | 516,909 | No increase. 5@ $103,382 |
| BACWA Assoc. & Affil. Contributions | 187,793 | No increase. |
| Clean Bay Collaborative (CBC) | 675,000 | Prin: $450,000; Assoc / Affil: $225,00 |
| Nutrient Surcharge | 1,700,000 | 2nd Watershed Permit Requirement |
| Voluntary Nutrient Contributions | 0 | |
| AIR Non-Members | 7,075 | No increase. |
| BAPPG Non-Members | 3,954 | No increase. |
| Other/Special Program Admin Fees (WOT) | 5,202 | No increase. |
| Other/Special Program Admin Fees (BABC) | 6,000 | Based on staff hours, AED, RPM, and ED |
| Other/Special Program Admin Fees (BACC) | 27,200 | 400 hours AED support |
| Interest Income (LAIF) | 20,000 | Includes BACWA & Nutrient Funds |
| Interest Income (higher yield Investments) | 0 | Alternative Investments |
| **TOTAL** | **3,149,133** | |

| **EXPENSES** | | |
|---|---|---|
| **Labor** | **426,200** | |
| Executive Director | 190,000 | No change from FY21 budget |

| | | |
|---|---|---|
| Assistant Executive Director | 108,800 | 2.0% CPI (SF Bay Metro Area) $68/hr, Reflects 1600 hours / yr |
| Regulatory Program Manager | 127,400 | $98/hr; Reflects 1300 hours/ yr |
| **Administration** | **60,823** | |
| EBMUD Financial Services | 42,448 | No increase |
| Auditing Services | 5,345 | Financial audit through EBMUD |
| Administrative Expenses | 7,959 | No increase |
| Insurance | 5,071 | 2% increase |
| | | |
| **Meetings** | **28,865** | |
| EB Meetings | 2,653 | No increase. |
| Annual Meeting | 14,369 | No increase. |
| Pardee | 6,537 | No increase. |
| Misc. | 5,306 | No increase: Holiday/Comm Chairs Lunch, Staff Mtgs, Finance Comm Mtg, Summit Partners, CASA, NACWA |
| **Communications** | **7,432** | |
| Web Hosting / Domain Registration | 700 | 15% increase. TBD and GoDaddy |
| File Storage | 765 | No increase. Box.net |
| Website Development/Maint. | 1,530 | No increase. |
| IT Support (As Needed) | 2,652 | No change. Cayuga Information Systems |
| Other Communications/Software | 1,785 | MS Exchange/Survey Monkey/Poll Everywhere/Zoom/ NetFile |
| **Legal Support** | **5,079** | |
| Regulatory Support | 2,815 | 2% increase |
| Executive Board Support | 2,264 | 2% increase |
| **BACWA Committees** | **259,050** | |
| AIR | 76,000 | Consultant support |
| BAPPG | 130,000 | Technical support and outreach contracts |
| Biosolids Committee | 0.00 | |
| Collections System | 1,000 | |
| InfoShare Groups | 1,750 | Asset Management and O&M Support |
| Laboratory Committee | 1,000 | |
| Permit Committee | 1,300 | |
| Pretreatment Committee | 1,000 | |
| Recycled Water Committee | 1,000 | |
| Misc. Committee Support | 45,000 | |
| Manager's Roundtable | 1,000 | |
| **Collaboratives** | **19,000** | |
| State of the Estuary | 0 | Biennial in odd fiscal years |
| Arleen Navarret Award | 2,500 | Biennial in even fiscal years |
| BayCAN | 5,000 | New FY22 |
| Stanford ERC (ReNUWIt) | 10,000 | |
| Misc. | 1,500 | NBWA |
| **Technical Support** | **$3,309,836** | |
| **Nutrients** | | |
| Watershed | 2,600,000 | Advanced funding for 2nd Watershed Permit Science Studies – not to exceed value. |
| 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 | |
| Regional Recycling Evaluation | 63,525 | |
| Nutrient Workshop(s) | 0 | |
| NMS Reviewer | 50,000 | New FY22 |
| General Technical Support | 100,000 | AB617 emissions factors, nutrient technical review, other nutrient support, PFAS |
| CEC Investigations | 140,000 | Support for studies through RMP |
| Risk Reduction | 7,500 | $25,000 over 5 yrs (FY19-23) 2 Contracts for $12,500 over each FY19, 20, 21, 22 |
| **TOTAL** | **$4,116,285** | |

| **WOT** | **2022 Budget (Est)** | **Notes** |
|---|---|---|
| **REVENUES** | **0** | |
| Participant's Contributions | 0 | Est. depends on member interest. |
| | | |
| **EXPENSES** | **85,200** | |
| Contract expenses | 80,000 | Est. depends on member interest. |
| BACWA Indirect Expenses | 5,200 | Per BACWA Policy |
| **TOTAL** | **-85,200** | Funding transferred from WOT reserve |

| **BABC** | **2022 Budget (Est)** | **Notes** |
|---|---|---|
| **REVENUES** | **186,500** | |
| Participant's Contributions | 186,500 | Est. depends on member interest. |
| | | |
| **EXPENSES** | **186,500** | |
| Contract expenses | 180,500 | Est. depends on member interest. |
| BACWA Indirect Expenses | 6,000 | Per BACWA Policy |
| **TOTAL** | **0** | |

| **BACC** | **2022 Budget (Est)** | **Notes** |
|---|---|---|
| **REVENUES** | **$73,689.60** | |
| Participant's Contributions | $73,689.60 | Est. equivalent to expenses. |
| | | |
| **EXPENSES** | **$73,689.60** | |
| Bid software | $6,375.00 | |
| BACC Legal reserve | $30,000 | Target total reserve $150,000 to be built over 5 years. |
| Miscellaneous expenses | $7,634.60 | |
| BACWA Indirect Expenses | $29,680.00 | Per BACWA Policy, reflect level of effort. |
| **TOTAL** | **0** | |

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

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

# BACWA AUTHORIZATION REQUEST

**AGENDA NO.:** 3

**MEETING DATE:** April 16, 2021

**TITLE: Request for BACWA Authorization to Establish a BACC legal reserve fund.**

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

## RECOMMENDED ACTION

Approve establishment of a legal reserve fund to support potential legal services associated with the Bay Area Chemical Consortium (BACC) annual bidding process.

## SUMMARY

BACC is a cooperative group of public agencies working together to purchase chemicals by combining bid solicitations to achieve better pricing due to economies of scale. For ten years prior to FY21, the Dublin San Ramon Services District (DSRSD) administered the program on behalf of the 60+ public agencies who participate. In 2019, DSRSD requested that BACWA take over BACC administration. At the August 19, 2019 BACWA Executive Board meeting, the Board approved the establishment of BACC as a new Program of Special Benefit, with the intention of administering the FY21 BACC bid. The Board Authorization Request from that meeting is attached. In April 2020, the FY21 BACC bid was canceled due to the COVID-19 global pandemic, so the FY22 bid is the first year that BACWA is proceeding with the entire bid process.

BACWA is the coordinating agency for BACC for bid solicitation, and advertises, prepares, evaluates, and solicits bids, and responds to bid protests (if any), on behalf of each BACC participating agency. Each participating agency share in the total administrative cost that BACWA incurs in performing bid-related work on behalf of their agency.Routine administrative costs such as labor, bid software, legal review, and advertising. BACWA invoices each participating agency at the end of the Fiscal Year. The total costs for the FY22 bid are attached. In the event of a bid protest that goes to litigation, BACWA would be the entity named in a writ of mandate. While the likelihood of this event is low, it would be very costly, and attorney's fees would need to be funded by BACWA.

In order to fund a potential bid protest defense, it is recommended that BACWA establish a BACC legal reserve fund. The reserve would be funded by adding a legal reserve surcharge to the invoices of participating agencies. The aggregate level would increase by $30,000 per year over five years, to a target reserve level of $150,000.

## FISCAL IMPACT

The costs to establish a legal reserve to support the BACC program would be fully reimbursed by the BACC participants such that there would be no costs to BACWA. If BACWA terminates its support of

BACC in the future, the legal reserve fund would be transferred to the new administrative agency, or if there is no new administrator, the agencies who contributed would be reimbursed in the amount they contributed.

**ALTERNATIVES**

The alternative is to not establish a reserve fund. In the case of a future bid protest or other legal liability, BACWA would then seek reimbursement after the fact from participating agencies. This is not recommended since BACWA would have to provide funding up front, and it might be difficult to later obtain reimbursement from participating agencies.

*Attachments*: 2019 BAR to Authorize services by BACWA contract staff to administer the Bay Area Chemical Consortium (BACC) annual bidding process

BACC expenses/invoice information for 2021-22

Approved: _____ Date: April 16, 2021

Amit Mutsuddy, Chair
BACWA Executive Board

# BACWA AUTHORIZATION REQUEST

**AGENDA NO.:** 3

**FILE NO.:** 20-20

**MEETING DATE:** August 16, 2019

**TITLE: Request for BACWA Authorization to Provide Administrative Services to the Bay Area Chemical Consortium Project of Special Benefit.**

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

## RECOMMENDED ACTION

Authorize services by BACWA contract staff to administer the Bay Area Chemical Consortium (BACC) annual bidding process.

## SUMMARY

The BACC is a group of public agencies who collaborate for the purposes of bidding chemicals in hopes of achieving economies of scale in bid pricing from suppliers. For the last ten years the Dublin San Ramon Services District (DSRSD) has administered the program on behalf of the 60+ public agencies who participate. Given that a large number of the participating agencies are BACWA members, DSRSD has requested that, beginning in FY 20, BACWA take over administration of the program.

Over the years DSRSD has developed a series of schedules and protocols that are used to successfully administer the program. DSRSD had indicated that they will work closely with BACWA, at no cost to BACWA, during FY 20 to help ensure a smooth transition. The bulk of the work for administering the program will fall on the Assistant Executive Director (AED). It is estimated that the workload could amount to roughly 300 hours per year. The new AED's contract has accounted for the need to spend these additional hours in FY 20 which could amount to over $35,000. The AED would log hours that are worked on the program and then be paid by BACWA as part of their monthly invoice. Towards the end of the FY when bids have been received and participating agencies have contracted with the various chemical suppliers, BACWA will send invoices to the participating agencies for their proportional share of the staff costs for administering the program. This approach for reimbursement of administrative costs was used successfully by DSRSD for the ten years during which they provided administrative services.

## FISCAL IMPACT

Support for the BACC would be provided under the BACWA JPA which allows payment by others for projects and programs administered by BACWA that benefit only some of the BACWA members. The administrative costs for the BACC program would be fully reimbursed by the BACC participants such that there would be no costs to BACWA. Since the reimbursement is after the services have been

provided, there is the possibility of BACWA absorbing some of the costs of the program if one or more of the participants refused to pay their proportional share.

**ALTERNATIVES**

The alternative is to decline the request by DSRSD to assume administrative support for the program. This is not recommended since the program may flounder if DSRSD decides to not provide support in the future, plus the program benefits many BACWA members and its costs are fully reimbursed.

*Attachments*: BACC materials

Approved: _____ Date: August 16, 2019

Lori Schectel, Chair
BACWA Executive Board

**Bay Area Chemical Consortium (BACC) FY2021-22 Bidding**
**Cost Summary for Bay Area Clean Water Agencies as BACC Cordinating Agency**
**Chemical Bid Documents Prepared: 12**

| **BACC -Estimated Hourly Costs** | | | | |
|---|---|---|---|---|
| **Task** | **Comments** | **Hours** | **Billing rate** | **Cost** |
| Jennifer Dyment | BACC Coordination | 400 | 66.7 | $26,680.00 |
| Lorien Fono | BACC Supervision | 30 | 100 | $3,000.00 |
| | **Total combined hours and costs** | 430 | | **$29,680.00** |

| **BACC - Estimated Miscellaneous Expenses** | | |
|---|---|---|
| Legal Ad | Publishing 12 Public Notices - Bay Area News Group | $814.20 |
| Legal Counsel | Legal counsel - review of bid document language | $4,450.50 |
| Software | PlanetBids.com software and implementation | $6,375.00 |
| FY20 BACC costs | Fees for FY 2020-21 not yet recovered | $1,563.00 |
| Accounting | EBMUD costs for AP \ AR | $807.12 |
| BACC Legal Reserve | Cost to build a BACC Legal Reserve Fund $150,000 total, $30,000 per year over 5 yrs | $30,000.00 |
| | **Total Misc Expenses** | **$44,009.82** |
| | **Total Hourly Costs & Expenses** | **$73,689.82** |
| | **Total combinations for 12 chemical bids** | **190** |
| | **Participation Fee per bid** | **$387.84** |
| | **Billed ($383.80 x 192)** | **$73,689.60** |

**AGENDA**
**BACWA Nutrient Strategy Team Meetings**
**Dates and times TBD**

**Part A – Late April/early May**

1. Introductions

2. Review SFEI nitrogen source allocation figures.

3. Reach consensus or identify informational needs on following:
    a. What are the compliance endpoints in the 3rd WSP?
    b. Which agencies will be included in load caps? Exceptions for agencies that have low dry weather discharge or whose discharge signal minimally impacts the Bay?
    c. What will be the basis for determining subembayment boundaries?
    d. How to incentivize early actors?
    e. How to incentivize multi-benefit projects?

4. Action items/Next steps

5. Adjourn

**Part B – Late May**

1. Introductions

2. Review HDR data variability analysis

3. Reach consensus or identify informational needs on following:
    a. How will load caps/compliance be calculated?
    b. Other items carried over from meeting Part A

6. Action items/Next steps

4. Adjourn

# Technical Memorandum
# BACWA NMS Reviewer Task 1

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

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

## 1. Introduction and Structure

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

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

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

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

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

## 2. Recommendations for BACWA's Nutrient Technical Team

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

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

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

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

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

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

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

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

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

# 3. Summaries and Comments on Major Publications

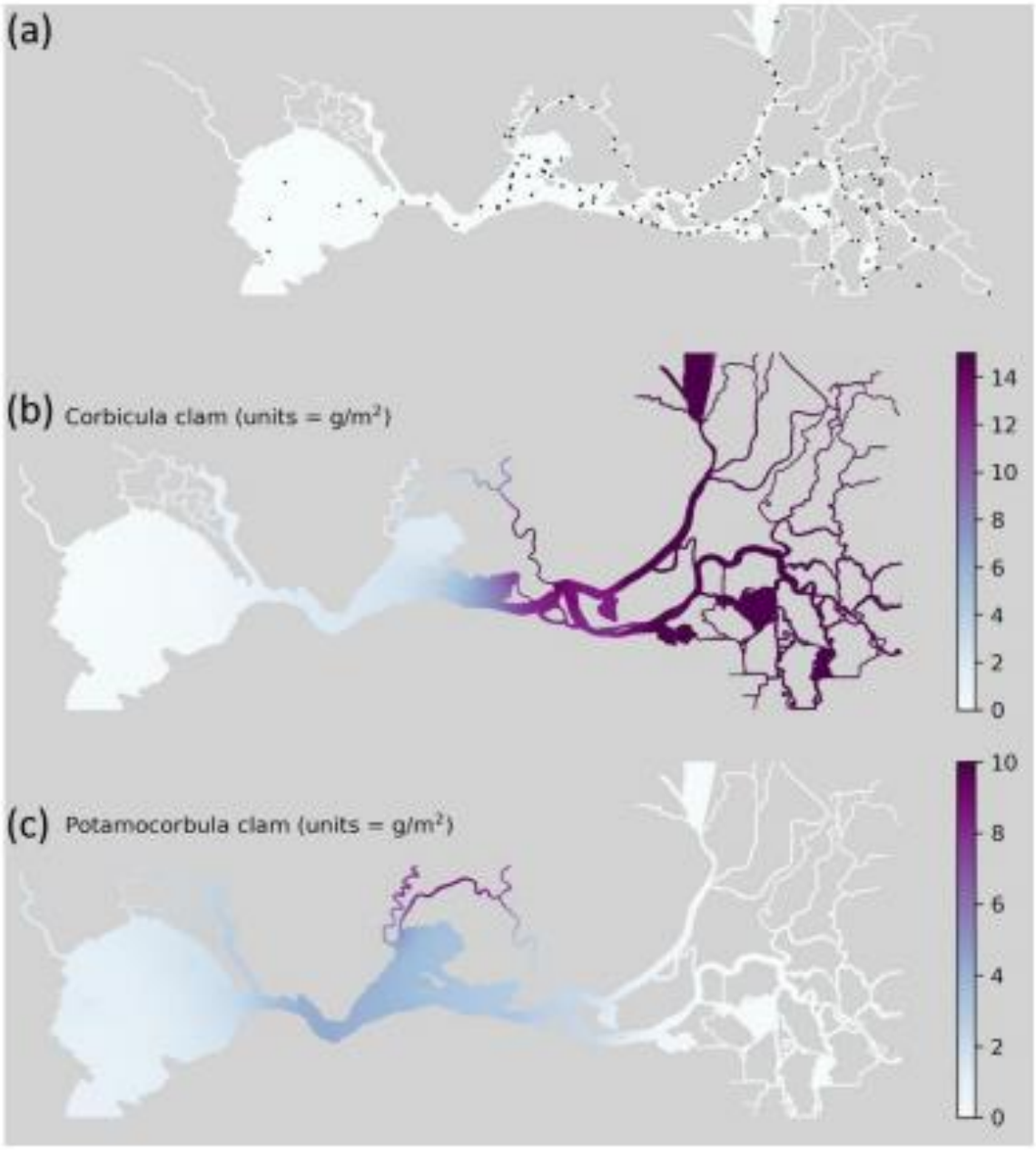
This section discusses key points of the five most-impactful SFEI publications, as determined by BACWA.

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

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

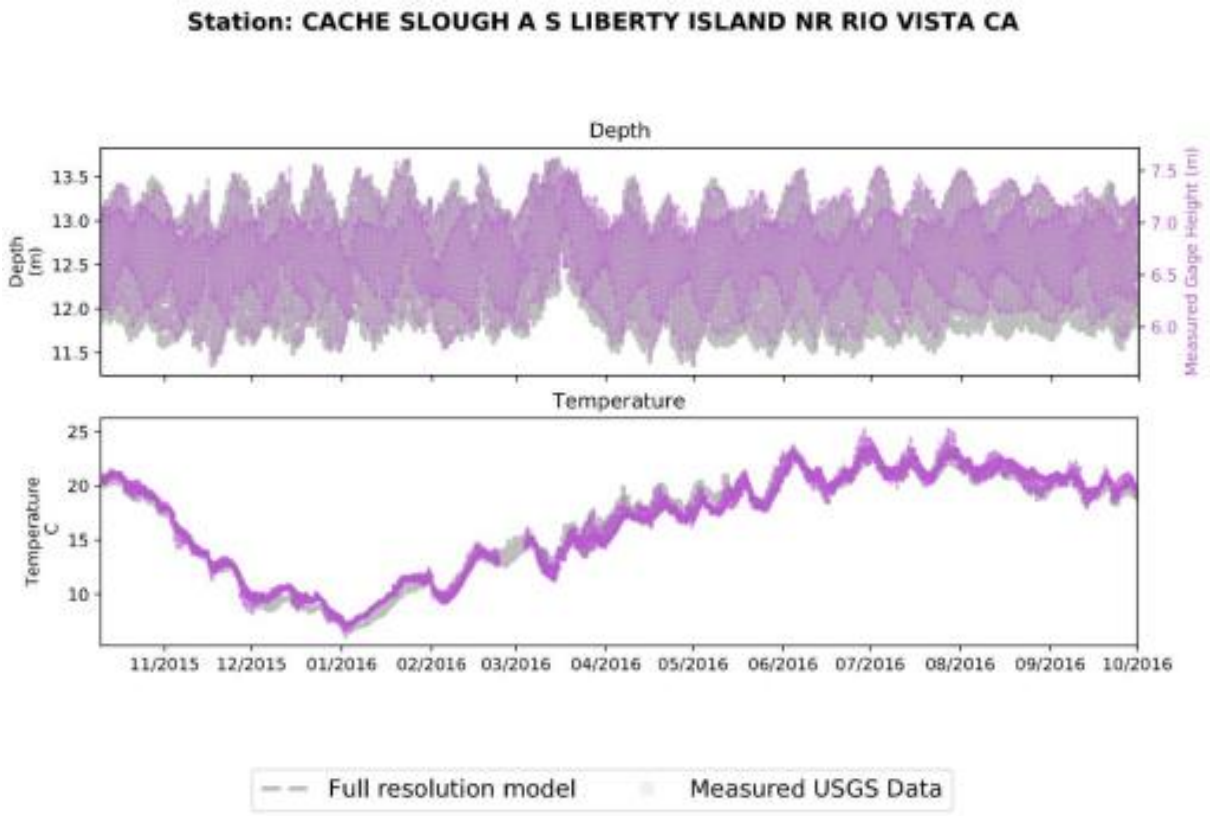
This publication focuses on the model for the North Bay. It includes two unique elements compared to the two other SFE-BGCM models that address the rest of the Bay:

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



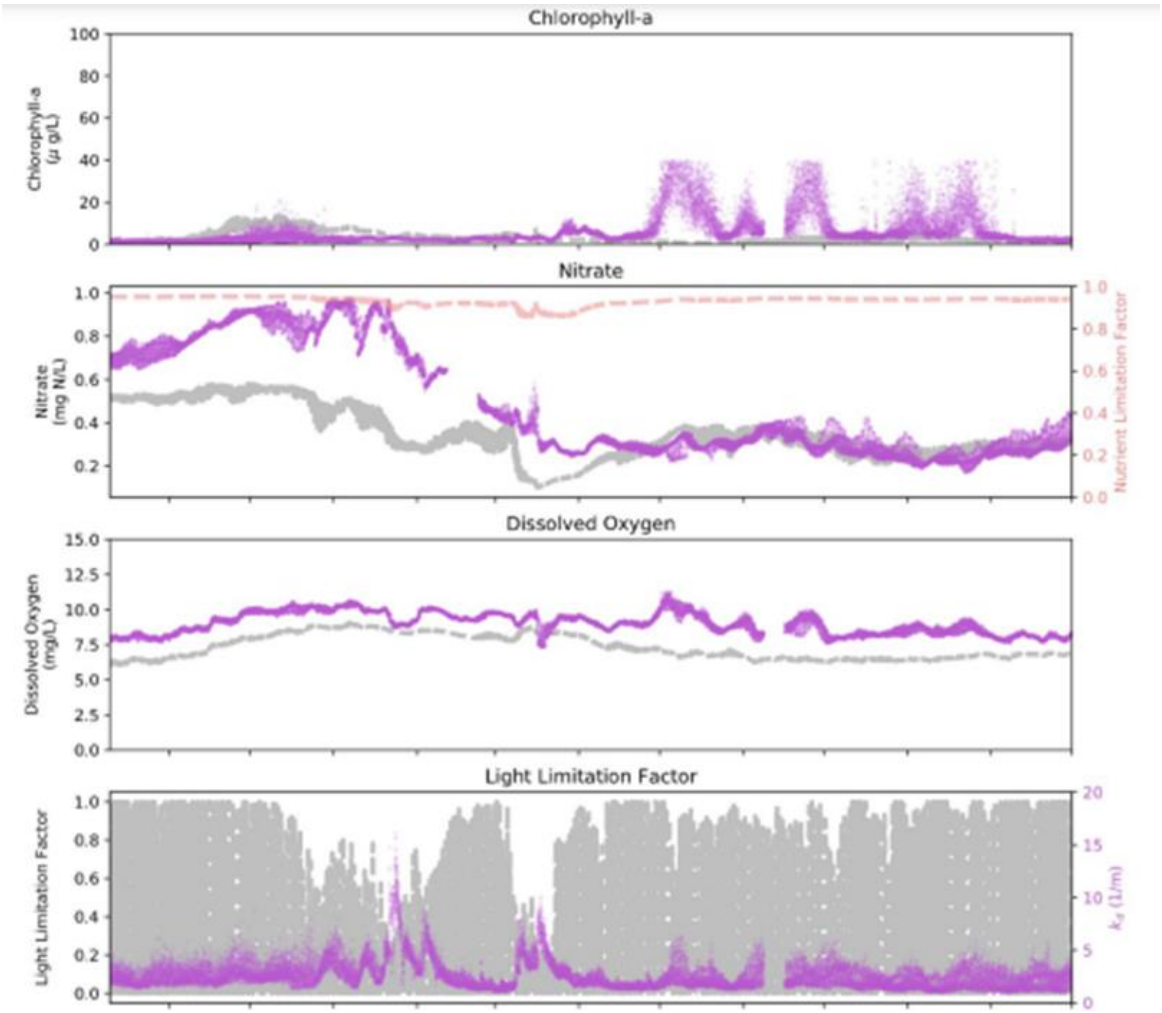

*SFEI #1 Figure 2.6. (a) Sampling locations from the USGS GRTS clams mapping survey; (b) initial condition of Corbicula biomass; (c) Initial condition of Potamocorbula biomass.*

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

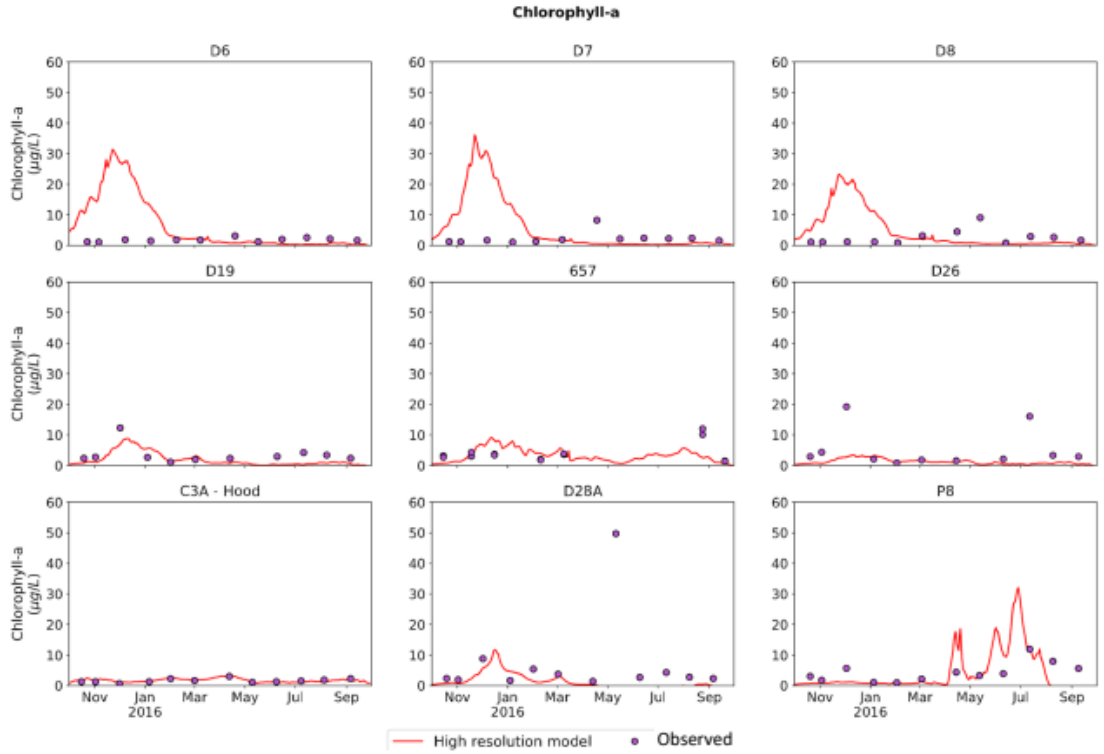



*SFEI #1 Figure 3.8. Full-resolution model compared to high-frequency mooring data at Cache Slough.*

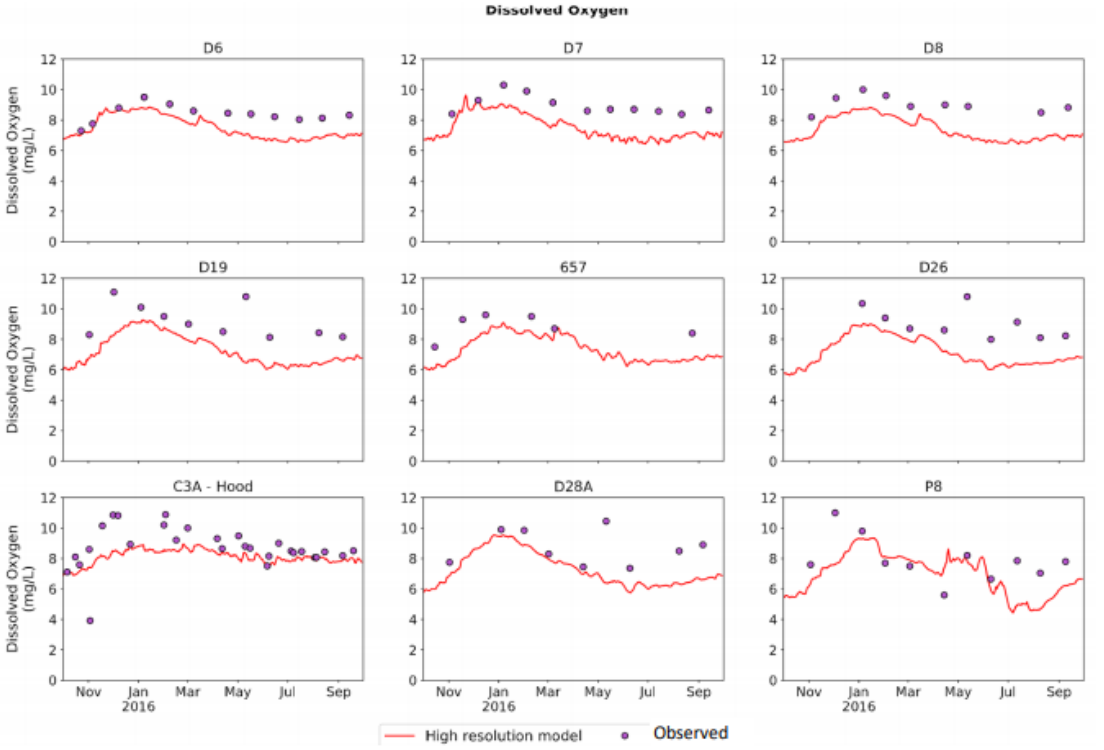
However, the model had much less success of reproducing the chlorophyll distributions in the Bay (see remainder of SFEI #1, Figure 3.8 and SFEI #1, Figure 3.6). Despite the extensive number of light stations, the light limitation calculations in the model were quite different from the actual measurements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




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



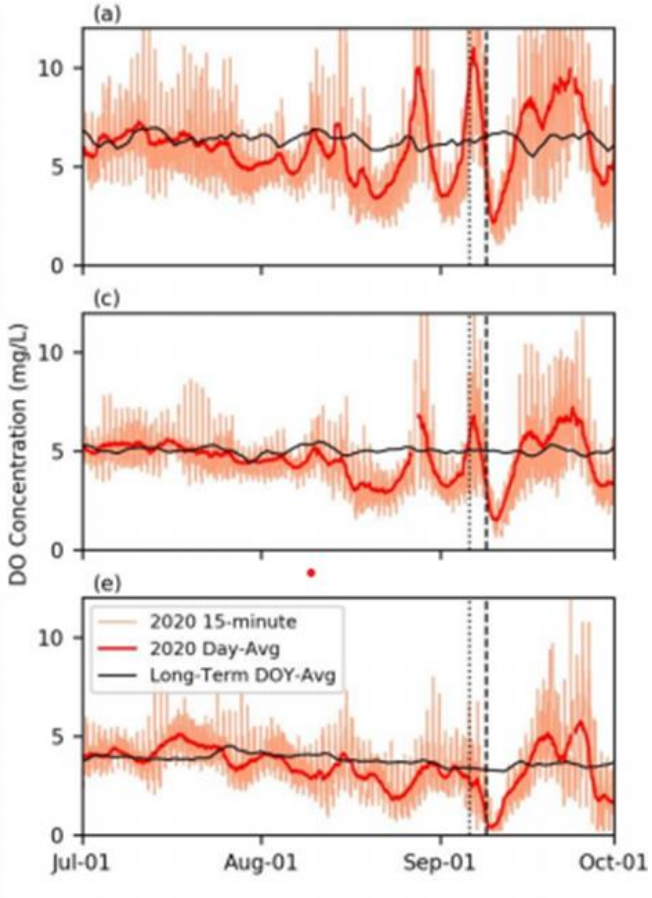

*SFEI #1 Figure 3.6. Comparison of chlorophyll-a using the full-resolution model with discrete data for WY2016.*




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

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

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




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

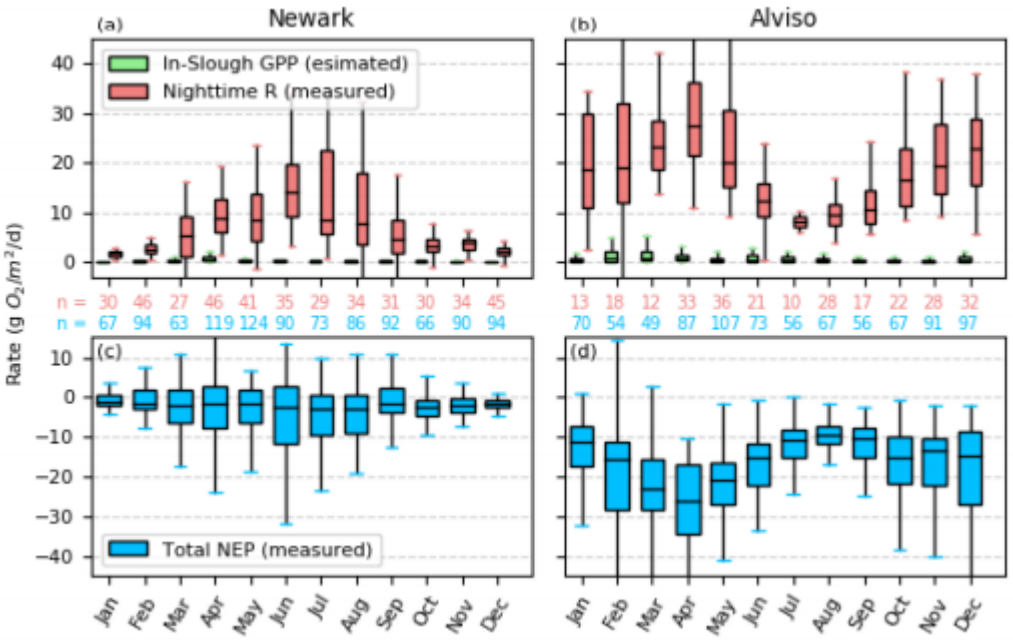
The paper is also important to BACWA in its discussion of ecosystem effects associated with wildfire smoke-induced hypoxia. To determine these impacts, it compared the data to the dissolved oxygen standard from EPA's Virginian coastal province of 2.3 ppm for 24 hours. Alviso Slough remained below the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

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

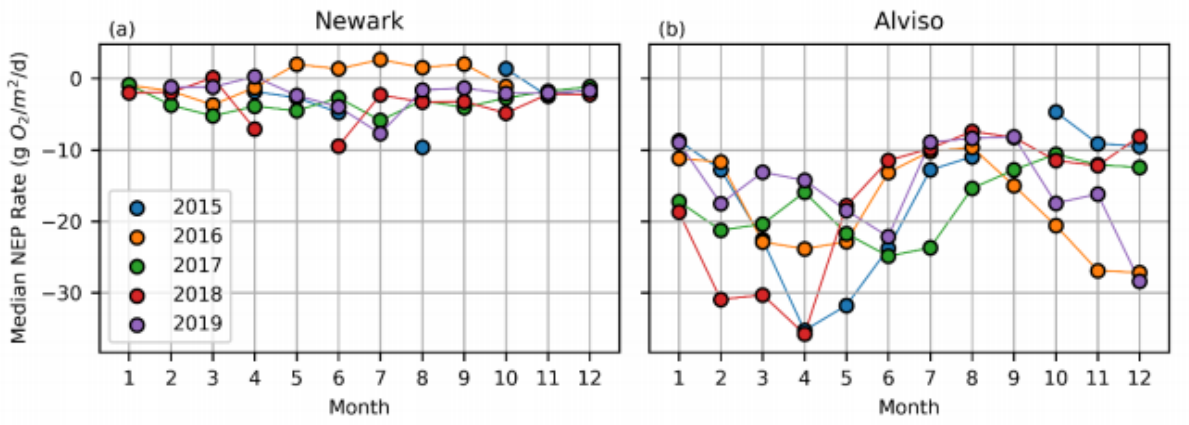
Dissolved oxygen concentrations in the Lower South Bay are usually the lowest in the Bay overall, due to the low mixing with the rest of the Bay, the high nutrient loads, and the high production of plant matter (as salt marsh plants or periphyton growing in the attached, restored salt ponds.) Photosynthesis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

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

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




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




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

## *SFEI #4*. NMS Numerical Modeling Update. Aug 2020

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

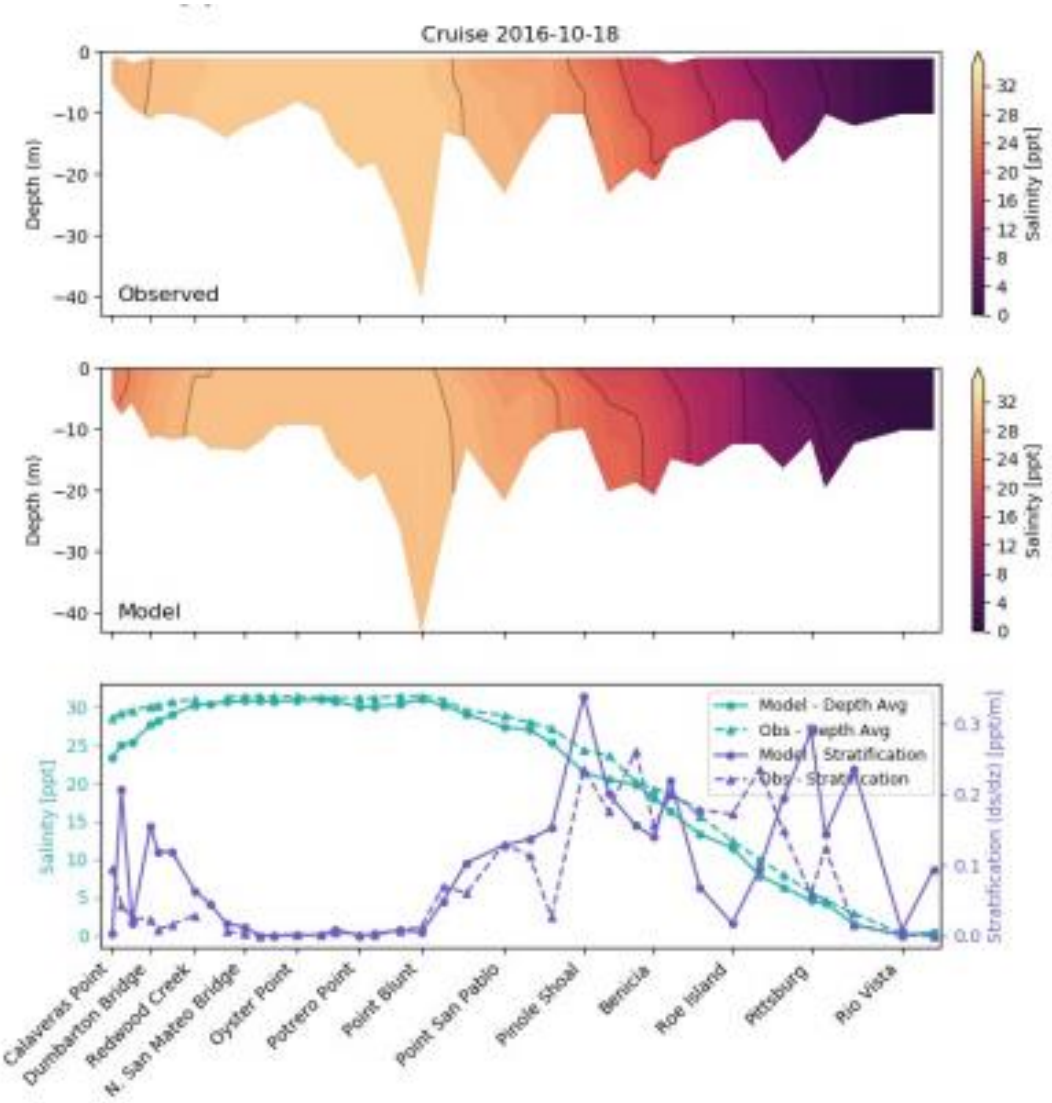
***Hydrodynamic modeling***

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

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

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

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



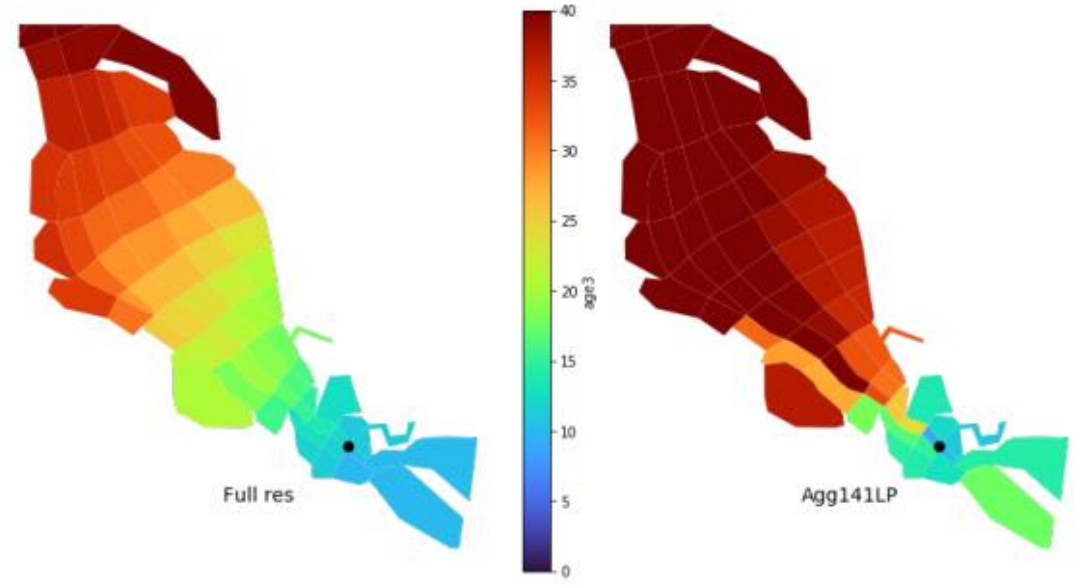

*SFEI #4 Figure 2.13. Salinity profile and stratification at USGS locations, Cruise 2016-10-18.*

***Development and Testing of Fast-Running Model***

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

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

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




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

***Biochemical Model***

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

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

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

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

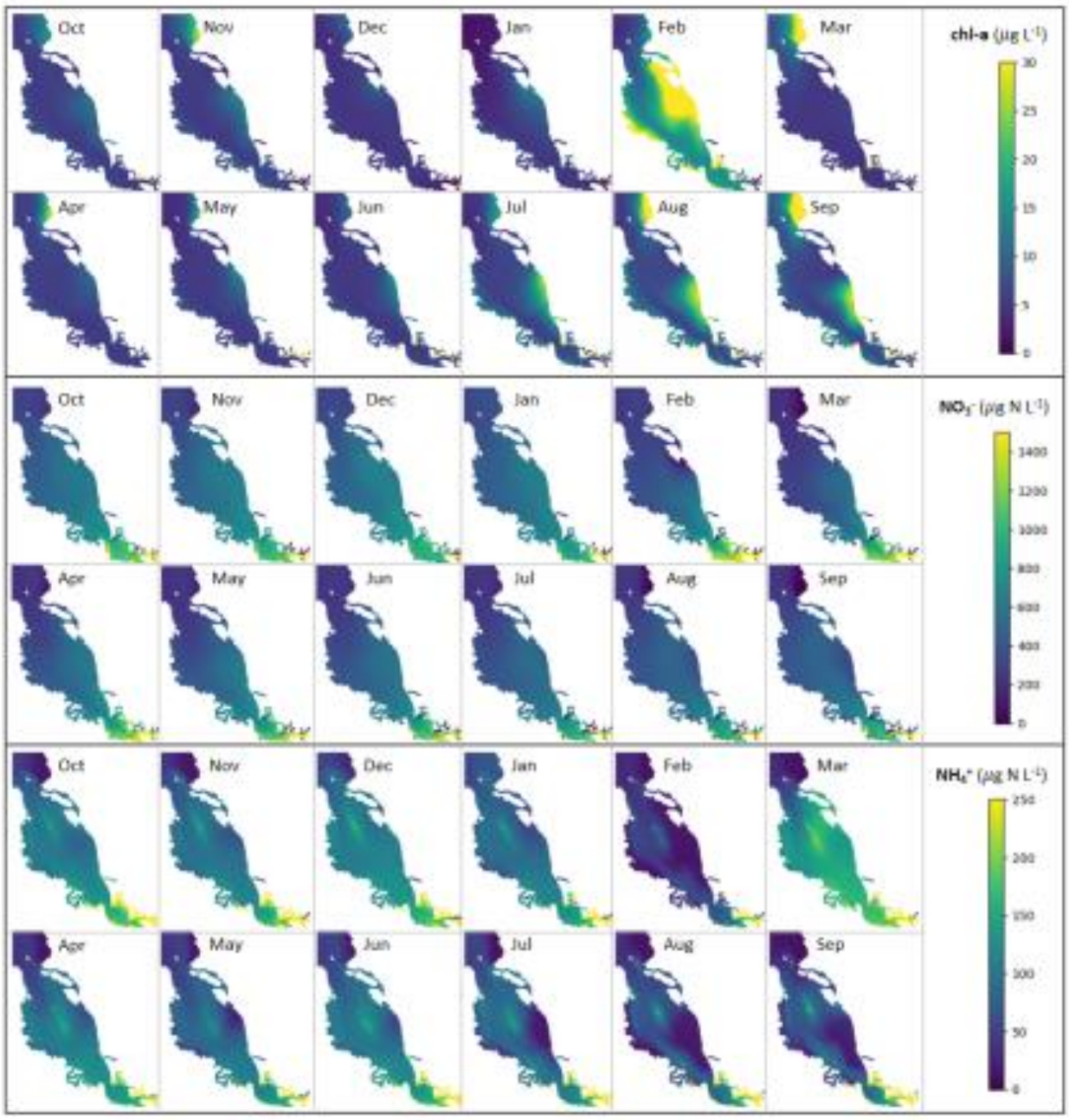
While the model emphasizes zooplankton grazing, there is an extensive national literature highlighted by forty years of publications from USGS (e.g., Cloern, Thompson) that emphasize the impact of benthic filter feeders. This role is emphasized in the North Bay model.

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

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

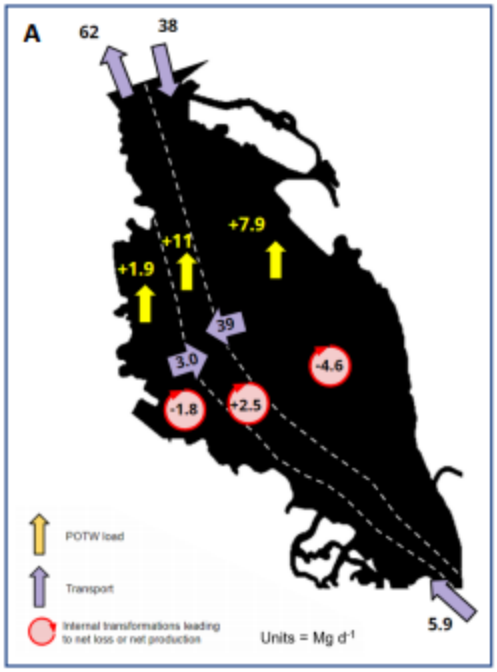
***Nutrient and Phytoplankton Dynamics***

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

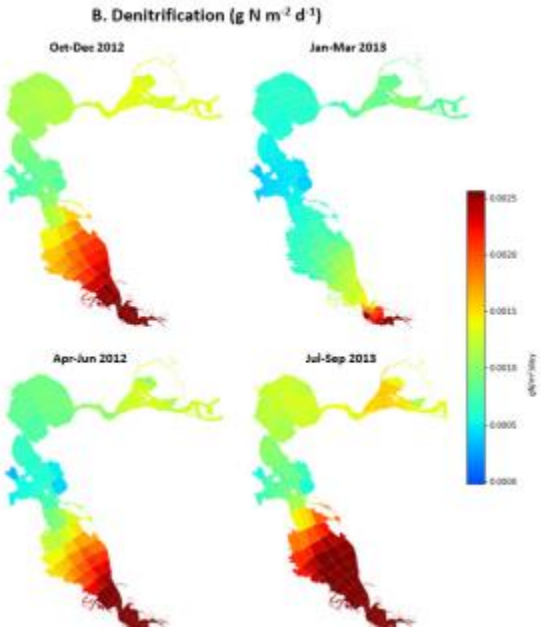



Notes: Images represent predicted conditions at individual timepoints (first day of month, 00:00) over 12 months.

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




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




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

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

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

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

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

# 4. Summaries and Comments on Remaining 2020 Publications

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

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

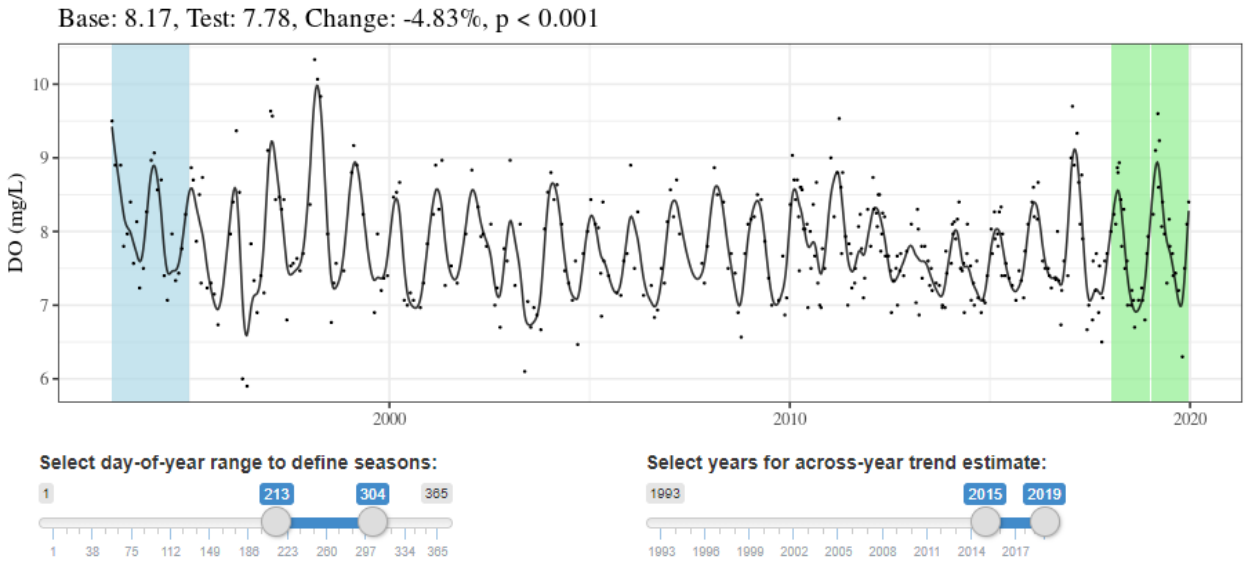
This publication reports on a 1.5-year biweekly program that compared water quality at the edge of the Bay to the regular sample collection along the bay's channel by USGS. It was an attempt to test the "shoal hypothesis," that there are higher chlorophyll concentrations and lower nutrient concentrations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

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

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

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

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



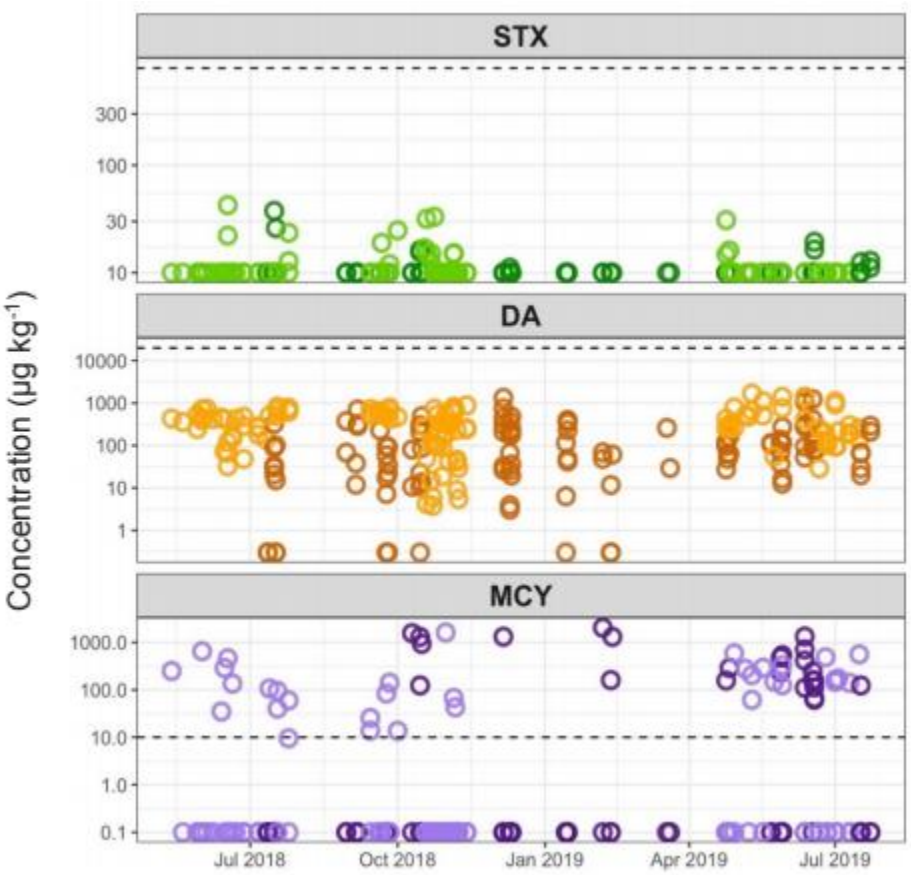

### *SFEI #8.* Bay-Delta Chlorophyll-a in situ Sensor and Sample Analysis Intercomparison. Aug 2020

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

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

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

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




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

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

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

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

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

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

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

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

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

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

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

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

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

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

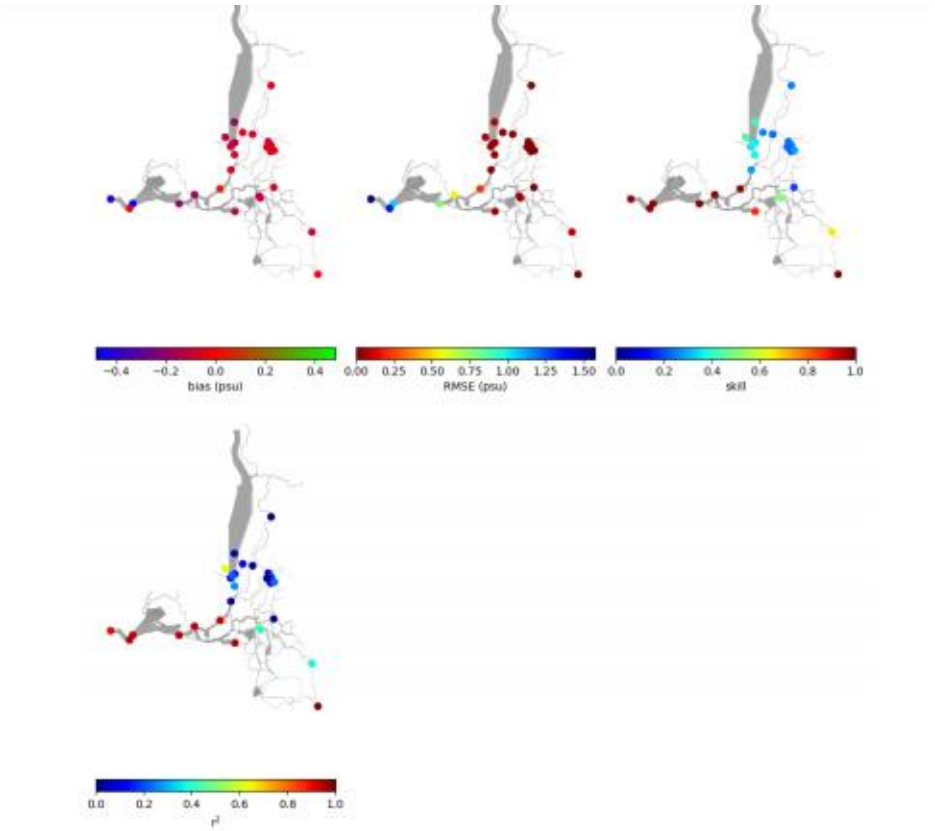
**Notes:**

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

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

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

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




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

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

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

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

# Uncertainty in Numerical Model Applications to Investigate Coastal Eutrophication: Workshop Description & Draft Agenda

**Targeted Dates: Webinar Series April 15- May 5, 2021**
**Virtual Workshop: ½ day in May-June, 2021**

**Workshop Format:** Virtual

**Workshop Organizers:** Southern California Coastal Water Research Project (Faycal Kessouri, Minna Ho, Martha Sutula), San Francisco Estuary Institute (Allie King, Farid Karimpour, David Senn), LA County Sanitation District (Phil Markle), City of San Diego (Ami Latker)

**Contact for Logistics**: uncertaintyinfo@sccwrp.org

## Background and Need for Workshop

Climate change and local anthropogenic inputs have been linked to heightened eutrophication in coastal ecosystems, including increased productivity, harmful algal blooms (HABs), coastal acidification and deoxygenation (CAD). In California, two separate efforts are independently using coastal coupled physical and biogeochemical numerical models to quantify the effect of land-based nutrients on eutrophication in the San Francisco Bay (San Francisco Nutrient Management Strategy) and the Southern California Bight and San Francisco and Monterey Coast (Ocean Protection Council CAD Modeling). The outcomes of these two modelling efforts could drive important management decisions on nutrient management, to the tune of billions of dollars. An inherent part of all modeling exercises is degree of uncertainty in the modeled predictions. For managers and policy makers to confidently use the model results, the uncertainty should ideally be smaller than the predicted change attributable to anthropogenic nutrients.

One component of assessing uncertainty is to conduct model performance assessments. In the case of the OPC-funded Coastal AD modeling, which is most advanced for the Southern California Bight, ocean observations of physics and biogeochemistry were compared against predictions from the ocean numerical model (regional ocean modeling system with biogeochemical elemental cycling (ROMS-BEC). However, managers are seeking additional information on other approaches to extend model validation to include uncertainty analyses and how to effectively incorporate that knowledge in how models are used to support management conversations.

## Workshop Goals, Format and Anticipated Products

The goals of this workshop are to:

1) Educate managers on basic approaches to estimating uncertainty in environmental numerical model applications used to investigate coastal eutrophication, including their technical requirements and inherent advantages/disadvantages.
2) Discuss the relevance of these approaches for ongoing investigations of effects of anthropogenic nutrient and carbon on productivity, harmful algal blooms, deoxygenation

and acidification in the San Francisco Bay estuary and the southern California Current System.

The format this workshop begins with 4 initial 90-minute webinars by coastal numerical modeling experts who lay the groundwork on approaches to quantifying uncertainty and who are not currently involved in the aforementioned California coastal applications.

After these webinars, a set of managers that represent the target audience will regroup and, aided by workshop organizers, develop a set of themes and key questions that should be addressed during a ½ day interactive workshop, featuring an expert discussion and interaction with an audience.

**Who Should Attend:**

- We recruited a set of technical staff and managers that represent coastal dischargers, EPA and Water Board, and natural resource agencies, as well as community science advisors, to serve as invited participants of the webinar and workshop series.
- Participation in both the webinar and workshop is open, which we would expect a larger subset of the intended audience above, as well as the interested public. This public participation mode is "listen-only." Participants can submit questions and comments through a chat feature on the webinar.

## PART 1: Webinar Series

**Objective:** To provide a foundation of education on uncertainty approaches, their inherent advantages and disadvantages, and specific examples of how it has informed science and management applications.

- **April 15, noon 2 pm.** Marjorie Friedrichs, VIMS, https://www.vims.edu/people/friedrichs_ma/
- **April 21, noon – 2 pm** Chris Edwards, UCSC, https://oceansci.ucsc.edu/faculty/index.php?uid=cedwards
- **April 28, noon – 2 pm** Samantha Siedlecki, University of Connecticut, https://marinesciences.uconn.edu/person/samantha-siedlecki/#
- **May 5, noon – 2 pm,** John Dunne (NOAA GPDL; https://www.gfdl.noaa.gov/john-p-dunne-home-page/

**PART 2: Workshop – Date TBD**

**Workshop Goals:** To provide a venue to discuss the uncertainty examples and concepts and draw out the advantages and disadvantages of their utility for nutrient management conversations in the Southern California Current coastal ecosystems (San Francisco Bay, San Francisco and Monterey Coast, Southern California Bight).

**Draft Workshop Agenda**

**8:30 am Welcome and Introductions, Virtual Meeting Protocols, Workshop Goals, Review of Agenda, and Introductory Remarks –** Stephen Weisberg, SCCWRP (facilitator)

Why Uncertainty Analyses?

- Synopsis of Local Anthropogenic Input Assessments in San Francisco Bay and the Southern California Bight (David Senn and Martha Sutula)
- POTW perspective (CASA)
- Water Quality Management (Water Board)
- Facilitated Discussion (All Invited participants)

**9:15 am Facilitated Discussion Theme 1 (TBD, based on interest and burning questions of webinar participants)**

- Panelist Lightning Talk #1 TBD
- Panelist Lightning Talk #2 TBD
- Facilitated Discussion (All Invited participants)

**10:00 Break**

**10:15 Facilitated Discussion Theme 2 (TBD, based on interest and burning questions of webinar participants)**

- Panelist Lightning Talk #3 TBD
- Panelist Lightning Talk #4 TBD
- Facilitated Discussion (All Invited participants)

**11:00 Facilitated Discussion Part III (TBD, based on interest and burning questions of webinar participants)**

- Panelist Lightning Talk #5 TBD
- Panelist Lightning Talk #6 TBD
- Facilitated Discussion (All Invited participants)

**11:30 General Questions from the Audience**

**11:50 Wrap Up, Reflections and Next Steps**

**12:00 Adjourn**

# UNCERTAINTY IN NUMERICAL MODEL APPLICATIONS TO MANAGE COASTAL EUTROPHICATION

**Spring 2021 Webinar Series and Workshop**

## Webinar Series and Workshop Goals

The goals of this virtual webinar series and workshop are to:

#1 Educate managers on basic approaches to estimating uncertainty in numerical model applications to investigate coastal eutrophication.

#2 Discuss the relevance of these approaches for ongoing investigations of effects of land-based nutrients San Francisco Bay estuary and the southern California Current System.

## Who Should Attend? How to Sign Up?

**Who Should Attend:** Scientists, staff of California sanitary agencies, stormwater agencies, water quality regulatory and natural resource agencies.

**To sign up for our listserve and get updates,** go here.

**To review background materials,** go here

**Why Uncertainty?** Two separate efforts are independently using coupled physical and biogeochemical numerical models to quantify the effect of land-based nutrients on eutrophication in the San Francisco Bay (San Francisco Nutrient Management Strategy) and on the California Coast (Ocean Protection Council Coastal Ocean Acidification and Hypoxia (OAH) Modeling). The outcomes of these modelling research programs could drive important management decisions on nutrient management, to the tune of billions of dollars. For managers and policy makers to confidently use the results of the model, the model uncertainty would ideally be smaller than the change that model is predicting is attributable to anthropogenic nutrients. Managers are seeking information on approaches to take this uncertainty analyses to the next level and its effective use in how models are used to support management conversations.

## WEBINAR SERIES: APRIL 15- MAY 5, 2021

*REGISTER NOW FOR OUR FIRST WEBINAR*

***Marjorie Friedrichs, Ph.D.***
Professor, Virginia Institute of Marine Science (VIMS)

**When: Apr 15**
**12pm-2pm PST**
**Register here**

Dr. Friedrichs combines numerical models and observations to quantify the impacts of climate, land-use change and management on hypoxia, acidification, and biogeochemistry in coastal systems. Many of her current modeling projects involve studying historical and future changes in coastal acidification and hypoxia in the Chesapeake Bay. Through her ongoing collaborations with Chesapeake Bay Program managers as well as fisheries and aquaculture industry members, she continues to work to make her science relevant for Chesapeake stakeholders. Go here for more on her research.

**Talk Title: Quantifying and communicating model uncertainty: a Chesapeake Bay case study**

Numerical models are a primary tool used for environmental planning and strategic decision-making; however, because they represent a simplification of real-world systems, they are by definition characterized by uncertainty. Sources of model uncertainty can include a model's forcing, structure, parameters and assumptions. The quantification of this uncertainty can be further impacted by uncertainties in the data used to assess model skill. Communicating model uncertainty to managers and decision-makers can be a challenge, but is critical as uncertainty associated with environmental models has a direct impact on the capacity of decision makers to accurately evaluate and predict the response of ecosystems to management actions. In this webinar, model uncertainty will be examined in the context of a case study for the Chesapeake Bay.

## SAVE THE DATE FOR UPCOMING WEBINARS!

***Christopher Edwards, Ph.D.***
Professor, University of California, Santa Cruz
**When: Apr 21 12pm-2pm PST /**

Dr. Edwards conducts research in physical oceanography and ocean ecosystem dynamics, and geophysical fluid dynamics using numerical modeling and ocean observing systems. Go here for more on his research.

***Samantha Siedlecki, Ph.D.***
Professor, University of Connecticut
**When: Apr 28 12pm-2pm PST /**

Dr. Siedlecki is a biogeochemical oceanographer who uses numerical models to understand mechanism and influences on biogeochemical dynamics in coastal ocean ecosystems. Go here for more information on her research.

***John Dunne, Ph.D.***
Oceanographer, NOAA Geophysical Fluid Dynamics Lab, Princeton, NJ
**When: May 05 12pm-2pm PST /**

Dr. Dunne is an expert in ocean biogeochemistry, climate, and earth system modeling with 30 years of experience developing instruments, collecting field observations, and performing analysis and modeling studies. Go here for more information.

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### Half Day Virtual Workshop and Expert Panel Discussion:
***Date and Information Coming Soon!***

The virtual workshop will consist of a Panel of scientists, modelers and agency staff that discuss the key benefits and limitations of uncertainty approaches for the two California coastal modeling research programs. Selected panelists will give short, summary talks and the facilitator will engage the group in discussion on questions related to the workshop theme and from the audience. The ultimate goal is to educate workshop attendees on what uncertainty approaches are relevant and how could they be specifically used to inform the key management questions.

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### Questions?
***Contact Us At uncertaintyinfo@sccwrp.org***

***Workshop Organizing Team***

Allie King, Farid Karimpour, David Senn, San Francisco Estuary Institute

Minna Ho and Faycal Kessouri, Martha Sutula, Southern California Coastal Water Research Project

Phil Markle, LA County Sanitation District

Ami Latker, City of San Diego

Lorien Fono, Bay Area Water Quality Agencies

# Planning Subcommittee Meeting No. 55
# March 3, 2021
# 9:00 am – 12:00 pm
# Teleconference
# Chair: Ian Wren
# Meeting Notes

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

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

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

   - Ian to develop revised Blueprint Actions for off-line review and finalization at the April PS meeting. Share with Google docs for version control.

3. Other Updates

   *Science program update – Dave gave an update on monitoring work, including a sediment core lab set up in SFEI's garage. Dave has hired a program manager for the nutrient management strategy, Lisa Hunt. She has an engineering background and a PhD from UC Berkeley where she studied pesticide impacts on benthos assemblages. The position is 50% program manager and 50% science. Her start date is March 29.*

   *CCMP Nutrient*
   *The group will develop the Estuary Blueprint Nutrient Actions via email, and co-edit a document via Google Docs. Ian will kick off this process by developing a list of bullets for the group to consider.*

   *Discussion of LSB condition and assessment program planning and*

   Overall goals:
   1. Develop improved level of clarity on decision and decision goals. What, when, confidence.
   2. Updates on SciencePlan2.0 needs by FY2024 (and beyond), and specifically work needed for FY2022.
   3. To the degree possible, based on above, develop clarity and agreement about science needs and science program over time (including post-FY2024).

   For today, we need a clear plan for developing mechanistic dose-response effort for FY2022, informed by FY2024 and beyond needs, a plan for developing approach to addition LSB/slough/DO monitoring, and goals/sequence/timeline for addressing priorities.

   Dave and Derek gave an update on LSB mechanistic work. Dave walked through the different permit options. There was a discussion about the value of option 0, the "do nothing" option,

and how the chart could be used to communicate with stakeholders. It was noted that future funding is uncertain, which is something we need to consider when deciding to push off decision making past 2024. Derek walked the group through different work elements, where we are now and where we expect to be in 2-3 years and in 5-7 years. There was a discussion about how the LSB ponds could be managed to prevent low DO and that we need to do more study of the salt ponds to figure this out. Eric responded that we need more engagement from the restoration community in order to proceed with that approach. Dave noted that the preferred management approach may be to increase flushing, which will decrease denitrification even as it moves the nitrogen from the immediate area. There was general support among the attendees for the more long-term science plan. The next step is to develop longer term workplan along with proposed budgets.

Ian responded to the memo circulated by the Water Board on their recommended data needs. Kevin clarified that they are not proposing to study every slough in the South Bay and that we need to decide which sloughs to focus on. SFEI staff will work with the Water Board to identify potential slough sites.

Ian showed a list of potential indicators. There was a discussion about minimum DO and how it differs from acute DO. It's an instantaneous minimum. It wasn't used in Suisun march because eutrophication wasn't a driver of low DO there. The purpose of a DO range is to identify areas where there are large daily swings, and therefore a strong eutrophication signal. For the list of indicators, it's worth going through and making a decision about which ones are useful. For ammonia, it was noted that we already have effluent ammonia data, so it's unnecessary as an indicator.

Derek presented a slide showing that we can install less expensive sensors that only monitor oxygen and temperature, and that could be strategically implemented. The cost for these is $50k capital + $30-40K operational/data handling for 6 sensors (compared with $165 capital + $55-65K operational/data handling for the high cost sensors).

Next meeting we'll discuss the assessment issues in the open Bay.

*4. Planning the next steering committee meeting*

There was a discussion about whether we should postpone the March Steering Committee meeting to April and combine with an NTW meeting. The group decided to cancel the meeting, with the idea that Steering committee members would attend the NTW to get updates on the science. The group chose a few dates in late April/early May to send out a doodle to the NTW list to choose the best date. For microcystin, it was noted that we probably can use species composition/abundance as an indicator but toxin levels could be. However, there is not a strong mechanistic linkage between nutrients and HABs.

*5. Action items:*

- Ian to develop revised Blueprint Actions for off-line review and finalization at the April PS meeting. Share via Google docs for version control.
- Ian to send out a doodle for the April/May NTW meeting.

- SFEI to Develop multi-year mechanistic dose-response workplan along with proposed budgets.
- SFEI staff will work with the Water Board to identify potential slough sensor sites.

6. Adjourn or address Parking Lot items

Parking Lot of Identified PS Future Agenda Items

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

| | | | | | |
|---|---|---|---|---|---|
| | | | **2021 Participation Fee Per Bid:** | | **$387.84** |
| | | | **Total bid participation count:** | | **190** |
| | | | **Total billing** | | **$73,689.60** |

| Agency Count | Region | Agency | Chemical | Bid Count | Agency Participation Fee |
|---|---|---|---|---|---|
| | **Central Valley** | | | | |
| **1** | | **City of Lathrop (Veiola NA)** | | 2 | $775.68 |
| | | | Citric Acid | | |
| | | | Sodium Hypochlorite 12.5% | | |
| **2** | | **City of Merced** | | 2 | $775.68 |
| | | | Ferric Chloride | | |
| | | | Sodium Hypochlorite 12.5% | | |
| **3** | | **City of Stockton** | | 7 | $2,714.88 |
| | | | Aqueous Ammonia | | |
| | | | Calcium Nitrate | | |
| | | | Citric Acid | | |
| | | | Ferric Chloride | | |
| | | | Sodium Bisulfite | | |
| | | | Sodium Hydroxide | | |
| | | | Sodium Hypochlorite 12.5% | | |
| **4** | | **City of Turlock** | | 2 | $775.68 |
| | | | Sodium Bisulfite | | |
| | | | Sodium Hypochlorite 12.5% | | |
| **5** | | **Oakwood Lake Water District** | | 2 | $775.68 |
| | | | Ferric Chloride | | |
| | | | Sodium Hypochlorite 12.5% | | |
| | **East Bay** | | | | |
| **6** | | **Alameda County Water District** | | 5 | $1,939.20 |
| | | | Aqueous Ammonia | | |
| | | | Ferric Chloride | | |
| | | | Hydrofluosilicic Acid (Fluoride) | | |
| | | | Sodium Hydroxide | | |
| | | | Sodium Hypochlorite 12.5% | | |
| **7** | | **City of Hayward** | | 5 | $1,939.20 |
| | | | Ammonium Sulfate | | |
| | | | Citric Acid | | |
| | | | Ferric Chloride | | |
| | | | Sodium Hydroxide | | |
| | | | Sodium Hypochlorite 12.5% | | |
| **8** | | **City of San Leandro** | | 2 | $775.68 |
| | | | Ferric Chloride | | |
| | | | Sodium Hypochlorite 12.5% | | |
| **9** | | **East Bay Dischargers Authority** | | 1 | $387.84 |
| | | | Sodium Bisulfite | | |
| **10** | | **Oro Loma Sanitary District** | | 3 | $1,163.52 |
| | | | Ferric Chloride | | |
| | | | Sodium Bisulfite | | |
| | | | Sodium Hypochlorite 12.5% | | |
| **11** | | **Union Sanitary District** | | 2 | $775.68 |
| | | | Ferrous Chloride | | |
| | | | Sodium Hypochlorite 12.5% | | |
| | **Marin Sonoma Napa** | | | | |
| **12** | | **Central Marin Sanitation Agency** | | 4 | $1,551.36 |
| | | | Calcium Nitrate | | |
| | | | Ferric Chloride | | |
| | | | Sodium Bisulfite | | |

| | | | | |
|---|---|---|---|---|
| | | Sodium Hypochlorite 12.5% | | |
| **13** | **City of Mill Valley - Sewerage Agency of Southern Marin** | Sodium Hypochlorite 12.5% | 1 | $387.84 |
| **14** | **Las Gallinas Valley Sanitary District** | Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | 3 | $1,163.52 |
| **15** | **Marin Municipal Water District** | Aqueous Ammonia<br>Ferric Chloride<br>Hydrofluosilicic Acid (Fluoride)<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | 4 | $1,551.36 |
| **16** | **Napa Sanitation District** | Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | 4 | $1,551.36 |
| **17** | **North Marin Water District** | Ferric Chloride<br>Liquid Chlorine<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | 4 | $1,551.36 |
| **18** | **Sanitary District No. 5 of Marin County** | Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | 2 | $775.68 |
| **19** | **Sausalito Marin City Sanitary District** | Calcium Nitrate<br>Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | 4 | $1,551.36 |
| **North Bay** | | | | |
| **20** | **Central Contra Costa Sanitary District** | Aluminum Sulfate<br>Sodium Hypochlorite 12.5% | 2 | $775.68 |
| **21** | **City of Antioch** | Aluminum Sulfate<br>Ammonium Sulfate<br>Hydrofluosilicic Acid (Fluoride)<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | 5 | $1,939.20 |
| **22** | **City of Brentwood** | Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | 2 | $775.68 |
| **23** | **City of Martinez** | Aluminum Sulfate<br>Ammonium Sulfate<br>Hydrofluosilicic Acid (Fluoride)<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | 5 | $1,939.20 |
| **24** | **City of Pinole (Pinole/Hercules WPCP)** | Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | 3 | $1,163.52 |
| **25** | **City of Pittsburg** | Aluminum Sulfate<br>Ammonium Sulfate<br>Hydrofluosilicic Acid (Fluoride) | 5 | $1,939.20 |

| | | | | |
|---|---|---|---|---|
| | | Liquid Chlorine<br>Sodium Hydroxide | | |
| **26** | **Contra Costa Water District** | | 4 | $1,551.36 |
| | | Aluminum Sulfate<br>Hydrofluosilicic Acid (Fluoride)<br>Liquid Chlorine<br>Sodium Hypochlorite 12.5% | | |
| **27** | **Delta Diablo Sanitation District** | | 4 | $1,551.36 |
| | | Aluminum Sulfate<br>Ferrous Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | | |
| **28** | **Diablo Water District** | | 2 | $775.68 |
| | | Hydrofluosilicic Acid (Fluoride)<br>Sodium Hypochlorite 12.5% | | |
| **29** | **Ironhouse Sanitary District** | | 3 | $1,163.52 |
| | | Aluminum Sulfate<br>Citric Acid<br>Sodium Hypochlorite 12.5% | | |
| **30** | **Mt. View Sanitary District** | | 1 | $387.84 |
| | | Ferrous Chloride | | |
| **31** | **Pleasant Hill Recreation & Park District** | | 1 | $387.84 |
| | | Sodium Hypochlorite 12.5% | | |
| **32** | **Rodeo Sanitary District** | | 2 | $775.68 |
| | | Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | | |
| **33** | **Town of Discovery Bay CSD** | | 1 | $387.84 |
| | | Sodium Hypochlorite 12.5% | | |
| **34** | **West County Wastewater District** | | 3 | $1,163.52 |
| | | Ferric Chloride<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| | **Peninsula** | | | |
| **35** | **City of Burlingame** | | 1 | $387.84 |
| | | Sodium Hypochlorite 12.5% | | |
| **36** | **City of Daly City/North San Mateo County Sanitation District** | | 4 | $1,551.36 |
| | | Aqueous Ammonia<br>Ferrous Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | | |
| **37** | **City of Millbrae** | | 2 | $775.68 |
| | | Ferric Chloride<br>Sodium Hypochlorite 12.5% | | |
| **38** | **City of San Mateo** | | 3 | $1,163.52 |
| | | Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | | |
| **39** | **City of South San Francisco** | | 3 | $1,163.52 |
| | | Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | | |
| **40** | **Sewer Authority Mid-Coastside** | | 3 | $1,163.52 |
| | | Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | | |
| **41** | **Silicon Valley Clean Water (SVCW)** | | 4 | $1,551.36 |
| | | Calcium Nitrate<br>Ferric Chloride | | |

| | | | | |
|---|---|---|---|---|
| | | Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | | |
| **Sacramento** | | | | |
| **42** | **Carmichael Water District** | | 2 | $775.68 |
| | | Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **43** | **City of Roseville** | | 6 | $2,327.04 |
| | | Aluminum Sulfate<br>Aqueous Ammonia<br>Ferric Chloride<br>Hydrofluosilicic Acid (Fluoride)<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **44** | **City of Sacramento** | | 6 | $2,327.04 |
| | | Aluminum Sulfate<br>Hydrofluosilicic Acid (Fluoride)<br>Liquid Chlorine<br>Sodium Bisulfite<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **45** | **City of Yuba City** | | 7 | $2,714.88 |
| | | Aluminum Sulfate<br>Citric Acid<br>Hydrofluosilicic Acid (Fluoride)<br>Liquid Chlorine<br>Sodium Bisulfite<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **46** | **El Dorado Irrigation District** | | 3 | $1,163.52 |
| | | Aluminum Sulfate<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **47** | **Nevada Irrigation District** | | 3 | $1,163.52 |
| | | Aluminum Sulfate<br>Sodium Hydroxide<br>Sodium Hypochlorite 5.25% | | |
| **48** | **Rancho Murieta Community Services District** | | 4 | $1,551.36 |
| | | Aluminum Sulfate<br>Liquid Chlorine<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **49** | **Sacramento County Water Agency** | | 3 | $1,163.52 |
| | | Hydrofluosilicic Acid (Fluoride)<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **50** | **Woodland-Davis Clean Water Agency** | | 4 | $1,551.36 |
| | | Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **South Bay** | | | | |
| **51** | **City of Morgan Hill** | | 1 | $387.84 |
| | | Sodium Hypochlorite 12.5% | | |
| **52** | **City of San Jose** | | 1 | $387.84 |
| | | Ferrous Chloride | | |
| **53** | **City of Sunnyvale** | | 4 | $1,551.36 |
| | | Ammonium Sulfate<br>Sodium Bisulfite | | |

| | | | | |
|---|---|---|---|---|
| | | Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| **54** | **City of Watsonville** | | 2 | $775.68 |
| | | Ferric Chloride<br>Sodium Hypochlorite 12.5% | | |
| **55** | **San Jose - Santa Clara Regional Wastewater Facility** | | 5 | $1,939.20 |
| | | Aluminum Sulfate<br>Aqueous Ammonia<br>Ferric Chloride<br>Sodium Bisulfite<br>Sodium Hypochlorite 12.5% | | |
| **56** | **Valley Water (Santa Clara Valley Water District)** | | 1 | $387.84 |
| | | Aqueous Ammonia | | |
| | **Tri Valley** | | | |
| **57** | **City of Dublin** | | 1 | $387.84 |
| | | Sodium Hypochlorite 12.5% | | |
| **58** | **City of Livermore** | | 2 | $775.68 |
| | | Ferric Chloride<br>Sodium Hypochlorite 12.5% | | |
| **59** | **City of Pleasanton** | | 2 | $775.68 |
| | | Ammonium Sulfate<br>Hydrofluosilicic Acid (Fluoride) | | |
| **60** | **Dublin San Ramon Services District** | | 6 | $2,327.04 |
| | | Aluminum Sulfate<br>Aqueous Ammonia<br>Citric Acid<br>Ferrous Chloride<br>Hydrofluosilicic Acid (Fluoride)<br>Sodium Hypochlorite 12.5% | | |
| **61** | **Zone 7 Water Agency** | | 5 | $1,939.20 |
| | | Aluminum Sulfate<br>Aqueous Ammonia<br>Ferric Chloride<br>Sodium Hydroxide<br>Sodium Hypochlorite 12.5% | | |
| | | **Total bid paricipation count:** | **190** | |
| | | **Total billing** | | **$73,689.60** |

# State Water Resources Control Board

To all Wastewater Agencies and Interested Individuals:

2018 WASTEWATER USER CHARGE SURVEY REPORT

The State Water Resources Control Board (State Water Board) has conducted its biennial survey of sewer rates and connection (capacity) fees. A total of 917 questionnaires were distributed to various wastewater agencies, of which 622 questionnaires were completed and returned for use in the Calendar Year (CY) 2018 survey. The survey was conducted from November 12, 2018 to March 15, 2019. Please note that this year's survey period is Calendar Year compared to previous surveys which were done using the State Fiscal Year.

Users should also note that the survey data is shown as submitted. Although care was taken to correct errors, the data submitted by the respondents was not independently verified.

This year's survey results are presented in a new format. The results are available in spreadsheet format through an open data portal using data.ca.gov. Use the hyperlink below to download all of the data submitted by each participating agency.

California Open Data Portal

A data visualization tool called Tableau Public was also used to help show the data and its trends. The data includes survey results back to the 2012-2013 survey. Interested parties have the capability to sort and filter the data. Visit the hyperlink below to explore the new data visualization tool.

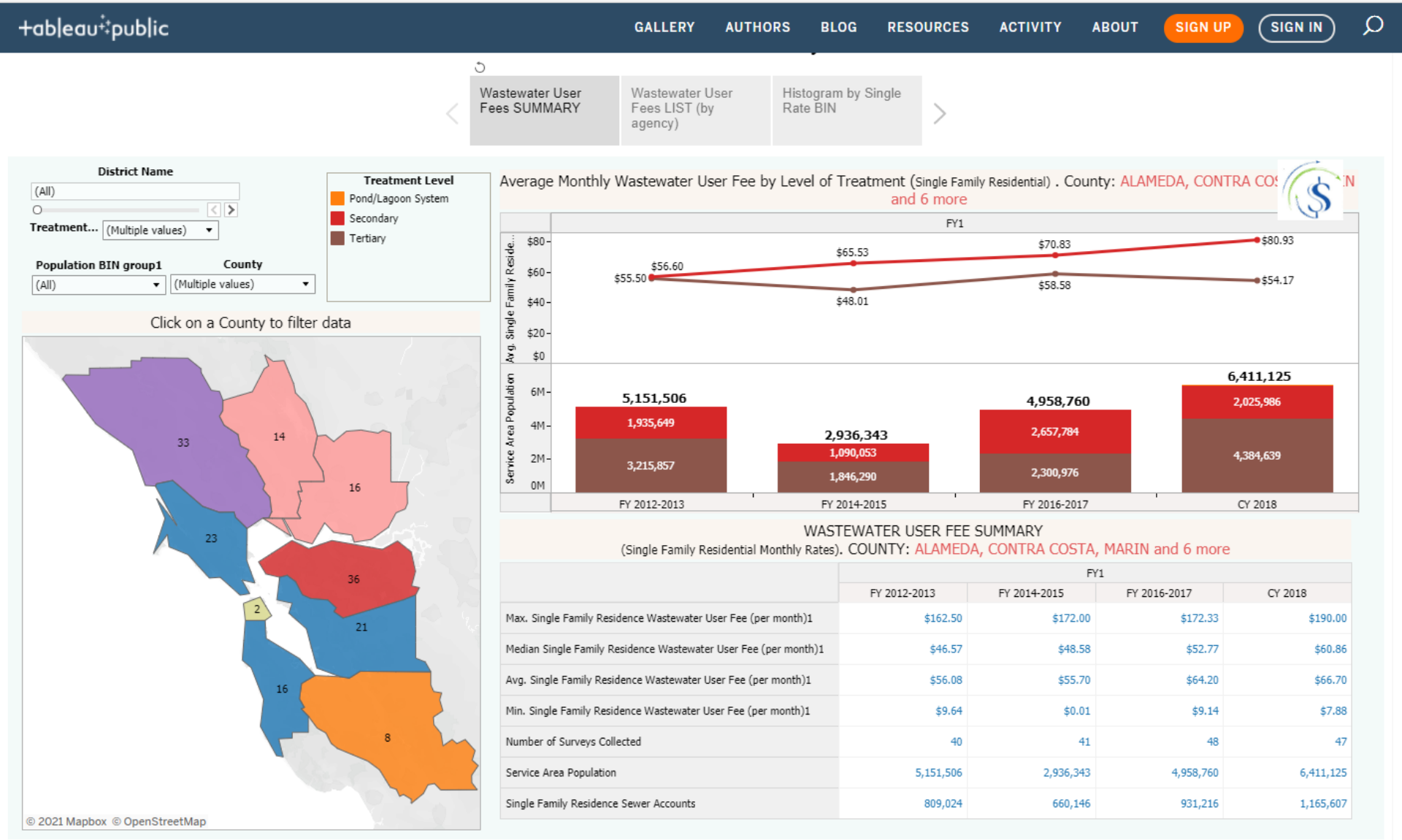
Tableau Public

If you have any questions about this report, please contact Mr. Melky Calderon at (916) 341-5646 or at DFA-Survey@waterboards.ca.gov.

Sincerely,

Leslie S. Laudon, Deputy Director
Division of Financial Assistance

Example output from *Tableau Public* –
https://public.tableau.com/profile/rafael.maestu#!/vizhome/WastewaterSurvey12-18PUBLICAGENCIES/Story1




WASTEWATER USER FEE SUMMARY
(Single Family Residential Monthly Rates). COUNTY: ALAMEDA, CONTRA COSTA, MARIN and 6 more

| | FY1 | | | |
|---|---|---|---|---|
| | FY 2012-2013 | FY 2014-2015 | FY 2016-2017 | CY 2018 |
| Max. Single Family Residence Wastewater User Fee (per month)1 | $162.50 | $172.00 | $172.33 | $190.00 |
| Median Single Family Residence Wastewater User Fee (per month)1 | $46.57 | $48.58 | $52.77 | $60.86 |
| Avg. Single Family Residence Wastewater User Fee (per month)1 | $56.08 | $55.70 | $64.20 | $66.70 |
| Min. Single Family Residence Wastewater User Fee (per month)1 | $9.64 | $0.01 | $9.14 | $7.88 |
| Number of Surveys Collected | 40 | 41 | 48 | 47 |
| Service Area Population | 5,151,506 | 2,936,343 | 4,958,760 | 6,411,125 |
| Single Family Residence Sewer Accounts | 809,024 | 660,146 | 931,216 | 1,165,607 |

Recycled Water Committee –
Report to BACWA Board

Recycled Water Committee Meeting on: 03/30/2021
Executive Board Meeting Date: 04/16/21
Committee Chairs: Stefanie Olson, Reena Thomas

**Committee Request for Board Action: none**

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

**Regional Recycled Water Evaluation Update**

Mike Falk (HDR) provided an update on the Regional Recycled Water Evaluation. The project team is preparing individual plant reports and will reach out to agencies by early summer. To capture uncertainty, the report will indicate an agency's "level of confidence" in project implementation.

**Regulation of Direct Potable Reuse**

Carrie Del Boccio (Woodard & Curran) provided a brief overview of draft criteria for direct potable reuse recently released by the State Water Board. These criteria will be used to develop regulations by December 2023 for raw water and treated water augmentation projects. Comments are due June 25th, 2021. Key elements of the criteria include a requirement for the responsible party to be a public water system; log removal requirements for pathogens; and requirements for three sets of barriers for chemical control as well as enhanced source control.

**Cross Connection Control Policy Handbook Update**

DDW has released draft updated cross connection control regulations. This handbook governs procedures such as air gaps with potable water systems, cross-connection and backflow testing procedures, and certification for specialists. It also covers new regulations for use of the swivel-ell. Delta Diablo and DSRSD are planning to submit comment letters and will share with the group in case others wish to submit similar letters. Comments are due by April 27, 2021.

**Bay Area Recycled Water Landscape Guide**

Eric Hansen of SVCW presented a draft of this technical resource for landscape irrigation with recycled water. Eric Hansen is transitioning from SVCW to the private sector, so notes on major errors may be directed to ED Lorien Fono, who is now the project manager. BACWA plans to coordinate with WateReuse through final publication as an electronic document.

**Virtual Recycled Water Use Site Supervisor Training**

Stefanie Olson provided an update on a small group of members that convened to plan content for a virtual recycled water use site supervisor training.

**Recycled Water Annual Reports**

This is the first year for preparing annual recycled water reports under the new statewide general order instead of 96-011, and the group discussed some monitoring and reporting requirements that differ between the old and new orders. Regional Water Board staff member Melissa Gunter provided guidance on meeting the requirements for use area monitoring and reporting and pond system monitoring, and encouraged members to reach out with questions.

**Legislation and Regulatory Update**

Notable recycled water legislation in 2021 includes a resources bond for the 2022 ballot (SB-45 and AB-1500) and tightened water use efficiency standards (AB-1434).

**Announcements**

- SD5 of Marin County is now authorized to use treated wastewater for sewer cleaning, and other agencies were encouraged to do the same.
- The San Francisco Estuary Partnership is updating the Estuary Blueprint, which includes a section regarding recycled water. Draft language will be provided at the May 2021 meeting. More information about the 2021 update is available here.

**Next Meeting** – Tuesday, May 18th, 2021, 10:30 am

AIR Committee –
Report to BACWA Board

AIR Committee Meeting on: 3/31/2021
Executive Board Meeting Date: 4/16/2021
Committee Co-Chairs: Nohemy Revilla and Randy Schmidt

**Committee Request for Board Action: Provide direction on engaging BAAQMD leadership.**

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

On December 22, 2020, BAAQMD issued new Best Available Control Technology (BACT2) for standby IC engines greater than or equal to 1000 bhp to require Tier 4 engines. (Please refer to the attached documents for details) According to BAAQMD, this new BACT2 even applies to new/open applications deemed complete after January 1, 2020. This has caught several facilities that were still in the application process. BACWA will draft a letter to BAAQMD to outline the impact of this change on POTWs, referencing specific member examples. On December 22, 2020, BAAQMD issued new Best Available Control Technology (BACT) for standby IC engines greater than or equal to 1000 bhp to require Tier 4 engines. BACWA compiled and delivered a letter summarizing the impacts and the diversion from BAAQMD's Rules in its application, then met with BAAQMD staff on March 5th. BAAQMD hosted a webinar March 29th to explain the new BACT and their position. (Please refer to BACT Determination and BACT FAQs). Central San and the City of San Mateo were immediately impacted and have been working with BAAQMD to reach a facility-specific determination – each summarized their situations. Additionally, the City of San Jose explained how its system functions in light of their Tier 4 engines being cited as part of the basis for BAAQMD determining the engines as "achieved in practice". Many concerns have been raised since the announcement of the BACT determination and its retroactive application – specific issues include:

- With the precedent now set for backdating the application of a new BACT determination, there is now uncertainty with future planning efforts and an expectation that BACT can change without prior notice.
- With the lack of transparency on the development and announcement of the new BACT as permit applications were being reviewed and deemed complete, the importance and need for a more collaborative relationship with BAAQMD leadership and staff in order to work proactively together is underscored.
- Questioning the utility of the BACT/TBACT Guidebook, given BACT can now change without prior notice.
- Considering whether to engage with CARB on this issue, given the lack of data supporting the finding that Tier 4 engines are achieved in practice or can sustain in an actual prolonged emergency, given the failure modes and failures experienced during recent natural disasters.

The AIR committee requests the BACWA Executive Board discuss these concerns further during the next Board meeting, April 16th.

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

This regulation targets methane reduction (40% by 2030 relative to 2013 methane levels) via diversion of organic waste from landfills to primarily anaerobic digestion or composting facilities (the products of which are to be recycled locally). The Office of Administrative Law approved the regulation November 9, 2020. State enforcement begins January 1, 2022, local enforcement begins January 1, 2024, and compliance is required by January 1, 2025. There is no delay in implementation at this time, but there is newly introduced legislation (SB 619) that could delay it by a year or more if adopted.

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**Air Toxics Updates**

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

All POTWs are in Phase II of the implementation schedule. The BAAQMD plans to send initial requests for information to Phase II facilities Q3 or Q4 of 2021, beginning with those plants having an estimated prioritization score >100. POTWs are expected to respond to the data requests within 2-4 months. See the Implementation Procedures dated August 2020.

**AB 617 Criteria Pollutant and Toxic Emissions Reporting (CTR) and AB 2588 Air Toxics "Hot Spots" Emission Inventory Criteria and Guidance (EICG) Updates**

CARB is working to align the CTR and EICG programs before final approval of the regulation. While some entities will begin reporting in 2023, CARB intends for the wastewater sector to have 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 quantify and report.

The 15-Day Changes (i.e., final draft regulations) were released for review March 30th with comments due by April 14th. CARB staff met with CASA (including BACWA) members April 2nd to discuss final questions and agree on an approach to confirm our interpretation of the regulations (allowing WWTPs to report business as usual until the two-step process is complete).

**BAAQMD Proposed Regulation 13: Climate Pollutants**

BAAQMD Proposed Regulation 13 targets methane (and VOC) reduction. Rule development under this regulation has been suspended due to COVID-19 and lack of data supporting the need for further reductions. However, BAAQMD continues to engage with BACWA in effort to develop a baseline understanding of current methane (and VOC) best management practices. This is an excellent opportunity to continue to educate and inform BAAQMD about POTW operations and the measures already in place to capture and reduce emissions. BAAQMD may simply incorporate BMPs as part of standard permit conditions and decided to not continue with rule development. BACWA will send out a survey to membership to identify and summarize BMPs that are already utilized. BAAQMD plans to revisit Regulation 13 in the fall of 2021 in light of the information collected from the survey to determine next steps.

**CARB Advanced Clean Vehicle Regulations**

The Advanced Clean Truck Rule was adopted in June 2020 and is the first of a multi-regulation effort targeting electrification. It requires one-time reporting for large entities that operate or dispatch vehicles with a manufacturer's gross vehicle weight rating (GVWR) greater than 8,500 lbs in California. It includes medium duty vehicles like vans and ¾-ton pickups such as the F250 or Ram 2500 and heavier vehicles of all configurations and fuel types, but does not apply to lighter vehicles like cars and light duty pickups. **The reporting deadline has been extended to May 1, 2021**. As you report your information to CARB, we ask that you include operational hours in addition to miles driven, as well as highlight specialty use vehicles and whether they are needed for emergency responses.

The Advanced Clean Fleet Rule targets zero-emission truck and bus fleets by 2045, with government entities identified as early adopters. The goal is to adopt the regulation by the end of 2021, with implementation by 2024. BACWA members weighed in on a comment letter CASA authored and submitted on the workshops held in early March providing information on the structure and approach to the rule.

The proposed Zero-Emission Forklifts Rule targets accelerating deployment of zero-emission technology in forklifts, with full implementation by 2035. While this regulation is in the early stages of development, it is anticipated to be considered by the CARB Board in early 2022. Early regulatory concepts focus on equipment phase-outs based on unit model year and size. CASA and the SCAP Air Committee are also tracking this regulation and have collected information via a short survey to understand its potential impact and how to respond on behalf of our sector.

**Member Updates**

The group discussed possible future BAAQMD/BACWA Leadership meeting topics, including implications of retroactive rules, status of WWTP nitrous oxides emissions research (requested by BAAQMD) and others.

**COVID-19: Regulatory Contingency Planning**

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

**Next AIR Committee Meeting: June 2, 2021**

**BAPPG Committee**
**Report to BACWA Board**

Meeting Date: April 7, 2021
Executive Board Meeting Date: April 16, 2021
BAPPG Chairs: Autumn Cleave, Robert Wilson

**Committee Request for Board Action:**

- none

**Detailed Committee Notes are available online.**

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

- Budget is on-track with 72% spent.
- OWOW is conducting trainings at Home Depot and local nurseries.
- TDC Environmental will support pesticide regulatory work through June 2021, after which Kelly Moran will be focusing exclusively on work at SFEI. BAPPG sent out a request for qualifications to find her replacement, due end of April. (30-day window)
- CWEA - Owen system is up and running— online learning portal where staff can receive unit credits. Some classes are free for members.

***SGA update***

- Last Spring's "flea and tick pesticides" campaign was replaced with "toilets are not trashcans" due to COVID-related issues. Collateral was already developed and reviewed by pesticides committee. No money was spent on creating collateral this year as it was reused.
- Bell-curve campaign started last week: apex is Earth week (April 18th will show the most ads then reduce after). We only pay for the ads that are presented.
- New to campaign: Google Response ads (uses AI to optimize campaign results). AI detects which ads are doing better, then show those more frequently. Limits SGA level of input so we can allocate more of the costs on ads. Ad resized to 1x1 or 4x1 ratio. The Google ad campaign targets 9 bay area counties. Final report expected at the end of May, early June
- SGA is updating Baywise website with a public friendly messaging on freezer packs based on information provided by Stephanie Hughes' letter of recommendations on what agencies should do with freezer packs. There will be no ad campaign for this message. Agencies can direct outreach to Baywise or pull information from there.

***Presentation on PFAS Decontamination***

Jen Jackson, Toxics Reduction and Healthy Ecosystem Program Manager, SF Dept Env.) gave a presentation on AFFF: "Tackling "Forever Chemicals" (PFAS).

- San Francisco still uses firefighting foam with PFAS (AFFF- class B foam with PFAS. Creates a blanket over the fire). Some departments don't use foam. SFFD Fireboats use PFAS firefighting foam and have a lot to dispose and need to research how to decontaminate tanks inside the boat. The Regional Water Board doesn't yet have guidance about how to manage PFAS decontamination waste.
- San Francisco Decontamination Pilot— mainly focusing on fireboats at Pier 26. Challenges include switching foams cause chemical reactions and clogs equipment, triple rinsing of tanks cause contamination with a high proportion of residual PFAS. San Francisco is trying to figure out how to dispose of the foam drained in buckets, how to rinse the boats, and how to manage both waste streams.
- SF is working with TRS on decontamination, cost is $35-$40k
- Some fire departments may not know if they're using PFAS foam, or be aware of the issues. Jen Jackson will put together a Google Form for agencies to collect fire department information and if they are using PFAS foam. Due next BAPPG meeting (June 2021).

**Next BAPPG General Meeting: June 2, 2021**

# Executive Director's Report to the Board

## March 2021

**NUTRIENTS**:

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

- Discussed NMS issues and FY22 funding level with Science Manager
- Discussed RW evaluation data collection issues with consultant
- Attended 3/3 Planning Subcommittee meeting, drafted and distributed meeting notes
- Continued to compile and develop presentation reporting responses from draft member survey on nutrient planning and implementation
- Planned and hosted 3/15 NST meeting
- Reviewed and commented on SOW for data analysis with HDR
- Discussed NMS and nutrient permitting issues with individual Executive Board members
- Hosted NTT meeting to review NMS reviewer Task 1 deliverable
- Discussed NMS reviewer Task 2, to support POTW perspective at modeling uncertainty workshop
- Discussed nutrient modeling uncertainty workshop with SFEI science manager
- Attended uncertainty modeling workshop planning meeting 3/30

**EXECUTIVE BOARD MEETING AND SUPPORT**

- Edited minutes and action items from 1/15 Executive Board meeting
- Worked with BACWA staff to plan and manage 3/19 Executive Board meeting
- Conducted the Executive Board meeting agenda review with the BACWA Chair and Vice-Chair
- Continued to track all action items to completion

**COMMITTEES:**

- Hosted 3/1 Managers Roundtable meeting
- Met with members to strategize meeting with BAAQMD staff, 3/4
- Met with BAAQMD staff to discuss retroactive BACT determination, 3/4
- Participated in 3/30 AIR committee meeting
- Participated in 3/31 Recycled Water Committee meeting

**REGULATORY:**

- Met with RPM and R2 staff to discuss climate change survey 3/8
- Met with RPM, RMP staff, and R2 staff to discuss AMR transition and sustainable CECs funding, 3/17
- Met with RPM and R2 staff to discuss concerns about SSS WDR update, 3/19
- Discussed general regulatory issues with R2 EO
- Participated in meeting with SCCWRP/SFEI on POTW microplastic study, 3/25
- Attended BAAQMD Webinar on diesel engine BACT, 3/29

**=FINANCE:**

- Reviewed the monthly BACWA financial reports, summary, and budget to actual tracking sheet for January 2020
- Worked with MAZE Consultants to finalize FY19 Internal Controls Audit
- Worked with AED to update proposed FY22 budget
- Updated 5-year plan
- Reviewed and approved invoices

**COLLABORATIONS:**

- Attended 3/3 SUWIR Seminar
- Participated in CASA Exfiltration strategy meetings on 3/3 and 3/24
- Participated in WW/NGO PFAS Workgroup 3/3
- Attended COVID-WEB workgroup meeting 3/5
- Participated in SFEP Implementation Committee meeting, 3/17
- Attended CASA RWG meetings on 3/18
- Participated in CASA CS WG meeting 3/17
- Attended CASA Microplastic Workgroup Meeting on 3/23
- Attended CASA debrief on SSS WDR discussions with SWB staff, 3/26

**ASC**

- Reviewed materials sent via email by ASC ED

**BABC:**

- Attended meeting on 3/1 and developed meeting summaries

**BACC:**

- Reviewed bid document language
- Discussed liability issues and approaches with attorney and AED

**BACCWE**

- Participated in BACWWE Executive Committee meeting
- Attended BACCWE General meeting 3/23

**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 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

# Board Calendar

May 2021 – June 2021 Meetings

| DATE | AGENDA ITEMS |
|---|---|
| May 21, 2021<br>Online Meeting 9-1pm | **Approval & Authorizations:**<br>• FY22 Staff contract amendment<br>• FY22 Other contract amendments<br><br>**Policy / Strategic Discussion:**<br>• Mike Connor NMS review \ FY22 contract<br>• PFAS Phase II<br>• Revised AMR<br><br>**Operational:**<br>• |
| June 18, 2021<br>Online Meeting 9-1pm | **Approvals & Authorizations:**<br>• Pesticides/BAPPG support contract<br>• FY22 Contracts<br><br>**Policy / Strategic Discussion:**<br><br>**Operational:** |
| July 16, 2021<br>Online Meeting 9-1pm | **Approvals & Authorizations:**<br>• **Pesticides/BAPPG support contract**<br>• **FY22 Contracts**<br><br>**Policy / Strategic Discussion:**<br><br>**Operational:** |

# BACWA ACTION ITEMS

| Number | Subject | Task | Responsibiity | Deadline | Status |
|---|---|---|---|---|---|
| | **Action Items from March 2021 BACWA Executive Board Meeting** | | **resp.** | **deadline** | **status** |
| 2021.3.31 | Draft agenda for April 2 joint meeting with R2 | ED to send out agenda | ED | 3/29/2021 | complete |
| 2021.3.32 | Proposed FY22 Budget | Prepare Final FY22 budget and workplan for April Meeting | ED / AED | 4/9/2021 | complete |
| 2021.3.33 | BACC Bid and proposed legal reserve | BACWA ED to bring BAR to next meeting to direct EBMUD to establish a BACC Legal Reserve. | ED | 4/9/2021 | complete |
| 2021.3.34 | Coordination with DPR | Reach out to Dr. Teerlink to identify a way to confirm operational flow and discharge flow rates for DPR Project #19-COO31, and review long term POTW monitoring proposal | ED/RPM | 4/1/2021 | complete |
| | | | | | |
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| | | | | | |
| | **Action Items Remaining from Previous BACWA Executive Board Meetings** | | | | |
| 2019.7.05 | Sewer Rate Survey | Post as Google Sheet, and publicize update | RPM | 8/31/2019 | pending |
| | | | | | |
| | | | | | |
| | | | | | |

FY21: 34 of 34 Action items completed
FY20: *69 of 70 Action Items completed*
FY19: *110 of 110 action Items completed*
FY18: *66 of 66 Action Items completed*
FY17: *90 of 90 Action Items completed*

# Regulatory Program Manager's Report to the Executive Board

**March 2021**

**BACWA BULLETIN**: Prepared and circulated March 2021 Bulletin; began preparation of April Bulletin.

**CLIMATE CHANGE**: Coordinated with Regional Water Board staff and climate change survey "test drivers" to discuss feedback from draft survey to be incorporated into final version.

**TOXICITY:** Prepared markup of toxicity provisions implementation language for Regional Water Board.

**NUTRIENTS:** Participated in Nutrient Technical Team meeting; reviewed tech memo prepared by Nutrient Management Strategy technical reviewer; attended Nutrient Strategy Team meeting; reviewed draft consultant scope for statistical analysis of nutrient loading data.

**COMMITTEE SUPPORT:**

**AIR**

- Coordinated with AIR committee regarding outreach to BAAQMD on BACT designation for emergency generators.
- Attended committee meeting; discussed methane management questions to be added to next biosolids survey

**BAPPG**

- Coordinated with CASQA and CVCWA regarding regulatory support for pesticides.
- Attended meeting of BACWA/BAPPG pesticides group.

**Collection System Committee**

- Continued to review Internal Staff Draft of Sanitary Sewer Systems Waste Discharge Requirements (SSS-WDR), and participated in CASA-led conference calls with CASA members and State Water Board staff.
- Prepared and circulated summary of Informal Staff Draft SSS-WDR to members.

**Laboratory**

- Assisted with planning for April 2021 TNI Training session.

**Permits**

- Coordinated with SFEI and Regional Water Board staff regarding evolution of the 2016 Alternate Monitoring & Reporting Program. Began preparing report containing technical details of monitoring reduction proposal.
- Began planning for April 2021 committee meeting

**Recycled Water**

- Assisted with planning for March 2021 meeting. Attended meeting; prepared summaries.
- Reviewed draft Bay Area Recycled Water Landscape Guide

**ADMINISTRATION/STAFF MEETING –** Participated in monthly staff meeting.

**BACWA MEETINGS ATTENDED**:
Nutrient Technical Team (3/4)
BAPPG Pesticides (3/9)
Nutrient Strategy Team (3/15)
Executive Board (3/19)
Recycled Water Committee (3/30)
AIR Committee (3/31)

**EXTERNAL EVENTS ATTENDED:**
CASA SSS-WDR Review (3/1, 3/4, 3/10, 3/11, 3/18, 3/23, 3/25)
COVID-WEB (3/5)
State Water Board - Climate Change (3/16)
CASA Collection Systems Group (3/17)
CASA Regulatory Workgroup (3/18)
CASAS Exfiltration Strategy Group (3/24)

## Lorien Fono

**From:** Jared Voskuhl <JVoskuhl@casaweb.org>
**Sent:** Friday, April 2, 2021 9:01 AM
**Subject:** [Regulatory] CASA April 2021 Regulatory Update

**Categories:** Board Packet

Good Morning,

Please find below regulatory updates from March and for April. Our next Regulatory Workgroup meetings will be held through Zoom on April 15. Please send along items you would like agendized, and let us know if you have any problems accessing the hyperlinked materials in this newsletter.

Thank you,
The RWG Team

# WATER

### Toxicity Study Stakeholder Advisory Committee Meeting

On March 24, the Cerio Study's Stakeholder Advisory Committee met to discuss study workplan materials to be reviewed by the Expert Panel, including a conceptual workplan centered around the within-lab variability aspect of the study and CASA's Cerio Study Participants Group's research memorandum focused on inter-lab variability. The Expert Panel is expected to provide their input and direction to the Southern California Coastal Water Research Project (SCCWRP) for their development of the formal detailed study workplan, ideally finalizing it by May. Meeting materials and recordings are available here. Please reach out to Jared Voskuhl with questions.

### SWB Releases Direct Potable Reuse Framework

On March 22, the State Water Resources Control Board (SWB/State Water Board) released their draft criteria for Direct Potable Reuse regulations in California. This action is an important milestone in the development of potable reuse regulations for California. Formal comments are due to the SWB on June 25. You may read the statement by Water Reuse California (WRCA), who will host a special workshop on April 14 to review the major provisions and determine what aspects to address in comments. Please reach out to Jared Voskuhl with your thoughts or contact WRCA directly if you are a member.

### 2020 Volumetric Reports due to SWB by April 30

On March 26, the SWB announced that the 2020 volumetric annual reporting module in GeoTracker is open for data submittal by wastewater and recycled water permittees (including wastewater

permittees that do not produce any recycled water) to report their monthly volumes of influent, wastewater produced, and effluent, including treatment level and discharge type.

With exception of one change, the 2020 format is the same as the prior year and requires the entry of volumes in acre-feet per month for influent, effluent and (if applicable) recycled water use. Regarding the one change, in response to WRCA and CASA's comment letter and outreach to the SWB's team, the discharge category for "Land" has been updated for clarification to read as, "Discharge to Land," in order to more fully capture instances of reuse that were not reported in the 2019 report but were in the 2015 survey.

You may view the SWB's Volumetric Reporting Webpage, which features a FAQ, Video Webinar, and a Help Guide. The Help Guide includes definitions for the categories and treatment levels, and it also has been updated to include conversion factors for gallons per day to acre feet per month and gallons per month to acre feet per month. For technical assistance with the volumetric annual report, please email Rebecca Greenwood at the SWB and their recycled water team.

**SSS WDR Workshops and Meeting with the SWB**

On April 13 and 16, State Water Board staff will host two workshops on the recently released informal staff draft of the sanitary sewer system waste discharge requirements (SSS WDR). The meetings Notice is available here. CASA held five internal meetings in February and March to discuss the informal draft in-depth. Subsequently, on March 26, a subgroup of members met with multiple representatives on the SWB's SSS WDR team to discuss the changes, learn more about their drivers, and present our concerns at a high-level. While there are numerous issues to work through, our members were buoyed by the meeting, how staff was receptive to preliminary comments, and the possibility to engage in a stakeholder roundtable process later in the spring. Please reach out to Jared Voskuhl with your thoughts or questions.

**SCCWRP Ocean Acidification Presentation and SFEI Webinars**

On March 5, the Southern California Coastal Water Research Project Commission (SCCWRP) held their quarterly public meeting, which featured several presentations of their work to develop a model for assessing biological effects for ocean acidification and hypoxia (OAH). The presentations are all available here.

Additionally, as detailed in the event flyer, beginning April 15, SCCWRP and the San Francisco Estuary Institute (SFEI) will be hosting over 4 weeks in April and May, a webinar series on uncertainty in OAH models. The series aims to address two separate and independent efforts using physical and biogeochemical numerical models to quantify the effect of land-based nutrients in the San Francisco Bay (San Francisco Nutrient Management Strategy) and on the California Coast (Ocean Protection Council Coastal OAH Modeling). The outcomes of these modelling research programs may drive important policy decisions on nutrient management. If you have questions, please reach out to Phil Markle (LACSD) and Ami Latker (City of San Diego). To join CASA's OAH subgroup, please reach out to Alma Musvosvi, CASA's Legislative and Regulatory Analyst.

**US EPA Draft NPDES White Paper on Water Recycling**

On March 26, USEPA representatives provided an update on National Water Reuse Action Plan (NWRAP), Action 2.2.6, and they released a draft White Paper pertaining to NPDES permitting challenges for recycled water, pursuant to the Previously, a Q&A document accompanied this effort, upon which CASA submitted comments, and subsequently the substantive Q&A content has been folded into this White Paper. Written comments are due by April 23, and the authors directed:

"Please think about whether we are touch on all the reuse-permitting issues and challenges that concern your organizations, and please help us identify specific illustrative examples of permitting flexibilities. Where possible, please include specific permit names/numbers/contacts when you mention a specific permit. Also, please keep in mind that an example illustrating how a particular permitting strategy was applied need not be for a recycling project, though we would like to include many examples that do address recycling-related settings. Please make your comments in track changes format with comments." Please reach out to Jared Voskuhl with your concerns and comments, or if you have technical questions, e-mail Dave Smith directly.

**CASQA Quarterly Meeting on 4/15 Focused Stormwater Capture and Reuse**

On April 15, the California Stormwater Quality Association will hold their quarterly meeting. This one will be focused on six different stormwater capture and reuse case studies from around the state. The event agenda is here, and you may register here.

**SCAP and CASA Submit Letter to R9 RWB on TTSO with HF 183**

On March 12, SCAP and CASA submitted a comment letter to the Region 9 San Diego Regional Water Quality Control Board (San Diego Water Board) with concerns about the appropriateness of HF 183 provisions in the San Diego Water Board's Tentative Time Schedule Order (R9-2021-0028). Please reach out to Steve Jepsen and Jared Voskuhl with any feedback, as HF 183 is cropping up in multiple regulatory contexts in the face of legitimate scientific concerns with how associated methods for it are deployed.

**SWB Releases Phase 4 Order for PFAS Sampling**

On March 12, the State Water Board released its next PFAS Order for one-time sampling by bulk terminals and refineries to determine whether soil, groundwater, surface water, and influent and effluent wastewater at their locations are impacted by PFAS. Please reach out to Jared Voskuhl if you have questions.

**Several PFAS Analytes Proposed for Review for Listing Under Prop. 65**

On March 26, the Office of Environmental Health Hazard Assessment (OEHHA) gave notice of its selection of several PFAS analytes for review and possible listing under Prop 65. The first Notice is for PFOS (including transformation and degradation precursors), and the second Notice is for PFDA, PFHxS, PFNA, and PFUnDA. Comments on both are due by May 10. Please contact Greg Kester and Jared Voskuhl with your questions or concerns.

**ELTAC Experimental Methods Subcommittee Holds Second Meeting**

On April 1, on the heels of their March 10 meeting, a subcommittee of the Technical Advisory Committee (ELTAC) for the SWB's Environmental Laboratory Accreditation Program (ELAP), met to continue their discussion for developing a process for ELAP to accredit non-approved, experimental methods for regulatory purposes. The meeting Notice is here. There currently are two working groups under this subcommittee. The first is reviewing guidance documents (e.g. US EPA's recommendations) and the second is working on a framework for a set of criteria for different types of non-approved methods. If you have questions or concerns about these meetings, you may contact Alma Musvosvi and your ELTAC reps: Sam Choi (Orange County Sanitation District), Sushmitha Reddy (Inland Empire Utilities Agency), and Josie Tellers (City of Davis).

**SWB CWSRF IUP Webinar on April 29 and 20-21 Fundable List Released**

On April 29, the State Water Board's Division of Financial Assistance (DFA) will be conducting a public workshop webinar to discuss the 2021 Clean Water State Revolving Fund (CWSRF) Intended Use Plans (IUPs). This is an opportunity to hear about the changes to the CWSRF Programs in this

year's IUPs and ask questions about the proposed changes. The workshop will also provide the status of the Programs, the proposed schedule for the State Water Board's consideration and approval of the IUPs, and the Division's implementation plans. If you wish to participate and ask questions or make comments orally during the webcast, you must register in advance to participate here. Or you may monitor the webcast here by following the link on the day of the webinar.

In mid-April, DFA anticipates posting the Notice of Opportunity to Comment for the proposed adoption and the Draft 2021-22 CWSRF IUPs on the State Water Board's website. For questions regarding the workshop, please contact Elisabeth Brown or Elnaz Nasaei.

Last, for your reference, on February 24, DFA released an updated report with the current versions of the CWSRF Comprehensive List and Fundable List. The list includes a complete and accurate index of projects that are fundable in accordance with 2020 CWSRF IUP. The report can be viewed on DFA's website. Please reach out to Jared Voskuhl with questions on any of these items.

### SWB Agenda Roundup

Here are the recent State Water Board agendas for their meetings on March 2 (PFBS NL, litigation closed session), March 16 (annual climate change update, annual regulation prioritization), and upcoming on April 6 (dredge & fill, Salton Sea). The Executive Director reports are available for February (toxicity stakeholder committee meeting, volumetric annual reporting, statewide policies) and March (toxicity expert panel meeting, volumetric annual reporting, wastewater based epidemiology, 2018 integrated reports, PFAS Phase 4 Order).

## BIOSOLIDS

### WBE Survey Request – Responses Due by 4/2

CASA is working in partnership with SCCWRP, the California Department of Public Health (CDPH), the State Water Board, and the California Water Quality Monitoring Council to enhance the value and use of our members Wastewater Based Epidemiology (WBE) investments. To help with that, we are conducting a survey which will take less than 10 minutes to complete and which will help us better understand how much sampling has been done in the state, the methods used to process those samples, the labs who analyzed them, and how available the data is to the Health Departments and other decision makers. The survey will provide us invaluable information toward CASA's effort to enhance the value of your data. The survey is available here. Please complete the survey by today, April 2, and reach out to Greg Kester with questions or if you need more time.

### SB 1383: Formal Rulemaking Comments/Responses & Procurement Q&A

On March 16, CalRecycle published all of the comments and their responses to them for the rulemaking to implement SB 1383. The documents are available here. Additionally, on March 9, CalRecycle provided answers to various questions about procurement under the SB 1383 regulations. The Q&A document is available here. If you have any questions or comments, please reach out to Greg Kester.

### WEF's Annual Biosolids Conference in May

The Water Environment Federation (WEF) will hold their annual biosolids conference this year virtually between May 11 and 13. The agenda is available here, and the opening general session will feature our sector's rebuttal to the US OIG biosolids report from November 2018. Greg Kester will moderate the session, which will include the rebuttal's main authors- Nick Basta (Ohio State), Ian

Pepper (Univ. of Arizona), Linda Lee (Purdue), along with Lis Resek (US EPA). We hope you are able to attend, and please reach out to Greg Kester if you have questions.

**EPA Biosolids Thickening Technologies Webinar on 4/28**

On April 28, the USEPA's next webinar in their biosolids series will be about thickening technologies and will cover gravity/settling, floatation, and filtration/screening and the technologies associated with these mechanisms. You may register here.

**EPA Biosolids Biennial Report No. 8 Now Available**

The EPA Biosolids Biennial Report No. 8 and fact sheet (reporting period 2018-2019) have been released and are posted on the EPA website. Both documents are linked here. If you have any questions or comments, please reach out to Greg Kester.

**Financial Support Available for CA Jurisdictions and Businesses**

CalRecycle has compiled a list of potential funding sources, employee training resources, and other financial incentives that recycling manufacturers, cities, counties, haulers, and businesses can access for a variety of projects and programs. Millions of dollars in public and private funding are available for infrastructure to reduce waste and cut greenhouse gas emissions in their communities. Please reach out to Greg Kester with questions.

**WEF Webcast on 4/1 re: PFAS in Municipal Biosolids**

WEF hosted a webcast on PFAS in Municipal Biosolids on April 1. You may register here. Sharing the results of recent research studies, the speakers include, Linda S. Lee (Purdue University), Jeff Prevatt (Pima County), Mike Person (Michigan DEQ), Ned Beecher, (NEBRA), and Maddy Fairley-Wax (Jacobs). Participants will learn about the occurrence of PFAS in municipal biosolids and how it compares to commercially available non-biosolids based products used as fertilizer or soil amendments. This webcast is the first in a three-part series on PFAS that various WEF committees will be hosting. Reach out to WEF's Mahia Qureshi with questions.

**WEF's New Director of Sustainable Biosolids Programs**

Maile Lono-Batura is WEF's new Director of Sustainable Biosolids Programs. In an episode of the "Words of Water" podcast, she shared her background and experiences serving as Executive Director of Northwest Biosolids for 22 years. The episode is available here.

**CASA Support for Pres. Biden's Initiative to Address Climate Resiliency in Agriculture.**

On March 16 CASA sent a letter to the EPA to offer support for and assistance with President Biden's initiative to address climate resiliency in agriculture. The letter is available here. If you have any questions or comments, please reach out to Greg Kester.

## DATES

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| Apr. 1 | SWB STORMS IC Meeting |

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| Apr. 1 | ELTAC Subcommittee for Experimental Methods |
| Apr. 6 | SWB Meeting |
| Apr. 12 | Cerio Study Expert Panel Meeting |
| Apr. 13 | SWB SSS WDR Workshop #1 |
| Apr. 14 | WateReuse DPR Framework Meeting |
| Apr. 15 | CASA Regulatory Workgroup |
| Apr. 15 | SCCWRP & SFEI OAH Webinar #1 |
| Apr. 15 | CASQA Quarterly Meeting |
| Apr. 16 | SWB SSS WDR Workshop #2 |
| Apr. 21 | SFEI Microplastics RMP Meeting |

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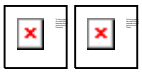
| Apr. 21 | SCCWRP & SFEI OAH Workshop #2 |
| Apr. 22 | CASA Air Quality, Climate Change, Energy Workgroup |
| Apr. 28 | SCCWRP & SFEI OAH Workshop #3 |
| Apr. 29 | SWB CWSRF IUP Webinar |
| May 4 | SWB Meeting |
| May 5 | SCCWRP & SFEI OAH Webinar #4 |
| May 5 | CWEA & CASA's Partnering for Impact |
| May 6 | California Water Quality Monitoring Council Meeting |
| May 7 | SCCWRP CTAG (Microplastics) |

May 19 SWB Workshop on Microplastics Methods for Drinking Water



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