BACWA
BAY AREA
CLEAN WATER
AGENCIES

Executive Board Meeting
AGENDA
Friday, May 18, 2018, 9:00 a.m. – 12:30 p.m.
Oro Loma Sanitary District
2655 Grant Ave., Board Room, San Lorenzo, CA
Note: A brief tour of the Microvi pilot project will immediately follow adjournment of the meeting

Agenda Item		Time	Pages
ROLL CALL AND INTRODUCTIONS		**9:00 AM**	
PUBLIC COMMENT		**9:03 AM**	
CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER		**9:04 AM**	
CONSENT CALENDAR		**9:05 AM**	
1 April 20, 2018, BACWA Executive Board Meeting Minutes			**3-10**
2 March 2018 Treasurer's Reports			**11-21**
APPROVALS & AUTHORIZATIONS		**9:06 AM**	
3 Approval: FY19 Staff Consulting Amendments/Agreements			**22-25**
4 Approval: Officers: Chair & Vice-Chair FY19			**26**
5 Authorization (ED): Legal & IT Support Amendments FY19			**27-30**
6 Approval: ASC/SFEI Representatives			**31**
OTHER BUSINESS - POLICY/STRATEGIC		**9:10 AM**	
7 Discussion: Nutrients			
a. Regulatory			
i. Optimization/Upgrade Update	DRAFT REPORT		**32-33**
ii. 2nd Watershed Permit Update			**34-38**
iii. Review of Approaches to Incentivizing Early Actions			
b. Technical Work			
i. Update on Monitoring			**39**
c. Governance Structure			
i. Planning Subcommittee Meeting #31 Debrief			**40-46**
8 Discussion: Update on the CEC Scientific Advisory Panel for Recycled Water	Findings		
	SCCWRP WaterBoard		
9 Discussion: Joint Meeting with Water Board Draft Agenda 6/1/18			**47**
10 Discussion: Biosolids Update - Regional and Statewide Issues	SB1383		
11 Discussion: Chlorine Residual Basin Plan Amendment Update			
12 Discussion: Comments for the Triennial Review of the Basin Plan			**48-68**
13 Discussion: Microplastics/Regional Monitoring Program Workshop Debrief	Draft Report		**69-91**
OTHER BUSINESS - OPERATIONAL		**11:30 AM**	
14 Discussion: Policy for Reimbursement of Donations by BACWA Participants			**92-93**
15 Discussion: Options for Supporting the Bay Area Biosolids Coalition			
16 Discussion: Succession Plan Review			**94-96**

REPORTS			**12:10 PM**	
17	Committee Reports	RW Policy Amendment		**97-100**
18	Member Highlights			
19	Executive Director Report			**101-109**
20	Regulatory Program Manager Report			**110-115**
21	Other BACWA Representative Reports			
	a. RMP TRC	Mary Lou Esparza		
	b. RMP Steering Committee	Karin North; Leah Walker; Eric Dunlavey		
	c. Summit Partners	Dave Williams; Lori Schectel		**116-117**
	d. ASC/SFEI	Laura Pagano; Dave Williams; Amit Mutsuddy; Karin North		**118**
	e. Nutrient Governance Steering Committee	Eric Dunlavey; Eileen White; Bhavani Yerrapotu; Lori Schectel		
	e.i Nutrient Planning Subgroup	Eric Dunlavey		
	e.ii NMS Technical Workgroup	Eric Dunlavey		
	f. SWRCB Nutrient SAG	Dave Williams	Webinar	
	g. SWRCB Focus Group – Mercury Amendments to the State Plan	Tim Potter; Laura Pagano; David Williams		
	h. NACWA Taskforce on Dental Amalgam	Tim Potter		
	i. BAIRWMP	Cheryl Munoz; Linda Hu; Dave Williams		
	j. NACWA Emerging Contaminants	Karin North; Melody LaBella		
	k. CASA State Legislative Committee	Lori Schectel		
	l. CASA Regulatory Workgroup	Lorien Fono		
	m. ReNUWIt	Jackie Zipkin; Karin North		
	n. RMP Microplastics Liaison	Nirmela Arsem		
	o. AWT Certification Committee	Maura Bonnarens,		
	p. Bay Area Regional Reliability Project	Eileen White		
	q. WateReuse Working Group	Cheryl Munoz;		
	r. San Francisco Estuary Partnership	Eileen White; Dave Williams		
	s. CPSC Policy Education Advisory Committee	Doug Dattawalker		
	t. California Ocean Protection Council	Lorien Fono		

22	**SUGGESTIONS FOR FUTURE AGENDA ITEMS**	**12:27 PM**	

NEXT MEETING **The next regular meeting of the Board is scheduled for June 15, 2018 from 9:00 am to 12:30 pm at SFPUC, 13th Floor, Hetch Hetchy Room, 525 Golden Gate Ave., San Francisco, CA.**	**12:28 PM**	

ADJOURNMENT	**12:30 PM**	

Executive Board Meeting Minutes

April 20, 2018

ROLL CALL AND INTRODUCTIONS

Executive Board Representatives: Lori Schectel (Central Contra Costa Sanitary District); Amit Mutsuddy (San Jose); Laura Pagano (SFPUC); Michael Connor (East Bay Dischargers Authority); Eileen White (East Bay Municipal Utility District).

Other Attendees:

Name	Agency/Company
Denise Connors	LWA
Dr. Jennifer Teerlink	California Dept of Pesticide Regulation
Eric Dunlavey	San Jose
Jennifer Krebs	AQPI
Karin North	City of Palo Alto
Karri Ving	SFPUC
Kelly Moran	TDC Environmental, LLC
Manon Fisher	SFPUC
Tom Hall	EOA, Inc.
Holly Kennedy	HDR
Amanda Roa	Delta Diablo
Greg Baatrup	Fairfield Suisun
Jim Graydon	Brown & Caldwell
Daniela Brandao	CH2MHill representing San Mateo
David Williams	BACWA
Lorien Fono	BACWA
Sherry Hull	BACWA

PUBLIC COMMENT

None.

CONSIDERATION TO TAKE AGENDA ITEMS OUT OF ORDER –Item 20, POTW Pesticide Sampling Efforts, was taken out of order as first on the Agenda. Item 9, Advanced Quantitative Precipitation Information (AQPI) X-Band Radar Funding, was also taken out of order as the second on the Agenda. Item 22, BACWA support for Bay Area Biosolids Coalition, was also taken out of order as third on the agenda.

CONSENT CALENDAR

1. March 16, BACWA Executive Board Meeting Minutes – The approved minutes will be posted on the BACWA website.

2. February 2018 Treasurer's Reports and Financial Summary – A Financial Summary Report was included in the Packet. A copy of the FY18 Budget as of February 28, 2018, (67% of the fiscal year) was included. It, along with the Summary, provides the Board with a concise overview of the Fund Balances and the current status of the Annual Budget and points out any variances in the budget to date. The Executive Director noted that the Funds Report includes a report on the Alternative Investments and, because those investments are less liquid than previous investments, a report on BACWA liquidity in also provided.

Consent Calendar items 1 and 2: *A motion to approve was made by Eileen White and seconded by Lori Schectel. The motion was approved unanimously.*

APPROVALS & AUTHORIZATIONS

3. Approval: FY19 BACWA Budget and Workplan – A Board Action Request and the FY19 Budget and Workplan were included in the Packet. The Executive Director gave an overview of the budgeting process.

Items 3*: A motion to approve was made by Michael Connor and seconded by Lori Schectel. The motion was approved unanimously.*

4. Approval: BAPPG Environmental Communications Training Funds Request – A Board Action Request and a workshop proposal were included in the Packet. The Executive Director gave an overview of the request and noted that funds were available in the FY18 Budget.

Items 4*: A motion to approve, was made by Lori Schectel and seconded by Eileen White. The motion was approved unanimously.*

5. Approval: Amendments to BAPPG Agreements – A Board Action Request and two amendments to FY18 agreements were included in the Packet. The Executive Director gave an overview of the request and noted that the consultants are in agreement with the request.

Items 5*: A motion to approve, was made by Laura Pagano and seconded by Eileen White. The motion was approved unanimously.*

6. Approval: Approval of BACWA Admin Support of UC Merced Biosolids Research Project – A Board Action Request and a proposal were included in the Packet. The Executive Director gave an overview of the request.

Items 6*: A motion to approve, was made by Michael Connor and seconded by Amit Mutsuddy. The motion was approved unanimously.*

OTHER BUSINESS-POLICY/STRATEGIC

Agenda **Item 7 –** Discussion: Nutrients

a. Regulatory
    i. Optimization/Upgrade Studies update - The Executive Director gave an overview of input from the CMG and updated the Board on the number of Sign-off letters that have been received. The consultant presented the first draft of the main body of the Optimization/Upgrade Report and gave the Board an overview of the narrative. BACWA will host a workshop in late May where representatives from all 37 plants will have the opportunity to comment on main report.
    ii. 2nd Nutrient Watershed Permit Update –The Executive Director noted that the Nutrient Strategy Team is trying to coalesce the multiple interests of BACWA member agencies on nutrient credit banking or early action. The Executive Director met with the Water Board staff and will provide a summary of that meeting to the Board. Board members suggested obtaining more information about early action incentives already being implemented in other states, and a listing of actions, including pilot testing, that might be considered for incentives. BACWA will ask if current consultants can present information on these concepts at an upcoming Board meeting. The Executive Director also noted that it's difficult to find a date that works for the next NST meeting. The Board suggested they be scheduled through 2018 following the BACWA Executive Board meetings.
b. Technical Work -
    i. Next Nutrient Technical Workgroup Meeting is being scheduled. The FY2019 Science Plan will be finalized a few months late this year because of staffing turnover at SFEI.
c. Governance Structure –
    i. Steering Committee #16 Debrief – The Minutes from the March 9, 2018 meeting, were included in the Packet. The Executive Director noted that he had given a report at the March 16, 2018 BACWA Board meeting.

Agenda **Item 8 -** Discussion: Review Comment Letters to EPA on Pesticide Risk Assessments – A LINK to three Comment Letters on clothianidin, dinotefuran, and thiamethoxam was included in the Packet.

Agenda **Item 9 –** Discussion: Advanced Quantitative Precipitation Information (AQPI) X-Band Radar Funding – A map of AQPI radar installations was included in the Packet. The Board observed a minute of silence in honor of Carl Morrison. Michael Connor introduced Jennifer Krebs and she updated the Board on the status of the project. The Board discussed what role BACWA might play in facilitating progress on the project. The Executive Director will work with Ms. Krebs to determine that role and bring that information back to the Board.

Agenda **Item 10 –** Discussion: Draft Agenda for Joint Meeting with Water Board 6/1/18 – A Draft Agenda for the June 1, 2018 meeting was included in the Packet. The Regulatory Program

Manager gave an overview of the Agenda noting that a draft agenda will also be on the BACWA Executive Board meeting agenda in May. The Board discussed the timing and potential risk of BACWA providing advanced funding for science ahead of the second watershed permit. This topic with be on the next Joint Meeting with the Water Board for further discussion.

Agenda **Item 11 –** Discussion: Triennial Review of Basin Plan – The Notice of Public Workshop and Solicitation of Public Comment for the 2018 Triennial Review of the Water Quality Control Plan for the San Francisco Bay Basin was included in the Packet. The Regulatory Program Manager noted that they will post a list of potential projects soon.

Agenda **Item 12 –** Discussion: Water Board Initiative to Update the Wetlands Policy – A LINK to the Wetland Policy Climate Change Update Project NPDES Permit Case Studies: Finding and Recommendations was included in the Packet. The Regulatory Program Manager gave an overview of the draft report noting that there are errors in the description of the case studies. The Water Board is considering four general approaches to regulating wastewater discharges to wetlands and input from the POTW community is requested. The issue is on the agenda for the Joint Meeting with Water Board staff scheduled for June 1, 2018. The Board suggested looking at wetlands-related efforts already in progress and inviting Caitlin Sweeny, SFEP, to a Permits Committee meeting to share what her organization is working on. BACWA member agencies are sending corrections on the draft report to the Water Board, and BACWA is collecting information about specific projects that members are considering.

Agenda **Item 13 –** Discussion: Update on Ceriodaphnia Study with SCAP and CASA – A list of which agencies have the Ceriodaphnia species in their Permit was included in the Packet. The Executive Director noted that the BACWA Board had previously approved funding of $15,000 contingent on the study achieving critical mass. However, key participants from USEPA, SCCWRP, and Tetra Tech who had been asked to review the scope of the research effort have indicated they are not comfortable with the scope, so at this point it is unlikely the project will move forward.

Agenda **Item 14** – Discussion: CASA and BACWA letter on Central Marin Sanitation Agency Permit Petition – The joint CASA/BACWA letter was included in the Packet. The Executive Director noted that BACWA received a note of thanks from Ross Valley's GM for submitting the letter.

Agenda **Item 15 –** Discussion: Test of Significant Toxicity Litigation Update – A Notice of Second Legal Complaint letter to the EPA and the US Department of Justice and spreadsheet description, along with a LINK to the Memorandum & Order and a LINK to the Second Amended Complaint were included in the Packet. Additionally, a letter to the EPA and the US Department of Justice, along with the NPDES/WET spreadsheet, were included in the Packet. The Executive Director gave an overview of the two filed amendments and noted the letter. The EPA has requested a month to respond to the amendments.

Agenda **Item 16** – Discussion: Chlorine Residual Basin Plan Amendment Update – A list of San Francisco Bay POTW's Dilution credit was included in the Packet. Dr. Thomas Hall gave an update of the current status of his work. He has looked at eight years of CIWQS data and there is a very low excursion rate for chlorine residual across all member agencies. Effluent limit approaches and compliance determination options are currently being studied, along with potential reporting limits. He will work with BACWA to distribute a survey to determine bisulfite overdosing rates.

Agenda **Item 17** – Discussion: RMP Update – A LINK to RMP Exposure & Effects Workgroup Meeting materials and a LINK to Bay RMP Emerging Contaminants Workgroup Meeting materials were included in the Packet. With regard to Exposure & Effects, there are three big emphases: 1) Agencies need to look at what effect dredging has had on organisms; 2) Study needed to better interpret benthic data; and 3) Agencies should look at the question of bioanalytical tests of the impacts on organisms due to CEC's. Generally, the RMP is not seeing negative impacts due to pollutants in the Bay. Regarding the Emerging Contaminants: there was an outline of the results of recent studies, including stormwater and CECs in wastewater effluent, and a prioritization of studies for FY19. A discussion on road runoff of tire debris evolved to proposed studies for stormwater runoff overall. The RMP is considering looking at sunscreens in wastewater effluent next year. A Board member noted that there is a bill at the State level regarding the creation of a CEC oversight body and recommended that BACWA, through CASA, might oppose the bill due to concerns that it will interfere with the RMP program in the Bay Area.

Agenda **Item 18** – Discussion: Microplastics Update – A Joint Comment Letter on the Revised Draft California Ocean Litter Prevention Strategy, along with a LINK to the Final Draft of the Ocean Litter Protection Strategy was included in the Packet. The Regulatory Program Manager also noted that a Comment Letter on the OPC Final Draft Litter Reduction Strategy has been reviewed and will be submitted by CASA this week. It appears that most of the comments submitted in the Joint Comment Letter will be satisfactorily addressed in the final Strategy.

Agenda **Item 19** – Discussion: Sanitary Sewer Systems Waste Discharge Requirements Comment Letter – A Joint Comment Letter on Preliminary Suggestions of CASA, BACWA and SCAP on the Forthcoming Revisions to the SSS WDR was included in the Packet.

OTHER BUSINESS-OPERATIONAL

Agenda **Item 20** – Discussion: POTW Pesticide Sampling Efforts – The Board heard an introduction by Dr. Kelly Moran on regulatory progress being made on controlling pesticides during the registration process. She introduced Dr. Jennifer Teerlink of the California Department of Pesticide Regulation who noted that the current focus is on monitoring and

prevention but will move to mitigation in the future. She noted that they appear to have permanent funding for a wastewater pesticide research position in the 2018-2019 state budget, and that the greatest need now is for good data from wastewater samples from the POTW community. The takeaway is that BAPPG and BACWA are being proactive on pesticides.

Agenda **Item 21** – Discussion: Revision of BACWA Target Reserves – The most recent BACWA Budget 5-Year Plan was included in the Packet. Due to time constraints, the Executive Director moved this item to the May 18, 2018 BACWA Executive Board agenda.

Agenda **Item 22**– Discussion: BACWA support for Bay Area Biosolids Coalition – The Board heard a presentation on the possibility of providing BACWA support for the Bay Area Biosolids Coalition (BABC). Options for doing so will be presented at a future Board meeting.

Agenda **Item 23** – Discussion: North Bay Watershed Association Conference Debrief – the biggest issue discussed at the conference was fire control following the large fires in the area in Fall 2017.

Agenda **Item 24** – Discussion: Update of 2018 BACWA Board Meeting Calendar – A copy of the 2018 Executive Board Meeting Calendar was included in the Packet. The Executive Director noted that BACWA member Oro Loma has invited the Board to meet at their facilities for the May 18, 2018 meeting, which was originally scheduled for EBMUD HQ, in order to view a nutrient reduction pilot project and asked the Board for their input on the change. The Board agreed to move the May meeting to the Oro Loma facilities.

Agenda **Item 25** – Discussion: Joint Meeting BAAQMD & Water Board Draft Agenda – A Preliminary Draft Agenda for the Joint meeting with BACWA, BAAQMD staff, and SF Regional Water Board staff was included in the Packet. The Regulatory Program Manager noted that the agenda is very preliminary at this time, and will be reviewed by the Permits and AIR committees. A discussion about this agenda will take place at the Joint meeting with the Water Board staff on June 1, 2018.

Agenda **Item 26** – Discussion: BACWA Arleen Navarret Award Webpage – A print of the new BACWA webpage honoring Arleen Navarret and noting the past winners of the Arleen Navarret Award was included in the Packet.

REPORTS

Agenda **Item 20** – Committee Reports – BACWA Committee Reports were included in the Packet.
AIR Committee: A report from the March 14, 2018 meeting was included in the Packet.
BAPPG Committee: A report from the April 4, 2018 meeting was included in the Packet.

Biosolids Committee: No meeting.
Collections Committee: A report from the March 22, 2018 meeting was included in the Packet.
InfoShare - Asset Management: No meeting.
InfoShare – Operations & Maintenance: No meeting.
Lab Committee: A report from the April 11, 2018 meeting was included in the Packet.
Permits Committee: A Report from the April 10, 2018 meeting was included in the Packet.
Pretreatment Committee: No meeting.
Recycled Water Committee: A Report from the March 20, 2018 meeting was included in the Packet.

Agenda **Item 21** - Discussion: Member Highlights - Executive Board Representatives (Board) were given an opportunity to provide updates from each of the Principal agencies. Non-principal members were also given an opportunity to report out on behalf of their agencies. No actions were taken on the report-outs.

EBDA: Acute toxicity testing has been rolled into chronic testing in their permit. This strategy has not been problematic and they may cut back to quarterly testing.
EBMUD: Had a good meeting on their consent decree.
Central Contra Costa: No report
San Francisco: No report.
San Jose: They successfully implemented a 100 mgd diversion due to a secondary pipe replacement.
City of Palo Alto: No report.
City of Delta Diablo: No report.
Fairfield Suisun: No report.

Agenda **Item 22** - The **Executive Director's (ED) Report** for March 2018, along with the Board Calendar, and BACWA Action Items, were included in the Packet. It was noted that 50 of 53 action items from FY18 have been completed.

Agenda **Item 23** - The **Regulatory Program Manager (RPM) Report** for March 2018 was included in the Packet.

Agenda **Item 24 - Other BACWA Representative Reports** – BACWA Representative were given an opportunity to provide updates. No actions were taken based on the reports.

a. **RMP-TRC:** Mary Lou Esparza – A copy of the Bay RMP Technical Review Committee Meeting Summary was included in the Packet.
b. RMP Steering Committee: Karin North; Leah Walker; Eric Dunlavey – No report
c. Summit Partners: Dave Williams; Lori Schectel **–** No report.
d. **ASC/SFEI:** Laura Pagano; Dave Williams; Amit Mutsuddy; Karin North – Foundation work continues.

e. Nutrient Governance Steering Committee: Eric Dunlavey; Eileen White; Bhavani Yerrapotu; Lori Schectel – No report.
    i. Nutrient Planning Subgroup: Eric Dunlavey
    ii. NMS Technical Workgroup: Eric Dunlavey
f. SWRCB Nutrient SAG: Dave Williams – No report.
g. SWRCB Focus Group – Mercury Amendments to the State Plan: Tim Potter; Dave Williams; Laura Pagano – No report
h. NACWA Taskforce on Dental Amalgam: Tim Potter – No report.
i. BAIRWMP: Cheryl Munoz, Linda Hu, Dave Williams – No report.
j. NACWA Emerging Contaminants: Karin North, Melody La Bella – No report
k. CASA State Legislative Committee: Lori Schectel – No report.
l. CASA Regulatory Workgroup – Lorien Fono - No report.
m. ReNUWIt: Jackie Zipkin; Karin North – No report.
n. RMP Microplastics Liaison: Nirmela Arsem – No report.
o. AWT Certification Committee: Maura Bonnarens – No report.
p. Bay Area Regional Reliability Project: Eileen White– No report
q. WateReuse Working Group: Cheryl Munoz – No report.
r. San Francisco Estuary Partnership – Eileen White; Dave Williams – No report.
s. CPSC Policy Education Advisory Committee – Doug Dattawalker – No report.
t. California Ocean Protection Council – Lorien Fono – No report.

Agenda **Item 25 - SUGGESTIONS FOR FUTURE AGENDA ITEMS**.

ANNOUNCEMENTS:

The next regular meeting of the Board is scheduled for **May 18, 2018 from 9:00 am – 12:30 pm** at the **Oro Loma Sanitary District, 2655 Grant Avenue, San Lorenzo, CA. There will be a 15-30 minute tour of their Microvi pilot program and lunch will be provided due to the length of the meeting.**

To receive a copy of any materials provided to the Board at a BACWA Executive Board meeting contact Sherry Hull at shull@bacwa.org.

The meeting adjourned at 1:02 pm.

Fund Balances

In FY 18 BACWA has three operating funds (BACWA, Legal, and CBC) and two pass-through funds for which BACWA provides only contract administration services (WOT & Prop 84).

BACWA Fund: This fund provides the resources for BACWA staff, its committees, and other administrative needs. The ending fund balance on March 31, 2018 was $1,326,691 which is significantly higher than the target reserve of $160,000 which is intended to cover 3 months of normal operating expenses. $214,752 of the ending fund balance is shown on the March Fund & Investments Balance Report as obligated to meet on-going operating line item expenses for BAPPG Committee Support, Legal services, IT services, Board meeting expenses, accounting services and BACWA staff support (including $31,082 that was carried forward into FY18). This leaves an actual unobligated excess fund balance of $1,111,939 as of March 31, 2018. As the details of what regulatory requirements will be included in the next Nutrient Watershed Permit, 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 March 31, 2018 was $1,886,575 which is significantly higher than the target reserve of $400,000. $230,062 of the ending balance is obligated to meet line item expenses for completion of the Optimization/Upgrade Studies contract, the Risk Reduction contracts, and for technical support. This leaves an actual unobligated excess fund balance of $1,656,213 as of March 31, 2018. Total Disbursements for FY18 from the CBC Fund include the annual payment of $880,000 to SFEI for the Nutrient Watershed Permit commitment plus the additional $200,000 approved by the Board. As the details of what regulatory requirements will be included in the next Nutrient Watershed Permit, any excess CBC funds may be used to offset potential Nutrient Surcharge increases to the BACWA members.

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 in order to maintain the BACWA and CBC Fund balances at the levels projected in the 5 Year Plan.

Revenues as of March 31, 2018 (75% of the FY) are at 100%. The FY18 BACWA invoices were sent at the end of July 2017 and the end of August 2017, and 100% of those invoices were paid before the end of December. The interest revenue reported through March, 2018 includes $5,788 interest from the investment of Funds in LAIF for the 4th quarter of FY17.

Overall Expenses as of March 31, 2018 (75% of the FY) are at 77% due primarily to timing of payments.

Those needing additional explanation are:

Administration: This category is 31% expended at 75% of the FY due primarily to timing of invoices and low administrative expenses.

Communication: This category is 90% expended at 75% of the FY due to the decision to add a mobile layer to the BACWA website.

Legal: This category is 18% expended at 75% of the FY due primarily to little need for regulatory legal support.

Committees: This category is 60% expended at 75% of the FY due primarily to timing of expenditures by the Committees.

Collaboratives: This category is 116% expended at 75% of the FY due primarily to Board approval of a contribution to PPIC that was not budgeted in FY18.

BACWA FY18 BUDGET	Line Item Description	FY 2018 Budget	Actuals Mar 2018	75% of Budget Actual % of Budget Mar 2018	Variance	NOTES
REVENUES & FUNDING						
Dues	Principals' Contributions	$487,095	$487,095	100%	$0	**FY18:** 2% increase.
	Associate & Affiliate Contributions	$178,573	$178,626	100%	$53	**FY18:** 2% increase. Assoc: $8,090; Affiliate: $1,600 ($197 over budget)
Fees	Clean Bay Collaborative	$675,000	$675,000	100%	$0	Prin: $450,000; Assoc/Affil: $225,000
	Nutrient Surcharge	$800,000	$800,008	100%	$8	Prin: $533,335; Assoc/Affil: $266,673
	Voluntary Nutrient Contributions	$30,000	$30,000	100%	$0	**FY18:** Palo Alto ($30k)
Other Receipts	Other Receipts	$0	$0		$0	Carry forward of Passthrough funds for Pharm Study into FY18
	AIR Non-Member	$6,477	$6,477	100%	$0	2% increase.
	BAPPG Non-Members	$3,774	$3,774	100%	$0	2% increase.
	Other	$0	$0		$0	
Fund Transfer	Special Program Admin Fees	$2,550	$0	0%	-$2,550	**FY18:** 2% increase (WOT only)
Interest Income	LAIF	$12,000	$18,786	157%	$6,786	BACWA, Legal, & CBC Funds invested in LAIF
	Higher Yield Investments	$10,000	$5,763	58%	-$4,237	Alternative Investment Interest
	Total Revenue	**$2,205,469**	**$2,205,529**	100%	$60	

BACWA FY18 BUDGET	Line Item Description	FY 2018 Budget	Actuals Mar 2018	Actual % of Budget Mar 2018	Variance	NOTES
EXPENSES						
Labor						
	Executive Director	$195,998	$146,999	75%	-$48,999	3.5% CPI (SF/Oakland/San Jose Metro Area Dec 2016)
	Assistant Executive Director	$87,975	$65,131	74%	-$22,844	3.5% CPI (SF/Oakland/San Jose Metro Area Dec 2016)
	Regulatory Program Manager	$116,438	$72,657	62%	-$43,781	3.5% CPI (SF/Oakland/San Jose Metro Area Dec 2016)
	Total	**$400,411**	**$284,787**	71%	-$115,624	
Administration						
	EBMUD Financial Services	$40,000	$9,946	25%	-$30,054	
	Auditing Services (Maze)	$6,300	-$59	-1%	-$6,359	FY18: $6,200 Accrued from FY17 to FY18, less $1,832 paid for FY17 in July 2017.
	Administrative Expenses	$7,500	$3,674	49%	-$3,826	Travel, Supplies, Parking, Mileage, Tolls, Misc.
	Insurance	$4,500	$4,278	95%	-$222	
	Total	**$58,300**	**$17,839**	31%	-$40,461	
Meetings						
	EB Meetings	$2,500	$1,239	50%	-$1,261	Catering, Venue, other expenses
	Annual Meeting	$10,000	$7,745	77%	-$2,255	Catering, Venue, other expenses. (Deposit to hold venue + deposit to hold caterer)
	Pardee	$6,000	$5,323	89%	-$677	Catering, Venue, other expenses
	Misc. Meetings	$5,000	$4,012	80%	-$988	Holiday Lunch, Committee Chair Lunch, Staff Mtgs, Finance Comm, Summit Partners, CASA, NACWA, Toxicity WS
	Total	**$23,500**	**$18,319**	78%	-$5,181	
Communication						
	Website Hosting (Computer Courage)	$600	$600	100%	$0	
	File Storage (Box.net)	$750	$720	96%	-$30	
	Website Development/Maintenance	$1,200	$2,919	243%	$1,719	Domains, website changes, mobile layer
	IT Support (As Needed)	$2,600	$203	8%	-$2,397	
	Other Commun (Software)	$1,100	$1,169	106%	$69	MS Exchange, Survey Monkey, CrashPlanPro, Doodle, Carbonite
	Total	**$6,250**	**$5,611**	90%	-$639	

EXPENSES						
Legal						
	Regulatory Support	$2,550	$304	12%	-$2,246	2% increase.
	Executive Board Support	$2,050	$510	25%	-$1,540	2% increase.
	Total	**$4,600**	**$814**	18%	-$3,786	
Committees						
	AIR	$50,000	$21,784	44%	-$28,216	**FY18:** Agrmt with Carollo for $50,000. RPM lunches will also be included, but not in budget.
	BAPPG	$100,000	$83,398	83%	-$16,602	**FY18:** Includes CPSC @ $10,000 and Pest. Reg Spt. @ $15,000
	Biosolids Committee	$3,100	$265	9%	-$2,835	Includes WEF Conf
	Collections System	$1,000	$0	0%	-$1,000	
	InfoShare Groups	$1,200	$682	57%	-$518	Funds for 2 workgroups (Asset Mgmt & O&M)
	Laboratory Committee	$6,000	$1,434	24%	-$4,566	Includes Tech Conf & Training
	Permits Committee	$1,000	$215	22%	-$785	
	Pretreatment	$7,000	$707	10%	-$6,293	Includes Training & Factsheet
	Recycled Water Committee	$1,000	$0	0%	-$1,000	
	Misc Committee Support	$35,000	$14,766	42%	-$20,234	Carollo Rule 11-18
	Manager's Roundtable	$1,000	$433	$0	-$567	New line item in FY18
	Total	**$206,300**	**$123,684**	60%	**-$82,616**	
Collaboratives						
	Collaboratives					
	State of the Estuary (biennial)	$0	$0		$0	Bienniel in Odd Years. (Paid bienniely in odd years for even year conference)
	Arleen Navarret Award	$1,000	$1,000	100%	$0	Bienniel in Even Years (Both 2014 and 2018 may be paid in FY18) Current is for 2014
	FWQC (Fred Andes)	$7,500	$7,500	100%	$0	
	Stanford ERC (ReNUWIt)	$10,000	$10,000	100%	$0	
	CWCCG	$0	$0		$0	Moved to CASA
	Misc	$3,000	$6,500	217%	$3,500	**FY18:** Includes $5,000 to PPIC approved by Board Sept, 2017
	Total	**$21,500**	**$25,000**	116%	$3,500	
Other	**Unbudgeted Items**					
	Passthrough	$0	$23,100		-$23,100	Passthrough for Pharm Study; bal at end of FY17: $23,100
	Other	$0	$0		$0	Misc Expense Items Not Budgeted
		$0	**$23,100**		**$0**	
Tech Support	**Technical Support**					
	Nutrients					
	Watershed	$880,000	$880,000	100%	$0	
	NMS Voluntary Contributions	$0	$200,000		$200,000	**FY18:** $200,000 add'l funds approved by Board August 2017
	Additional work under permit	$100,000	$0	0%	-$100,000	**FY18:** Increased at Board's request
	Opt/Upgrade/Annual Reporting Studies	$372,298	$26,304	7%	-$345,994	**FY18:** Balance remaining on agreement at end of FY16 less FY17 budgeted amount
	Nutrient Program Coordination	$50,000	$0	0%	-$50,000	
	Voluntary Nutrient Contributions	$30,000	$0	0%	-$30,000	**FY18:** Palo Alto ($30k)
	General Tech Support	$50,000	$24,632	49%	-$25,368	**FY18:** (EOA ChlResidBPA)
	Risk Reduction	$0	$7,975		$7,975	**FY18:** CIEA extended to 9/30/17 - $9,853.69 remaining at 7/1/17
	Total	**$1,482,298**	**$1,138,911**	77%	-$343,387	
	TOTAL EXPENSES	**$2,203,159**	**$1,638,065**	**74%**	**-$565,094**	
	NET INCOME BEFORE TRANSFERS	**$2,310**	**$567,464**			
	TRANSFERS FROM RESERVES	**$0**				
	NET INCOME AFTER TRANSFERS	**$2,310**				

CHECK ON BACWA LIQUIDITY THRESHHOLD

	Apr	May	June	FY19 July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	BUDGET Totals FY 18	EST BUDGET Totals FY19
BEGINNING UNOBLIGATED FUND BALANCE	$3,513,265	$3,419,668	$3,326,071	$3,232,474	$3,154,607	$3,625,010	$3,015,413	$3,485,817	$3,956,220	$3,878,353	$3,800,486	$3,722,619		
Average Monthly Revenues	$0	$0	$0	$0	$548,270	$548,270	$548,271	$548,270	$0	$0	$0	$0	$2,205,469	$2,193,081
Average Monthly Expenditures (Less Large one time Expenses)	($93,597)	($93,597)	($93,597)	($77,867)	($77,867)	($77,867)	($77,867)	($77,867)	($77,867)	($77,867)	($77,867)	($77,867)	$1,123,159	$934,401
Less Large Expenditures	$0	$0	$0	$0	$0	($1,080,000)	$0	$0	$0	$0	$0	$0		
NET AVAILABLE FOR INVESTMENT	$3,419,668	$3,326,071	$3,232,474	$3,154,607	$3,625,010	$3,015,413	$3,485,817	$3,956,220	$3,878,353	$3,800,486	$3,722,619	$3,644,752		
NEW INVESTMENTS														
Higher Yield (non-liquid)	($905,000)	($905,000)	($905,000)	($905,000)	($905,000)	($905,000)	($905,000)	($905,000)	($905,000)	($905,000)	($905,000)	($905,000)		
MATURITIES/Called														
Higher Yield (non-liquid)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0		
AVAILABLE LIQUID FUNDS	$2,514,668	$2,421,071	$2,327,474	$2,249,607	$2,720,010	$2,110,413	$2,580,817	$3,051,220	$2,973,353	$2,895,486	$2,817,619	$2,739,752		
TARGET AVAILABLE LIQUID FUNDS	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok	$1,500,000 ok		

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

April 27, 2018

MEMO TO: Bay Area Clean Water Agencies Executive Board
MEMO FROM: D. Scott Klein, Controller, East Bay Municipal Utility District
SUBJECT: Ninth Month FY 2018 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, 2017 through March 31, 2018** (nine months of Fiscal Year 2018). 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),
- Water/Wastewater Operator Training (WOT),
- Prop84 Bay Area Integrated Regional Water Mgmt (PRP84)

BACWA Fund Report as of March 31, 2018

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	1,140,008	685,833	499,151	1,326,691	214,752	1,111,939
804	LEGAL RSRV	300,000	-	-	300,000	-	300,000
805	CBC	1,505,790	1,519,696	1,138,911	1,886,575	230,362	1,656,213
	SUBTOTAL 1	*2,945,799*	*2,205,529*	*1,638,061*	*3,513,265*	*445,114*	*3,068,152*
810	WOT	109,916	141,000	23,902	227,014	-	227,014
	SUBTOTAL 2	*109,916*	*141,000*	*23,902*	*227,014*	-	*227,014*
811	PRP84	117,907	2,112,849	2,112,849	117,907	-	117,907
	SUBTOTAL 3	117,907	2,112,849	2,112,849	117,907	-	117,907
	GRAND TOTAL	**3,173,622**	**4,459,378**	**3,774,813**	**3,858,186**	**445,114**	**3,413,073**

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	1,140,008	685,833	499,151	1,326,691	22,102	1,348,793	367,768	981,025	43%	-	n/a	priority # 3 for allocation
804	LEGAL RSRV	300,000	-	-	300,000	-	300,000	-	-	0%	300,000	AR5	priority # 1 for allocation
805	CBC	1,505,790	1,519,696	1,138,911	1,886,575		1,886,575	-	1,281,575	57%	605,000	6F5,G64, ME2	priority # 2 for allocation
	SUBTOTAL 1	2,945,799	2,205,529	1,638,061	3,513,265	22,102	3,535,368	367,768	2,262,600	100%	905,000		
810	WOT	109,916	141,000	23,902	227,014		227,014	227,014		0%	-		pass-through funds, no allocation
	SUBTOTAL 2	109,916	141,000	23,902	227,014	-	227,014	227,014	-	0%	-		
811	PRP84	117,907	2,112,849	2,112,849	117,907		117,907	117,907	-	0%	-		pass-through funds, no allocation
815	PRP50	-	-	-	-		-	-	-	0%	-		pass-through funds, no allocation
	SUBTOTAL 3	117,907	2,112,849	2,112,849	117,907	-	117,907	117,907	-	0%	-		
	GRAND TOTAL	**3,173,622**	**4,459,378**	**3,774,813**	**3,858,186**	**22,102**	**3,880,289**	**712,689**	**2,262,600**		**905,000**		
						verification	-	-	-		-		

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

Reconciliation to Trial Balance - accrual basis

Per Report above:

General		2,205,529
WOT		141,000
PROP		2,112,849
subtotal		**4,459,378**

Billings-Pending Receipts

4686	Mem Contrib	1,500
4687	Transfer	-
4690	Assoc Contrib	-
4696	Other	-
4731	State Grant	-
4732	Grant Retention	182,094
subtotal		**183,594**

Trial Balance Revenue Accounts

4411	Interest	(24,549)
4686	Mem Contrib	(1,304,595)
4687	Transfer	-
4690	Assoc Contrib	(178,626)
4696	Other	(840,259)
4731	State Grant	(2,065,439)
4732	Grant Retention	(229,504)
subtotal		**(4,642,972)**
Difference		**(0)**

BACWA Revenue Report as of March 31, 2018

FUND #	DEPARTMENT	JOB	REVENUE TYPE	AMENDED BUDGET	CURRENT PERIOD			YEAR TO DATE				UNOBLIGATED
					Admin & General	Contributons	Interest, Transfers,Others	Admin & General	Contributons	Interest, Transfers,Others	ACTUAL	
800	BACWA	1011099	Principal's Contributions	487,095	-	-	-	-	487,095	-	487,095	-
800	BACWA	1011133	Assoc.& Affiliate Contr	178,573	-	-	-	-	178,626	-	178,626	(53)
800	BACWA	0408511	Administrative & General	-	-	-	-	-	-	-	-	-
800	BACWA	1014251	Non-Member Contributions (BAPPG)	3,774	-	-	-	-	3,774	-	3,774	-
800	BACWA	1011109	Fund Transfers	2,550	-	-	-	-	-	-	-	2,550
800	BACWA	1011117	BDO- Interest Income from LAIF	12,000	-	-	-	-	-	8,061	8,061	3,939
800	BACWA	1011108	BDO Other Receipts	-	-	-	-	-	-	-	-	-
800	BACWA	1014252	BDO Non-Member Contr AIR	6,477	-	-	-	-	6,477	-	6,477	-
800	BACWA	1014511	BDO-Alternative Investment Inc	10,000	-	-	-	1,800	-	-	1,800	8,200
800	BACWA	1014550	BDO-Other Receipts (PHARM)	-	-	-	-	-	-	-	-	-
800	BACWA	1014514	GBS-Meeting Support-Annual	-	-	-	-	-	-	-	-	-
	BACWA TOTAL			**700,469**	**-**	**-**	**-**	**1,800**	**675,972**	**8,060**	**685,833**	**14,636**
805	WQA-CBC	1011099	BDO Member Contributions	675,000	-	-	-	-	675,000	-	675,000	-
805	WQA-CBC	1011108	BDO Other Receipts	800,000	-	-	-	-	800,008	-	800,008	(8)
805	WQA-CBC	1011117	BDO- Interest Income from LAIF	-	-	-	-	-	-	10,725	10,725	(10,725)
805	WQA-CBC	1014511	BDO-Alternative Investment Inc	-	-	-	-	3,963	-	-	3,963	(3,963)
805	WQA-CBC	1014528	BDO-Voluntary Nutrient Contrib	30,000	-	-	-	-	30,000	-	30,000	-
	WQA CBC TOTAL			**1,505,000**	**-**	**-**	**-**	**3,963**	**1,505,008**	**10,726**	**1,519,696**	**(14,697)**
	TOTAL			**2,205,469**	**-**	**-**	**-**	**5,763**	**2,180,980**	**18,786**	**2,205,529**	**(61)**

	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	
810	WOT	1011099	BDO Member Contributions	-	-	-	-	-	141,000	-	141,000	(141,000)
810	WOT	1011108	BDO Other Receipts	-	-	-	-	-	-	-	-	-
810	WOT	1011117	BDO- Interest Income from LAIF	-	-	-	-	-	-	-	-	-
	WOT TOTAL			**-**	**-**	**-**	**-**	**-**	**141,000**	**-**	**141,000**	**(141,000)**

	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			-	-	-	-	11	2,112,838	0	2,112,849	(2,112,849)
	PROP TOTAL			**-**	**-**	**-**	**-**	**11**	**2,112,838**	**0**	**2,112,849**	**(2,112,849)**
	Grand Total			**2,205,469**	**-**	**-**	**-**	**5,774**	**4,434,818**	**18,786**	**4,459,378**	**(2,253,910)**

BACWA Expense Detail Report as of March 31, 2018

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	195,998	(16,333)	16,333	-	-	48,999	146,999	-	-	195,998	-
AS-Assistant Executive Directo	1011124	87,975	(7,830)	7,830	-	-	22,844	65,131	-	-	87,975	-
AS-Regulatory Program Manager	1011149	116,438	-	-	-	-	43,781	72,657	-	-	116,438	-
ADMINISTRATION												
AS-EBMUD Financial Services	1011125	40,000	-	-	-	-	30,054	9,946	-	-	40,000	-
AS-Audit Services	1014512	6,300	-	-	-	-	6,300	1,842	4,299	(6,200)	6,241	59
AS-BACWA Admin Expense	1011118	7,500	-	-	68	-	-	-	3,674	-	3,674	3,826
AS-Insurance	1011126	4,500	-	-	-	-	-	-	4,278	-	4,278	222
MEETINGS												
GBS-Meeting Support-Exec Bd	1014513	2,500	(121)	121	-	-	503	497	742	-	1,742	758
GBS-Meeting Support-Annual	1014514	10,000	-	-	-	-	-	-	7,845	(100)	7,745	2,255
GBS-Meeting Support-Pardee	1014515	6,000	-	-	-	-	-	-	5,323	-	5,323	677
GBS-Meeting Support-Misc	1014516	5,000	-	-	-	-	-	-	4,012	-	4,012	988
GBS- Meeting Support	1011122	-	-	-	-	-	-	-	-	-	-	-
COMMUNICATION												
CAR-BACWA Website Hosting	1014517	750	-	-	-	-	-	-	600	-	600	150
CAR-BACWA File Storage	1014518	1,200	-	-	-	-	-	-	720	-	720	480
CAR-BACWA IT Support	1014519	2,600	-	-	-	-	2,398	203	-	-	2,600	-
CAR-BACWA IT Software	1014520	1,100	-	-	141	-	-	-	1,169	-	1,169	(69)
CAR-BACWA Website Dev/Maint	1011116	600	-	-	379	-	-	-	2,919	-	2,919	(2,319)
LEGAL												
LS-Regulatory Support	1011107	2,550	(228)	228	-	-	2,246	304	-	-	2,550	-
LS-Executive Board Support	1011110	2,050	-	-	-	-	1,540	510	-	-	2,050	-
COMMITTEES												
AIR-Air Issues&Regulation Grp	1014253	50,000	(2,456)	-	-	-	26,253	21,290	493	-	48,037	1,963
BC-BAPPG	1011147	100,000	(7,912)	10,368	-	-	15,992	62,464	20,934	-	99,390	610
BC-Biosolids Committee	1011101	3,100	-	-	-	-	-	-	265	-	265	2,835
BC-Collections System	1011097	1,000	-	-	-	-	-	-	-	-	-	1,000
BC-InfoShare Groups	1011102	1,200	-	-	-	-	-	-	682	-	682	518
BC-Laboratory Committee	1011103	6,000	-	-	-	-	-	-	1,434	-	1,434	4,566
BC-Permit Committee	1011098	1,000	-	-	-	-	-	-	215	-	215	785
BC-Pretreatment Committee	1011146	7,000	-	-	-	-	-	-	707	-	707	6,293
BC-Water Recycling Committee	1011100	1,000	-	-	-	-	-	-	-	-	-	1,000
BC-Manager's Roundtable	1014777	1,000	-	-	-	-	-	-	433	-	433	567
BC-Miscellaneous Committee Sup	1011104	35,000	-	-	-	-	13,840	14,766	-	-	28,606	6,394
COLLABORATIVES												
CAS-Arleen Navaret Award	1012201	1,000	-	-	-	-	-	-	1,000	-	1,000	-
CAS-FWQC	1012202	7,500	-	-	-	-	-	-	7,500	-	7,500	-
CAS-Stanford ERC	1011969	10,000	-	-	-	-	-	-	10,000	-	10,000	-
CAS-CWCCG	1011148	-	-	-	-	-	-	-	-	-	-	-
CAS-PSSEP	1011112	-	-	-	-	-	-	-	-	-	-	-
CAS-Misc Collaborative Sup	1014521	3,000	-	-	-	-	-	-	6,500	-	6,500	(3,500)
BDO-Contract Expenses (PHARM)												
BDO-Contract Expenses (PHARM)	1014551	-	-	-	-	-	-	23,100	-	-	23,100	(23,100)
BACWA TOTAL		**720,861**	**(34,880)**	**34,880**	**588**	**-**	**214,752**	**419,708**	**85,743**	**(6,300)**	**713,902**	**6,959**
TECH SUPPORT												
WQA-CE Addl Work Under Permit	1014254	100,000	-	-	-	-	57,000	-	-	-	57,000	43,000
WQA-CE-Technical Support	1011127	50,000	-	-	-	-	84,810	14,690	9,942	-	109,442	(59,442)
WQA-CE CASA Chem of Concern	1011128	-	-	-	-	-	-	-	-	-	-	-
WQA-CE Opt-Upgrade Studies	1014255	372,298	-	-	-	-	88,552	26,304	-	-	114,856	257,442
WQA-CE Risk Reduction	1014023	-	-	-	-	-	-	-	7,975	-	7,975	(7,975)
WQA-CE-Nutrient WS Permit Comm	1014021	880,000	-	-	-	-	-	-	1,080,000	-	1,080,000	(200,000)
WQA-CE-Program Mgmt	1011131	50,000	-	-	-	-	-	-	-	-	-	50,000
WQA-CE Voluntary Nutr Contrib	1014529	30,000	-	-	-	-	-	-	-	-	-	30,000
TECH SUPPORT (CBC) TOTAL		**1,482,298**	**-**	**-**	**-**	**-**	**230,362**	**40,994**	**1,097,917**	**-**	**1,369,273**	**113,025**
GRAND TOTAL		**2,203,159**	**(34,880)**	**34,880**	**588**	**-**	**445,114**	**460,702**	**1,183,659**	**(6,300)**	**2,083,175**	**119,984**
								TOTAL	**1,638,062**			
WOT												
Administrative Support	1011142	-	-	-	-	-	-	-	-	-	-	-
BDO Contract Expenses	1011143	-	-	-	-	-	-	-	23,902	-	23,902	(23,902)
		-	**-**	**-**	**-**	**-**	**-**	**-**	**23,902**	**-**	**23,902**	**(23,902)**
GRAND TOTAL (BDO, CBC, WOT)		**2,203,159**	**(34,880)**	**34,880**	**588**	**-**	**445,114**	**460,702**	**1,207,561**	**(6,300)**	**2,107,077**	**96,082**

Proposition 84 Revenue Report as of March 31, 2018

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	1011705	Regional Green Infrastructure	-	-	-	-	-	157,589	-	157,589	(157,589)
811	Prop84BayAreaIntegRegnlWtrMgmt	1011706	Hacienda Ave Green St Improvem	-	-	-	-	-	1,746,693	-	1,746,693	(1,746,693)
811	Prop84BayAreaIntegRegnlWtrMgmt	1011707	WQ Improve Flood Mgmt & EP	-	-	-	-	-	6,552	(6,552)	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	1011911	Stream Restoration w/Schools i	-	-	-	-	-	7,857	(7,857)	-	-
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	-	-	-	-	11	10,775	9,449	20,235	(20,235)
811	Prop84BayAreaIntegRegnlWtrMgmt	1012219	Flood Infrastructure Mapping T	-	-	-	-	-	30,239	-	30,239	(30,239)
811	Prop84BayAreaIntegRegnlWtrMgmt	1012220	Stormwater Improvements & PBP	-	-	-	-	-	8,010	-	8,010	(8,010)
811	Prop84BayAreaIntegRegnlWtrMgmt	1012221	Richmond Shoreline & San PFP	-	-	-	-	-	21,114	-	21,114	(21,114)
811	Prop84BayAreaIntegRegnlWtrMgmt	1012222	Pescadero Integrated FRAH	-	-	-	-	0	58,473	1,127	59,599	(59,599)
811	Prop84BayAreaIntegRegnlWtrMgmt	1012223	Restoration Guidance, San FC	-	-	-	-	-	7,308	-	7,308	(7,308)
811	Prop84BayAreaIntegRegnlWtrMgmt	1012224	SF Estuary Steelhead MP	-	-	-	-	(0)	47,700	3,833	51,533	(51,533)
811	Prop84BayAreaIntegRegnlWtrMgmt	1012225	Watershed Program Admnstrtn	-	-	-	-	-	10,528	-	10,528	(10,528)
	PROP 84 TOTAL			**-**	**-**	**-**	**-**	**11**	**2,112,838**	**0**	**2,112,849**	**(2,112,849)**

Proposition 84 Expense Detail Report as of March 31, 2018

DEPTID	DEPARTMENT	EXPENSE TYPE	AMENDED BUDGET	CURRENT PERIOD				YEAR TO DATE				OBLIGATED	UNOBLIGATED
				ENC	PV	DA	JV	ENC	PV	DA	JV		
811	Prop84BayAreaIntegRegnlWtrMgmt	BDO Fund Transfers	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Administrative Support	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	BDO Contract Expenses	-	-	-	-	-	-	-	-	-	-	-
811	Prop84BayAreaIntegRegnlWtrMgmt	Regional Green Infrastructure	-	-	-	-	-	-	-	157,589	-	157,589	(157,589)
811	Prop84BayAreaIntegRegnlWtrMgmt	Hacienda Ave Green St Improvem	-	-	-	-	-	-	-	1,746,693	-	1,746,693	(1,746,693)
811	Prop84BayAreaIntegRegnlWtrMgmt	Water Efficient LRP	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	30,239	-	30,239	(30,239)
811	Prop84BayAreaIntegRegnlWtrMgmt	Stormwater Improvements & PBP	-	-	-	-	-	-	-	8,010	-	8,010	(8,010)
811	Prop84BayAreaIntegRegnlWtrMgmt	Richmond Shoreline & San PFP	-	-	-	-	-	-	-	21,114	-	21,114	(21,114)
811	Prop84BayAreaIntegRegnlWtrMgmt	Pescadero Integrated FRAH	-	-	-	-	-	-	-	59,599	-	59,599	(59,599)
811	Prop84BayAreaIntegRegnlWtrMgmt	Restoration Guidance, San FC	-	-	-	-	-	-	-	7,308	-	7,308	(7,308)
811	Prop84BayAreaIntegRegnlWtrMgmt	SF Estuary Steelhead MP	-	-	-	-	-	-	-	51,533	-	51,533	(51,533)
811	Prop84BayAreaIntegRegnlWtrMgmt	Stream Restoration in North BD	-	-	-	-	-	-	-	20,235	-	20,235	(20,235)
811	Prop84BayAreaIntegRegnlWtrMgmt	Watershed Program Admnstrtn	-	-	-	-	-	-	-	10,528	-	10,528	(10,528)
	PRP84 TOTAL		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2,112,849**	**-**	**2,112,849**	**(2,112,849)**

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 3___
FILE NO.: 19-01, 19-02, 19-03
MEETING DATE: May 18, 2018

TITLE: Approval of Fiscal Year 2019 Amendments to Contracts

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

RECOMMENDED ACTION

Authorize the approval of amendments to contracts to implement the Fiscal Year 2019 BACWA/CBC Budget and Workplan.

SUMMARY

The BACWA Fiscal Year 2019 begins July 1, 2018. In order to prevent a gap in core services, BACWA typically executes contracts for the coming FY before the end of June. The amendments summarized below will ensure that, as of July 1, 2018 BACWA has Executive Director (ED), Assistant Executive Director (AED), and Regulatory Program Manager (RPM) services. All of these service contracts were included in the BACWA FY 2019 workplan and budget and will become effective July 1, 2018. There are no benefits associated with the service contracts. All contracts have a term of one year and will terminate on June 30, 2019.

Contractor	Services	Contract Amount	File Number
DRW Engineering (Amendment #4)	Executive Director Services	$201,682.00	19-01
Sherry Hull (Amendment #3)	Assistant Executive Director Services	$90,526.00	19-02
Lorien Fono (Amendment #2)	Regulatory Program Manager Services	$119,815.00	19-03

FISCAL IMPACT

The funding for these contracts is consistent with the FY 2019 Workplan and Budget for BACWA/CBC.

ALTERNATIVES

No other alternatives were considered for these contracts as the terms of these agreements are consistent with BACWA contracting policies.

Attachments:
1. DRW Engineering Amendment #4
2. Sherry Hull Amendment #3
3. Lorien Fono Amendment #2

Approved: _____
Lori Schectel, Chair
BACWA

Date: May 18, 2018

AMENDMENT NO. 4
TO AGREEMENT BETWEEN
BAY AREA CLEAN WATER AGENCIES AND
David R. Williams (dba DRW Engineering)
FOR
Executive Director Services

This Amendment No. 4 is made this 18th day of May, 2018, in the City of Oakland, County of Alameda, State of California, to that certain agreement of July 1, 2014 by and between David R. Williams (dba DRW Engineering) and Bay Area Clean Water Agencies, (BACWA) (the "Agreement") in consideration of the covenants hereinafter set forth.

1. BACWA and DRW Engineering agree to a new contract amount of $201,682.00 for Executive Director Services.

2. BACWA and DRW Engineering agree to a new period of July 1, 2018 – June 30, 2019.

3. Except as herein expressly modified, the Agreement will remain in full force and effect.

BAY AREA CLEAN WATER AGENCIES

By _____ Date May 18, 2018
Lori Schectel Chair, Executive Board

David R. Williams (dba DRW Engineering)

By _____ Date May 18, 2018
David R. Williams, Executive Director

AMENDMENT NO. 3
TO AGREEMENT BETWEEN
BAY AREA CLEAN WATER AGENCIES AND
Sherry A. Hull
FOR
Assistant Executive Director Services

This Amendment No. 3 is made this 18th day of May, 2018, in the City of Oakland, County of Alameda, State of California, to that certain agreement of July 1, 2015 by and between Sherry A Hull and Bay Area Clean Water Agencies, (BACWA) (the "Agreement") in consideration of the covenants hereinafter set forth.

1. BACWA and Sherry A. Hull agree to a new contract amount of $90,526.00 for Assistant Executive Director Services.

2. BACWA and Sherry A. Hull agree to a new period of July 1, 2018 – June 30, 2019.

3. Except as herein expressly modified, the Agreement will remain in full force and effect.

BAY AREA CLEAN WATER AGENCIES

By _____ Date May 18, 2018
Lori Schectel, Chair, Executive Board

Sherry A. Hull

By _____ Date May 18, 2018
Sherry A. Hull, Assistant Executive Director

AMENDMENT NO. 2
TO AGREEMENT BETWEEN
BAY AREA CLEAN WATER AGENCIES AND
Lorien Fono
FOR
Regulatory Program Manager Services

This Amendment No. 2 is made this 18th day of May, 2018, in the City of Oakland, County of Alameda, State of California, to that certain agreement of July 1, 2016 by and between Lorien Fono and Bay Area Clean Water Agencies, (BACWA) (the "Agreement") in consideration of the covenants hereinafter set forth.

1. BACWA and DRW Engineering agree to a new contract amount of $119,815.00 for Regulatory Program Manager Services.

2. BACWA and Lorien Fono agree to a new period of July 1, 2018 – June 30, 2019.

3. Except as herein expressly modified, the Agreement will remain in full force and effect.

BAY AREA CLEAN WATER AGENCIES

By _____ Date May 18, 2018
Lori Schectel, Chair, Executive Board

Lorien Fono

By _____ Date May 18, 2018
Lorien Fono, Regulatory Program Manager

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 4

FILE NO.: 19-04

MEETING DATE: May 18, 2018

TITLE: Nomination and Election of BACWA Executive Board Chair and Vice Chair for FY19

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

RECOMMENDED ACTION

Board nomination and election of the BACWA Executive Board Chair and Vice Chair.

SUMMARY

Section 7 of the Joint Powers Agreement establishing BACWA states that the agency shall designate a Chair and Vice Chair, chosen by the Executive Board, from the members of the Executive Board. These positions each have a one year term that coincides with BACWA's fiscal year. Historically, most BACWA Chairs and Vice Chairs are asked to serve for two consecutive terms.

Responsibilities of the Chair include signing contracts, approving payments, convening and presiding over Executive Board meetings, and serving on the BACWA Finance Committee. Responsibilities of the Vice Chair include serving as the Chair in the absence of the regularly elected Chair and serving on the BACWA Finance Committee.

BACWA Leadership History

Timeframe	Chair	Vice-Chair
2000 – 2002	Chuck Weir (EBDA	Jim Kelly (CCCSD)
2002 – 2004	Jim Kelly (CCCSD)	Michael Carlin (SFPUC)
2004 – Feb. 2005	Michael Carlin (SFPUC)	Dave Williams (EBMUD)
March 2005 – June 2005	Dave Williams (EBMUD)	Bill Keaney (SFPUC)
July 2005 – June 2006	Bill Keaney (SFPUC)	Chuck Weir (EBDA)
July 2006 – May 2007	Bill Keaney (SFPUC)	Dave Williams (EBMUD)
June 2007 – June 2008	Dave Williams (EBMUD)	Dave Tucker (EBMUD)
July 2008 – March 2010	Dave Tucker (SJ)	Doug Craig (CCCSD)
April 2010 – June 2010	Dave Tucker (SJ)	Arleen Navarret (SFPUC)
July 2010 – October 2010	Arleen Navarret (SFPUC)	Ben Horenstein (EBMUD)
Nov 2010 – Feb 2013	Ben Horenstein (EBMUD)	Tommy Moala/Laura Pagano (SFPUC)
March 2013 – June 2015	Mike Connor (EBDA)	Laura Pagano (SFPUC)
July 2015 – June 2017	Laura Pagano (SFPUC)	Jim Ervin (SJ)
July 2017 – Feb 2018	Jim Ervin (SJ)	Lori Schectel (CCCSD)
March 2018 – June 2018	Lori Schectel (CCCSD)	Amit Mutsuddy (SJ)

FISCAL IMPACT

This action has no fiscal impact.

ALTERNATIVES

This action does not require consideration of alternatives.

BACWA EXECUTIVE DIRECTOR AUTHORIZATION

AGENDA NO.: 5___
FILE NO.: 19-06, 19-07, 19-08
MEETING DATE: May 18, 2018

TITLE: Executive Director Authorization of Fiscal Year 2019 Amendments to Contracts

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

ACTION

Executive Director Authorization of amendments to contracts to implement the Fiscal Year 2019 BACWA/CBC Budget and Workplan.

SUMMARY

The BACWA Fiscal Year 2019 begins July 1, 2018. In order to prevent a gap in core services, BACWA typically executes contracts for the coming FY before the end of June. The amendments summarized below will ensure that, as of July 1, 2018 BACWA has Executive Board Legal Support, Regulatory Legal Support, and IT Support. All of these contracts were included in the BACWA FY 2019 workplan and budget and will become effective July 1, 2018. All contracts have a term of one year and will terminate on June 30, 2019.

Contractor	Services	Contract Amount	File Number
Day Carter Murphy	Executive Board Legal Support (as needed)	$2,091.00	19-06
Downey Brand	Regulatory Legal Support (as needed)	$2,601.00	19-07
Cayuga Information Systems	IT Support (as needed)	$2,600.00	19-08

FISCAL IMPACT

The funding for these contracts is consistent with the FY 2019 Workplan and Budget for BACWA/CBC.

ALTERNATIVES

No other alternatives were considered for these contracts as the terms of these agreements are consistent with BACWA contracting policies.

Attachments:
1. Day Carter Murphy Rate Sheet FY19
2. Downey Brand Rate Sheet FY19
3. Cayuga Information Systems Rate Sheet FY19

Approved: David R. Williams
Dave Williams, Executive Director
BACWA

Date: May 18, 2018

Professional Services by
Day Carter & Murphy LLP
Fiscal Year 2018-19

EXHIBIT A

SCOPE OF WORK

Day Carter & Murphy LLP agrees to provide legal advice and counsel to BACWA upon written request by the BACWA Executive Director or the Assistant Executive Director, the total annual costs of which are **not to exceed $2,091.**

EXHIBIT B

HOURLY RATES/REIMBURSABLE EXPENSES

Day Carter Murphy

FY 2018-19

James M. Day Jr.	$340.00 per hour
Ralph R. Nevis	$320.00 per hour
Joshua L. Baker	$320.00 per hour

Exhibit B

Downey Brand LLP

2018-19 Hourly Rates for BACWA

Melissa Thorme	$390 (discounted from standard rate)
Nicole Granquist	$390 (discounted from standard rate)
Associates	$235-355 (depending on associate's years of experience)

Costs

Transportation, Parking, Lodging, Tolls (for approved travel) - actual cost per receipt
For large copy jobs, regular BW copies - $0.10 per page; color copies - $0.20 per page
Postage/Overnight mail service - actual cost
Mileage: current IRS rule rate
Courier: actual cost per receipt
Duplication to CD/DVD: $5.00 per CD/DVD

CAYUGA INFORMATION SYSTEMS

Attachment A

FY19 SCOPE

Task 1. Provide As-Needed IT Assistance to BACWA Staff.

Attachment B

FY19 Rates and Terms of Payment

- Hourly Rate: $90.00 for onsite or over the phone assistance.
- One hour minimum for field service calls.
- Travel Time: No charge for travel within 45 minutes of Martinez Office.
- Expenses: Reimbursed for actual expenses.

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 6

FILE NO.: 19-05

MEETING DATE: May 18, 2018

TITLE: Confirmation of BACWA Representatives to the Aquatic Science Center / San Francisco Estuary Institute Governing Board for FY19

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

RECOMMENDED ACTION

Confirm Laura Pagano or appoint a new BACWA representative to the Aquatic Science Center/SFEI Board of Directors.

SUMMARY

The Aquatic Science Center (ASC) is a Joint Powers Authority created by the State Water Resources Control Board and BACWA to assist with the efficient delivery of financial, scientific, monitoring, and information management support functions for the Bay Area. In 2013, the ASC and San Francisco Estuary Institute (SFEI) boards merged as part of an efficiency effort; each organization however continues to have its own Bylaws. The ASC Bylaws, in accordance with the JPA, require that BACWA appoint three members to the ASC. Current BACWA representatives to the ASC/SFEI Board are Laura Pagano and David Williams, with Amit Mutsuddy and Karin North serving as first alternates respectively. Additionally, the following individuals serve on the Aquatic Science Center Board in the seat allocated by BACWA to Sacramento Regional County Sanitation District: Prabhakar Somavarapu as Board Representative; Terrie Mitchell as First Alternate; Christoph Dobson as Second Alternate.

The SFEI Bylaws includes two 3-year term limits for its Board members, however being appointed the ASC Bylaws do not have term limits for the appointees and thus they will continue as Board members until new appointees are selected by the BACWA Board. The 3-year term allows BACWA the opportunity to periodically re-evaluate its appointees. A 3-year term for Laura concludes at the end of FY 18. The BACWA Board has the opportunity of re-appointing Laura Pagano or appointing another BACWA member to the ASC/SFEI Board. Going forward, as 3-year terms conclude for BACWA appointees, the BACWA Board will be provided the opportunity to re-confirm or appoint new representatives to the ASC/SFEI Board.

FISCAL IMPACT

This action has no fiscal impact.

ALTERNATIVES

No alternatives were considered as BACWA needs to re-confirm or appoint a new representative to the ASC/SFEI Board of Directors.

Approved:

Date: May 18, 2018

Lori Schectel, BACWA Chair

Sherry Hull

From: Sherry Hull
Sent: Friday, May 11, 2018 9:02 AM
To: Sherry Hull
Subject: CMG Call May 11, 2018

From: David Williams
Sent: Friday, May 11, 2018 8:56 AM
Subject: RE: CMG Call May 11, 2018

Thanks for all of you who were able to join the call this morning. Decisions and actions items from the call are as follows:

1. HDR will send the final draft of the narrative summary to BACWA who will provide it to all of the POCs by mid-next week

2. BACWA will request that any high priority changes be submitted in advance of the Workshop on the 31st. Note: the expectation is that there will be few, if any, significant changes submitted given the multiple levels of reviews of what is generally considered and excellent report.

3. At the workshop on the 31st HDR will explain the highlights of each section of the narrative summary along with the key graphics in that section. Comments will be requested from the audience at the end of each section review. If there is not consensus on a comment a show of hands will be used to determine if the comment should be recorded or not.

4. Any recorded comments will be addressed by HDR following the meeting. No other comments will be accepted following the meeting. The BACWA ED will coordinate with HDR to ensure the comments from the workshop are addressed. If available in time, the final document will be provided as an informational item at the BACWA May Board meeting or lacking the final document, an update as to how the comments were address will be provided to the extent possible.

5. HDR reported that they have 24 sign-off letters in hand. 6 more were identified during the call as coming in soon.

6. HDR will provide the BACWA ED a list of outstanding sign-off letters. The ED will notify the individual agencies of the need to send in the sign-off letters or deal individually with the WB. The WB will also be contacted to see how they intend to deal with missing sign-off letters.

7. Given this will be an engineering report, HDR intends to stamp the report with a PE stamp.

8. At the June BACWA Board meeting an item will be discussed on executing a change order with HDR to provide a high level graphically overview of the Op/Upgrade Report for used by the individual BACWA membership.

9. A cancellation for the June CMG conference call will be sent out.

David R. Williams
Executive Director
Bay Area Clean Water Agencies (BACWA)
Cell: 925-765-9616
Email: dwilliams@bacwa.org

SUMMARY OF DISCUSSION WITH THE WB ON AN APPROACH TO INCENTIVIZING EARLY ACTION ASSOCIATED WITH NUTRIENT REDUCTIONS IN SAN FRANCISCO BAY

One of the key tenets for the 2nd WS Permit is to incentivize early actions by plants to reduce nutrients in advance of any regulatory mandates. There is no one right approach, rather several approaches that may serve to recognize early actions and help to incentivize them. The following is a summary of a discussion with the WB on concepts for incentivizing early actions to reduce nutrients. The following concept may address many of the challenges that would be associated with incentivizing early actions by agencies to voluntarily reduce nutrients and get credit for those reductions.

Initial Establishment of a Baseline

Concept: A key factor in any effort to incentivize early actions is the establishment of a baseline from which future reductions would be measured. There is general agreement that establishing a baseline as early as practical for each plant would be more advantageous since all reductions associated with any early actions going forward could then be easily calculated. A baseline established in the 2019 Permit may be a good approach for several reasons: (1) by 2019 there would be 6 years of good loading data per plant available (i.e. data initially collected beginning in 2013 as required by the 13267 letters, followed by data collected as required by the 1st Watershed Permit); (2) the WB had previously indicated that load caps may be imposed at the start of the 2nd Watershed Permit; and (3) most of the significant improvements being undertaken at agencies which would result in nutrient reductions would have yet to come online.

Since the state of the science in 2019 may not unequivocally support no increases in nutrient loads at that time, a buffer, consisting of some allowable percentage increase in nutrient loads, could be added to the baseline to project the baseline loading forward to the year 2024. The baseline plus percentage buffer would provide a basis for consideration of load caps to be included in the 3rd Watershed

Permit in 2024 when the WB will have more scientific information and can determine if indeed loads are warranted in the 3rd Watershed Permit.

To Be Determined: Under this concept the actual calculation of the baseline for each individual plant using the 13267 and Watershed Permit data would need to be established and would need to consider such things as what years of data would be used and would the baseline be based on annual, seasonal or other subsets of the whole dataset. Also the percentage for the buffer would need to be set.

Compliance with Load Caps

Concept: Load caps would be established on a subembayment basis with the plan being to include load caps in the 3rd Watershed Permit in 2024. It is envisioned that the load caps would be achievable upon the effective date of the permit. The cumulative baselines plus buffers for all the plants within the subembayment would establish the load cap for the subembayment.

Credit for Early Actions

Concept: Any plant that was successful in reducing nutrients below the baseline plus buffer would get credit for that reduction. The amount of load below the baseline plus buffer (i.e. the credit) could be used by the plant to accommodate growth in the future or for other issues that may tend to increase nutrient loads from a plant. The plant may also use their credit for trading within their subembayment if they chose. The requirement would be for the load cap for the subembayment to not be exceeded. Therefore, if a plant implemented early actions and was successful in reducing nutrient loads below their baseline plus buffer and achieved a credit, they could then sell those credits to another plant in the subembayment who was in danger of exceeding their baseline plus buffer once load caps were in place.

To Be Determined: The calculation for the credit would need to be established and most probably would involve a plant demonstrating a permanent reduction over some averaging period (i.e. seasonal, annual, other, etc.) and the obligated

to maintain that reduction in the future. As nutrient reductions from previous years will have a limited benefit to ecosystem response in future years, how credits maintain their value over time would need to be considered.

Incentivizing Early Action

Concept: If a plant undertook early actions and achieved a reduction in nutrients below their baseline plus buffer (i.e. their credit) and then was able to use that exact credit amount to offset future growth back to their baseline plus buffer load level, then one could question what incentive would drive a plant to undertake early action? The concept of a multiplier would provide such an incentive. Under this concept, a reduction of "x" load via early action would be granted a credit of say 1.2x which then could be used for a plant's own purposes or for trading. This concept could work as an incentive provided that the majority of large loading plants within the subembayment did not take advantage of this incentive which could then result in an unintended consequence of inadvertently overloading a subembayment. One way of preventing this unintended consequence would be to put an upper limit on the early credit incentive such that those who acted very early would receive the incentivizing multiplier while those acting a bit later after the upper limit had been reached by others, would only get the 1:1 credit. A sliding scale could also be used. Another consideration in incentivizing early actions is how to incentivize non-traditional approaches to nutrient reductions. With at least two of the most promising innovative technologies being identified for each plant in the Optimization/Upgrade Report, consideration could also be given to applying a multiplier to implementing those technologies.

Since the intent behind offering incentives for early action is to prompt plants to reduce their loading ahead of regulatory requirements. Accordingly, the incentivizing opportunity would end once the date on which load caps must be met had past. At that point, with load cap compliance required, there would be no need to incentivizing early actions.

To Be Determined: Under this concept, the multiplier(s) for incentivizing early actions for both traditional and multi-benefit projects would need to be considered and perhaps establishment of an upper limit for a subembayment in order to avoid unintended consequences of oversubscription to the incentivizing

opportunity. The WB would also need to determine what factors would put an early action into the category of a multiple benefit project.

Adjustment of the Baseline

Concept: By 2024 the NMS Science Program will have provided much more insight into the condition of the Bay. The plan is to set subembayment load caps in 2024 based on the baseline plus buffer established back in 2019. A variety of factors however may lead the WB, in 2024, to the conclusion that the 2019 baseline plus buffer may no longer be appropriate and would need to be adjusted.

To Be Determined: The 2019 Watershed permit should set forth what factors will be considered in 2024 to determine if the baseline plus buffer should be adjusted for the 3rd Watershed Permit.

Example

In 2019 a subembayment has four plants A, B, C, and D with annual dry weather loadings of 10, 50, 100, and 300 units respectively based on averages from 2015, 2016 and 2017. The 2019 Watershed Permit establishes a baseline loading of 460 units annually for the subembayment. A 10% buffer is established for the subembayment recognizing the increase in loadings as time progresses for a total projected loading in 2024 of (460 + 46) = 506. The Permit also allows a 1.2 multiplier for any early actions with a cap on incentivized credits of 30 units.

In 2023 Plant A's upgrade comes online lowering its discharged to 3 units. It's un-incentivized credit would have been (10 x 1.1) -3 = 8 but it took advantage of the 1.2 incentivizing multiplier and now it will get a credit of ((10 x 1.1) – 3) x 1.2 = 9.6 units. Plant C implements side stream treatment in 2022 lowering its discharge to 80 units. It's un-incentivized credit would have been (100 x 1.1) – 80 = 30 but it took advantage of the 1.2 incentivizing multiplier and now it will get a credit of ((100 x 1.1) – 80) x 1.2 = 36 units. Although due to population increases over time the loads from the two plants will increase, both plants maintain the reductions associated with their early actions going forward for the next three decades. Since the total incentivizing credit amounts to less than (1.6 + 6) = 7.6 <30, other plants in the subembayment could still take advantage of this incentivization.

By 2024 the four plants A, B, C, and D loadings have increased to 4, 60, 90, and 330 units respectively for a total subembayment loading of 484 which is below the baseline plus buffer of 506 established in 2019 due to the early actions on the part of Plants A and C.

In 2024 the 3rd Watershed Permit takes effect. A load cap of 506 is established for the subembayment. No grace period is needed since the subembayment is below the load cap due to early actions. The scientific studies indicate that although the subembayment is not impaired, the modeling of the subembayment predicts that future load increases beyond the cap would place that portion of the Bay in jeopardy.

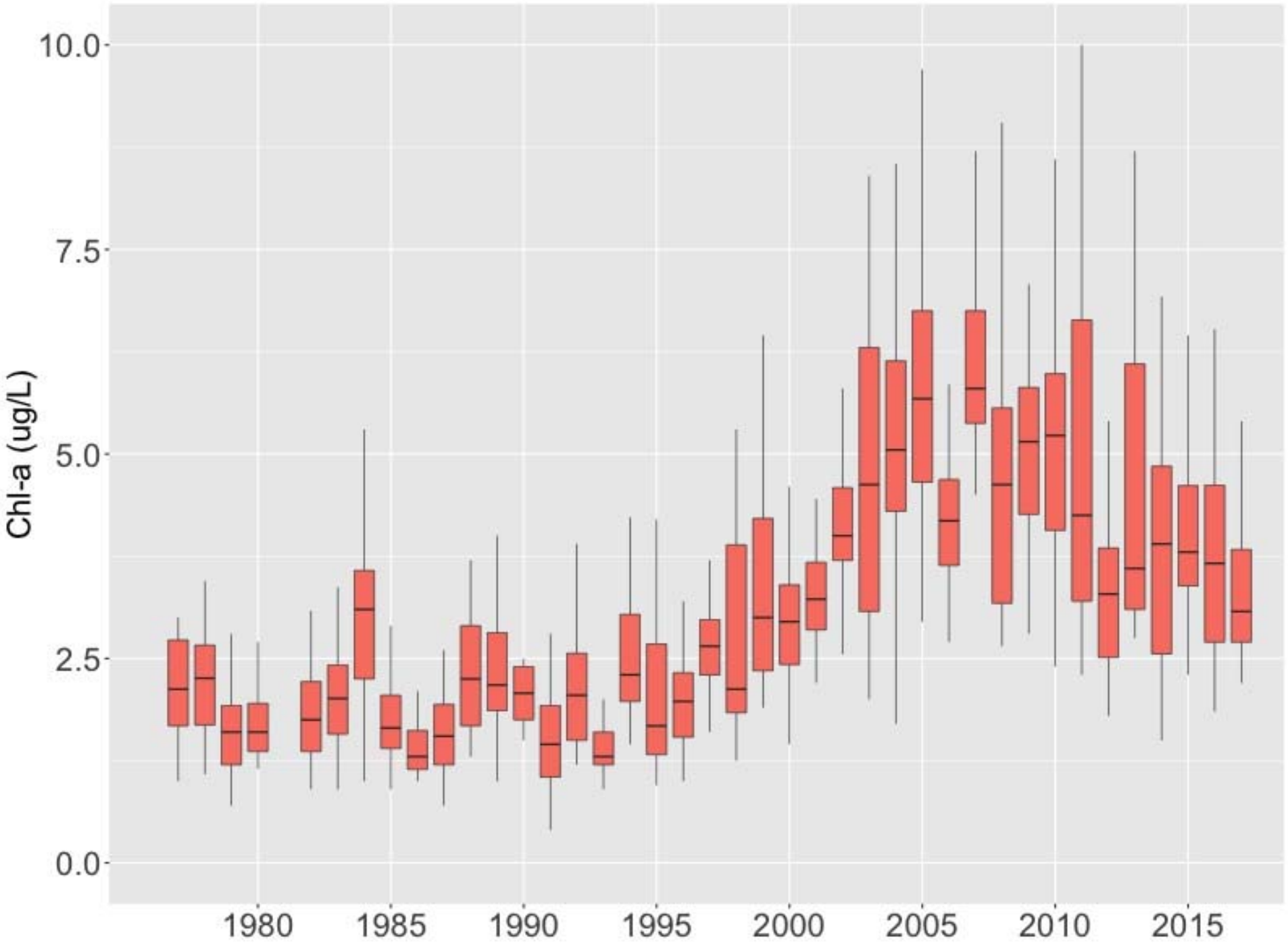
The decisions facing each plant area as follows:

Plant A: As a result of its upgrade, and now discharging 4 units, it is still below its new baseline plus buffer of (10 x 1.1) = 11 by 7 units. Plus, it has an additional incentive credit of 1.6 for a total amount for future loading of 8.6 which it could use to grow or to sell to another plant in its subembayment.

Plant B: As a result of rapid growth, etc. it is exceeding its baseline plus buffer by (50 x 1.1) – 60 = -5 units. It would need to optimize or purchase credits from Plant A and/or C.

Plant C: As a result of sidestream treatment, and now discharging 90 units, it is still below its new baseline plus buffer of (100 x 1.1) = 110 by 20 units. Plus, it has an additional incentive credit of 6 units for a total amount for future loading of 26 units which it could use to grow or to sell to another plant in its subembayment.

Plant D: As a result of growth, etc. it is exactly meeting its baseline plus buffer (300 x 1.1) = 330. As time passes and some growth occurs, it would need to optimize or purchase credits from Plant A and/or C.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Planning Subcommittee (PS) Meeting Summary No. 31
May 2, 2018
9:00 am – 12:00 noon
Water Board Offices
Draft Meeting Summary

Attendees: Tom M., David S., Ian W., Mike C., David W.
Note: Action Items and Decisions are shown in *bold italic*.

1. Agenda Modifications: None

2. Review Outstanding Action items: The Action Items from Planning Subcommittee (PS) meeting #30 and Steering Committee (SC) meeting #16 were reviewed. All items had been completed with the exception of the following: ***Action Item: The PS will respond to the SC request for the strategy on integration of the Bay and Delta models.***

3. Science Program update

a. **Staffing:** The Science Manager (SM) provided an in-depth discussion of several staffing issues. A lengthy discussion followed. Key issues that are requiring attention by the SM are as follows:

- challenges in trying to match the scientists' interests with the work that needs to be completed
- turnover of key positions
- arranging for continued involvement in the NMS at some level with key staff who will be leaving
- productivity issues with some staff
- potential personnel issues that will need to be resolved

- how to provide publishing opportunities, often a motivator with scientists, to key staff
- stressing the need for applied science versus pure research with key staff

The SM did report that some very talented new hires have recently been made.

b. **Other:** The SM provided an update on the March Saxitoxin discovery in shellfish. Levels detected have yet to decline and are still above the threshold. Dept. of Health Services is continuing to monitor the levels. A HAB toxin update will be forth coming and will go to the SC.

The Water Board reiterated the need to have a road map in place that clearly articulates what will be accomplished by 2024 so that management action decision can be informed in time for the 3rd Watershed Permit.

4. Priority Updates

a. **Report-Outs**

i. **Other issues:** None

ii. **Trends Expert Workshop (3/28):** It was pointed out that this work falls under Project P.4 and would investigate the Assessment Framework to incorporate trends analyses. The GAMs model would be a good tool for undertaking this effort. A suggestion was made to hold a workshop on the use of GAMs and invite folks from the Delta and the Chesapeake in order to leverage knowledge they possess. The goal would be to develop a statistical package for water quality issues.

There is an existing package called “Bay Trends” that is built around GAMs. The group then pursued a discussion of potential modelers and models and how these could be brought together to asses, on a statistical basis, whether or not there is a real change over time in the Bay and the importance of being able to determine if such changes are occurring. There are lots of experts in different areas i.e. ecological, statistical, modelers, etc. that could be contracted to help with the NMS.

Over the next several weeks the Program Coordination Team (PCT) will develop a work plan and begin modeling runs utilizing the GAMS approach. The initial effort will be to focus on trends for one or two parameters in a subembayment, e.g. chl-a. The product would be presented to the NMS SC in Sept.

The WB stated that as their staff prepares drafts for watershed permits, they need a trend monitoring tool to understand how the Bay is doing. Any approach needs to be affordable and sustainable.

b. **Current Issues**

i. SC meeting scheduling: The group discussed the issue of the timing for finalizing the FY 19 NMS Program Plan given the recent turnover in key staff at SFEI. All felt that a program plan should be well thought-out before presenting to the SC for approval. A lengthy discussion ensued with several ideas being offered for consideration as follows:

- Defer the SC meeting and seek email approval of a Program Plan or parts thereof.

- Wait until September's SC meeting to approve the FY 19 Program Plan
- Seek agreement only on the core monitoring and modeling work that should not be interrupted
- Hold a meeting and make some timely presentations to keep the SC engaged

Suggestions for timely presentation were then discussed. Some ideas that were offered included the following:

- Technical update on HABs
- Presentation on the Suisun Marsh DO project and possible linkages to the direction for Lower South Bay (LSB) and site specific objectives
- Future trends in the Bay such as with stratification and light penetration
- Trends occurring in the bay, particularly the trend in chl-a for LSB, and how those trends related to projections of conditions of the Bay in the future
- The future of modeling for the Bay
- Have key staff who will be leaving present an overview of their work and where they see it going

Following the discussion, it was agreed that the PCT would develop an agenda for the June SC meeting. ***Action item: Tom M. to confirm that WB staff Barbara B. is available to provide update on the Suisun Marsh DO Study at the next SC meeting.***

c. **NMS Calendar Review**

i. **Review future SC and PS meeting schedules:** The schedules were reviewed. The SC in June will be held on June 8th.

5. Other Updates

a. **Charter Amendment re: membership:** This was reviewed and the PS felt that it adequately addressed the needed modification for allowing others to participate on the NMS SC.

b. **Discussion: scientific papers coming from the NMS Science Program:** The group discussed the issue of what needs to be communicated to the NMS SC prior to a manuscript being submitted. It turned out to be a more complicated issue than originally envisioned. Scientist often seek to publish their work but there may be limitations on accepting funding for research if strings are attached. It was agreed that more thought was needed on this subject and that it was not a pressing issue at this time. One thought was to ask members of the SC such as the Delta Science Panel and the USGS what their respective organization's policies were on publishing.

   The group felt that a round table discussion at the June SC meeting could be one way of gaining more insight into the issue of publications. Business aspects of the June meeting could therefore include approval of the Charter modifications, a roundtable discussion on approaches to publications and approval of core funding for the NMS monitoring and modeling work.

c. **Discussion: Integrated Modeling Support RFP/NMS representation on Steering Committee:** As part of this discussion it was suggested that perhaps Rusty H. could provide a presentation on his modeling work and where he thought it should be headed. It was pointed out that the Delta RMP is looking at integrated modeling and possibly requesting proposals. SFEI has some interest in working on such an integration effort and may make a proposal that includes other

collaborators. The integration would be with ecological models. Models for sediment should also be included in any overall integration effort. A steering committee is being contemplated for pursuing integrated modeling. The WB (Tom M.) volunteered to be the NMS representative on this new steering committee and would report back to the NMS SC in June. ***Action Item: Tom M. to report back to the NMS SC on the new integrated modeling.*** The SM stated that he was aware of a good model ("un-trim") that was available but it was proprietary. The model is owned by Mike MacWilliams who offeres to conduct model runs for a fee. The above mention proposal would be to look at how various data could be integrated onto other platforms.

d. **Other:** The group then discussed the analyses of alternatives for nutrient reductions through other than grey-scape treatment approaches. The WB staff had attended the last BACWA Permit Committee meeting and discussed their update of the wetlands policy. Building on the earlier assessment of wetlands, the PCT proposed undertaking a $5k study to help inform possible next steps on pursuit of wetlands as multiple-benefit projects and to provide additional information that could assist in the development of the scope of work for the Regional Study on non-grey-scape approaches to nutrient reductions being proposed for the 2nd Nutrient Watershed Permit. The $5k study should asses what types of teams might be best suited to undertake the Regional Study. The WB thought that perhaps additional funding beyond what BACWA was proposing for the Regional Study could be brought to bear.

6. Planning the next Steering Committee meeting

a. **Review of Action items from meeting FY19 Budget & proposed projects:** Action Item were reviewed.

b. **Discussion: potential future off-site meeting @ USGS Menlo Park & boat visit:** Not discussed in any detail.

c. **Next steps:** The PCT team will develop an agenda for the June SC meeting.

7. Adjourn or address Parking Lot items: The meeting was adjourned at noon.

Parking Lot of Identified PS Future Agenda Items

a. **Brainstorming on future priorities for the PS**
b. **EPA nutrient criteria discussion**
c. **Discuss concept of holding an annual forum on nutrients**

DRAFT

Executive Board Special Meeting Agenda

SF Bay Regional Water Board / BACWA Executive Board Joint Meeting

June 1, 2018 10:00 AM -12:00 PM

SF Bay Water Board, 1515 Clay Street, St. 1400 Oakland, CA

ROLL CALL AND INTRODUCTIONS – 10:00

PUBLIC COMMENT – 10:05

DISCUSSION/OTHER BUSINESS- 10:10

Topic	Goal	Time
1. Nutrients a. Optimization and Upgrade Studies b. 2nd Watershed Permit c. Advance Funding to NMS	• Update on progress of optimization/upgrade studies completion • Discussion over incentivizing early actions and the Regional Study • Timing and contingency for advancing funding during FY19	10:15
2. State Water Board Climate Change Resolution	• Input to State Water Board from Region 2	10:50
3. Near shore discharge permitting	• Input from BACWA members on Case Studies report	11:55
4. Chlorine Residual BPA	• Update on progress	11:05
5. Triennial Review	• Discussion of projects	11:15
6. SSS WDR Update	• Update on recommendation from wastewater community and Region 2	11:25
7. Recycled Water	• Discussion of Recycled Water Policy Update – implications for Region 2 • How to manage onsite reuse permitting	11:30
8. Joint meeting between Water Board and Air District	• Draft agenda, schedule	11:40
9. Risk Reduction	• BACWA approach to satisfying Hg/PCB permit	11:45
10. CECs update	• BACWA White Paper on POTW Participation	11:50

ADJOURNMENT

Brief Issue Descriptions

for the

2018 Triennial Review

of the

San Francisco Bay Basin

Water Quality Control Plan

(Basin Plan)

April 2018

Table of Contents

1 INTRODUCTION

The San Francisco Bay Regional Water Quality Control Board (Water Board) is conducting the 2018 triennial review of the water quality standards in its Water Quality Control Plan (Basin Plan, http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml). The last triennial review was completed in 2015. The Water Board's triennial review will identify those issues that are considered a priority to address through Basin Plan amendment projects. Based on previous stakeholder comments, coordination with the statewide Basin Plan roundtable and a review of regulatory program needs, Water Board staff has identified the following issues within the Basin Plan for consideration in the upcoming 2018 triennial review. The projects are presented in categories of project type: beneficial uses, water quality objectives, implementation plans, other plans and policies, and editorial updates. Their order within these categories does not reflect their priority, which will be established through the triennial review public process. We prepared this list to inform the public and inspire interested parties to generate ideas to share with us to assist in our efforts to identify and prioritize Basin Plan amendment projects that will best address the water quality planning needs of our region.

2 UPDATE BENEFICIAL USES

State policy for water quality control in California is directed toward achieving the highest water quality consistent with maximum benefit to the people of the State. The beneficial uses described in Chapter 2 of the Basin Plan define the resources, services, and qualities of the State's aquatic systems. The Water Board is charged with protecting all these beneficial uses from pollution and nuisance that may occur as a result of waste discharges in the Region. Beneficial uses of surface water bodies (lakes, rivers, and wetlands) and groundwater aquifers presented here serve as a basis for establishing water quality objectives and discharge prohibitions to attain this goal.

2.1 Add Unnamed Water Bodies That Receive Discharges

A small number of NPDES wastewater permits cover discharges to water bodies not named in the Basin Plan. Mostly, these are new discharge points subsequent to the water body Basin Plan update accomplished in 2010. As of 2018, there are currently approximately six additional water bodies that should be added to the Basin Plan because they receive an NPDES-permitted discharge, but the first step of this project would include a review of NPDES permits to determine if there are more. This candidate project would add the missing water bodies receiving discharges which are not currently named in the Basin Plan. This should be a straightforward project that could be combined with another Basin Plan amendment (e.g., updating cyanide dilution credits).

2.2 Addition of Sport Fishing Beneficial Use to Lakes

This project entails adding Commercial and Sport Fishing (COMM) to certain lakes and reservoirs that are listed as impaired on the Clean Water Act 303(d) impaired waterbodies list due to mercury concentrations in sportfish or are potentially of concern where the COMM beneficial use is determined to apply. Many lakes and reservoirs in the region already have this beneficial use designation. The need for designating the COMM use for these waterbodies was identified as part of the ongoing work on the Statewide Mercury in Reservoirs TMDL. The COMM beneficial use is considered impaired when high contaminant concentrations make fish

unsafe for human consumption. Other waterbodies may also be reviewed for the COMM beneficial use as part of this project.

2.3 Align Ocean Plan and Basin Plan for Recreational Contact Use

The applicability of the water contact recreation (REC1) beneficial use in the Pacific Ocean is defined in the California Ocean Plan. The Ocean Plan restricts effluent limits intended to protect REC1 to a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour and areas designated with REC1 by a regional board. Because the San Francisco Bay Region Basin Plan provides no specific details on where REC1 applies, by default it assigns REC1 to the entire Pacific Ocean, and therefore the Basin Plan's effluent limits (e.g., for bacteria) must apply to the entirety of the ocean out to the edge of State waters which is three nautical miles away from shore. This may be considered an overly broad application of the REC1 use that provides no water quality benefit in State waters and unnecessarily complicates permitting the San Francisco Public Utilities Commission's Oceanside outfall that discharges effluent well beyond three nautical miles. The project would clarify that the Basin Plan's application of REC1 to the Pacific Ocean would be equivalent to the Ocean Plan's distance and depth contour specification.

2.4 Stream and Wetland Systems Protection Policy

This project has been on hold pending State Board dredge and fill policy revisions. The project is currently envisioned as a Basin Plan amendment that would protect stream and wetland systems, which include stream channels, wetlands, floodplains, and riparian areas. The amendment is expected to help protect and restore the physical characteristics of these systems, including their connectivity and natural hydrologic regimes, in order to protect beneficial uses. The proposed stream protection amendment would designate two new beneficial uses of streams and wetlands: water quality enhancement and flood peak attenuation/flood water storage. These beneficial uses explicitly recognize that physical characteristics of water bodies contribute to better water quality, and need to be protected in the Board's permitting programs in order to achieve the Board's mission of protecting all beneficial uses of the Region's water bodies. The proposed amendment would also include additions to the implementation plan chapter. Elements of projects described in project 3.5 could be incorporated into this project.

2.5 Modification of Groundwater Sub-Basin Boundaries

This candidate project would involve revising the boundaries of two groundwater basins located in San Francisco and San Mateo counties to be consistent with the California Department of Water Resources Bulletin 118. DWR's Bulletin 118 defines the Westside Basin and the Islais Valley Basin each as one entire groundwater basin with no delineated sub-basins. This update can also provide an opportunity to make a small adjustment to the boundaries of the Niles Cone sub-basin in the Fremont area. The Basin Plan, Figure 2-10C and Table 2-2 may not conform to Bulletin 118 and should be reviewed and updated as necessary.

The Bulletin 118 boundaries are used as the basis for statewide water resource, planning, management, and funding decisions, as well as the California Statewide Groundwater Elevation Monitoring Program. DWR's draft Basin Boundary Regulations, published on July 17, 2015, state that, "revision of any basin boundaries or creation of new sub-basins approved by the Department shall be consistent with the State's interest in the sustainable management of

groundwater as expressed in the Sustainable Groundwater Management Act (SGMA).” While elements of the Basin Plan are not required to be consistent with SGMA, maintaining consistency in statewide groundwater management will make planning efforts more effective and efficient.

2.6 Designate Tribal Tradition and Culture, Tribal Subsistence Fishing, and Subsistence Fishing Beneficial Uses in the San Francisco Bay Region

In 2017, the State Water Resources Control Board adopted Resolution No. 2017-0027. The provisions for this resolution (***Final Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions***) defined three new beneficial uses: Tribal Tradition and Culture (CUL), Tribal Subsistence Fishing (T-SUB), and Subsistence Fishing (SUB). Resolution 2017-0027 established these three uses in the Statewide Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California, but it did not designate these uses for any specific waterbodies in California nor require that the uses be designated. Regional Water Boards are generally responsible for designating beneficial uses for specific waterbodies (where the use applies) within their respective regions, and this designation occurs through a basin planning process.

This candidate project is to amend the Basin Plan to designate these three uses for waterbodies in the San Francisco Bay Region. In executing this project, Water Board staff would work with local tribes as well as groups representing subsistence fishing communities to document the existence of these uses along with relevant spatial and temporal attributes. Upon reviewing the available documentation, Water Board staff would determine the appropriate geographic scope (e.g., specific waterbodies or regional designation) of the use designations for the Basin Plan amendment.

3 UPDATE WATER QUALITY OBJECTIVES

The overarching purpose of water quality regulation is to protect and maintain thriving aquatic ecosystems and the resources those systems provide to society and to accomplish this in an economically and socially sound manner. California's regulatory framework uses water quality objectives both to define appropriate levels of environmental quality and to control activities that can adversely affect aquatic systems. The following candidate projects provide specific examples of water quality objectives we are considering updating.

3.1 Review and Refine Dissolved Oxygen Objectives for San Francisco Bay

This project was identified as a high priority project during the 2015 Triennial Review, and the first phase of the project, adoption of site-specific dissolved oxygen objectives for Suisun Marsh is near completion with the Board’s adoption of these objectives at the April 2018 Board meeting.

The Basin Plan includes a minimum water quality objective of 5.0 mg/L for dissolved oxygen in all tidal waters downstream of the Carquinez Bridge and 7.0 mg/L upstream of the Carquinez Bridge and also includes a requirement that the median dissolved oxygen concentration for any

three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation. These objectives were adopted in the 1975 Basin Plan and are generally being attained in most of the Bay's subtidal waters. Concerns exist about the applicability of these objectives to certain habitats in the Bay (e.g., marsh tidal sloughs and managed ponds) where the objectives may not be attainable or applicable.

Updating the dissolved oxygen objectives is especially important in view of the dramatic increase in opportunities for restoration of unique habitats around the Bay margins. These unique habitats include extensive tidal wetlands and slough networks as well as pans and other ponded areas. However, dissolved oxygen concentrations in shallow water habitats such as tidal wetlands and slough networks vary much more compared to the main water mass of San Francisco Bay and frequently exhibit concentrations less than 5.0 mg/L and certainly less than 7.0 mg/L. Because restoration efforts of habitats around Bay margins cannot consistently demonstrate compliance with permit conditions derived from the Basin Plan's dissolved oxygen objective of 5.0 mg/L, it is appropriate to explore the possibility of refining the existing objectives by providing more specifics about allowable exceedances both temporal and spatial or possibly, developing site-specific dissolved oxygen objectives in tidal wetlands, slough channels, managed ponds, shallow subtidal habitats, or other shoreline habitats.

The approach taken to develop site-specific objectives for Suisun Marsh is expected to be applicable to other shallow-water habitats around the Bay.

3.2 Update the Basin Plan's Toxicity Testing Requirements

The State Water Board is developing an amendment to the Toxicity Control Provisions of the Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. This toxicity amendment has been delayed by legal challenges, but it is scheduled to be considered for adoption by the State Board at the end of 2018 and scheduled to go into effect in 2019. The toxicity amendment would update procedures for assessing the potential for chemicals to cause toxicity to aquatic life in surface waters.

Currently, there are inconsistencies between different State and Regional Water Boards' toxicity testing requirements that result in uneven protections for aquatic life and an unequal playing field for waste dischargers. By adopting numeric toxicity objectives, the State Water Board would establish a clear, consistent definition of toxicity. By contrast, existing narrative toxicity objectives can be subject to a range of interpretations.

The State Water Board toxicity amendment would require a new statistical approach, endorsed by U.S. EPA, to be applied consistently throughout California. The new approach, called the Test of Significant Toxicity (TST), incorporates the latest statistical approach and benefits from extensive peer review. This amendment would supersede aspects of the Basin Plan's current toxicity policy, so the Water Board would likely need to edit the Basin Plan sections on toxicity (3.3.18 and 4.5.5.3) to conform to the policy. In addition, the policy allows for some Regional Water Board implementation discretion which could result in possible Basin Plan revisions or additions.

3.3 Revise Pentachlorophenol (PCP) Water Quality Objectives for Salmonids

PCP criteria were included in the California Toxics Rule (CTR) of 2000. Subsequently, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service issued a Biological Opinion concluding that the U.S. EPA's CTR water quality criteria for PCP are not protective of the early life stages of salmonids under conditions of low dissolved oxygen and high temperatures. As a result, the U.S. EPA calculated criteria that are protective. The U.S. EPA has asked the State and this Water Board as part of the last triennial review to identify where these aquatic conditions occur and to adopt the revised (lower) PCP water quality criteria.

This project, which has been a candidate in past triennial reviews, would develop a basin plan amendment to adopt the proposed more restrictive objectives for PCP and create a plan to implement the objectives where applicable to protect the early life stages of salmonids that may be present under conditions of low dissolved oxygen and high temperatures in the San Francisco Bay Region. Information is not available at this time to indicate where aquatic conditions occur in the Region that might pose a risk to salmonids.

3.4 Develop Numeric Nutrient Endpoints (NNEs) in Freshwater Streams and Estuaries

The State Water Board is engaged in two separate efforts to develop a statewide NNE policy: one NNE effort for California estuaries, and a second effort for wadeable streams throughout the State.

A Technical Advisory Group has been established by the State Water Board to support application of the NNE framework to all California estuaries. The State Water Board has contracted with the Southern California Coastal Water Research Project to develop an estuarine classification system, review candidate nutrient-related indicators for all estuaries, explore revision of dissolved oxygen objectives, and review studies supporting a numeric endpoint for macroalgae on estuarine tidal flats.

The State Water Board is also developing a freshwater nutrient policy for wadeable streams that includes narrative nutrient objectives along with numeric guidance to translate the narrative objectives into numeric water quality endpoints as well as an implementation plan to define how nutrient objectives will be used in regulatory programs such as 303(d) listing, NPDES compliance, 401 certification, etc. The NNE framework will be used to establish numeric endpoints based on the response (e.g., algal biomass, dissolved oxygen, etc.) of a water body to excessive nutrient concentrations.

This candidate Basin Planning project consists of Water Board staff's active participation in both efforts and the estimated PYs are limited to that effort. As each nears completion, Staff will evaluate the applicability to the Region's water bodies and the need for changes to the Basin Plan's narrative nutrient objective (section 3.3.3) and its implementation.

3.5 Review and Implement Biological Assessment Tools

Biological assessments can be used to provide direct measures of the cumulative response of the biological community to all sources of stress and clarify Regional Board jurisdictional boundaries. They measure the condition of the aquatic resource to be protected by assessing the

benthic macroinvertebrate community and can be used to identify the extent of Regional Board jurisdiction when paired with physical habitat assessments, coupled with an understanding of natural form and process. Biological indicators directly assess if beneficial uses such as warm or cold freshwater habitat are supported.

The current narrative objective for population and community ecology (Basin Plan section 3.3.8) can serve as the objective to pair with a Bay-Specific or state-wide biological indicator. The State Water Board has been developing a statewide implementation plan to utilize bioassessment data in wadeable streams and rivers. The biological integrity project was merged with the project to develop nutrient criteria for streams in 2016. Regional Board staff would continue to participate in this State Board project and depending on the ultimate result of this statewide policy, we would consider the need for amendments to the Basin Plan.

Preventing the degradation of biological integrity is an important component of the statewide effort and is also important to our Region. Recent analyses at the state and regional levels show that stream physical habitat conditions substantially influence bioassessment scores calculated with the statewide California Stream Condition Index (CSCI). One element of this project could include establishing condition assessments using CSCI data for engineered or modified channels as a tool to use in Clean Water Act section 401 certifications.

Lastly, to meet Antidegradation Policy goals and the California Wetlands Conservation Policy goal of a long-term net gain in wetland acres and values, bioassessment data in perennial and non-perennial streams and rivers, coupled with an understanding of natural form and process, can be used to clarify the extent of Regional Board authority. Specifically, CSCI scores, when paired with measured physical habitat assessment data, can be used to identify areas adjacent or otherwise connected to streams and rivers that affect the status of beneficial uses and water quality. By knowing what areas adjacent or connected to streams and rivers affect beneficial uses and water quality in streams and rivers, Water Board staff reviewing 401 certifications, and project proponents preparing applications for certification, will have a helpful tool to identify jurisdictional boundaries and to consider project designs that meet policy goals. Reference to these bioassessment tools could be incorporated into Chapter 4 Implementation Plan.

3.6 Incorporate Recreational Water Quality Objectives (RWQC) for Bacteria

In 2012, U.S. EPA issued new recreational water quality criteria (RWQC) recommendations for protecting human health in all coastal and non-coastal waters designated for primary contact recreation use. The 2012 RWQC recommends the use of two bacteria indicators of fecal contamination, E. coli (fresh water only) and enterococci (marine and fresh water). The U.S. EPA also introduced a new concept, Statistical Threshold Value (STV), as a clarification and replacement for the term ‘single sample maximum’. The new U.S. EPA criteria no longer recommend different pathogen indicator values for beaches based on intensity of use.

The State Water Board will soon be adopting the new RWQC into the Ocean Plan and the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California. Once that occurs, the total and fecal coliform indicators currently in the Basin Plan will no longer apply for the protection of contact recreation. The State Water Board’s program implementing the new criteria currently contains other elements such as a reference beach/natural source exclusion process and exemptions to the new criteria under conditions of

high flow. Upon the anticipated upcoming State Water Board's adoption of the new criteria and other associated policies, the Water Board will likely need to make corresponding changes to our Basin Plan to be consistent with the State Board action.

3.7 Review Un-ionized Ammonia Water Quality Objective for San Francisco Bay and freshwaters

This candidate project will be to review and revise, as necessary, the un-ionized ammonia water quality objective for San Francisco Bay region waterbodies and its associated implementation provisions. Specifically, the purpose of the project is to ensure that the Basin Plan's objective and implementation provisions (e.g., for NPDES permits) are consistent with the magnitude and averaging period of U.S. EPA's acute and chronic saltwater criteria for un-ionized ammonia as well as U.S. EPA 2013 recommended criteria freshwater.

3.8 Lake Merced Dissolved Oxygen and pH Objectives

Lake Merced is a small, eutrophic (nutrient-enriched) urban lake in San Francisco that is currently listed as impaired by low dissolved oxygen and high pH. Daly City is developing a capital project to address storm-related flooding that currently occurs in the Vista Grande Drainage Basin. The project would capture existing stormwater and authorized non-stormwater runoff that is currently conveyed to the Pacific Ocean, and use the water to augment water levels in Lake Merced. Some stakeholders expect that the augmentation of the water levels will support lake fisheries. The increased water levels and other associated lake management efforts (e.g., routing water into a treatment wetland prior to discharge into Lake Merced) may offer some water quality improvements but not enough to remedy the impairments based on existing water quality objectives. This Basin Planning project would explore water quality standards actions (Chapter 3) for dissolved oxygen and pH, and it would also memorialize Lake Merced water quality management efforts in Chapter 4 of the Basin Plan. This project was identified as a high priority project in 2015 but has been delayed.

3.9 Consider incorporating Clean Water Act section 304(a) criteria into the Basin Plan

Federal regulations at 40 CFR 131.20(a) require states to review their water quality standards in comparison to Clean Water Act Section 304(a) criteria as new information becomes available. Water Quality objectives in Basin Plan Chapter 3 or in effect under the federal California Toxics Rule (2000) that are not as protective as the USEPA nationally-recommended criteria need to be updated. States should consider adopting new or revised 304(a) criteria as objectives as part of the Triennial Review process.

For example, USEPA promulgated new and revised human heath water quality criteria in 2015 (Federal Register 80(124):36986-36989). This ruling established new water quality criteria for seven pollutants that are not in the California Toxics Rule (Arsenic, Chloroform, 3-Methyl-4Chlorophenol, 1,1,1-Trichloroethane, 1,2,4-Trichlorobenzene, Selenium, and Zinc). The 2015 ruling contains revised water quality criteria that are more stringent than the California Toxics Rule for 64 pollutants. In addition the 2015 ruling contains revised water quality criteria that are less stringent than the California Toxics Rule for 19 pollutants.

This candidate project would update the Basin Plan to incorporate, as necessary, the revised 304(a) criteria. The Water Board has the authority to incorporate new or updated WQOs into its Basin Plan as needed to adequately protect beneficial uses. However, for pollutants that are part of the CTR, further action by the U.S. EPA to de-promulgate the CTR criterion may be necessary in situations where the updated WQO is less stringent than the CTR criterion. Moreover, it is often the case that adopting any new or revised 304(a) criteria is more appropriately and efficiently accomplished by the State Board because the criteria should apply statewide rather than to a single region.

3.10 Temperature Limits to Protect Salmonids

This candidate project would involve reviewing the latest scientific information applicable to Bay Area streams to set an appropriate temperature thresholds and acceptable range of temperatures to protect salmonids. The material reviewed would include available information on the multiple stressors to steelhead in Bay Area creeks and whether local steelhead populations are adapted to local conditions.

National Marine Fisheries Service (NMFS) has developed a technique to model, using digital elevation and climate data, the reach-scale stream attributes (gradient, stream size, and valley constraint) that influence availability of the fine-scale habitat features (e.g., pools, spawning gravel, and large wood) preferred by salmonids. This "Intrinsic Potential" model may be useful in this candidate project to help identify stream reaches that have good potential to serve as habitat for salmonids and to which temperature objectives should apply.

3.11 Develop Flow Criteria for Selected Bay Area Streams and Rivers

The Basin Plan does not currently include narrative or numeric objectives for in-stream flow. There are some water bodies (e.g., creeks, streams, rivers) in the region where anthropogenically reduced flows may be harming beneficial uses related to aquatic life during at least a portion of the year.

For this project, flow criteria or objectives would be tributary- or watershed-specific. Water Board staff would determine which water bodies in the region have beneficial uses at risk from reduced flows, collate available instream flow data, and investigate various modeling and monitoring approaches to ultimately identify high priority water bodies. Flow criteria developed elsewhere relied on multiple years of stream gage data, which are not available for most tributaries in the San Francisco Bay Area. Thus, our approach may require modeling the hydrograph for many catchments. We would seek to leverage limited available resources to conduct needed studies over large geographic areas while addressing multiple species, life stages, and fluvial processes. The State Water Board is preparing a manual with procedures to guide the development of regional flow criteria. This guidance is intended to be applicable statewide, but allows for regional application, and incorporates existing information, studies, and data.

Flow criteria could address minimum low flows during particular time periods (e.g., summer), but can also incorporate ecological benefits of a complete flow regime, which includes the magnitude, variability, duration, and timing of flows.

This project is highly complex and would require close coordination with the California Department of Fish and Wildlife as well as State Water Board's Division of Water Rights because of the nexus with water rights laws.

3.12 Incorporate Statewide Mercury Objectives into the Basin Plan

In 2017, the State Water Resources Control Board adopted Resolution No. 2017-0027. The provisions for this resolution (***Final Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions***) established five new mercury water quality objectives for the protection of people and wildlife that consume fish and apply to all the inland surface waters, enclosed bays and estuaries of the State that have the applicable beneficial uses. The mercury water quality objectives established through resolution No. 2017-0027 do not supersede any site-specific numeric mercury water quality objectives established in the Basin Plan except for the freshwater mercury water quality objective for chronic effects to aquatic life (0.025 µg/L) (Table 3-4 and corresponding note). This candidate project is to amend the Basin Plan to incorporate these new objectives and make necessary clarifications as to their applicability for various waterbodies throughout the Region.

3.13 Clarify Implementation Requirements for Municipal Supply and Agricultural Supply Water Quality Objectives

The Basin Plan should be revised to update the primary and secondary maximum contaminant levels (MCLs) listed in Table 3-5 and clarify appropriate implementation measures for the secondary MCLs. Basin Plan section 3.3.22 prospectively establishes the primary and secondary MCLs specified in Title 22 of the California Code of Regulations as municipal supply water quality objectives. U.S. EPA developed the secondary MCLs as non-mandatory drinking water standards to guide public water systems in managing drinking water for aesthetic considerations, such as taste, color, and odor; concentrations above secondary MCLs do not necessarily present human health risks. California adopted these standards. When these objectives were originally included in the Basin Plan, the administrative record provided some background information about their implementation. The MUN and AGR objectives were "meant to be applied at the tap because the level of water treatment or the quality/quantity of blending water could vary significantly. If necessary, exemptions from achieving these objectives could be granted if a consistent level of treatment or blending could be demonstrated."

The Basin Plan should also clarify appropriate implementation measures for the agricultural supply water quality objectives listed in Table 3-6. The Basin Plan does not currently explain how to implement "threshold values" versus "limits."

4 UPDATE IMPLEMENTATION PLANS

The Water Board's overall mission is to protect the beneficial uses supported by the quality of the Region's surface water and groundwater. Together, the beneficial uses described in detail in Chapter 2 define the resources, services, and qualities of aquatic ecosystems that are the ultimate goals of protecting and achieving water quality. The objectives presented in Chapter 3 present a framework for determining whether water quality is indeed supporting these beneficial uses. This chapter describes in detail the Water Board's regulatory programs and specific plans of action for meeting water quality objectives and protecting beneficial uses. The following are specific implementation plan sections we have identified as candidates for updating.

4.1 Environmental Screening Levels (ESLs) for Groundwater Cleanups

Staff would update the Basin Plan with a description of the tiered decision process used to determine relevant exposure pathways and appropriate site cleanup levels using environmental screening levels (ESLs). ESLs are conservative contaminant concentrations in a particular media (soil, soil gas, or groundwater) below which the contaminant can be assumed not to pose a significant, long-term (chronic) threat to human health and the environment. The decision process expands the existing protection of groundwater beneficial uses to include potential risk to human health from indoor air exposure and protection of aquatic receptors.

Accomplishing this project would both promote consistency and optimal resource allocation in groundwater cleanup projects because ESLs are a powerful tool to focus regulatory attention on the most significant contaminant concerns during site assessment and cleanup. This update would not incorporate the current ESL criteria as fixed numbers, but rather memorialize the approach for deriving and applying ESLs to cleanup sites. This project would document our current process for screening sites using a multiple pathway conceptual model, which includes groundwater and surface water interactions.

4.2 Using Wastewater to Create, Restore, and Enhance Wetlands

The receiving waters downstream of many Bay Area wastewater treatment plants include recently restored wetlands or areas that will be restored to wetland habitat in coming years. In many circumstances, using the treated wastewater as a source of freshwater for restored wetlands could provide an environmental benefit by increasing the amount of freshwater and brackish wetlands available to birds and wildlife dependent on such habitats. Using treated wastewater in this fashion as a source of freshwater was identified as an important climate change response strategy in the Baylands Ecosystem Habitat Goals 2015 Science Update to "restore estuary-watershed connections that nourish the Baylands with sediment and freshwater" (see also the Project below on Climate Change and Water Resources Policy).

This Basin Planning project would entail several elements. First, the project would explore updating Regional Board Resolution No. 94-086 "Policy on the Use of Wastewater to Create, Restore, and/or Enhance Wetlands." The current Resolution 94-086 policy is now over 20 years old. Much has been learned about wetland restoration over the intervening years and the hydrology and topography of the San Francisco Bay has been changing as vast areas of former salt evaporating ponds are being restored to marsh under the San Francisco Bay Salt Pond Restoration Project.

The project would also clarify permitting requirements for wastewater discharges into wetlands, develop near-shore permitting strategies for discharges to wetlands and sloughs. This project would also evaluate and provide guidance about what level of treatment is appropriate for effluent discharged into wetland habitats, including consideration of contaminants of emerging concern (e.g., flame retardants, personal care products, microbeads and nano particles).

Establishing NPDES permits for discharging wastewater in wetlands is complicated by a variety of regulatory issues; this project would explore those regulatory issues and identify policy options. This project would also potentially evaluate issues associated with discharge prohibition exemptions in the Basin Plan and could address Beneficial Use designation associated with creation of new wetlands. This is an ongoing project that Water Board staff are actively working on.

4.3 Update Cyanide Dilution Credits

The project would be to update Table 4-6 to add cyanide dilution credits for shallow water dischargers and discharge locations not already in the table. Some dischargers (e.g., Fairfield-Suisun and City of Palo Alto) discharge to waters not listed in the table. Therefore, with each permit reissuance, the Water Board must consider appropriate mixing zones and dilution credits for the discharges not listed Table 4-6. Often, the same effluent is discharged to two or more receiving waters. In these cases, compliance with the effluent limitations is typically measured at just one location; however, different effluent limits may apply. Cyanide effluent limitations may differ for no reason other than that the mixing zones (or lack thereof) result in different dilution credits. As a result, the effective effluent limitations may be more stringent than the Water Board intended when it adopted Table 4-6. This project would ensure consistency and reduce the effort needed to resolve these challenges during permit preparation. This relatively straightforward project could be combined with the project to add to the Basin Plan unnamed waterbodies receiving NPDES discharges.

4.4 Revise Instantaneous Chlorine Limit

The effluent limit for residual chlorine (free chlorine plus chloramines) is an instantaneous limit of 0.0 mg/L. This effluent is problematic because it is very difficult to remove trace amounts of chlorine. Failure to remove all traces of chlorine can lead to effluent limit violations, sometimes in circumstances where the amount of chlorine is very small and not a threat to water quality. POTWs that use chlorine for disinfection use sodium bisulfite (SBS) to remove the chlorine. To avoid violations, operators routinely overdose the effluent with SBS, costing agencies millions of dollars per year in aggregate, and exerting oxygen demand in the receiving water, with no water quality benefit. This candidate project would explore options to address chlorine residual limits. Some initial scoping work has been accomplished on this project.

5 UPDATE PLANS AND POLICIES

In addition to the Basin Plan, many other plans and policies direct the Water Board's actions or clarify the Water Board's intent. Chapter 5 describes numerous State Water Board plans and policies and Water Board policies. The following are specific examples of policies we are considering updating.

5.1 Priority Ranking for TMDL Development

The Water Board is working on a range of TMDL projects throughout the region. TMDLs often include water quality standards issues, and most will be adopted as Basin Plan amendments. For these reasons, we include our TMDL priorities in the Triennial Review.

The current list of impaired waters for the San Francisco Bay Region is available on the State Water Board's website. We present here, for stakeholder review and comment, the list of TMDLs that are of higher priority for development and completion as Basin Plan amendments over the next three years:

- Petaluma River Bacteria TMDL
- San Gregorio Creek Sediment TMDL
- Stevens Creek Toxicity TMDL
- San Francisco Bay Beaches TMDL (additional beach listings)
- Pescadero Marsh Dissolved Oxygen TMDL
- Pillar Point Harbor Bacteria TMDL
- Statewide Mercury Control Program in Reservoirs

5.2 Climate Change and Water Resources Policy

Climate scientists agree that the earth's climate is changing and sea levels are rising as a result. As the earth's climate changes, California will likely experience: rising sea levels; warmer temperatures; more extreme weather, including droughts; and changes in the seasonal patterns of rainfall and snowmelt runoff. California's changing climate can present challenges for every Water Board program, but the Basin Plan does not currently mention climate change or how climate change may affect the Water Board's mission to protect water quality.

This candidate project is to update the Basin Plan to reflect the relationship between climate change and water quality regulation and would consist of multiple elements. First, a narrative description would be added to Chapter 1 to explain how climate change could lead to physical and biological impacts like severe drought, inundation of low-lying areas from sea level rise, threats to wetlands and infrastructure, changes in aquatic species composition, impediments to drainage from low gradient streams, and desiccation of first-order streams.

The second project element – already underway – is to examine a series of policies concerning activities critical to addressing the impacts of climate change and promoting resilience of Bay ecosystems and shoreline areas. Staff efforts to date have focused on three policy areas. We are reviewing how existing policies regulating wetland fill, ecosystem restoration and flood protection can best incorporate consideration of sea level rise. We are reviewing the need for a new policy to facilitate the use of highly treated wastewater and stormwater as a source of freshwater to nourish tidal marshes (see project description in section 4.2). We are also reviewing sediment management policies to optimize the beneficial reuse of dredged sediment to enhance flood control, support baylands restoration and promote shoreline resilience.

The scope of the problem makes this project technically complex and challenging, but there is a growing body of information that can inform our policies at the regional level. Other phases of this project could explore identifying other potential needed changes to the Basin Plan to address

all program needs or additional policy development to advance use of natural infrastructure and living shoreline solutions.

6 EDITORIAL REVISIONS, MINOR CLARIFICATIONS or CORRECTIONS

This category of project involves making editorial non-regulatory changes that clarify or update some of the program descriptions to be consistent with new laws, plans and regulations or to correct minor errors. These changes are sometimes needed for clarity and to ensure that the public is informed about the latest requirements to protect water quality. These changes would usually be non-regulatory. That is, they would not impose new requirements on permittees, but rather clarify existing regulatory requirements or program descriptions. As an example, Chapter 7 was created (as a non-regulatory amendment) in the Basin Plan to include Water Quality Attainment Strategies, such as Total Maximum Daily Loads (TMDLs). Chapters 4 and 7 need to be aligned to account for already adopted TMDLs and future TMDL Basin Plan amendments.

6.1 Clarify Turbidity Water Quality Objective

The Basin Plan's turbidity water quality objective is difficult to interpret:

> *Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU*

This language is often subject to misinterpretation when determining whether dredging operations are negatively impacting water quality in the Bay. The language can be improved for clarity as well as consistency with turbidity objectives found in the Basin Plans from other regions. Because improving this language would require only minor clarifying changes, this project could be accomplished as part of another Basin Planning project.

The project will also revise the objective to state also that waste discharges should not increase normal background light penetration or turbidity above 55 NTU in areas where natural turbidity is 50 NTU or less. Such revision would codify the conventional interpretation of this objective.

6.2 Editorial Revisions, Minor Clarifications, or Corrections

Possible Basin Plan editorial changes have been identified by Water Board staff and through suggestions submitted by the public during recent Triennial Reviews. Some of these could be included as additional components for another Basin Planning project. Potential changes include but are not limited to:

- Updating Section 4-8 (Stormwater Discharges) to incorporate by reference the limitations on point source storm water and nonpoint source discharges to provide special protections for marine aquatic life and natural water quality in Areas of Special Biological Significance (ASBS).
- Update Sections 4-8 and 4-14 on urban stormwater to remove outdated and confusing terminology. The two sections should be combined, streamlined, & edited to be more timeless.
- Update and/or remove text from Section 4.11, which provides non-regulatory narrative about special circumstances related to specific POTWs. Much of the text is out of date and not necessary.
- Explain difference between threshold and limit in Table 3-6.

- Discuss requirements of Groundwater Management Act in chapter 4
- Discuss direct and indirect potable use programs in chapter 4.
- Include a mention of approved Salt and Nutrient Management Plans (SNMPs) for Sonoma Valley, Livermore-Amador Valley, and Santa Clara Valley. There may also soon be specific management actions developed to protect groundwater basins, such as in the nitrate areas of concern of the Livermore and Coyote Valleys.
- Cleanup Chapters 5 and 6 in terms of citations to plans and policies as well as water quality monitoring information. Consider dropping Chapter 6 and moving essential material elsewhere in Basin Plan.
- Update the Figure 4-4 noting dredge material disposal and beneficial reuse sites.

For more information about any of these candidate basin planning projects or the triennial review process itself, please contact:

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email: Richard.Looker@waterboards.ca.gov

August 18, 2015

Richard Looker
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(510) 622-2451

VIA EMAIL: rlooker@waterboards.ca.gov

Subject: Comments on the 2015 Triennial Review for the Water Quality Control Plan, San Francisco Bay Basin

Dear Mr. Looker:

The Bay Area Clean Water Agencies (BACWA) appreciates the opportunity to comment on the 2015 Triennial Review of the San Francisco Bay Basin Water Quality Control Plan (Basin Plan). BACWA is a joint powers agency whose members own and operate publicly-owned treatment works (POTWs) and sanitary sewer systems that collectively provide sanitary services to over 6.5 million people in the nine-county San Francisco Bay (SF Bay) Area. BACWA members are public agencies, governed by elected officials and managed by professionals who protect the environment and public health.

BACWA supports the triennial review process and applauds the improvements made to the Basin Plan through this process in recent years. The current list of issues proposed for review in the *Brief Issue Descriptions for the 2015 Triennial Review of the San Francisco Bay Basin Water Quality Control Plan* (Issue Descriptions) that was developed by the Regional Water Quality Control Board (Regional Water Board) addresses roughly two dozen topics that affect broad sections of the residents, businesses, and public agencies of the San Francisco Bay Area. Because the Regional Water Board has limited resources to address each of these issues, BACWA is limiting its comments to five of the issues, while proposing two new issues.

The comments below are made with reference to the number in the Issue Descriptions. The comments are ranked in order of BACWA's assignment of importance.

1. ***Issue 3.1 – Consider refinement and/or development of site-specific objectives for dissolved oxygen in San Francisco Bay***

   The Basin Plan includes a minimum water quality objective of 5.0 mg/L for dissolved oxygen in all tidal waters downstream of the Carquinez Bridge and 7.0 mg/L upstream of the Carquinez Bridge and also includes a requirement that the median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation. These dissolved oxygen water quality objectives have been interpreted to be applicable at all times, at all depths, and in all locations. As described in the Issue Descriptions, this approach does not make sense for shallow habitats on the SF Bay's margins. The objectives also do not account for natural variability due to diurnal cycling and stratification. Setting a rigid

objective that applies throughout the Region fails to consider the beneficial uses attained in a diversity of habitats in the SF Bay's margins.

BACWA and its member agencies support research on appropriate dissolved oxygen levels in the SF Bay through the Nutrient Management Strategy and other initiatives. For example, Dr. Jim Hobbs of UC Davis has been conducting monthly trawls at Artesian Slough, Pond A19, and Upper Coyote Creek in the Lower South Bay with the cooperation of staff at the San Jose/Santa Clara Regional Wastewater Facility. The aim of these studies is to determine what levels of dissolved oxygen impact different fish species. Preliminary findings indicate that dissolved oxygen is not the primary driver of species diversity, and that a natural diverse ecosystem provides various open-water and marsh habitats with variable dissolved oxygen levels. BACWA would be happy to provide data from Dr. Hobbs' studies to inform the development of a strategy for dissolved oxygen in the SF Bay margins.

Recommendation: Amend the Basin Plan to develop a narrative dissolved oxygen objective that is linked to beneficial use attainment for shallow habitats in the SF Bay. Alternatively, develop implementation language to specify that the dissolved oxygen objective does not apply to shallow habitats in the SF Bay.

2. ***New Issue - Revise instantaneous chlorine limitation of 0.0 mg/L***

In Basin Plan Table 4-2, chlorine is given an instantaneous limit of 0.0 mg/L in effluent, which is an interpretation of the Basin Plan's narrative toxicity objective. Region 2 is the only Region in California where the Basin Plan assigns a limit of 0.0 mg/L. Other Basin Plans in California either include effluent limits up to 0.1 mg/L for chlorine, or include only the narrative toxicity objective. Because chlorine is monitored continuously, chlorine residuals are the most likely constituent to lead to an effluent quality violation in our Region. POTWs that use chlorine for disinfection dechlorinate using sodium bisulfite (SBS). To avoid violations, operators routinely overdose the effluent with SBS, costing agencies millions of dollars per year in aggregate, and exerting oxygen demand in the receiving water, with no water quality benefit.

Chlorine quickly decays during discharge through an outfall, and NPDES permits in other regions account for such decay. In Massachusetts, for example, in addition to using a non-zero water quality objective for receiving waters and giving dilution credit, they calculate the rate of chlorine decay in the outfall pipeline and set effluent limits accordingly[1].

BACWA is interested in contributing resources to address this issue either through the Basin Planning process, or through alternative implementation of the existing limit. BACWA has identified four options to explore alone or in combination to address chlorine residual limits and to reduce SBS overuse:

a) Adopt an alternative effluent limit for chlorine.
b) Change the effluent limit to a water quality-based effluent limit derived using the State Implementation Plan procedure and taking dilution into account.

[1] See Massachusetts Water Resource Authority's NPDES Permit No. MA0103284, Attachment H: http://www.epa.gov/region1/eco/mwra/pdf/h.pdf

c) Change the averaging period for the limitation. For example, make it a rolling median over the course of one day.
d) Change how the point of compliance is determined. For example, calculate the rate of decay and set the limit such that the concentration measured at the dechlorination facility would decay to zero by the time it is discharged at the outfall.

Recommendation: Work with BACWA to develop a strategy for implementing chlorine residual limitations that minimizes the risk of a momentary exceedance and does not compromise receiving water quality.

3. Issue 4.3 - Using Wastewater to Create, Restore, and Enhance Wetlands

BACWA sees merit in encouraging the use of wetlands to provide additional water quality enhancement of treated effluent while concurrently increasing the amount of wetlands habitat around the Bay. In order to encourage wetlands creation in this manner, BACWA recommends that Water Board staff update Regional Board Resolution 94-086. Resolution 94-086 is the "Policy on the Use of Wastewater to Create, Restore, and/or Enhance Wetlands." The current Resolution 94-086 policy is now over 20 years old. Many lessons have been learned about salt marsh restoration over the intervening years. In fact, the hydrology and topography of the San Francisco Bay has been changing as vast areas of former salt evaporating ponds are being restored to marsh under the San Francisco Bay Salt Pond Restoration Project.

This triennial review cycle is an appropriate time to begin this updated Policy development and the evaluation of the beneficial aspects of potential future discharges to wetlands. As described in the Issue Descriptions, the goal would be to develop near-shore permitting strategies for discharges to wetlands to resolve issues such as mixing zones. It would also develop a shallow water discharge prohibition exception for discharges to enhance wetlands.

Recommendation: BACWA recommends that Basin Plan revisions be developed and incorporated to recognize that treated wastewater can enhance beneficial uses in wetlands, and to provide implementation language for encouraging and permitting such discharge.

4. Issue 4.4 - Update Conditions for Exemption to Discharge Prohibitions

The Regional Water Board is looking to remove treatment reliability as a justification for the shallow water discharge prohibition exception, since treatment reliability is the "minimum expectation of all treatment facilities rather than…an achievement deserving of special privilege."

BACWA appreciates the Regional Water Board's confidence in our members' treatment facilities, and urges the Regional Water Board to re-envision the role of shallow water discharges to the SF Bay. As the ongoing drought has demonstrated, effluent may be the only freshwater input into a given section of the SF Bay allowing the existence of brackish margin habitats that would otherwise disappear. In many cases, it can be demonstrated that the effluent contributes to a net environmental benefit. In this manner, BACWA's comments on issue 4.4 are related to our comments on Issue 4.3.

Recommendation: Update the Basin Plan to acknowledge that highly treated wastewater effluent can enhance the ecosystem in shallow margin habitats.

5. ***New Issue - Develop policy for Recycled Water Reverse Osmosis Concentrate Discharge (New Issue)***

In response to the ongoing drought, as well as anticipated long-term water shortages in the Region, many of our member agencies have been expanding their recycled water programs. Ultimately, some agencies are considering implementing indirect potable reuse, as well as delivering to customers who require very highly treated recycled water. These projects would treat wastewater effluent with reverse osmosis, which results in a concentrate composed of approximately 15 percent of the reverse osmosis influent flow but almost all of its dissolved and suspended pollutants. When the concentrate is discharged, it has the same loads but higher concentrations of pollutants compared to the original effluent. Agencies that discharge this reverse osmosis concentrate may therefore be in jeopardy of triggering reasonable potential or exceeding permit limits. Due to the importance of recycled water as a Regional asset, BACWA encourages the Regional Water Board to examine alternative permitting strategies to allow these projects to move forward.

Recommendation: Allocate resources to scope out a future policy on encouraging recycled water while protecting receiving water quality.

6. ***Issue 3.2 - Update the Basin Plan's Toxicity Testing Requirements***

The description in the Issue Descriptions states that:
"Currently, there are inconsistencies between different State and Regional Water Boards' toxicity testing requirements that result in uneven protections for aquatic life and an unequal playing field for waste dischargers."
The State Water Board has been working on a Plan to address toxicity testing statewide (State Toxicity Plan). The proposed State Toxicity Plan will establish numeric chronic toxicity limits and require a new statistical approach, the Test of Significant Toxicity (TST), for evaluation of toxicity tests. This new statistical approach is calibrated with a built-in "false positive" rate and the null hypothesis is inverted: instead of testing to see if effluent is "toxic," under the new method, dischargers will be demonstrating that effluent is "not toxic." Both of these features are intended to make toxicity testing err on the side of determining that treated effluent is "toxic".

The most recent draft of the State Toxicity Plan from 2012 gives Regional Water Boards discretion in determining instream waste concentration for toxicity testing, and in determining reasonable potential for acute toxicity testing, assuming the chronic toxicity tests continue to be performed on a regular basis. These two areas are elements to explore via a future Basin Plan modification.

Recommendation: BACWA has no recommendations at this time since the content of the State Toxicity Plan is still uncertain. When there is clarity, BACWA will engage

with Regional Water board staff to develop an implementation plan for Region 2 and discuss a future Basin Plan Amendment.

7. **Issue 4.5 - Develop Regulatory Strategy for Contaminants of Emerging Concern**

BACWA supports the Regional Monitoring Program (RMP). Many of our member agencies participate in the Contaminants of Emerging Concern (CEC) Workgroup. BACWA participation in this workgroup led to development of the CECs Management Strategy, as described in the 2013 Pulse of the Estuary publication. Key elements of this Strategy, such as tiered risk levels, were borrowed and replicated by the statewide project looking at CECs in the Aquatic Ecosystem.

A benefit of an informal strategy is that it can adapt to new information. The very nature of the field of CECs research is that questions being asked are constantly shifting and analytical tools for CECs continue to develop and improve. BACWA does not see an advantage to constraining the CECs Management Strategy such that it would require a Basin Plan Amendment to change it in the future.

Recommendation: The CEC Management Strategy should not be incorporated into the Basin Plan.

BACWA appreciates the opportunity to comment on the 2015 Triennial Review and thanks you for considering our input.

Respectfully Submitted,

David R. Williams
Executive Director
Bay Area Clean Water Agencies

cc: BACWA Board

REGIONAL MONITORING PROGRAM FOR WATER QUALITY IN SAN FRANCISCO BAY

RMP

sfei.org/rmp

RMP Microplastic Workgroup Meeting

May 15, 2018
10:00 AM – 4:30 PM

REMOTE ACCESS
Audio by Phone: (415) 594-5500, Access Code 943-326-397#
Slides: https://join.me/sfei-conf-cw1

AGENDA

1.	**Introductions and Goals for This Meeting** (Attachment) The goals for this meeting: ● Provide updates on recent and on-going MPWG activities ● Feedback on microplastic results to date ● Recommendation on special study proposals for 2019 and ways to further refine proposals ● Introduction of new expert advisor, Dr. Kara Lavender Law Meeting materials: 2017 MPWG minutes (See pages 4-13)	10:00 Phil Trowbridge
2.	**Information: Review of Sampling Conducted to Date** (Attachment) Brief overview of the RMP's Microplastic Strategy and activities completed in first year of the Moore Microplastic project. Desired Outcome: Provide background for today's discussion Meeting materials: Microplastic Progress Report (attached separately)	10:15 Meg Sedlak
3.	**Information: Method Development and Challenges** Review of methods that have been developed, and a discussion of the challenges and opportunities associated with the microplastic analyses. Desired outcome: Inform the group of progress on method development Meeting materials: Section 4 of the Progress Report	10:30 Chelsea Rochman
4.	**Discussion: Data Review** Field samples have been collected; extraction and analyses are underway. An update will be given on the laboratory analyses. In addition, we will present	11:35 Becky Sutton

	the methods we will use for classifying and describing particles, as well as a preliminary discussion of QA/QC. Desired outcome: Inform the group about the data and gain feedback Meeting materials: Section 5 of the Progress Report	
	Lunch (to be brought in)	12:05
5.	**Information: Updates from Advisors** A short update will be given by our advisors on recent advances in the field. Desired outcome: Inform stakeholders of on-going activities	1:00 Anna Marie Cook; Kara Lavender Law
6.	**Information: Presentation of the SFEP Rain Garden Project** The San Francisco Estuary Partnership (SFEP) funded a small study to evaluate the efficacy of rain gardens to treat urban stormwater for contaminants including microplastic. (This was not an RMP/Moore funded project.) A brief summary of the results will be given to illustrate how microplastic data can be presented. Desired outcome: Informational purposes only	1:20 Diana Lin
7.	**Discussion: Modeling Results to Date** A review of the status of the coupling of Bay and open ocean models will be presented. Desired outcome: Workgroup insights to refine modeling efforts Meeting materials: Section 6 of the Progress Report	1:40 Rusty Holleman
8.	**Discussion: Policy Issues and Communications** One of the goals of the Moore project is to generate resources that inform and educate stakeholders and the public. An update on the policy and communications elements will be given. Desired outcome: Inform workgroup on status Meeting materials: Section 7 of the Progress Report	2:10 Carolynn Box / Anna Cummins
	Short Break	2:40
9.	**Discussion: Microplastic Proposals for 2019** The Principal Investigators will present the proposed special studies. The workgroup will ask questions, discuss, and provide feedback. 2019 Special Study Proposals include: • Microplastic strategy funding • Microplastic in sport fish	3:00 Meg Sedlak

	Desired outcome: Gather feedback on the merits of each proposal and how they can be improved Meeting materials: MPWG Special Study Proposals **(See pages 14-23)**	
10.	**Closed Session - Decision: Recommendations for 2019 Special Studies Funding** RMP Special Studies are identified and funded through a three-step process. Workgroups recommend studies for funding to the Technical Review Committee (TRC). The TRC weighs input from all the workgroups and then recommends a slate of studies to the Steering Committee. The Steering Committee makes the final funding decision. For this agenda item, the MPWG is expected to decide (by consensus) on a prioritized list of which studies to recommend to the TRC. To avoid an actual or perceived conflict of interest, the Principal Investigators for proposed special studies are expected to leave the room during this agenda item. Desired Outcome: Recommendations from the MPWG to the TRC regarding which special studies should be funded in 2019 and their order of priority.	3:30 Karin North
	Report out on Recommendations	4:00
	Adjourn	4:15

RMP Microplastics Workgroup Conference Call
March 7, 2017
San Francisco Estuary Institute

Final Meeting Summary

Attendees

There were approximately 45 people on conference call including the following:

Name	Affiliation/Roles
Chelsea Rochman	University of Toronto
Sam Mason	SUNY- Fredonia
Anna-Marie Cook	USEPA
Harry Allen	USEPA
Nirmela Arsem	EBMUD
Carolynn Box	5 Gyres
Mike Connor	EBDA
Marcus Ericsen	5 Gyres
Mary Lou Esparza	Central Contra Costa Sanitary District
Manon Fisher	SFPUC
Lorien Fono	BACWA
Reinhard Hohlwein	CalRecycle
Betty Kwan	Bay Planning Coalition
Sherry Lippiatt	NOAA Marine Debris Program
Rachel Merzel	University of Michigan
Karin North	City of Palo Alto
Bill Robertson	USEPA
Chris Sommers	BASMAA
Mark B.	State Water Board
Luisa Valiela	USEPA Region 9

Julie Weiss	City of Palo Alto
Jim Wong	CCSD
Jay Davis	SFEI
Rusty Holleman	SFEI
Diana Lin	SFEI
Meg Sedlak	SFEI
Rebecca Sutton	SFEI

1. **Introductions and Meeting Goals**

Meg Sedlak outlined the goals of today's meeting were to get feedback on the Microplastic Sampling and Analysis Plan (SAP) and a decision on whether to recommend the microplastic bivalves monitoring proposal to the RMP Technical Review Committee. Meg Sedlak said even though the Moore Microplastic project seems like a large grant (e.g., close to $1 million), the scope of the project is quite large and as such it will require the team to be strategic about the study design. She made the analogy to having a quiver with a limited number of arrows (e.g., project elements), and we need to make sure we use each arrow carefully to hit the bullseye (e.g., building knowledge to help answer the high priority management questions).

Comments on the SAP are needed from the Workgroup by 3/15, and the revised Microplastic SAP will be submitted to the Moore Foundation on 3/31/2017.

While the framework of the SAP has been established with the Moore Foundation to sample microplastics in sediment, water, and fish, there is room to make adjustments to the plan. Meg pointed out that the SAP elements (e.g., sediment, water, fish, etc.) come directly from the RMP Microplastic Strategy Document that was developed in consultation with the RMP stakeholders and external experts.

Table 2.1 in the SAP is the Microplastic Strategy Document Multi-Year Plan to study microplastics. Many of the elements presented in the Plan for 2017 and 2018 are funded by the Moore Foundation, greatly expanding the RMP's ability to further this work.

Meg introduced the microplastic topic experts:

1. Dr. Chelsea Rochman from the University of Toronto
2. Anna-Marie Cook from USEPA Region 9
3. Dr. Sherri "Sam" Mason from SUNY Fredonia

2. **Discussion: Draft Microplastic Sampling and Analysis**

   a. **SAP Presentation**

Meg Sedlak described the Microplastic SAP as a team effort, including researchers at Moss Landing, University of Toronto and University of Michigan, 5 Gyres, and a team at SFEI.

The genesis of the project came from a small 2015 study led by Rebecca Sutton that looked at microplastics in the Bay water and wastewater effluent. Key findings from the study were that the microplastic concentrations in the Bay appeared to be higher than measured concentrations in other urban areas such as the Great Lakes using comparable methods. This led the RMP to convene a Microplastic Workgroup meeting on June 29, 2016 to discuss and determine the key questions and study elements. Building off the guidance from the workgroup meeting, Rebecca Sutton and Meg Sedlak developed the Microplastic Strategy Document, which was released on February 2017 after incorporating stakeholder comments.

The SAP is a 2-year field sampling and analysis plan to monitor microplastics in the Bay and surrounding National Marine Sanctuaries. During year 1, surface water and sediment will be sampled for microplastics (MP). Prey fish samples will be collected to investigate uptake of MP into the food web. The RMP stakeholders identified surface sediment as a high priority for sampling because there is no MP sediment data for the Bay. Monitoring of Sanctuaries was identified as a high priority area by Moore Foundation to evaluate the flux of MP between the Bay and surrounding sanctuaries. Wastewater effluent and stormwater discharge samples will be collected in year 2. That said, SFEI has already started collecting the stormwater samples this year to take advantage of the large rainfall events we have been having recently.

Surface water samples will be collected in the Bay and Sanctuaries. Part of the project will be to develop better collection and analysis methods. For example, the team will develop new collection methods for the 5 mm to 20 micron range using a pump. Manta trawls will be used for surface water samples. The analysis of microplastics will be done using Raman spectroscopy by the Rochman lab at the University of Toronto. Nanoplastics analysis, which is a small portion of the project and overall budget, is very much in the scientific exploratory phase. The nanoplastic work will be done at University of Michigan by Rachel Merzel in the Banaszak Holl lab using an AFM-IR technique.

The sampling sites were chosen to measure ambient water conditions in the Bay (sites along main stem of the Bay) and the influence of pathways (e.g. stormwater and wastewater effluent). There are 16 sites in the Bay, and 12 sites in the marine sanctuaries. Several samples will be collected outside the Golden Gate to understand the flux of MP between the Bay and sanctuaries.

Sampling will also be conducted in the wet and dry season to look at seasonal influence. Surface water samples will be collected using 3 methods: manta trawl (particle size fraction >355 um), pump system (size fraction 20 um - 5 mm), and grab samples (<1 um, nanoplastic analysis). The results will help to develop models to understand the transport of MP.

The project will also evaluate microplastic in sediment and fish. The sediment sites will leverage the RMP margin sampling that is being undertaken in the South Bay this summer as well as prior sediment cruises in the ambient Bay and the margins sediment sampling in Central Bay. A subset of sediment sites from South Bay and Lower South Bay will be collected for microplastic analyses (16 sites). In addition, sediment will be collected at 8 sites in the North Bay and 3 sites in a reference location (Tomales Bay). At eight sediment sites, 20 prey fish will be collected, consisting of two different species representing different habitats: anchovy and Mississippi silverside or topsmelt. Fish sites were selected based on consultations with Moss Landing Marine Labs to assure a high probability that fish are present.

Previous sampling visually identified fibers in Bay Area wastewater effluent. Because they were visually identified, it could not be confirmed that the fibers were plastic. Nirmela Arsem led a Bay Area Clean Water Agencies (BACWA) study that found not all microparticles in wastewater effluent are plastic. Another finding was that 24-hr composite samples could be collected; the previous study collected 2-hour (peak flow) composites only. The SAP has incorporated several of these findings and as a result, spectroscopy will be used to chemically identify microplastics, 24-hour composite sampling will be undertaken and documentation of methods will be conducted. Eight wastewater facilities will be evaluated to assess different treatment methods (secondary and tertiary treatment). The SAP focuses on plants that have greater than 10 MGD. Currently, there are already 7 plants that have agreed to participate (EBMUD, SJSC, SFPUC, EBDA, Palo Alto, CCSD, City of Sunnyvale, and the study is looking for an additional 1 plant).

Stormwater samples will be collected at 7-15 sites, and site selection will leverage RMP STLS sites. STLS sites were selected to fit other criteria (potential presence of PCBs), but many of the sites have properties that make them useful for MP analysis. Several samples were already collected this year given the deluge of rain that has occurred. If next year is a dry year, it may be more difficult to complete the study design. Sites will include locations where trash is already an area of concern, such as Colma Creek, Coyote Creek, and San Mateo Creek. In addition, large watersheds are also targeted. Lastly, it was desirable to select watersheds that reflected different uses (e.g., urban vs rural, etc.).

The Rochman lab will use Raman spectroscopy to identify microparticles. The morphology, size, and chemical composition will be analyzed and reported. This analysis will be conducted on ambient Bay surface water, effluent water, stormwater, sediment, and fish samples. A new instrument is being built, and the methodology will be developed carefully to ensure consistency.

The nanoplastic analysis will be conducted at the Duhaim and Banaszak Holl labs at the University of Michigan, and will develop methods towards quantification of nanoparticles. It was emphasized that this portion of the project is exploratory.

Field and Lab QA/QC procedures will be implemented, including the use of field and lab blanks, field and lab duplicates, and spiked matrix samples. Data will be reported using EDD template, undergo QA review, and be uploaded to CEDEN and CD3.

Year 1 and Year 2 reports will be completed in May 2018 and December 2018, respectively.

High-level comments are requested from this meeting, and more detailed comments are requested to be submitted by email.

b. SAP Discussion

Mary Lou Esparza asked what percent match in the sample spectroscopy to the library is needed to confirm the chemical composition of the particle. **Chelsea Rochman responded that she would think about this more and add the methodology used to confirm identification to the SAP.** Dr. Rochman stated that ideally they would look for at least an 80% match, and ideally 90%, and that previous experience would also be used to confirm a match. She indicated that particles can have a biofilm which may make the identification harder.

Mary Lou also asked for whether a second detection method would be used to analyze samples to ensure identification is robust to make management decisions. For example, whether some samples sent for Raman spectroscopy analysis could also be analyzed using FTIR. Dr. Rochman said that they do not have an FTIR instrument, and that an analytical partner would be needed for secondary analysis. Dr. Rochman said she would look at some review papers that compared labs that did both Raman and FTIR analysis; according to her review, FTIR does not work as well for smaller particles. Rachel Merzel, who will be doing the nanoplastic analysis, said that they used thermal absorbance technology to analyze samples, and that they may be able to do limited set of confirmation analysis of particles up to 7 um in size; however, this size fraction is too small to compare to results from Dr. Rochman's lab, which can analyze as low as 20 microns. Dr. Rochman indicated that secondary confirmation is not usually conducted. Meg indicated that the budget did not include secondary analyses. **Meg said she would follow-up with Chelsea on the review articles that looked at both methods of analysis.**

Mike Connor commented that one of the key goals of the project is to categorize "stuff" that was in the water, and that it was important to relate the different types of particles to their different effects. Becky said that the analysis will include the polymer type, morphology, size, and shape of identified particles, and she would work with Amy to ensure category bins for particles would

be properly uploaded to the database. Becky stated that identification of the particles was important to infer the sources and pathways of the particles. Mike suggested the category bins should be included more explicitly.

Nirmela emphasized the importance of good lab practice, and for the lab to demonstrate its analytical capabilities. Meg and Chelsea agreed that the lab could participate in a demonstration study after the new instrument is built. Chelsea has historical samples that the lab can use to conduct method development and assess precision. The instrument is being built by Horiba Scientific. As part of the contract, Horiba has a dedicated analytical chemist who will work with U of T on method development. Chelsea said they were looking at published extraction methods, and would work towards developing better and standardized method. Chelsea said she would share methods as they are developed.

Chris Sommers said that more information on the modeling techniques could be included in the SAP to explain how stormwater loads will be calculated. Becky said the SAP was limited to monitoring and sampling for microplastics, and that she did not plan to include more details about the contaminant transport model. Rusty said the MP transport modeling would leverage ongoing monitoring data and models. Chris emphasized that clarification is needed to understand how sampling data will be extrapolated to get different types of loads, such as annual and storm event loads. **Phil summarized the discussion by paraphrasing the question to: how will we convert stormwater and effluent data to a load?** The team agreed to clarify this in the SAP.

Mary Lou asked where are the large particles coming from and what are sources of plastics. Carolynn Box replied that this project will not be evaluating trash loads from urban creeks as BASMAA and 5 Gyres have just completed a Tracking California Trash project in the Bay Area, which developed methods to track particles > 5 mm.

Nirmela Arsem commented that it was important to define microplastics and to be clear on the method of analyses. That is for the pathways such as stormwater and wastewater, the sieves screens will only capture microplastics down to 125 microns; however, for Bay and sanctuary samples, the project will be able to analyze down to 20 microns. Therefore, it is important to be clear when comparisons are made that these differences are highlighted. Meg indicated that all samples are being analyzed using the same methodology (Raman spectroscopy) by the same laboratory so this will alleviate a source of uncertainty. Becky emphasized that the use of bins for different sized particles will allow appropriate comparisons.

Chris again emphasized the need to be clear on how data will be presented particularly in regards to concentrations and loads from POTWs (publicly owned treatment works), tributaries, and other pathways. There are many larger plastic materials that can degrade into MP, and it's

important that the data does not become a source discussion. He was concerned that the data can paint the wrong picture of sources of MP. He emphasized the data are meant to inform management decisions. Phil clarified that we can be make that sure we are making apples to apples comparison when comparing data, and be clear on what is and is not represented in the data. He also said one challenge is studying trash and larger particles.

Becky asked if the group had any comments on the site selection or site locations. Phil said they would have preferred to sample more sites, and agonized over limited number of sites available based on the existing budget. Mary-Lou asked if sites coincided with historical RMP sites, and Meg responded that they are not the historical sites, except of a few sediment sites. However, for the margin sediment sites, chemistry that has been conducted at that a particular site will be publicly available through the RMP web portal.

Mike said that he was not clear on how data from sites will answer questions about the Bay and how the sample results will be used to answer the management questions. Meg said that it is a challenge to meet all the data needs for this project, because MP is a very different analyte than other chemical compounds traditionally studied by the RMP. She said we will have to see what the data looks like, to see what answers can be teased out, and what statistical analysis can be done. For example, the previous study found that wastewater effluent contained mostly fibers. It is possible that some pathways may have a specific size distribution or type of MP which will facilitate comparisons. At minimum, the Bay and Sanctuary waters will be compared as well the differences in season. Rusty said sites were chosen to have some sites in places where the Bay is well mixed, sites to represent potential sources, and that they tried to get one arrow in each bullseye, but there were not enough sites to double up on sites. Mike mentioned the need to think about potential removal processes, such as settling, filtration, and that chlorophyll could be a potential surrogate. He asked whether the data would give meaningful data that the models can use. Rusty responded that modeling the transport of MP is still an open topic, and that at a recent conference, the research presentations were mostly on sampling and composition, and not yet on transport processes. He said the best thing is to distribute the sampling sites to show different conditions, such as areas with and without settling. Mike mentioned this could overlap with work from Dave Schoelhammer. **Phil summarized that there is the question about settling velocity for different particle sizes, and that he would meet and discuss this with Dave.**

Nirmela requested a definition of MP and nanoparticles, and that this be consistent through the document. Meg said she would expand on the definitions, and make sure comparisons are making apples to apples, such as particle sizes, and be very clear on what we are talking about.

Mary Lou asked how will data from this project be integrated with previously data? Becky answered that this data would be stand alone, because the methods would be different (i.e.

extraction method and plastic identification), and it would be hard to make a comparison. Phil said this was a safe approach, and that the previous data set is small in comparison.

Comments should be sent ASAP to meg@sfei.org, and deadline is 3/15.

3. **Recommendation for Special Study: Microplastic in Bivalves**
    a. **Special Study Presentation**

Phil said that the RMP has provided some matching funds to the Moore study. In addition, the RMP has set up a microplastic workgroup that will propose special studies to be funded by the RMP. The MP Bivalve special study is not funded by Moore; this Workgroup will decide whether to recommend the special study for RMP funding to the TRC. The discussion had mentioned that filtration could be a possible removal process, and we know that bivalves are an important removal mechanism for other contaminants.

Meg reminded everyone that part of the MP Strategy Document outlines looking at filter feeders. Bivalves are a key element of the food web, and can help answer management questions, such as do we see uptake of MP in bivalves, and what are potential risks to higher organisms like apex predators. Bivalves are good trend indicators, and if MP turns out to be a large issue, they could be a key trend indicator, and inform management actions.

The study design will leverage 2018 RMP work. At 7 Bay sites, transplants of *Mytilus edulis* will be placed for 90 days, and at 3 margin sediment sites, resident samples will be collected. At each site, 3 composite samples will be collected. Composites will be analyzed by the Rochman lab using Raman spectroscopy. The RMP work will also analyze samples for other pollutants (e.g. PAHs, possibly PBDEs), and the study will try to determine correlations with MP data.

Field work will be conducted in the summer of 2018, analysis in the fall of 2018, with reporting in winter of 2018. Results will be included in Moore microplastic report.

    b. **Special Study Discussion**

Phil asked will data be going into CEDEN. Meg said yes, data will be incorporated into CEDEN and CEDEN has count and categories as of a month ago. She is working with CEDEN and the data management team to potentially supplement data with photos, and they are helping CEDEN develop methodology for including MP data. She will follow-up on this. **Chris pointed out that the category and data types are important, and that we should hold back on data until this is well defined, and only have to upload data into CEDEN once.** Meg agreed, and that it would be inefficient to have to revisit data and re-upload.

There was a question concerning digestion method. Chelsea said there are various chemicals that have been used for digestion, and that the KOH method has performed the best. Therefore, this is the method that they will be using, but **she will also test the method to see if there is an impact on the analysis of very small particles.**

Mary-Lou asked whether concentrations measured in bivalves will be translated to organisms or human exposure. Phil answered that the transplants will be measured for biological exposure to the bivalves, and not used for fish advisories, which is more appropriate with measurements from sport fish. Becky said they will be looking at differences between transplants and resident bivalves.

Phil stated that there are 6 other workgroups that are developing proposals for 2018, and each group will put forward project ideas to the RMP Technical Review Committee (TRC) in June. The TRC combines the recommendations into 1 set of proposed studies for the RMP Steering Committee (SC) to approve.

Jay mentioned that the current plan is to not do PCB analysis on the bivalves in 2018, because the PCB cycle is every 8 years. PCB analysis is not planned till 2022, so a question for the Workgroup is whether to do PCB analysis to compare to the MP data. PBDE and PAH data will likely be collected. There was a discussion on how PCB data can be useful to correlate with MP data. However, the data may not be conclusive or show causation. Meg asked the technical experts for their input. Becky pointed out that the primary purpose of the study is to look at MP, and that other chemical analyses should be considered add-ons. The Workgroup discussed whether the study design could include other chemical tracers of plastics like alkylphenols and PBDEs. Phil summarized that adding on additional analysis would be a significant increase to the scope of the project, and we would have to consider whether there are options for that, and that they may need to be a follow-on project.

4. **Decision: Recommendations for 2018 Special Studies Funding**

A decision was made and confirmed to recommend the study to the TRC.

5. **Identification of Action Items, Next Steps**
    - Follow-up with Chelsea and Mary Lou about papers comparing spectroscopy confirmation of plastics.
    - Explain in the SAP how the stormwater and wastewater data will be analyzed to calculate loads. Discuss this with stormwater team. We will also want to consider making climate adjustments, such as this year versus a normal year.
    - Ask Chelsea Rochman to share with the workgroup some of the demonstration data as the instrument is brought on line to assure that the data is robust.
    - Define MP size fractions in the SAP.

About the RMP

RMP ORIGIN AND PURPOSE

In 1992 the San Francisco Bay Regional Water Board passed Resolution No. 92-043 directing the Executive Officer to send a letter to regulated dischargers requiring them to implement a regional multi-media pollutant monitoring program for water quality (RMP) in San Francisco Bay. The Water Board's regulatory authority to require such a program comes from California Water Code Sections 13267, 13383, 13268 and 13385. The Water Board offered to suspend some effluent and local receiving water monitoring requirements for individual discharges to provide cost savings to implement baseline portions of the RMP, although they recognized that additional resources would be necessary. The Resolution also included a provision that the requirement for a RMP be included in discharger permits. The RMP began in 1993, and over ensuing years has been a successful and effective partnership of regulatory agencies and the regulated community.

The goal of the RMP is to collect data and communicate information about water quality in San Francisco Bay in support of management decisions.

This goal is achieved through a cooperative effort of a wide range of regulators, dischargers, scientists, and environmental advocates. This collaboration has fostered the development of a multifaceted, sophisticated, and efficient program that has demonstrated the capacity for considerable adaptation in response to changing management priorities and advances in scientific understanding.

RMP PLANNING

This collaboration and adaptation is achieved through the participation of stakeholders and scientists in frequent committee and workgroup meetings.

The annual planning cycle begins with a workshop in October in which the Steering Committee articulates general priorities among the information needs on water quality topics of concern. In the second quarter of the following year the workgroups and strategy teams forward recommendations for study plans to the Technical Review Committee (TRC). At their June meeting, the TRC combines all of this input into a study plan for the following year that is submitted to the Steering Committee. The Steering Committee then considers this recommendation and makes the final decision on the annual workplan.

In order to fulfill the overarching goal of the RMP, the Program has to be forward-thinking and anticipate what decisions are on the horizon, so that when their time comes, the scientific knowledge needed to inform the decisions is at hand. Consequently, each of the workgroups and teams develops five-year plans for studies to address the highest priority management questions for their subject area. Collectively, the efforts of all these groups represent a substantial body of deliberation and planning.

PURPOSE OF THIS DOCUMENT

The purpose of this document is to summarize the key discussion points and outcomes of a workgroup meeting.

Special Study Proposal: Microplastic Strategy

Summary: In early 2019, SFEI will complete a major two-year project on microplastic monitoring, modeling, and policy guidance, which was funded by the Gordon and Betty Moore Foundation with generous matches from the RMP and others. To continue to provide strategic support on this issue to the San Francisco Bay Regional Water Board and other RMP stakeholders, strategy funding is recommended for 2019.

Core deliverables include tracking new information regarding microplastic occurrence and toxicity; responding to requests for information from the Water Board and other stakeholders; and, in collaboration with the Workgroup, identifying any essential data gaps for San Francisco Bay that could be filled by the RMP or others. Strategy funding also allows for important leveraging activities such as the coordination of *pro bono* analyses by partners.

Estimated Cost: $15,000

Oversight Group: Microplastic Workgroup

Proposed by: Rebecca Sutton & Meg Sedlak (SFEI)

PROPOSED DELIVERABLES AND TIMELINE

Deliverable	Due Date
Task 1. Information gathering from a variety of sources throughout the year, including presentations at scientific conferences	Year-round
Task 2. Respond to information requests from the Water Board and other RMP stakeholders	Year-round
Task 3. Coordinate *pro bono* studies with analytical partners	Year-round
Task 4. Update the RMP's Microplastic Strategy, identifying priority data gaps that the RMP or others could fill (draft)	Spring 2019
Task 5. Finalize the Strategy Update as an Appendix to the existing Strategy	Summer 2019
Task 6. Present an update of RMP Microplastic Strategy to the Steering Committee	January 2020

Background

The science and management of microplastics is an area of dynamic recent development. The RMP has taken a leadership role on this issue, first by developing a Microplastic Monitoring and Science Strategy for San Francisco Bay (Sutton and Sedlak 2017), and then by co-funding and participating in a two-year project to monitor and model microplastic contamination in the Bay and adjacent Marine Sanctuaries, leveraging significant external funding from the Moore Foundation.

In early 2019, the project with the Moore Foundation will be complete. To assure that the RMP receives reliable and up-to-date science guidance on this rapidly evolving field, support for microplastic strategy is recommended. Microplastic strategy funding is needed to review new data, track research conducted elsewhere, and keep stakeholders apprised of findings. Coordination of *pro bono* analyses is another component of the strategy fund. Perhaps most important, funding could be used to provide relevant, objective science to inform the growing number of policy actions related to plastic and microplastic pollution. A higher level of support is needed for the Microplastic Strategy than other focus areas because the science is rapidly changing and there is intense interest in this topic.

Study Objectives and Applicable RMP Management Questions

Table 1: Study objectives and questions relevant to RMP Microplastic Workgroup management questions

Management Question	Study Objective	Example Information Application
1) How much microplastic pollution is there in the Bay?	Compare existing Bay occurrence data with levels reported elsewhere in the scientific literature, to provide context for Bay observations. Track new and evolving methods for microplastic sample collection and analysis, to assure RMP studies use appropriate methods.	Does the latest science suggest Bay contamination levels are typical of urban areas? Are there any unique aspects to observations in the Bay? Are newly developed methods for sample collection and analysis good candidates for use in the Bay? How do measurements made with new methods compare to those made with methods previously used to characterize the Bay?
2) What are the health risks?	Review the scientific literature for toxicity thresholds, as they emerge. Evaluate future monitoring needs and toxicity data gaps.	Do levels of microplastic in the Bay exceed available toxicity thresholds? Can microplastic occurrence be linked to presence of plastic additive CECs in the Bay?

3) What are the sources, pathways, loadings, and processes leading to microplastic pollution in the Bay?	Evaluate new knowledge regarding sources, pathways, loadings, and processes for microplastic in the context of a comprehensive conceptual model to allow prioritization of data gaps the RMP can fill. Compare model predictions to monitoring results; assess potential reasons for differences between predicted and measured values.	What are the key sources, pathways, and processes that impact concentrations of microplastic in the Bay? Are relative levels of microplastic in different matrices or subembayments consistent with our expectations?
4) Have the concentrations of microplastic in the Bay increased or decreased?	N/A	
5) Which management actions may be effective in reducing microplastic pollution?	Evaluate available data on the impacts of existing and proposed management actions in the Bay Area and elsewhere. Evaluate the expected impacts of changes to population, climate, affluence, and other factors.	How might existing or proposed management actions impact levels of different types of microplastic particles in the Bay? What are the possible effects of changes to population, climate, and affluence on concentrations of microplastic and associated risk?

Approach

Funding for this task will allow for strategic thinking using the latest science, so that the RMP can continue to generate the information water quality managers need to effectively address microplastic contamination in the Bay. As the Moore Foundation project concludes in early 2019, it will be essential for the RMP to establish priorities for future work and seek opportunities to leverage external funding and scientific efforts.

Microplastic strategy funding would support the review of key information sources throughout the year. These sources include:

- Abstracts and newly published articles in key peer-reviewed journals (e.g., Environmental Health Perspectives, Environmental Science and Technology, Environmental Toxicology and Chemistry, Marine Pollution Bulletin, Science of the Total Environment)
- Documents produced by other programs (e.g., USEPA, NOAA Marine Debris Program, Australia's CSIRO Research Program, Woods Hole Oceanographic Institute, Environment and Climate Change Canada, European Chemicals Agency, Great Lakes CEC Program)

- Abstracts and proceedings from relevant conferences (e.g., Society of Environmental Toxicology and Chemistry, International Marine Debris Conference)

In addition, strategy funding allows staff to provide additional services, such as:

- Numerous presentations, briefings, and stakeholder interactions
- Scientific assistance to the Water Board
- Scientific assistance to stakeholders engaged in microplastic-related policy
- Coordination of *pro bono* analyses

The proposed deliverables table on the first page of this proposal lists the specific tasks to be completed and their due dates.

Budget

Table 2. 2019 Microplastic Strategy budget

Deliverables	**Budget**
Tasks 1-6: Information gathering from a variety of sources throughout the year, including presentations at scientific conferences; Respond to information requests from the Water Board and other RMP stakeholders; Coordinate *pro bono* studies with analytical partners; Update the RMP's Microplastic Strategy, identifying priority data gaps that the RMP or others could fill (draft); Finalize the Strategy Update as an Appendix to the existing Strategy; Present an update of RMP Microplastic Strategy to the Steering Committee.	$15,000

Budget Justification

This budget represents 12 hours of staff time for information requests; 12 hours for presentations and coordination of *pro bono* studies; and 75 hours for information gathering, reviewing literature, and updating the Strategy document.

Reporting

RMP Microplastic Strategy presentations (Microplastic Workgroup meeting, Steering Committee, and Annual Meeting) provide opportunities to report on this work. A brief update to the RMP Microplastic Strategy, to be attached as an appendix to the original strategy document, represents another key reporting mechanism.

References

Sutton R, Sedlak M. 2017. Microplastic Monitoring and Science Strategy for San Francisco Bay. SFEI Contribution 798. San Francisco Estuary Institute, Richmond, CA.

Special Study Proposal: Microplastic in San Francisco Bay Sport Fish

Summary: With external funding from the Moore Foundation and the RMP, SFEI has just completed the first year of a two-year study to characterize microplastic in San Francisco Bay. The project will provide information to address many of the management questions articulated in the RMP Microplastic Strategy. A key element that was not included in the Moore project was the characterization of microplastic in sport fish. Sport fish are an important food source to humans and Bay wildlife and are integrators of contaminants present in Bay water, sediment, and prey fish. In 2019, as part of RMP Status and Trends monitoring, sport fish will be collected, and analyzed for a suite of contaminants. This project proposes to augment the existing RMP efforts by including microplastic analyses.

Estimated Cost: $110,300

Oversight Group: Microplastic Workgroup

Proposed by: Chelsea Rochman (University of Toronto), Meg Sedlak, and Rebecca Sutton (SFEI)

PROPOSED DELIVERABLES AND TIMELINE

Deliverable	***Due Date***
Task 1. Field collection	Summer 2019
Task 2. Laboratory analysis	Fall/ Winter 2019
Task 3. Review of data (available for microplastic workgroup meeting)	Spring 2020
Task 4. Manuscript and RMP Sport fish Report	Summer 2020

Background

Plastic is ubiquitous in modern life. Global plastic production was estimated to be 299 million tons in 2013 (Gourmelon 2015); nearly a third of plastic production is used for plastic packaging including single-use items (Andrady and Neal 2009) that are discarded after use. For the last two decades, society has focused on macroplastic in the ocean such as the Pacific Ocean Garbage Patch but recently attention has turned to the smaller plastic particles, < 5 mm in diameter, referred to as microplastic.

The RMP conducted a microplastic screening study in 2015 that identified particles < 5 mm in San Francisco Bay water and wastewater effluent (Sutton et al. 2016). At the time, spectroscopic identification of plastic polymer type was not conducted for each particle. Based on this small screening study, the RMP convened a Microplastic Workgroup in June 2016 and developed a RMP Microplastic Strategy (Sutton and Sedlak 2017). A high priority for the Strategy is to develop robust methods for monitoring microplastic and to assess the extent to which microplastic is taken up into biota. As part of the Moore project, we will quantify the abundance of microplastic in prey fish; however, the scope does not include

larger sport fish that are consumed by humans and wildlife. This information is important for assessing impacts to fish and uptake of microplastic into the food web.

This project will focus on two species – one that has high site fidelity (shiner surfperch) and a second that ranges and forages more broadly (striped bass). The two species also differ in their trophic position: striped bass are higher trophic level piscivores, while shiner surfperch primarily consume benthic invertebrates. The data will facilitate comparisons among foraging behaviors as well as site location. The Moore study will assess microplastic concentrations in prey fish, anchovy and topsmelt, at six locations in the Bay and two locations in Tomales Bay, a reference site. In addition to fish data, the Moore project will measure concentrations of microplastic in sediment for all of the prey fish locations as well as margin and Bay sites. This information may be used to explore the relationship between microplastic concentrations in sediment and in fish.

Microplastic has been detected in fish (Rochman et al. 2015); however, to date, no study has measured microplastic in Bay sport fish. This is important because microplastic can be an important vector for transferring chemicals such as flame retardants and plasticizers present in the plastic to the fish (Rochman et al. 2013) and because of the human health risks associated with contaminant exposures from fish consumption. Microplastic accumulates in the digestive organs of fish; however, recent research on mussels and crabs suggests that microplastic particles may translocate from the gut to other organ systems (Browne et al. 2008; Brennecke et al. 2015). In a laboratory feeding study of fish, Rochman and colleagues demonstrated the bioaccumulation of PBDEs from a dietary intake of microplastic coated with contaminants (Rochman et al. 2013).

The presence of microplastic in fish may have adverse effects. Recent research suggests that the presence of microplastic particles (< 300 microns) may result in reduced growth and body condition of fish (Critchell and Hoogenboom 2018). Rochman et al. (2013) identified an increase in liver toxicity associated with the presence of microplastic in fish.

It is important to assess uptake of microplastic into sport fish for four reasons. Assuming microplastic is detected and the RMP continues to monitor sport fish for microplastic over time, this study may provide a baseline for an important trend indicator. This may allow us to see the efficacy of management actions such as plastic bag and polystyrene foam bans. Second, because this project is targeting sport fish with varying foraging behaviors, this project will help us to understand whether microplastic accumulation is limited to fish that maintain a high site fidelity in the margins of the Bay and consume benthic invertebrates, or whether it is also present in Bay fish that forage more widely and are piscivores. Third, this project will complement the existing work being conducted on the Moore project in the Bay margins assessing microplastic in prey fish and sediment. A comparison among sediment, prey fish, and sport fish may provide insight on the potential for bioaccumulation of microplastic and contaminants that may be adsorbed to the surface of microplastic or present in the microplastic as an additive (e.g., plasticizers or flame retardants). Lastly, evaluating the concentration of microplastic in Bay sport fish will help us to understand the potential health risk to humans and other animals which consume sport fish.

The RMP Status and Trends sport fish monitoring program will analyze fish throughout the Bay for chemical contaminants such as PCBs PAHs, and PBDEs. This affords an

opportunity to assess to microplastic in fish along with concentrations of contaminants in fish, although not in the same fish. Depending on the timing of this project, it is possible that University of Toronto may have an opportunity to conduct additional *pro bono* analyses of some of the fish tissue for plastic-associated chemicals and microplastic particles.

Study Objectives and Applicable RMP Management Questions

The purpose of this study is to monitor sport fish for the abundance of microplastic and explore whether concentrations and patterns vary by habitat and fish species. The project will also collect data that can be used to evaluate the correlation between microplastic in sediment and microplastic in prey fish and sport fish.

Table 1. Study objectives and questions relevant to RMP Microplastic Strategy management questions (Sutton and Sedlak 2017).

Management Question	Study Objective	Example Information Application
1) How much microplastic pollution is there in the Bay?	Assess concentration in an important upper trophic organism.	Assess the potential for uptake of microplastic into food web. Use this information to update the conceptual model for microplastic in the Bay.
2) What are the health risks?	Compare concentrations in Bay sport fish to literature studies.	Assess magnitude of potential impact on fish.
3) What are the sources, pathways, loadings, & processes leading to microplastic pollution in the Bay?	Compare different species that forage in the margins vs open bay.	Assess variation among species and sites to gain insight into the importance of local sources.
4) Have the concentrations of microplastic in the Bay increased or decreased?	Establish a baseline for future trend analyses	
5) Which management actions may be effective in reducing microplastic pollution?	Characterize chemical composition and particle type of microplastic present in sport fish.	Understanding the type and composition of microplastic accumulating in biota will be important for prioritizing appropriate management actions.

Approach

The 2019 RMP Status and Trends sport fish element presents an opportunity to measure microplastic particles in sport fish. The RMP monitors sport fish every five years at five popular fishing locations in the Bay. We propose to collect two species of sport fish at two sites in the Bay. One species will be shiner surfperch (*Cymatogaster aggregata*), an abundant and popular sport fish that feeds on invertebrates in the benthic zone and exhibits high site fidelity, useful for assessing regional differences in contaminants. The other species will be striped bass (*Morone saxatilis*), another popular sport fish species that is higher in the food chain and provides an integrated signal for the Bay as a whole as a result of its wide foraging

behavior and opportunistic consumption of lower trophic level fish. As part of the RMP Status and Trends Program, striped bass samples will be collected at two sites in the Bay, targeting popular fishing sites in the South and Central Bay (e.g., San Leandro Bay and Lower South Bay near Artesian Slough).

For this study, we will collect approximately 13 fish of each species at two sites. Fish gut samples will be analyzed for microplastic. The samples will be shipped to University of Toronto for micoplastic analyses. After receipt in the laboratory, the fish are thawed, weighed and measured. They are then dissected to remove gut and gut contents for digestion, consistent with previously published protocols (Dehaut et al. 2016; Foekema et al. 2013; Corcoran 2015). The guts are individually weighed and the contents are placed in a jar filled with a 20% KOH solution. The amount of KOH added is typically three times the volume of biological tissue. The material is left at room temperature for up to 14 days to facilitate the digestion. The jars are not stirred to avoid damage to plastic from hard materials such as rocks, shells, etc. After digestion, the sample are filtered through a 10 micron polycarbonate filter. Samples are then analyzed under a microscope and particles are picked out of the samples. Raman and/or FTIR spectroscopy is used to identify the chemical composition of each of the particles and particle sizes.

This project will augment the existing sport fish work by collecting additional samples for microplastic analyses and benefit from the chemical analysis of similar sport fish from the same locations. In addition, this project will leverage the findings from the Moore project by comparing microplastic analyses in sediment and prey fish such as anchovy and topsmelt to sport fish to assess food web uptake as well as spatial distribution of microplastic. The data will be subjected to rigorous quality assurance-quality control review and presented to the Microplastic Workgroup in the Spring before being uploaded into CEDEN.

The final deliverable will be a manuscript prepared by University of Toronto with assistance from SFEI. In addition, SFEI will incorporate the results into the RMP Sportfish Technical Report.

Budget

The following budget represents estimated costs for this proposed special study (Table 2).

Table 2. Proposed Budget.

Personnel	**Budget**
Sample Collection	$4,000
Data Management and QA	$20,000
Reporting	$20,400
Laboratory Analyses and manuscript	$62,000
Direct cost (shipping, field supplies)	$3,900
Total	$110,300

Add-ons

Analysis of sportfish tissues could be conducted for 20 fish at an additional cost of $20,000; similarly, a third site consisting of 26 additional fish at a cost of $26,000.

Budget Justification

Sample Collection Costs

Field costs are reduced by leveraging the RMP's sport fish sampling efforts. We will also leverage the prior work conducted on the Moore project analyzing prey fish and sediments for microplastic. The budget includes staff hours to coordinate with the laboratory, to assist in the writing of the SAP, and to coordinate with field crew (approximately 30 hours of staff time total).

Data Management and QA Costs

The data will be reviewed by RMP staff and uploaded into CD3 using existing CEDEN formats. Based on our experience with the Moore data sets, it is fairly labor-intensive to review the microplastic data (approximately 95 hours of staff time).

Reporting Costs

The contracting laboratory will prepare a manuscript summarizing the findings of this work. RMP staff will assist in writing of the manuscript, and will incorporate the results in the RMP Sport fish report (approximately 130 hours of staff time).

Laboratory Costs

SFEI is currently working with University of Toronto on the Moore project. The Rochman laboratory uses state of the art instrumentation to conduct microplastic analyses and is recognized as a pioneer in the field of microplastic research. The cost to analyze the sample is $1,000 due to the labor intensive nature of the extraction process, identification, enumeration, and analysis associated with spectroscopy. We will include laboratory blanks in our analyses (approximately 10 percent of the samples collected). The collection of ten fish of each species at each site will provide information on the variation observed in field samples.

Direct Costs

The budget will cover the cost to purchase sample containers and to ship the samples overnight (frozen) from SFEI to the University of Toronto. The overnight courier costs are more expensive because the samples are being shipped to Canada and need to clear customs in an expedited manner.

Reporting

The results of this project will be summarized in a manuscript prepared by University of Toronto with assistance from SFEI. In addition, the results will be presented in the RMP Sport Fish report.

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BOARD MEMBER DONATIONS TO ASC/SFEI

1. ASC/SFEI continues to be a very valuable scientific body that provides excellent scientific investigations which are relied upon to inform regulations which impact BACWA.

2. Due to potential EPA cutbacks in funding as well as imposition of low overhead factors for any State project, ASC/SFEI will be barely able to meet its cost of operations which could result in the following negative impacts:
    a. loss of key talented scientific investigators
    b. reduction in ability to take on key projects
    c. slow deterioration of the organization such that its main function is to oversee the RMP

3. With this uncertain financial future, ASC/SFEI is pursuing a new business model that will rely more heavily on foundation funding.

4. If successful, the foundation funding model should allow ASC/SFEI to thrive and continue undertaking scientific investigations important to BACWA

5. A key factor in securing foundation funding for an organization is the commitment of its governing body

6. A key measure of this commitment is the percent of the governing body members who provide donations to the organization

7. With the help of a consultant with expertise in securing foundation funding, ASC/SFEI has developed a draft policy on governing body member donations to the organization.

8. The policy states an expectation that all Board members of ASC/SFEI should make significant annual contributions to the organization.

9. With BACWA representatives on the ASC/SFEI Board being appointed, this expectation of annual significant contributions to ASC/SFEI may be a deterrent to have BACWA members volunteer to be on the Board of ASC/SFEI.

10. One way of ensuring that there are qualified BACWA members willing to take on the added duties of being an ASC/SFEI Board member, including the expectations for annual donations, is for BACWA to reimburse the volunteer for donations made via an expense report.

11. The BACWA Board could set the annual limits (e.g. $100 - $150/rep/yr) for the contributions by the two BACWA representations to ASC/SFEI.

12. BACWA has a history of financially supporting and or sponsoring initiatives, programs, etc. (e.g. NBWA, PPIC, ReNEWIt,) when such initiatives or programs are viewed as beneficial to BACWA or the wastewater community.

BAY AREA CLEAN WATER AGENCIES
SUCCESSION PLANNING
Fiscal Year 2019

A. BACWA Principal Representatives

Agency	Representatives	Title & Roles	Succession Planning
CCCSD	Lori Schectel	BACWA Chair, CASA State Legislative Committee, Nutrient Governance Steering Committee Alternate, Summit Partners	
	Roger Bailey (Alternate)		
	Jean-Marc Petit (Alternate)		
EBDA	Mike Connor	BACWA Executive Board Rep, Ad Hoc Conflict of Interest Committee	Retiring, will be replaced by Jackie Zipkin
	Jacqueline Zipkin	ReNUWIt Industrial Advisory Committee Member	
	Jason Warner, Oro Loma (Alternate)		
EBMUD	Eileen White	BACWA Executive Board Rep, Nutrient Management Strategy Governance Steering Committee, Bay Area Regional Reliability Project, SF Estuary Partnership	
	Maura Bonnarens (Alternate)	AWT Certification Committee	
SFPUC	Laura Pagano	BACWA Executive Board Rep,	
	Brian Henderson (Alternate)		
	Jennie Pang (Alternate		
	Ryan Jackson (Alternate		
	Amy Chastain (Alternate)		
San Jose	Amit Mutsuddy	BACWA Executive Board Rep,	
	Pending Designation		

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

B. Other BACWA Representatives

Group/Organization	Current Representative
RMP Technical Committee	Mary Lou Esparza, CCCSD
RMP Steering Committee	Karin North, Palo Alto;
	Leah Walker, Petaluma;
	Eric Dunlavey, San Jose
Summit Partners	Dave Williams;
	Lori Schectel, CCCSD
Joint SFEI/ASC Board	Laura Pagano, SFPUC;
	Dave Williams
	Amit Mutsuddy, San Jose
	Karin North, Palo Alto, ASC Board Alternate
Nutrient Management Strategy Governance Steering Committee	Eric Dunlavey, San Jose
	Eileen White, EBMUD
	Bhavani Yerrapotu, Alternate
	Lori Schectel, Alternate
NMS Planning Subgroup	Eric Dunlavey, San Jose
NMS Technical Workgroup	Eric Dunlavey, San Jose
SWRCB Nutrient SAG	Dave Williams
SWRCB Focus Group – Mercury Amendments to the State Plan	Tim Potter, CCCSD;
	Laura Pagano, SFPUC
	Dave Williams, BACWA
NACWA Taskforce on Dental Amalgam	Tim Potter, CCCSD
BAIRWMP	Cheryl Munoz, SFPUC;
	Linda Hu, EBMUD;
	Dave Williams, BACWA
NACWA Emerging Contaminants	Karin North, Palo Alto;
	Melody LaBella, CCCSD
CASA State Legislative Committee	Lori Schectel, CCCSD
CASA Regulatory Workgroup	Lorien Fono, BACWA
ReNUWIt	Jackie Zipkin, EBDA
	Karin North, Palo Alto
RMP Microplastics Liaison	Nirmela Arsem, EBMUD
AWT Certification Committee	Maura Bonnarens, EBMUD
Bay Area Regional Reliability Project	Eileen White, EBMUD
WateReuse Working Group	Cheryl Munoz, SFPUC
SF Estuary Partnership	Eileen White, EBMUD
	David Williams, BACWA
CPSC Policy Education Advisory Committee	Doug Dattawalker, Union San
California Ocean Protection Council	Lorien Fono, BACWA

Changes to BACWA Representation requires Executive Board Approval.

C. BACWA Committees

Committee	Chair	Vice/Co-Chair	Comments	Succession Planning
AIR	Nohemy Revilla, SFPUC, Co-Chair	Randy Schmidt, CCCSD, Co-Chair	CWCCG Representative	
BAPPG	Doug Dattawalker, Union San	Joanne Le, City of Richmond (Reporting), Simret Yigzaw, City of San Jose; Autumn Cleave, SFPUC (Budget), Debbie Phan, Regional Water Board		
BAPPG Pesticide Subcommittee	Karin North, Palo Alto	Robert Wilson, Petaluma; Autumn Cleave, SFPUC	New Subcommittee effective November	
Biosolids	Alicia Chakrabarti, EBMUD, Chair	Ravi Krishnaiah, SFPUC, Vice-Chair		
Collection Systems	Erin Smith, City of Alameda, Chair	Andrew Damron, Napa San, Vice-Chair		
Info Share Ops/Maint	Joaquin Gonzales, Delta Diablo, Co-Chair	Kevin Dickison, EBMUD, Co-Chair		
InfoShare Asset Mgmt	Dana Lawson, CCCSD, Co-Chair	Aaron Johnson, DSRSD, Co-Chair		
Laboratory	Nirmela Arsem, EBMUD, Chair	Noel Enoki, San Jose, Vice-Chair		
Permits	Chris Dembiczak, EBMUD, Chair	Robert Wilson, Petaluma, Vice-Chair		
Pretreatment	Tim Potter, CCCSD, Co-Chair	Michael Dunning, Union San, Co-Chair		
Recycled Water	Rhodora Biagtan, DSRSD, Co-Chair	Leah Walker, City of Petaluma, Co-Chair		

Changes to Committee Leadership will be reported by Executive Director to Executive Board

Biosolids Committee – Report to BACWA Board

Biosolids Committee meeting on: April 24, 2018
Executive Board Meeting Date: May 18, 2018
Committee Chair: Alicia Chakrabarti and Ravi Krishnaiah

Committee Request for Board Action: None.

Agenda Item: Welcome by Committee Chairs and San Jose host

Agenda Item: San Jose's Current Biosolids Operations, Construction and Future Plans (Mariana Chavez-Vasquez)

- Biosolids Master Plan was completed in 2010 and adopted in 2013
- Biosolids Transition Plan updated the recommendations from 2010 plan
- Determined, based on issuing a Request for Expression of Interest, that there was no significant driver for achieving Class A at this time
- Current improvements provide the flexibility to achieve Class A with use of batch tanks in the future
- Adding new mechanical dewatering (centrifuges), which will phase out use of drying beds
- Significant work is underway on total rehabilitation of four digesters, the gas piping, and the DAFT
- A new dewatering facility will be constructed as a progressive design/build across the street at an estimated cost of $70 million (completion by 2022)
- Plan to hire a Biosolids Coordinator by September, and that person will do another update of the study
- Construction lessons learned included: Allow significant time for air permitting; poor pipe condition led to a major additional project to divert 100 mgd of primary effluent at a cost of $15 million; PCBs were found in digester caulking material, which has required work stoppage until abatement plan can be approved by EPA
- Related improvements include a new cogeneration facility (IC Engine) to be operational by 2019

Agenda Item: Tour of Construction at Plant (Including: large effluent bypass pump and piping, digesters, DAFT, and biogas bypass)

Agenda Item: 2018 BACWA Biosolids Committee Survey

- Lorien presented the draft survey that will be distributed this year
- Sarah mentioned that CASA will distribute a survey this summer to inform the SWRCB's Co-Digestion Capacity Analysis with some overlapping information requested of all CA agencies with existing digesters
- Lorien and Sarah agreed to work together to streamline any information requests if possible

Agenda Item: Program Outreach and Communications

- Ravi and Alicia discussed the possibility of the Committee developing some guidance materials for members on messaging around biosolids, possibly coordinating with the Bay Area Biosolids Coalition
- Ravi reported that SFPUC is in the midst of a branding effort and can share their direction with the group

Agenda Item: Engagement with Bay Area Biosolids Coalition

- There have been discussions between the Coalition and BACWA on how we might integrate the two groups; potentially transitioning the administration of the Coalition to BACWA as a first step
- Lorien reported that this was discussed at a very high level at the BACWA Executive Board meeting
- Discussions are ongoing and the Committee will be involved and informed as it progresses

Agenda Item: Project Update from BioForceTech at Silicon Valley Clean Water

- Valentino provided an update on the biodryer and pyrolysis facility
- Full-scale facility has been operational since June 2017 and handles 7,000 wt/year of biosolids to produce 700 tons/year of biochar
- BioForceTech currently markets all biochar produced and plans to return a portion of the net profit

Attendees:

Name	Agency
Ravi Krishnaiah	SFPUC
Alicia Chakrabarti	EBMUD
Marta Mendoza	SFPUC
Alex Miot	SFPUC
Nohemy Revilla	SFPUC
Lorien Fono	BACWA
Bryan Frueh	San Jose
Ryan Mayfield	San Jose

Name	Company
Sarah Deslauriers	Carollo/BABC
Elizabeth Charbonnet	Carollo/BABC
Jim Dunbar	Lystek
Marco Mosciarello	BioForceTech
Valentino Villa	BioForceTech
Bruce Petrik	Stantec
Kristine Corneillie	Larry Walker Associates
Jim Graydon	Woodard & Curran

Eric Dunlavey	San Jose
Mariana Chavez-Vazquez	San Jose
Tim Tran	San Jose
Satya Nand	San Jose
Virginia Parks	San Jose
Jason Nettleton	San Jose
Larry Brown	San Jose
Alicia Alba	San Jose
Anthony Pascua	San Jose
Jeff Brubaker	SVCW
Robert Wilson	Petaluma

Operations and Maintenance Infoshare Group Report to BACWA Board

Committee Meeting on: 04/25/18
Executive Board Meeting Date: 05/18/18
Committee Chair: Kevin Dickison and Joaquin Gonzales

Committee Request for Board Action: None

11 attendees representing 5 member agencies

Highlights of New Items Discussed and Action Items

Staff Training - Round Table Discussion

The topic for the committee's discussion was staff training best practices, including training program structure, types of training, evaluation and certification, and re-training.

Key points in the discussion were:

- Many agencies are experiencing high turnover rates due to retirement, especially amongst supervisors. Most staff have less than 5 years of experience.
- EBMUD staff shared information about their formal training program for operators. They do not yet have a similar program for maintenance staff.
- FSSD has a successful intern program.
- There was a discussion about how to discontinue employment of staff who are not suitable for their position, and how to work with unions on contracts to make this feasible.
- It is important for agencies and staff to have an understanding about whose responsibility it is for ensuring staff receive training.

Chlorine Residual Basin Plan Amendment

Tom Hall of EOA attended the meeting to discuss BACWA's efforts on amending the Basin Plan to change the 0.0 mg/l chlorine residual effluent limit. He discussed the approaches for defining a water quality objective which could be converted to an effluent limit via the SIP procedure, as well as the effort to establish a reporting limit, which would be useful for agencies who do not get dilution credit. The group felt that if they could get an effluent limit above zero, with a one hour compliance period, then they would reduce the overdosing of sodium bisulfite. There was a discussion about how agencies currently determine bisulfite dosing. Tom will follow up with individual agencies to get an estimate of the total bisulfite dosing that could be avoided if the chlorine residual limit were amended.

Future meeting topics

A PollEverywhere was used at the meeting to rank interest in future meeting topics. The results are attached. Codigestion and food waste acceptance was added as a topic of interest. There is interest in doing more tours at agencies.

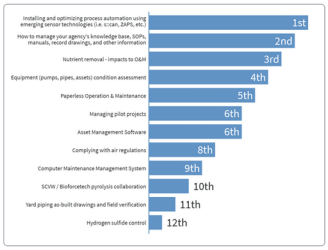
Next Meeting: August 29, Oro Loma (tentative)

Rank your interest in these topics for future meetings

Current run (last updated Apr 25, 2018 2:44pm)

1	8	8	100%
Polls	Participants	Average responses	Average engagement

Rank your interest in these topics for future meetings



Response options	Rank
Installing and optimizing process automation using emerging sensor technologies (i.e. s::can, ZAPS, etc.)	1st
How to manage your agency's knowledge base, SOPs, manuals, record drawings, and other information	2nd
Nutrient removal – impacts to O&M	3rd
Equipment (pumps, pipes, assets) condition assessment	4th
Paperless Operation & Maintenance	5th
Managing pilot projects	6th
Asset Management Software	6th
Complying with air regulations	8th
Computer Maintenance Management System	9th
SCVW / Bioforcetech pyrolysis collaboration	10th
Yard piping as-built drawings and field verification	11th
Hydrogen sulfide control	12th

100%
Engagement

8
Responses

BACWA
BAY AREA
CLEAN WATER
AGENCIES

Executive Director's April 2018 Report

NUTRIENTS:

Completed a variety of tasks and activities associated with BACWA's interests on nutrients and collaborating with the Water Board including:
-Coordinated with the OP/Upgrade consulting team on administrative issues.
-Following the Nutrient Strategy Team meeting met with the Water Board to discuss concepts to be included in the permit language for the 2nd Nutrient Watershed Permit.
-Coordinated with the NMS Science Manager on presentations, meetings, and key issues on nutrients.
-Developed the agenda for the monthly CMG conference call and chaired the call.
-Prepared for the 31st NMS Planning Subcommittee meeting.
-Coordinated with the HDR Project Manager on the schedule and budget for the Op/Upgrade Report.

BACWA BOARD MEETING AND CONFERENCES:

-Worked with staff in preparing for the April Board Meeting including review of the final agenda with the BACWA Chair and coordination with presenters.
-Organized and participated in the April Board Meeting.
-Continued to track all action items to completion.
-Planned for the bi-monthly Joint Meeting with the Water Board staff.

ASC/SFEI:

-As the Chair of the Governance Committee coordinated with the SFEI Executive Director on committee activities.
-Participated in discussions on the approach to updating the organization's strategic plan.
-Participated in discussions of a new policy for Board member donations as part of the strategy to pursue Foundation funding.

COLLECTION SYSTEM COMMITTEE:

-Coordinated with the RPM on planning for the next Collection System Committee meeting.

FINANCE:

-Reviewed the monthly BACWA financial reports with the AED.
-Continued coordinating with the AED in tracking the revenues coming in from the BACWA FY 18 member invoices.
-Made final revisions to the FY 19 Annual Budget and 5 Year Plan in preparation for adoption at the April Board meeting.

PERMIT COMMITTEE:

-Coordinated with the RPM for items to agendize for the Permit Committee review.
-Attend the monthly meeting and provided updates on key BACWA activities.

COLLABORATIONS:

-Coordinated with CASA Regulatory Program Manager and Executive Director on regulatory issues of mutual concern including the Ocean Protection Council's strategy on litter prevention.
-Coordinated with the Bay Area Biosolids Coalition to discuss a potential role for BACWA in assisting with the administration of the Coalition's activities.

MANAGERS ROUNDTABLE:

-Planned for and conducted the quarterly meeting of the Bay Area Managers Roundtable. Over 20 managers participated. Made presentations on key regulatory issue.

AIR COMMITTEE:

-Coordinated with the AIR Committee leadership on current regulatory issues.

BAPPG COMMITTEE:

-Coordinated with BAPPG leadership on upcoming comments letters under development.
-Submitted comment letters to EPA on clothianidin, dinotefurank, and thiamethoxam.

WOT:

-Communicated with the BACWWE Executive Committee on how the Spring Semester was progressing.
-Coordinated with Solano Community College is planning for the Fall 2018 BACWWE classes.

ADMINISTRATION:

-Planned for and conducted the monthly BACWA staff meetings to coordinate and prioritize activities.
-Signed off on invoices, reviewed correspondence, prepared for upcoming Board meetings, responded to inquiries on BACWA efforts, oversaw updating of web page and provided general direction to BACWA staff.
-Worked with the RPM in the preparation of the monthly BACWA bulletin.
-Coordinated with the AED to plan activities and review duties, schedules, and priorities.
-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:

-BACWA Chair and Committee Chairs on items that arose during the month
-Water Board staff on coordinating the nutrient activities
-other misc calls and inquiries regarding BACWA activities
-participated in coordination calls with the HDR project manager
-responded to Board members requests for information
-Met with the Edgcomb Law Group regarding their interest in providing regulatory legal services to BACWA as needed.

BACWA ACTION ITEMS

Number	Subject	Task	Deadline	Status
	Action Items from April 20, 2018 BACWA Executive Board Meeting			
2018.4-57	AQPI	Coordinate with Jennifer Krebbs on what, if any, role for BACWA (ED)	5/18/2018	Pending
2018.4-56	May 18, 2018 BACWA EB Meeting	Update invitation to reflect Oro Loma venue	4/23/2018	Done
2018.4-55	Permits Committee	Invite Caitlin Sweeney to a meeting	4/30/2018	Done
2018.4-54	Early Action & Tech Options	Add consultants to May or June Agenda	5/30/2018	Done
2018.3-49	TNI InfoShare Workshop	In about 6 months (RPM)	12/15/2018	Pending
2018.2-43	Committee Meeting Audio	Research cost of providing audio of meetings (RPM)	6/30/2018	Pending
2018.2-39	Opt/Upgrade Sign-Off Letters	Collect, file and forward to HDR (AED)	2/28/2018	Done
	Action Items Remaining from Previous BACWA Executive Board Meetings			
2016.3-61	Membership Policy	Develop policy for out of region agency membership (ED)	6/30/2017	Pending

FY18 *54 of 57 Action Items completed*
FY17: *90 of 90 Action Items completed.*
FY16: *96 of 97 Action Items completed.*

BACWA BOARD CALENDAR
June 2018 to May 2019

DATE	AGENDA
6/1/2018	
Joint Meeting - Water Board	**Other Business: Discussions**
Schectel, Mitsuddy, Pagano, White, Zipkin	
Williams; Fono	
6/15/2018	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 6/8	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	Approval: FY19 Agreements
	Approval: Appt BACWA Rep to ASC/SFEI Jt Board
	Other Business - POLICY/STRATEGIC
	Discussion: WB Joint Meeting Debrief
	Other Business - OPERATIONAL
	Discussion: BAAQMD Annual Meeting Draft Agenda
	Discussion: CPSC Update
	Reports
	Committee Reports (Committee Chairs)
	Board Reports (Executive Board)
	ED Report (ED)
	RPM Report (RPM)
	Other BACWA Representative Reports
7/20/2018	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 7/13	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	Approval: Annual Nutrient WS Payment
	Approval: FY19 Agreements
	Other Business - POLICY/STRATEGIC
	Discussion: Water Board Jt Mtg Debrief
	Discussion: Draft Agenda Pre-Pardee Technical Seminar
	Discussion: Risk Reduction Update
	Discussion: HDR Final Update on Optimization/ Upgrade studies
	Other Business - OPERATIONAL
	Discussion:
	Reports
	Committee Reports (Committee Chairs)
	Board Reports (Executive Board)
	ED Report (ED)
	RPM Report (RPM)

	Other BACWA Representative Reports

7/?/2018	
Joint Meeting - Water Board	**Other Business: Discussions**
Schectel, Mitsuddy, Pagano, White, Zipkin	
Williams; Fono	

8/17/2018	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 8/10	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	Approval:
	Other Business - POLICY/STRATEGIC
	Discussion: Draft Agenda & Schedule Pre & Pardee Technical Seminar
	Discussion: RMP & NMS Update (Phil Trowbridge/David Senn)
	Other Business - OPERATIONAL
	Discussion:
	Reports
	Committee Reports (Committee Chairs)
	Board Reports (Executive Board)
	ED Report (ED)
	RPM Report (RPM)
	Other BACWA Representative Reports

9/21/2018	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 9/14	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	Approval:
	Other Business - POLICY/STRATEGIC
	Discussion: Draft Agenda Pardee Technical Seminar
	Discussion: Annual Meeting Planning
	Discussion: Biannual Update on CASA Climate Change Prog? Short Meeting?
	Other Business - OPERATIONAL
	Reports
	Committee Reports (Committee Chairs)
	Board Reports (Executive Board)
	ED Report (ED)
	RPM Report (RPM)
	Other BACWA Representative Reports

9/21/2018	**No Board Actions Permitted**
Pre-Pardee Seminar	
Schectel, Mitsuddy, Pagano, White, Zipkin	
Williams; Fono; Hull	

10/25-26/2018	**No Board Actions Permitted**
Pardee Technical Seminar	
Schectel, Mitsuddy, Pagano, White, Zipkin	

Williams; Fono; Hull	

11/16/2018	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 11/9	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	Approval: Adoption of FY18 Annual Reports
	Other Business - POLICY/STRATEGIC
	Discussion: Pardee Debrief & Survey
	Discussion: Draft Agenda Joint Meeting with WB
	Discussion: ReNEWIt Industrial Advisory Board Meeting Debrief
	Discussion: Climate Change Update
	Other Business - OPERATIONAL
	Discussion: Annual Meeting Planning
	Reports
	Committee Reports (Committee Chairs)
	Board Reports (Executive Board)
	ED Report (ED)
	RPM Report (RPM)
	Other BACWA Representative Reports

12/?/2018	
Joint Meeting - Water Board	**Other Business: Discussions**
Schectel, Mitsuddy, Pagano, White, Zipkin	
Williams; Fono	

12/21/2018	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 12/14	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	**Other Business - POLICY/STRATEGIC**
HOLIDAY LUNCH	Discussion: WB Joint Meeting Debrief
COMMITTEE APPRECIATION	**Other Business - OPERATIONAL**
LUNCH	Discussion: Annual Meeting Agenda
	Discussion: Budget Schedule & Key Issues
	Reports
	Committee Reports (Committee Chairs)
	Board Reports (Executive Board)
	ED Report (ED)
	RPM Report (RPM)
	Other BACWA Representative Reports

1/25/2019	
Annual Members Mtg	Service & Leadership Recognition
Schectel, Mitsuddy, Pagano, White, Zipkin	RMP & NMS Update
Williams; Fono; Hull	EPA, CWRCB, RWCB, Air Dist,

2/15/2019	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)

Items due: 2/?	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	Approval:
	Other Business - POLICY/STRATEGIC
	Discussion: Draft Agenda Joint Meeting with WB
	Other Business - OPERATIONAL
	Discussion: FY2019 Budget Planning - 1st Draft of FY19 Budget
	Discussion: Annual Meeting Debrief
	Reports
	Committee Reports (Committee Chairs)
	Board Reports (Executive Board)
	ED Report (ED)
	RPM Report (RPM)
	Other BACWA Representative Reports

3/?/2019	
Joint Meeting	**Other Business: Discussions**
Schectel, Mitsuddy, Pagano, White, Zipkin	
Williams; Fono	

3/15/2019	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 3/9	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	**Other Business - POLICY/STRATEGIC**
	Discussion: WB Joint Meeting Debrief
	Other Business - OPERATIONAL
	Discussion: Second Draft of FY20 Budget
	Discussion: Biannual Update on CASA Climate Change Program
	Reports
	Committee Reports (Committee Chairs)
	Board Reports (Executive Board)
	ED Report (ED)
	RPM Report (RPM)
	Other BACWA Representative Reports

4/19/2019	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 4/12	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin	**Authorizations & Approvals**
Williams; Fono; Hull	Approval: FY20 Budget
	Other Business - POLICY/STRATEGIC
	Discussion: Draft Agenda Joint Meeting with WB
	Other Business - OPERATIONAL
	Discussion: Update on BAAQMD Regulations
	Discussion: Update on regional and statewide biosolids issues
	Discussion: NBWA Conference Debrief
	Reports

	Committee Reports (Committee Chairs) Board Reports (Executive Board) ED Report (ED) RPM Report (RPM) Other BACWA Representative Reports

5/17/2019	**Consent**
Monthly Board Mtg	Previous Board Meeting Minutes (AED)
Items due: 5/10	Monthly Financial Report
Schectel, Mitsuddy, Pagano, White, Zipkin Williams; Fono; Hull	**Authorizations & Approvals**
	Approval: FY19 Staff Consulting Amendments/Agreements
	Approval: Officers: Chair & Vice-Chair FY19
	Authorization (ED): Legal & IT Support Amendments FY19
	Other Business - POLICY/STRATEGIC
	Discussion: Water Board Jt Mtg Draft Agenda
	Discussion: CEC Update
	Discussion: Update on regional and statewide biosolids issues
	Other Business - OPERATIONAL
	Reports
	Committee Reports (Committee Chairs) Board Reports (Executive Board) ED Report (ED) RPM Report (RPM) Other BACWA Representative Reports

CURRENTLY	* Suggestions for Monthly Meeting Guest Speakers/Presenters: i.e. Jim McGrath, State Water Board
UNSCHEDULED & SIGNIFICANT	

Regulatory Program Manager's Report to the Board

April 2018

NUTRIENTS: Participated in CMG call. Discussed timing of report and advance funding for the science with Water Board staff.

BACWA BULLETIN: Completed and distributed April Bulletin. Drafted and distributed May Bulletin.

CECs: Attended RMP Emerging Contaminants Working Group meeting. Developed outline and discussed White Paper on POTW participation with Water Board and RMP staff. Participated in CASA call on OPC Ocean Litter strategy, reviewed final strategy and Wastewater Association comment letter, and viewed adoption webcast.

TOXICITY: Updated agencies' list of species. CWEA interview from November 2017 was published in April 2018 CWEA newsletter (attached).

NEAR SHORE DISCHARGE PERMITTING: Developed information requests to submit corrections on Water Board wetlands report, and collect information on members' planned wetlands projects.

COMMITTEE SUPPORT:
AIR – Drafted Board report.
BAPPG – Attended meeting and drafted meeting notes and Board report. Reviewed and submitted three pesticide comment letters.
Biosolids – Developed draft 2018 Biosolids survey. Attended meeting and presented draft survey, and discussed collaborating with Statewide efforts.
Collection Systems – Drafted Board report. Answered members' questions about audit template.
O&M Infoshare – Planned meeting and assisted with agenda. Created PollEverywhere for future meeting topics.
Managers' Roundtable – Drafted regulatory slides for meeting.
Permits – Drafted agenda and Board Report, and attended meeting. Contacted Water Board regarding mercury methods. Drafted comment letter on Sausalito TO, and discussed with the agency and its consultant.
Recycled Water – Drafted meeting notes and Board Report.
Executive Board – Prepared for and attended Executive Board meeting. Drafted presentation on wetlands for meeting. Edited action items and meeting minutes. Drafted agenda for 6/1 joint meeting. Drafted preliminary agenda for joint meeting with Water Board and Air district.

ADMINISTRATION/STAFF MEETING – Managed committee Google Groups. Updated documents on website. Finalized new Arleen Navarret award webpage. Met with ED and AED twice to plan BACWA operations.

MEETINGS ATTENDED: Staff meeting (4/3), BAPPG (4/4), Permits Committee (4/10), RMP Emerging Contaminants Working Group (4/12-4/13), CMG Call (4/13), CASA call on OPC Ocean Litter Strategy Comments (4/19); Executive Board meeting (4/20); Biosolids committee (4/24); O&M Infoshare Group (4/25); Staff meeting (4/30).

THE OFFICIAL PUBLICATION OF THE CALIFORNIA WATER ENVIRONMENT ASSOCIATION SPRING 2018

Clean WATER

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EMERGENCY MANAGEMENT

Santa Rosa Water's Team Effort • Montecito Recovers from Mudslides

CWEA *In this issue* CANNABIS LAWS & WATER PROS | PROPOSED TOXICITY PLAN

Proposed Toxicity Regulations:

What Are They and Why Should We Be Concerned?

The State Water Board is about to approve a new Statewide plan on Toxicity. We spoke with **Adam Link,** Director of Government Affairs for the California Association of Sanitation Agencies (CASA); **Steve Jepsen,** Executive Director of Southern California Alliance of Publicly Owned Treatment Works (SCAP); and **Lorien Fono,** Regulatory Program Manager, Bay Area Clean Water Agencies (BACWA) to learn what this new regulation means, how it will impact wastewater labs, and what water professionals can do to help.

What is toxicity in layperson terms?

Lorien: Toxicity is a way of measuring the impact of effluent on aquatic organisms. You take the organisms assigned by your permit, expose them to effluent, either at 100% or diluted depending on the test and your permit requirements, and observe their response. For acute toxicity, you are observing how many, if any, organisms die compared to the control group, which are in lab water. For chronic toxicity, you look at endpoints such as growth or reproduction, compared to the control group. Acute is a one- to three-day test, while chronic takes about a week.

Adam: Something important to note about toxicity generally is the perception about what it means versus the reality. Based on these tests, something labeled 'toxic' does not mean the water or effluent is actually toxic. It is more about the effect on endpoints such as reproduction of the organisms, and any water quality inferences drawn from those. We need to make clear that getting a hit for toxicity does not mean water is toxic.

Steve: Toxicity or toxic is a strong word that brings up concerns from the public. When we talk about toxicity in wastewater, it is in terms of laboratory tests with extremely sensitive living organisms. As an example, tap water that is safe for humans to drink is toxic to aquarium fish.

What is the current standard for toxicity testing and where are we heading?

Lorien: Two major changes are proposed right now via the *State Toxicity Plan*, which is expected to be posted for public comment later this year. In the past, toxicity has been regulated with triggers. In Region 2 [San Francisco Bay Region], everybody has a chronic toxicity trigger in their NPDES permit. If you exceed a certain threshold for toxicity, you embark on a toxicity identification evaluation (TIE) or a toxicity reduction evaluation (TRE). The agency tries to figure out what is causing the apparent toxicity and see if they can get rid of it. The first change is that, instead of having chronic toxicity triggers, the State is proposing a Plan to mandate enforceable numeric limits. If you get a toxicity hit that is above a threshold, you violate your permit.

The other change is how toxicity is measured. The test itself is staying the same. You are still exposing organisms to effluent and observing endpoints, but

you are taking the resulting data and interpreting it using a different statistical method. In Region 2, we have historically used the Inhibition or Effective Concentration (EC25/IC25) that measures the concentration where you see a 25% toxic effect, where the organism grows 25% less than the control group, or it reproduces 25% less than the control group. You measure toxicity at different effluent concentrations. You look at the dose response curve for toxicity and figure out at what concentration you start to see that 25% toxic effect.

The new statistical method that will be required by the *State Toxicity Plan*, and that is already required by some Regional Water Boards, is the Test of Significant Toxicity (TST). With the TST, we are only interested in looking at toxicity at the instream waste concentration. If you have an effluent dominated receiving water, it is going to be 100% effluent. Let's say your effluent is diluted by a factor of one, i.e., one part receiving water to one part effluent. That means that your effluent would be 50%. You are doing the test at that specific concentration, and even though the EPA method still requires you to do a dose response curve, none of those other concentrations are meaningful in how the test is interpreted. You end up with the statistics giving your test a pass or a fail at that one specific effluent concentration.

Steve: In the past, and in most cases, it is a multi-concentration test that provides a curve where you can see results. If there are erratic results, you know there was an issue with the test and it might mean the water is not actually toxic. In southern California, the Water Boards with EPA oversight have drafted some NPDES permits using the Test of Significant Toxicity (TST), which is an un-promulgated statistical pass-fail endpoint test. When you combine the TST with extremely sensitive test species, like the tiny water flea Ceriodaphnia dubia, it leads to an alarming amount of false positives for toxicity.

The Southern California Alliance of Publicly Owned Treatment Works (SCAP) is arguing against the legality of the TST test method and the test method being written into NPDES permits. It is concerning because it is a big burden on agencies and it can lead to false positives. When toxicity is found, even if false, the agency has to investigate what is causing the toxicity by performing costly activities such as Accelerated Monitoring, Toxicity Reduction Evaluations (TRE), and Toxicity Identification Evaluations (TIE). False positives can also lead to permit violations or fines for the agency.

Adam: An important thing Lorien and Steve picked up on is that things are different across the state. When we say, "What is the current standard for toxicity," it depends on the region, and, even within regions, whether your permit was renewed recently. Some are operating under the old system. Region 4 [Los Angeles Regional Water Board] just started putting TST into new permits. There is not yet a State-wide standard for toxicity.

In addition to the statistical methods change, the State and Regional Boards are moving from narrative to numeric limits. That can have consequences in terms of liability for cities and agencies. They could receive frequent violations and face the threat of third-party lawsuits.

Lorien: It is unfortunate that we are heading in this direction because the concept behind toxicity is that, if you see an apparent toxic effect, you follow up on it and hopefully can address the cause. Where we are heading with the *State Toxicity Plan* is, if you see an apparent toxic effect, you are given a violation. You may never have the opportunity to investigate it at all until after you have already violated your permit.

Tracking toxicity seems a worthy goal. Why should water professionals care about where this is going?

Lorien: The concept behind toxicity is a worthy one. It allows us to look for unknown unknowns. We have a number of regulated priority pollutants that reflect old industrial chemicals we are not seeing anymore. Today, there is a plethora of new compounds in the marketplace – new industrial chemicals, pharmaceuticals, personal care products, pesticides. The idea behind toxicity testing is to look for chemicals that are not being regulated and try to figure out what is causing any apparent toxicity.

Decades ago, when we had big problems from metals, legacy pesticides and industrial chemicals, we would often see a large toxic signal where the cause could be identified. These days, we see low-level persistent toxicity, or toxicity that comes and goes, so we cannot figure out what is causing it. Once the *State Toxicity Plan* comes into effect, we might end up in a situation where agencies are constantly in violation, but cannot figure out what is causing the toxicity, and cannot address it.

There is also some evidence that current low-level toxicity is caused by pesticides, and wastewater agencies have no authority to regulate pesticides. They are not covered by the *Clean Water Act*. They are covered under the *Federal Insecticide Fungicide and Rodenticide Act* (*FIFRA*). We can do our best to advocate for changing pesticide regulations, but we cannot control how customers in our service areas use them.

Steve: We are very used to permits having numerical limits on known constituents, like phosphorus or nitrogen. When it comes to toxicity testing, initially, we are not looking for a particular constituent. It is a test to see how this water affects living organisms. It is looking for the unknowns that may be transient.

Adam: Our biggest concern is how the tests are characterized and which tests are used to determine toxicity. It was more valuable to identify the types of identifiable industrial sources Lorien mentioned in the past, but now we are more keenly aware of the sources of toxicity. It is a mixture of pesticides, pyrethroids and other consumer products that are not within our control. It is usually an isolated slug or something going through the system, so the TIE/TRE are often not valuable exercises.

That is why water professionals should be concerned, because the changes have consequences on potential violations and liability. The steps agencies are going to have to take are so expensive they are disconcerting.

Moreover, I am not sure those steps are valuable and will accomplish the Water Board's goals.

What worries you most about this process?

Adam: The most concerning thing is that these toxicity tests are not very reliable. Some of the species being tested have high variability, so the results may not be reliable. These are also some of most expensive tests we can run.

Steve: It is difficult to estimate actual costs because we do not know how many false positives we will find. We have had experts estimate that the economic impact of chasing down false positives could be as high as $40 million a year for California wastewater agencies.

Lorien: In Region 2, we have spent millions of dollars during the last permit cycle on TREs and we have not found anything during those investigations. One chronic toxicity test costs about $3,000. In the *State Plan* as proposed, if you see toxicity, you go into accelerated monitoring, then a TRE/TIE. Once you start, you are doing more and more of those toxicity tests, so it quickly snowballs into a major expense.

Steve: When an NPDES permit is drafted by the Water Board, it is subject to approval by EPA. In Southern California, the EPA has objected to draft NPDES permits because they did not include the new un-promulgated TST toxicity test method. The TST has not been promulgated through the formal rule making process, it is unreliable and it generates false positives.

Essentially, the EPA has been pressuring the Water Board into adding the TST test requirements to permits. We object to this. As I mentioned, we have been challenging this legally on several fronts. The concerns are the impacts on the wastewater sector: time, money, and an unnecessary distraction from our core mission. There are a lot of resources dedicated to this issue right now, with diminishing or no returns.

Another major concern is that the SWRCB has drafted a statewide toxicity plan that includes the TST as a compliance test.

Lorien: The EPA has also objected to permits in Region 2, but the limits being imposed in recent permits use the IC25, not the TST. Things are different and inconsistent throughout the State. The EPA seems intent on limits everywhere, but they are pushing the TST harder in different regions.

How might new toxicity rules impact wastewater labs?

Steve: Based on an extremely sensitive test, if false positives or positive results are picked up by a citizen or news agency not familiar with the sensitivity of the test, we could erode public confidence in wastewater treatment systems. That is a concern for us, especially as we move towards potable water reuse.

We have done independent studies and seen false positive test results for clean lab water range from 10-50%. The TST statistical method assumes the water is toxic. It is pass/fail test and guilty until proven innocent, which is different than normal assumptions. We have seen results as high as 50% false positive for toxicity. That is quite a roll of the dice, especially with a new enforcement policy in place that increases fines.

Large, reputable labs had clean lab blank water turning up toxic. That is alarming. Then they switched it around to another lab and the clean water turned up toxic again, while samples of plant effluent turned up with no toxicity. There is a lot of variability in the test, and this is just the method of interpretation. This is mostly associated with the small water flea, Ceriodaphnia dubia. It is difficult to keep them alive and have them reproduce, even in laboratory conditions.

In contrast, the toxicity test we are using now has a false positive rate below 5%.

Instead of putting all of our resources into toxicity testing, once the chemical is in the water, should we focus more resources on tighter EPA regulations and more public outreach to keep toxic chemicals out of water in the first place?

Steve: I would say YES! This is where all of our wastewater trade associations, CWEA, Bay Area Clean Water Agencies (BACWA), SCAP, California Association

of Sanitation Agencies (CASA), Central Valley Clean Water Association (CVCWA), and the EPA should get together and do more public outreach. We should do more regulating of the sources. We should coordinate regulations with other wastewater groups, such as focusing on pesticide issues.

Lorien: I would add an emphatic YES to Steve. I would like to put in a plug for the Bay Area Pollution Prevention Group (BAPPG), which is a BACWA committee. We fund public outreach to reduce pollution that goes into the wastewater treatment plants. From wipes to pharmaceuticals, we let people know what they should not flush and that "toilets are not trash cans." Through BAPPG, we also fund regulatory advocacy on pesticides. Our consultant works with the California Department of Pesticide Regulation and EPA Office of Pesticides Programs, urging them to consider possible routes to sewers as part of pesticide risk assessments when they are doing product registrations.

The other entity I would like to mention is our Regional Monitoring Program, through the San Francisco Estuary Institute. All wastewater treatment plants help fund research looking at pollutants in the San Francisco Bay. They do an assessment over which of the emerging contaminants are of increasing concern. For chemicals that may be of concern, we can then figure out how to control inputs to sewers where we can. Finally, California has a safer consumer products initiative where, if we find a compound causing issues in the Bay, there is a process to eliminate it from products sold in the store.

Imagine if the $3,000 we are going to spend on each toxicity test was redirected towards pollution prevention and science on emerging contaminants in receiving waters? Those funds would be put to a much better use.

Adam: I can add a third emphatic YES about the important role of source control. We are not able to control so many of the things coming into our system. It is becoming more complex to identify and treat them, so source control is increasingly important.

Steve: I would like to add the fact that the cost for all this activity falls on ratepayers. Many of the people paying a wastewater bill may never use any of these pesticides or pharmaceuticals. They are not getting any benefit from these products, but they will be required to pay to remove the by-products as contaminants.

What can water professionals do to help?

Adam: The biggest thing folks can do is track this closely and get involved. Keep an eye on what the Water Board is doing. Weigh in with your thoughts. Provide information to statewide associations such as CASA and your regional association such BACWA and SCAP. Tell us what is going on in your lab. This will help us advocate for a better policy overall.

Lorien: I really appreciate the leadership CASA has shown. BACWA has participated in discussions with the Water Board alongside CASA, and, of course, BACWA will continue to bring its regional issues to the table alongside the statewide issues.

Steve: It is important that these regulations are practical and reliable. It is one thing for large wastewater agencies to figure out how to comply, but this process is even more challenging for the smaller agencies. They have a smaller ratepayer base and fewer staff. We need to think about how those agencies will be impacted. The more people involved, the greater our success will be.

Adam Link is the Director of Government Affairs for the California Association of Sanitation Agencies (CASA), the leading voice for California's public wastewater agencies on regulatory, legislative and legal issues. Adam leads a variety of initiatives for the association and regularly works with State and Federal regulatory agencies as well as with members of the California Legislature on issues of importance to the water and wastewater community. Prior to joining CASA in 2013, Adam was a practicing attorney with the law firm of Somach, Simmons, & Dunn, focusing on water quality, environmental and local government issues.

Steve Jepsen is the Executive Director of the Southern California Alliance of Publicly Owned Treatment Works (SCAP). Steve started his career in civil engineering consulting in 1981. Prior to leading SCAP, he provided capital program management services for a variety of water/wastewater public agencies, blurring the lines between public and private entities to expedite progress towards environmental and public health. Most of the projects with which he has been involved have been wastewater, water and storm drain systems for public agencies in Southern California, with emphasis on projects in environmentally sensitive areas; projects in dense urban areas; and regulatory compliance-driven water quality projects. Steve has been an active member of SCAP and CWEA for decades. He is a past Board member and president for the San Diego Section of the California Water Environment Association (CWEA).

Lorien Fono is the Regulatory Program Manager for Bay Area Clean Water Agencies (BACWA) a position she has held for the past five years. She collaborates with BACWA's member agencies to provide a Regional voice on wastewater issues when working with Regional, State, and Federal regulators. Lorien has worked as a wastewater consultant specializing in wastewater, recycled water, and stormwater regulatory compliance, water resources management, and wastewater planning. Her background includes water quality research, focusing on the occurrence, fate, and transport of emerging wastewater-derived contaminants.

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ifornia Water Environment Association (CWEA)
outhern California Alliance of Publicly Owned Treatment Works (SCAP)

May 21, 2018
9:30 AM – 12:30 PM
Sutter Club
1220 9th Street, Sacramento, CA 95814

AGENDA

9:30 am **Call to Order, Tim Becker, Chair, CASA**
- Welcome and Introductions
- Approval of Minutes of October 18, 2017 Meeting
- Review and Adjust Agenda

9:40 am **Research Project Status Updates**
- PPIC Research Project (Link)
- Final CUWA White Paper / Possible Future On-Site Project (Link)
- *Ceriodaphnia dubia* Toxicity Study / Alternative White Paper (Link)
- RMW Flushable Wipes Study (Link)
- CVCWA Toxicity Special Project Update (Webster)
- Others? (SCAP/CVCWA/CWEA)

10:10 **Conference Report Outs and Upcoming Events**
- CVCWA Annual Conference (May 2018) (Webster)
- CWEA Annual Conference (April 2018) (Allan)
- CASA Asset Management Seminars (September 2018) (Link)
- Others? SCAP/BACWA
- Possible Stormwater Workshops (All)

10:10 am **Key Issue Updates**

Toxicity
- Water Board Toxicity Plan Timeline (Link)
- SCAP Litigation Update (Jepsen)
- BACWA and SCAP Toxicity Workshops (Williams)

Microplastics
- Ocean Protection Council Litter Prevention Strategy Adopted (Link/Williams)
- SFEI/BACWA Research Update (Williams)
- CASA Sponsored Legislation and Legislation of Interest (Gauger)
  - SB 1263 (Portantino)
  - SB 1422 (Portantino)
  - AB 2379 (Bloom)

Nutrients
- BACWA Bay Area Nutrient Permit Update (Williams)
- Biostimulatory Substances Webinar / Update (Link)

Other Regulatory/Permitting Issues

- ELAP Update and White Paper (Jepsen/All)
- Clean Water State Revolving Fund Intended Use Plan (Link)
- Organics Diversion: SB 1383 Implementation (Volunteer)
- SSS WDR Reopener Workshop Postponement (Link)
- Climate Change in SWRCB Programs and Permits (Volunteer)

Legislative Update: 2018 Session (Gauger)

- SB 1215 (Hertzberg): Septic to Sewer Legislation
- SB 831 (Weickowski) et. al.: ADU Fee Legislation
- AB 2072 (Quirk): CECs Legislation

11:30 am **Working Luncheon: Hot Topics Roundtable (Key Issues for Each Association)**

12:30 pm **Adjourn**

- Next Meeting: Fall of 2018
- Invitation to New State Water Board Executive Director
- Hosted by CVCWA

Blue font = attachment

SFEI Board and Leadership Volunteer Engagement and Giving (4-12-18)

(Note - includes Skyli M + Laura P + Warner edits as of 5-1-18)

The San Francisco Estuarine Institute and Aquatic Science Center (SFEI) is guided by a high-level board of proscribed membership representing partner government institutions, environmental non-profits, and key citizenry.

An expectation of the board is that all members and other leadership volunteers[1] be dedicated to the ongoing success and virtuous impact of SFEI; board members are expected to be actively engaged in advancing and securing SFEI's sustained future, including personally donating to the organization.

No minimums for giving are set for SFEI board members: gifts commensurate with the comfort and commitment to the organization are left to individuals. For guidance, we ask that board members:

- make a personally significant annual unrestricted contribution,
- make their annual donation to SFEI among their top philanthropic gifts,
- consider making a leadership gift to specific projects or campaigns that are especially meaningful to them

How board members and other leadership volunteers direct or restrict their giving is up to them; however, they are asked to understand and appreciate the importance of unrestricted or operating support as they consider making their gifts.

Because gifts from board members are leadership gifts and because volunteers may also be engaged in solicitations, both board members and leadership volunteers should make their gifts (or at least their pledges) early in SFEI's fiscal year. SFEI tracks board members' annual giving which is reflective of the commitment of the individual board members and the entire board. These metrics are critical to SFEI's ongoing development efforts — an engaged board that provides financial support demonstrates the strength of the organization which in turn attracts additional foundation and donation dollars.

While some board members may not have significant financial capacity and instead give to SFEI in other important ways, all board members should donate annually according to their ability. .

While members serving exclusively on the Aquatic Science Center (JPA) board are not held to an expectation of financial donation, they are highly encouraged to offer financial support.

Adopted by the Board of Directors on _____
(date)

Approved by its Board Chair, _____ on _____
James Kelly (date)

[1] Leadership volunteers include non-board members who participate in advisory boards, fundraising committees, corporate affiliates programs, and similar initiatives at SFEI