15,006

BACWA EXECUTIVE BOARD MEETING
Thursday, June 28, 2012, 8:30 a.m. – 12:00 p.m.

HANDOUTS

Handout Packet is available on the BACWA website (www.BACWA.org).

Pages	Handout Title	Agenda Item #
1 – 2	Agenda	
3 –7	Meeting Minutes from BACWA Executive Board Meeting of May 24, 2012, File 15,005	2
8 – 13	April 2012 Treasurer's Report	3
14	Board Action Request – Approval of Amendments to Extend Fiscal Year 2011-12 Agreements a. Amendment 1to Larry Walker Associates As Needed agreement to extend the termination date to December 30, 2012; File 12,448 b. Amendment 1 to Circle Point As Needed agreement to extend the termination date to December 30, 2012; File 12,197	4
15 – 16	Board Action Request – Approval of Agreements to Implement BACWA and Special Programs Fiscal Year 2012-13 Budgets and Workplans	5
17 – 18	RMC Water and Environment for Collection Systems Committee and As Needed Technical Support, not to exceed $45,000; File 12,733 Scope and Rate Sheet	5a
19 – 20	Larry Walker Associates for As Needed Technical Support, not to exceed $15,000; File 12,734 Scope and Rate Sheet	5b
21 – 23	EOA for As Needed Technical Support, not to exceed $15,000; File 12,735 Scope and Rate Sheet	5c
24 – 25	Circlepoint for Annual Report, Website, and As Needed Communications Support, not to exceed $25,000; File 12,736 Scope and Rate Sheet	5d
26 – 27	Kennedy Jenks for Info Share Group Support, not to exceed $25,000; File 12,737 Scope and Rate Sheet	5e
28 – 31	CH2M Hill for AIR Committee Support, not to exceed $79,556; File 12,738 Scope and Rate Sheet	5f
32 – 33	Alexandra Gunnell for Assistant Executive Director Services, not to exceed $70,200; File 12,739 Scope and Rate Sheet	5g
34 – 35	AIR Committee Report	6
36	Collection Systems Committee Report	6
37 – 38	Permits Committee Report	6
39 – 40	Recycled Water Committee Report	6
41 – 42	Executive Director Report	8

Pages	Handout Title	Agenda Item #
43 – 45	Chair Authorization to execute a contract with Patricia McGovern Engineers for Regulatory Program Manager services; not to exceed $9,900; FY 2011-12; File 12,732	9a
46	Executive Director Authorization to utilize As Needed contract with EOA for assistance with Triennial Review; not to exceed $3,000; FY 11-12; File 12,449	9b
47 – 48	Executive Director Authorization to utilize As Needed contract with Circlepoint for Biosolids Fact Sheet assistance; not to exceed $3,800; FY 11-12; File 12,197	9c
49	Executive Director Authorization to amend Jen Jackson BAPPG Outreach agreement to extend the termination date to December 31, 2012; File 12,710	9d
50	Executive Director/Chair Authorization to execute agreements to implement BACWA and Special Programs Fiscal Year 2012-13 budgets and workplans	9e
51 – 52	Downey Brand for As Needed Regulatory Legal Support, not to exceed $2,000; File 12,740 Scope and Rate Sheet	9e(i)
53 – 54	Day Carter Murphy for As Needed Executive Board Legal Support, not to exceed $2,000; File 12,741 Scope and Rate Sheet	9e(ii)
55	Adammer for As Needed Website Support, not to exceed $3,000; File 12,742 Rate Sheet	9e(iii)
56	Paul Causey for Sewer Rate Database Assistance, not to exceed $6,000; File 12,743 Scope and Rate Sheet	9e(iv)
57 – 59	Board Action Request – Approve Amendment 2 to Day Carter Murphy Prop84 Legal Assistance Agreement to Increase Contract Amount to $55,000 and Extend Termination Date to December 30, 2012	10
60	Board Action Request – Discussion of Nutrients Strategy Development	11
61 – 88	SFEI Quarterly Progress Report on San Francisco Bay Nutrient Strategy Support, February 17 – June 22, 2012	11
89 – 93	San Francisco Bay Stakeholder Advisory Group (SAG) SF Bay Nutrient Program Meeting Agenda and Handouts, June 22, 2012	11
94 – 105	RMP Proposal - Nutrient Studies: Moored Sensor Monitoring Program Development, Algal Biotoxin Monitoring, Stormwater Nutrient Measurements, and Load Quantification	11
106 – 122	SAG Presentation from David Senn / Naomi Feger, June 22, 2012	11
123	Pardee Technical Seminar Planning	14
124 – 126	ReNUWIt E-Newsletter, June 2012	15

SWRCB Proposed Changes to Operator Training Requirements - SWRCB Website Link 13
http://www.waterboards.ca.gov/water_issues/programs/operator_certification/index.shtml

Executive Board Meeting Agenda

Thursday, June 28, 2012, 8:30 a.m. – 12:00 p.m.
EBMUD Lab Library, 2020 Wake Ave., Oakland, CA

ROLL CALL AND INTRODUCTIONS (8:30 a.m. – 8:35 a.m.)

PUBLIC COMMENT (8:35 a.m. – 8:40 a.m.)

CLOSED SESSION (8:40 a.m. – 9:00 a.m.)

The Board will meet in Closed Session to discuss personnel matters pursuant to California Government Code section 54957.

REPORT OUT FROM CLOSED SESSION (9:00 a.m. – 9:05 a.m.)

PRESENTATIONS (9:05 a.m. – 9:30 a.m.)

1. *San Francisco Estuary Institute and Regional Monitoring Program*, Meg Sedlak

CONSENT CALENDAR (9:30 a.m. – 9:40 a.m.)

2. May 24, 2012 BACWA Executive Board Meeting minutes
3. April 2012 Treasurer's Report
4. No cost time extension amendments to Fiscal Year 2011-12 agreements
   a. Amendment 1to Larry Walker Associates As Needed agreement to extend the termination date to December 30, 2012; File 12,448
   b. Amendment 1 to Circle Point As Needed agreement to extend the termination date to December 30, 2012; File 12,197
5. Agreements to implement BACWA and Special Programs Fiscal Year 2012-13 budgets and workplans
   a. RMC Water and Environment for Collection Systems Committee and As Needed Technical Support, not to exceed $45,000; File 12,733
   b. Larry Walker Associates for As Needed Technical Support, not to exceed $15,000; File 12,734
   c. EOA for As Needed Technical Support, not to exceed $15,000; File 12,735
   d. Circlepoint for Annual Report, Website, and As Needed Communications Support, not to exceed $25,000; File 12,736
   e. Kennedy Jenks for Info Share Group Support, not to exceed $25,000; File 12,737
   f. CH2M Hill for AIR Committee Support, not to exceed $79,556; File 12,738
   g. Alexandra Gunnell for Assistant Executive Director Services, not to exceed $70,200; File 12,739

REPORTS (9:40 a.m. – 10:30 a.m.)

6. Committee Reports
7. Executive Board Reports

8. Executive Director Report
9. Chair & Executive Director Authorized Actions
    a. Chair Authorization to execute a contract with Patricia McGovern Engineers for Regulatory Program Manager services; not to exceed $9,900; FY 2011-12; File 12,732
    b. Executive Director Authorization to utilize As Needed contract with EOA for assistance with Triennial Review; not to exceed $3,000; FY 11-12; File 12,449
    c. Executive Director Authorization to utilize As Needed contract with Circlepoint for Biosolids Fact Sheet assistance; not to exceed $3,800; FY 11-12; File 12,197
    d. Executive Director Authorization to amend Jen Jackson BAPPG Outreach agreement to extend the termination date to December 31, 2012; File 12,710
    e. Executive Director/Chair Authorization to execute agreements to implement BACWA and Special Programs Fiscal Year 2012-13 budgets and workplans
        i. Downey Brand for As Needed Regulatory Legal Support, not to exceed $2,000; File 12,740
        ii. Day Carter Murphy for As Needed Executive Board Legal Support, not to exceed $2,000; File 12,741
        iii. Adammer for As Needed Website Support, not to exceed $3,000; File 12,742
        iv. Paul Causey for Sewer Rate Database Assistance, not to exceed $6,000; File 12,743

OTHER BUSINESS (10:30 a.m. – 12:00 p.m.)

10. Authorization: Amendment 2 to Day, Carter, Murphy agreement for Prop 84 legal assistance to increase the contract value to $55,000 and extend the termination date to December 30, 2012
11. Discussion: Nutrients - Update from David Senn, SFEI
12. Discussion: PCB's Data to RWQCB by July 2, 2012
13. Discussion: State Water Resources Control Board proposed changes to Operator Certification Requirements and potential comments.

    http://www.waterboards.ca.gov/water_issues/programs/operator_certification/index.shtml
14. Discussion: Pardee, September 4 – 6, 2012
    a. Confirm dates
    b. Discuss potential Agenda items
15. Discussion: ReNUWIt Update from Joshua Dickinson

NEXT REGULAR MEETING

The next meeting of the Board is tentatively scheduled for July 26, 2012.

ADJOURNMENT (12:00 p.m.)

Executive Board Meeting Minutes

Thursday, May 24, 2012, 8:30 a.m. – 12:00 p.m.
EBMUD Treatment Plant Lab Library
2020 Wake Avenue, Oakland, CA

ROLL CALL AND INTRODUCTIONS
Executive Board Representatives: Ben Horenstein, Chair (East Bay Municipal Utility District); Laura Pagano (San Francisco Public Utilities Commission); Mike Connor (East Bay Dischargers Authority); Ann Farrell (Central Contra Costa Sanitary District); James Ervin (City of San Jose).

Other Attendees: Brian Campbell (East Bay Municipal Utility District); Amanda Roa (Delta Diablo Sanitation District); Tom Hall (Sunnyvale/EOA); Denise Conners (Larry Walker Associates); Monica Oakley (RMC Water and Environment); Jim McGrath (San Francisco Bay Regional Water Quality Control Board); Jim Kelly (BACWA); Alexandra Gunnell (BACWA).

PUBLIC COMMENT
There were no public comments.

CLOSED SESSION
The Board met in Closed Session to discuss personnel matters pursuant to California Government Code section 54957.

REPORT OUT FROM CLOSED SESSION
The Board discussed the Executive Director recruitment process. No actions were taken.

PRESENTATIONS
Under **agenda item 1**, Jim McGrath, Water Quality Appointee to the San Francisco Regional Water Quality Control Board (RWQCB), led a discussion about **San Francisco Water Board Strategic Planning**. Included in the meeting handout packet was a list of questions he proposed to guide this discussion and previous discussions he has had with representatives from the U.S. Environmental Protection Agency Region IX (Alexis Strauss, Water Division Director), the California State Water Resources Control Board (Tam Dudoc, Board Member) and Save the Bay (David Lewis, Executive Director). The BACWA Executive Board (Board) expressed an interest in hearing about insight Jim McGrath has gained from these interviews.

The Board identified Nutrients as a priority, and suggested that development of a new framework for strategic collaboration may be necessary to address this complex issue. There was agreement that San Francisco Estuary Institute serves as a credible resource to address dueling science concerns, but the Board proposed that the Aquatic Science Center (ASC) may provide a suitable constituency of high-level decision makers that could work together to develop a general framework that would include all stakeholders.

The Board praised the efforts of the RWQCB staff and spoke highly of the good working relationship that has been developed with them. Concern was raised about the process of developing the Whole Effluent Toxicity (WET) Policy, specifically where the combined efforts of BACWA and the RWQCB supported the existing RWQCB toxicity procedure, but was not supported by the RWQCB during policy development at the state level.

Jim McGrath inquired about how BACWA agencies are addressing impending issues of sea level rise, and Board representatives discussed how such issues are impacting their master planning and infrastructure improvements. The Board expressed their appreciation for the opportunity to

participate in Mr. McGrath's strategic planning efforts and invited him to return, if possible, on an annual basis.

CONSENT CALENDAR
*Consent calendar **agenda items 2 and 3** were approved in a motion made by Ben Horenstein and seconded by Laura Pagano. The motion carried unanimously.*

2. May 3, 2012 BACWA Executive Board Meeting minutes
3. March 2012 Treasurer's Report

REPORTS

Committee Reports for **agenda item 4** were included in the meeting handout packet and attendees were invited to discuss the reports.

As noted in the Permits Committee report, requirements of the Nutrient 13267 letter have been conveyed to permit holders along with a template to report historic data characterization. The Board requested that Jim Ervin send another reminder to the agencies. Jim reminded the attendees of the upcoming Toxicity Workgroup meeting scheduled for Thursday, May 31, 2012 at 10:00 a.m. at EBMUD to discuss TREs, and suggested that agencies bring their individual TRE plan. The Board mentioned that it may be beneficial to develop general steps that could be included in an agency's TRE. Jim Ervin will send another reminder to the Board about the upcoming workshop.

The Recycled Water Committee report explained that the committee will discuss the State Water Resources Control Board (SWRCB) draft amendment to the Recycled Water Policy regarding Constituents of Emerging Concern (CECs) at their upcoming committee meeting on June 6, 2012. The Board expressed their support for the committee to determine whether to draft comments, and the Executive Director agreed to report back to the Board on this matter at the June 28th meeting.

The PCB report attached to the BAPPG Committee report was discussed and it was suggested that the Board confirm reporting requirements with the RWQCB staff at their upcoming Joint meeting. It was also noted that the BACWA Regulatory Program Manager (RPM) may be able to coordinate this effort across the committees, and that Jim Kelly may want to contact the BAPPG Chair and Dylan Garner for further discussion.

Information in the Collection Systems Committee report on recent changes to PG&E's cross-bore program were highlighted as especially important for those agencies with programs that require residents to replace private sewer laterals.

BACWA Executive Board members were invited to share any items of interest under **agenda item 5**, **Executive Board Reports.**

Jim Ervin noted that San Jose hosted the most recent AIR Committee meeting, where attendees toured their new fuel cell.

Ben Horenstein and Mike Connor attended the ReNUWIt Bi-Annual Members' Meeting on May 21-22 at Stanford. Ben will forward a website link to provide the Board with more information about the organization and their efforts. It was suggested that the ED investigate having Dave Sedlak and/or Josh Dickenson consider development of a workshop for BACWA members.

The Board requested that Dave Williams, BACWA's Aquatic Science Center (ASC) representative lead a Board effort looking into the feasibility of developing a stakeholder-based framework to address the governance issues related to the Bay nutrient work, including the possibility of having the ASC play a leadership role in the development and/or implementation and bringing on consultant/facilitation support to assist the development effort. Mike Connor and Ann Farrell offered to be part of the workgroup.

Laura Pagano noted that SFPUC staff have moved to their new location, and attendees requested scheduling an upcoming Board meeting at the new office.

Ann Farrell related concerns about obtaining information required in CCCSD's Nutrient Work Plan and requested more information on the various studies, how they relate to one another and how they are being coordinated. It was suggested that David Senn provide an update on his work, and explain the relationship between the RMP conceptual model study and his efforts. Next steps to authorize additional funding for David's work will be discussed at the upcoming Joint BACWA/RWQCB meeting. Ann also noted that the previous request for BACWA funding of the SWAMP pesticides analysis may not be needed.

Mike Connor attended the RMP Modeling Strategy Workgroup and noted that guidelines for who is invited to participate in these types of meetings may need to be reviewed. They also mentioned that David Senn would like to convene Ed Gross, Jim Fitzpatrick, and a representative from the SFEI Modeling Workgroup to discuss coordination of modeling efforts, which may require use of BACWA's agreement with HDR for funding. Mike also attended a recent State and Federal Contractors Water Agency (SFCWA) conference, and will follow up with Val Connor regarding her request that BACWA assist with the development of a nutrients conference.

For **agenda item 6**, the **Executive Director's Report**, was included in the meeting handout packet and reviewed by the Executive Director (ED). Meeting attendees were given the opportunity to discuss the contents of the report. The ED also highlighted the following issues/activities:

- The ED distributed an e-mail from Bobbi Larson regarding Stan Dean's Layperson's Guide to Wastewater proposal. The Board requested that Summit Partners' representative, Dave Williams report back to the Board following the next Summit Partners meeting.
- The Oregon Association of Clean Water Agencies (ORACWA) has invited the Dave Williams and the ED or another BACWA representative to attend their upcoming conference. ORACWA would fund travel costs incurred.
- Mike Connor and the ED attended a recent RWQCB Board Meeting during which Tam Dudoc metioned Toxicity as priority and Adam Olivieri reported on recycled water and CECs.
- The ED requested feedback on the location for upcoming Board meetings, and noted that the rest of the 2012 meetings are scheduled to take place in the EBMUD Lab Library, not the Operations Center. The ED will investigate holding a future meeting at SFPUC.
- The next RWQCB/BACWA joint meeting is tentatively scheduled for Monday, June 18th from 2:30 – 4:30 at RWQCB office. The EBDA representative will be Rich Currie because Mike Connor is unable to attend.

The following **Chair & Executive Director Authorized Actions** (**agenda item 7**) were made since the May 3, 2012 BACWA Board Meeting.

a. Chair Authorization to utilize As Needed contract with Larry Walker Associates for

assistance with Sacramento Regional Permit comments; not to exceed $9,900; FY 2011-12; File 12,448

b. Chair Authorization to execute an agreement with Somach Simmons &Dunn for assistance with Sacramento Regional Permit comments; not to exceed $9,900; FY 2011-12; File 12,730
c. Executive Director Authorization to utilize As Needed contract with RMC Water & Environment for assistance with 13267 letter sampling plan requirements; not to exceed $4,999; FY 11-12; File 12,436.

OTHER BUSINESS

*For **agenda item 8**, the Board approved the **Grant Agreement between BACWA and the State Coastal Conservancy to fund Prop 84 Grant Administration for $50,000, File 12,731,** in a motion made by Ben Horenstein and seconded by Laura Pagano. The motion passed unanimously.*

Brian Campbell explained that agreement provides a mechanism for the State Coastal Conservancy to contribute their portion of the upfront administration funding for Prop84, and that there is overlap between this agreement and their Local Project Sponsor agreement with BACWA.

*For **agenda item 9**, the Board authorized execution of an **Agreement with Patricia McGovern Engineers for Regulatory Program Manager services for $100,000 in FY 2012-13, File 12,729,** in a motion made by Mike Connor and seconded by Laura Pagano. The motion passed with CCCSD abstaining from voting.*

The ED noted that the original rate quoted by Patricia McGovern Engineers has increased and the selection committee confirmed their continued support for this candidate despite the change in rate.

For agenda item **10a, Nutrients - Sac Regional Permit workshop on SWRCB draft order in July; comments due June 15th**, Tom Grovhoug of Larry Walker Associates, Bobbi Larson and Paul Simmons (both from Somach Simmons & Dunn) participated in the discussion by phone. They explained that after having filed an appeal of the NPDES permit issued by the Central Valley Regional Water Quality Control Board in December 2010, Sacramento Regional County Sanitation District (SCRSD) filed a lawsuit requesting relief from the filtration, disinfection, ammonia removal and denitrification requirements contained in, and that this lawsuit and some permit requirements and schedules are currently stayed until July 1, 2012. In the meantime the State Water Resources Control Board (SWRCB) decided to review the permit on its own motion and on May 14, 2012, the SWRCB issued a draft order on the permit petition that largely supported all permit requirements, except for denitrification. A handout of Key Issues and Concerns from Bobbi Larson was distributed at the meeting, of which the following were noted to be of greatest concern for BACWA member agencies: REC-1 designated use requirements, denial of mixing zone for ammonia, and most importantly the precedent set by the regulatory processes/procedures and interpretation of scientific studies used to develop these requirements, and each of these was discussed.

The BACWA Board agreed to consider drafting a comment letter and participating in the July 18, 2012 State Board workshop. The Executive Director will continue to work with Tom Grovhoug and Bobbi Larson on this issue.

Under agenda item **10b, Nutrients – SWAMP Meeting with north Bay Dischargers**, the ED and Ann Farrell reported out on the meeting that occurred at CCCSD on May 22, 2012, during which attendees requested a the development of a more detailed plan for governance and management which they would review to consider offering their support. The Board suggested having Dave Senn develop a list studies, how they fit together, and their cost/scope.

*For **agenda item 11**, the **Board Nominated and Elected Ben Horenstein to serve as Chair and Laura Pagano as Vice Chair for fiscal year 2012-13,** in a motion made by Mike Connor and seconded by Ann Farrell. The motion passed unanimously.*

Under agenda item **12, Pardee, October 23-26, 2012,** the ED requested that the Board members check their availability for the proposed dates. The Board discussed working with Gary Darling to consider ways that BACWA could increase member support, participation and engagement. Ben Horenstein will contact Gary and ask him to develop a presentation for Pardee. It was also suggested that BACWA investigate if there are other opportunities for member representatives to participate and possibly schedule a meeting with them at the EBMUD Watershed meeting facility in Orinda.

The next regular BACWA Board meeting will be held on June 28, 2012 at the EBMUD Treatment Plant Lab Library from 9 a.m. – 12 p.m.

The meeting adjourned at 12:00 p.m.

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

June 14, 2012

MEMO TO: Bay Area Clean Water Agencies Executive Board
MEMO FROM: D. Scott Klein, Controller, East Bay Municipal Utility District
SUBJECT: Ten Month 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, 2011 through April 30, 2012** (ten months of Fiscal Year 2011-2012). This report covers expenditures, cash receipts, and cash transfers for the following BACWA funds:

- Bay Area Clean Water Agencies (BACWA),
- BACWA Training Fund (Trng Fnd),
- Air Issues and Regulation Group (AIR),
- Bay Area Pollution Prevention Group (BAPPG),
- BACWA Legal Reserve Fund (Legal Rsrv),
- Water Quality Attainment Strategy (WQA CBC),
- BACWA Operating Reserve Fund (BACWAOpRes),
- Regional Water Recycling (RWR),
- BACWA Reserve (Reserve),
- Water/Wastewater Operator Training (WOT),
- Prop84 Bay Area Integrated Regional Water Mgmt (PRP84),
- WQA Emergency Reserve Fund (WQA Emerg),
- WQA Tech Action Fund (TechAction),
- CBC Operating Reserve Fund (CBC OpRsrv), and
- Prop50 Bay Area Integrated Regional Water Mgmt (PRP50)

BACWA Revenue Report for April 2012

DEPARTMENT	REVENUE TYPE	AMENDED BUDGET	CURRENT PERIOD			YEAR TO DATE				UNOBLIGATED
			DIRECT	INVOICED	JVS	DIRECT	INVOICED	JVS	ACTUAL	
Bay Area Clean Water Agencies	BDO Member Contributions	450,000	-	-	-	-	421,500	(1,500)	420,000	30,000
Bay Area Clean Water Agencies	BDO Fund Transfers	25,000	-	-	-	-	-	11,395	11,395	13,605
Bay Area Clean Water Agencies	BDO Interest Income	5,000	-	-	784	-	-	3,128	3,128	1,872
Bay Area Clean Water Agencies	BDO Assoc.&Affiliate Contr	162,000	-	-	-	-	156,750	1,500	158,250	3,750
BACWA TOTAL		**642,000**	**-**	**-**	**784**	**-**	**578,250**	**14,523**	**592,773**	**49,227**
BACWA Training Fund	BDO Interest Income	-	-	-	231	-	-	1,020	1,020	(1,020)
TRNG FND TOTAL		**-**	**-**	**-**	**231**	**-**	**-**	**1,020**	**1,020**	**(1,020)**
AIR-Air Issues&Regulation Grp	BDO Member Contributions	84,828	-	-	-	-	83,754	5,000	88,754	(3,926)
AIR-Air Issues&Regulation Grp	BDO Interest Income	-	-	-	48	-	-	142	142	(142)
AIR TOTAL		**84,828**	**-**	**-**	**48**	**-**	**83,754**	**5,142**	**88,896**	**(4,068)**
BAPPG-BayAreaPollutnPreventGrp	BDO Member Contributions	80,505	-	-	-	-	28,759	50,746	79,505	1,000
BAPPG-BayAreaPollutnPreventGrp	BDO Interest Income	3,079	-	-	55	-	-	170	170	2,909
BAPPG TOTAL		**83,584**	**-**	**-**	**55**	**-**	**28,759**	**50,916**	**79,675**	**3,909**
BACWA Legal Reserve Fnd	BDO Interest Income	-	-	-	283	-	-	1,235	1,235	(1,235)
LEGAL RSRV TOTAL		**-**	**-**	**-**	**283**	**-**	**-**	**1,235**	**1,235**	**(1,235)**
WQA-WtrQualityAttainmntStratgy	BDO Member Contributions	450,000	-	-	-	-	447,497	-	447,497	2,503
WQA-WtrQualityAttainmntStratgy	BDO Other Receipts	114,751	-	-	-	-	-	-	-	114,751
WQA-WtrQualityAttainmntStratgy	BDO Interest Income	1,600	-	-	283	-	-	983	983	617
WQA CBC TOTAL		**566,351**	**-**	**-**	**283**	**-**	**447,497**	**983**	**448,480**	**117,871**
BACWA OperatingRsrve Fnd	BDO Interest Income	-	-	-	142	-	-	623	623	(623)
BACWAOPRES TOTAL		**-**	**-**	**-**	**142**	**-**	**-**	**623**	**623**	**(623)**

BACWA Revenue Report for April 2012

DEPARTMENT	REVENUE TYPE	AMENDED BUDGET	CURRENT PERIOD			YEAR TO DATE				UNOBLIGATED
			DIRECT	INVOICED	JVS	DIRECT	INVOICED	JVS	ACTUAL	
Regional Water Recycling	BDO Interest Income	-	-	-	16	-	-	68	68	(68)
RWR TOTAL		-	-	-	**16**	-	-	**68**	**68**	**(68)**
WOT - Wtr/Wwtr Operat Training	BDO Member Contributions	150,000	-	2,000	-	-	150,746	(6,746)	144,000	6,000
WOT - Wtr/Wwtr Operat Training	BDO Interest Income	-	-	-	77	-	-	392	392	(392)
WOT TOTAL		**150,000**	-	**2,000**	**77**	-	**150,746**	**(6,354)**	**144,392**	**5,608**
Prop84BayAreaIntegRegnlWtrMgmt	BDO Interest Income	-	-	-	25	-	-	45	45	(45)
Prop84BayAreaIntegRegnlWtrMgmt	Agency Prefunding Admin Exp	-	-	-	-	-	29,500	21,500	51,000	(51,000)
PRP84 TOTAL		-	-	-	**25**	-	**29,500**	**21,545**	**51,045**	**(51,045)**
WQA Emergency Resrve Fnd	BDO Interest Income	-	-	-	377	-	-	1,647	1,647	(1,647)
WQA EMERG TOTAL		-	-	-	**377**	-	-	**1,647**	**1,647**	**(1,647)**
WQA Tech Action Fund	BDO Interest Income	-	-	-	236	-	-	1,029	1,029	(1,029)
TECHACTION TOTAL		-	-	-	**236**	-	-	**1,029**	**1,029**	**(1,029)**
CBC Operating Resrve Fnd	BDO Interest Income	-	-	-	153	-	-	667	667	(667)
CBC OPRSRV TOTAL		-	-	-	**153**	-	-	**667**	**667**	**(667)**
Prop50BayAreaIntegRegnlWtrMgmt	BDO Interest Income	-	-	-	167	-	-	1,374	1,374	(1,374)
Prop50BayAreaIntegRegnlWtrMgmt	Grant Administration	-	-	-	-	-	19,661	-	19,661	(19,661)
Prop50BayAreaIntegRegnlWtrMgmt	Contra Costa Regional Intertie	-	-	-	-	-	-	-	-	-
Prop50BayAreaIntegRegnlWtrMgmt	EBMUD Richmond RWP	-	-	-	-	-	-	-	-	-
Prop50BayAreaIntegRegnlWtrMgmt	Pacifica RWP	-	-	-	-	-	669,960	-	669,960	(669,960)
Prop50BayAreaIntegRegnlWtrMgmt	Montara Groundwater Project	-	-	-	-	-	3,710	-	3,710	(3,710)
Prop50BayAreaIntegRegnlWtrMgmt	Alameda Creek Phase 2 Fish	-	-	-	-	-	-	-	-	-
PRP50 TOTAL		-	-	-	**167**	-	**693,331**	**1,374**	**694,705**	**(694,705)**

Fund Balances as of month end 4/30/12

DESCRIPTION	BEGINNING FUND BALANCE 7/1/11	TOTAL RECEIPTS	TOTAL DISBURSEMENTS	ENDING FUND BALANCE 4/30/12	OUTSTANDING ENCUMBRANCES	UNOBLIGATED FUND BALANCE 4/30/12
BACWA	493,687	592,773	376,202	710,257	154,405	555,852
TRNG FND	251,387	1,020	5,000	247,407	-	247,407
AIR	26,584	88,896	100,553	14,928	12,272	2,655
BAPPG	19,711	79,675	49,570	49,816	13,422	36,394
LEGAL RSRV	301,664	1,235	-	302,900	-	302,900
WQA CBC	141,691	448,480	275,965	314,207	206,597	107,610
BACWAOPRES	151,785	623	-	152,408	-	152,408
RWR	16,608	68	-	16,676	-	16,676
RESERVE	120,000	-	-	120,000	-	120,000
WOT	93,270	144,392	176,000	61,662	-	61,662
PRP84	-	51,045	38,327	12,718	11,673	1,045
WQA EMERG	402,219	1,647	-	403,866	-	403,866
TECHACTION	251,387	1,029	-	252,416	-	252,416
CBC OPRSRV	162,899	667	-	163,566	-	163,566
PRP50	549,577	694,705	1,067,850	176,432	48,242	128,190
	2,982,470	2,106,255	2,089,467	2,999,258	446,613	2,552,645

BACWA Expense Report for April 2012

DEPARTMENT	EXPENSE TYPE	AMENDED BUDGET	CURRENT PERIOD				YEAR TO DATE				OBLIGATED	UNOBLIGATED
			ENC	PV	DA	JV	ENC	PV	DA	JV		
Bay Area Clean Water Agencies	BC-Collections System	25,000	(2,320)	2,320	-	-	7,336	17,664	-	-	25,000	-
Bay Area Clean Water Agencies	BC-Permit Committee	25,000	(3,110)	3,110	-	-	6,867	18,133	-	-	25,000	-
Bay Area Clean Water Agencies	BC-Water Recycling Committee	18,000	-	-	-	-	4,026	13,744	-	-	17,770	231
Bay Area Clean Water Agencies	BC-Biosolids Committee	5,000	-	-	-	-	-	-	-	-	-	5,000
Bay Area Clean Water Agencies	BC-InfoShare Groups	25,000	-	-	-	-	14,435	10,566	-	-	25,000	-
Bay Area Clean Water Agencies	BC-Laboratory Committee	7,000	-	-	-	-	-	-	2,151	-	2,151	4,849
Bay Area Clean Water Agencies	BC-Miscellaneous Committee Sup	61,000	-	-	-	-	25,619	19,980	12,000	-	57,599	3,401
Bay Area Clean Water Agencies	TS-Media Relations Support	-	-	-	-	-	-	-	-	-	-	-
Bay Area Clean Water Agencies	TS-Consultant Support	-	-	-	-	-	-	-	-	-	-	-
Bay Area Clean Water Agencies	LS-Regulatory Support	4,000	(1,394)	1,394	-	-	1,520	2,480	-	-	4,000	-
Bay Area Clean Water Agencies	LS-Executive Board Support	2,000	-	-	-	-	2,000	-	-	-	2,000	-
Bay Area Clean Water Agencies	CAS-CWAA	10,000	-	-	-	-	-	-	1,000	-	1,000	9,000
Bay Area Clean Water Agencies	CAS-CPSC	5,000	-	-	-	-	-	-	5,000	-	5,000	-
Bay Area Clean Water Agencies	CAS-PSI	500	-	-	-	-	-	-	500	-	500	-
Bay Area Clean Water Agencies	CAR-BACWA Annual Report	15,000	-	-	-	-	433	15,467	1,052	-	16,952	(1,952)
Bay Area Clean Water Agencies	CAR-BACWA Website Development/	10,750	(453)	453	-	-	5,292	4,209	1,220	-	10,720	30
Bay Area Clean Water Agencies	AS-BACWA Admin Expense	15,000	-	-	-	-	-	-	2,202	-	2,202	12,798
Bay Area Clean Water Agencies	CAR-Other Communications	5,000	-	-	-	-	-	-	-	-	-	5,000
Bay Area Clean Water Agencies	SP-BAPPG Contribution	50,000	-	-	-	-	-	-	-	50,000	50,000	-
Bay Area Clean Water Agencies	GBS-Contingency	88,950	-	-	-	-	-	-	25,000	-	25,000	63,950
Bay Area Clean Water Agencies	GBS- Meeting Support	17,000	-	-	-	-	527	473	8,846	-	9,846	7,154
Bay Area Clean Water Agencies	AS-Executive Director	139,000	-	-	-	-	37,858	101,082	-	-	138,940	60
Bay Area Clean Water Agencies	AS-Assistant Executive Directo	70,000	-	-	-	-	26,419	41,781	-	-	68,200	1,800
Bay Area Clean Water Agencies	AS-EBMUD Administrative Servic	40,000	-	-	-	-	22,075	17,925	-	-	40,000	-
Bay Area Clean Water Agencies	AS-Insurance	3,800	-	-	-	-	-	-	3,729	-	3,729	71
BACWA TOTAL		**642,000**	**(7,277)**	**7,277**	**-**	**-**	**154,405**	**263,503**	**62,699**	**50,000**	**530,608**	**111,392**
BACWA Training Fund	BDO Fund Transfers	-	-	-	-	-	-	-	-	5,000	5,000	(5,000)
TRNG FND TOTAL		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**5,000**	**5,000**	**(5,000)**
AIR-Air Issues&Regulation Grp	BDO Administrative Expense	4,040	-	-	-	-	-	-	-	4,040	4,040	-
AIR-Air Issues&Regulation Grp	BDO Contract Expenses	80,790	(40,280)	40,280	-	-	12,272	96,013	500	-	108,785	(27,995)
AIR TOTAL		**84,830**	**(40,280)**	**40,280**	**-**	**-**	**12,272**	**96,013**	**500**	**4,040**	**112,825**	**(27,995)**
BAPPG-BayAreaPollutnPreventGrp	BAPPG-CE-Fog	20,800	-	-	-	-	3	18,996	81	-	19,080	1,720
BAPPG-BayAreaPollutnPreventGrp	BAPPG-CE-Mercury	8,500	-	-	-	-	3,332	3,708	-	-	7,040	1,460
BAPPG-BayAreaPollutnPreventGrp	BAPPG-CE-Pesticides	10,000	-	-	-	-	-	-	10,000	-	10,000	-
BAPPG-BayAreaPollutnPreventGrp	BAPPG-CE-Copper	9,000	-	-	-	-	3,100	2,809	-	-	5,909	3,091
BAPPG-BayAreaPollutnPreventGrp	BAPPG-CE-Pharmaceutical	7,499	-	-	-	-	-	-	-	-	-	7,499
BAPPG-BayAreaPollutnPreventGrp	BAPPG-CE-General P2	1,500	-	-	-	-	80	1,420	-	-	1,500	-
BAPPG-BayAreaPollutnPreventGrp	BAPPG-CE-Emerging Issues	8,000	(2,000)	2,000	1,900	-	-	2,000	1,900	-	3,900	4,100
BAPPG-BayAreaPollutnPreventGrp	BAPPG-CE-Other	11,000	4,999	-	-	-	6,908	4,842	-	-	11,749	(749)
BAPPG-BayAreaPollutnPreventGrp	BDO Administrative Expense	3,815	-	-	-	-	-	-	-	3,815	3,815	-
BAPPG TOTAL		**80,114**	**2,999**	**2,000**	**1,900**	**-**	**13,422**	**33,775**	**11,981**	**3,815**	**62,993**	**17,121**

BACWA Expense Report for April 2012

DEPARTMENT	EXPENSE TYPE	AMENDED BUDGET	CURRENT PERIOD				YEAR TO DATE				OBLIGATED	UNOBLIGATED
			ENC	PV	DA	JV	ENC	PV	DA	JV		
WQA-WtrQualityAttainmntStratgy	WQA-CE-Technical Support	344,934	(3,995)	3,995	-	-	188,555	105,258	9,999	-	303,813	41,121
WQA-WtrQualityAttainmntStratgy	WQA-CE-Collaborations & Sponso	90,000	-	-	-	-	-	-	98,750	-	98,750	(8,750)
WQA-WtrQualityAttainmntStratgy	WQA-CE-Commun. & Reporting	47,000	(6,696)	6,696	-	-	16,487	30,513	-	-	46,999	1
WQA-WtrQualityAttainmntStratgy	WQA-CE-Other	100,000	-	-	-	-	1,555	21,446	10,000	-	33,001	66,999
WQA CBC TOTAL		**581,934**	**(10,691)**	**10,691**	**-**	**-**	**206,597**	**157,216**	**118,749**	**-**	**482,562**	**99,372**
WOT - Wtr/Wwtr Operat Training	BDO Administrative Expense	2,500	-	-	-	-	-	-	-	2,500	2,500	-
WOT - Wtr/Wwtr Operat Training	BDO Contract Expenses	140,000	-	-	-	-	-	-	173,500	-	173,500	(33,500)
WOT TOTAL		**142,500**	**-**	**-**	**-**	**-**	**-**	**-**	**173,500**	**2,500**	**176,000**	**(33,500)**
Prop84BayAreaIntegRegnlWtrMgmt	BDO Administrative Expense	-	(6,880)	6,880	-	-	11,673	38,327	-	-	50,000	(50,000)
PRP84 TOTAL		**-**	**(6,880)**	**6,880**	**-**	**-**	**11,673**	**38,327**	**-**	**-**	**50,000**	**(50,000)**
Prop50BayAreaIntegRegnlWtrMgmt	BDO Fund Transfers	-	-	-	-	-	-	-	-	21,500	21,500	(21,500)
Prop50BayAreaIntegRegnlWtrMgmt	BDO Administrative Expense	-	-	-	-	-	1,506	494	366	1,040	3,406	(3,406)
Prop50BayAreaIntegRegnlWtrMgmt	BDO Contract Expenses	-	-	-	-	-	46,736	18,576	-	-	65,312	(65,312)
Prop50BayAreaIntegRegnlWtrMgmt	Contra Costa Regional Intertie	-	-	-	-	-	-	-	50,000	-	50,000	(50,000)
Prop50BayAreaIntegRegnlWtrMgmt	Regional Conservation	-	-	-	-	-	-	-	18,500	-	18,500	(18,500)
Prop50BayAreaIntegRegnlWtrMgmt	EBMUD Richmond RWP	-	-	-	-	-	-	-	212,760	-	212,760	(212,760)
Prop50BayAreaIntegRegnlWtrMgmt	South Bay Advanced Regional RW	-	-	-	-	-	-	-	5,786	-	5,786	(5,786)
Prop50BayAreaIntegRegnlWtrMgmt	Pacifica RWP	-	-	-	-	-	-	-	673,117	-	673,117	(673,117)
Prop50BayAreaIntegRegnlWtrMgmt	Montara Groundwater Project	-	-	-	-	-	-	-	5,241	-	5,241	(5,241)
Prop50BayAreaIntegRegnlWtrMgmt	Alameda Creek Phase 2 Fish	-	-	-	-	-	-	-	60,469	-	60,469	(60,469)
PRP50 TOTAL		**-**	**-**	**-**	**-**	**-**	**48,242**	**19,070**	**1,026,240**	**22,540**	**1,116,093**	**(1,116,093)**

EXECUTIVE BOARD AUTHORIZATION REQUEST

AGENDA NO.: 4
FILE NO.: 12,448; 12,197
MEETING DATE: June 28, 2012

TITLE: BACWA Executive Board Approval to Amend Fiscal Year 2011-12 Agreements

☒ **MOTION**_____ ☐ **RESOLUTION**_____

RECOMMENDED ACTION

Authorize the amendment of two contracts to extend termination dates to December 30, 2012 to complete projects initiated to implement the Fiscal Year 2012 – 2013 BACWA and Special Programs Budgets and Workplans.

SUMMARY

The BACWA 2011-12 fiscal year (FY) ends June 30, 2012. The amendments summarized below will ensure that projects initiated to implement FY 2011-12 BACWA and Special Programs budgets and workplans can continue to completion. These amendments extend the original contract termination date of June 30, 2012 for each agreement to December 30, 2012.

Contractor	Services	File Number
Larry Walker Associates	As Needed Technical Support	12,448
Circlepoint	As Needed Outreach Support	12,197

FISCAL IMPACT

There is no fiscal impact as these are no cost time extension amendments to agreements that have already been executed with associated funds allocated from the BACWA and Special Programs FY2011-12 budgets.

ALTERNATIVES

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

Attachments:
None

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 5

FILE NO.: 12,733 - 12,739

MEETING DATE: June 28, 2012

TITLE: Approval of Contracts to Implement FY 2012-13 BACWA and Special Programs Budgets and Workplans

☒ **MOTION**_____ ☐ **RESOLUTION**_____

RECOMMENDED ACTION

Authorize the approval of seven contracts to implement the Fiscal Year 2012 – 2013 BACWA and Special Programs Budgets and Workplans.

SUMMARY

The BACWA fiscal year (FY) begins July 1, 2012. In order to prevent a gap in core services, BACWA typically executes contracts for the coming FY before the end of June. The seven contracts summarized below will ensure that, as of July 1, BACWA has committee support (RMC, Kennedy Jenks, CH2M Hill), as needed technical assistance (RMC, LWA, EOA) and communications support (Circlepoint). The agreement with CH2M Hill is contingent upon the collection of annual membership dues from AIR Committee members. Bills will be sent to AIR Committee members within the month of July 2012. The agreement with Alexandra Gunnell provides Assistant Executive Director Services to BACWA and Special Programs. All of these contracts were included in the BACWA Executive Board approved FY 2012 - 2013 workplans and budgets, become effective July 1, 2012, and terminate June 30, 2013. Each of these contracts has proposed 2012-13 rates that remain unchanged from their 2011-12 rates.

Contractor	Services	FY 2012 Budget	Contract Amount	Remain. Unoblig.	File Number
RMC	Collection System Committee Support	$25,000	$25,000	$0	12,733
	As Needed Technical Support	TBD*	$20,000	N/A	
LWA	As Needed Technical Support	TBD*	$15,000	N/A	12,734
EOA	As Needed Technical Support	TBD*	$15,000	N/A	12,735
Circlepoint	Annual Report Assistance	$15,000	$15,000	$0	12,736
	Website Support	$8,000	$8,000	$0	
	As Needed Communications Support	$3,000	$2,000	$1,000	
Kennedy Jenks	Infoshare	$25,000	$25,000	$0	12,737
CH2M Hill	AIR Committee Support	$79,556	$79,556	$0	12,738
A. Gunnell	BACWA Administrative Services	$70,000	$68,200	$1,800	12,739
	Prop50/84 Administrative Services	$2,000	$2,000	$0	

**For As Needed support, specific tasks, not to exceed amounts, and funding budget line items will be specified when Task Authorization Forms are drafted.*

FISCAL IMPACT

The BACWA and Special Programs budgets currently have funds to support all of these contracts. The funding for these contracts is consistent with the approved Fiscal Year 2012-2013 budget. The CH2M Hill contract amount is contingent upon receipt of funds from AIR Committee members, for which billing will occur within the month of July 2012.

ALTERNATIVES

As required by the BACWA contracting policy, AIR committee consultant support services were subject to an informal competition, whereby the committee chair solicited proposals from four prospective vendors. The AIR committee is recommending execution of a contract with CH2M Hill, based on their qualifications and experience.

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

Attachments:

1. RMC Scope of Work and Rates
2. LWA Scope of Work and Rates
3. EOA Scope of Work and Rates
4. Circle Point Scope of Work and Rates
5. Kennedy Jenks Scope of Work and Rates
6. CH2M Hill Scope of Work and Rates
7. Alexandra Gunnell Scope of Work and Rates

EXHIBIT A
SCOPE OF WORK

Professional Services by **RMC Water and Environment**
Fiscal Year 2012-2013

Task 1: Collection System Committee Support ($25,000)

Task 2(a): Administrative Meeting Support ($12,000)
Assist Collection Systems Committee Chair with scheduling and organizing meetings, meeting agenda development, general meeting planning, preparation of Committee reports, and other administrative tasks; includes travel to and attendance at meetings.

Task 2(b): Regulatory Tracking, Analysis & Reporting ($13,000)
Track and report on regulatory developments relevant to the Collection Systems Committee. Upon request of the Committee Chair or Executive Director, schedule and participate in meetings with San Francisco Bay Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency and other regulatory agency staff; prepare and assist in the preparation of technical data analyses and compliance tools; assist with the drafting of comments on BACWA's behalf; and coordinate with Tri-TAC/CASA on relevant issues.

Task 2: As-Needed Technical Services (not to exceed $20,000)

Consultant will provide additional technical services as requested – in writing – by the BACWA Executive Director or Assistant Executive Director. Requests for services will be made using BACWA's Task Authorization Form (attached) and may include, but are not limited to the following:

- Review and analysis of effluent, RMP, water quality, spill report, or other data.
- Review and analysis of permits, basin plan amendments, TMDLs, enforcement initiatives or other regulatory plans and policies.
- Representation of BACWA in workgroups, committees, meetings, and hearings.
- Prepare or assist with the preparation of comments, issue summaries, position papers, program strategies, white papers, frequently asked questions, and fact sheets.
- Coordinate or assist with the coordination of trainings and special meetings for BACWA members.
- Consult with and advise the Executive Director and/or Executive Board members regarding regulatory developments and any other issues, as requested.

EXHIBIT B

HOURLY RATES/REIMBURSABLE EXPENSES

RMC Water and Environment

Labor Rates

Principal Engineer	$200/hr
Senior Project Manager	$180/hr
Senior Engineer/Scientist	$170/hr
Project Engineer/Scientist	$160/hr
Environmental Engineer/Scientist	$140/hr
Environmental Specialist	$125/hr
Project/Admin Assistant	$105/hr

Expenses

- Reimbursable expenses are billed at cost except as noted below.
- Mileage is same as then-current federal rate ($0.50 per mile in January 2010).
- Special printing, mail, travel and other reimbursable expenses is actual expense.
- Subcontractors – actual fee plus 10%.

EXHIBIT A
SCOPE OF WORK

Professional Services by **Larry Walker & Associates**
Fiscal Year 2012-2013

Task 1: As-Needed Technical Services (not to exceed $15,000)

Consultant will provide additional technical services as requested – in writing – by the BACWA Executive Director or Assistant Executive Director. Requests for services will be made using BACWA's Task Authorization Form (attached) and may include, but are not limited to the following:

- Review and analysis of effluent, RMP, water quality, spill report, or other data.
- Review and analysis of permits, basin plan amendments, TMDLs, enforcement initiatives or other regulatory plans and policies.
- Representation of BACWA in workgroups, committees, meetings, and hearings.
- Prepare or assist with the preparation of comments, issue summaries, position papers, program strategies, white papers, frequently asked questions, and fact sheets.
- Coordinate or assist with the coordination of trainings and special meetings for BACWA members.
- Consult with and advise the Executive Director and/or Executive Board members regarding regulatory developments and any other issues, as requested.

LARRY WALKER ASSOCIATES

Rate Schedule
Effective July 1, 2011 – June 30, 2013

PERSONNEL	Rate $/Hour
Principals	
Ashli Cooper Desai	$244.00
Tom Grovhoug	$256.00
Larry Walker	$256.00
Mack Walker	$244.00
Brian Laurenson	$244.00
Associates	
Karen Ashby	$225.00
Denise Conners	$225.00
Betsy Elzufon	$225.00
Chris Minton	$225.00
Mitch Mysliwiec	$225.00
Claus Suverkropp	$225.00
Senior Staff	
Kristine Corneillie	$198.00
Karen Cowan	$198.00
Diana Engle	$198.00
Sandy Mathews	$198.00
Mike Trouchon	$198.00
Rebecca Winer-Skonovd	$198.00
Gorman Lau	$198.00
Project Staff	
Alina Constantinescu	$175.00
Rachel Warren	$175.00
Airy Krich-Brinton	$160.00
Kate Lundberg	$160.00
Michael R. Marson	$160.00
Hope M. Taylor	$160.00
Amy Storm	$160.00
Jeff Walker	$160.00
Michelle Boeckx	$140.00
Kathryn Walker	$140.00
Steve Maricle	$140.00
Reni Keane-Dengel	$140.00
Jeannette Sager	$140.00
Bryant Alvarado	$140.00
Patrick Wong	$140.00
Danielle Moss	$140.00
Amber Shiau	$130.00
Greg Reide	$105.00
Alyssa Glimm	$75.00
Adriana Stovall	$75.00
Mashon Jones	$75.00

REIMBURSABLE COSTS

Travel:

Local mileage	• Current IRS rate
Transportation	• Actual expense
Auto rental	• Actual commercial rate
Fares	• Actual expense
Room	• Actual expense
Subsistence [(1)]	• 48.00 per day

The rate for each meal as follows: [(1)]

Breakfast	$9.00
Lunch	$13.00
Dinner	$21.00
Incidentals	$5.00

Report Reproduction and Copying:

- Actual outside expense
- $0.08 per black and white copy, in-house
- $0.89 per color copy, in-house
- $1.95 per binding, in-house

Special Postage and Express Mail:

- Actual expense

Other Direct Costs:

- Actual expense

Daily Equipment Rental Rates:

• Special equipment – negotiated by project	
• All single parameter field meters (pH, EC, D.O., Turbidity)	$25.00 each
• Multi-parameter field meters	$35.00
• Peristaltic Sampling Pump	$35.00
• Professional grade GPS unit	$25.00
• Digital Flow Meter	$45.00
• Digital Fluorometer	$45.00
• Multi-parameter Data Sonde (with telemetry)	
- first day	$200.00
- each additional day	$40.00

Subcontractors:

Actual expense plus 10% fee

Note: [(1)] Charged when overnight lodging is required.

EXHIBIT A
SCOPE OF WORK
Professional Services by **EOA, Inc.**
Fiscal Year 2012-2013

Task 1: As-Needed Technical Services (not to exceed $15,000)

Consultant will provide additional technical services as requested – in writing – by the BACWA Executive Director or Assistant Executive Director. Requests for services will be made using BACWA's Task Authorization Form (attached) and may include, but are not limited to the following:

- Review and analysis of effluent, RMP, water quality, spill report, or other data.
- Review and analysis of permits, basin plan amendments, TMDLs, enforcement initiatives or other regulatory plans and policies.
- Representation of BACWA in workgroups, committees, meetings, and hearings.
- Prepare or assist with the preparation of comments, issue summaries, position papers, program strategies, white papers, frequently asked questions, and fact sheets.
- Coordinate or assist with the coordination of trainings and special meetings for BACWA members.
- Consult with and advise the Executive Director and/or Executive Board members regarding regulatory developments and any other issues, as requested.

Eisenberg, Olivieri & Associates
Environmental and Public Health Engineering

2012-13 FEE SCHEDULE

The following fee schedule covers personnel rates for EOA, Inc. staff.

Our charges are divided into two categories: personnel, and outside direct expenses. A new fee schedule is issued at the beginning of each year. Charges for all work, except where other arrangements have been made, are based on the new schedule of charges.

PERSONNEL

Personnel charges are for any technical, clerical or administrative work necessary to perform the project. Work tasks include geologic and environmental consulting, engineering and computer services, regulatory liaison, and report preparation. Personnel rates are as follows:

Personnel Category	Hourly Rate
Principal	$223
Manager of Operations	$216
Managing Engineer/Scientist III	$216
Managing Engineer/Scientist II	$205
Managing Engineer/Scientist I	$195
Senior Engineer/Scientist III – Project Leader	$179
Senior Engineer/Scientist/Planner II	$165
Senior Engineer/Scientist/Planner I	$149
Associate Engineer/Scientist II	$135
Associate Engineer/Scientist I	$115
Technician	$ 91
Clerical/Computer Data Entry	$ 65

Charges for professional services are in increments of one quarter-hour. Depositions/legal testimony charged portal-to-portal, at 200% of standard rates, with a four-hour minimum charge. In accordance with California Civil Procedure 2037.7, where applicable, the

minimum fee must be paid prior to commencement of testimony. Preparation for court cases is charged on a time-and-materials basis as outlined in this fee schedule.

OUTSIDE DIRECT EXPENSES

Reimbursement for expenses directly related to services provided will be charged at cost plus 10%. Examples of such direct expenses include:

- Costs of sub-consultants or subcontractors
- Costs of special fees (insurance, permits, etc.)
- Costs of long-distance telephone, copying, drafting, blueprints, etc. (EOA copies charged at $ 0.10 each)
- Costs or rental of special equipment
- Costs of authorized travel outside Bay Area
- Automobile mileage directly related to services (at allowable IRS rate, currently $0.55/mile)

INVOICES

Invoices are prepared and submitted on a monthly basis, as either final or progress billings and are payable upon receipt unless prior arrangements have been made. Interest of 1-1/2% per month, or the maximum rate allowed by law, is payable on accounts not paid within 30 days.

EXHIBIT A

SCOPE OF WORK

Professional Services by **Circlepoint**

Fiscal Year 2012-2013

Circlepoint agrees to provide professional services to the Bay Area Clean Water Agencies (BACWA) for the following activities, the costs of which are **not to exceed $25,000**:

Task 1: Website Update / Improvements and Electronic Communications Support ($8,000).

Circlepoint will provide services to BACWA to update the agency's online calendar and to recommend and implement suggestions for making the agency's website more user-friendly and compelling by using photos and graphic elements; making the Home Page more visually appealing and organized to highlight the current month's meetings and activities, significant upcoming milestones and other significant announcements; and make recommendations for organizing documents available on the website to improve accessibility. Circle Point will also assist BACWA on an as needed basis with electronic outreach and communications.

Circlepoint and BACWA agree to the following:

- Circlepoint will populate the online calendar as requested by BACWA and provide monthly support services for maintaining website content.
- Circlepoint will review the organization and structure of the website and recommend improvements, utilizing the website's current platform.
- Circlepoint and BACWA will meet to review and agree upon recommended changes.
- Circlepoint will coordinate with BACWA's web designer to make agreed-upon changes to the Home Page and navigation menus.
- Circlepoint will provide electronic communications support as needed, under the direction of the BACWA Executive Director or designated BACWA representative.

Task 2: Fiscal Year 2012 Annual Report ($15,000)

Circlepoint will provide professional services to assist with the preparation of BACWA's Annual Report to Members, the costs of which are not to exceed $15,000. These costs include the following:

- Copy editing of the report; assuming one extensive round of revisions and two copy edits.
- Layout and design of the report.
- $1,000 for the purchase of stock photos.
- Ten hours outreach to BACWA member agencies to obtain images, which will be delivered to BACWA when the project is complete.
- Electronic delivery of final report (in Adobe Acrobat).
- Cost estimates for printing; these costs *exclude* all actual printing costs.

Task 3: As-Needed Services ($2,000)

Circlepoint will provide additional services as requested by the BACWA Executive Director or Assistant Executive Director. Requests for services will be made using BACWA's Task Authorization Form (attached).

circlepoint®

2012 TIME & MATERIALS FEE SCHEDULE*

I. *Professional services will be rendered based on the following hourly rates:*

Principal	$240
Senior Project Manager	$180
Project Manager	$140
Senior Associate	$120
Associate	$95
Assistant/Coordinator	$75
Clerical	$60

II. *Creative & supportive services will be rendered based on the following hourly rates:*

Marketing Director	$175
Art Director	$150
Web Designer	$95
Senior Graphic Designer	$90
Graphic Designer	$70
Copywriter/Editor	$100
IT Director	$175
IT Support	$75
Accounting Manager	$130
Accounting Clerk	$70

III. *Provision of related services & reimbursable expenses will be charged to the client as follows:*

Black and White Prints/Copies, In House	$0.06-0.25 per page, depending on paper size
Color Prints/Copies, In House	$0.50-$1.75 per page, depending on paper size
Faxes	$0.60 per page
Postage	at cost
Phone	at cost
Mileage	Per IRS Standard Mileage Rate
Vendor & Subconsultant Services	10% mark up for administration

IV. *Expert witness testimony or technical assistance on legal matters shall be provided at the rate of $300.00 per hour of witness and preparation time.*

** Rates are effective through December 31, 2012 and subject to escalation in January 2013.*

EXHIBIT A

SCOPE OF WORK

Professional Services by **Kennedy/Jenks Consultants, Inc.**
Fiscal Year 2012-13

Kennedy/Jenks Consultants, Inc. (KJ) will provide professional services to BACWA, the costs of which are **not to exceed $25,000**:

Task 1: Operations, Bay Area Maintenance, and Engineering InfoShare Group Support ($21,000)

KJ shall organize and conduct quarterly meetings for each of the three BACWA InfoShare Groups:

1. Operations InfoShare Group, the purpose of which is to facilitate the exchange of information among member agency operations managers;
2. Maintenance InfoShare Group, the purpose of which is to facilitate the exchange of information among member agency maintenance managers; and
3. Engineering InfoShare Group, the purpose of which is to facilitate the exchange of information among member agency engineering staff on issues related to infrastructure planning, design, and construction.

Services provided shall include, but is not limited to, scheduling and announcing meetings, and preparing and distributing meeting agendas and minutes.

Task 2: As-Needed Assistance ($4,000)

Provide additional services upon written request by the BACWA Executive Director.

Kennedy/Jenks Consultants

Client/Address: BACWA
P.O. Box 24055
MS 702
Oakland, CA 94623

Contract/Proposal Date: June 2012

Schedule of Charges

January 1, 2012

Personnel Compensation

Classification	Hourly Rate
CAD-Technician	$100
Designer-Senior Technician	$130
Engineer-Scientist-Specialist 2	$125
Engineer-Scientist-Specialist 3	$145
Engineer-Scientist-Specialist 4	$160
Engineer-Scientist-Specialist 5	$175
Engineer-Scientist-Specialist 6	$195
Engineer-Scientist-Specialist 7	$220
Engineer-Scientist-Specialist 8	$230
Engineer-Scientist-Specialist 9	$235
Project Administrator	$90
Administrative Assistant	$75
Aide	$60

In addition to the above Hourly Rates, a three percent Communications Surcharge will be added to Personnel Compensation for normal and incidental copies, communications and postage.

Direct Expenses

Reimbursement for direct expenses, as listed below, incurred in connection with the work, will be at cost plus ten percent for items such as:

a. Maps, photographs, 3rd party reproductions, 3rd party printing, equipment rental, and special supplies related to the work.
b. Consultants, soils engineers, surveyors, contractors, and other outside services.
c. Rented vehicles, local public transportation and taxis, travel and subsistence.
d. Project specific telecommunications and delivery charges.
e. Special fees, insurance, permits, and licenses applicable to the work.
f. Outside computer processing, computation, and proprietary programs purchased for the work.

Reimbursement for vehicles used in connection with the work will be at the federally approved mileage rates or at a negotiated monthly rate.

Reimbursement for use of computerized drafting systems (CAD), geographical information systems (GIS), and other specialized software and hardware will be at the rate of $12 per hour.

Rates for professional staff for legal proceedings or as expert witnesses will be at rates one and one-half times the Hourly Rates specified above.

Excise and gross receipts taxes, if any, will be added as a direct expense.

The foregoing Schedule of Charges is incorporated into the agreement for the services provided, effective January 1, 2011 through December 31, 2011. After December 31, 2011, invoices will reflect the Schedule of Charges currently in effect.

EXHIBIT A

PHASE 26 SCOPE OF SERVICES

The Air Issues and Regulations Committee is a separate enterprise Committee within BACWA.

The AIR Committee will address air and climate change regulatory issues affecting POTWs. Consultant shall continue to serve in a coordination role for the Committee and will also undertake special technical tasks as requested by the Steering Committee. Consultant shall report to the AIR Steering Committee.

Task 1 - Meetings with the AIR Committee
Consultant will meet quarterly with the Steering Committee and annually with the membership, and as needed with individual members to present information on current air issues, facilitate discussions between members, and to identify follow-on action items. Consultant will be responsible for four formal meetings with the AIR Committee per year, including making arrangements for meetings and preparing agenda, meeting materials, and minutes. Under this task, Consultant will coordinate one meeting between BAAQMD staff and AIR Committee members. The agenda will focus on issues of concern to AIR Committee members.

Under the direction of the Steering Committee, the quarterly meetings may be increased to six meetings within the fiscal year. If this occurs, the Consultant collaborate with the Steering Committee to make adjustments to the Scope of Services herein to assure the two additional meetings can occur within the Phase 26 budget.

Task 2 - AIR Committee Communications
Consultant will monitor regulatory agencies involved in developing air quality and climate change regulations that may affect POTWs, including the Bay Area Quality Management District (BAAQMD), the San Francisco Bay Conservation and Development Commission, the California State Air Resources Board, and the U.S. Environmental Protection Agency. Any agency interactions including meeting with agency staff, participating in key workshops and hearings, and drafting Group and AIR Committee correspondence will be conducted at the direction and approval of the AIR Committee Chairperson or Vice-Chairperson and will be coordinated by Consultant.

Issues that AIR is likely to track and participate in this year include:

- ✓ On-going combustion source regulatory programs and their impacts, including:
  - Changes to BAAQMD engine and boiler rules
  - Federal air toxic standards for industrial, commercial, & institutional boilers & process heaters
- ✓ State and local changes to diesel engine and other fleet-related regulations
- ✓ Advocating for improved permitting customer service from BAAQMD staff to BACWA POTWs that aligns with the BAAQMD's timeline guidelines for the permitting process
- ✓ Enhanced coordination with CWCCG to track state and national climate change issues, including:
  - CARB Mandatory GHG Reporting and Cap-and-Trade Programs
  - EPA GHG Tailoring Rule, which regulates GHGs under the Clean Air Act
  - Climate change cross-media issues (i.e. land, air and water media regulatory issues that impact each other)

- Renewable energy advocacy for the POTW community working with the California Public Utilities Commission and California Energy Commission

✓ Information sharing on Title V draft permit conditions

✓ Other emerging local, state and federal air toxics and climate change policies

Consultant will prepare and distribute informational material to member agencies after the AIR Committee Chairperson's review to keep them informed of the AIR Committee activities and future regulatory activities. This material will include the following:

✓ Emails to Committee members, including bulletins summarizing important regulatory activities, copies of proposed regulations, recommendations for POTWs, meeting memoranda, etc.

✓ Newsletters (approximately one to two per year) - This will be written to a general audience, including POTW staff, Board members, city council members, etc.

✓ Responding to requests for information by individual group members.

Task 3 - Coordination with other POTW Organizations

Consultant will perform special technical assignments under the direction of the AIR Steering Committee. Special technical assignments may include participating AIR Committee strategy meetings, meeting with BAAQMD or other agency staff, participating in agency workshops and hearings, drafting correspondence, and performing other related activities as directed by the AIR Steering Committee.

Consultant will also coordinate with other POTW organizations on issues of mutual interest. The purpose of this coordination will be to share useful information, identify areas of joint cooperation, and prepare common responses on key issues, where appropriate. POTW organizations whose objectives coincide with the AIR Committee include BACWA, SCAP, CVCWA, Tri-TAC, CWCCG, WERF, CASA, and NACWA. Activities may include periodic telephone conversations, meetings and exchange of published materials.

Optional Task 4 - Response on Special Assignments

Consultant will perform special technical assignments under the direction of the AIR Steering Committee. Special technical assignments may include leading a special workshop for AIR Committee or general BACWA members, participating in AIR Committee strategy meetings, or performing other activities not included in Tasks 1-3.

No budget is established for work to be performed under Task 4. Activity level will be determined under the direction of the AIR Steering Committee.

EXHIBIT B

PHASE 26 COMPENSATION AND FEES

BACWA will compensate Consultant for services performed in accordance with available funds from participating agencies and Exhibit A: Scope of Services for work which can be verified by BACWA in accordance with the methods and amounts described herein.

- A cost ceiling of $79,556.00 shall constitute the maximum Consultant payment for the services performed under this Agreement unless modified and agreed to by both BACWA and Consultant prior to incurring any additional costs. Costs over and above the cost ceiling incurred by Consultant without prior written approval from BACWA shall be borne by Consultant.

- COST OF REWORK
  Consultant shall, at no cost to BACWA, prepare any necessary rework occasioned by Consultant's failure to provide the services specified herein in a satisfactory manner due to any act or omission attributable to Consultant, its agents, or subcontractors.

- BILLING AND PAYMENT
  Consultant shall invoice quarterly for actual costs incurred during the previous quarter. Consultant will send original quarterly invoices directly to the Assistant Executive Director.

  Original Invoice: BACWA AED
  Alexandra Gunnell
  P.O. Box 24055, MS702
  Oakland, CA 94623

- BACWA agrees to pay Consultant within thirty (30) days after receipt and approval of a proper Consultant invoice submittal in accordance with the costs, rates and expenses included in Appendix A--AIR Phase 26 Cost Estimate of **$79,556,** and in Appendix B—Phase 26 Billing Rates, which follows hereinafter.

Appendix B.1

CH2M HILL Engineers, Inc.

Professionals and Technicians*

2012 Hourly Billing Rates**

Classification	Rate
Principal -In-Charge/Principal Program Manager	$279
Principal Technologist/Sr. Project Manager	$256
Sr. Technologist*/Sr. Project Manager	$224
Engineer Specialist*/Project Manager	$212
Project Engineer*/Associate Project Manager	$183
Associate Engineer*	$149
Staff Engineer 2*	$133
Staff Engineer 1*	$119
Engineering/Environmental Tech 5	$156
Engineering/Environmental Tech 4	$138
Engineering/Environmental Tech 3	$114
Engineering/Environmental Tech 2	$93
Engineering/Environmental Tech 1	$85
Office/Clerical/Accounting	$93

Notes:

* includes engineering, consulting, planner and scientist disciplines

**These rates are effective through December 31, 2012 and will be increased 4% for 2013.

A markup of 10% shall be applied to all Other Direct Costs and Expenses

An additional premium of 25% will be added to the above rates for Expert Witness and Testimony Services

Exhibit A
BACWA ASSISTANT EXECUTIVE DIRECTOR
SCOPE OF SERVICES

CONSULTANT will act as the Assistant Executive Director and provide professional services at the direction of the BACWA Executive Director to support BACWA and its Special Programs at a rate of $45.00/hour consistent with the following key activities:

1. **Financial Management**
   - Communicate and coordinate with EBMUD Accounting to ensure proper and timely processing of contracts, invoices, dues and contributions to specific accounts and payments to BACWA vendors;
   - On a monthly basis reconcile EBMUD and BACWA financial records, including calculating and tracking obligated funds and ensuring accuracy of the Treasurer's Report;
   - Assist with annual budget development and management;
   - Act as an intermediary between Project Managers and EBMUD Accounting to track revenues and expenditures for specific projects and Special Programs;
   - Provide recommendations and support for revisions to accounting processes and financial reporting, including strategic analysis of the implications of those changes on BACWA contracting procedures;
   - Assist in developing contracting and fiscal policies for BACWA.

2. **Meeting Support**
   - Attend monthly BACWA Board meetings and selected other meetings;
   - Assist Executive Director in developing the Executive Board agenda and meeting packet; prepare and distribute meeting minutes;
   - Work with the ED, Committee Chairs, consultants, and Project Managers on coordination, preparation, attendance, recordkeeping, meeting facilitation and follow up for special meetings, including but not limited to the following: Budget Planning Workshops, Pardee Technical Seminar, Annual Membership Meeting, Committee or BACWA-sponsored training and workshops,Quarterly Committee Chair Meetings;
   - Assist with the coordination and facilitation of other meetings (e.g., Committee meetings) as requested by the ED.

3. **Document Management**
   - Manage retention, organization, maintenance and storage of BACWA electronic and paper files;
   - Develop and maintain written and electronic records of policies, procedures, forms, and templates;
   - Work with ED, Committee Chairs, and Project Managers to draft, edit, and execute contracts, amendments, contract scopes, approval forms (BARs,

Task Authorizations, Chair Authorization, Travel Request), and other agreements;
- Compile background information or supporting documentation in response to requests from ED, Project Managers, and Committee Chairs;
- Act as BACWA's Filing Official and Filing Officer for Statements of Economic Interest as required by FPPC;
- Obtain general guidance from legal counsel as requested by ED.

4. **Communication and Website Management**
   - Manage the delivery of documents and information to members, including e-mail correspondence;
   - Maintain BACWA contacts and distribution lists;
   - Assist with the development of the BACWA Annual Report, including working with ED, Consultants, and Committee Chairs to compile content, edit draft, and oversee production and distribution;
   - Assist with the delivery of selected communications to the RWQCB, including invitations to meetings, and formatting and submitting comment letters;
   - Create, maintain and revise website content;
   - Coordinate website revisions with consultants and Committee Chairs, including maintenance of the dynamic calendar and uploading of promotional materials;
   - Provide content management system training for committees and consultants;
   - Manage BACWA private website user authorization;
   - Assist ED with the development and implementation of communications plan, including website improvements and a newsletter;
   - Respond to inquiries from the general public and members.

5. **Miscellaneous**
   - Assist with other tasks and projects upon request from the ED

Report to BACWA Board from AIR Committee (June 2012)

Document Control	Prepared by Divya Bhargava (Project Engineer) Reviewed by Randy Schmidt (Committee Chair)
Committee Request for Board Action	None at this time.
Committee Agenda Items	None at this time.

BACWA AIR Committee Year in Review:

2011-12 Highlights	• An in-person discussion with BAAQMD Director of Compliance and Enforcement, Brian Bateman at the January 2012 Committee Meeting • The AIR Committee 2012 Annual Spring Newsletter • An on-site meeting at SFPUC's Oceanside Wastewater Treatment Plant in July 2011 that included a presentation/tour of SFPUC's FOG and bio-energy/fuels renewable programs, which showed how they convert FOG from restaurants & households into biodiesel using a patented technology • Workshop attendance and comment letters to the California Bay Conservation Development Commission regarding the Bay Plan Amendment to address climate change • Continuous tracking of regulatory issues affecting large and small POTWs through regular committee-wide emails, keeping the AIR website updated, and the AIR Issues matrix. The regulatory issues include: - Changes to BAAQMD Rules regulating engines and boilers - Changes to CARB's in-use, off-road diesel regulation - Final Federal air toxic standards for industrial, commercial, & institutional boilers & process heaters - Workshop attendance on behalf of AIR to track the revisions to BAAQMD New Source Review and Title V Permitting Programs (i.e., amendments to District Regulation 2 – Rules 1, 2, 4 & 6) • Coordination with CWCCG to track State and National climate change issues including: - CARB Mandatory GHG Reporting and Cap-and-Trade Programs - EPA GHG Tailoring Rule, which regulates GHGs under the Clean Air Act - Renewable energy advocacy for the POTW community working with the California Public Utilities Commission and California Energy Commission • An on-site meeting Committee at the San Jose/Santa Clara Water Pollution Control Plant in May 2012 that included a presentation and tour of their new fuel cell facility by Scott Warfield (UTS Bioenergy). • AIR Committee will continue to track air quality regulations in FY 2012/13 through the following means and continue to collaborate with the CWCCG regarding climate change regulations and activities.
AIR Website	http://bacwa.org/Committees/AirIssuesRegulations.aspx

Report to BACWA Board from AIR Committee (June 2012)

Next AIR Committee Meeting:	**Wednesday, July 18, 2012** **Venue: CH2M HILL Office, Oakland**

Collection Systems Committee Report to BACWA Board

June 15, 2012
From: Dan Stevenson, Committee Chair
Prepared By: Andy Eggleston

Committee Request for Board Action: None

Highlights of New Items Discussed and Action Items

Changes to SSS WDR Monitoring and Reporting Program

The State Water Board plans to prepare an amended Monitoring and Reporting Program (MRP) for the Sanitary Sewer System Waste Discharge Requirements (SSS WDR), to be released in fall 2012. These proposed changes were discussed in detail at the June 7 Collection Systems Committee meeting. Several potentially helpful changes include:

- Elimination of the 24-hour Regional Water Board notification certification requirement. This change would resolve the current conflict between State regulations and Regional Water Board direction included with notification of WBERS termination last year.
- Reduction of initial notification calls from three to one. This change would eliminate redundant initial reporting of Category 1 sanitary SSOs to the California Emergency Management Agency (CalEMA), the Regional Water Board and county health agencies (CalEMA notifies these other agencies, anyway).

Several potential issues of concern include:

- Addition of a requirement to update CalEMA with any new information related to spill volume estimates until the spill report is certified in the California Integrated Water Quality System (CIWQS). This requirement may be reasonable in cases of significant changes in volume estimation for large spills, but required reporting of insignificant changes (e.g., a change of 10 to 15 gallons), would increase the burden and liability on both collection system agencies and CalEMA, while unnecessarily diverting resources away from meaningful work.
- Addition of a 90-day time limit on amending SSO reports. This rule would create the potential for enforcement and liability based on information that had been invalidated but was not allowed to be corrected in CIWQS.
- Addition of numerous items to the annual collection system questionnaire. These newly-proposed additions are significantly more limited than those presented in the past, but suggest incremental expansion of the questionnaire.

Draft revisions to the MRP are expected to be released towards the end of June or in July for review and comment.

US EPA Review of Dichlobenil

US EPA is about to start a review of dichlobenil, a root control pesticide that is an ingredient in commonly-used products such as RootX and Sanafoam. There will be an opportunity to provide input on the review process in the near future. The review could provide helpful information for collection systems committee members about the relative toxicity or safety of diclobenil compared to other root control chemical options, and may also affect application requirements.

New Committee Vice Chair Announced

Vince Falzon with the City of Burlingame was announced as the new vice chair of the Collection System Committee.

Upcoming Conferences and Meetings

There are several upcoming collection system-related events, including:

- June 26 (Union City), June 28 (Fresno) – Sanitary Sewer Overflow (SSO) Volume Estimation (hands-on training): www.cwea.org/conferences
- July 20-21 – CWEA State Collection Systems Committee Mid-Summer Meeting in Morro Bay

Next BACWA Collection Systems Committee Meeting

Our next meeting will be held on Thursday, July 12, 2012, from 1:30 – 3:00 PM at the Boy Scouts Facility in San Leandro.

Permits Committee – Report to BACWA Board

Reporting Date: 6/120/12
Executive Board Meeting Date: 6/28/12
Committee Chair: Jim Ervin

Committee Request for Board Action: None.

Adoption of Permits/Permit Amendments –

Jun – Central Marin Sanitation Agency, Shell Martinez Refinery. Bay Keeper is contesting this permit – 2 items.
July – SBSA. Bay Keeper is also contesting this permit.
Aug – Pinole-Hercules WPCP, Sewer Authority Mid-coastside

Water Board Staff issues: Lila Tang, Bill Johnson, and Tong Yin attended the Permits meeting. Lila reported that a new staff member has been added to the enforcement staff. This person may work on SSO enforcement issues that were in abeyance since Gina K left Water Board staff.

PCBs P2 Annual Reports: The PCBs Basin Plan Amendment, issued in March 2011, added "Paragraph 7" to the Mercury Watershed Permit: "PCBs Source Identification and Control". This paragraph requires reporting on PCBs source control efforts in annual P2 reports, but the language is ambiguous. Reporting seems to be required only in areas associated with a stormwater diversion pilot project. Water Board staff, Dylan Garner, summarized agencies P2 PCBs 2011 Annual Report comments. Water Board staff is developing guidance for future PCBs Source Identification requirements. Lila Tang invited Permits Committee representatives to provide suggested PCBs P2 language that could be incorporated in the Watershed Permit reissuance.

Residual Chlorine Meters: NPDES permits allow dischargers to monitor residual chlorine using continuous on-line meters in lieu of taking hourly grab samples. A Chlorine compliance issue came up as a result of a small reading on a continuous on-line chlorine meter. The Water Quality Objective for residual chlorine is "0." However, any analytical method has a detection limit below which a reading is presumed to be zero. Wet chemistry analyses for chlorine provide MDLs ranging from 0.01 to 0.05 mg/l. In practice, no one has performed MDL studies of continuous on-line meters to determine defensible detection limits for these instruments. This is a difficult and potentially fruitless task in the absence of guidance. Attendees were requested to send information describing the brand and model of their continuous chlorine meters to Permits Committee Chair.

Nutrients 13267 Group Sampling Plan: The nutrient 13267 Sampling and Analysis Plan (SAP) was submitted to Water Board by 30 April. Water Board agreed to some modifications to the SAP that were requested by BACWA. A few issues remain:

- Total and Dissolved Orthophosphate. Should dischargers measure one or two fractions of orthophosphate? Orthophosphate is also defined as "soluble reactive phosphorous." Standard Methods requires filtering orthophosphate samples through 0.45 micron filter prior to analysis – so, by this definition orthophosphate is dissolved. There are other methods for determining orthophosphate: All require some degree of filtering to remove turbidity, which is an interference. Which fractions of orthophosphate are relevant in the Bay? Lab Committee and Water Board staff will review this issue
- Orthophosphate filters. Standard Methods allows use of either Glass Fiber or Membrane 0.45 filters for orthophosphate analyses. Anecdotal reports suggest that results can differ depending on filter type. Lab committee will discuss.
- Nutrient 13267 Data Template. San Jose drafted an excel template for reporting data. Permits committee reviewed the latest version. Water Board staff suggested alternative data base reporting: report via CIWQS, report via flat file, or report via SFEI data base. The alternatives increase the difficulty of reporting and using the data for dischargers. The Excel template solution is crude, but flexible and easy to use. It was tentatively agreed that the excel method will be sufficient at least to develop the first 13267 quarterly report in October.

Data collection will begin in July.

Trienniel Review: Water Board staff was on hand to discuss possibility of Basin Plan amendments to address changes to dictated by draft State-wide Toxicity Policy. It was acknowledged that the new draft policy is not yet available, but it will supersede the existing Basin Plan with regards to toxicity testing. A topic that is not addressed and may fall into a gap is how Instream Waste Concentration (IWC) is applied to toxicity testing results. The draft policy simply states that toxicity results will be evaluated using IWC. The SIP and Basin Plan provide some language, but not specific guidance. This will be a topic for further discussion when the new draft policy is released.

Toxicity Policy / Toxicity Workgroup: The third Toxicity Workgroup meeting met at EBMUD in late May. EBMUD, San Jose, SFPUC and Vacaville agency reps described lessons learned from past toxicity investigations. The

workgroup will develop a Generic TRE Workplan template to aid agencies in responding to unexpected toxicity results. Both CCCSD and Fairfield-Suisun volunteered to be the venue for the next meeting.
NPDES E-Rule Webinar Concerning DMR Reporting. This webinar was held on 14 June. The new eSMR 2.5 version will include a filter that screens out incorrect measurement units in reports. Rassam at State Board has noted that a number of Bay Area agencies are submitting eSMR reports with this type of mistake.
Next BACWA Permits Committee Meeting: Tuesday, July 10th, 2012, at EBMUD Plant Library.

Recycled Water Committee Report to BACWA Board

June 28, 2012

Prepared By: Cheryl Muñoz
Committee Chair

Committee Requests for Board Action:

None.

Business Discussed and Action Items:

Business	Discussion
BAIRWMP and Prop 84 Updates	BAIRWMP Updates • Planning Grant o The draft Governance chapter was distributed to BACWA agencies for review. The Committee discussed including clarification of how voting members are selected/appointed, and how Functional Areas reps and regional/subregional reps relate to each other. Comments were due to the Chair on 6/11. o The draft Goals & Objectives section was distributed to BACWA agencies for review. Comments were due to the Chair on 6/13. o A revised project schedule has been distributed to the BACWA agencies. o A Climate Change Technical Advisory Committee (TAC) will be established to help develop the Climate Change chapter. Agencies are encouraged to send recommendations for TAC members to the Chair. o A public Workshop is planned for July. The Date has not yet been determined. • Prop. 84 Implementation Grant o Agencies are encouraged to get authorization from their Boards/Councils to enter into the BACWA local project sponsor agreements as soon as possible. Agreements must be signed by 9/30 per the DWR/BACWA grant agreement.
Legislative/Regulatory Updates	AB 2398 (Water Recycling Act of 2012) Update • At its 6/6 meeting, Mary Grace Pawson, Chair of the WateReuse CA Section's Leg/Reg Committee, discussed the status of the bill with the Committee, as well as concerns with fee provisions that still needed to be resolved in the text. • On 6/7, Assemblyman Hueso and Senator Pavley decided to hold the bill in the Senate Natural Resources Committee so that the Senate Committee staff can convene a stakeholder work group through the fall to develop legislation for re-introduction in the 2013 Session. • The next steps include the WateReuse Association leading the effort to work on a proposed conceptual bill structure and language that reflects the majority of their member's perspectives including input from water/wastewater agencies, environmental community, and others. Recycled Water Policy Update • The SWRCB released draft amendments to the Recycled Water Policy in response to the June 2010 report from the Science Advisory Panel on CECs. • At the 6/6 meeting, Mary Grace Pawson also gave the Committee an

	overview of the detailed comments mostly relating to monitoring, prepared by members of the WateReuse Association's CEC subcommittee. • The WateReuse Association will be sending out a draft comment letter for their members, including the Committee to review. Comments are due by July 3. <u>Title XVI Update- Bay Area Recycled Water Coalition</u> • The authorization bill is stalled in the House. • The Coalition is planning to have topic specific discussions with Congresswoman Grace Napolitano this summer. • The Coalition is currently soliciting new membership.
Projects	<u>Recycled Water Landscape Guide</u> • Draft anticipated in July. <u>CASA Recycled Water Survey</u> • CASA and WateReuse Association are conducting a survey of upcoming recycled water facilities to get a better understanding of funds that will be needed to complete the projects, and subsequently determine the amount of a federal funding request. • BACWA 2011 Recycled Water Survey was forwarded to CASA.
Next RW Committee Meeting	Wednesday, 7/11/12 from 10:00 am to 12:00 pm EBMUD Headquarters, 2nd Floor Small Conference Room. • Updates on AB 2398 and the Recycled Water Policy amendments. • Presentation on Salt/Nutrient Management Plans by the RWQCB • Presentation on UC Davis's pilot recycled water project by engineering students.

Director's Report to the Board

May 23, 2012 – June 22, 2012
Prepared for the June 28, 2012 Executive Board Meeting

STARTUP: Now have access BACWA's electronic files on Box.net cloud storage; working to learn system. Became a registered vendor with EBMUD.

NUTRIENT 13267 LETTER RESPONSE: Worked with Jim Ervin, Permit Committee Chair and RMC to get sampling plans resubmitted based on the agreement. Worked with Karin North to prepare a Nutrient Historic Reporting Template and distributed to agencies; and worked with Jim Ervin and AED to remind agencies to submit Historical data information by June 1.

NUTRIENT STRATEGY COMMENT LETTER: Worked with Dave Senn on status report for work to date. Conversations with D. Senn, RWQCB staff, and BACWA members about strategy, project management, governance, next steps and funding.

RWQCB/BACWA MEETING: Set up meeting for June 18th, prepared annotated agenda, conducted meeting, and worked with AED to prepared detailed notes to document discussion and action items.

ANNUAL PARDEE TECHNICAL SEMINAR: Date tentatively set as September 4th through 6th.

REGULATORY PROGRAM MANAGER: Executed contract with PMC and enlisted their support with the ongoing nutrient 13267 effort, following the TST regulation promulgation, preparation of comment letter on Sacramento Regional's new draft NPDES permit, and BAPPG PCB reporting. A schedule of upcoming comment opportunities will be circulated to the BACWA Executive Board next month.

SACRAMENTO REGIONAL NEW DRAFT NPDES PERMIT: Submitted comment letter on June 15, 2012; thanks to all those who provided input and guidance. Request for BACWA Board guidance regarding participation in July 18th SWRCB Workshop.

DRAFT POLICY FOR TOXICITY ASSESSMENT AND CONTROL: Participated in conference call and working with Permit Committee Chair and BACWA Chair on how to respond.

BAPPG: Following up on flushable flyer and PCB annual reporting.

MEETINGS ATTENDED: Permits Committee, Collection System Committee, Ops Committee (scheduled), RMP Modeling Strategy Group, BAPPG, Nutrient Strategy SAG, RWQCB/BACWA Meeting, RWQCB Meeting.

RECYCLED WATER POLICY AMENDMENT COMMENT LETTER: Committee determined no need to comment on Proposed Amendment to the Recycled Water Policy to Incorporate Monitoring Requirements for Constituents of Emerging Concern.

BIOSOLIDS FACT SHEET: Worked with the Biosolids Committee Chair to revise the draft biosolids fact sheet and explore options for finalizing, producing and distributing to member agencies.

STATE BOARD PROPOSED REVISION TO OPERATOR TRAINING REQUIREMENTS: Working with the Operations and Maintenance Info Share groups to determine whether to submit comments. More information is available on the SWRCB website at the following link http://www.waterboards.ca.gov/water_issues/programs/operator_certification/index.shtml Comments on the revisions must be submitted by July 30,2012, with the Public Hearing to considered the matter on August 8,2012.

CALTRANS MS4 DRAFT PERMIT: Prepared draft comments for Board consideration.

NEXT MONTH

ATTEND SACRAMENTO REGIONAL PERMIT WORKSHOP: Requesting BACWA Executive Board direction on whether to present comments.

SUISUN BAY ISSUES: Follow-up on May 22, 2012 Meeting; support north Bay POTW's.

RWQCB/ BACWA JOINT MEETINGS: Set up RWQCB/BACWA Meeting Schedule for August.

BAPPG: Follow up on flushable flyer and PCB annual reporting.

NPDES PERMIT PETITION DISMISSAL: Consult co-petitioners and add dismissal to July agenda for BACWA Executive Board approval.

ANNUAL TECHNICAL SEMMINAR: Work with BACWA Executive Board to develop agenda.

TST: Review Regulatory Package when released and assess potential to use chronic toxicity test as a surrogate for the acute test based on existing BACWA member data.

TECHNOLOGY RESEARCH & DEVELOPMENT: Follow up with Isle Utilities and the Orange County Sanitary District representative to their Technology Approval Group (TAG). Secure a copy of the May 15, 2012 TAG meeting notes and distributed to the BACWA Board. Consult with Board Members Farrell and Connor for guidance on next steps.

BACWA CHAIR AUTHORIZATION REQUEST

FILE NO.: 12,732

DATE: May 25, 2012

TITLE: Regulatory Program Manager Services

RECOMMENDED ACTION

Executive Board Chair authorization to obtain consultant support from Patricia McGovern Engineers (PME) for Regulatory Program Manager services not to exceed $9,900 to be completed by June 30, 2012.

SUMMARY

On May 24, 2012 the BACWA Executive Board approved a contract with PME for Regulatory Program Manager services to commence on July 1, 2012. Chair authorization to execute this agreement will allow PME to begin working with the Executive Director on issues requiring immediate support.

FISCAL IMPACT

Funds are available for these actions under the CBC Contingency/Other line item of the FY 2011-12 Budget.

ALTERNATIVES

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

Attachments:
12,732 PME RPM 11-12 Scope of Work

Approved By:	Date:
Ben Horenstein, BACWA Executive Board Chair	5/18/2012

EXHIBIT A

SCOPE OF WORK

Regulatory Program Manager Services (not to exceed $9,900)

Consultant will provide Regulatory Program Manager services, with Lorien Fono as Project Lead, under the direction of the BACWA Executive Director or designated BACWA representative to assist with some or all of the following:

- Track and summarize water quality regulations and policies affecting BACWA member agencies;
- Assist/lead the preparation of comment letters on key regulations;
- Coordinate and participate in meetings with regulatory agencies, including the State Water Resources Control Board and the San Francisco Bay Regional Water Quality Control Board;
- Attend and report to the Executive Board on public and industry meetings, including but not limited to Tri-TAC and BACWA Committee Meetings;
- Provide support for designated BACWA committees and workgroups;
- Assist the Executive Director with contract and program management, and with other related tasks as requested

EXHIBIT B

HOURLY RATES/REIMBURSABLE EXPENSES

Tricia McGovern - $140/hr

Lorien Fono - $96/hr

Other Direct Expenses

Travel and Subsistence	At cost
Mileage	$0.555/mile
Subconsultant (as allowed)	Cost + 10%
Other Direct Costs (printing, copying, etc.)	Cost + 10%
Other direct reimbursable expenses as agreed upon by the Executive Director	TBD

BACWA EXECUTIVE DIRECTOR AUTHORIZATION REQUEST

FILE NO.: 12,449

DATE: May 23, 2012

TITLE: As Needed Assistance from EOA for Triennial Review

RECOMMENDED ACTION

Executive Director authorization to utilize as needed agreement with EOA in an amount not to exceed $3,000 for Triennial Review assistance during the period of March 27, 2012 - June 30, 2012.

SUMMARY

This task authorization would approve EOA, Inc. to perform the following work under existing BACWA contract (Contract #12,449):

- Review 2004, 2008 and 2012 Triennial Review Issue documents and related material.
- Attend and provide verbal comments at the 2012 Triennial Review Scoping Meeting.
- Review and provide comments on draft BACWA comments on the Triennial Review issues and associated priorities.
- Review 1994 RWB Wastewater Wetlands Policy and include write-up as a new issue for the Triennial Review.
- Review NNE documents and identify their recommendations regarding needed updates to dissolved oxygen water quality objectives in conjunction with the NNE process as a high priority issue for the 2012 Triennial Review

This work will be carried out under the supervision of the Executive Director or Board appointed representative.

FISCAL IMPACT

This task will be carried out under the current agreement with EOA.

ALTERNATIVES

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

Attachments:
None

Approved By:	Date:
/s/ Jim Kelly, BACWA Executive Director	5/23/2012

BACWA EXECUTIVE DIRECTOR AUTHORIZATION REQUEST

FILE NO.: 12,197

DATE: June 8, 2012

TITLE: Biosolids Fact Sheet Assistance

RECOMMENDED ACTION

Executive Director authorization to utilize As Needed contract with Circle Point to finalize Biosolids Fact Sheet in an amount not to exceed $3,800.

SUMMARY

This current draft Biosolids fact sheet has been developed by the Biosolids Committee and reviewed by the BACWA Executive Director. The As Needed support contract with Circle Point would be utilized to finalize this document. Background information is provided below and a scope of work is attached.

Purpose: This fact sheet has been developed to educate a target audience of POTW Public Information Officers (PIO) and staff about biosolids management.

Distribution: A PDF version of the fact sheet will be available on the BACWA website for agency staff to view, download, and print as needed for internal distribution within their agencies.

Review/Approval: The BACWA Board, Executive Director and Biosolids Chair will review the fact sheet before it is finalized.

FISCAL IMPACT

Funds are available for these actions under the Biosolids Committee line item of the FY 2011-12 Budget.

ALTERNATIVES

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

Attachments:
Scope of Work

Approved By:	Date:
Jim Kelly, BACWA Executive Director	6/8/2012

Circlepoint Budget: Biosolids Fact Sheet

Tasks	Sr. PM	Sr. Associate	Art Director	Graphics	Total Hours	Total Dollars
Rates	$ 180	$ 120	$ 150	$ 70		
Fact Sheet						
Polish the language, tone, layout and graphics	2.00	12.00	4.00	16.00	**34.00**	**$ 3,520.00**
Produce electronic files	-			1.00	**1.00**	**$ 70.00**
Subtotal Fact Sheet	**2.00**	**12.00**	**4.00**	**17.00**	**35.00**	**$ 3,590.00**
Total Labor						**$ 3,590.00**

ODCs	
Fax/phone/messenger/overnight	$ 100.00
Travel	$ -
Postage & Printing	$ -
Stock image purchases	$ 50.00
Subtotal ODCs	**$ 150.00**
10% Mark-Up on ODCs	$ 15.00
Total ODCs	**$ 165.00**
TOTAL	**$ 3,755.00**

Assumptions

Includes two rounds of client review.

Assumes one kick-off conference call.

BACWA EXECUTIVE DIRECTOR AUTHORIZATION REQUEST

FILE NO.: 12,449

DATE: June 22, 2012

TITLE: Amendment 1 No Cost Extension to Agreement with Jen Jackson for BAPPG Outreach Support

RECOMMENDED ACTION

Executive Director authorization amend agreement with Jen Jackson for BAPPG Outreach Support to extend the contract termination date to December 30, 2012.

SUMMARY

This amendment will extend the original contract termination date of June 30, 2012 to December 30, 2012 allowing Jen Jackson to complete BAPPG Outreach Support projects initiated during fiscal year 2011-12.

FISCAL IMPACT

None.

ALTERNATIVES

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

Attachments:
None

Approved By:	Date:
/s/ Jim Kelly, BACWA Executive Director	6/22/2012

CHAIR / EXECUTIVE DIRECTOR AUTHORIZATION REQUEST

AGENDA NO.: 9e

FILE NO.: 12,740 – 12,743

MEETING DATE: June 28, 2012

TITLE: Chair / Executive Director Approval of Contracts to Implement FY 2012-13 BACWA and Special Programs Budgets and Workplans.

☒ **MOTION**_____ ☐ **RESOLUTION**_____

RECOMMENDED ACTION

Authorize the approval of four contracts to implement the Fiscal Year 2012 – 2013 BACWA and Special Programs Budgets and Workplans.

SUMMARY

The BACWA fiscal year (FY) begins July 1, 2012. In order to not experience a gap in core services, BACWA typically executes contracts for the coming FY in May and June. The four contracts summarized below will ensure that, as of July 1, BACWA has legal (Downey Brand, Day Carter Murphy), website (Adammer) and database management (Paul Causey) assistance. All of these contracts were included in FY 2012 - 2013 workplans and budgets, become effective July 1, 2012, and terminate June 30, 2013.

Contractor	Services	FY 2012 Budget	Contract Amount	Remain. Unoblig.	File Number
Downey Brand	As Needed Regulatory Legal Support	$2,000	$2,000	$0	12,740
Day Carter Murphy	As Needed Executive Board Legal Support	$2,000	$2,000	$0	12,741
Adammer	As Needed Website Support	$10,720	$3,000	$7,720	12,742
Paul Causey	Sewer Rate Database Assistance	$6,000	$6,000	$0	12,743

FISCAL IMPACT

The BACWA and Special Programs budgets currently have funds to support all of these contracts. The funding for these contracts is consistent with the approved Fiscal Year 2012-2013 budget.

ALTERNATIVES

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

Attachments:

1. Downey Brand Scope of Work and Rates
2. Day Carter Murphy Scope of Work and Rates
3. Adammer Rates
4. Paul Causey Scope of Work and Rates

EXHIBIT A

SCOPE OF WORK

Professional Services by **Downey Brand LLP**
Fiscal Year 2012-13

Downey Brand 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 $2,000.**

EXHIBIT B

Downey Brand LLP

2012/13 Hourly Rates

Melissa Thorme	$350 (discounted from standard rate of $400)
Nicole Granquist	$340 (discounted from standard rate of $370)
Associates	$230-305 (depending on associate's years of experience)
Paralegal Assistance	$175

Other Fees and Expenses

Transportation, lodging and meals (for approved travel) – actual cost per receipt
Parking, Tolls - actual cost per receipt
Mileage: $0.55/mile, or current IRS mileage allowance
Regular black and white copies - $.10 per page
Color copies are $.20 per page
Postage/Overnight Mail Service – actual cost
Faxes - $0.10 per page, plus any applicable long distance telephone charges
Long distance telephone calls only – All domestic long distance calls $0.05 per minute and international calls $0.99 the first minute and $.15 every additional minute.
Duplications to CD: $5.00 per CD
Duplications to DVD: $5.00 per DVD
Filing fees – actual cost per receipt
Courier: $7.50 per downtown delivery and $15.00 or actual cost for outside of local area

EXHIBIT A

SCOPE OF WORK

Professional Services by **Day Carter & Murphy LLP**
Fiscal Year 2012-13

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 $2,000.**

EXHIBIT B

HOURLY RATES/REIMBURSABLE EXPENSES
Day Carter Murphy FY 2012-13

James M. Day Jr.	$340.00 per hour
Ralph R. Nevis	$320.00 per hour
Joshua L. Baker	$300.00 per hour

Adammer LLC – 21701 Stevens Creek Blvd. – Suite 603 – Cupertino, CA 95015-0603
info@adammer.com - p: 1.866.200.3131 - f: 1.408.705.2045

Rate Sheet

June 11, 2012

Hourly Labor Rate:
Hourly rates do not include software licensing fees or costs for outside services including but not limited to application service providers or website hosting.

Consulting Services	
General Information Technology Consulting Services	$150
Discussion / Review Software Solutions	$150
Auditing / Review of Code / Software Solutions	$150
Design Services	
Graphic Design / Illustration / Photography	$125
Development / Engineering Services	
Database Development / Administration	$125
ASP.NET (VB, C#) Development	$125
PHP Development	$125
Java / Ruby On Rails Development	$150
DotNetNuke / Wordpress	
Installation / Configuration	$125
Module Development (.NET C#)	$150
Plugin Development (PHP)	$150
Custom Skin Development	$125
Custom Theme Development	$125
Support Services	
Onsite DotNetNuke / Wordpress Training / Support	$150
VPN / Web Based DNN / Wordpress Training / Support	$125
Surcharges	
After-hours (before 8am, after 6pm)	+$60/hr.
Travel	Job Specific

EXHIBIT A

SCOPE OF WORK

All services identified in Exhibit A, Scope of Work shall be compensated on a time and materials basis at $75.00 per hour, **not to exceed $6,000**.

A. Task 1 – Bay Area Sewer Service Charge Database Management & Administration

Consultant shall be responsible for updating and managing the Database and for distributing the Survey. On a monthly basis, the Consultant shall (a) electronically contact participating agencies to request updated information about their sewer service fees; (b) update the database using the information provided; and (c) electronically circulate the database to participating agencies. Consultant shall also update and manage the mailing lists and contact information for participating agencies. Consultant shall annually review the "last verified date" column and confirm that the information in the Database is still accurate for agencies that have not submitted information within the past year.

Consultant shall not be required to complete, update or expand information or confirm appropriateness of the data in the Database other than as requested and/or provided by the individual agency. Consultant shall not provide or release Database information to anyone other than participating agencies except as authorized and/or approved in advance by the BACWA Executive Director. Any changes to the existing Survey other than the updating of the information therein shall only be undertaken upon advance written agreement between the Parties.

B. Task 2 – Sewer Fee Documentation Database

Consultant shall create and maintain a database of documentation related to agencies' sewer fees. On an at least an annual basis, Consultant shall request that participating agencies also submit the following documents: Proposition 218 notices, rate setting resolutions, and underlying service charge and capacity fee ordinances. Consultant may request these documents electronically and concurrent with requesting information about agencies' sanitary sewer fees.

Consultant will create and maintain an index of available documents and will provide BACWA with electronic copies of all documents submitted by the agencies, organized according to the index. Consultant will coordinate with BACWA to develop a database of the electronic versions of these documents, but BACWA will be responsible for electronic storage of these documents and for distribution to participating agencies as requested.

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 10

FILE NO.: 12,490

MEETING DATE: June 28, 2012

TITLE: Day, Carter, Murphy Amendment 2

☒ **MOTION** ☐ **RESOLUTION** ☐ **DISCUSSION**

ACTION UNDER CONSIDERATION

Approve second amendment to an existing agreement with Day, Carter, Murphy to enable continued legal support in negotiating Proposition 84 agreements and approvals with the California Department of Water Resources (DWR) and Local Projects Sponsors (LPS), for the period April 1, 2012 through December 30, 2012.

SUMMARY

DCM was BACWA's legal counsel in the negotiations with DWR and LPSs regarding the Proposition 50 grant currently administered by BACWA. Based on this experience and the recognition that similar legal issues would arise in the Proposition 84 negotiations, BACWA retained DCM to assist with the Proposition 84 negotiations.

In 2011, BACWA entered into a contract with DCM for a total of $30,000 for Proposition 84 assistance. The total budget for Proposition 84 legal services was expected to be approximately $50,000, but the initial contract value of $30,000 was limited by the amount of funding provided by the LPSs at the time of the contract. This limitation is because one of the conditions imposed by BACWA in agreeing to be the Proposition 50 and 84 grant administrator is that the agency not incur costs for which funding has not been provided. On March 22nd, 2012 the BACWA Executive Board approved Amendment 1 to the original agreement to increase the contract value to $50,000 to be funded by additional funds that had been collected from the Local Project Sponsors. Amendment 1 allowed for continued support from Day, Cater, Murphy to resolve liability, indemnification and administrative issues outstanding between BACWA, DWR and the LPSs.

Amendment 2 will increase the contract by $5,000 for a new not to exceed total amount of $55,000 and extend the contract termination date to December 30, 2012 to ensure that Day, Carter, Murphy can continue to provide Proposition 84 legal assistance. At this time, sufficient funds have been collected from program participants to support this new contract total.

FISCAL IMPACT

Funding for this contract is available in the Proposition 84 account, which is funded by the grant participants. After the Prop 84 grant agreement with DWR is executed and invoicing begins, these legal costs are expected to be eligible for reimbursement.

ALTERNATIVES

No other alternatives were considered.

ATTACHMENT

1. DCM Amendment 2

AMENDMENT NO. 2
TO
AGREEMENT BETWEEN
BAY AREA CLEAN WATER AGENCIES
AND
Day, Carter, Murphy
FOR
Prop 84 Legal Support

This Amendment No. 2 is made this 28th day of June, 2012, in the City of Oakland, County of Alameda, State of California, to that certain agreement File 12,490 of August 1st, 2011 and Amendment 1 of March 22nd, 2012 both by and between Day, Carter, Murphy and Bay Area Clean Water Agencies, (BACWA) (the "Agreement") in consideration of the covenants hereinafter set forth.

1. BACWA and Day, Carter, Murphy agree to increase the amended contract amount of $50,000 by $5,000, to be funded by the Prop 84 Admin Expense budget line item fiscal years 2011-13 for a new not to exceed agreement total of $55,000.

2. BACWA and Day, Carter, Murphy agree to extend the contract termination date to December 30, 2012.

3. Except as herein expressly modified, the Agreement and Amendment 1 remain in full force and effect.

BAY AREA CLEAN WATER AGENCIES

By _____ Dated _____
Ben Horenstein, Chair Executive Board

DAY, CARTER, MURPHY

By _____ Dated _____

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 11

FILE NO.: NA

MEETING DATE: June 28, 2012

TITLE: Nutrient Strategy Development

☐ **MOTION** ☐ **RESOLUTION** ☒ **DISCUSSION**

ACTION UNDER CONSIDERATION

Review and discuss current status of Nutrients Strategy Development. Determine next steps and/or if there is a need to schedule a special meeting to continue discussion.

SUMMARY

In February 2012 the BACWA Executive Board approved a contract with SFEI for David Senn's assistance with development of a San Francisco Bay Nutrient Strategy in an amount not to exceed $350,000 through June 30, 2013. Attached is a quarterly update of this project covering the period of February 17 – June 22, 2012. Notable items with in the report include:

- David Senn is requesting feedback from the San Francisco Regional Water Quality Control Board staff (RWQCB) and the BACWA Executive Board on sequencing of projects/tasks;
- David indicates that there is a need for commitment of funds that must be made soon, if he is to stay on schedule;
- Specific items are not yet funded and will need to be funded for next year and beyond.
- Appendix 1 – Scope of Work for BACWA/SFEI agreement for David Senn Nutrient Strategy Development support
- Appendix 2 – Proposal for RMP Special Study #7, CFWG Modeling

On June 22, 2012 the Stakeholder Advisory Group (SAG) held its second meeting. The agenda and supporting materials are attached, including a list of project priorities for 2013 and funding sources. The work elements noted in this sheet are from the Nutrient Strategy, not BACWA's scope with SFEI

The Board is asked to review the materials, discuss and determine next steps, including if a special meeting should be scheduled to allow more time for thorough discussion.

FISCAL IMPACT

There is no fiscal impact at this time, though Board determination of additional funding will likely be necessary in the future.

ALTERNATIVES

This action does not require consideration of any alternatives.

Attachments:

1. SFEI Quarterly Progress Report on San Francisco Bay Nutrient Strategy Support, February 17 – June 22, 2012
2. San Francisco Bay Stakeholder Advisory Group (SAG) SF Bay Nutrient Program Meeting Agenda and Handouts, June 22, 2012
3. RMP Proposal - Nutrient Studies: Moored Sensor Monitoring Program Development, Algal Biotoxin Monitoring, Stormwater Nutrient Measurements, and Load Quantification
4. SAG Presentation from David Senn / Naomi Feger, June 22, 2012

Introduction

This document presents an update of the current status of Subtasks from SFEI's February 9 2012 Scope of Work with BACWA, "San Francicso Bay Nutrient Strategy Support" (see Appendix 1).

Reporting Period: February 17- June 22 2012

Updates are organized under each of the Subtasks in the February 9th scope.

Task 2: Coordination of Nutrient Strategy Development and Implementation

Subtask 2.1 - Form a Stakeholder Advisory Group and facilitate the review of strategy and other strategy-related work

Stakeholder Advisory Group Meetings

The Stakeholder Advisory Group (SAG) from the NNE process was reconvened and an initial meeting was held on March 29. The main goals of the meeting were to update the SAG on recent developments on nutrient projects and the nutrient strategy, and discuss the SAG's potential role as nutrient work continues in the Bay. In addition, initial input was solicited on SAG process, decision-making, and governance, including whether or not meeting facilitation was needed, and whether or not an assessment should be carried to identify potential approaches for decision-making and governance that match the needs for the San Francisco Bay nutrient process.

A second SAG meeting was held on June 22 2012. The June 22 meeting focused primarily on science priorities and potential projects for 2013.

Presentations and meeting materials from both meetings are available electronically and posted on the NNE website.

Assessment for Decision-Making and Governance, and Meeting Facilitation

D Senn worked closely with A Chastain in Jan-Mar 2012 to explore options for establishing a decision-making and governance structure for the nutrient strategy process. Multiple meetings were held with BACWA and RB2 staff to discuss this issue, along with initial discussions with consultants on potential approaches. Those efforts in laying the groundwork appear to be gaining traction in that multiple parties now seem to see benefits in developing some degree of structure for the process, and there seems to be growing support for the idea of having some sort of assessment to help identify the best path forward.

At the March 28 meeting, the SAG supported the idea that Regional Board staff should move ahead with considering options for performing an assessment of decision-making and governance needs, and identifying models that have been successfully employed in other similarly complex situations. As part of this effort, Region 2 Board staff set up an informal web-based survey to solicit feedback on specific questions, and invited SAG participants to respond. The survey included questions related to roles of the SAG, need for meeting facilitation, and issues or decisions for which a formal decision-making structure would be necessary. That survey wrapped up on June 18, and the results were presented briefly at the June 22 SAG. Survey participants expressed support for an external assessment, and identified a few areas that would benefit from formal decision-making structure (identifying work and funding priorities).

Within the SAG there was no consensus on the need for meeting facilitation at this point. Participants felt the meetings were running reasonably well. In the informal web-survey, 100% of the 15 respondents said they thought a State Board facilitator could serve as a neutral facilitator should the need arise.

External Review
Once a "final" Nutrient Strategy has been agreed upon by the community (goal = December 2012), it would be important to shortly thereafter convene an external expert advisory panel. The exact approach to establishing and implementing this external review process (deciding who will sit on the panel, what their charge will be, how their input will be used) still needs to be determined, and will likely be an important component of the governance/process discussion and any written agreements (e.g., MOU) that are developed.

In terms of schedule, assembling this group in the first quarter of 2013 seems both feasible and timely. Formal planning for assembling this group would commence in September/October 2012, assuming the necessary progress has been made around developing the organizational structure.

Status of Subtask 2.1
Subtask 2.1 is proceeding on schedule. The next stakeholder meeting will be held in September 2012, with another likely in November 2012.

Subtask 2.2 Produce a Nutrient Strategy

A draft Nutrient Strategy was developed in February-March 2012, based on a version that was under construction in September 2011. The strategy was developed by SFEI, Region 2 Board staff, and SCCWRP, and benefitted from feedback received from the RMP ad hoc Nutrient Workgroup on the September 2011 version.

The March 2012 draft was circulated to stakeholders prior to the March 29 SAG meeting, and the strategy itself was a major focus of the discussion on March 29. Stakeholders were asked to provide comments by May 2012, and four sets of

comments were received. Comments have been posted on the RB2 NNE website (http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/amendments/estuarynne.shtml)

The comments were summarized and presented at the June 22 SAG meeting. The written comments and additional feedback received during the June 22 SAG meeting will be incorporated into a revised version in July 2012. So far a draft funding strategy has not been developed, but the issue of a funding strategy was raised in the comments. If a funding strategy is identified as a high priority it can be developed in August/September 2012 and included in the revised draft that will be distributed to stakeholders by end of September 2012. A stakeholder meeting will be held in September to discuss the revised strategy and any progress made on governance structure.

Status of Subtask 2.2
Subtask 2.2 is proceeding on schedule. A revised draft nutrient strategy will be circulated to stakeholders in September 2012, and will be open to comments for 1 month. The strategy will then be revised based on stakeholder input and "final" strategy will be made available in November 2012.

Subtask 2.3 Stakeholder Outreach and Coordination

D Senn met regularly with BACWA members and staff (in particular J Kelly and M Connor, and formerly Amy Chastain) to coordinate and discuss on-going work. D Senn also maintained regular contact with Region 2 Board staff to discuss nutrient issues and planning.

In reporting, coordination, and outreach capacities, DS participated in relevant meetings or provided feedback, including:

- Region 5 Delta/Suisun nutrient planning meeting (February 2012)
- meeting with CCCSD and Water Contractors related to permit language (February 2012)
- meetings with CCCSD and HDR to discuss scope (February 2012)
- IEP annual workshop
- 3 Suisun/SWAMP study planning meetings
- presenting at BACWA Annual Meeting (January 2012)
- SFCWA-sponsored research presentations by Pat Glibert (April 2012)
- Multiple meetings with stakeholders and various modeling consultants (RMA-Ed Gross, Dynamic Solutions, HDR-Hydroqual – March-June 2012)
- Joint BACWA/RB2 meeting - April 16
- BACWA Executive Board meeting – May 3
- BACWA Suisun dischargers meeting – May 22
- Suisun copepod study design meeting (June 2012)
- SFCWA- sponsored Nutrient Workshop meetings (May 25 , June 12)
- Comments on CCCSD modeling plans
- Peer-review of nutrient-related proposals received by SFCWA (May 2012)

- Meetings with scientists from SFSU-RTC, USGS, UC-Berkeley, UC-Davis, and UC-Santa Cruz.

Identifying high-priority science needs for 2013 was a major activity in May-June 2012. A summary of 20 potential priority projects was prepared for the June 22 SAG, with 11 discussed in depth.

A beta version of the Nutrient Website is now posted.
http://bayareanutrients.aquaticscience.org/
The website link is being circulated to partners/stakeholders for input. Updates to the website, including literature and documents, will be made on a regular basis. Any major adjustments to the website structure will be made, if necessary, after input has been solicited from a range of potential users, in particular BACWA member agencies and Region 2 Board staff.

Status of Subtask 2.3
Subtask 2.3 is overall proceeding well. The website development experienced ~1 month delay, due to family leave for SFEI's web programmer, and the hiring timeline for the new staff person who was planned in the original scope to develop the website (new staff person started on June 1). The draft website is now complete.

Task 3: Numeric models and budgets: Suisun Bay and South Bay

In February/March, SFEI and BACWA verbally agreed that money allocated to Task 3 would not be spent until further agreement was reached on the desired direction. Although there has been substantial planning over the past few months that is directly relevant to Task 3 (described below), that effort has not been billed to this task.

If agreement can be reached on the direction forward Task 3, work could commence on certain aspects of Task 3 in Fall 2012 or January 2013. The funding provisionally allocated by BACWA in calendar year 2012 for Task 3 represents ~25% of the originally estimated budget, with the project originally proposed as a 2 year project, running until July 2014.

The plan was to focus nutrient modeling efforts on Suisun Bay and South Bay. If work on model development begins in January 2013 (hydrodynamics, biogeochemistry), the overall timing of this work remains consistent with it contributing to CCCSD's permit requirement for September 2014.

The current recommended approach for Task 3 is to follow a model development plan in cooperation with RMP modeling efforts, as described below. Following such an approach would allow funding to be leveraged across efforts. Some of the BACWA modeling funds provisionally allocated for 2012 could be spent in the second half of 2012 directed toward this approach, or could be reserved for the 2013 calendar year.

Subtask 3.1 Develop a modeling study plan

A number of meetings/discussions have been held related to Subtask 3.1, along with considerable planning. Planning effort has been directed toward identifying a path forward that successfully addresses the needs of a nutrient-related modeling program and an RMP modeling program (nutrients plus other contaminants). Those meetings resulted in the development of the attached modeling strategy proposal that is being submitted to the RMP for funding (Appendix 2). (Note that while the efforts are highly complementary, no time was billed to BACWA for this work.)

The RMP allocated $100k to contaminant modeling in 2012, and an additional $100k has been provisionally allocated for modeling in 2013. The goal has been to develop a coordinated modeling program that allows funding resources from both the RMP and nutrient strategy work to go toward building a single model platform (hydrodynamics and sediment transport, with biogeochemical/contaminant fate/transport modules layered on top) that meets both sets of objectives. CCCSD is also undertaking modeling to address permit requirements. As discussed in recent meetings with CCCSD and BACWA, it would be ideal for the hydrodynamic path taken by CCCSD to be compatible with subsequent water quality modeling in Suisun Bay, and with nutrient-strategy-related hydrodynamic and biogeochemical modeling effort elsewhere in the Bay, although it is recognized that timing constraints may make this difficulty.

A strawman modeling plan was developed in April 2012, and a meeting to discuss this with RMP stakeholders, including BACWA representatives (J Kelly, M Connor), was held on May 1. During this meeting there was general consensus reached that there may be considerable advantages to pursuing the development of a model using DELFT-3D, because

- DELFT-3D is already being used successfully Bay-wide by USGS for hydrodynamic and sediment transport modeling (and there may be the potential for collaboration with USGS),
- DELFT-3D is an industry standard with a large user community
- DELFT-3D is already coupled to one of the best nutrient/water quality models available (although the water quality model would still need to be developed specifically for SF Bay).

A follow-up meeting was held on June 4. The plan for the June 4 meeting was to bring a few experts to the table to allow exploration of technical questions in more detail. Jim Fitzpatrick (HDR-Hydroqual, water quality modeler) and Ed Gross (RMA, hydrodynamics) attended the meeting.

In addition, at the May 7-8 2012 conceptual model meeting (RMP funded project), several regional scientists made the case that developing biogeochemical models was an important and necessary next step that would allow for quantitative nutrient budgets; quantitative assessment of the relative importance of major controls on phytoplankton biomass (light limitation, mixing, grazing, exchange between shoals

and channel, NH4 inhibition); uncertainty analysis and identification of important data gaps; and initial scenario analysis. They also recommended that the effort start with a "simple" model and gradually add complexity.

The modeling plan submitted to the RMP (Appendix 2) describes an approach that meets the goals of Subtask 3.1. The modeling group convened on April 7 and May 1, and the conceptual model technical team that met in parallel, are not meant to substitute for the technical team described in Subtask 3.1. Instead, those should be considered first steps toward creating a modeling technical team.

Status of Subtask 3.1
The original scope proposed that a study plan would be completed by June 2012. However, recognizing the lack of agreement about how to proceed with this task, it has been clear for some time that a June 2012 deadline for a detailed study plan was not feasible.

The RMP modeling plan lays out a process for model development that has the potential to maximize available resources, and assemble a technical team that would provide critical input both during the study design and throughout model development and application. If the approach and schedule in that proposal are followed, a modeling plan will be developed by December 2012, which is 6 months later than originally proposed.

Subtask 3.2 Compile existing data

Status of Subtask 3.2
Effort on this task is underway, ~10% complete, although this effort has not been billed to Task 3.2. So far the data gathering and data analysis has been focused on parameters and questions that overlap with data needs in Task 4. Since Subtask 3.2 was originally proposed to start in July 2013, it remains on schedule, and once there is agreement on how to proceed in general with Task 3, this work can proceed rapidly to coincide with delivering an electronic database prior to the start of modeling efforts.

Subtask 3.3 Develop and validate basic numeric models

Task 3.3 was slated to start in July 2012. This start date will not be met.

A major component of Task 3.3, namely the underlying hydrodynamic model, could still get underway in Fall 2012, although early 2013 seems more likely if it moves forward as part of a joint approach with the RMP. If the modeling approach proposed to the RMP is approved by RMP and BACWA, a portion of RMP 2012 modeling funds could contribute to calibrating/validating the underlying hydrodynamic model, while BACWA 2012 funds for Task 3 could contribute to initial biogeochemical model development in parallel. RMP 2013 modeling funds

and BACWA 2013 modeling funds could be used to continue model calibration/validation and application.

If model development gets underway in Fall 2012, or even January 2013, chapters on model development and validation for a June 2014 technical report on Suisun Bay remain feasible.

Subtask 3.4 Use of numeric models to test scenarios

See description above under Task 3.3. The RMP-funded conceptual model project is on schedule and a list of scenarios will be available before March 2013. If model development gets underway by Fall 2012 or January 2013, it remains possible to do some scenario analysis before June 2014, and thus contribute to the CCCSD September 1 2014 study report. However, future scenarios may not be considered the highest priority for June 2014. Instead it may be that effort is better focused on evaluating the relative importance of potential key factors influencing primary productivity (clams, light attenuation, flushing, ammonium inhibition), and the fate of NH4 loads to Suisun Bay (e.g., nitrification, uptake by phytoplankton).

Subtask 3.5 Draft and final technical reports

If model development gets underway by Fall 2012 or January 2013, the June 2014 technical report for Suisun Bay remains feasible.

Task 4: Synthesis of Science Supporting Management Decisions in Suisun Bay

Subtask 4.1 Synthesis Report and Study Plan

Subtask 4.2 Report on Assessment of Potential Effects on Diatoms and Copepods from Elevated Ammonium

Subtasks 4.1 and 4.2 directly address issues relevant to CCCSD permit requirements. As noted in the SFEI's January 2012 proposal to BACWA and the Regional Board, the RMP-funded conceptual model work will address, to some degree, the issue of NH4's potential inhibition of primary production. However, addressing the issue in full detail within the context of the conceptual model project is beyond its scope. Thus, much of the detailed analysis of NH4-related issues in Suisun will be addressed here.

While work has begun on Task 4.1-4.2, the final scope of the project is still under development. The dividing line between Task 4.1 and 4.2 and their deliverables still needs to be clarified, although the division will likely be based on a combination of the level of depth required and the availability of data (i.e., studies that are not published before September 2012). SFEI is looking forward to discussions with BACWA and the Regional Board to clarify the direction of the deliverables. Deliverables 4.1.2 and 4.2.2 will include data analysis and synthesis related to the following components:

1. Seasonal and interannual variations or trends in various water quality parameters (nutrients, chl-a, salinity, etc.) at long-term monitoring stations in Suisun Bay.
2. Seasonal and temporal variations in water quality parameters at stations sampled with higher spatial and temporal resolution (RTC stations: 1999-2003, 2010, 2011, 2012).
3. Synthesis of studies on NH4 inhibition of primary production by RTC in Suisun Bay, and review of literature in other systems where effects of NH4 have been explored.
    a. Suisun Bay studies published before September 2012
    b. Suisun Bay studies published after September 2012
4. Synthesis of literature on phytoplankton cell physiology related to processes/factors regulating uptake of various forms of N and influence on primary production rates
5. Synthesis of literature on phytoplankton ecology in Suisun Bay, including dominant species
    a. if additional data exists, e.g., from IEP/DWR monitoring stations, that is not yet well-described in the literature, a section that evaluates and synthesizes this data could be included. However, it may be a substantial undertaking.
6. Synthesis of literature on zooplankton ecology in Suisun Bay, including life history of major species and community composition.
7. Overview of NH4 toxicity studies on zooplankton to date (in Suisun, and lit review of other systems), and the recent EPA NH4/NH3 toxicity recommendations for freshwater systems (EPA 2009)
8. Analysis of spatial and temporal variability in ambient NH4 concentrations in Suisun Bay relative to various thresholds (e.g., inhibition of primary production, levels that have been suggested to exert toxicity on copepods)
9. Recommendations for future studies

While Task 4.1 will be completed in 2012 and is funded, most of Task 4.2 is expected to be carried out in 2013 and is not currently funded.

Work on Task 4.1 has begun with gathering of data and initial data analysis of chl-a, NH4, NO3, N:P, etc. at USGS and DWR stations within Suisun Bay.

With respect to NH4, phytoplankton, and primary productivity, work on Task 4.1 will focus on reviewing the studies from SFSU-RTC to summarize the current state of science from the ecological-scale/experimental perspective specifically in Suisun Bay and elsewhere in the Estuary. An initial synthesis will focus on studies that are already published or soon-to-be-published (e.g., Wilkerson et al., 2006; Dugdale et al., 2007; Parker et al., 2012; Dugdale et al., submitted). Additional review and synthesis of studies will be required under Task 4.2 when new data becomes available. The SWAMP 2012 field campaign has not yet been published, it is unlikely that 2012 data will be available for discussion and review until Fall 2012 or early

2013. In addition, data from the Glibert et al studies of enclosure manipulations (form of N, N:P, light levels), presented at the SFCWA-sponsored seminar in April 2012 are not yet available and will be important to review. Observations of NH4 inhibition or NH4 preference in other ecosystems (e.g., open ocean; Delaware River; Hong Kong Harbor) will be reviewed and compared/contrasted with San Francisco Bay. In addition, comparisons within SF Bay need to be explored. For example, is the phenomenon of NH4 inhibition of primary production observed elsewhere in the Bay? This would involve analyzing monitoring data within Suisun, other Bay segments, and the Delta. Some of this work has been started, but needs to receive additional focus in Summer 2012. Meetings will be held with regional scientists familiar with the datasets to identify statistical tests or approaches to data analysis that can be used to explore this systematically and fully utilize the available data. Initial analyses will be included within Task 4.1, but more sophisticated statistical analyses will be identified for future study, or reserved for Task 4.2.

A section reviewing phytoplankton cell physiology will be included. This section will focus on factors that regulate N uptake rates, or ability of phytoplankton to utilize various forms of N (NH4, NO3, urea, DON, etc.). An initial literature review on this topic could be carried out within Task 4.1 to identify main issues, but a more in-depth review may be carried as part of Task 4.2 if warranted. These reviews will synthesize key growth experiment studies and molecular-level studies, and will also include an intercomparison between phytoplankton groups in terms of N preferences. Although a few studies in Suisun Bay and the Delta argue that the presence of NH4 at elevated levels decreases the rate of NO3 uptake, it remains uncertain whether or not this slower rate of NO3 uptake ultimately translates into decreased rates of primary production. Studies being carried out by Glibert et al., but that have not yet been published, are highly relevant here, as are the current studies being carried out by Parker et al on phytoplankton community composition and HABs in the Delta. These results will likely need to be synthesized in Task 4.2.

Ultimately, to fully address the current lack of scientific agreement on the NH4 inhibition issue within San Francisco Bay, a technical expert workshop focused exclusively on the this topic may be needed (e.g., 2-day meeting). Such a forum could be designed to bring together key players in this field (regional and national experts, 5-10 people) and focus their attention on experimental and field results and interpretations. That group could also identify fundamental disagreements, and propose scientific investigations that would help resolve those disagreements. Given the requests already being made of regional scientists (e.g., conceptual model work, assessment framework), it is unlikely that such a meeting could be held before September 2012. In addition, such a meeting may be best held after more of the 2011-2012 data is available. In that case the first half of 2013 could be good timing.

Zooplankton: Zooplankton are a critical linkage in the food web between phytoplankton and important fish species in Suisun Bay and the Delta. There is considerable data and some synthesis papers (e.g., Winder and Jassby, 2011) related

to macrozooplankton ecology, community composition, and abundance in the Delta and Suisun Bay. Zooplankton composition and abundance have undergone dramatic changes over the past several decades, with several studies suggesting that this change is due to a combination of factors, including invasive species, changes in flow regime, and selective grazing by benthic clams. Other studies have suggested potential roles for increased NH4 and altered nutrient ratios in the changes within zooplankton communities (Glibert et al. 2011).

Task 4.1 and 4.2 will review and synthesize Suisun zooplankton studies, including current state of knowledge on their life history, and factors that influence zooplankton abundance and have shaped community composition.

The syntheses in Tasks 4.1 and 4.2 will also review the issues raised around NH4 toxicity to copepods. Depending on the timing of proposed new copepod studies, it may be desirable to complete the zooplankton ecology and NH4 toxicity syntheses in Summer 2012 to allow experimental design to proceed.

An exploration of how NH4 concentrations vary within Suisun Bay relative to various threshold concentrations (zooplankton, phytoplankton) will be presented within Task 4.1 or 4.2.

Status of Subtask 4.1 and 4.2

Work on Task 4.1 will continue over summer, and the draft deliverable 4.1.2, due in September, is expected to be on schedule. Data analysis for Suisun Bay water quality data is ~20% complete and will be written up. Other sections are currently being scoped in more detail, and will be completed in July and August.

As noted above, some clarification is sought from BACWA and the Regional Board as to the best way to divide the components between Task 4.1 and 4.2. It may be that some components of Deliverable 4.1.2 are completed after September 2012, depending on priorities that are set.

Subtask 4.3 Suisun Bay Modeling

As noted in the Scope description, Task 4.3 was not funded within this Scope and was included as a placeholder, recognizing that some form of modeling was likely needed under CCCSD's permit requirements.

When Task 3 was originally developed, it was not planned to address CCCSD permit requirements in Suisun, but was rather included as part of the broader nutrient strategy (to quantitatively synthesize data, develop nutrient budgets, and explore the relative importance of processes relevant to nutrient cycling and phytoplankton dynamics to prioritize next steps in data gathering, monitoring program development, and initial scenario analysis).

The proposed work by RMA to model CCCSD's effluent plume clearly falls under Task 4.3. In addition, depending on the approach followed, Task 3 could very well form the basis for the final Suisun Bay Model due in February 2014, in particular if the approach outlined in the RMP modeling plan is followed (Appendix 2), or if Task 3 can be combined with the RMA modeling work in Suisun Bay.

In order to assess the relative contributions of CCCSD and other Suisun dischargers to the ambient NH4 concentrations in Suisun Bay as a function of space/time, a biogeochemical model of some form will likely be needed. This seems particularly likely based on summertime NH4 mass budget calculations for Suisun, which indicate that NH4 exhibits highly non-conservative behavior (>80% lost from the system by processes other than flushing).

San Francisco Bay Nutrient Strategy Support: Scope of Work

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February 9, 2012

Proposed Scope of Work

Within the framework of the San Francisco Regional Water Quality Control Board (SFBRWQCB) and the Bay Area Clean Water Agencies' (BACWA) cooperative effort on nutrients in San Francisco Bay, this Scope of Work will support on-going nutrient strategy development, and begin work on two sets of high priority projects. The SOW consists of 4 tasks:

Task 1: Project Administration and Reporting

Task 2: Coordination of Nutrient Strategy Development and Implementation

Task 3: Numeric Models and Budgets: Suisun Bay and South Bay

Task 4: Synthesis of Science Supporting Management Decisions in Suisun Bay.

This work will be carried out by San Francisco Estuary Institute (SFEI) in collaboration with Southern California Coastal Waters Research Project (SCCWRP), and in cooperation with SFRWQCB, BACWA, other regional stakeholders, and regional scientists.

1. Tasks and Deliverables

Task 1. Project Administration and Reporting

Subtask 1.1 Project Administration
SFEI will provide all technical and administrative services as needed for Agreement completion; monitor, supervise and review all work performed; and coordinate budgeting and scheduling to assure that the Agreement is completed within budget, and on schedule.

Subtask 1.2 Project Reporting
SFEI will invoice monthly and submit monthly brief progress reports. SFEI will also provide progress updates at stakeholder meetings, and maintain regular communication with SFRWQCB and BACWA about project status, including through attending bi-monthly joint meetings for updates and discussions, as needed.

Subtask 1.2 Deliverables
1.2.1 Monthly progress reports and invoices
1.2.2 Attendance at bi-monthly joint meetings between the SFRWQCB and the BACWA Board, as needed.

Task 2: Coordination of Nutrient Strategy Development and Implementation
Numerous organizations are either funding or actively engaged in nutrient-related work in the Bay-Delta Estuary (e.g., SFRWQCB, Central Valley Regional Water

Quality Control Board, Interagency Ecological Program, United States Geological Survey, Romberg Tiburon Center, State and Federal Water Contractors, Delta Stewardship Council, BACWA, Bay Area Stormwater Management Agencies Association, Department of Water Resources). However, there is limited coordination among these efforts, and no overarching set of science or management goals, or a cohesive science plan, across Bay segments and into the Delta. A nutrient science and management strategy for the Bay-Delta Estuary is urgently needed so that work is carried out in a coherent, complementary, and prioritized fashion.

This purpose of this task is to coordinate the development of a nutrient strategy that has broad-base support among the stakeholders and regulators. The initial focus will be placed on the Bay-proper (west of and including Suisun Bay), however upstream factors that strongly influence Suisun and down-gradient Bay segments (e.g., nutrient loads, flow) will obviously remain a major consideration. This work will be divided into three subtasks.

Subtask 2.1 - Form a Stakeholder Advisory Group and facilitate the review of strategy and other strategy-related work

Related to the State Water Board's efforts to develop numeric endpoints for nutrients for the State of California, in 2010-2011, a SF Bay Nutrient Numeric Endpoint Stakeholder Advisory Group (SAG) was created for the purposes of reviewing and advising on the literature review and data gaps analysis for the Bay by McKee et al. (2011). Subtask 2.1 involves reconvening this core advisory group; reviewing the current organization and operating principles and participant list, and revising where necessary; and facilitating the review of the nutrient strategy and other detailed work element proposals, work plans, and products associated with the strategy.

It is expected that an important component of the nutrient strategy's development and implementation will be external expert review. The review process will provide stakeholders with independent assessment of the overall strategy, its work elements, and its major work products. Details of how review and advice functions will be structured in the most efficient and effective way still need to be determined through agreement among the stakeholders. Funding to support external technical review has not been included in this budget.

A professional facilitator will be hired to lead SF Bay SAG meetings and work with stakeholders to achieve, to the extent possible, stakeholder consensus on the Strategy and Strategy work element proposals and products. Funding for facilitation has not been included in this budget and still needs to be secured. SFEI will provide meeting support and logistics support for these meetings.

Up to 3 stakeholder meetings will be held in 2012 to 1) agree on program organization and an adaptive decision-making process; 2) vet drafts of the Nutrient

Strategy; and 3) provide feedback and review of scopes of work, priorities, interim milestones and final products associated with specific work elements of the Strategy.

SFEI will work with RB2, as requested, to ensure that documents, including agendas, meeting minutes and reports, will be made available to RB2 staff in a timely fashion so they can be posted on RB2's website.

Subtask 2.1 Deliverables:
2.1.1 meeting agenda, powerpoint presentations and meeting summaries from up to 3 SAG meetings

Subtask 2.2 Produce a Nutrient Strategy

The purpose of this subtask is to produce a final Nutrient Strategy. The initial draft nutrient strategy (dated September 2011) will serve as the baseline document for further strategy development. The nutrient strategy will describe management questions and goals, major work elements that address those questions/goals, and tasks within each work element. To the extent possible, a draft funding strategy will also be developed. Working drafts will be reviewed by the SAG. Based on feedback, a final nutrient strategy will be delivered. This "final" nutrient strategy should be considered a living document, in that it will need to be periodically updated. This subtask does not cover those subsequent updates.

Subtask 2.2 Deliverables:
2.2.1 Final nutrient strategy (November 2012)

Subtask 2.3 Stakeholder Outreach and Coordination

The purpose of this task is to conduct stakeholder outreach and communication to improve coordination and provide a clearinghouse for the dissemination of information. Two types of activities will be undertaken. First, meetings with relevant individuals or groups - such as program managers (e.g., IEP), stakeholder groups, or Water Board staff - will be held to identify priority projects, develop approaches to coordinate efforts, and strategize funding sources. Second, a website and related listserv will be created to serve as a clearinghouse for information (news, downloadable reports, links to related websites, calendar). The website will be updated based on feedback from stakeholders, and as needed with news, calendar additions, and key documents. Reports, scientific literature, and updates from nutrient work in other estuaries will be updated periodically (quarterly).

Subtask 2.3 Deliverables:
2.3.1 List of interested stakeholders with contact information that can be utilized in Task 1.1.
2.3.2 SF Bay Nutrient Website (April 2012)

Task 3: Numeric models and budgets: Suisun Bay and South Bay

The purpose of this task is to develop and apply numeric biogeochemical models for Suisun Bay and South Bay. The overall goal of this work is to serve as an early step in modeling efforts to inform future model development and data collection.

The models will be used to quantitatively synthesize existing data; develop nutrient budgets; support evaluation of proposed indicators as part of the NNE; test appropriate management endpoints; determine how key processes should be modeled and assess the relative importance of and uncertainty related to those processes; and identifying major data gaps at an early stage to inform the monitoring program and the need for special studies. This work will include consideration of models that are already under development by USGS and SFSU-RTC, and those researchers will be involved as project advisors (USGS: J. Cloern, J. Kuwabara; SFSU-RTC: R. Dugdale, A. Parker, F. Wilkerson). This effort will also include a broader consideration of models being developed and research being conducted nationally. It should be emphasized that the model(s) developed and used in this task are not intended to be the final models that may ultimately be required for the Bay, which may be more complex and computationally intensive, but rather as scoping tools.

This is a 2-year project, beginning in the third quarter of 2012. Funds are being requested to support modeling activities beginning in 2012, and there is the expectation that funding will be continued through the first half of 2014.

A technical advisory group consisting of regional and national experts will be convened to develop a modeling study plan. A key task of this group will be to identify the main questions to be addressed through the modeling work, approaches for incorporating key processes into the model, and the appropriate model platform(s).

This task has three subtasks associated with it: 1) develop a study plan, 2) compile existing data and evaluate data quality, 3) develop numeric models, and 4) utilize the simple box models to test scenarios.

Task 3.1 Develop a modeling study plan

The purpose of this task is to develop a draft and final study plan for the project. The draft study plan will be developed in cooperation with a team of technical advisors and presented to the stakeholder advisory group for review and feedback. Options for model structure range from 1-2 boxes per Bay segment up to coupling a biogeochemical model with an existing 2-D hydrodynamic model within each segment (e.g., Uncles-Peterson model). The ultimate choice for model structure will be determined by the level of detail needed to address the main study questions and sufficiently capture physical forcings (tides, flow, salinity), and what is feasible within the constraints of time and budget. The final study plan will reflect suggested changes to the study plan from stakeholders input, if necessary and feasible.

Task 3.1 Deliverables:
3.1.1 Draft and final modeling study plan (June 2012)

Task 3.2 Compile existing data

The purpose of this task is to compile data required for modeling exercises, evaluate data quality, and house data in a project database. Data to be compiled will be enumerated in the final study plan. Some data is already available (e.g., from USGS, IEP, etc.) and can be readily assembled within the first several months of the project. However other data will needed to be incorporated in an on-going manner as it is acquired: for example, new and historic POTW effluent characterization data that becomes available over the next two years, and other load estimates developed through an RMP-funded project that wraps up in second quarter of 2013.

Task 2.2 Deliverables:
3.2.1 Initial electronic database of compiled study data (November 2012)

Task 3.3 Develop and validate basic numeric models

The purpose of this task is to develop basic numeric models for Suisun and South Bay, following the direction laid out in Task 3.1 The focus of this project will be on model development, as well as model calibration and validation.

Task 2.3 Deliverables include:
3.3.1 Biannual progress updates (beginning January 2013)
3.3.2 Chapter in draft and final technical report on model set up and validation (June 2014)

Task 3.4 Use of numeric models to test scenarios

The purpose of this task is to utilize the numeric models to test management or "Bay condition" scenarios. Scenarios to be evaluated will be identified through the conceptual model work element in the strategy, funded by the Regional Monitoring Program, and reviewed and refined through subsequent technical team and stakeholder feedback. Scenarios can be management scenarios (e.g. reduce nutrient loads, water flow, etc.) and/or "Bay condition" scenarios (e.g. reduced light attenuation, change in grazer abundance, etc.).

Task 2.4. Deliverables:
3.4.1 Draft list of scenarios to be evaluated (March 2013)
3.4.2 Chapter in final technical report describing results of scenario analysis (June 2014)

Task 3.5 Draft and final technical reports

The purpose of this task is to synthesize the work conducted in Tasks 3.2-3.4 as draft and final technical reports. The technical report will be produced in a draft that will be presented in oral form to stakeholders and subsequently in written form, with opportunity for written comments on the draft report.

The final report will address comments by stakeholders, to the extent that consensus on those comments can be achieved.

Task 2.5 Deliverables:
3.5.1 Draft technical report
3.5.2 Final technical report (June 2014)

Task 4: Synthesis of Science Supporting Management Decisions in Suisun Bay

Several nutrient-related issues in Suisun Bay have recently been brought to the forefront by SFRWQCB staff due to time-sensitive considerations around the reissuance of the Central Contra Costa Sanitation District's (CCCSD) NPDES permit. The issues are related to

- the extent to which loads from CCSD and other discharges to Suisun Bay drive the spatial and temporal patterns in ammonium concentrations in different parts of Suisun Bay;
- the magnitude and timing of these concentrations relative to sensitive life states of copepods and diatom bloom dynamics, driven by concerns over potential ammonium toxicity to copepods and potential ammonium inhibition of diatom primary production;
- other sources of ammonium, e.g., sediment flux.

Several of the issues raised by the Regional Water Boards specific to Suisun Bay, and identified in the research framework that emerged from the CalFed Bay-Delta workshop[1], are currently being explored in studies carried out through a SFRWQCB coordinated effort. Additional relevant studies are also being carried out through the Interagency Ecological Program, and studies sponsored by the State and Federal Water Contractors Agency. Some of these studies are on-going, and for others final syntheses have not yet been completed.

Three sub-tasks and sets of deliverables are proposed to address time-sensitive questions related to ammonium studies in Suisun Bay. Work on these deliverables will commence in 2012, but some will extend beyond 2012 as discussed below (and see Section 2 for deliverable schedule). Effort on these tasks that extends beyond

[1] A Framework for Research Addressing the Role of Ammonia/Ammonium in the Sacramento-San Joaquin Delta and the San Francisco Bay Estuary Ecosystem

http://www.swrcb.ca.gov/centralvalley/water_issues/delta_water_quality/ambient_ammonia_concentrations/ammonia_mem.pdf

2012 has not yet been funded, and is not included in the budget. The goal of these studies is to enable SFRWQCB staff to make decisions about permit reissuance by 2016.

Subtask 4.1 Synthesis Report and Study Plan

The purpose of this subtask is to provide a brief synthesis report that summarizes existing knowledge related to beneficial use impairment from ammonium in Suisun Bay, describes recently completed or on-going studies (including SFRWQCB's ongoing Suisun Bay study), and identifies additional studies needed to address persistent knowledge gaps. This report will build upon and update the research framework that resulted from the CalFed Bay-Delta workshop.

This task will also develop a study plan that articulates the key questions, scope and assumptions to undertake in Tasks 4.2-4.3 below. This study plan will be reviewed and commented on by the stakeholder advisory group and RB2 staff prior to beginning work on subsequent tasks. The study plan will propose a schedule for completion of additional studies identified and a schedule for completion of the deliverables identified in the work elements discussed below. It is anticipated that the study plan will be revisited annually as part of annual progress report submittal and adjustments will be recommended to RB2 staff. The study plan may also be adaptively managed as an element of the overall nutrient strategy.

Task 4.1 Deliverables
4.1.1 Draft synthesis report and study plan (September 2012)
4.1.2 Final synthesis report and study plan that incorporate, to the extent possible, stakeholder comments (December 2012)

Task 4.2 Report on Assessment of Potential Effects on Diatoms and Copepods from Elevated Ammonium

The second task will be a technical report that describes the life cycles of the diatoms and copepods shown, or suspected, to be adversely impacted by ammonium (e.g., feeding, reproduction, salinity tolerances, population dynamics, etc.); summarizes available information regarding the potential impacts of ammonium on these biological resources (e.g., toxicity and other adverse effects); explores the potential role of nutrients and other stressors in the system; and identifies remaining critical information gaps, and proposes studies to address these gaps. Initial scoping work will commence on Task 4.2 in 2012, but deliverables are due in 2013, and additional funding will be required in 2013 to complete this Task.

Task 4.3 Deliverables
4.2.1 Draft technical report (April 2013)
4.2.2 Final technical report that incorporates, to the extent possible, stakeholder comments (June 2013)

Subtask 4.3 Suisun Bay Modeling

A third work product will be a Suisun Bay model, provided that funding is available beyond 2012. Among questions that need to be explored through this effort include: the extent to which loads from CCCSD and DDSD, and other discharges, affect ammonia/ammonium concentrations in different parts of Suisun Bay and over different seasons, and the impact of other ammonium sources on ammonia/ammonium concentrations (e.g., including sediment flux and agricultural inputs). The efforts in Task 3.1, 3.2, 4.1 and 4.2, and the RMP funded conceptual model study, should further clarify key questions that need to be addressed through modeling, including nutrient dynamics within the system and linkages to biological endpoints. The model for Suisun Bay should ideally be consistent with the Bay-Delta wide modeling plan.
The main deliverables for this task include a final Suisun Bay model (4.3.1) and a final Suisun Bay synthesis report (4.3.2). While several projects will be underway in 2012 that will provide valuable information to support eventual model development, funding has not been secured for Suisun Bay model development or application. Thus, this subtask and its deliverables are included here to indicate the path ahead, but they are not functionally part of this scope of work.

Task 4.3 Deliverables

4.3.1 Final Suisun Bay Model (February 2014)
4.3.2 Final Suisun Bay Synthesis Report (February 2016)

2. Schedule of Deliverables

All dates assume an effective start date of February 1 2012, and may need to be adjusted depending on actual project start date.

Deliverable		Due Date	Estimated %complete in 2012
1.1.1	Quarterly progress reports	Quarterly by 20th of January, April, July, and October	100%
1.1.2	Attendance, as needed, at joint bi-monthly meetings between the SFRWQCB and the BACWA Board	bi-monthly	100%
2.1.1	Stakeholder group meeting agendas, powerpoint presentations, and meeting summaries	Up to 3 meetings and materials in 2012	100%
2.2.1	Final nutrient strategy	November 2012	100%
2.3.1	List of interested stakeholders with contact information	September 2012	100%
2.3.2	SF Bay Nutrient Website	April 2012	100%
3.1.1	Study plan – Suisun and South Bay numeric models	June 2012	100%
3.2.1	Compile existing input data for numeric models	November 2012	100%
3.3.1	Biannual progress updates on numeric model work	Biannual beginning January 2013	25%
3.3.2	Model development and validation chapter in draft and final technical reports	April 2014 and June 2014	25%
3.4.1	Draft list of scenarios to be evaluated	March 2013	0%
3.4.2	Scenario testing chapter in draft and final modeling technical reports	April 2014 and June 2014	0%
3.5.1	Draft modeling technical report	April 2014	0%
3.5.2	Final modeling technical report	June 2014	0%
4.1.1	Draft Suisun synthesis report and study plan	September 2012	100%
4.1.2	Final Suisun synthesis report and study plan	December 2012	100%

4.2.1	Draft ammonium impacts technical report	April 2013	10%
4.2.2	Final ammonium impacts technical report	June 2013	10%
4.3.1	Final Suisun Bay model	February 2014	0%
4.3.2	Final Suisun Bay synthesis report	February 2016	0%

3. Budget

The budget and schedule below are estimates and will be refined as needed. This funding is anticipated to be sufficient for the basic work effort associated with the 2012 deliverables. However it is expected that additional costs will arise in 2012 associated with the basic logistics of coordinating the strategy development and implementation. These include convening an external expert review panel, technical teams or technical experts involved in specific Tasks to act either as advisors or as actual contributors to report preparation (travel, honarium or per diem), facilitation, and holding stakeholder meetings (lunches, refreshments).

Funding and schedules for work completed beyond 2012 will be agreed upon by the Regional Water Board, BACWA and other stakeholders.

Tasks		
1	Project Administration and Reporting	38,547
2	Nutrient Strategy Development and Coordination	115,114
3	Numeric Modeling: Suisun Bay and South Bay	116,672
4	Synthesis of Science: Suisun Bay	79,667
	total	$350,000

PS/SS: Modeling

Estimated Cost:	$100,000 (requested RMP 2013 funds) $100,000 (existing RMP 2012 modeling funds) $300,000 (proposed non-RMP Nutrient Strategy funds in 2013)
Oversight Group:	Contaminant Fate Work Group and Nutrient Science Advisory Group
Proposed by:	Don Yee and David Senn, SFEI

Background

In joint meetings with members of the Nutrient and Modeling teams on May 1st and June 4th, 2012, modeling needs for different stakeholder efforts (e.g., RMP contaminant fate, RMP nutrient work, Bay Nutrient Strategy), were explored, and some commonalities supporting the use of a shared modeling platform were identified. Although key institutional agreements for the development and maintenance of such shared modeling tools have not yet been reached, a potential path forward is outlined here.

In the May meeting, a recommendation was made to explore adaptation of open source models already used and validated in projects by other agencies in order to minimize the effort and cost of development and to have a partner agency with interest in long-term support of the model platform for the Bay. Delft3D, used by the USGS in modeling sand fate within the Bay and outside the Golden Gate, and used in other areas worldwide for integrated modeling of hydrodynamics, sediment, and water quality contaminants, was identified as a potential tool.

Study Objective and Applicable RMP Management Question

The objective of this effort is to develop models that can be applied to answer questions regarding nutrient and contaminant cycling in the Bay. This study would address the following RMP management questions (MQs):

Nutrients

1. Which nutrient sources, pathways, and transformation processes contribute most to concern?
   a. What is the relative contribution of each loading pathway (WWTP, Delta, non-point source, etc.) to the Bay overall and the Bay's key sub-systems, and how do these loads vary seasonally?
   b. What is contribution of nutrient regeneration (benthic fluxes) from sediments and denitrification/nitrogen fixation to SF Bay nutrient budgets?
2. What nutrient loads can the Bay assimilate (without impairment of beneficial uses)?

3. What future impairment is predicted for nutrients in the Bay?

Modeling/Forecasting

1) What patterns of biota exposure to contaminants of concern are forecast for major segments of the Bay under various management scenarios?
2) What is the contribution of contaminated Bay margins to Bay impairment?
3) What are the projected impacts of Bay margin management actions to Bay recovery?

Approach

Based on discussions with stakeholders, the tasks described here were identified as a logical and deliberate approach to developing a sustainable modeling program across a range of contaminants. This approach relies on coordination among multiple initiatives in order to leverage funds. These initiatives include RMP contaminant fate, RMP nutrients, and the Bay Nutrient Strategy. The first several months of the proposed work involves detailed planning to clarify the science needs of important management decisions that will be addressed through modeling, and development of a modeling approach that appropriately targets those needs. This planning period will also allow us to further solidify the coordination between initiatives, and to begin establishing the necessary institutional agreements. In late 2012 or early 2013 model development will commence.

Tasks 1 through 3 will be conducted in 2012 using funds from the previously allocated $100,000 (2012 funding). Tasks 4 through6 will begin in 2013, funded partly by RMP funds. Tasks 7through 8 are longer term objectives.

Task 1: A technical report will be developed that explores the pros and cons of adopting Delft3D[1] as a model platform. The report will address a range of issues, including:

a. Thoroughly develop management questions/issues that need to be addressed for contaminants and nutrients and identify the model requirements posed by those management issues. In particular, the question of what output will be needed from a model to address the management questions will be addressed.
b. Evaluate technical abilities and limitations of Delft3D hydrodynamics, sediment and water quality packages for addressing the management issues.
c. Estimate cost and time for initially developing the model (calibration, validation); running and maintaining the model; and interpreting scenarios/simulations.

[1] Delft3D is used here as a placeholder; contingent on agreements with a partner agency to develop and maintain as a common platform.

d. Identify institutional agreements that need to be established for longer-term support of Delft3D as a shared model platform. For example, what is needed to maximize collaboration with USGS and the model developer (Deltares)?
e. Develop a draft work plan for nutrient and contaminant fate modeling.

Dates: July-October 2012 (includes 1-2 meetings with Modeling Team, and one set of revisions)
Cost: $35K plus $10K non RMP funds (includes Dr. Craig Jones' effort and SFEI staff time, and potentially engaging one or two key consultants).

Task 2: Establish a modeling technical team to work with stakeholders to evaluate the work plan laid out in Task 1. This group will provide input on the modeling approach, necessary resolution, parameterization, and calibration/validation for hydrodynamic, sediment, and water quality and contaminant modeling efforts. This team would be utilized across Tasks 2-7.
Date: October 2012
Cost: $10K

Task 3: Revise white paper and finalize work plan based on workshop input in Task 2. Identify collaborators or consultants, or develop an RFP
Date: December 2012
Cost: $15K

We propose that the remaining portion of the 2012 funds ($40,000) be combined with proposed 2013 RMP funds ($100,000), and with matching funds from other efforts (described below), to begin model development in Task 4 in 2012-2013. The ultimate direction taken in Tasks 4-8 will depend on the final approach developed in Tasks 1-3. Thus, the approach below is only broadly described as a proposed path. We propose to update the TRC and SC in Q4 of 2012, and solicit feedback on the suitability of the selected path relative to RMP goals.

Task 4: Develop underlying hydrodynamic & sediment transport model. If explorations in Tasks 1-3 indeed show that Delft3D meets our needs, the existing USGS Delft3D model (grid, boundary conditions) for sand transport might be used as a launch point. A team of collaborators/consultants will be selected to work with stakeholders and SFEI to develop hydrodynamic & sediment transport models. These underlying hydrodynamic and sediment transport models will be the foundation upon which contaminant fate and nutrient/water quality models are developed. An important component of this will include working with water quality and contaminant collaborators on issues related to grid aggregation to adjust the model resolution to levels that are appropriate for the relevant management questions.
Dates: January-June 2013
Approximate Cost: $130K = $100K (2012/2013 RMP modeling) + $30K (non-RMP Nutrient funds)

Task 5: Develop low-resolution or pseudo-3D nutrient-phytoplankton water quality models for Suisun Bay and South Bay as a test bed for model parameterization. The development of "basic" biogeochemical models has been identified as a high priority project by the nutrient conceptual model technical team to quantitatively synthesize our understanding of the system, test/generate hypotheses, and inform data collection and future modeling and monitoring efforts. Integrated water quality models are often run at lower resolutions than hydrodynamics to allow for sufficiently fast run times to accommodate the calibration of numerous parameters and to allow for analyzing multiple scenarios. Nonetheless they require accurate underlying hydrodynamic inputs. Therefore, grid (and temporal) aggregation will be a critical aspect, requiring coordination between Tasks 4 and 5. Task 5 will use hydrodynamic flows from coarsely aggregated outputs of Task 4. One potential approach is for the nutrient/phytoplankton water quality model to be developed by a consultant in close collaboration with SFEI and the modeling technical team
Dates: Model development - January-June 2013
Approximate Cost: $150K = $130K (non-RMP Nutrient funds) + $20K (RMP modeling)

Task 6: Once the model structure is developed, it will be handed off to SFEI staff who will run simulations and further refine the model, working with the modeling technical team and the water quality modeling consultant. Work will include: quantitatively synthesizing nutrient load and ambient concentration data (i.e., mass budgets); assessing the relative importance of processes regulating phytoplankton productivity (light limitation, benthic grazing, potential inhibition by NH4, flushing) and nutrient cycling, and performing sensitivity analyses. Parameters with greatest impact will be refined so that model uncertainty is better understood before embarking on more spatially or temporally resolved efforts (Tasks 7 and 8). The experience gained in model development and calibration (e.g., in grid aggregation) can be used to address model uncertainty and applied to later implementation of the model for other contaminants.
Dates: Model application and refinement: June 2013-December 2014
Approximate cost 2013: $150K = $130K (non RMP Nutrient funds) + $20K (RMP modeling)
Approximate cost 2014: $250K (non-RMP Nutrient funds)

Task 7: Develop relatively low-resolution 3D water quality models for particle-reactive and bioaccumulative contaminants. An approach analogous to that taken in Tasks 6 will be followed, but a larger share of the focus will be on accurately modeling long-term sediment fate. Because of the long simulation times (decades) necessary to explore the effects of various management actions on contaminant concentrations in sediments and biota, model sensitivity to grid (and temporal) aggregation will also be investigated here so that uncertainty can be characterized.
Dates: January 2014-May 2015
Approximate Cost: TBD (~$50K assemble data, ~$25K optimize model for sediment fate, $200K sensitivity testing & scenario runs)

Task 8: Develop 2nd generation nutrient/phytoplankton and contaminant models, and run simulations to evaluate the effectiveness of various management strategies, building on the experience gained in Task 4-7.
Dates: 2014-2016
Cost: TBD

San Francisco Bay Stakeholder Advisory Group
SF Bay Nutrient Program
Meeting Agenda
June 22, 2012
9:00am-2:00pm

Location: San Francisco Bay Regional Water Quality Control Board, Meeting Room 10, Second Floor, 1515 Clay Street, Oakland, CA 94612 (Point of contact: Naomi Feger, 510-622-2328; alternate point of contact Richard Looker 510-622-2451)
Travel information can be obtained at
http://www.waterboards.ca.gov/sanfranciscobay/about_us/directions.shtml

Meeting Materials: Proposed projects for 2013 funding
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/amendments/estuarynne_sag.shtml

Meeting Goals:

1) Solicit input and recommendations on project and funding priorities for 2013
2) Summarize comments on March 2012 Nutrient Strategy draft, identify next steps
3) Summarize survey results: facilitation, governance; identify next steps

Agenda:

9:00-9:15 **Introductions, goals, agenda, logistics** (Naomi Feger)

9:15-10:00 **Comments on March 2012 Nutrient Strategy draft** (David Senn)
- Overview of comments
- Discussion, clarifications, and next steps

10:30-11:30 **Proposed projects for 2013** (David Senn)
- Update on conceptual model meeting, data needs
- Recommended projects for 2013
- Discussion

11:30-12:15 **Lunch (on your own)**

12:15-1:15 **Proposed projects for 2013** (continued)
- *Desired outcome:* Recommendations for RMP funded projects and other funded priority projects

1:15-1:45 **Survey results on SAG facilitation and governance** (Naomi Feger)
- Overview of feedback
- *Desired outcome*: Recommended next steps

1:45-2:00 **Wrap up and next steps** (Naomi Feger)

Project Priorities for 2013 (* indicates higher priority project)

#	Title	Work Element	Estimated Cost	Project Description	Potential Funder				
					RMP	BACWA	RB2	SFCWA	other
1.*	Moored Sensor Pilot Study – Dumbarton Bridge	3	250k	Sensor platform selection, operation and maintenance at Dumbarton Bridge, and data analysis. These sensors would provide additional temporally-intensive data for the Bay.					USGS match
2.*	Algal biotoxin: monitoring and method development	1	65k	Measure algal biotoxins during Bay transects and at fixed stations using SPATT.					-
3.*	Stormwater nutrient measurements and technical memo	4.1	40k	Collect, quantify and analyze runoff samples for 6 Bay Area catchments and produce a technical memo findings. This data could be used to calibrate a spreadsheet model that quantifies nutrient loads to the Bay.					-
4.*	Loading study continuation	4.1	30k	Estimate daily, monthly and annual nutrient loads by subembayment and from four sources: POTW's, stormwater, coastal upwelling and inputs from the Delta					-
5.*	Assessment framework development, continuation	2	200k	Continue development of assessment framework for phytoplankton and dissolved oxygen beyond the scope of the current budget.					-
6.*	"Basic" Biogeochemical Modeling	4.2	300k	Develop initial biogeochemical models for South Bay and Suisun Bay to quantitatively explore budgets and transformations, perform sensitivity analysis, assess relative importance of key processes (benthic grazing, light limitation, NH4 inhibition of nitrate uptake and p.p.), and inform monitoring program needs.					-
7.*	Monitoring Program Development	3	50k	Initial step of monitoring program development. Prepare a report on requirements for program migration from USGS to RMP, including potential approaches to program design, necessary institutional agreements and partnerships, logistics, timeline, potential costs, and options for funding.					-
8.*	Assessing Loads Across Golden Gate	4.1	150k	Develop conceptual model(s) of processes that regulate exchange across the Golden Gate, factors that influence intrusion of nutrient-rich upwelled water into different embayments, and quantify potential loads under a representative set of scenarios climate and hydro forcings.					-
9.*	Photosynthesis efficiency, and influence of NH4/NO3 on monoculture primary production	2,3,4	200k	Perform measurements during Bay-wide cruises to determine the spatial variability of photosynthetic efficiency along with other measurements to explore causes. Perform growth experiments with phytoplankton monocultures to test for differences in primary production with NH4 vs. NO3		?			IEP
10. *	3D model development	4.2	130k	Begin to develop and calibrate 3D models that characterize hydrodynamics, sediment transport, and nutrient-phytoplankton dynamics.					-

Project Priorities for 2013 (* indicates higher priority project)

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9.*	Photosynthesis efficiency, and influence of NH4/NO3 on monoculture primary production	2,3,4	200k	Perform measurements during Bay-wide cruises to determine the spatial variability of photosynthetic efficiency along with other measurements to explore causes. Perform growth experiments with phytoplankton monocultures to test for differences in primary production with NH4 vs. NO3		?			IEP
10. *	3D model development	4.2	130k	Begin to develop and calibrate 3D models that characterize hydrodynamics, sediment transport, and nutrient-phytoplankton dynamics.					-

Table 2 - GANTT chart of approximate timing of work elements and tasks associated with 5-yr nutrient plan.

Task No.	Brief Task Description	Yr1	Yr2	Yr3	Yr4	Yr5
Element 1: Define the Problem						
1.1	Nutrient/Water Quality Conceptual Model and Scenario Building					
Element 2: Establish Guidelines						
2.1	Phytoplankton NNE Assessment Framework					
2.2	Evaluate the Need to Revise Objectives for Ammonium					
2.3	Review of Dissolved Oxygen Objectives					
2.3a	Synthesis of existing dissolved oxygen data					
2.3.b	Evaluate the adequacy of the dissolved oxygen objectives, need for site- specific objectives					
2.3.c	Recommendations for additional data collection and monitoring program					
2.4	Macroalgal NNE Assessment Framework.					
Element 3: Monitoring Program Development and Implementation						
3.1	Develop a Monitoring Program					
3.1.a	Recommend elements of a core SF Bay monitoring program					
3.1.b	Develop the Bay nutrient monitoring program Work Plan and QAPP					
3.2	Implement the Bay nutrient monitoring program					
Element 4: Modeling Strategy						
4.1	Modeling of External Sources					
4.1.a	Synthesize existing data on external nutrient loads and data gaps analysis					
4.1.b	Review Models to simulate Nutrient/ Organic Carbon Loads and Test Management Scenarios					

4.1.c	Monitoring Elements					
4.2	Modeling of Load-Response					
4.2.a	Basic Numeric Modeling and Scenario Analysis					
4.2.b	Review of existing models/platforms to model Bay hydrodynamics & water quality					
4.3	Develop Modeling strategy					
4.4	Begin implementing modeling strategy					

Item # Senn et al
RMP Study #x DRAFT

Nutrient Studies: Moored Sensor Monitoring Program Development, Algal Biotoxin Monitoring, Stormwater Nutrient Measurements, and Load Quantification

David Senn (SFEI), James Cloern (USGS), Tara Schraga (USGS), Raphael Kudela (UCSC), Martha Sutula (SCCWRP), Naomi Feger (SFRWQCB)

ESTIMATED COST: $263,000 ($228,000 after applying $35,000 of unused 2012 USGS funds)
OVERSIGHT GROUP: Nutrient Workgroup through the Nutrient SAG

TABLE 1: PROPOSED DELIVERABLES, BUDGET, AND TIMELINE

Deliverable	Budget		Due Date
	RMP	Other	
Task 1 Project management	10k		Jan-Dec 2013
Task 2. Moored sensor monitoring program development	120k	150k	
Task 2.1 Moored sensor platform selection and purchase			Jan-Feb 2013
Task 2.2 Sensor system calibration and basic dockside operation			Apr-May 2013
Task 2.3 Sensor Deployment, operation, and maintenance at Dumbarton Bridge			Jun-Dec 2013
Task 2.4 Data analysis, QA/QC			Jun-Dec 2013
Task 2.5 Develop calibration, operation, and maintenance manual			Nov 2013
Task 2.6 Technical memo: data interpretation and recommendations for next steps with moored sensors			Mar 2014
Task 3 Developing Solid Phase Adsorption Toxin Tracking (SPATT) as a Monitoring Tool for Microcystins and Related Toxins in San Francisco Bay	65k	-	
Task 3.1 Monthly monitoring of algal biotoxins during Bay-wide monthly cruises and at fixed sites			Jan-Dec 2013
Task 3.2 Controlled experiments to calibrate biotoxin field sampling device			Jan-Aug 2013
Task 3.3 Technical memo			Mar 2014
Task 4 Stormwater nutrient monitoring in 6 Bay area catchments	38k	~300k	
Task 4.1 Field sampling and sample analysis			Nov2012-Apr2013
Task 4.2 Data analysis and preparation of technical memo			June-Aug 2013
Task 5 Technical report quantifying nutrient loads to the Bay and identifying data gaps	30k	-	June 2013
Nutrient/phytoplankton biogeochemical modeling (see CFWG modeling proposal			
Total	263k	~450k	

Background and Justification

San Francisco Bay has long been recognized as a nutrient-enriched estuary, but one that has historically proven resilient to the harmful effects of nutrient enrichment, such as excessive phytoplankton blooms and hypoxia. The published literature suggests that the accumulation of phytoplankton biomass in the Bay is strongly limited by tidal mixing, grazing pressure by invasive clams, light limitation from high turbidity, and potentially, in the North Bay, ammonium inhibition of diatom uptake of nitrate. However, evidence is building that, since the late 1990s, the historic resilience of the Bay to the harmful effects of nutrient enrichment is weakening (Cloern et al., 2007; Dugdale et al, 2007).

In response to the apparent changes in the Bay's resilience to nutrient loading, SFEI has been working with the San Francisco Bay Regional Water Quality Control Board and Bay area stakeholders to develop the San Francisco Bay Nutrient Strategy (http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/amendments/estuarynne.shtml). The goal of the Nutrient Strategy is to lay out a well-reasoned and cost-effective program to generate the scientific understanding needed to fully support major management decisions. The Nutrient Strategy has 6 main goals:

1. Define the problem: develop conceptual models for Bay segments that characterize important processes linking nutrient, biological responses, and indicators of adverse effects of nutrient over-enrichment
2. Establish guidelines (water quality objectives; i.e., assessment framework) for nutrients, including ammonium, focusing on the endpoints of eutrophication and other adverse effects of nutrient overenrichment;
3. Implement a monitoring program that supports regular assessments of the Bay;
4. Develop and utilize nutrient-load response models to support nutrient management decisions;
5. Evaluate control strategies to reduce nutrient inputs from wastewater treatment plants and other sources; and
6. Consider alternative regulatory scenarios for how to move forward with nutrient management in SF Bay.

This proposal to the RMP is requesting funds to support technical studies that directly address several goals of the Nutrient Strategy and key management questions, as noted within the description of each task. The Steering Committee provisionally allocated $200,000 in 2013 for nutrient-related projects. In addition, the USGS had a one-time surplus in their other sources of funding, and is requesting $35,000 less from the RMP in 2012, with the request that if possible those funds be allocated toward monitoring program development projects (e.g., Task 2 or Task 3).

While not discussed in this proposal, the CFWG modeling proposal has direct links to and benefits for nutrient work in the Bay. That proposal, with a requested budget of $200,000 from the RMP and $300,000 from other sources, aims to build the foundation of a Bay-wide modeling program that can support modeling of bioaccumulative contaminants and nutrients/phytoplankton.

RMP Master Plan Priority Questions addressed by study proposal

1. Is there a problem or are there signs of a problem with respect to nutrient enrichment?
2. What are appropriate guidelines for assessing SF Bay health?
3. What is the relative contribution of nutrient loading pathways and how do loads vary seasonally and between Bay segments?

Goals of Nutrient Strategy addressed by study proposal

1. Document our current understanding of nutrient dynamics in the Bay, highlighting what is known and the crucial questions that need to be answered
2. Develop a monitoring program to support regular assessments in the Bay
3. Quantify nutrient loads to and important processes in the Bay

Task 2 Moored Sensor Monitoring Program Development

The indications of decreased Bay resilience to high nutrient loads noted above have come to the fore at a time when the availability of resources to continue assessing the Bay's condition is uncertain. Since 1969, a USGS research program has supported water-quality sampling in the San Francisco Bay. This USGS program collects monthly samples between the South Bay and the lower Sacramento River to measure salinity, temperature, turbidity, suspended sediments, nutrients, dissolved oxygen and chlorophyll a. The USGS data, along with sampling conducted by the Interagency Ecological Program, provide coverage for the entire San Francisco Bay –Delta system. The San Francisco Bay Regional Monitoring Program (RMP) has no independent nutrient-related monitoring program, but instead contributes approximately 20% of the USGS data collection cost. Thus, there is currently an urgent need to lay the groundwork for a locally-supported, long-term monitoring program to provide information that is most needed to support management decisions in the Bay.

While most of the historic and current data being generated by the USGS and IEP research programs are derived from ship-based measurements, there is a growing recognition that moored multi-sensor platforms can provide valuable temporally-intensive data. A number of large estuaries in the US (e.g., Chesapeake Bay, http://mddnr.chesapeakebay.net/eyesonthebay/index.cfm; Columbia River, http://www.stccmop.org/datamart/observation_network; Caloosahatchee Estuary, http://recon.sccf.org/) have well-established moored sensor networks that are integral components of monitoring efforts and provide a strong complement to ship-based monitoring. At a recent RMP-sponsored nutrient conceptual model technical meeting, the technical team recommended that pursuing a pilot project with moored sensors would be a valuable step that should be taken in the early stages of planning the next generation monitoring program for the Bay. This group further advised that the RMP invest sufficiently in person power, beyond the cost of the hardware, to ensure the success of this effort and to allow ample time for sensor platform selection, operation and maintenance, and data analysis, so that the effort contributes to monitoring program development.

Task 2 has been broken down into five subtasks (Table 1). Task 2.1 focuses on sensor platform selection. D Senn has already researched a variety of sensor platforms, and the LOBO system (http://www.satlantic.com/lobo) is our initial recommendation, because of its robust sensors (good track record based on other estuaries), including the considerable attention paid to minimizing biofouling. However other sensor platforms will be considered. The proposed LOBO sensor package includes conductivity, temperature, depth, dissolved oxygen, chl-a, turbidity, and nitrate, and has both logs data and telemeters data via the cellular network to a manufacturer-provided web-interface for real-time data visualization (this will likely be most useful for tracking sensor drift or failure; however it could also be useful for detecting short-lived events, such as blooms, and triggering a focused field sampling campaign). The SUNA nitrate sensor (http://www.satlantic.com/suna) that is part of this package is a state of the art sensor and has sufficiently low detection limits (~1 uM) for Bay conditions (~20-80 uM).

In Task 2.2, the LOBO system will be calibrated and tested in the lab, and then field tested for 0.5-1 month at the Redwood City dock near USGS Menlo Park. In Task 2.3 the system will be deployed on a bridge piling at Dumbarton Bridge in June 2013, in collaboration with D Schoellhamer whose group currently deploys and maintains turbidity, conductivity, temperature, and dissolved oxygen sensors at this site. The overlap in sensor capabilities is helpful because it will allow for continuous and co-located validation during the early stages of this pilot project. We will coordinate our maintenance schedule with Schoelhamer's group; they have agreed to collaborate on maintenance, which will allow both groups to leverage funds from various sources to support field work. Data will be collected continuously from June-December 2013, with on-going QA/QC (Task 2.4). Discreet water samples will be collected periodically (bi-weekly) adjacent to the sensor and measured for the suite of parameters to validate sensor operation. An operation and maintenance manual will be developed (Task 2.5). Finally, a technical memo will be produced that presents initial data analysis and synthesis, and just as importantly describes lessons learned during year 1 and recommendations for next steps with moored sensor applications.

BUDGET – Task 2

USGS-Menlo Park will provide in-kind support equivalent to 20% of one FTE focused on sensor maintenance and calibration. USGS-Menlo Park will also contribute other in-kind salary support for project guidance, and in-kind support for analysis of discrete water samples for relevant parameters to validate sensor performance. USGS-Sac (Schoelhammer) will be providing in-kind support related to shared costs for maintenance/field work. A request will be made to Nutrient Strategy stakeholders to cover the cost of the instrument purchase. The proposal to the RMP is directed toward funding engineering costs for mounting the sensor system, field costs, and personnel costs.

	RMP	Nutrient Strategy	USGS-Menlo Park	USGS-Sac	**Total**
hardware and shipping		80k			80k
personnel					
SFEI 50% FTE	89k				89k
5% Senn	16k				16k
5% Cloern (USGS)			14k		14k
5% Schraga (USGS)			10k		10k
USGS technicians			21k (20% FTE)	10k (10% FTE)	31k
Field/logistics	5k			10k	15k
Machining/engineering of deployment/retrieval of system	10k				10k
Sample analysis			5k		3k
Totals	120k	80k	50k	20k	270k

Task 3 Developing Solid Phase Adsorption Toxin Tracking (SPATT) as a Monitoring Tool for Microcystins and Related Toxins in San Francisco Bay

Task 3 is also related to monitoring program development, focused on the detection of algal toxins produced by harmful algal blooms (HABs). There was broad agreement within the conceptual model technical team that increased frequency and magnitude of algal toxin monitoring measurements are one likely outcome of elevated nutrient loads to the Bay and Delta. The group further concurred that the development of sensitive tools for measuring phytotoxins should be a high priority for the Bay monitoring program.

Cyanobacterial blooms and their associated toxins have become increasingly problematic globally (Chen et al. 1993, Domingos et al. 1999, Lehman et al. 2005, Guo 2007, Paerl & Huisman 2008). *Microcystis aeruginosa* in particular is considered a cyanobacterial harmful algal bloom (CyanoHAB) organism because it can impede recreational use of waterbodies, reduce aesthetics, lower dissolved oxygen concentration, and cause taste and odor problems in drinking water, as well as produce microcystins, powerful hepatotoxins associated with liver cancer and tumors in humans and wildlife (Carmichael 2001). Extensive *Microcystis* blooms with toxin production occur during summer and fall in impaired waterways in Washington, Oregon and California (Gilroy et al. 2000, Johnston & Jacoby 2003) and *Microcystis* contamination has been documented at the marine outflows of the Klamath and San Francisco estuaries (Lehman et al. 2005, Fetcho 2007) as well as from river inputs to Monterey Bay (Miller et al. 2010). More recently, a SCCWRP study detected microcystins and/or anatoxin-a in thirty-nine of forty freshwater lakes and intermittently closed coastal lagoons tested within the coastal watersheds of 5 Southern California counties (Magrann, 2011). The recently documented direct impact to the threatened California Sea Otter (*Enhydra lutris*) has also promoted these blooms and toxins from predominantly a freshwater issue to potentially a land-sea problem, with concomitant risk because of the lack of monitoring in brackish and marine waters (Miller et al. 2010).

Until recently, *Microcystis* (and associated Cyanobacterial Harmful Algal Bloom (CyanoHAB) genera) blooms and microcystin intoxication were considered a public health issue solely of freshwater ponds, lakes, reservoirs, public water supplies and rivers; this assumption is reflected in the vast body of scientific literature available on potential public health risks from microcystin exposure in freshwater habitat. By comparison, monitoring of the freshwater-marine interface for similar ecological or public health risks has remained a low priority until very recently, despite observation of outflows of *Microcystis* and microcystin-contaminated fresh water to the ocean (Lehman *et al.* 2005; Tonk *et al.* 2007). Given the severe and ubiquitous nature of this problem in freshwater habitats and potentially coastal marine systems, surveillance and monitoring is critical. Traditional monitoring programs for phycotoxins typically rely on discrete sampling (“grab” samples) from a particular site or sites, sometimes augmented with automated sampling systems. Such methods are inherently biased if the sampling does not capture the spatial and temporal variability of the system due to (e.g.) behavioral adaptations of the algae such as vertical migration, hydrologic or circulation effects, and ephemeral or episodic events. Furthermore, grab sampling may underestimate the presence of low levels of toxins if the

sampling protocol does not include pre-concentration and/or if the toxin concentrations are below the analytical limit of detection.

In response to this challenge, Kudela and colleagues at UCSC have been investigating the use of a passive sampling method, Solid Phase Adsorption Toxin Tracking (SPATT), to monitor microcystin (and other toxin) levels in seawater. SPATT was first proposed for HAB monitoring by MacKenzie et al. (2004), who developed developed this passive sampling device by placing SPATT resin, which binds an array of lipophilic algal toxins, within a polyester mesh bag. Over the last several years UCSC researchers have been further developing and applying SPATT for HAB detection in both marine and freshwater environments. Their results indicate that the sensitivity of this system is extremely high, which greatly facilitates source-tracking efforts. They researchers routinely detect biotoxins using SPATT when simultaneous point-sampling of water fails to detect the same toxins in a given waterway (Lane et al., 2010; Kudela, 2012).

Kudela and colleagues have conducted limited SPATT and grab-sampling within the Bay Delta and surrounding environment. Those data demonstrate that microcystins are present at moderate to high concentrations in source waters of the Bay (particularly the Delta, but also the ponds in the South Bay region; Figure 1). They have also tested SPATT in "flow-through" mode aboard the R/V Polaris during USGS cruises (Figure 2). Of particular concern, they have identified microcystins throughout the Bay during autumn, suggesting that toxins (but not necessarily cells) are being physically transported throughout the ecosystem.

Proposed Work Plan

Task 3 is divided into three subtasks. In Task 3.1, it is proposed to continue deployment of SPATT during USGS monthly cruises. As in past cruises (Figure 2), one SPATT will be deployed per basin in the surface-sampling flow-through system on the Polaris, totaling 5 SPATT per cruise. In other watersheds, UCSC has successfully deployed SPATT from fixed platforms such as moorings (this has been done in the Delta, Alviso Slough and Pond A6, and throughout the Monterey Bay region). SPATT can easily be deployed up to 30 days, and require minimal handling for field personnel. SPATT can be stored indefinitely in the freezer (-80°C) and are routinely shipped through common carriers (including US Postal Service). In Task 3.1, SPATT will be deployed at both the Dumbarton Bridge and Benicia Bridge for periods of ~1 month, taking advantage of existing fixed monitoring programs. A similar effort in Pinto Lake, CA for a year was sufficient to develop statistical models relating toxin concentrations to environmental conditions (Kudela, 2012).

SPATT has now been extensively tested and applied for microcystin detection by UCSC, and there is widespread interest from the research and management community in deploying SPATT as part of existing monitoring programs. As part of the move toward more routine use of SPATT in monitoring programs, several issues related to SPATT deployment and interpretation need to be addressed, such as how SPATT compare to ambient concentrations (calibration relative to in situ conditions), best practices for

deployment/recovery and analysis of SPATT (i.e. length of deployment, analytical methods for toxin detection), and how SPATT compare with more mature passive samplers to quantify the partitioning coefficients and kinetics, and effects of flow and surface area. Some of these preliminary lab measurements have been conducted already (Kudela 2012) but UCSC has not extensively tested longer deployments or the partitioning in flow-through versus controlled volume situations.

In Task 3.2, controlled experiments will be conducted in the laboratory to better characterize partitioning of phytotoxins out of solution and into the SPATT during exposure in ship-board flow-through systems. Specifically, experiments will be carried out in simulated flow-through systems in which SPATT will be exposed to brackish water and seawater containing varying concentrations of a microcystin-RR. Microcystin-RR uptake will be quantified as a function of both dissolved concentration and exposure time. This "calibration" information will allow for more accurate back-calculations of average ambient concentrations in natural systems. In addition, a time-series of "bottle" experiments will be conducted during which SPATT will be exposed in containers holding seawater with known concentrations of microcystin-RR. SPATT will be removed at several time points and microcystin-RR uptake will be measured. This information will aid in characterizing the uptake kinetics of microcystin under conditions simulating longer term deployments at a single site.

In Task 3.3 a technical memo will be prepared that interprets the results from 2013 field sampling and the controlled experiments. The results of the field and laboratory studies are expected to inform future monitoring approaches in the Bay, and ultimately provide information to support management decisions related to HABs and biotoxins. It is anticipated that results will also be published as a journal article, to be submitted in the first half of 2014.

BUDGET – Task 3

	RMP
personnel	46.5k
analyses, shipping, local travel, materials, misc.	18.5
Total	65k

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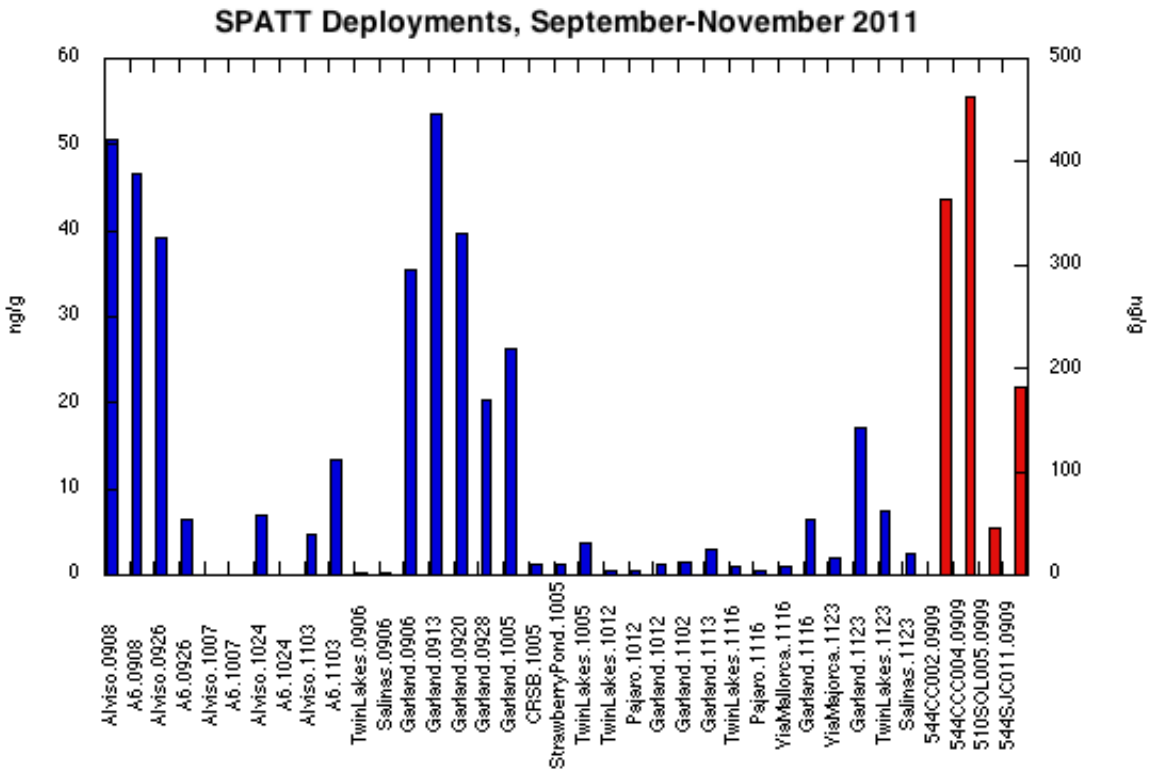

Figure 1. SPATT results from the South Bay region (left) and Monterey Bay (middle) in blue, and from the Delta (right; red) for microcystin-LR. While the Delta has orders of magnitude more toxin for equivalent sampling intervals, there are easily detected toxins throughout the other watersheds. The Monterey Bay toxin loads have been associated with California otter deaths, highlighting the negative impacts of these toxin levels.

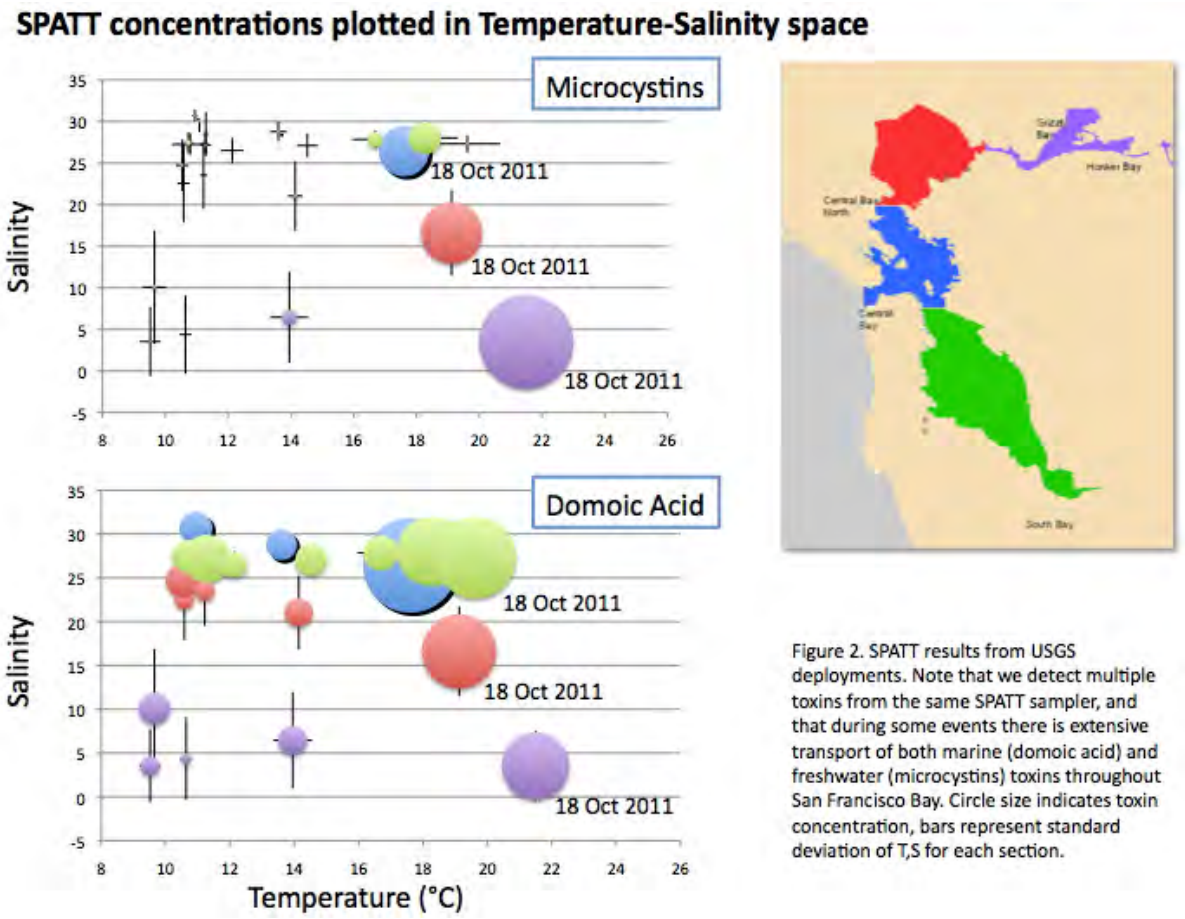

Figure 2. SPATT results from USGS deployments. Note that we detect multiple toxins from the same SPATT sampler, and that during some events there is extensive transport of both marine (domoic acid) and freshwater (microcystins) toxins throughout San Francisco Bay. Circle size indicates toxin concentration, bars represent standard deviation of T,S for each section.

Task 4 Nutrient stormwater sampling in 6 Bay area watersheds

Among the key objectives outlined in the March 2012 Draft Nutrient Strategy is the quantification of nutrient loads from main potential sources. Currently limited data exists to support the quantification of nutrient loads from storm water runoff. Developing accurate estimates for regional watershed loads to the Bay requires both acquiring empirical data from representative watersheds (for calibration/validation) and developing models to quantify loads across the region.

The Small Tributary Loading Strategy (STLS) led to monitoring of watersheds to quantify concentrations and loads of priority pollutants to the Bay during wet weather events. Study watersheds have been selected to represent the range of land use and land cover characteristics of the diverse watersheds draining to the Bay. The STLS is a multi-year effort, which studied 4 watersheds for up to 4 storms in 2011-2012 (3 watersheds monitored by SFEI, one by consultant), and 6 watersheds are proposed for monitoring in 2012-2013. Empirical data on flow and concentration will be collected and used to compute loads, and to calibrate spreadsheet models to estimate loads across the region. Development of the spreadsheet model is underway (Lent and McKee, 2011), but this model does not yet have capacity to predict nutrient loads. Although nutrients are not the main focus of the STLS, three nutrient analytes (nitrate, total phosphorous, dissolved orthophosphate) are among the current list of analytes because they are required as part of the Municipal Regional

Stormwater Permit. However, other important nutrient analytes that are needed to provide a fuller picture of nutrient loads to the Bay are not funded because the permit does not require them (NH4, total Kjeldahl nitrogen (TKN)).

At the October 2011 RMP *Sources, Pathways, and Loadings Workgroup* meeting there was general agreement that the current suite of analytes should be augmented to include a full set of nutrient analytes, funds permitting. Adding these nutrient analytes, when teams are already mobilizing for the other contaminant sampling, is a wise investment, leveraging current funds being invested in this effort. NH4 and TKN were added to the list of analytes for the 2011-2012 sites, and that data has just become available and will be analyzed during Summer 2012 to inform potential sampling in 2013

We propose to collect samples for additional nutrient parameters at the six watersheds being sampled during the 2012-2013 rainy season. The proposed additional analytes are again NH4 and TKN. The combined suite of nutrient analytes matches the type of information being collected in the USGS monthly Bay surveys, and data being collected by POTWs over the next two years. Funds are also being requested for data analysis and preparation of a technical memo on all the nutrient data (including those already being measured by STLS), which will describe initial findings and make recommendations for field work in 2013-2014 and beyond. To the extent possible given budget constraints, a compilation of existing data on land use-specific runoff concentrations of nutrient forms will be compiled for a range of land uses through a collaboration with SCCWRP. The results from 2011-2012 and 2012-2013 rainy seasons will provide important information for quantifying nutrient loads to the Bay from urban runoff. It is roughly estimated that this proposed work is leveraging more than $300,000 of field work and logistical support.

BUDGET – Task 4

	# of sites	# of samples per site per storm	# of storms	Total # of samples including QA/QC	Cost per analysis	Total per analyte
NH_4^+ and TKN analysis	6	4	4	110	$130*	$14300
High turbidity filters –110 @$13 each + shipping						1430
Additional sampling effort						3000
Contracting, project management						2000
Data Management, QA/QC						2500
Data analysis and preparation of technical memo						15000
					Total	**$38,300**

*TKN = $70/sample; NH_4^+ = $60/sample

Task 5 Quantifying External Nutrient Loads and Data Gaps Analysis

Quantifying external nutrient loads to San Francisco Bay was identified as a high-priority funding item in the draft Bay Nutrient Strategy. Given that nitrogen (and to a lesser extent phosphorous) can experience multiple potential fates once entering an estuary, accurate load estimates are a pre-requisite for eventually developing reliable mass budgets and quantifying internal-Bay processes. In 2012, we proposed to develop spatially- and temporally-explicit estimates of nutrient loads to the Bay, and identify critical data gaps that contribute most to current uncertainty in total loads, speciation of those loads, and the relative importance of various sources. We proposed that this work would be distributed 40% and 60% between 2012 ($20k) and 2013 ($30K), respectively. Task 5 in this 2013 request is for the continuation and completion of that work.

A summary of external loads to the South Bay has already estimated by SFEI through funding from BACWA (McKee and Gluchowski, 2011). Task 5 (2012 and 2013) expands that loading work into the Central, San Pablo, and Suisun Bays, developing monthly, seasonal and annual load estimates, and exploring the importance of uncertainties in loading and nutrient speciation. The nutrient sources considered will include: POTW discharges; stormwater discharges; flows from the San Joaquin and Sacramento Rivers entering through the Delta; exchange across the Golden Gate; and direct atmospheric deposition. Unlike the South Bay, where loads from POTWs appear to dominate input of nutrients, other sources (flux through the Golden Gate; discharge through the Delta) likely contribute substantial proportions of the overall loads in the Central and North Bay. Loads from the Delta to the North Bay may be reasonably well-constrained, due to intensive monitoring in the region. Some of the funding in 2013 can be applied toward incorporating the historic and new discharge effluent data required under the Regional Water Board's March 2012 13267 Order to wastewater dischargers; that data will begin becoming available in the second half of 2012.

As part of identifying major uncertainties and data gaps, Task 5 will identify high-priority monitoring activities and special studies designed to better constrain nutrient load estimates.

BUDGET – Task 5

	RMP
on-going data analysis, report preparation	30k

Meeting Goals

- Review status of Regional Nutrient Strategy
- Discuss recommendations for 2013 RMP funding
- Identify priority work/studies for 2103
- Provide feedback on informal SAG survey

Agenda

- Introductions, goals, logistics
- Recap of March meeting
- Comments on Draft Nutrient Strategy
- Proposed projects for 2013 funding
- Lunch (on your own)
- Proposed projects for 2013 funding
- Discuss informal survey results
- Wrap up and next steps

Recap of Last Meeting & Action items

- Reviewed objectives and history of NNE project
- Presented draft elements of nutrient strategy
  - ✓ Requested comments (4 letters received)
- Provided an overview of funded projects
- Discussed organizational structure
  - ✓ Prepared Informal Survey (15 respondents)
  - ✓ Developed scope to solicit bids to help establish governance

Nutrient Strategy: Context

- Builds on clear statement of management decisions and goals
- Overarching work plan needed to guide project activities
- Strategy should represent consensus on science & policy work elements needed to manage nutrients
- Results in blueprint for regulatory decision-making

Work Underway or Funded

- Nutrient Strategy
- Conceptual Model Development
- Suisun Bay Ammonia Studies
  - SWAMP Study 2011-2012
  - Collaborative Studies
- Biogeochemical Model Development
- Loading Studies
  - Load Estimates Study
  - Effluent Characterization
  - Small Tributary Loading
- Assessment Framework
  - Nutrient Objectives

Progress since last meeting

- Conceptual model work
  - Kick-off CM meeting: May 7-8
  - synthesis and drafts underway
  - next technical team meeting: August
  - Draft CM report → September 30 2012
- Loading calculations
  - Calculations for POTWs by Bay segment (rough)
  - Beginning to refine calculations based on historic data
  - Developing approach for stormwater and Delta loads

Progress since last meeting

- Suisun Bay synthesis
  - Data gathering and data analysis
  - Simple 1-box budget for NH4
  - Beginning to develop detailed scope
- Assessment framework
  - Detailed scope development: Summer 2012

Agenda

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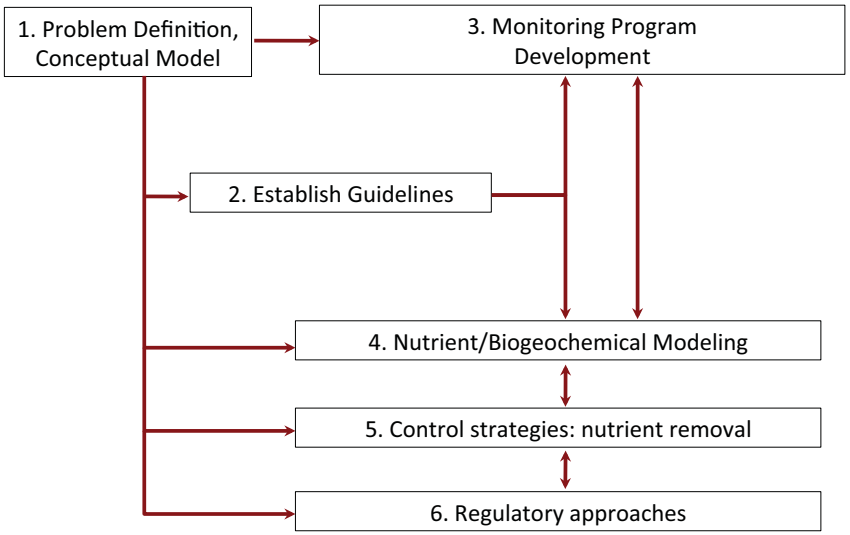
Draft Nutrient Strategy



Strategy Comments

- Strategy Overall
  - Supportive of development of strategy
  - Strategy is beginning of solid framework to approach for nutrients
  - Strategy timing synced with permit cycles
  - Importance of peer review
  - Too narrow a view of the nutrient problem - need to think beyond 'classic' eutrophication symptoms
  - Will be difficulty to develop a consensus problem statement about existing or future conditions
  - Wealth of ammonium inhibition literature missing

Strategy Comments

- Assessment Framework
  - Produced a draft sooner than March 2013
  - Develop objectives after management scenarios
  - Support for evaluation of ammonia objectives
- Control strategies
  - consider capital planning
  - nutrient load reductions
  - Regulatory approach

Strategy Comments

- Modeling Strategy
  - support for load-response modeling,
  - Requests creation of model evaluation group
  - specific input on approach
  - Unclear how a model would test cost-effectiveness of management scenarios
  - Concerned about listing on 303(d) based on model forecasting

Strategy Comments

- Monitoring
  - Monitoring needs to be a high priority
  - Need accurate assessment of loads (point, non-point, ocean loads, agricultural)
  - Get the loads right- Chesapeake example
  - Coordinate Bay and Delta RMPs
- Information needs
  - Biogeochemical pathways – more emphasis
  - More process-oriented measurements – e.g., direct measures of productivity, continuous DO for diel changes

Timeline - Strategy

Discussion - Strategy

- Comments, questions, clarifications?
- Next steps

Agenda

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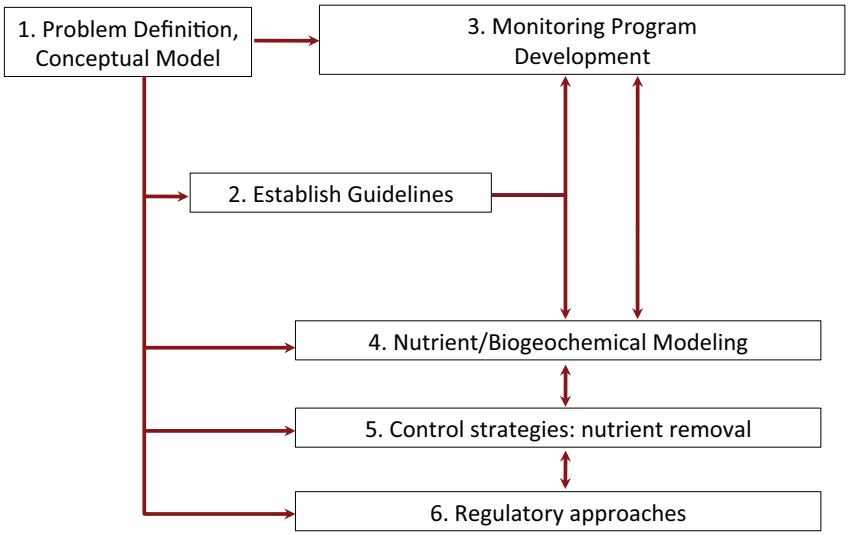
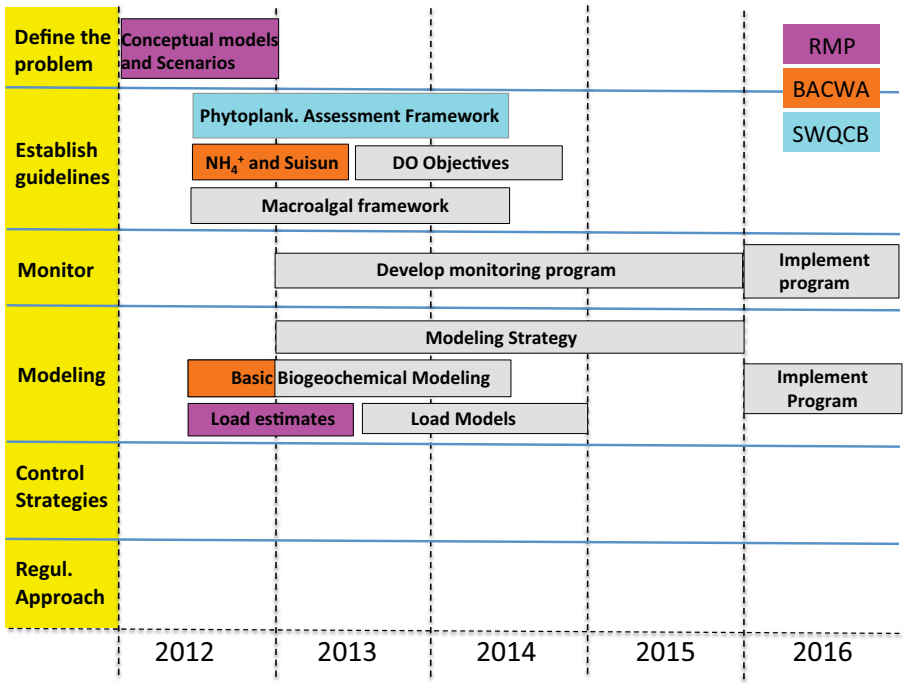
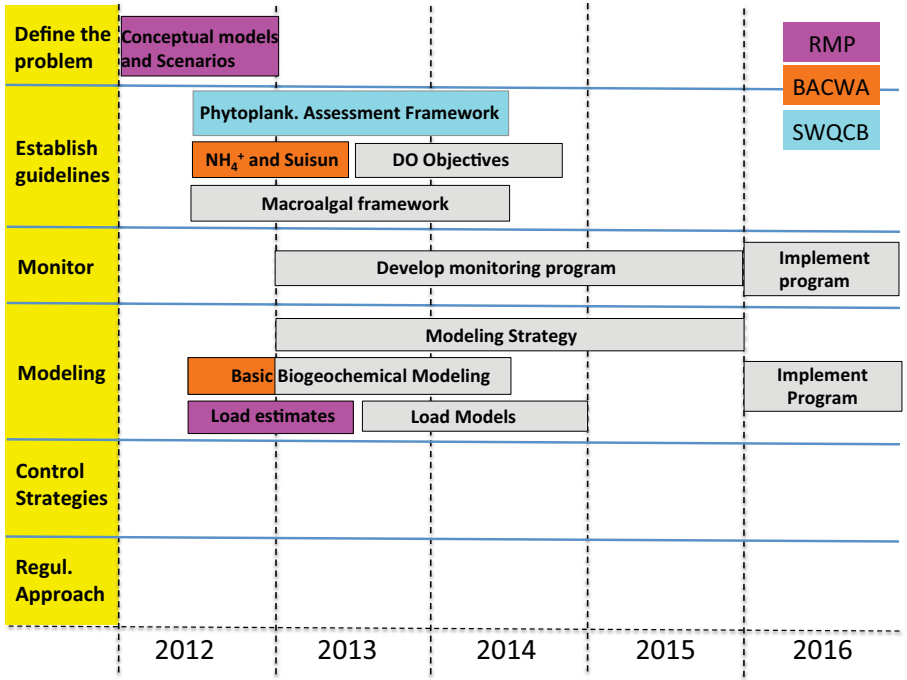




Funding Priorities 2013

- There are a number of projects that could be considered high priority based on
  - Strategy
  - Feedback on strategy
  - Conceptual Model Technical Team
  - Other stakeholder input
- More costs than funds
- Goal: Feedback on proposed projects for 2013 funding
  - Proposals going to RMP
  - Projects under consideration for funding by other groups



Priority Projects (subset) for 2013

	Work Element
1. Moored sensor pilot study	3
2. Algal phytotoxins	3
3. Nutrient stormwater sampling	3,4
4. Loading study continuation	1,4

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6. Biogeochemical modeling	4
7. Loads across Golden Gate	1,4
8. Photosynt. effic., and NH4/NO3 p.p.	2,3,4
9. Loads to Suisun from Delta	1,4
10. 3D model development	4
11. Assessment framework continuation	2

Major Questions Related to Monitoring Program

Scientific

- Parameters to be measured, what spatial/temporal frequency?
- What combination of approaches is needed
  - ship-based, moored sensors, others

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- Parameters to be measured, what spatial/temporal frequency?
- What combination of approaches is needed
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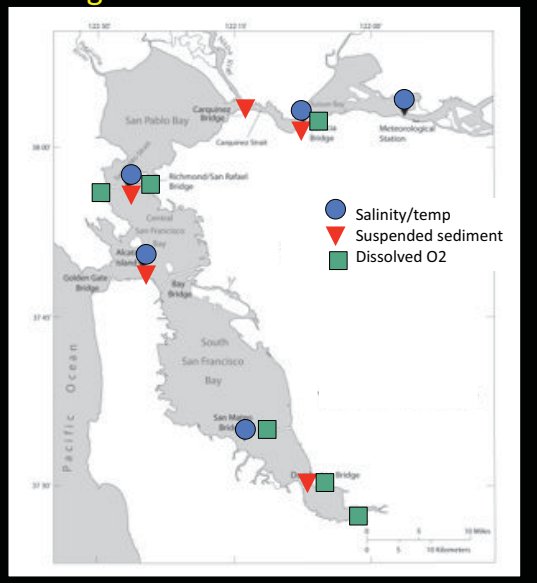
Institutional

- Approx. cost for running the program?
- What institutional agreements need to be established?
  - e.g., continued partnering with USGS, IEP
- Transition timeline?

Current continuous monitoring

Other capabilities???

- chl-a
- nitrate
- Eventual others…
  - FloCAM?



Moored Sensor Pilot Study - Dumbarton Bridge

cost: $270k (120k RMP, 70k USGS match, 70k other)
PI: J Cloern, D Senn

Objective: Deploy moored multi-sensor platform and develop regional capacity for use as part of monitoring program.

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PI: J Cloern, D Senn

Objective: Deploy moored multi-sensor platform and develop regional capacity for use as part of monitoring program.

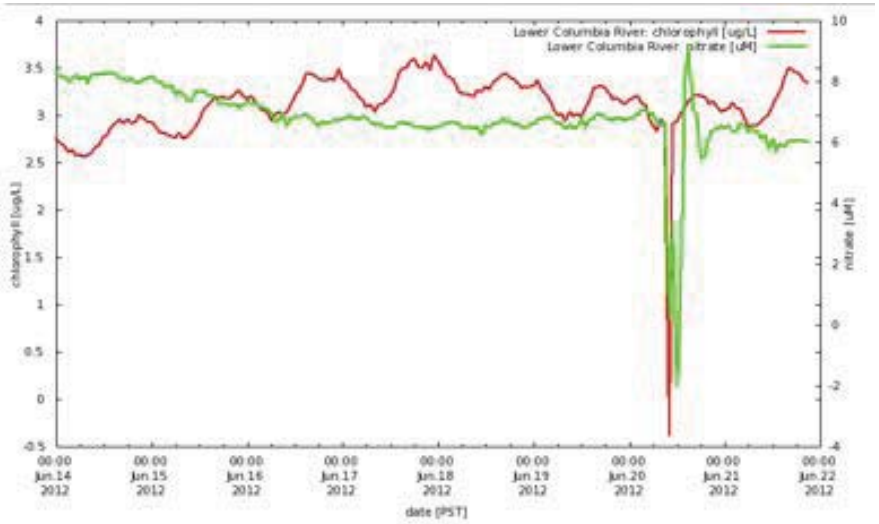
Approach:
- Research, selection
- Calibration, deployment, maintenance
- Co-deploy with existing USGS sensors
- Data analysis, QA/QC
- *Product:* Operating manual and technical memo

Potential Platform

LOBO
- conductivity
- temperature
- dissolved O_2
- chlorophyl
- turbidity
- nitrate

- telemetry
- bio-fouling resistant

Potential Platform



Algal biotoxins monitoring

cost: $65k (RMP)
PI: R Kudela (UC Santa Cruz)

Objective:
- Characterize the distribution of algal biotoxins in SF Bay
- Calibrate sampler for quantification of ambient concentrations
- Develop approach for use in monitoring program

Approach:
- Deploy Solid Phase Adsorption Toxin Tracking (SPATT) samplers
  - Monthly Transects: *Polaris* flow-through system
  - Dumbarton and Benicia Bridges (30 days)

- Calibrate SPATT through controlled laboratory experiments
- *Product:* Technical report

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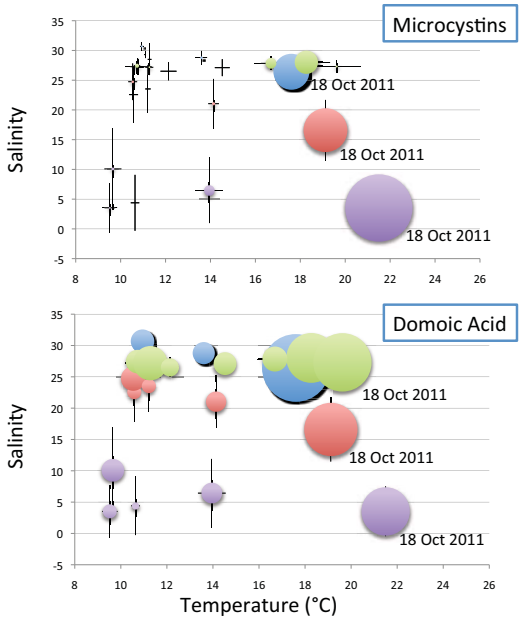
SPATT concentrations plotted in Temperature-Salinity space

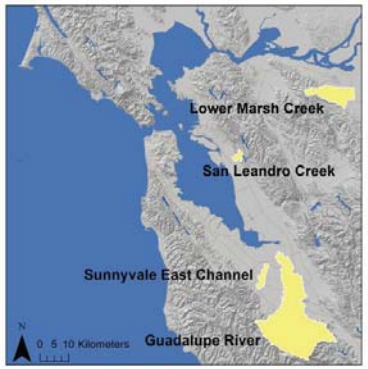


Bubble size = toxin concentration; color corresponds to Bay regions

Bars represent 1 SD for Salinity and Temperature

Stormwater nutrient monitoring, 6 watersheds

Cost: $38k (RMP)
PI: D Senn (for nutrients)



Objective:
- Characterize nutrient concentrations and quantify loads in diverse watersheds

Funding: RMP and BASMAA

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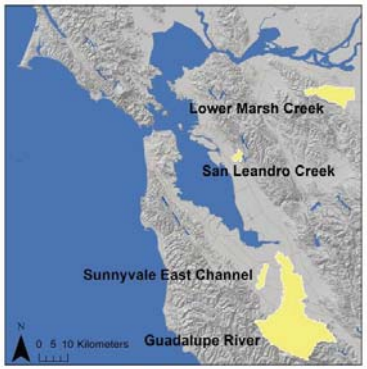


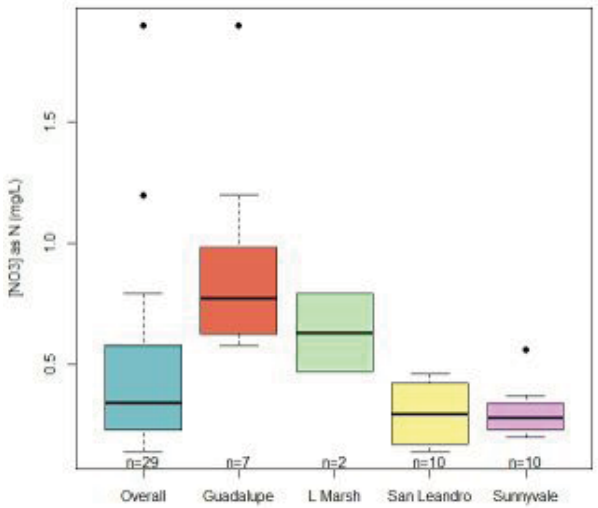
Objective:
- Characterize nutrient concentrations and quantify loads in diverse watersheds

Approach:
- Piggy-back on larger study (leverage >$300k in fieldwork)
- 6 watersheds, 4 storms
- NO3, NO2, NH4, PO4, TN, TP
- *Product:* Technical memo

New sites: - North Richmond pump station
- Pulgas

Funding: RMP and BASMAA

Stormwater nutrient monitoring, 6 watersheds

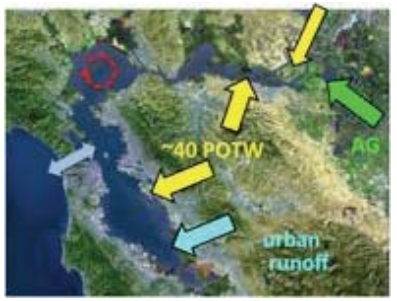


Funding: RMP and BASMAA

Assess Nutrient Loads to the Bay – continuation

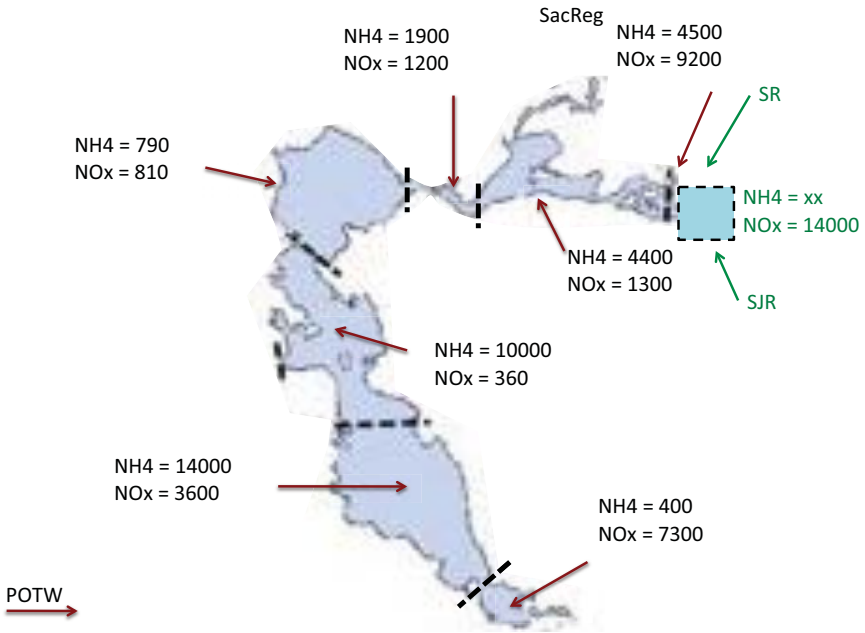
Cost: $30k (RMP)

PI: D Senn



Objectives

- Assess major nutrient loads and composition
- Characterize variations in space and time
- Identify major uncertainties and data gaps, future work



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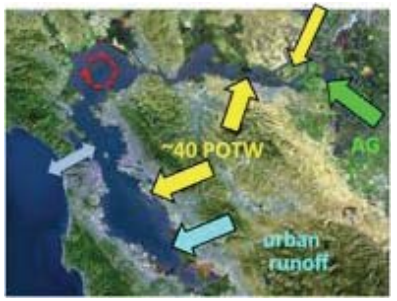

Approach for Part I & II:

- Refine POTW loads with archived and new effluent data
- Estimating stormwater and groundwater loads
- Initial estimates of GG loads and loads from the Delta
- Characterize variations in space and time
- Identify major uncertainties and data gaps, future work
- *Product:* Technical Report

Discussion of RMP projects

- Agreement on prioritization of these projects?
- Other priorities?

Priority Projects (subset) for 2013

		Work Element
1.	Moored sensor pilot study	3
2.	Algal phytotoxins	3
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11.	Assessment framework continuation	2

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- Parameters to be measured, what spatial/temporal frequency?
- What combination of approaches is needed
  - ship-based, moored sensors, others

Institutional

- Approx. cost for running the program?
- What institutional agreements need to be established?
  - e.g., continued partnering with USGS, IEP
- Transition timeline?

Monitoring Program Development I

cost: $25-50k (Nutrient Group)
PI: D Senn, J Davis, J Cloern (USGS)

Objective: Develop a transition plan for Monitoring Program migration from USGS to RMP

Approach:

- Investigate costs, infrastructure, logistics for various scenarios
- Identify new partners (e.g., IEP)
- Identify institutional agreements, timelines, constraints
- Convene ad hoc advisory committee of stakeholders, regulators, USGS and other partners
- *Product:* Report on migration plan

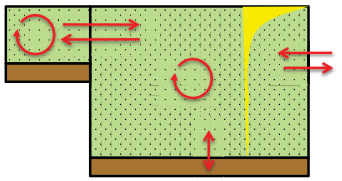
Biogeochemical Modeling: Suisun and South Bay

Cost: $300k (BACWA + RMP)
PI: D Senn
Collaborators/Technical Team:
Cloern (USGS), Dugdale (RTC), others

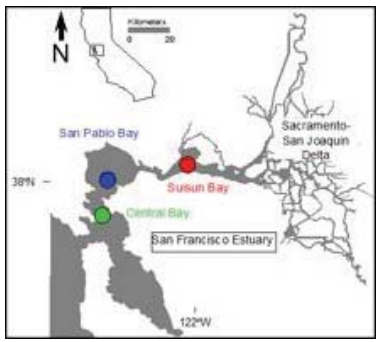
Objective: Develop biogeochemical models to…

- Quantitative data synthesis and nutrient budgets
- Assess relative importance of key processes/drivers
- Sensitivity analysis, identify critical uncertainties and data gaps
- Characterize system response (e.g., chl, O_2) under future scenarios
- Inform monitoring program and special studies

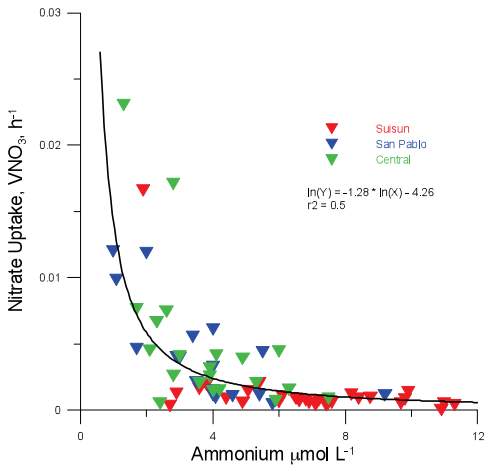
Biogeochemical Modeling: Suisun and South Bay



- flow, tidal exchange (t_{res})
- light limitation
- benthic grazing
- potential inhibition of PP by NH_4^+
- budgets: transformations, sources, and sinks

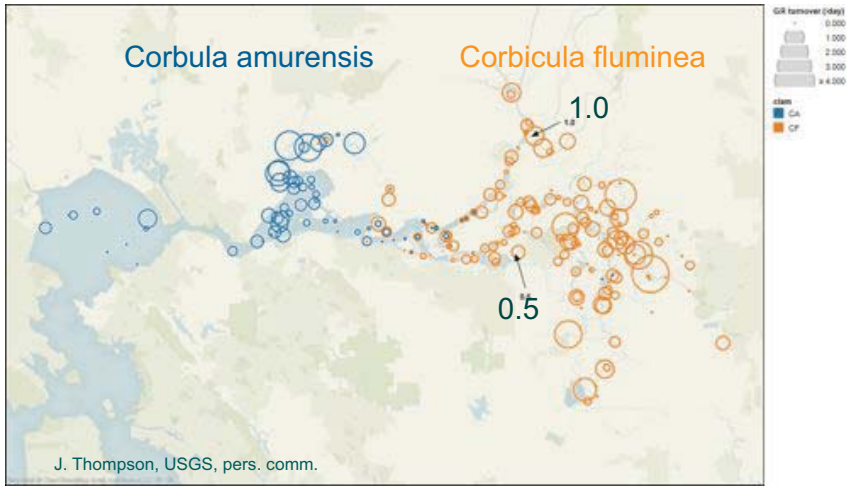


Evidence of NH4 inhibiting NO3 uptake



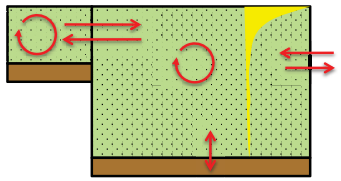
Dugdale et al., 2007

Turnover by grazing clams (d^{-1})
Example: May 2010



source: Kimmerer et al. 2011

Biogeochemical Modeling: Suisun and South Bay



P = phytoplankton biomass

$$V \frac{dP}{dt} = + M_{in} - k_{flush} P V - k_{graze} P V + \alpha_{light} \alpha_{NH4} k_{grow\text{-}max} P V$$

$$\alpha_{light}, \alpha_{NH4} < 1$$

Biogeochemical Modeling: Suisun and South Bay

Approach:

- Model development with technical team and WQ modeling and hydrodynamic consultants
- Use hydrodynamic data from other efforts (grid aggregation)
- Open-source model delivered to SFEI, technical group, and stakeholders to perform simulations, test/generate hypotheses
- *Product:* Model, technical report(s)

Nutrient exchange across the Golden Gate

Cost: $150k (Nutrient Group)
PI: M Stacey (UC Berkeley), J Largier (UC Davis)

- Coastal upwelling: cold, nutrient-rich water. max NO3 ~ 35µM

- Upwelling strongest during summer months when land runoff is weakest.

- Water at mouth of the Bay transported far into Bay each tidal cycle
  - ocean waters may intrude further as a density-driven lower layer (when stratified).

- These loads could potentially rival anthropogenic loads on any given day (given the Bay's tidal prism volume and upwelled NO3 levels)

Nutrient exchange across the Golden Gate

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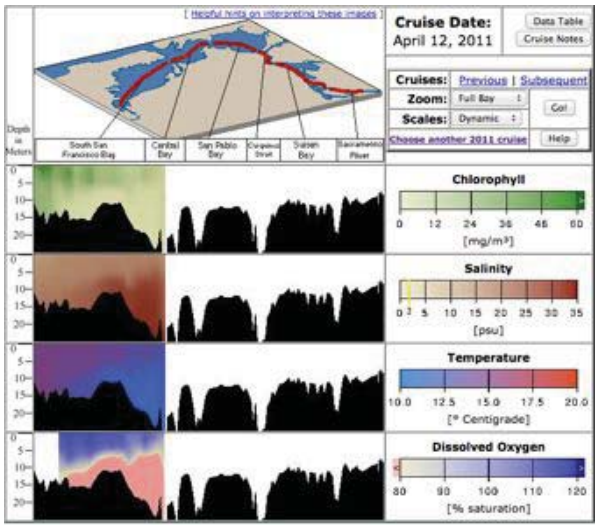


Nutrient exchange across the Golden Gate

Cost: $150k (Nutrient Group)
PI: M Stacey (UC Berkeley), J Largier (UC Davis)

Objectives & Approach:

- Develop conceptual model of nutrient delivery from ocean to bay, including factors controlling concentration, intrusion distance and time scales.

-Develop first-order quantitative estimates of nutrient flux from ocean to bay for a variety of scenarios.
  - e.g., using T-NO3 relationships

- Develop first-order quantitative estimates of the "reach of the ocean" – how far into the bay may ocean nutrients be important?
  - existing 1-D salt intrusion models

- Recommend next steps for refining estimates

Photosynthesis efficiency and primary production rates on NH4 vs. NO3

Cost: $200k (IEP, SFCWA, others)
PI: R Kudela (USCS)
Partners: M Berg (AMS), Region 2 Board, SFCWA, others

Stress affects photosynthesis

Yield = ATP / SUN

YIELD
- conversion efficiency of light energy into chemical energy for C fixation
- very sensitive to stressors
  - toxicity, changes in irradiance, salinity, temperature, and nutrient limitation

Photosynthesis efficiency and primary production rates on NH4 vs. NO3

Cost: $200k (IEP, SFCWA, others)
PI: R Kudela (USCS)
Partners: M Berg (AMS), Region 2 Board, SFCWA, others

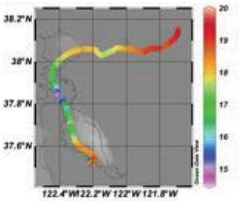
Stress affects photosynthesis

Yield = ATP / SUN

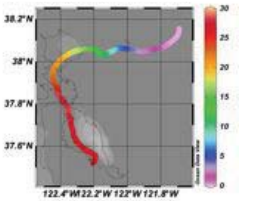
Does stress vary spatially in San Francisco Bay?

If so, what are the underlying causes?

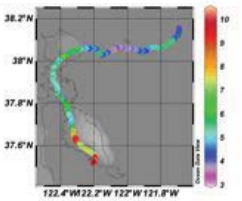
TEMPERATURE



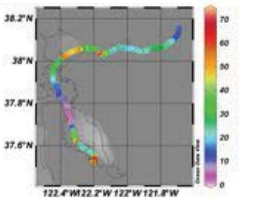
SALINITY



FLUORESCENCE

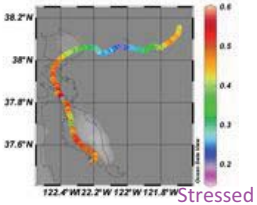


TURBIDITY



Happy

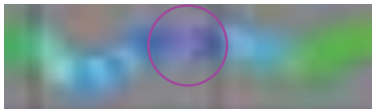
YIELD



Stressed

The answer is Yes

- 3-fold lower Yield in Suisun compared with South and Central Bays with San Pablo falling in-between
- The low-yield region in Suisun was well-defined and originated in the middle of the Bay, dissipating outwards.
- Yield increased moving towards the Sacramento River

San Pablo  Sacramento

Basin-specific Questions

QUESTION	APPROACH
How big is the Misery Spot in Suisun?	Map areal extent of spot
Does the spot move?	Map several times over the course of a year
Are phytoplankton stressed closer to SAC Regional?	Transect up the Sacramento River past SAC Regional

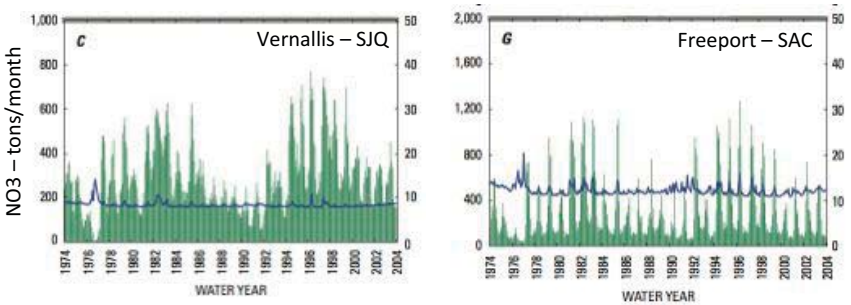
Phytoplankton physiology-specific Questions

QUESTIONS	APPROACH
Does ammonium inhibit yield, carbon fixation and growth in phytoplankton in Suisun?	Isolate individual phytoplankton species into culture from within and outside the Misery Spot and investigate the effect of varying nitrogen source (NH4, NO3) on yield, carbon fixation, and growth under controlled conditions (light, temperature, community composition)
	Perform TIE tests using the same unialgal cultures; add yield measurements

Quantifying nutrient loads from Delta to Suisun Bay

Cost: $100k (IEP)
PI: D Senn, C Kendal (USGS), M Guerrin (RMA)

- Large nutrients loads to the Delta from the Sac and SJ Rivers
- Internal sources & sinks → $Load_{Suisun} \neq Load_{Sac} + Loads_{SJ}$
- Strong seasonal variation, water exports



Kratzer et al. 2011 USGS

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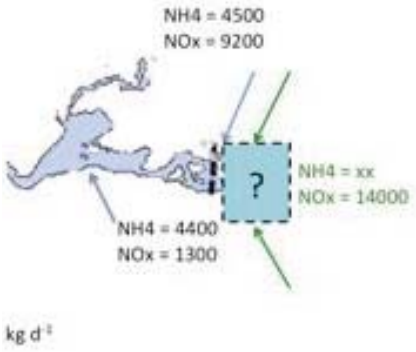


Quantifying nutrient loads from Delta to Suisun Bay

Cost: $100k (IEP)
PI: D Senn, C Kendal (USGS), M Guerrin (RMA)

Objective: Quantify nutrient loads and transformations under a range of relevant flow and pumping scenarios

Approach:

- Synthesize long-term monitoring data combined with DAYFLOW to estimate downstream loads
- Combine monitoring data (concentrations) and isotope data with hydrodynamic and reactive transport modeling (DSM2) to estimate internal sources and sinks and time-varying downstream loads
- *Product*: Loading model to Suisun, technical report

Delta Simulation Model 2 (DSM2)

Daily source "fingerprint"

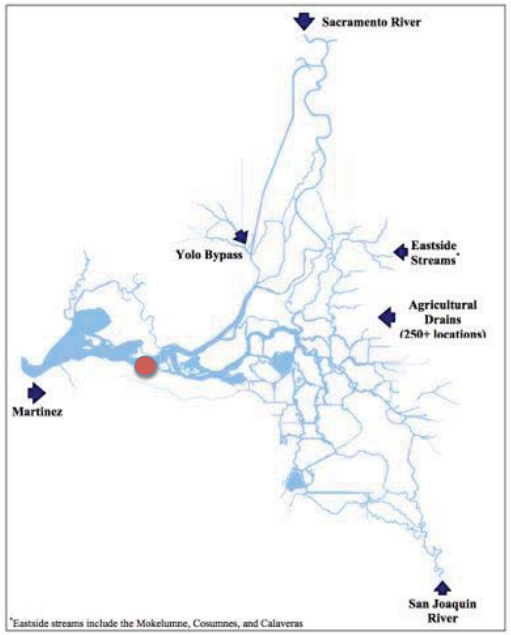


Figure 14.9: Typical Fingerprinting Source Locations for the Sacramento-San Joaquin Delta.

Delta Simulation Model 2 (DSM2)

Daily source "fingerprint"

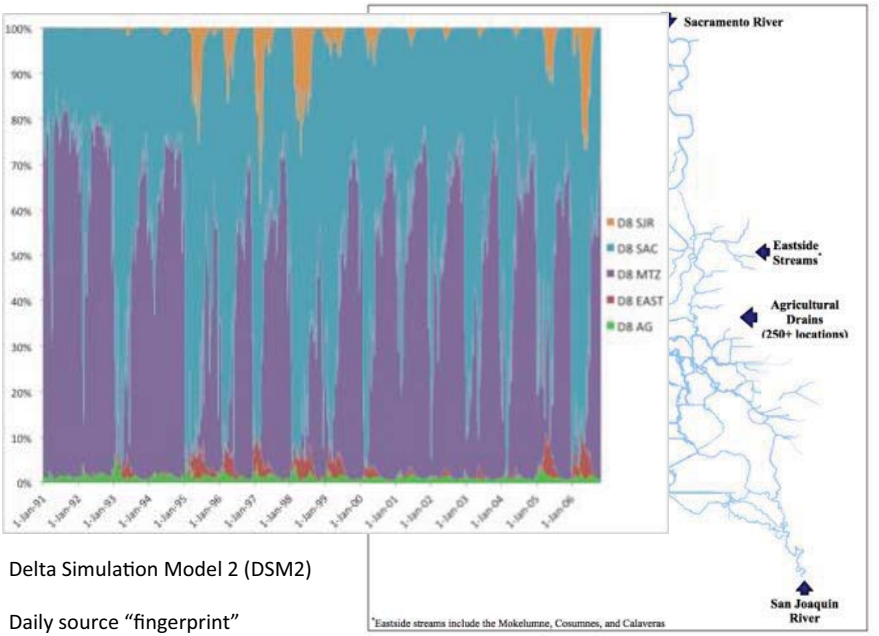


Figure 14.9: Typical Fingerprinting Source Locations for the Sacramento-San Joaquin Delta.

Informal Survey Results Overview

- Role of this group: input on study ideas; work product and workplan review; advise regional board
- Time commitment: quarterly
- Technical subcommittee formation: yes
- More formal governance structure: 100% for work and funding priorities

Informal Survey Results Overview cont'd

- Need for outside facilitation to define roles and responsibilities and organization structure: yes
- Funding for outside facilitation: no
- Formal meeting facilitation: no
- State Board as meeting facilitator: yes

Pardee Technical Seminar Planning

In preparation for the meeting, the Executive Director requests feedback on the items below.

Date: September 4 – 6, 2012 Time: To be determined

Attendees:

EBMUD – Ben Horenstein; Dave Williams
SFPUC – Laura Pagano
San Jose – Jim Ervin
CCCSD – Ann Farrell
EBDA – Mike Connor
DDSD – Gary Darling
BACWA – Jim Kelly; Alexandra Gunnell
SFRWQCB – Bruce Wolfe; Tom Mumley; Lila Tang; Bill Johnson
Others?

Discussion Topics:

- Revenue/Funding/BACWA Fee Structure for 2013-14 and beyond
- Nutrient Strategy Development – governance; funding; BACWA member participation/support
- Regulatory Program Manager – how best to utilize support
- Increasing BACWA member support, participation and engagement
- PCB/Mercury permit renewal

Like

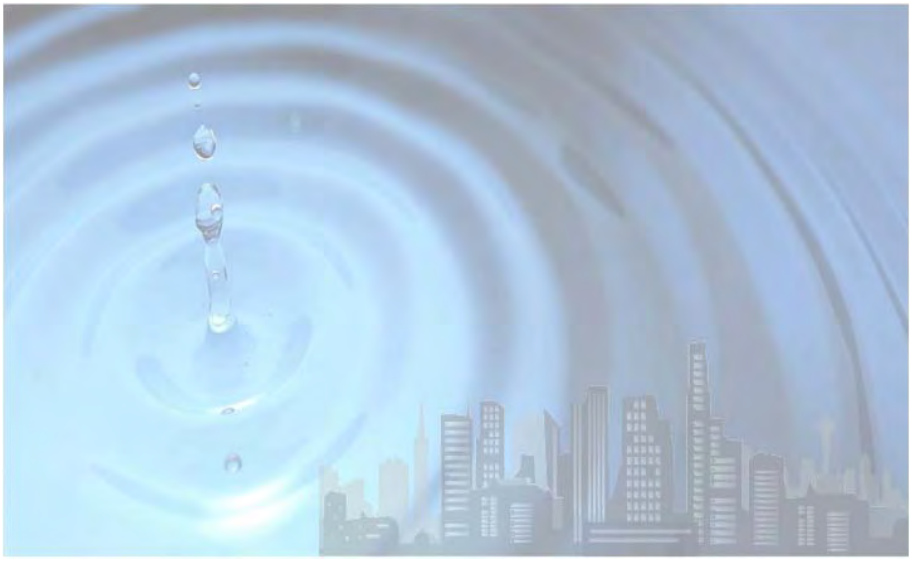
June 2012

Issue: 1

ReNUWIt News

Dear Jim,

We hope that you enjoy the first issue of the ReNUWIt Newsletter. This is the place to learn about upcoming events, project developments, recent publications, and website features. Thanks for your ongoing support of ReNUWIt!



NSF Site Visit Team Votes Unanimously to Continue ReNUWIt Funding

ReNUWIt

In This Issue

NSF Votes Unanimously to Continue ReNUWIt Funding

Resources at ReNUWIt.org

Call for Papers for ReNUWIt Special Issue in ES&T

Director Luthy Briefs Congress on Urban Water

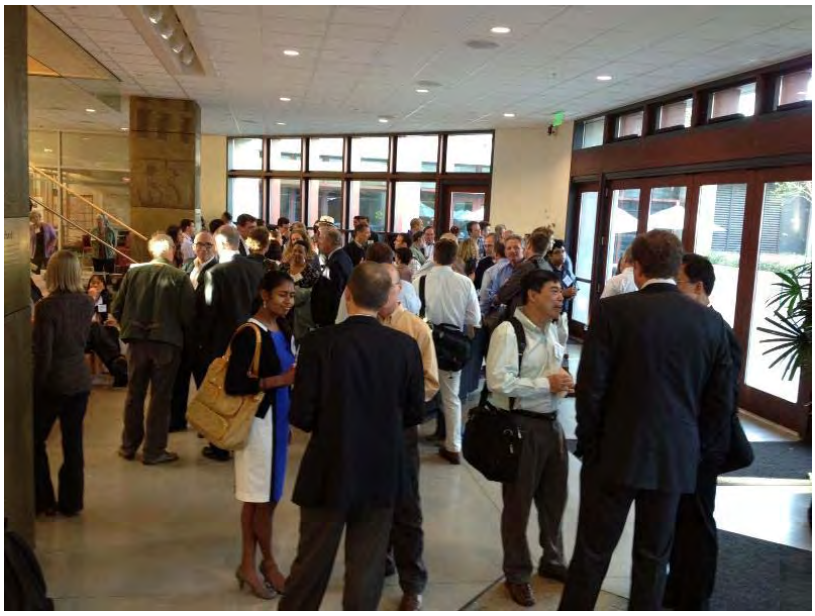
ReNUWIt Blog

Upcoming Events

October 25-26, 2012
Industrial Advisory Board Meeting - Colorado School of Mines, Golden, CO

January 14, 2013
Science Advisory Board Meeting - UC Berkeley, Berkeley, CA

Access Resources at ReNUWIt.org!



Reception at the 2012 Annual Meeting

On May 21-22, more than 130 attendees participated in ReNUWIt's Annual NSF Site Visit and Bi-Annual Industrial Advisory Board meeting at Stanford University. Highlights of the event included poster presentations from the ReNUWIt students/postdocs, recent findings from ongoing research projects, and updates from the Education and Outreach and Collaboration and Innovation programs. The end result was the highest recommendation from the NSF Site Visit Team, a unanimous vote to continue funding for ReNUWIt.

Director Dick Luthy Briefs Congress on Urban Water Infrastructure

ReNUWIt Director Dick Luthy gave a Congressional Brief on designing urban water infrastructure to save energy and water. The session was chaired by Senator Harry Reid of Nevada. Pat Mulroy, General Manager, Southern Nevada Water Authority and ReNUWIt IAB member, also participated in the Congressional Brief held on April 25 at the Senate Visitors Center.

To read more about the event and to download the briefing flyer, please click here.

ReNUWIt Blog Features Latest Adventures from the Field

IAB members now have access to webcasts, publications, presentations and other important resources through our website. To start your search, please click here.

Call for Papers for ReNUWIt Special Issue in ES&T

Submissions are invited for a special issue of Environmental Science & Technology titled "Design Options for a More Sustainable Urban Water Environment." For more information, please click here.

Join Our Mailing List!

ReNUWIt Visits Hayward Shoreline Marsh Expansion Project

The ReNUWIt Blog has seen a flurry of activity over the last few weeks. Recent postings include: haiku and a field trip recap from the Hayward Marsh by Janet Hsiao; ReNUWIt reflections from recent graduate Vicheth Kaing; and a movie review of *Last Call at the Oasis* by Justin Lawrence.

To read the ReNUWIt Blog, please click here.

Forward this email