Freshwater Cyanotoxin Workshop

A 1 day class

Date: November 28, 2012

Location: San Francisco Regional Water Quality Control Board
1515 Clay St.
Oakland, CA 94612
First floor auditorium

Time: 9:00 AM – 4:15 PM
(Please allow extra time for security check)

Registration Fees: None

To Register: Follow the training registration requirements, obtain all required approvals and then register on-line at http://www.trainingforce.com/6/lp/gowater.aspx?ot=9&otid=1735

If you have questions about the registration process, please contact Jami Ferguson at (916) 322-3235 or jferguson@waterboards.ca.gov.

If you have special accommodation or language needs, please contact Barbara Andersen at 916-341-5519 or bandersen@waterboards.ca.gov at least 5 working days prior to the class. TTY/DD/Speech to Speech users may dial 7-1-1 for the California Relay Service.

Course Description: Cyanobacteria (also known as blue-green algae) are photosynthetic bacteria that are found naturally in a variety of freshwater habitats throughout California and can produce toxins (cyanotoxins) under certain conditions. Exposure to cyanotoxins can occur by ingestion, inhalation and dermal contact. Cyanotoxins have been causing problems in a number of water bodies in California, and have resulted in drinking water supply concerns, wildlife and domestic animal deaths, human health risks and restrictions on shellfish harvesting. In spite of these well-documented problems, no monitoring efforts are in place to routinely screen for cyanobacteria blooms or associated cyanotoxins in water or organisms in freshwater habitats.

The 1-day workshop will provide staff from the State Water Resources Control Board, the Regional Boards, and other water quality professionals with current knowledge of cyanobacteria and cyanotoxins, which are important contaminants of emerging concern. Armed with the most up-to-date knowledge, water quality staff can better assess cyanobacterial threats to California's water bodies. After the workshop, staff will have a better understanding of potential factors that foster cyanobacteria blooms and cyanotoxin production and will be better equipped to take actions to reduce these sources, and improve water quality.

Topics to be presented include:

- National and statewide perspectives and policies on cyanobacteria and cyanotoxins
- Environmental factors driving bloom occurrence and toxin production
- Monitoring and analytical tools
- Case studies from the Klamath River, central and southern California

BAY AREA BIOSOLIDS

A NATURAL RESOURCE

What Are Biosolids?

Biosolids are nutrient-rich organic materials that come from the community's sewage and are treated in wastewater treatment facilities. Biosolids are a valuable resource that can be used as a fertilizer, soil amendment, landfill cover, or in energy generation. Federal, state and local regulatory agencies tightly regulate biosolids treatment and ensure proper application of their reuse and disposal. BACWA member agencies use management practices for biosolids that are cost efficient, environmentally sound and sustainable.

Types Of Biosolids

There are two classes of biosolids that are defined by levels of pathogens, such as certain bacteria, viruses and parasites (Clean Water Act, Title 40 of the Code of Federal Regulations, Part 503):

- **CLASS A** biosolids contain undetectable levels for essentially all pathogens and are used as fertilizers or soil amendments with buffer requirements. Biosolids that meet the most stringent EPA Exceptional Quality (EQ) requirements for 9 regulated pollutants (from arsenic to zinc), are safe for unregulated use. No site controls are needed when Class A EQ biosolids are used as fertilizers or soil amendments, and they can be distributed to farmers and the general public (e.g. for use in community gardens).
- **CLASS B** biosolids may have low levels of pathogens which rapidly die off when applied to soils, and are equally as safe as Class A biosolids when specified management practices are followed.

Processed biosolids can be used in a number of different and benefical ways.

Ensuring Biosolids are Safe for the Community

Biosolids are tightly regulated by the Environmental Protection Agency, the California Department of Health Services, San Francisco Bay Regional Water Quality Control Boards, CalRecycle, and the Bay Area Air Quality Management District. For more information visit water.epa.gov/polwaste/wastewater/treatment/biosolids/index.cfm

Below are contaminants that are monitored by regulatory agencies:

PATHOGENS are not found in Class A biosolids. Class B biosolids may have low levels of pathogens that rapidly die off when applied to soils.

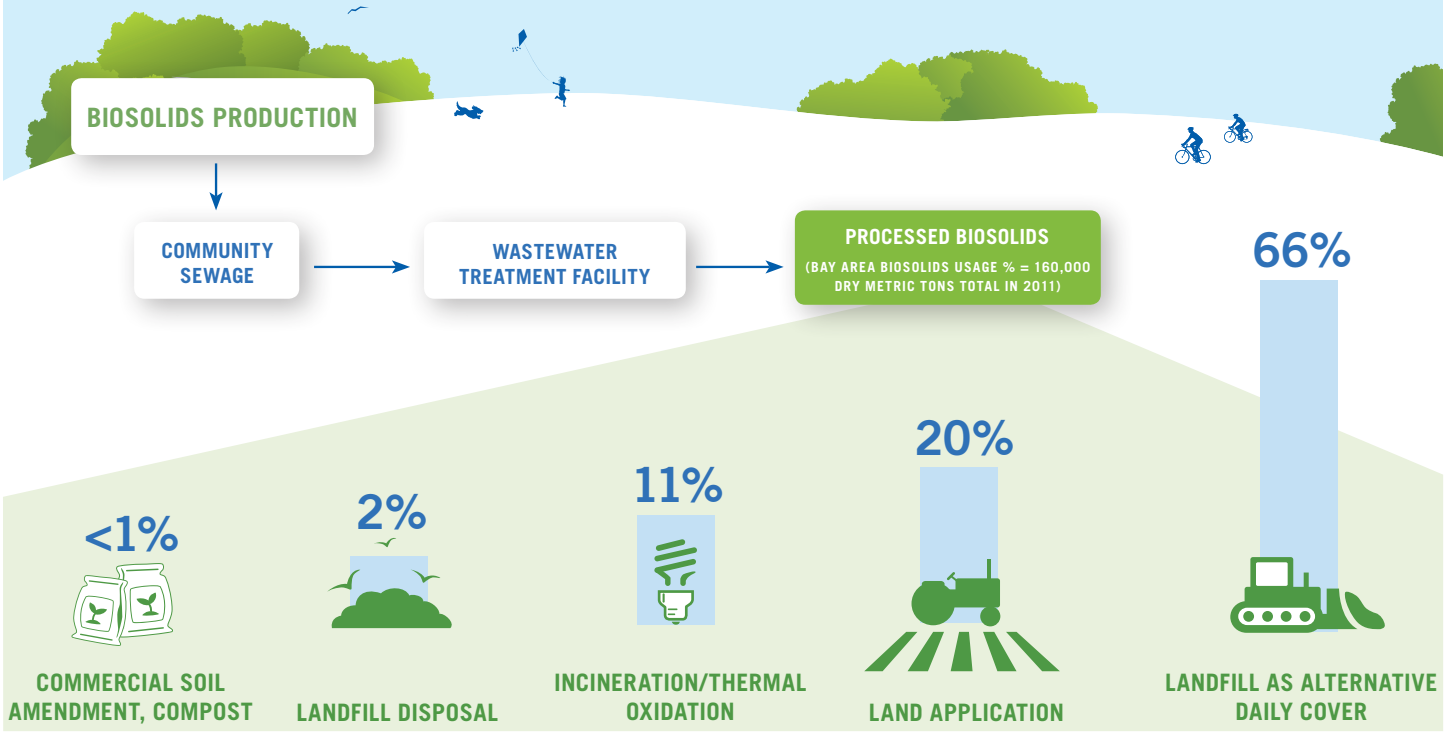
METALS such as nickel, zinc and copper can be found in biosolids. All wastewater treatment plants have extensive pretreatment and monitoring requirements for industrial and commercial facilities so that metals and other pollutants are reduced or removed before the wastewater is discharged to the treatment plant. Any metals remaining in the Class A and Class B biosolids are below the thresholds set by the EPA and not a risk to human health or the environment when properly used.

CONTAMINANTS OF EMERGING CONCERN (CECS) are chemicals found in biosolids from sources such as pharmaceuticals and personal care products. Many CECs rapidly oxidize in soil and break down into innocuous compounds. Wastewater treatment plants in collaboration with the US EPA and the Water Environment Research Foundation have been conducting research on CECs as they relate to biosolids to better understand what is in the biosolids and whether there is any risk to human health or the environment. More information can be found at www.kingcounty.gov/environment/wastewater/Biosolids/BiosolidsRecyclingProjects/Research.aspx

IMPACTS TO GROUNDWATER are minimized by proper management practices which are required by operating permits. These practices include ensuring proper application levels, maintaining buffer zones between application areas and surface water, and following soil conservation practices. In addition, the organic forms of nutrients in biosolids are less water soluble than chemical fertilizers and less likely to leach into groundwater or run off into surface water.

Reusing Biosolids to Benefit the Community

Because of the climate in Northern California and the desire to reduce greenhouse gas emissions, Bay Area biosolids producers recycle biosolids in a number of different and beneficial ways.



Creation of bulk and bagged compost is required to meet all Class A biosolids requirements. This material can be sold and is used by farmers, community gardeners and landscapers.

Some biosolids are disposed of in landfills. While this option provides a low-cost disposal option, landfill space is limited and many biosolids producers have moved away from this option towards options that provide a beneficial reuse.

Biosolids have a bioenergy value of 10,000 to 12,000 BTUs per pound of volatile solids. While systems to harness the bioenergy in biosolids require significant investments in managing air pollutants, these systems can provide renewable energy to a community and dramatically reduce the volume of biosolids by converting them to an inert ash suitable for a number of beneficial uses.

Land application of biosolids benefits Bay Area agriculture by improving soil productivity through increased organic matter, moisture holding capacity, and overall soil structure. This use reduces dependence on inorganic fertilizers and the high energy demands for their production. Long-term land application of biosolids has also been shown to enhance soil microbial activity and increase soil macro nutrients.

A beneficial reuse for biosolids is Alternative Daily Cover (ADC) for solid waste landfills in California. ADC is a mixture of biosolids and soil to cover the open face of a landfill every day to reduce community health risks. This is an environmentally beneficial alternative for landfills that might otherwise need to import additional soil or other organic wastes for cover material.

What are the future opportunities for using Biosolids?

The San Francisco Bay Area is a recognized leader in innovation and technology. Bay Area wastewater agencies are using new technologies to create renewable energy and fuel from biosolids to help reduce greenhouse gas emissions and contribute to a green economy. Currently, most Bay Area wastewater treatment plants successfully generate methane gas from biosolids through anaerobic digestion to support their energy needs.

BENEFICIAL REUSE Biosolids contain valuable energy and nutrient resources after digestion. Continuing to use biosolids as a soil amendment provides the opportunity to utilize valuable nutrients, including phosphorous of which supplies are becoming more and more limited.

RESOURCE RECOVERY - Bay Area Biosolids to Energy Eighteen San Francisco Bay Area agencies, representing 3.5 million residents, have come together to explore opportunities to diversify biosolids management options with the development of a regional facility that will use biosolids and other biofuels to generate renewable energy. For more information visit www.bayareabiosolids.com/

Land application operations improve soil productivity through increased organic matter, moisture holding capacity, and overall soil structure.

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.

WATERSHED PERMIT REISSUANCE/PCB DATA: Put together a workgroup to look at PCB monitoring in the Watershed Permit, and led a conference call on 8/29. Workgroup agreed that future monitoring should be based on PCB loads instead of flow. There was a lot of concern about the quality of the data and the consensus was that we should conduct a more robust special study than was initially proposed, and curtail monitoring until its conclusion. Met with RWQCB staff on 9/7 and they agreed in principle to special study. Drafted proposed language for PCB special study to be included in TO, and submitted it to RWQCB staff on 9/14. Contacted SFEI to discuss the latest congener data from fish tissue and other matrices. No changes in congener distribution seen in preliminary analyses, and therefore no anticipated impact on watershed permit. Final report is due in the fall.

DRAFT POLICY FOR TOXICITY ASSESSMENT AND CONTROL: Drafted, incorporated comments and submitted BACWA comment letter on Policy on 8/21. Attended State Toxicity Workshop on 8/21. Developing language to justify RWQCB dropping acute toxicity monitoring requirements when new policy goes into effect.

PERMIT REVIEW: Reviewed Sausalito's TO. Followed up with RWQCB Staff on language that low RP for chronic toxicity based on 100% NOEC means they don't need numeric limit. Regardless of the language, staff do not foresee adding numeric limits to permits prior to State Toxicity Policy adoption.

MEETINGS ATTENDED: Joint BACWA/RWQCB Meeting 8/20, State Toxicity Policy Workshop 8/21, Toxicity Workgroup Meeting at PERL 8/23, Meeting with RWQCB Staff on acute toxicity and PCB special study 9/7, Permits/Lab Committees Joint Meeting 9/11.

UPCOMING REGULATORY DEVELOPMENTS:

- CECs in Ecosystems Panel monitoring study implementation recommendations will be brought before State Board at 10/16 hearing. See Board Action Request in packet.
- Biological Objectives CEQA scoping comments due 10/19.

NEXT MONTH

- State Water Board stakeholder meeting on Biological Objectives 10/11 (moved from 9/20)

- Work with POTW community on proposal for phasing Toxicity Policy, starting with change in statistical method to TST and sampling frequency. Need to develop set of hypotheses to test whether TST is "successful" or not prior to phasing in numeric limits.

- Continue to work with Regional Water Board on Hg and PCB Watershed Permit Reissuance, liaise with SFEI over change in study

- Facilitate BACWA's participation in State Board Realignment effort

EXECUTIVE BOARD CHAIR AUTHORIZATION REQUEST

FILE NO.: 12,789

DATE: 8/17/2012

TITLE: O'Rorke, Inc. for Media Relations and Facebook Advertising Placement for No Drugs Down the Drain for BAPPG FY2012-13

RECOMMENDED ACTION

Chair authorization for an agreement with O'Rorke, Inc in an amount not to exceed $6,499 for media relations assistance and placement and monitoring Facebook ads for the No Drugs Down the Drain Campaign for the BAPPG Pollution Prevention Week and the No Drugs Down the Drain FY2012-13 to be completed by December 30, 2012.

SUMMARY

This contract will provide outreach support for the Bay Area Pollution Prevention Committee's Baywise website and promote BAPPG's P2 Week message of No Drugs Down the Drain through media relations and on-line Facebook advertisements. Palo Alto is providing artwork in kind for the Facebook advertisements.

This work will be carried out under the supervision of Karin North, Palo Alto and Karri Ving, SFPUC.

FISCAL IMPACT

This item is included in the Fiscal Year 20012-2013 BAPPG budget and workplan, line item Pollution Prevention Week and No Drugs Down the Drain, which has been approved by the BACWA Executive Board. There are sufficient funds in the BAPPG account to pay for this project.

ALTERNATIVES

No other alternatives were considered as the BACWA contracting policies authorize a sole source selection process for contracts under $50,000.

Attachments:

1. Scope of Work

Approved By: Ben Horenstein	Date: 8/21/2012

Scope of Work for NDDD

O'Rorke services	Develop press release for NDDD during P2 Week. Make press calls. Place and monitor Facebook ads. $2,899
Facebook Ad Placement	For CPC campaign $3,600
TOTAL CONTRACT	$6,499

BACWA CHAIR / EXECUTIVE DIRECTOR AUTHORIZATION REQUEST

FILE NO.: 12,802

DATE: August 27, 2012

TITLE: Prodigy Press Inc to print No Drugs Down the Drain Tear-off Sheets for Pharmaceutical Project for BAPPG FY 2012/2013.

RECOMMENDED ACTION

Chair authorization for an agreement with Prodigy Press Inc in an amount not to exceed $2,500 for printing No Drugs Down the Drain Tear-off Pads to complement BAPPG's Pollution Prevention message on No Drugs down the Drain which is budgeted in the Pharmaceutical Budget Line Item FY2012/2013, to be completed by September 2012.

SUMMARY

This contract will provide the printing of tear-off pads to promote No Drugs Down the Drain and direct residents to the baywise.org website. The BAPPG's Bay Pollution Prevention message is to promote No Drugs Down the Drain, which will be promoted by agency staff who will deliver the tear pads to local pharmacies and senior centers. The tear-off pad design was developed by the City of Palo Alto and the tear-off pads are an effective way to promote existing pharmaceutical disposal locations and the baywise website.

This work will be carried out under the supervision of Karin North, Palo Alto.

FISCAL IMPACT

This item is included in the Fiscal Year 20012-2013 BAPPG budget and workplan, line item under Pharmaceuticals, which has been approved by the BACWA Executive Board. There are sufficient funds in the BAPPG account to pay for this project.

ALTERNATIVES

No other alternatives were considered as the BACWA contracting policies authorize a sole source selection process for contracts under $50,000.

Attachments:

1. Cost Estimate
2. Purchase Order
3. Example of tear-off pads

Approved By:	Date:
James M. Kelly	8/31/2012

Prodigy Press, Inc.
150 Grant Ave. Suite A
Palo Alto, CA 94306
(650) 566-1890 Fax: (650) 566-1993

ESTIMATE 17403

Date: 08/20/2012

Due Date:

Customer 1797

ATTN: Maree A. Doden329-2495
City of Palo Alto
C/O Print Shop / Accounts Payable
250 Hamilton Ave
Palo Alto, CA 94301

Order Description

Color Pads

Customer Phone: (650) 329-2505

Fax: (650) 329-2433

Order Taken By:

Salesperson:

ORIG	QTY	SIDES	DESCRIPTION	PAPER	PRICE
1	25,000	2	5 x 4 Color pads 500 pads of 50 2 Side	80 WHT Gloss T	$2,165.00

Quantity **Total Price** **Price/1000** **Price/EA**

Ship-To

Ship Via: Deliver

State Tax $181.32

TOTAL $2,346.32

EXECUTIVE DIRECTOR AUTHORIZATION REQUEST

FILE NO.: 12,786

DATE: 8/15/2012

TITLE: Norcal Printing, Inc. Production of Cu Algaecide Fact Sheet for BAPPG FY2012-13

RECOMMENDED ACTION

Executive Director authorization for an agreement with Norcal Printing, Inc in an amount not to exceed $4,850.00 for the reproduction of the Our Water Our World Pools, Spas, and Fountains Maintenance Fact Sheet for the BAPPG Copper Algaecide Outreach project FY2012-13 to be completed by December 30, 2012.

SUMMARY

This contract will provide printing services for the Our Water Our World Pools, Spas, and Fountains Maintenance Fact Sheet that addresses copper algaecide issues.

This work will be carried out under the supervision of Catherine L. Allin, City of Millbrae.

FISCAL IMPACT

This item is included in the Fiscal Year 20012-2013 BAPPG budget and workplan, line item Copper Algaecide Outreach which has been approved by the BACWA Executive Board. There are sufficient funds in the BAPPG account to pay for this project.

ALTERNATIVES

No other alternatives were considered as the BACWA contracting policies authorize a sole source selection process for contracts under $50,000.

Attachments:

1. Purchase Order

Approved By:	Date:
James M. Kelly	8/31/2012

BACWA CHAIR / EXECUTIVE DIRECTOR AUTHORIZATION REQUEST

FILE NO.: 12,811

DATE: August 27, 2012

TITLE: Jen Jackson for Baywise.org and Steering Committee Support BAPPG FY 2012/2013.

RECOMMENDED ACTION

Chair authorization for an agreement with Jennifer Jackson in an amount not to exceed $4,999 for Baywise.org content development and maintenance and other BAPPG Steering Committee support BAPPG FY 2012/2013 Budget Line Item "Baywise.org Maintenance" and "Unplanned Issues" to be completed by June 30, 2013.

SUMMARY

This contract will provide content development and maintenance of the Bay Area Pollution Prevention Group's public website Baywise.org to support new and existing regional campaigns and projects, as well as as-needed assistance by the BAPPG Steering Committee on analysis and drafting of comment letters for pollution prevention-related regulatory actions, including Green Chemistry and pesticide registration reviews. Without this support, it is unlikely that any BAPPG member could take on these tasks, so the work would not get done.

BAPPG has selected Jen Jackson based on the following factors:

- It's very efficient to use Jen because of her historical knowledge. She requires very little direction, which helps BAPPG be more productive.

- Because she worked for a BACWA agency, she is sensitive to BACWA issues and the positions that BACWA has taken related to different pollutants.

- Jen has an amazing billing rate. She bills at half the hourly billing rate as similar consultants.

- Jen has the most knowledge of the BayWise.org website. She is one of only a couple of people that even know how to log into the website to modify it.

- Jen is very skilled at analyzing pesticide and pollution prevention-related regulations and writing very effective comment letters to address POTW concerns.

This work will be carried out under the supervision of Melody LaBella, Central Contra Costa Sanitary District and Karin North, City of Palo Alto.

FISCAL IMPACT

BAPPG has adequate funding for this project. Part of this project (website maintenance) was specifically budgeted for in FY 2012/2013.

ALTERNATIVES

No other alternatives were considered as the BACWA contracting policies authorize a sole source selection process for contracts under $50,000.

Attachments:

1. Scope of Work
2. Purchase Order

SCOPE OF WORK

1. Post new content provided by BAPPG members to Baywise.org on an ongoing basis. *(BAPPG Budget Line Item "Miscellaneous: Maintenance of BAPPG website")*
2. As needed, work with the Bay Area Regional Campaign to update Baywise.org *(BAPPG Budget Line Item "Miscellaneous: Maintenance of BAPPG website")*
3. Assist BAPPG steering committee in developing comments and writing letters for P2-related regulatory initiatives such as Green Chemistry regulations, pesticide regulation, and pharmaceutical disposal. *(BAPPG Budget Line Item "Unplanned Issues")*
4. Assist with development and delivery of public comment at public hearings on behalf of BAPPG. *(BAPPG Budget Line Item "Unplanned Issues")*

BUDGET

$4,999 / September 2012 – June 2013

PROJECT STAFF

Work to be performed by Jennifer Jackson, billed on an hourly basis $80/hour, in quarter hour increments, for time actually spent. Travel rate is $35/hour plus $0.51/mile and tolls.

CONTRACTING ENTITY

C. Jennifer Jackson Environmental & Communications Consulting
PO Box 343
El Portal CA 95318
(415) 378-4074
cjenniferjackson@yahoo.com

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 10

FILE NO.: N/A

MEETING DATE: September 27, 2012

TITLE: Designation of BACWA Representatives for Aquatic Science Center Board

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

RECOMMENDED ACTION

Designate two BACWA Representatives for the Aquatic Science Center Board.

SUMMARY

On July 1st, 2007 the State Water Resources Control Board and BACWA entered into a Joint Powers Agreement creating the Aquatic Science Center (ASC) and agreed to utilize the San Francisco Estuary Institute as its administrator. As stated in the agreement

The purpose of the ASC is to

a. Establish a separate public agency to promote and deliver scientific support services to governmental and non-governmental organizations in central and northern California that foster scientific understanding needed to protect and enhance the San Francisco Estuary.

b. Serve as a fiduciary agent, with the San Francisco Estuary Institute as the administrator, to assist with the efficient delivery of financial, scientific, monitoring, and information management support functions.

The Governing Board of Directors at a minimum composed of the following:

a. Deputy Director, Division of Water Quality, State Water Resources Control Board;
b. Executive Officer, San Francisco Bay Regional Water Quality Control Board;
c. Executive Officer, Central Valley Regional Water Quality Control Board;
d. Division Director, Water Division, U.S. EPA, Region IX; and
e. Three directors appointed by BACWA.

Historically BACWA representatives have consisted of three BACWA Executive Board members and BACWA has designated three alternates from the remaining two Board members and the Executive Director. Earlier this year, efforts began to merge the SFEI and ASC governing boards and the BACWA Board was asked to considered making changes to their representation. Under the new structure BACWA has agreed to allocate one of their seats to the Sacramento Regional County Sanitation District. Now BACWA will need to determine their remaining two representatives and three alternates. Currently BACWA is represented by Dave Williams, Kirsten Struve and Laura Pagano.

FISCAL IMPACT

This action has no fiscal impact.

ALTERNATIVES

This action does not require consideration of alternatives.

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 11
FILE NO.: 12,680
MEETING DATE: September 27, 2012

TITLE: Authorize Continued Funding of SFEI Nutrients Strategy Development

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

ACTION UNDER CONSIDERATION

Authorize SFEI to continue Nutrients Strategy Development work outlined in their current agreement utilizing remaining contract funds in an amount not to exceed a total of $350,000.

SUMMARY

In February 2012 BACWA entered into an agreement with the San Francisco Estuary Institute (SFEI) for Nutrient Strategy Development support services in an amount not to exceed $350,000 for the period of February 17, 2012 through June 30, 2013. To date BACWA has been billed for approximately $106,000 leaving a balance of $244,000 remaining on the agreement. In February 2012 BACWA authorized $175,000, the amount that was anticipated to be spent in the remainder of FY 2011-2012. This action would authorize the use of the remaining $175,000 to allow SFEI to continue work outlined in the original agreement. SFEI has made good progress on the foundational work, and is to the point where more staff and subject area experts need to be engaged to compete the work. For this to occur, at least $75,000 of the remainder of the funds need to be authorized to help ensure continued progress on the Strategy Development through the remainder of 2012. The $100,000 is designated for modeling, and would not be used until there is agreement on the modeling approach.

FISCAL IMPACT

This project was included in the CBC budget and workplans for fiscal years 2011-12 ($175,000) and 2012-13 ($175,000).

ALTERNATIVES

Authorize $75,000 now, and consider authorization of $100,000 later.

Attachments:

1. BACWA Letter to RWQCB 2012-01-18
2. Scope of Work 12,680

January 18, 2012

Mr. Bruce Wolfe
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

RE: BACWA Support for Development and Implementation of a Nutrient Science and Management Strategy

Dear Mr. Wolfe:

I am writing on behalf of the Bay Area Clean Water Agencies (BACWA) to inform you that, on December 19, the BACWA Executive Board approved funding for a work to help advance the understanding of potential nutrient-related impacts on San Francisco Bay water quality and to develop numeric nutrient endpoints (NNEs). The attached proposal was developed by the San Francisco Estuary Institute/Aquatic Science Center (SFEI/ACS) as requested by BACWA, and in coordination with San Francisco Bay Regional Water Quality Control Board (Regional Water Board) staff.

The proposal consists of three work elements; identified as high priority projects by SFEI/ASC, the Regional Water Board and BACWA:

- **Work Element #1. Coordination of Nutrient Strategy Development and Implementation**

This element will enable refinement of the preliminary Nutrient Strategy already developed by the Regional Water Board and based on the NNE Literature Review and Data Gaps analysis. It will also provide resources to develop more detailed work plans and funding proposals for parts of the Strategy that are currently only captured in general terms. An important component of this element will be the convention of stakeholder and technical advisory groups to assist with refining goals, developing work plans, identifying priority projects, and strategizing about funding mechanisms.

- **Work Element #2. Box Models and Budgets, Suisun Bay and South Bay: Hypothesis testing and sensitivity analysis**

This element will build upon conceptual model work funded by the Regional Monitoring Program (RMP) for completion in 2012 and the phytoplankton assessment framework funded by the Water Boards in 2012. The outcomes will be numeric box models for Suisun Bay and the South Bay, which are critical links between the conceptual models and future three dimensional dynamic simulation models. These models will assist with generating and testing hypotheses; quantifying the relative importance of processes; and performing sensitivity analysis to help identify critical data gaps. In addition, these models will be used to evaluate biological response under future scenarios in these Bay segments (e.g., decreased nutrient loads, changes in flow from the Delta, changes in nitrogen speciation due to potential addition of a nitrification step at wastewater treatment plants, continued decreases in suspended sediment loads, etc.).

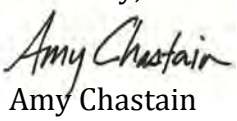
- **Work Element #3: Suisun Bay Study Plan Development**

Questions about the potential relationship between ammonia, nutrients, and other stressors in the Suisun Bay and the decline of protected pelagic fish species have been raised by this Regional Water Board, the Central Valley Regional Water Board, and stakeholders (including agencies that rely on water from the Central Valley Water Project). These issues are also identified in the NNE Literature Review and the current version of the Nutrient Strategy as requiring further investigation. This element is a logical next step towards resolving existing uncertainties. Specific deliverables include: (1) a draft study plan summarizing existing knowledge related to beneficial use impairment from ionized ammonia, describing ongoing studies, and identifying additional studies to address knowledge gaps; (2) a technical report on the life cycles of diatoms and copepods suspected of being adversely affected by ammonia, nutrients and other stressors in the system; and (3) a Suisun Bay model that builds upon work element two (described above) and that is consistent with the Bay-Delta wide modeling plan being developed within the nutrient strategy.

This work will be carried out by the San Francisco Estuary Institute and Aquatic Science Center (SFEI/ASC), in cooperation with the Regional Water Board, BACWA, other regional stakeholders, and regional scientists. It supplements and complements work previously undertaken by SFEI/ASC and funded by BACWA, including the June 2011 Nutrient RMP Workshop and South Bay nutrient load refinement. It is also consistent with work in progress related to the Surface Water Ambient Monitoring Program-funded Suisun Bay Work Plan which BACWA and the Central Contra Costa Sanitary District have supported and the Regional Monitoring Program's 2012 nutrient studies recently approved by the Steering and Technical Review Committees.

In early 2012, we anticipate working with SFEI/ASC and Regional Water Board representatives to develop the details necessary to implement this $350,000 proposal. We believe that this effort is a good start towards a cohesive plan that will provide strong scientific and technical bases for future scientific studies and models that can then be used understand nutrient-related impacts on the Bay and ultimately guide management decisions to further protect the San Francisco Bay Estuary.

Sincerely,



Amy Chastain
Executive Director

Attachment: Nutrient Strategy Development and Implementation: A proposal to BACWA and the San Francisco Bay Regional Water Quality Control Board

CC: Tom Mumley, SFBRWQCB
Naomi Feger, SFBRWQCB
Lila Tang, SFBRWQCB
Bill Johnson, SFBRWQCB
Vince Christian, SFBRWQCB
David Senn, SFEI/ASC
Gary Darling, Delta Diablo Sanitary District
Amanda Roa, Delta Diablo Sanitary District
BACWA Executive Board

San Francisco Bay Nutrient Strategy Support: Scope of Work

David Senn, PhD.
San Francisco Estuary Institute

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 BACWA.

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.

Estimated Task Budget for 2012

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**

Estimated Personnel Budget for 2012

			Billing rate	Hours	Cost
1.0	**Personnel**				
		Senior Scientist	172	745	128250
		Associate Environmental Scientist	95	600	57220
		Environmental Scientist	106	401	42680
		Web designer	108	63	6800
		Environmental Scientist (new modeler)	86	870	75050[1]
		Project Manager	135	111	15000
		Contracts	92	54	5000
	Total Personnel				*330000*
2.0	**Travel**	Local and regional travel: SFEI staff, SCCWRP, local tech experts			5000
		Travel for national experts			*0*[2]
	total Travel				*5000*
3.0	**Contractual**				
		SCWWRP			15000
		Technical Experts			*0*[2]
		Facilitator			*0*[2]
	Total Contractual				*15000*
4.0	**Other**				
		Costs of meetings, logistics			*0*[2]
				total	**350000**

[1] Supports the first six months of effort for this two-year task, i.e., 25% of anticipated salary for this position through June 2014.

[2] Costs are anticipated, but not included in this budget.

Invoice

San Francisco Estuary Institute
4911 Central Ave.
Richmond, CA 94804
EIN 94-2951373

September 05, 2012
Project No: 1092.00
Invoice No: 1092006

Bay Area Clean Water Agency
PO Box 24055, MS702
Oakland, CA 94623

Project 1092.00 SF Bay Nutrient Strategy Support
attn: James Kelly

Professional Services from August 01, 2012 to August 31, 2012

Task 001 Project Administration and Reporting

Professional Personnel

	Hours	Rate	Amount	
Sr Manager/Sr Scientist II				
Senn, Dave	3.50	139.91	489.69	
Sr Environmental/IT/GIS Analyst				
Novick, Emily	4.00	68.51	274.04	
Totals	7.50		763.73	
Total Labor				**763.73**
			Total this Task	**$763.73**

Task 002 Nutrient Strategy Development & Coordina

Professional Personnel

	Hours	Rate	Amount	
Sr Manager/Sr Scientist II				
Senn, Dave	45.00	139.91	6,295.95	
Sr Environmental/IT/GIS Analyst				
Novick, Emily	40.00	68.51	2,740.40	
Totals	85.00		9,036.35	
Total Labor				**9,036.35**

Reimbursable Expenses

Telephone				
8/15/2012	Wells Fargo Bank PRC	Telephone	16.30	
8/15/2012	Wells Fargo Bank PRC	Telephone	73.30	
Total Reimbursables			**89.60**	**89.60**
			Total this Task	**$9,125.95**

Task 004 Synthesis of Science: Suisun Bay

Professional Personnel

	Hours	Rate	Amount
Sr Manager/Sr Scientist II			
Senn, Dave	20.00	139.91	2,798.20
Scientist II-III			
Jabusch, Thomas	72.00	102.77	7,399.44

Contact Lawrence Leung at 510-746-7356 or lawrence@sfei.org for questions.

Project	1092.00	SF Bay Nutrient Strategy Support		Invoice	1092006
Scientist I/Associate Scientist					
Gilbreath, Alicia		.50	76.72	38.36	
Sr Environmental/IT/GIS Analyst					
Novick, Emily		81.25	68.51	5,566.44	
	Totals	173.75		15,802.44	
	Total Labor				**15,802.44**
				Total this Task	**$15,802.44**

Billing Limits	**Current**	**Prior**	**To-Date**	
Total Billings	25,692.12	81,019.50	106,711.62	
Limit			350,000.00	
Remaining			243,288.38	
			Total this Invoice	**$25,692.12**

Project Manager Emily Novick Date: 9/5/2012

Emily Novick

SFEI Monthly Status Report
San Francisco Bay Nutrient Strategy Support
Report Period: August 1st – August 31st, 2012

SUMMARY
Work during this period included meetings with BACWA, other stakeholders, potential partners, and Regional Water Quality Control Board staff, work plan development for Suisun Bay synthesis, and continued data gathering and interpretation for Suisun.

WORK COMPLETED THIS PERIOD
Task 1 Project Administration and Reporting

- Project management tasks, including communications with BACWA board and preparing an invoice and status report.
- Preparation of subcontracts for 2 chapters of Synthesis report to be written by Wim Kimmerer (on zooplankton ecology) and Mine Berg (on phytoplankton ecology)

Task 2.1 Form a Stakeholder Advisory Group and facilitate review of strategy

- Scheduling and preparing for September 14th SAG meeting
- Revisions of nutrient strategy in response to comments in preparation for upcoming new draft

Task 2.2 Produce a nutrient strategy

- Writing and submitting final proposal to IEP 2012 Call for Study Concept Proposal, after notification of qualifying for 2nd round of review.

Task 2.3 Stakeholder Outreach and Coordination

- Meeting with and soliciting input from BACWA, stakeholders, and Regional Water Quality Control Board staff
- Suisun Bay / SWAMP meeting (August 27)

Task 4.1 Synthesis Report and Study Plan for Suisun Bay

- Developing a workplan for Suisun Bay synthesis, including creating a draft outline for the report
- Developing and editing chapters within the report.
- On-going analysis of water quality and nutrient load data in Suisun Bay

NEXT STEPS (90-DAY LOOK AHEAD)

- Continued data gathering and interpretation for Suisun Bay
- Moving forward with multiple components of the Suisun synthesis, such as science synthesis chapter (by SFEI) and additional chapters by Kimmerer and Berg

- Meetings and coordination with BACWA, Regional Board, and other stakeholders to continue development Nutrient Strategy
- Preparing for stakeholder meeting in September 2012

SCHEDULE
Task 2 and 4 are generally proceeding on schedule.

BUDGET
Total expenditures during this 1 month billing period were $25,692. Total billing to date is $106,711, approximately 30% of the total contract.

BACWA Nutrient Watershed Permit

Concept Paper – For Discussion Only

What:
A "watershed" permit would be issued by RB to BACWA (BACWA members) in similar fashion as the mercury and PCB permit model. The permit would have a range of requirements that would be negotiated with RB staff including the support of WQ studies we have already committed to as well as those studies we are able to reasonably forecast for the next 5 yrs (permit cycle). The permit would also have requirements for BACWA/permittees to investigate and institute studies and/or pilot projects that advance the state-of-knowledge of how to best manage/mitigate the impact from POTW nutrient discharges. Lastly, the permit would have an accompanying Administrative Order that would provide for a level of clarity (and some protection) in the commitment and regulatory expectations over a period longer than the 5-yr permit.

Why:
Over the past couple of years, BACWA has been playing "defense" to a host of nutrient-related issues and pressures. Without a proactive message and/or initiative developed and implemented by BACWA, this reactive role we find ourselves in will likely only continue, perhaps in a more accelerated and consequential fashion. At some (tipping) point, the range of options for Bay-area POTWs will likely be narrowed due to regulatory and other pressures that require immediate action.

For a host of reasons, BACWA has an interest in looking beyond numeric WQ standards. Numeric standards will likely result in costly "grey infrastructure" upgrades for most/all POTWs while alternative approaches may be both more cost effective and lead to a better outcome for the Bay. The range of alternatives includes technologies such as centrate treatment, nutrient mining and wetland and other green-based technologies as well as non-traditional approaches such as; seasonal limits, nutrient trading and shellfish propagation.

Taking a proactive role, and committing to something that is reasonable and demonstrates our intent to move the discussion forward, will 1) shift the current dynamics that are reactive, frustrating and not necessarily cost effective 2) provide a regional WQ leadership role in support of BACWA's members and 3) help to ensure that the right outcome is ultimately achieved on this very complex issue.

Who:
In theory, this watershed permit would have all SF Bay POTWs covered. The question of including industrial and/or stormwater agencies would need further consideration.

Given that under this conceptual framework some POTWs may construct capital pilot facilities that benefit not only themselves but others under the watershed permit, there needs to be a way to design a fair process for funding the permit-required activities that recognizes individual benefits and common benefits.

Also, there may be some POTWs that do not support proactive actions that cost money, in advance of regulatory mandates, therefore, unlike PCB or Hg permits, this could be an "opt-in" permit, where those that chose not be part of this can negotiate on their own.

Stakeholders to this permit development could be NGOs, could be academia via ReNuIt, and certainly regional, state and federal regulators.

How/When:
In addition to the work in developing a draft and supporting negotiations with the RB, there are a few key issues where expert support would be valuable:

1. How does BACWA obtain some level of protection from committing to actions in a permit and the goal posts being moved (Admin Order, other?)
2. How does BACWA engage the greater POTW community on this concept and what funding implications may be?
3. What is the time-sensitivity of this effort – if we went forward what is the practical timeframe to develop this and what are external drivers that may influence the schedule.

Recommendation:

1) BACWA issue a RFI/RFP for proposals that consider this concept and offer approaches/teams to take this on
2) Based on what we receive, discuss internally in BACWA and with RB
3) Depending upon outcome of review/discussion from what we receive, take next step(s) which may include; general membership meeting, developing contract with selected team and/or do nothing

BACWA EXECUTIVE BOARD ACTION REQUEST

AGENDA NO.: 14
FILE NO.: NA
MEETING DATE: September 27, 2012

TITLE: Regulatory Updates: Advisory Panel for CECs in Freshwater, Coastal, and Marine Ecosystems, Monitoring Study Recommendation

☐ **MOTION** ☐ **RESOLUTION** x **DISCUSSION**

RECOMMENDED ACTION

Discuss proposal that POTWs implement CECs monitoring study recommended by Panel.

SUMMARY

The State Water Board, in conjunction with the David and Lucile Packard Foundation and a group of stakeholder advisors tasked a group of scientists to address the issues associated with compounds of emerging concern (CECs) in the State's aquatic systems that receive discharge of treated municipal wastewater effluent and stormwater. The group was charged to identify potential sources and evaluate the fate and effects of CECs, and ultimately to provide guidance for developing monitoring programs that assess those chemicals with the highest potential to cause effects in the State's receiving waters. This effort began in 2009 and culminated in a Final Report in April 2012.

The Final Report is available at: ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/692_CECEcosystemsPanelReport_Final.pdf.

The Report describes the following four products:

- **Product #1:** A conceptual, risk-based approach to assess and identify CECs for monitoring in California receiving waters
- **Product #2:** Application of the risk-based screening framework to identify a list of CECs for initial Monitoring
- **Product #3:** An adaptive, phased monitoring approach with interpretive guidelines that direct and update actions commensurate with potential risk.
- **Product #4:** Research needs to develop bioanalytical screening methods, link molecular responses with higher order effects, and fill key data gaps

A monitoring study is recommended as part of Product #3. The section of the Final Report describing this study is provided in Attachment 1. Recommendations for the implementation of the study will go before the State Board at the October 16, 2012 hearing. The State Board is expected consider choosing one of the following identified options:

- Manage study through SWAMP and fund with a raise in fees
- Gather data directly from POTWs via 13267 letter
- Direct Regional Boards to require monitoring for the interim list of constituents in the Final Report

- Direct POTW community to implement the study and take responsibility for deciding how to scope, manage and fund it

The Executive Director of CASA convened a small group of POTW representatives (Christopher Stacklin and Jim Colston, OCSD; Ann Heil and Joe Gully, LACSD; Debbie Webster, CVCWA; Mitch Mysliwiec, LWA) to talk about options for the study implementation. The POTW representatives agreed that the fourth option is the preferred alternative and should be offered at the October 16 hearing. The rationale is that since POTWs will pay for the study under any implementation alternative, it makes sense that the POTW community should manage it as well. No further details about implementation, such as participants or a funding scheme, have been discussed yet.

The CEC panel will need to be reconvened following the conclusion of the study. It is likely that the State Board will be able to pay for that effort with remaining grant funds from the David and Lucile Packard Foundation.

FISCAL IMPACT

None, this is a discussion item only.

ALTERNATIVES

This action does not require consideration of any alternatives, unless the BACWA principals do not agree with the ad hoc group's recommendation.

ATTACHMENTS

None

2013 BACWA EXECUTIVE BOARD
REGULAR MONTHLY MEETING SCHEDULE

DATE	TIME	LOCATION
January 24, 2013 *(Annual Member Meeting – no regular Board meeting in January)*	8:30 – 2:00	Laurel Room / Calendow Conference Center 1111 Broadway, 7th Floor Oakland, CA
February 28, 2013	9:00 – 12:00	EBMUD Lab Library
March 28, 2013	9:00 – 12:00	EBMUD Lab Library
*April 25, 2013	9:00 – 12:00	EBMUD Lab Library
May 23, 2013	9:00 – 12:00	EBMUD Lab Library
June 27, 2013	9:00 – 12:00	EBMUD Lab Library
July 25, 2013	9:00 – 12:00	EBMUD Lab Library
August 22, 2013	9:00 – 12:00	EBMUD Lab Library
September 26, 2013	9:00 – 12:00	EBMUD Lab Library
October 23 – 25, 2013 *(Pardee Tech Seminar)*	TBD	EBMUD Pardee Facility
November 21, 2013	9:00 – 12:00	EBMUD Lab Library
December 19, 2013 *(Holiday Lunch)*	9:00 – 2:00	EBMUD Lab Library

*May need to reschedule due to conflict with CASA Spring Conference.

Reminder of remaining scheduled meetings for 2012:

October 25th, 9am-12pm (*Need to confirm Board Member availability*)
November 5-7, Pardee Technical Seminar
November 15th, 9am-12pm (*Need to confirm Board Member availability*)
December 20th, 9am-2pm (holiday lunch)

Revised: September 21, 2012

CASA 2013 Conferences

MID-YEAR CONFERENCE
January 16-18, 2013
Renaissance Esmeralda Indian Wells, CA
877-622-3140

D.C. CONFERENCE
February 25 – 27, 2013
Mayflower Renaissance Washington, DC
800- 266-9432

SPRING CONFERENCE
April 24 – 26, 2013
Newport Beach Marriott
866-440-3375

ANNUAL CONFERENCE
August 21 – 14, 2013
Manchester Grand Hyatt San Diego
619-232-1234

NACWA 2013 Conferences

2013 Winter Conference
February 3 – 6, 2013
Hyatt Regency Miami

National Environmental Policy Forum
April 21 – 24, 2013
Washington Marriott
Washington, D.C.

National Pretreatment & Prevention Workshop
May 2013
Location TBD

Summer Conference & 43nd Annual Meeting
July 14 – 17, 2013
Hilton Cincinnati Netherland Plaza

Developments in Clean Water Law Seminar
November 2013
Location TBD

WEF 2013 Conferences and Seminars

Water Arabia 2013
Le Meridien
Al-Khobar, Saudi Arabia
February 4 - 6, 2013

Disinfection and Public Health Conference 2013
Hyatt Regency Indianapolis
Indianapolis, Indiana
February 23 - 26, 2013

2013 Water & Wastewater Leadership Center
University of North Carolina Kenan-Flagler Business School
Chapel Hill, North Carolina
February 24 - March 8, 2013

The Utility Management Conference™ 2013
Renaissance Phoenix Glendale Hotel & Spa
Phoenix, Arizona
March 10 - 13, 2013

Residuals and Biosolids 2013: Emerging Opportunities for Sustainable Resource Recovery
Nashville Convention Center
Nashville, Tennessee
May 5 - 8, 2013

Energy & Water 2013: Integrated Solutions for Advancing Technology and Management
Renaissance Hotel
Nashville, Tennessee
May 6 - 9, 2013

Collection Systems 2013: Gold Nuggets of Knowledge
Sacramento Convention Center
Sacramento, California
June 9 - 12, 2013

WEF/IWA Nutrient Removal and Recovery 2013: Trends in Resource Recovery and Use
Sheraton Vancouver Wall Centre Hotel
Vancouver, British Columbia, Canada
July 28 - 31, 2013

James Kelly
BACWA
PO Box 24055, MS702
Oakland, CA 94623

Louise Elliott
Isle Utilities
louise.elliott@isleutilities.com

20th April 2012

Dear James

Proposal for TAG in California

Further to our meeting this week, please find below our proposal for BACWA and their members to join our Orange County TAG group. I trust that this proposal is in line with your requirements; however we welcome the opportunity to discuss any comments or queries you may have.

BACKGROUND

Isle Utilities is an independent technology and innovation consultancy. We have a strong track record in identifying emerging technologies and accelerating their market uptake and we do this through our innovation forum called the Technology Approval Group (TAG).

TAG is a global innovation forum of the world's leading water utilities. The TAG model was first launched in the UK in November 2005, and over the last 7 years it has gone from strength to strength. TAG accelerates the market uptake of "step-change" technologies by engaging the industry during the pre-commercial stages of development and also by leveraging external investment from venture capital investors. We now have TAG groups operating in North America, Europe, Australia and Singapore with over 50 water utilities participating globally.

Following the success of TAG in Europe and Australia, over the coming months Isle Inc will be established as a separate business specifically to deliver the TAG model in North America. We believe that TAG presents an excellent opportunity for BACWA and their members to become part of a growing network of TAG members at the forefront of innovation, sharing in a novel approach to adopting new technology.

WHY TAG?

TAG addresses a "gap" in the market: it promotes strategic level innovation, supports the development and commercialisation of new technology, and helps to secure external VC investment into the water sector. This is completely unique model for the water sector worldwide. Isle's track record to date includes:

- Over **150** technologies approved and formally presented to forum members since November 2005
- More than **75%** of these technologies have been taken forward by the members through trials or pilots
- Over **50** products are now commercially successful
- More than **$300m** of external investment has been leveraged through the forum.

PROPOSAL FOR TAG MEMBERSHIP

TAG consists of a continuous, on-going programme of activities initiated by the TAG meetings. These activities include the preparation and delivery of the TAG meetings themselves but also the one-to-one follow-up with our TAG members and appropriate technology companies. We also introduce the technology companies that are supported by the TAG members to investors and supply-chain partners to ensure that they have the necessary resources and delivery routes in place.

Descriptions for these activities are outlined below.

TAG Kick-off meeting: This is a meeting held with each TAG member to better understand the opportunities for innovation and their capital and operational programmes for the coming year.

Technology search: Isle proactively searches for new technologies to match our TAG members' requirements. The search includes technologies from all around the world, and more importantly also includes step-change technologies developed in other sectors (such as oil & gas, automotive, renewable energy, manufacturing, etc.).

TAG meeting preparation: Isle undertakes due diligence on each technology and works closely with the TAG members to select five high-potential technologies to present at each TAG meeting.

TAG Meetings: The five selected technologies pitch to the TAG members. Each presentation is 20 minutes long followed by 10 minutes of Q&A. This is followed by an open discussion without the technology company to provide TAG members with the opportunity to provide candid feedback and to discuss potential trials and projects.

TAG Follow-up: Opportunities for trials and other projects emerge during the TAG meetings. Facilitating introductions and/or one-to-one meetings between TAG members and technology companies, including those who were not invited to the TAG meetings but which still received interest.

Access to the online Technology Portal with over 1,500 technologies. As a TAG member you will have exclusive access to Isle's online Technology Portal. This online platform will include Isle's technology database, technology presentations, brochures, technology feedback, published reports and discussion forums.

TIMESCALES AND COSTING

As discussed in our meeting we would propose a fee of **$100,000** for BACWA and its members to join the Orange County TAG.

The next TAG meeting for Orange County takes place on **14th May** which we would like to invite you to attend so you can see it works in practice. I have also attached the long list of proposed technologies and the agenda for this meeting.