

**Attendance:**

Jay Davis (SFEI)	Harry Ohlendorf (CH2M Hill)	Patrick Morris (CVRWQCB)
Ellen Willis-Norton (SFEI)	Gary Ichikawa (CDFW)	Michael Lyons (LARWQCB)
Jennifer Salisbury (SWRCB)	Dylan Service (CDFW)	Stacy Swenson (SWAMP)
Rich Breuer (DWR)	Dave Crane (CDFW)	Cassandra Lamerdin (MLML)
Rich Fadness (NCRWQCB)	Alyce Ujihara (CDPH)	Renee Spears (SWRCB)
Lori Webber (SWRCB)	Janis Cooke (CVRWQCB)	Jon Marshack (SWRCB)
Autumn Bonnema (MLML)	Sherri Norris (California Indian Environmental Alliance)	Steven Martenuk (MLML)
Jim Wiener (University of Wisconsin LaCrosse)	Andria Ventura (Clean Water Action)	Rainer Hoenicke (Delta Stewardship Council)
Karen Taberski (SFRWQCB)	Michael Kent (Contra Costa County Health)	Karen Cowan (Larry Walker Associates)
Amanda Palumbo (SWRCB)	Mark Stephenson (CDFW)	Chad Loflen (SWRCB)
Terry Fleming (USEPA)		Carol DiGiorgio (DWR)
Mike Horvath (SFPUC)		

**Item 1 and 2: Introductions, Agenda Review, Goals of the Meeting [Jay Davis]**

Jay Davis noted that the meeting's attendance was not as robust as BOG's December symposium. He asked BOG members for input on how to increase attendance. Suggestions included:

1. asking non-BOG members to present during meetings;
2. actively recruiting individuals by arguing their organizations would benefit from participation in the BOG;
3. locate colleagues who are in charge of the mandates to protect ecosystem health and ask them to join meetings;
4. involve local and regional governments;
5. ask employees who serve on county environmental health committees to join;
6. involve people who work on wetland conservation because of the meHg implications of wetland restoration;
7. plan a once a year meeting that is topical (e.g. meeting on exposure reduction) that would interest non-BOG members;
8. change the locations of meetings periodically;
9. generate an inventory of organizations/agencies that study bioaccumulation in California; and
10. invite reservoir owners and operators when discussing TMDLs.

**Discussion:**

Jennifer Salisbury was apprehensive of planning more than one symposium/topical meeting per year. She argued that the meetings were interesting, but they were not useful getting stakeholders actively involved in BOG activities. Jay responded that the meetings could possibly be made more useful by designating the end of meetings to discuss needs and next steps.

**Item 3: BOG Origins and Charter [Jay Davis]**

Prior to discussing the BOG charter, Jay Davis provided an overview of the BOG. The BOG was formed under the Surface Water Ambient Monitoring Program (SWAMP) in 2006. The mission was to provide technical input and oversight on SWAMP bioaccumulation monitoring, assessment, and reporting. In 2009, the BOG also became a workgroup under the California Water Quality Monitoring Council. The association with the Council

gave the BOG a broader role; the BOG now oversees the “Safe to Eat” portal and coordinates monitoring, assessment, and communication of bioaccumulation for California. In recent years the BOG has developed a bioaccumulation strategy, supported a statewide study on Hg impacts on wildlife, and conducted three statewide sport fish surveys, which led to the development of new safe eating guidelines. Overall, the BOG Charter states that the group’s role is to make recommendations to the Council and to refine and implement the bioaccumulation strategy.

Jay discussed his ideas for future BOG meeting agendas. He suggested holding the Council portion of the BOG meeting in the morning, followed by any SWAMP related agenda items. The end of the day would include progress reports on strategy implementation and refinement of the bioaccumulation strategy. Jay also suggested including time to highlight coordination efforts between agencies.

**Discussion:**

Terry Fleming noted that the “Safe to Eat” portal is useful for displaying SWAMP data, but there is a lot of data from other agencies that isn’t included in the portal. Terry stated that determining how much bioaccumulation data is available needs to be a higher priority. Jon Marshack suggested contacting managers and asking them if the portal answers their questions.

**Item 4: Review and Comment on the “Strategy for Coordinated Monitoring, Assessment, and Communication of Information on Bioaccumulation in Aquatic Ecosystems in California” [Jay Davis]**

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**Presentation:**

Jay Davis reviewed the bioaccumulation strategy, a document describing the overarching vision of what needs to be done to address bioaccumulation problems in California. Although the BOG has conducted a considerable amount of studies in the past few years, there are areas that need improvement. There is a lack of data for many water bodies (e.g. trend data, CEC and biotoxin monitoring) and there is insufficient coordination between monitoring programs. Jay used consumption advisories to explain the lack of data and coordination. Despite the BOG finding high levels of Hg in Northern California, the Central Coast, and the Los Angeles Mountain, consumption advisories do not exist for those regions.

Jay presented recommended actions, starting with establishing the BOG as the central forum for discussing bioaccumulation and planning studies. Other recommendations include developing plans for coordinated monitoring and exposure reduction, generating consumption guidelines, including environmental justice concerns into BOG efforts, and effectively communicating information to the public and media. Priority actions for 2013-2014 include inventorying existing monitoring; developing monitoring plans and protocols; providing technical support for agencies; developing safe eating guidelines; developing thresholds for aquatic life; and developing a plan for exposure reduction. Jay mentioned that creating a plan for exposure reduction is timely because the California Department of Public Health has an interest in conducting the work.

In the second quarter of 2013 a monitoring inventory will be developed. The inventory will list bioaccumulation and consumption studies conducted by BOG partners and from information found through literature searches. The results of the inventory will be discussed at the next BOG meeting.

**Discussion:**

Jennifer Salisbury noted that to develop monitoring protocols, an SOP for small fish processing needs to be generated. Autumn Bonnema responded that a standardized method for small fish sampling is already

used based on a 2000 sport fish guidance document. Jennifer Salisbury asked that the SOP be made available so data from various monitoring efforts are easily comparable. Jay agreed, noting that a priority for 2013-2014 is packaging and releasing BOG monitoring protocols.

## **Item 5: Comment on Strategy Tasks for 2013 [workgroup]**

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### **Outline:**

- 1) Monitoring inventory – to be discussed today under this item
- 2) Protocol development – to be discussed at a later meeting
- 3) Monitoring plan development – to be discussed at a later meeting
- 4) Development of consumption guidelines – to be discussed at a later meeting
- 5) Development of an exposure reduction strategy – to be discussed today

### **Monitoring inventory**

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#### *Comments on 2013-2014 Study Recommendations*

Lori Webber suggested asking BOG partners if they have any unmet needs while the monitoring inventory is conducted. Rich Fadness noted that the BOG has limited funds; although conducting a needs assessment is useful, there may be no room in the budget to complete such studies unless there is a regulatory mandate to monitor the requested contaminant. He suggests partnering with agencies that are regulated and asking them what questions they need answered. Rainer Hoenicke and Karen Taberski stated that the Department of Toxic Substance Control and the MWD should be listed as BOG partners. Jay added that John Bishop stated the BOG can require Water Board permit holders to participate in BOG activities to ensure that their data comply with SWAMP SOPs. Jon Marshack agreed, stating that permit holders can be required to enter their data into CEDEN. He added that regulators should also be a part of the BOG. Janis Cook noted that permit requirements can be very location specific; therefore, the BOG may not get all of the information they need from permit requirements.

BOG members listed the priorities for 2013-2014 in order: 1) broaden BOG participation, 2) BOG monitoring inventory, 3) develop a plan for monitoring, 4) develop monitoring protocols that can be distributed to partners, 5) include monitoring requirements into permits. Rich Fadness questioned the fifth priority, noting that SWAMP is not a regulatory program and cannot simply piggyback on permit requirements.

BOG members noted that monitoring cyanotoxins were also a priority. The cyanotoxins workshop held in November 2012 concluded that existing information on cyanotoxins in California should be gathered and that agencies should coordinate monitoring efforts more effectively. Contaminants of Emerging Concern (CECs) should be another priority for BOG. Jay noted that bioaccumulation monitoring is key for CEC monitoring efforts. Rich stated that the BOG is going to be coordinating with the Southern California Coastal Water Research Project (SCCWRP) to develop a surface water monitoring plan for CECs. Lori Webber said the monitoring plan will be a stakeholder driven process that is based on recommendations from the Statewide CEC panel report. Keith Maruya from SCCWRP will report to BOG on the progress and will accept any comments from BOG members. Michael Lyons noted that he would like to be involved in the CEC monitoring plan.

Regarding exposure reduction strategies, Karen Taberski suggested posting fish consumption advisories on fishing forums. Alyce Ujihara asked if there are data on how many people are affected by Hg and PCB exposure and to what extent. Jay responded that the data are not available and the BOG does not have any experience with running consumption studies. Rainer Hoenicke maintained that an exposure reduction

study is a low-hanging fruit that can be worked on this year (unlike CEC monitoring). He suggested including the California Department of Fish and Wildlife (CDFW) as a partner for completing the study. Target survey locations could include visitor centers at reservoirs, which would require the involvement of the Metropolitan Water District and the Department of Water Resources. Jay stated that these suggestions will be synthesized to create a recommendation for the use of BOG funds that will be sent to the BOG and then the Water Quality Monitoring Council.

### *Synthesis Report Recommendations*

BOG members agreed that the synthesis should discuss new trend monitoring plans for legacy pollutants. Harry Ohlendorf suggested distributing the five year synthesis to those involved in habitat restoration plans, which may affect Hg mobilization. Jon agreed with Harry and added that before the synthesis is published the BOG should release the synthesis' data and ask stakeholders what data analyses they would like to see completed. Rainer suggested that BOG formulate a list of questions that the synthesis will answer and send the list to partner agencies. The agencies can then determine whether there are any additional questions they would like the synthesis to address. Therefore, the synthesis would be driven by agencies information needs. Rainer noted that if there were a significant number of new questions, then the BOG would need to ask if the agencies had the capacity to review the report and distribute the information.

Jon added that the BOG should ask the agencies if they have on-staff experts who would be willing to help interpret the data and be listed as a co-author. Jon asked BOG members to make their own organizations aware of the upcoming synthesis and list of questions that will be answered. Jennifer Salisbury suggested using the lyris list to send the questions out. Jay Davis thought that a future BOG meeting could discuss the synthesis data and have interested parties join the meeting to ask questions and recommend how to interpret the data. Jon noted that at the meeting the BOG could ask if others have comparable data that could be added to the analyses.

## **Item 6: Development of an exposure reduction strategy: Coordination Spotlight - Exposure Reduction in California [Rainer Hoenicke, Alyce Ujihara, Sherri Norris]**

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### **Outline:**

- Brief background
- Brief summary of existing work
  - San Francisco Bay
  - Delta
- Developing a coordinated, long-term strategy for the state

### **Desired Outcome:**

- Generate ideas for coordination of exposure reduction that can be incorporated into the "Bioaccumulation Strategy". Capture these ideas in a 2 page writeup that can be appended to the Bioaccumulation Strategy and presented to the California Water Quality Monitoring Council.

### **Discussion:**

Rainer Hoenicke began the discussion on an exposure reduction plan for California by stating Water Quality Monitoring Council members will ask their agencies to endorse the BOG's exposure reduction strategy recommendations. Therefore, he asked what recommendations/priorities the BOG would like to bring to the Monitoring Council. Rainer's first suggestion was adding on exposure reduction to programs that are already established (e.g. The Fishing in the City Program by CDFW)

### *Exposure Reduction in San Francisco Bay – Alyce Ujihara*

Alyce Ujihara gave a presentation on exposure reduction in San Francisco Bay. She began by describing the San Francisco Bay Fish Project (2010 through 2012) that raised awareness about Hg and PCBs in the Bay to reduce exposure. Educational programs and materials were offered, warning signs were posted, and community trainings occurred. The program targeted Asian and Pacific Islander groups, women and children visiting health clinics, and fishermen at polluted fishing locations. Overall, the program reached approximately 5,700 people that were consumers of Bay fish. Funding was provided by the USEPA and dischargers (BACWA and BASMAA). The program included an active Stakeholder Advisory Group that provided feedback on the project. Jennifer Salisbury stated that she would add information about the project to the Water Quality web portal.

Karen Taberski asked if anyone refused to post signs. Alyce responded that none of the counties refused, but that it is hard to follow-up with and determine if the counties have posted the warnings. However, survey results show that 92% of anglers have seen the signs. Alyce and Michael Lyons noted that the counties are pressed for time and they cannot participate in exposure reduction because the effort does not fit into typical county program areas. However, it is important that the counties know where they can access information about exposure reduction. Additionally, if BOG were rotated between counties, then the respective county officials may be more willing to attend. Alyce suggested that the BOG recommend one-on-one angler outreach to the Monitoring Council. She added that if warnings are posted on fishing forums, the warnings should contain information on recent reservoir advisories.

### *Comments from Sherri Norris - California Indian Environmental Alliance (CIEA)*

Sherri Norris described the CIEA's efforts to communicate the health effects of eating Bay fish to California American Indian communities. She noted that eating fish is particularly important to the communities because of their place-based culture. CIEA began exposure reduction programs in 2003 when they provided health presentations to the communities and created the "Mercury Tribal Health Toolkit" that was placed in doctor's offices. CIEA has also developed a curriculum for health educators called "Making Healthy Choices" so medical professionals do not receive conflicting information. Additionally, CIEA has developed a Women, Infants, and Children's program where the target audience is approached in waiting rooms and provided with a survey and information about exposure.

Sherri noted that the communities she visits will not stop eating fish altogether. Therefore, she uses the SWAMP portal to inform the community about safer fishing locations. She noted that the portal does not say what no-consumption contaminant concentrations are and that entire sections of Northern California are missing data. She suggested merging the OEHHA advisory map with the contaminant data map. Terry responded that the sampling design was not designed to determine if a specific body of water was contaminated. The lake may still be contaminated even if the fish caught during sampling did not have high Hg concentrations. Sherri replied that the people receiving the information are made aware that the study was designed to assess statewide condition. Terry Fleming also asked if BOG could partner with tribes that are sampling fish to add the data to the portal. Sherri responded that she is in the process of asking individual tribes if they would be willing to provide data to the Western North America Mercury Synthesis.

### *Comments from Michael Kent - Contra Costa County Department of Health Services,*

Michael Kent began his remarks by stating it is hard for counties to get funding for the exposure reduction. Contra Costa County has a substantial number of subsistence fishers. However, the lack of consumption data makes it difficult to get political support for education and outreach. He suggested

that the BOG could run consumption studies and educate fishers in conjunction with collection of samples. Michael also noted that exposure reduction is an environmental justice issue; thus, outreach and education community groups should be involved. Michael said that CDPH's role is crucial; Sherri noted that she appreciated the way the CDPH packaged their data. However, the funding for the CDPH program is intermittent; Michael suggested that the BOG should think of a way to keep the program continually funded.

*Comments from Andria Ventura (Clean Water Action)*

Andria noted that Clean Water Action has observed people fishing despite the clear display of warning signs. She said that because of the economic situation, people may need to fish; therefore, they should be given information on safer fishing areas. Andria stated that current information needs include 1) knowing who is impacted and 2) what the true level of exposure is for people. She argued that the discharger community needs to support exposure reduction efforts. Additionally, she would like to see exposure reduction incorporated into any effort addressing bioaccumulation in California.

*Comments from Janis Cooke (CVRWQCB)*

Janis noted that a Delta Mercury Exposure Reduction was put in place as part of the Delta TMDL implementation. But, she thinks that TMDLs are not the best way to fund exposure reduction efforts. One option is to include exposure reduction efforts as a possible Supplementary Environmental Project (i.e. environmentally beneficial project that a permit violator may voluntarily agree to take on instead of paying a fine).

*General Discussion*

Jon Marshack made clear that the Water Quality Monitoring Council will support the BOG's exposure reduction strategies, but they will not be a source of funding and outreach to other organizations. The support of the Monitoring Council is mainly used to tell other organizations that the BOG's strategy is endorsed. Jon suggested getting the Department of Toxic Substances Control and the Regional Water Boards on board with the exposure reduction programs. If the BOG addresses their information needs, the agencies may be willing to join the effort. Sherri mentioned that the CalEPA gives small grants for environmental justice projects. Rich Fadness wondered if the BOG could receive a grant to monitor fish in partnership with California American Indian tribes. He noted that environmental justice is a hot topic currently and wondered if there are any environmental justice mandates that can be used to support exposure reduction. Jay Davis ended the discussion by stating the BOG will create a strategy and take it to the Council; simultaneously, the BOG will determine how they plan to implement the strategy's recommendations.

**Item 7: Informational Update on Biotxin Activities [Thomas Jabusch]**

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Thomas Jabusch gave an overview of cyanotoxins, the outcomes of the cyanotoxin workshop, and possible work that the BOG could take on. He provided an overview of the impacts of freshwater cyanotoxins on beneficial uses (e.g. drinking water problems, impacts on fishing in the Klamath River, wildlife poisonings). The increases in harmful algal blooms (HABs) led to a November 28-29, 2012 workshop on freshwater cyanotoxins. The recommendations from the workshop were to 1) develop a statewide coordinated cyanotoxin strategy, 2) develop and prioritize management questions, 3) synthesize existing information and identify data gaps, 4) develop communication tools (e.g. a central website), 5) develop protocols, and 6) identify the best use of BOG resources. The workshop participants agreed that monitoring is just one aspect of the cyanotoxins strategy - forecasting and communication is also needed.

Since the workshop, SFEI prepared a workshop summary report, the Blue Green Algae Workgroup started holding meetings, SCCWRP has begun data compilation for cyanotoxins in lakes and coastal lagoons, and a strawman proposal for information review has been created. Next steps include establishing a Steering Committee and beginning work on a vision and strategy. Terry Fleming noted that the workshop report needs to be reviewed and approved by the SWAMP roundtable before it is sent out. Thomas replied that he will give SWAMP members a week to review the document.

Thomas reviewed the possible uses of BOG funds for cyanotoxins work including 1) compilation and synthesis of existing monitoring data, 2) improve communication on cyanobacteria blooms (i.e. create systems for communicating incidents), 3) develop protocols for sampling and analytical methods.

#### **Discussion: How to use BOG funds in 2013/2014**

BOG members agreed that they cannot monitor cyanotoxins, fish, CECs, and wildlife simultaneously. Terry Fleming questioned whether the nutrients monitoring group should be responsible for cyanotoxins. BOG members stated that they can provide some funds to help work on cyanotoxins, but the group cannot lead the effort. Rich Fadness supports using BOG funds to compile and synthesize existing information.

Karen Taberski stated that the Blue Green Algae Workgroup should take the lead on cyanotoxins, but as the statewide monitoring program the BOG should complete some monitoring. She maintained that cyanotoxin monitoring could be completed relatively inexpensively using satellite imagery and SPATT bags. Karen noted that both Raphe Kudela (UCSC) and David Crane (CDFW) are working on the issue and are regarded as experts in the field. Terry replied that the BOG has not been studying cyanotoxins for as long as other agencies. He is worried that the BOG will be faced with a significant amount of research. Rich agreed, noting that there is much that is unknown with cyanotoxins and he is unsure that the BOG could monitor it with a high level of accuracy. Jay Davis maintained that the BOG has expertise on bioaccumulation and that cyanotoxins are contaminants that bioaccumulate. Terry also brought up that a successful monitoring effort will require more money than the BOG has available. Jennifer Salisbury also noted that now that the satellite with the greatest spatial resolution has died, monitoring will have to occur at a local scale which will require more money. Jay suggested that the BOG could conduct limited monitoring whenever funds were available.

Dave Crane suggested that the BOG's role could be to generate interest and make agencies aware of the problem. Karen agreed that the risk of cyanotoxins is high and the BOG should make people aware of the problem. Terry ended the discussion by stating he is okay with spending \$40,000 on cyanotoxins, but he would like it to be the seed money for another group to take-on the effort.