Bioaccumulation Oversight Group (BOG) Teleconference February 13, 2014

Attendance:

Jay Davis, SFEI
Karen Taberski, SFB RWQCB
Patrick Morris, CV RWQCB
Gary Ichikawa, CDFW
Billy Jakl, CDFW
Lori Lim, OEHHA
Michael Lyons, LA RWQCB
Autumn Bonnema, MLML
Cassandra Lamerdin, MLML
Eric von der Geest, MLML
Michael Lyons, LA RWQCB
Jennifer Salisbury, SWRCB
Chad Loflen, SDRWQCB
Stephan Louie, CV RWQCB
Margy Gassel, OEHAA
Ellen Willis-Norton, SFEI
Richard Fadness, North Coast RWQCB
Kristopher Jones, DWR

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

Jay Davis stated that the goal of the meeting was to work through the details of the one year long clean lakes study design. A draft sampling plan is needed before the March 26th Review Panel meeting and before the RWQCBs develop their regional SWAMP workplans. Therefore, a draft plan is needed within the next two to three weeks.

Item 2: Designing a Clean Lakes Survey [Group]

The goal for the sampling design discussion includes:

1. reviewing the preliminary lists of target lakes;
2. deciding on definition of "clean" and on criteria for selection of lakes to sample;
3. deciding on analytes to include;
4. and deciding on the design for lakes of different sizes.

Presentation and Discussion:

Preliminary Lists of Target Lakes

Jay Davis went through the list of lakes that during BOG's 2010 California Lakes and Reservoirs survey had trout or bass concentrations below 0.44 ppm. Every region was represented and Jay solicited input from the regions on which of their lakes had high fishing pressure, easy access, and low Hg and PCB concentrations. Jay received input from Region 1, 2, 4, 5, and 9.

For Region 1, Lake Shastina was the cleanest popular fishing location for bass (0.23 ppm Hg in largemouth bass). Gary Ichikawa noted that Lake Shastina may be hard to sample, he had a hard time getting the boat on the water last year. Other popular lakes (Copco Lake, Iron Gate Reservoir, and Spring Lake) were all above 0.3 ppm Hg in Largemouth Bass. Rich Fadness also suggested sampling at Cleone Lake in Region one where only rainbow trout were sampled (0.02 ppm Hg).

Region 2 is challenging because the Hg concentrations in largemouth bass were above 0.3 ppm in all lakes where fishing was allowed and where there were low PCB concentrations. Lafayette Reservoir, Bon Tempe Lake, and Shadow Cliffs Reservoir were listed as potential sampling locations because the PCB concentration was low in catfish (a bottom feeder) and the Hg concentration was 0.34 ppm. Karen Taberski noted that there was a no consumption advisory for goldfish in Lafayette Reservoir for PCBs. Karen argued that none of the lakes Jay listed in Region 2 qualify as clean lakes. She noted that there has been additional data collected from other lakes in the Region that may have lower Hg concentrations and may meet the criteria of a clean lake. Karen added that she does not think it is worth pushing the definition of clean to a higher concentration just to identify a clean lake in Region 2.

In Region 4 most of the lakes that are below 0.44 ppm Hg in fish are not popular fishing locations. The four popular fishing locations were Echo Lake, Legg Lake, Castaic Lake, and Lake Casitas. Echo Lake was recently rehabilitated so the lakes condition would not be a replicate of the condition in the previous lake study. Cassandra Lamerdin maintained that if Echo Lake has low PCB concentrations, it could still be considered for the clean lakes study. Legg Lake has low Hg and PCB concentrations in largemouth bass and carp, respectively; however, there is already enough monitoring data so repeat sampling is not warranted. Both Castaic Lake and Lake Casitas are potential sampling locations that are medium sized and popular for fishing. Karen wondered if designating a lake as clean would increase the popularity of the lake. Jay replied that it was a possibility and the group should maybe consider lakes that aren't currently popular fishing locations, but are accessible and near a population center.

There are a substantial number of lakes in Region 5 where either trout or bass had Hg concentrations lower than 0.2 ppm and where PCB concentrations were low. At two of the lakes, Bass Lake and Paradise Lake, ancillary data have also been collected. Jay stated that Whiskeytown Lake is listed as a possible sampling site because Hg concentrations in Largemouth Bass were low, but the concentrations in Smallmouth Bass, Pike Minnow, and Sacramento Sucker were between 0.34 and 0.44 ppm.

Candidate lakes for Region 9 are all lakes where Largemouth Bass were sampled. The three lakes Chad Loflen suggested with Hg concentrations of 0.2 and below were Lake Henshaw, Lake Jennings, and Lower Otay Reservoir. Additionally, PCB concentrations in bottom feeders were low in all three lakes. There are other lakes with low bass Hg concentrations in Region 9, but the lakes are fed by imported water rather than by surface water runoff. Stephan Louie thought those lakes were also important to sample because the study was focused on reducing exposure rather than watershed management.

Margy Gassel was unsure what type of lake the group wanted to identify, cold water species or warm water species lakes. Jay responded that the goal is to identify popular clean lakes; therefore, sampling will occur in both types of lakes. In the high elevation lakes (dominated cold water species) the group will attempt to sample resident trout, which are typically brown trout.

Deciding on definition of "clean" and on criteria for selection of lakes to sample

Jay Davis asked the group how they would define a "clean" lake. The group needs to decide whether the threshold should be relatively low so only the cleanest lakes are included or if the threshold should be high enough to allow sampling in all of the regions. Jay, Stephan Louie, and Chad Loflen agreed that there is a benefit to knowing which lakes in each region possess the lowest concentrations, even if lowest concentrations in Region 1 and 2 were between 0.20 and 0.40 ppm. Jennifer Salisbury responded that it is important to cover the entire state, but is worried that the message may be confused if lakes with fish Hg concentrations around 0.40 ppm are defined as "clean."

Karen Taberski stated that she would not consider a lake clean unless the fish Hg concentration was 0.22 ppm or below (the ATL for 2 servings per week). Margy Gassel said that she would not consider anything above 0.3 ppm "clean," which is the threshold that has been used for listing advisories in the past. Janis Cooke noted that the listing threshold has changed to 0.2 ppm. Patrick Morris noted that the Hg Reservoir TMDL will also use 0.2 ppm as the Hg threshold in biota and the State Water Board is developing a statewide fish tissue objective that will likely be consistent with the new listing threshold. Jay responded that to be consistent, it makes sense to define a lake as clean when the fish Hg concentrations are 0.2 ppm (rounded) or below. Patrick noted that for the TMDL listing process, 90% of the individual fish must be below 0.2 ppm.

To address the fact that some regions don't have lakes with concentrations below 0.2 ppm Jay suggested different tiers of "cleanliness." There could be a two tiered system, where the second category's threshold concentration would be 0.3 ppm. Karen and Jennifer supported the idea of a two-tier system because the message is clear while giving people in every region fishing options. Jay stated that the creation of the two-tier system is of secondary importance compared to identifying lakes with fish Hg concentrations of 0.2 ppm and below. Jay said that he will touch base with all BOG members, the review panel, and the State Board about the chosen threshold concentrations.

Margy stated that there is additional fish Hg concentration data collected by the regions that are not in the Safe to Eat portal. Jay replied that the table he showed is only the starting point; he will ensure that before the final lists of lakes are chosen that all the available data are included. Patrick asked if the study's message will distinguish between lakes that are clean for all species and lakes that are safe for fishing trout, but not safe for bass or bottom feeders. Jay responded that the goal of the study is to identify lakes where all species have Hg concentrations below 0.2 ppm.

Action Items:

- Jay Davis will touch base with all BOG members, the review panel, and the State Board about the chosen threshold concentrations.
- Jay Davis will ensure that before the final lists of lakes are chosen that all the available fish Hg concentration data from the regions are included.

Deciding on analytes to include

Jay Davis reviewed a table that included the cost breakdown for the clean lakes study. If three sport fish species and two prey fish species were analyzed for Hg and PCBs as well as THg in sediment, 25 lakes could be sampled. If the group decided to complete the more intensive sampling effort (adding water, sediment, invertebrate, and nutrient sampling) then 17 lakes could be sampled. At the last meeting, the group thought that sediment would have to sampled on a different day than fish, but Gary Ichikawa found out that the boat used for fish sampling can also be used to sample sediment up to 100 meters in depth. Therefore, the cost of sediment sampling is $300 per lake and can be included in the "bare bones" sample design. Jennifer Salisbury added that the regional boards may be interested in the lakes sampled for the study and may help fund the cost of collecting and analyzing additional data.

Autumn asked if a depth profile with the YSI was still needed in the sampling plan that included 25 lakes since water sampling would not be completed. Stephan Louie agreed to think about whether the depth profile was necessary and get back to Autumn. Autumn noted that the YSI without a cable tether has already been claimed for other projects and it would cost $15,000 to purchase a new one. Rich Fadness responded that Region 1 has an EXO Sonde that could possibly be used for the study. Chad Loflen noted that some depth profile data may already be available through the reservoir operators.

Stephan asked if chlorophyll concentrations were going to be measured. Autumn replied that a chlorophyll depth profile was embedded in the cost of the "Water Sampling" row ($300 per lake). Stephan encouraged sampling THg in water in at least a couple of lakes. Autumn replied that the study design could be a combination of both the intensive sampling effort ($14,284 per lake) and the "bare bones" effort ($9,740 per lake). Jay will ask the review panel for their input on which sampling design they prefer or whether a combination of both designs would be useful.

Jay asked Margy Gassel whether sampling PCBs in lakes where concentrations were very low in biota during the first sampling effort was necessary. Margy responded that if 10 bass and 10 bottom feeders were analyzed (composites okay) and the concentrations were below 5 ppb, then re-sampling would not be necessary. Jay

asked if only bass were sampled previously, could sampling just bottom feeders in the same lake be enough information; Margy responded affirmatively. Stephan wondered if prey fish sampling was necessary for the less intensive sampling design; Jay replied that he will ask Carrie Austin.

Action Items

- Stephan Louie agreed to think about whether the depth profile was necessary and get back to Autumn.
- Jay Davis will ask the review panel for their input on which sampling design they prefer or whether a combination of both designs would be useful.
- Jay Davis will ask Carrie Austin if prey fish sampling is necessary if the less intensive sampling design is employed.

Decide on design for lakes of different sizes

Jay Davis asked if the study should be limited to small lakes because only one sampling location is required in a small lake, while medium and large lakes should have at least two sampling locations. Autumn replied that there is a relatively minimal difference in cost between sampling at a small and medium lake. Margy stated that large lakes should be included in the study if they meet the study criteria (popular fishing location and low Hg and PCB concentration in sport fish). Jay stated that most of the lakes that have been identified are small lakes, which is helpful since the costs increase as the lake size increases.

Item 3: Review action items; discuss agenda for next meeting [Jay Davis]

Jay Davis stated that the regions are submitting their SWAMP Regional Workplans and Work Orders within the next two to three weeks. If the regions are interested in leveraging information from the clean lakes study, the request will need to be included in the regional workplans. Autumn Bonnema stated that if a region is already planning to sample at a lake, joining this statewide effort may reduce their collection costs. Jay said that the next step is coming up with the final iteration of the list of lakes to include in the study. The final list should be sent to the regions to see if they would be interested in coordinating efforts.

The review panel will be held on March 26, 2014. Therefore, the draft sampling plan should be sent to the BOG for review on March 17. Gary Ichikawa, Autumn, and Jay will begin work on the sampling plan and make sure to incorporate the suggestions from the group today. The next teleconference for the clean lakes study will be held in early March to review the sampling plan.

Action Items

- Gary Ichikawa, Autumn, and Jay will begin work on the clean lakes sampling plan and make sure to incorporate the suggestions from the group today.