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Regional Monitoring Program Forum: Science to Support Management of Methylmercury in Restored Tidal Marshes

December 17, 2013

Context and Goals for this Meeting

Decision-making Context for This Meeting

This meeting is being convened by the Regional Monitoring Program in support of water quality management related to restoration work being undertaken in San Francisco Bay tidal marshes. There is not an immediate regulatory action stemming from this meeting—and thus, there is not an immediate entity "in charge" of making the decisions that will follow from this meeting. Rather, the goal of this meeting is to poll the scientific community on where we are with key management questions so that we may, collectively, move forward in a coordinated fashion with methylmercury science and management in relation to restored tidal marshes. In the introductory talks this morning, we will cover the background of this discussion and the potential management decisions in more detail.

Questions and Discussion Flow for the Meeting

We will be reviewing management questions and associated hypotheses that relate to different aspects of methylmercury management in tidal marshes. For each group of management questions and associated hypotheses, we will ask ourselves the following questions:

- What degree of confidence do we have in our hypothesis?
- If we do not have confidence in our hypothesis, what further questions do we need to ask in order to increase confidence?

For each management question, we will begin with a brief summary of local information. That will be followed by a free-form "share initial thoughts" conversation from all participants (because it is easier to listen after you have "downloaded"). Then, we will move into a discussion of our questions, starting with our invited panelists and then our audience. *Please note: the "Study design" conversation will be slightly different, in that we do not have an initial presentation by local scientists.*

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Regional Monitoring Program Forum: Science to Support Management of Methylmercury in Restored Tidal Marshes

October 9, 2013

California Department of Public Health
850 Marina Bay Parkway
Richmond, CA 94804

Advisory Panel:
Jim Wiener, University of Wisconsin-LaCrosse
Rob Mason, University of Connecticut
Michelle Orr, ESA

DRAFT AGENDA

1.	Review of Agenda and Goals of Meeting	Facilitator	9:00
2.	RMP Mercury Synthesis	Jay Davis	9:20
3.	Manager Information Needs	SF Bay Water Board	9:40

	----- Break -----	10:20

Topic 1: Short-term vs Long-term Effects

MQ1: What is the effect of increased tidal action and impact on methylmercury bioaccumulation in wildlife, within the project and downstream, over timescales of about one year and longer than one year?
Hypothesis 1: The effect of tidal action on restored sites may result in a local short-term transitory spike or increase in net methylmercury production and biotic exposure, within the project and downstream, but we are unlikely to see levels of concern in biota that warrant management action.
Desired Outcome: Answer posed questions in regard to Hypothesis 1.

	Brief Summary of Local Data	Darell Slotton	**10:40** 10 min
	Share initial thoughts - all		10 min
	Panel Comments		20 min

	Group Comments		30 min

	----- Lunch -----	11:50

Topic 2: Local vs Regional Impacts

MQ2: What are the local (within the project or immediately downstream) versus regional environmental impacts due to restoration projects?
Hypothesis 2: Methylmercury loading from tidal wetland restoration projects is a minor contribution to the total pool of methylmercury available for uptake into the Bay's food web and therefore is a minor factor relative to Bay-wide mercury impairment (e.g., bird and fish tissue levels).
Hypothesis 3: We do not expect to be able to measure the regional impacts to the Bay's food web from tidal wetland restoration projects.
Desired Outcome: Answer posed questions in regard to Hypotheses 2 and 3.

	Brief Summary of Local Data: Biogeochemistry, bioaccumulation	Don Yee April Robinson	12:50 10 min presentation
	Share initial thoughts - all		10 min
	Panel Comments		20 min
	Group Comments		30 min

Topic 3: Study Design

Principle 1: Measuring mercury in one or more biosentinel species is an appropriate approach to provide information on management questions 1, 2, 3 and 7, and to identify circumstances where more detailed studies should be performed to understand methylation and bioaccumulation processes.
Principle 2: Process studies should be done at only a subset of sites, which biosentinel monitoring can help to identify. Process studies can help to answer management question 5.
Principle 3: The monitoring program should have a regional scope to ensure that data are relatively consistent across projects so that site-specific variability may be distinguished from regional trends and phenomena.
Desired Outcome: Answer posed questions in regard to Study Design Principles 1 2, and 3.

	Share initial thoughts - all		**2:00** 10 min
	Panel Comments		20 min
	Group Comments		30 min

	----- Break -----	3:00

Topic 4: Restoration Design and Management Actions - Restored Marshes		
MQ6: What do we know about designing and managing restoration projects to reduce the risk of mercury impairment (e.g., incorporation of methylmercury into the food web)? **Hypothesis 4:** We do not yet have sufficient information to design tidal marsh restoration projects to reduce methylmercury exposure. **Hypothesis 5:** It is possible to design or manage restored marshes to reduce methylmercury exposure. **Desired Outcome:** Answer posed questions in regard to Hypotheses 4 and 5		
	Brief Summary of Local Data	Letitia Grenier **3:20** 10 min
	Share initial thoughts - all	10 min
	Panel Comments	20 min
	Group Comments	30 min

	Wrap-up	4:30

	Adjourn	4:45