

**RMP Sources Pathways and Loading Workgroup Meeting Summary**

**May 29th, 2014, 10:00am - 4:00pm**

**In attendance:** Khalil Abu-Saba (AMEC), Roger Bannerman (Independent), Peter Mangarella (Geosyntec), Paul Salop (AMS), Bonnie DeBerry (EOA), Chris Sommers (EOA), Richard Looker (Regional Board), Arleen Feng (ACCWP), Tom Mumley (Regional Board), Kelly Moran (??), Barbara Mahler (USGS), Jing Wu (SFEI), Jen Hunt (SFEI), Lester McKee (SFEI), Jay Davis (SFEI), Alicia Gilbreath (SFEI), Don Yee (SFEI), Jim Kelly (SFEI), Dan Cain (USGS), Lisa Austin (Geosyntec), Tome Dalzel (CCCWP)

|  |
| --- |
| **Summary of major themes and action Items****Themes** Water Board staff commented multiple times and emphasized monitoring as near to tidal areas as possible to identify high leverage watersheds. This was balanced by the other overall need commented on by many at the work group to learn more about source areas and true sources within areas already identified for enhanced management.Another comment repeated many times was the idea of leveraging other RMP strategies and findings to inform the STLS management questions (MQs). There were a variety of mechanisms proposed including ensuring that the components within the STLS program will well integrated and supportive of each other, ensuring that linkages are made between STLS and other RMP elements such as the PCBs, nutrients and Bay margins modelling strategies, and incorporation of these linkages into the multi-year loadings synthesis report planned for this summer. The third major theme that pervaded the meeting was the need to ensure that the design monitoring program will enhance answering all the MQ not just a focus on MQ 1 (high leverage). Again there was a variety of mechanisms proposed to address this. Firstly, generating an improved conceptual model and text for describing linkages between the proposed program elements and all the STLS management questions and other strategies. The second mechanism proposed was to review the proposed monitoring sites through the lens of environmental gradients and our broader set of management questions asking how the data will be connected to the other management questions. The third proposed way was through the development of the trends strategy element to identify the types of data and media and frequency of revisiting sites whether as baseline data.**Action Items*** Send the 2015 program proposal to SPL for their technical review (post-meeting at the STLS, it was decided that a consolidated proposal would be written). Make sure that the proposal contains a better linkage between each of the program components and a linkage to the work that is being done by BASMAA on identifying true sources
* Send synthesis report outline for review, comment, and approval
* Send out the full RWSM report for review
* Follow up with advisors on selection of remote sampler type
* Next meeting: January or February 2015 unless an identified need emerges for a meeting in later summer
 |
| Meeting notes |
| **Agenda Item** |  |
| **1b** | **Overview of related stormwater program activities and objectives: Management Q4 focus*** BASMAA focused on control measures for Hg and PCBs under MRP 1.0
* PCB source reduction is the primary goal where possible
* First permit term focused on determining information gaps and how to implement the permit
* BASMAA has implemented pilot projects in 5 areas (heavy old industrial areas) identified as PCB hot spots. Most of the pilot project has occurred during a drought period and there have been challenges with some of the monitoring design.
	+ Roger recommends looking at existing data/literature to fill some of the gaps due to lack of monitoring data
	+ BASMAA needs to ID funds for moving out of the pilot scale
* Also collected street/storm drain soils for PCBs and Hg analysis and have also synthesized existing data.
	+ Finding: High PCBs in soils are found within 1000 feet of old industrial areas. Proportionately – 2 times more PCBs from old industrial compared with next land use (old urban).
	+ Finding: not all old industrial areas are created equal – variability with PCB distribution in these areas
* Next steps and uncertainties
	+ Need to find existing source areas
	+ What are the most cost effective control measures
	+ Classify areas as high, moderate, and no opportunity for cleanup and control
	+ What are the identifying characteristics for finding PCBs in the watershed? This first step will then lead to a field effort to confirm
	+ Updating GIS data layers for Old Industrial areas – focusing on pre 1980 old electrical use
	+ Barbara Mahler: Is soil pollutant sampling required for redevelopment projects? Complicated answer – not much required especially for PCBs
	+ Looking to integrate mapping work with other drivers e.g. Green Infrastructure, trash reduction
	+ Mid 2015: initial implementation plans in pilot watersheds, ID of other high opportunity areas for future implementation, integrate with GI (planning and transportation staffers)
	+ Kelly Moran: Is BASMAA focused on treatment control? Chris Sommers: BASMAA looking to ID sources first in high opportunity areas then looking at best control measures.
 |
| **2** | **Review management questions – how are they evolving?*** Summarize management question evolution for PCBs, Hg, other pollutants
	+ Management focus hasn’t changed since October 2013 meeting
	+ Water Board priorities: PCBs are the primary driver with Hg being second.
	+ Need to dive into finer spatial scales to find true source areas. Moving away from estimating pollutant loads at the watershed scale
	+ Still need to do assessments of management action benefits
	+ Focus on Green Streets could be done through a modeling effort
	+ Other pollutants:
		- Selenium TMDL in progress (not a lot of need from SPL);
		- Legacy pesticides – still some impairment but most likely delisting a large part of the Bay;
		- Emerging contaminants – no priority for loads or trends – more looking to characterize. Emerging contaminants and those of concern: ongoing effort to screen POCs – follow up monitoring based on a risk assessment – will be looking at sources and pathways – large list of contaminants where we don’t have info e.g. alternative flame retardants. Will be a RMP effort looking at different matrices this year. Looking at market and use trends to inform when we look at urban runoff for these POCs/emerging contaminants. Want to pre-empt before contaminants get to red flag levels.
		- Nutrients – no imminent needs for nutrients loads – there is a need for information but not clear what is needed – maybe building on Bay margin modeling work. Consider opportunistic collection of nutrient information when other monitoring occurs.
			* Roger Bannerman: nutrient levels don’t vary very much in US urban landscapes – can use literature to get a first order load estimate.
		- Current use pesticides can be problematic in urban creeks and loads to the Bay. Nothing red flagged right now. Also threat of Bay toxicity from pesticides e.g. pyrethroids. Intersection of the strategies (Emerging Contaminants and others) will help inform SPL needs.
 |
| **3** | **STLS Programmatic monitoring and modeling to address new focus for management questions**Part 1* Recent 5 year effort focused on getting baseline contaminant data and loads in no regret watersheds. Other elements (ID high leverage sites, regional scale loads) were smaller efforts.
* Proposed next 5 year effort has shifted to ID high leverage watersheds/areas. The straw proposal to stimulate conversation was:
	+ 67% of effort in characterization monitoring of smaller areas/watersheds to locate areas with high pollutant particle ratios and concentrations that may be targeted for increased management effort (often referred to as high leverage watersheds or areas – MQ1). Only revisit a site when more clarity/certainty is needed. We can also leverage other RMP strategy work to help inform this question. Note that BASMAA has been and will likely continue doing a lot of work on source area and true source identification with funding outside the RMP.
	+ 9% of effort on characterization of concentrations at USGS gauges (Napa, Sonoma, Alameda, San Francisquito) where a knowledge of concentrations could be combined with flow and sediment loads data to estimate 1st order loads (MQ2). Together with existing data, these loads would cover 70+% of area that drains to Bay. Consider looking at % urban that exists in each watershed.
	+ 6% of effort on modeling to estimate regional scale loads using the RWSM – MQ2.
		- Richard Looker: will effort 1 and 2 above help improve the model performance for estimating PCB loads; Lester McKee: yes certainly.
	+ 4% effort on measurements of concentration or loads trends in watersheds where large management efforts have already occurred e.g. Guadalupe. Placeholder funds for measuring trends in other places where management is ongoing right now.
	+ 3% effort on modeling or in some way predicting the potential effects of management efforts on concentration or load reductions (MQ4) (Note BASMAA is and will likely continue this type of work through other funding mechanisms but there may be roles for the RMP in the future)
* Comments/Discussion
	+ There are other trend indicators in the Bay even though we might not be measuring trends in pollutant loads. Might not be the best use of resources since trend indicators are developed in other matrices.
	+ Roger Bannerman
		- Right on target to focus on looking for PCBs in the watershed. Modeling can’t identify these source areas with the certainty we need. Going to need more information as we move deeper into the ID process. Need to answer the question “what do you want me to do” to control the source and where do we go.
		- The program has the right balance of effort
	+ Barbara Mahler
		- Probably should have started with the characterization 5 years ago and then looked at loads [Lester smiling and nodding his head since and commenting that was the SFEI recommendation in early summer 2012]
		- Trends – need to hone the strategy to ensure you have the right data for measuring trends. Encourage a bit more investment in the trends strategy for answering questions MQ1 and MQ2.
		- What type of data will be collected during the characterization study and how will this data be used for all MQs.
	+ Kelly Moran
		- Programmatic balance is good but.
		- Structuring of MQ1 – don’t necessarily like the focus of this question – focus on high leverage tributaries and moving upstream may not be the right process. Look at putting resources in other areas – need to focus on the finer scale of where can we do management actions. Partnership and leveraging WA state work and findings.
		- Need a screening method for PCBs at percent PCBs – need something an order of magnitude cheaper. ELISA method is one possibility.
	+ Dan Cain
		- Programmatic balance is good with focus on identifying sources. It is difficult to find source in these smaller spatial scales. You have to start somewhere.
		- Concerned with the few number of storms proposed due to the high variability in the data.
	+ Tom Mumley
		- Doesn’t support the balance. Too much emphasis on MQ1 and not enough on MQ4. Need to inform where municipalities do management effort. We do want to accomplish the work proposed for MQ1 – but also need to ID moderately contaminated watersheds for GI and retrofitting at the city level. RB2 needs more than just MQ1 – need to have multi benefit design. Need more effort on MQ4. What is the distinguishing factor between RMP, permit and BASMAA roles in answering these questions and then what is the integrated process for effort.
	+ Tom Dalzel
		- Likes Kelly Moran’s idea of identifying true sources. Can we use impervious area data to tell us where to monitor. Effort is too focused on MQ1.
	+ Richard Looker
		- Where is the low hanging fruit and what constitutes the greatest percent of PCB loads. Finding the largest contributors is very important mixed with finding the more disparate sources. This would be a 5 year effort to try and answer this question.
	+ Paul Salop
		- Eddie Street type of investigative work was very worthwhile
	+ Peter Mangarella
		- Particle ratio signature in high opportunity watersheds is very clear even with very few storms characterized. Doesn’t get you to the true sources but does ID high leverage watersheds.
	+ Khalil Abu-Saba
		- True source ID would not come through the RMP due to confined space entry issues.
	+ Paul Salop
		- RMP could do the true source thought effort

Part 2* Will seek input on the synthesis report outside of the meeting
 |
| **4** | **Modeling program using the regional watershed spreadsheet model (RWSM)*** Decisions about 2014 funds
	+ Don’t have a lot of data from high priority management areas to support model calibration and verification for these types of watersheds.
	+ Don’t have data from many land uses and source areas in the calibration watersheds
	+ Model over simulated cleaner watersheds as well as larger watersheds and under simulated dirtier watersheds. Model simulated average concentrations much better.
	+ Model was dominated by a few land uses/source areas for both PCBs and Hg.
	+ Overall the model is biased high for PCBs and Hg and the model output is highly uncertain.
	+ Sediment model (the current base for PCB and Hg models) is unstable and uncalibrated which effects stability of PCB and Hg model.
	+ Calibration data probably not accurate and not representative of the long term pollutant average.
	+ The model can become more stable with more data to resolve information gaps of land use and source area particle ratios.
	+ Proposed work plan for 2014
		- Task #1 – yes
		- Task #2-5 – limited in water concentration data therefore have to run the model in an unconstrained fashion to determine the parameters (along with BPJ)
* Comments/Discussion
	+ Barbara Mahler: Could be losing information by developing the hydrology model for particulate based contaminants. Not convinced it’s a good use of funds.
	+ Kelly Moran: What is the intended use of the model? Can probably only get to better estimates of larger pollutant loads. What are the other model uses? Won’t tell you where to go for management actions.
	+ Dan Cain: RWSM issues are at the extremes. How do the uncertainties in these areas effect the model outcomes. How much impact does redevelopment of older areas affect the model output.
	+ Roger Bannerman: Need to have hydrology implemented at some point. Lots of information available on hydrology modeling.
	+ Lester McKee: Sediment model TAC recommended adding a climatic factor if the sediment model didn’t calibrate. Could implement this recommendation.
	+ Tom Mumley: thinking we might never make a sediment model work. Sediment model is based on natural processes. How do you calibrate a model that can’t be calibrated due to its simplicity and non-mechanistic basis.
	+ Richard Looker: Copper model also showed unrealistic loads. Can you build in Bay margin contaminant information to help calibrate the model? Struggling to understand what we will use it for. Skeptical for using it on a partial scale. Is it possible to use it for trends, or for future contaminant load estimates?
	+ Tom Mumley: any PCB modeling effort will be challenging and expensive since you need empirical data to support it. What observations are needed to support any modeling effort? Can you focus on areas of interest (those with land uses and source areas of concern)? Could you eliminate Hg from modeling effort? How can this model inform GI Master Plans?
	+ Roger Bannerman: spend $20k to look at other model options. Lester McKee: maybe in 2016 for the latter recommendation
	+ Tom Mumley: what’s going on in Southern Ca PCB modeling?
 |
| **5** | **WY 2015 monitoring design with a focus on MQ1**Part 1* Does Guadalupe River variability hold for other watersheds?
* Not all storms are the same
* Composite number
	+ Can we explain why we saw some false negatives e.g. low intensity rainfall, missed part of a storm etc. in WY 2011? Richard Looker in favor of wide coverage, with few storms if you can explain why a number might be low
	+ Two storm rationale – get 1 large storm and 1 small storm (urban signal)
	+ Roger Bannerman: consider using adjacent USGS gauges to produce a flow weighted composite.
	+ Could also weight samples by turbidity or some other factor. Look at existing data to understand how best to take composites.
* Remote passive samplers
	+ Roger Bannerman: USGS paper comparing auto to passive sampler
* Inter-comparison study
	+ Barbara Mahler: Perform the inter-comparison on grab V discrete with previous data.
	+ Roger Bannerman: you lose a lot of information but that’s ok since you can get more information
	+ Tom Mumley: most of the high leverage areas are in tidal areas – how can this study answer some of the questions in these areas? Lester McKee: can go into pump stations to characterize tidal areas Don Yee: can take samples in the tidal prism since water and sediment is moving back and forth and will mostly be a watershed signal.
	+ Richard Looker: need to overcome the challenge of sampling in tidal areas
	+ Barbara Mahler: worth doing the IC composite fractioning for PCB and Hg - should do 12 sites.
* Design
	+ Barbara Mahler: questioning if the characterization data can be used for other purposes. What data do you need for trends, management actions effectiveness, RWSM?
	+ Roger Bannerman: this composite only design is a screening tool and probably not useful for other management questions.
	+ Richard Looker: is there a possibility to make educated decision to go back to a site for a 2nd composite depending on the data from storm 1? Implement a more adaptive approach?
	+ Arleen Feng: Comments are lending towards this design not being an appropriate use for RWSM.
	+ Alicia Gilbreath: in large or more complex watersheds with two watershed types could benefit from taking 2 samples (large and small); in smaller urban watersheds could take 1 sample
	+ Kelly Moran: consider doing something more statistically based for getting a sample number. Using in season information when deciding on a 2nd site is a good idea. Caution about testing multiple remote samplers.
	+ Roger Bannerman: do 2 samples on every site and 3 on more complex sites. Caution on the false negative possibilities.
	+ Tom Mumley: identifying high leverage watersheds is out of sync with regulatory decision making time frame for identifying these areas. That will happen in a year from now.
	+ Kelly Moran: not sure if the approach is right. consider a different allocation of funds not all geared towards MQ1
	+ Richard Looker: does rationale 2 provide answer some of the data gaps in RWSM? Yes
	+ Barbara Mahler: rationale 2 - sampling 1 or 2 times? Would like rationale 2 to be a separate design than for MQ1.
	+ Richard Looker: this type of design has helped hone in on areas for management actions
	+ Arleen Feng: is there anything else we want to spend the money on? Can't just hope that some of the data are multi use.
	+ Jay Davis summary: screening level monitoring has support but has gaps; trends strategy; source evaluation - unclear on who does this. Carve out funds to develop trends strategy and look into source work
	+ Richard Looker: need to think much more carefully about what are the trends we want to measure. Might want to measure management action effectiveness rather than temporal trend. What is a meaningful way of looking at trends.
	+ Barbara Mahler: need a larger discussion of what data are needed for each MQ and how they inter-relate
	+ Lester McKee: need a large amount of data to do trends analysis and strategy development.
	+ Kelly Moran: need long term data sets in those watersheds where we are doing management actions.
	+ Tom Mumley: writing full proposals to the TRC, at this point, is preliminary, unnecessary and a waste of time
	+ Jay got endorsement that there are good uses for the funds but details are still in development
	+ Lester McKee: send proposals to SPL for their technical review
	+ Barbara Mahler: trace metals question - what is the trade off? What about TOC for remote samples?
		- Tom Mumley what observations provide value for understanding PCB variability?
		- Richard Looker: we could add trace metals on next year
		- Lester McKee: could do more at an IC level
		- Tom Mumley: using metals to understand watershed variability
		- Lester McKee: a type of fingerprinting
		- Kelly Moran: trace metals doesn't quite fit with ID high opportunity areas design
 |