

## Copper Antifouling Paint Sub-Workgroup 01/12/06 Meeting Notes

### In-Person Participants:

August, Mike - Dept. of Parks & Recreation  
Bacey, Nina - DPR  
Breninger, David - Recreational Boater of CA/PCWA  
Edwards, Diane - SWRCB  
Gouveia, Pattie - SWRCB  
Johnson, David - DBW  
Kubiak, Rachel - DPR  
Lang, Valetti - DTSC  
Lee, Marshall - DPR  
Pride, Mary - DTSC  
Rentz, Mark - DPR  
Ryan, Bill - DTSC  
Singhasemanon, Nan - DPR

Smith, Ty - DTSC  
Sniderman, Lisa - CCC

### Phone Participants:

Amah, Ginachi - RWQCB 4  
Candelaria, Linda - RWQCB 8  
Chambliss, Ben - U.S. EPA  
Gonzalez, Jamie – UC Sea Grant Extension Program  
Johnson, Leigh – UC Sea Grant Extension Program  
Lee, G. Fred - G. Fred Lee & Associates  
Looker, Richard - RWQCB 2  
Moran, Kelly - TDC Environmental  
Michael, Pete - RWQCB 9  
Riviera, Ignacio-Duarte - U.S. Navy

These meeting notes contain highlights of announcements, discussion topics, and pending action items. Highlighted topics are organized in a bulleted form. Pending action items are tasks that require follow up. These are denoted as “**Action Item**”. An attendance/contact information list that contains participants’ agency names, email addresses, and telephone numbers will accompany these meeting notes in a separate Excel file.

### Introductions/Agenda Review:

- Twenty-five individuals (15 in person and 10 by phone) participated in the eighth meeting of the Copper Sub-Group. Nan Singhasemanon (DPR) welcomed the participants and recognized the participation of two deputy directors (David Johnson of the Department of Boating and Waterways and Mark Rentz of the Department of Pesticide Regulation). Nan also noted that a U.S. EPA representative from Washington, D.C. was able to join the group via phone. So, the Federal Reregistration Update item was moved up as the first item of discussion to accommodate East Coast participation.

### News, Activities, and Developments:

- **Federal Reregistration Update (Ben Chambliss, U.S. EPA)** - At the last meeting in September, U.S. EPA was in the process of completing a “closure memo”, which indicated the end of the SMART meetings. The agency would then begin work on its environmental risk assessments (ERA). A registrant “error only review” was expected in December, which meant that public participation should begin around February 2006.

Ben Chambliss (U.S. EPA) added that his agency recently developed the initial ERA drafts. Since this is a “dual-use” case, both the Antimicrobial and the Environmental Fate and Effects (EFED) Divisions are working on the ERA. Public comment is on track for February 2006 but only the ERA for conventional uses of copper oxide will be available. There will be a 60-day review window.

The ERA for microbial uses, which includes antifoulant uses, has been separated from the conventional uses and will be available for review and comment at a later date. EFED needed additional time to refine the ERA. Ben said that there will be a separate public input opportunity

for the microbial use ERA. Ben suggested that the workgroup should keep in contact with case manager Kathryn Jakob on this ERA.

Kelly Moran (TDC Environmental) noted that U.S. EPA has established a four-phased public participation process for copper oxide, which means that the review and comment period will be somewhat brief and that commenters will have only one opportunity to provide input.

For copper toxicity information, Charles Delos from U.S. EPA Office of Water can be of assistance.

- **Resolution Approving the SIYB Basin Plan Amendment (Pattie Gouveia/Diane Edwards, SWRCB)** - On September 22, 2005, the State Water Resources Control Board approved the resolution to incorporate the Shelter Island Yacht Basin (SIYB) Copper Total Maximum Daily Load and Implementation Plan into the Region 9 Basin Plan. Diane Edwards (SWRCB) highlighted some key language from the resolution specifically the following passages:
  - If and when additional water bodies are listed in future CWA 303(d) list due to copper from the use of AFP on boat hulls, the State Water Board expects similar requirements (as to those in the SIYB Copper TMDL) will be imposed upon all such water bodies to the extent similar conditions exist.
  - The State Water Board recognized that DPR has committed resources to address this issue, including initiating regulatory measures to address copper AFPs. The State Water Board encourages DPR to expeditiously pursue the appropriate scientific and regulatory avenues to address water quality concerns associated with copper-based AFPs. If after two years, DPR or U.S. EPA have not taken action to adequately address the impacts of copper-based AFPs on water quality, the San Diego Water Board, in conjunction with the State Water Board, shall work with all coastal Regional Water boards to develop a state policy for water quality control to address water quality impairments in coastal marinas from copper-based AFPs.

Nan noted that the State Board's two-year timeframe for U.S. EPA and DPR action was an important factor in the formulation of DPR's draft AFP strategy. This strategy is provided in more detail in the next item.

- **DPR Antifouling Paint Strategy (Nan Singhasemanon, DPR)** - Mark Rentz, Deputy Director for Policy Coordination of DPR gave an overview of DPR's draft AFP strategy. Mark stressed that this strategy builds upon much of the work done by the workgroup. Components of the strategy can be generally categorized into three phases: those previously initiated, those to be immediately initiated, and those to be initiated at a later date. The following outline represents an overview of DPR's draft strategy:

#### **PHASE I: PREVIOUSLY INITIATED ACTIONS**

- *Copper Antifouling Paint Sub-Workgroup*: Continue workgroup discussions, evaluation, and coordination of AFP issues. Continue participation in the Marinas and Recreational Boating Workgroup.
- *Monitoring Efforts*: Collaborate with and assist lead agencies (technical and/or monetary assistance) on parallel efforts to monitor copper and other AFP active ingredients.
- *Federal Re-registration Process*: Provide information to U.S. EPA through reregistration of copper oxide and track this process.

- *Federal Ambient Water Quality Criteria*: Monitor developments in the federal ambient water quality criteria for copper, which could impact CTR values for copper.

## **PHASE II: ACTIONS TO BE INITIATED IN 2006**

- *DPR's Reevaluation process*: Initiate reevaluation of all AFP products in early 2006. Request specific information/data from AFP registrants.
- *DPR/SWRCB Statewide AFP Monitoring Study*: Initiate in early 2006. DPR/SWRCB agreement being considered for approval by both agencies; monitoring work is dependent on SWRCB funding.
- *Development of Management Practices and Less-Toxic AFPs*: Coordinate efforts with appropriate parties (e.g., researchers, paint manufacturers, outreach organizations, boatyards, marinas) to continue to identify, develop and if appropriate, implement effective and cost-efficient management practices and less-toxic AFPs to mitigate impacts of existing AFP use on water quality.

## **PHASE III: ACTIONS TO BE TAKEN BEYOND 2006**

- *Evaluate Key U.S. EPA Decisions*: Assess how U.S. EPA registration eligibility and risk management decisions will impact the use of AFPs in California.
- *Evaluate CWA 303(d) Listings and TMDLs*: Assess if additional water bodies have been added to or delisted from the 303(d) list due to AFP use. Assess whether additional TMDLs have been developed?
- *Evaluate Accumulative Evidence*: Determine what DPR actions are necessary based on the results of previously listed activities and other information that may have surfaced.
- *Feedback to SWRCB*: DPR will advise SWRCB on DPR's initial findings, recommendations, and future actions.

Mark also stressed the importance of interagency collaboration as DPR executes its strategy. For example, now that the AFP issue has been elevated to the statewide level, DPR has engaged SWRCB and the Department of Boating and Waterways on the management level. DPR will expand its strategy discussion with additional agencies and groups in the near future.

David Johnson (DBW) noted that his department can act as a conduit to relevant stakeholder and industry groups such as marinas, harbor masters, and recreational boaters associations.

Nan added that DPR will attempt to coordinate on any new or developing monitoring projects that may yield relevant information from an AFP perspective.

Linda Candelaria (Region 8) asked what DPR considers as enough data to more stringently regulate copper AFPs. Others asked if the study's monitoring objectives will be adequate to trigger specific management decisions from DPR. Nan explained that historically DPR has not set pre-established action thresholds for itself. As dictated by the Food and Agricultural Codes, there are different triggers for each possible regulatory action (i.e., reevaluation, suspension, cancellation). Moreover, these triggers are not clearly defined unlike the State and Regional Boards' water quality objectives. DPR tends to gather and collect relevant environmental data and applies a weight of evidence approach to determine the appropriate course of action.

Marshall Lee (DPR) noted that DPR would like to at least know if high dissolved copper concentrations at SIYB is the exception or the norm. Therefore, a survey of other marinas and boat mooring areas in California is the minimum that DPR would like to see done. He expressed doubts that the current funding level would allow for a much more ambitious scope of work. Nan added that in the end, it is important for the study objectives to address specific management questions. Nan wanted to see that the monitoring design experts in the workgroup have some input in the study design. At this point, the contract to begin work has not been approved yet.

Kelly asked if DPR could require copper AFP registrants to do the monitoring. Nan said that in the past, DPR has not asked registrants to implement a large scale monitoring study under reevaluation. There have been some edge-of-field or effectiveness monitoring done, but that has been the limit of DPR's requests. Nan also noted that asking registrants to do this may not be the most efficient of options. If DPR itself executed the monitoring study, it would have more control over the quality and production of data.

- **Antifouling Paint Reevaluation Request (Nan S., DPR)** - DPR management is supportive of the Port of San Diego's reevaluation request to DPR. However, DPR also has concerns with other AFP active ingredients as well. These include Zinc Omadine, Irgarol 1051, and Sea-Nine. So DPR is considering the reevaluation of all AFP products and not just those containing copper.

DPR's Environmental Monitoring Branch drafted a reevaluation request for the Registration Branch. However, the request is being strategically held up to await the approval of the DPR-SWRCB statewide monitoring contract. In the case that this contract is not approved, modifications can be made to the reevaluation notice, which the registrants will receive. The extra time also allows some additional deliberations among DPR's scientific staff to ensure that the questions posed to the registrants are clear and will result in the submittal of relevant and useful data.

Nan did not want to disclose the specifics of the reevaluation questions, but said that they generally deal with information regarding leaching rates, management practices, monitoring data, and risk assessments.

- **Marina Antifouling Paint Monitoring Study (Nan S., DPR/Diane E., SWRCB)** - Nan gave an update on the statewide marina-monitoring contract. Diane and Nan worked on the proposed scope of work and the interagency agreement. It is now going through the approval process at DPR. The contract amount is \$120,000 although Nan would like to see another \$30,000 added to this total perhaps via an amendment.

Although the contract has not been executed yet, DPR staff have been doing some background work in support of the study. Key researchers and agencies are being consulted for information on logistics/access issues and sampling methodology. Nan has also been talking to a University of California contract laboratory regarding sub-contracting with them.

Staff have also obtained a list of candidate marinas, which was produced by the Marina Mapping Sub-Workgroup. Staff are paying particular attention to larger marinas and to those situated in water bodies of concern (e.g., those listed on 303(d) list or with developing TMDLs). Until the study design and analytical costs are firmer, it is not clear how many marinas will be sampled. Initial estimates showed that perhaps as many as 24 marinas may be sampled. Nan anticipated that the monitoring plan will be completed some time between April and June 2006.

Nina Bacey (DPR), the field coordinator for this study, provided some more details. She said that the current version of the draft monitoring plan calls for sampling to take place in from July to October 2006. Both water and sediment will be looked at inside and outside the marinas. Moreover, both copper and zinc will be the target analytes. **Action item:** There are plans to look for Irgarol although Nan would like to explore the possibility of collaborating with an Irgarol research group back East in South Carolina.

**Action item:** Nan and Nina will meet with Karen Larson and Dan Little of Region 5 on January 24<sup>th</sup> to discuss possible collaboration and resource sharing on marina monitoring efforts.

- **Newport Bay Marina Monitoring Study Update (Linda Candelaria, Region 8)** - Linda gave an update on the Lower Newport Bay marina metals study. Region 8 plans to sample water and sediment from 7-8 marinas for metals including copper and zinc. There are also plans to look at toxicity and benthic diversity. Samples will be taken inside and outside of the marinas. Samples will also be taken from channel sites for comparative purposes. Linda wanted to avoid well-flushed marinas to maximize the likelihood of documenting higher metals concentrations.
- **Marina del Rey Harbor Toxic Pollutant TMDL and Basin Plan Amendment (Ginachi Amah, Region 4)** - Ginachi Amah (Region 4) provided an overview of the Marina del Rey Harbor Toxic Pollutant TMDL and Basin Plan Amendment. The Region 4 Board adopted the TMDL back in October 2005. The State Board will consider the resolution to incorporate this TMDL into the Region 4 Basin Plan on January 13, 2006. The staff report and other related documents on the TMDL can be found at [http://www.waterboards.ca.gov/losangeles/html/meetings/tmdl/tmdl\\_ws\\_marina\\_del\\_rey\\_wma.html](http://www.waterboards.ca.gov/losangeles/html/meetings/tmdl/tmdl_ws_marina_del_rey_wma.html). The following bullets outline some of the key elements:
  - The TMDL is for a number of pollutants including copper and zinc in Marina del Rey sediment (not water column).
  - The water column is not listed due to lack of data rather than an indication of no impairment. The TMDL states that further monitoring is necessary to determine if impairments exist in the water column.
  - The TMDL proposes sediment quality guideline (SQO) values as numeric targets for metals, specifically NOAA's ERL values.
  - The TMDL specifically focuses on Marina del Rey's back basins D,E, and F.
  - The State Board is in the process of developing SQOs for enclosed bays and estuaries, and expects to adopt these objectives and implementation policy by February 28, 2007. Region 4 will review their numeric targets for consistency within 6 months of the effective date of the SQOs
  - The Los Angeles County Public Works collected water column data in from June – July 2002 in four sampling episodes. However, some uncertainty exists with regard to the validity of the analytical method.
  - Load allocations were not assigned to boat discharges at this time, as contribution from water column concentrations to sediment loading have not been quantified. Upon completion of relevant studies, the TMDL will be revised as necessary.
- **Region 9 Harbor Monitoring Program (Pete Michael, Region 9)** - Pete Michael (Region 9) reported on the copper-monitoring portion of the Harbor Monitoring Program. Region 9 contracted with the Southern California Coastal Water Research Project (SCCWRP) to do the work. Since this is a Regional Board contract, the study's execution and data compatibility is consistent with SWAMP requirements.

In August 2005, SCCWRP took water samples from 30 marina sites using a stratified randomized sampling design. At each site, SCCWRP sampled at three depths. These water column samples were analyzed for dissolved copper (using ultra low detection limit of 0.01 µg/l) and toxicity on mussel embryo development. Toxicants Identification Evaluations (TIEs) were done on a subset (six) of toxic samples. The report on copper will be submitted to Region 9 very soon. A final report is due by March 2006. **Action Item:** Pete will provide more details on the results and conclusions at future workgroup meetings.

- **Alternative Antifouling Strategies (Leigh Johnson/Jamie Gonzalez - UC Sea Grant Program)** - Leigh Johnson (UC Sea Grant) and Jamie Gonzalez (UC Sea Grant) gave an overview and update of alternative antifouling strategies. A PDF file of the presentation outline is attached along with these meeting notes. The following bullets contain highlights from the presentation:
  - Sea Grant sponsored demonstration projects in 2002 of epoxy and silicone coatings. The epoxy boat remains in good condition. The silicone boat had to be repainted within a year with a product called E-paint, which contains Zinc Omadine (zinc pyrithione). A slip liner was also used on one boat with good success.
  - Some of the boatyards are experimenting with low-copper AFPs; however, passive leaching issues still exist with these paints. Moreover, they require multiple coats to be effective.
  - Coatings that can be applied over existing copper AFPs are being tested including one called Trident 51 by EnviroTech.
  - Wearlon is a new silicone epoxy coating currently being tested in Florida.
  - Siloxane is also another experimental coating that is slick yet hard. Tests showed that spraying with water can remove 4 months worth of fouling.
  - Sea Grant's "Staying Afloat with Nontoxic Antifouling Strategies for Boats" contains a table with many of the previously mentioned strategies/coatings. The table will be updated very soon with more current information.
  - Some research work on alternative AFPs is currently being done on the university level.
  - It is difficult to assess how the various coatings will perform until they are tested in local water conditions. For example, the product Seal-Coat works well in Europe but not here in the U.S.
  - Durability is an important factor for alternative AFPs since they usually require more frequent cleaning than copper AFPs. However, the recently passed national Aquatic Invasive Species Act discourages in-water hull cleaning to help prevent the spread of invasive species.
  - When asked what are the most promising alternative coatings to date, Leigh was most optimistic with Epoxy Aquaply M and Siloxane although there are some outstanding issues with these coatings. Epoxy Aquaply M is effective but is not easy to clean and Siloxane requires more long-term data.

#### **Other Items/Next Meeting/Adjourn:**

- The next Copper Sub-Group meeting is Thursday, March 9, 2006.

Meeting Notes Prepared by: Nan Singhasemanon (DPR) with notetaking assistance from Pattie Gouveia (SWRCB). Thank you, Pattie! Your help is much appreciated!