1. Announcements and updates (Marina IACC)

Vivian Matuk (DBW/CCC) announced that California Department of Boating and Waterways and the California Coastal Commission’s Boating Clean & Green Program, the Keep the Delta Clean Program, the California Department of Fish and Game and the U.S. Fish and Wildlife Service are putting on an upcoming free invasive aquatic species workshop to be held Thursday April 30th at the Yolo Bypass Wildlife Area Headquarters 45211 County Road 32 B (Chiles Rd) Davis, CA. Register by April 27th. If you have any questions about the workshop or to register, please contact Vivian Matuk at (415) 904-6905 or at vmatuk@coastal.ca.gov. Lisa (CCC) emailed an announcement to this Marina IACC workgroup prior to the meeting re: details of the workshops.

2. Framework for development of a Coastal Marinas Permit

Molly Munz (State Water Board) discussed the framework for developing a Coastal Marinas permit to inform the IACC of the permit adoption process including the CEQA public participation component, and to solicit participation in the upcoming meetings that will be used to discuss the Marina Monitoring and Reporting Program. A powerpoint presentation was emailed to the workgroup prior to the meeting. The State Board will be soliciting input from the Marina IACC to review the draft Marina Monitoring and Reporting Program and provide comments. A meeting will be facilitated by Gita Kapahi with the Office of Public Participation on May 20th (10 am-12pm), and if necessary from 1-3 in CalEPA Room 1510, call in: 916-227-1132. For more information or to obtain a
AFS Workgroup

3. Overview of Non-Copper AFP Biocides

Nan (DPR) gave a brief overview of the various non-copper AFP biocides that are currently registered for use in CA (what’s on the market now) as well as those that could be available for use over the next few years. The three non-copper biocides that are currently allowed (i.e. registered) for use in California are zinc pyrithione (Zinc Omadine), Irgarol (Irgarol 1051), and Sea-Nine (Sea-Nine 211 or DCOI). DPR is currently reviewing Econea (Tralopyril) to determine if it can be registered in California. Econea has already received federal registration from U.S. EPA.

Nan then noted that U.S. EPA is not currently evaluating any new biocides for AFP products. The European Union (EU), however, is evaluating six non-copper AFP biocides as part of its Biocidal Products Directive. These biocides are dichlofluanid, Irgarol, Sea-Nine, tolyfluanid, zinc pyrithione, and zineb. Since registration data have already been generated to support the EU registration process, the pursuit of U.S. registration for AFP use is possible for dichlofluanid, tolyfluanid, and zineb.

Nan also named a number of biocides, which have shown to have some efficacy for AFP use, but are less than likely to be registered with U.S. EPA or DPR due to various reasons.

Kelly (TDC Environmental) asked about any potential for water quality problems to occur with the new AFP biocides. Nan said that there is always a potential for AFP biocides or even terrestrially-applied pesticides to be a concern for water quality, particularly if they are heavily used. Also, biocides are inherently toxic to be efficacious. This toxicity frequently extends beyond the target pests to the non-target organisms. A question was also raised regarding the federal and California pesticide registration process and why these potential problems are not spotted and prevented prior to registration. Nan said that there are many reasons for this. Some of these include the difficulty in projecting product adoption/use of a new pesticide, the lack of monitoring, and the lack of an analytical method that can detect close to the biologically relevant concentrations. There is also a disconnect in the species used for the assessment of toxicity between the FIFRA and CWA. FIFRA requires that toxicity assessment be conducted on a certain set of test species, while CWA determines impairments based on a different set of test species.

Marlan (CA Professional Diver Association) - What is DPR doing to help industry transition? Nan noted that DPR had formed the previous Copper AFP Workgroup and the current AFS Workgroup to engage stakeholders and facilitate transition. DPR is also financially supporting a study by UC Sea Grant Program to look at alternative hull-fouling management strategies, their associated costs, and potential implications to aquatic invasive species. Moreover, DPR has been part of the advisory committee for the Port of San Diego’s project to evaluate alternatives to copper AFPs. Underwater Hull Cleaners are one of the important stakeholder groups that need to adapt and assist in such a transition.

Nan updated the group on DPR’s announced intention to reevaluate AFP products including those with copper biocides. The internal process of making a request to initiate...
the reevaluation process still hinges on the finalization of the report for DPR’s multi-regional study of AFP-use pollution indicators, which has just been submitted for review to DPR management. Nan stated that the report is essentially done and does not expect sweeping changes based on the remaining reviews. Nan also asked that stakeholders be patient and realistic with the reevaluation process (assuming that the request is approved) since it tends to take time. He added that registrants, particularly those of copper AFPs, could work outside the realm of the reevaluation to begin exploring potential management practices that could mitigate the issue of elevated dissolved copper concentrations in marinas. Moreover, AFP product registrants could also prepare and organize themselves now in anticipation of the process.

Nan pointed out a request for proposal being solicited by the Defense Advanced Research Projects Agency (DARPA) Dynamic Prevention of Biofouling Program. Ignacio Rivera (U.S. Navy – SPAWAR) brought this to Nan’s attention. Some of the workgroup participants or antifouling researchers may be interested in submitting a proposal, which is due by May 11th. The goal of the solicitation is to develop and demonstrate coatings and/or surfaces that are inherently impervious to biofouling for extended periods. Coatings are preferred particularly if they work well at zero or low velocities, are biocide free, are durable for several years, and whose effectiveness does not degrade over the life expectancy of the coating. The link for this RFP is: https://www.fbo.gov/index?s=opportunity&mode=form&id=7456f8fdeb396548567bf6f342f7523e7&tab=core&cview=1

**Action Item:**
Nan (DPR) will send out handout on non-copper AFP biocides to AFS Workgroup and link to proposal solicitation

4. **Agency Updates on AFS-related projects and activities**

**Jeremy Jacquot** (University of Southern California, Dept. of Biological Sciences, Marine and Environmental Biology Section) is studying the availability of copper metals in marina environment. Nan invited Jeremy to join the meeting so that he may share information on his current marina copper related project with the AFS Workgroup. Jeremy’s research goal is to look at free or labile copper in water column and total dissolved copper in a number of marinas to determine the site-specific ratio of free copper to total dissolved copper. Jeremy is also interested in determining if variability exists for these ratios (i.e., water effect ratios) among sites in the same water types (e.g. saltwater) as well as among sites in different water types (e.g. saltwater vs. brackish water). He’s currently focusing his studies on the marinas of Marina del Ray, Long Beach, and Alamitos Bay. Jeremy is working under the guidance of Dr. James Moffett of USC. Jeremy hopes to expand his investigation to freshwater and brackish water marinas in Northern California. He will come back to the AFS workgroup in the future to provide an update.

**Karen Holman** (Port of San Diego) gave an update on the Safer Alternatives to Copper Antifouling Paints Project. They are underway in Phase II and in process of applying top performing non-copper coatings to 10 boats. They are on track to get them all painted by the end of April. Six of the 10 coatings being tested are non-biocide coatings.

The next meeting will be held April 14, 2009 in San Diego at the Port’s Administration Building from 9-12. The purpose of this meeting is to discuss the boat-hull testing Phase or Phase II of the project. For more information on the project and the results, please
Leigh Johnson (UC Sea Grant) announced that she and economist Dr. Linda Fernandez (UCR) have been working on an economic project, *Evaluating Costs of Strategies to Control Hull-Borne Invasive Species on Boats*, to produce a detailed cost analysis of the various fouling control strategies for recreational boats kept in saltwater in California and Baja California. The project is funded by DBW and DPR. The objective is to assist boat owners, boating businesses, academics, environmental organizations, and policymakers in making cost-effective decisions for controlling invasive species, taking water quality regulations into account and the different options and situations available in different parts of the state as well as south of the border.

Data collection has been completed and analysis is in progress for a 30% sample of marinas, boatyards, underwater hull cleaners, boat lift and slip liner companies in the Delta, and the CA and Baja CA coast and bays. A study report will be produced at the end of the project in the summer of 2009. One report will be submitted to DPR and DBW.

Analysis found that boating industries believe boat owners’ awareness of and interest in nontoxic antifouling strategies has increased in the past two years. This suggests that outreach programs are having an effect.

Leigh also updated about a second project she is conducting with her colleague Dr. Carolynn Culver and with Dr. Mark Page and Dr. Jennie Dugan (UCSB). The paired field study, funded by CDBW, is located in San Diego Bay and Santa Barbara Harbor and focuses on ecology of invasive, hull-fouling species and interactions with fouling control technologies. A study report will be produced at the end of the project in summer of 2010.

Boater perspectives will be assessed in association with the economic study and a boater outreach needs assessment during coming months.

Scientific journal articles will be prepared, and Leigh will seek additional funding to extend results of both projects through outreach programs. For more information, contact Leigh, ltjohnson@ucdavis.edu.

Leigh also announced she and Dr. Fernandez will present a talk at the Marine Bioinvasions Conference in Portland, OR in August 2009 during the session on recreational boats and invasive species.