

KEVO'S BOATING TIPS & MORE

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Marine Bottom Paint: Part II

My last installment on the subject of bottom paint focused on the different types and different applications depending on needs. In addition, I discussed the causes and relevance of bottom “blisters.” During my research of the subject, I came across a brewing controversy. In light of this, this month I’d like to approach the issue of bottom paint from an entirely different perspective:

The vast majority of active ingredients in almost all antifouling paints (AFPs) are comprised of copper compounds. Apparently, there is a controversy regarding the ecological consequences of using products containing this compound and others for protecting the hulls of vessels from marine growth.

AFP Product Ingredients

In California, the Department of Pesticide Regulation (DPR) regulates AFPs. Like other pesticides, AFP products are formulated by combining pesticide-active ingredients with other compounds to produce usable and effective products. Copper oxide, copper hydroxide, copper thiocyanate, zinc pyrrithione and Irgarol® are the biocides that are most frequently formulated into AFP products currently registered for use in California. **(Hey, stay awake... there’s gonna be a test on this stuff later on!)** A single AFP product may actually contain multiple biocides. Copper oxide, in particular, is the most popular of these biocides appearing in more than 90 percent of all California AFP products.

The “leaching” of copper from AFP used on recreational boats and, to a lesser extent, the scrubbing of bottom paints from the surfaces of hulls in their slips have been suspected to be major pathways of copper pollution in a large boat basin known as the Shelter Island Yacht Basin in San Diego Bay.

In June 2006, DPR initiated a study to determine what, if any, detrimental effects to the environment these copper compounds may be causing and to determine if further regulation is warranted. Over a span of three months, they took water samples from a total of 23 marinas in California. The marinas were separated into three categories: fresh water, brackish water and salt water. Within these categories they chose four marinas in fresh water, four marinas in brackish water and 15 marinas in salt water.

The main questions were: (1) Do documented copper levels exceed existing water quality standards for copper? (2) Are conditions of high levels of copper widespread among California marinas? (3) Does the use of copper AFPs contribute to these elevated levels and to excessive water quality standards?

Results of DPR Study

Marina water samples frequently contained copper concentrations that were above the water quality standards. Local reference (background) water samples almost always contained significantly lower concentrations of copper, indicating that sources within marinas (likely AFPs from boats) were responsible for elevated levels.

The highest copper level documented in the study was detected in a sample from Marina del Rey in Southern California. In general, the highest levels of copper in the study were observed in California’s central and south coast marinas. Several San Francisco Bay Area marinas exhibited elevated levels of copper. Samples taken from freshwater marinas contained relatively low levels of copper.

As a result of this study, DPR concluded that:

- Copper concentrations in many salt and brackish marinas in California exceed (EPA) water quality standards for copper.
- Copper AFP contamination is a multi-regional issue in California.
- Copper AFPs can be a significant source of copper in marina waters, particularly salt and brackish waters during dry months. The use of copper AFPs contributes to excessive water quality standards.

In response to these conclusions and findings from other DPR-related AFP investigations, DPR plans to:

- Reevaluate all AFPs. For copper-based AFP products, the formulators of these products will be required to identify, demonstrate, and implement mitigation practices to reduce copper loading from AFP use.
- For non-copper AFP products, formulators will be required to more fully evaluate their products’ effects on water quality under various scenarios.
- Continue to work cooperatively with the State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCB) to identify regulatory options that can be used to effectively prevent the occurrence of high copper concentrations in marinas throughout California.
- Continue collaboration with stakeholders to develop and encourage the adoption of alternative coatings and management practices that effectively and efficiently reduce copper loading from AFP use in California marinas.

AFP Issue Investigated Nationally and Internationally

These actions represent a comprehensive approach for addressing water quality issues associated with AFP use. If the sum of these actions does not lead to an adequate reduction in copper loading in California marinas, DPR will consider more stringent regulatory action.

Assessment studies have recently been conducted in Florida and Maryland on the issue of copper AFPs as well as in Europe. Currently, there are no laws restricting the use of AFP containing copper compounds on the books in any state in the U.S., although several European countries and Canada have placed restrictions on copper AFP products or their use.

My contact at the DPR for this column was Mr. Mark Rentz, Deputy Director of DPR Policy Coordination. In addition, Mr. Nan Singhasemanon,

a Staff Environmental Scientist with DPR, gave me access to the scientific data associated with this study. (*Riveting* reading!)

It should be noted that throughout my exhaustive conversations with DPR they stressed at every opportunity that they are aware that there are many stakeholders interested in this and have no intention of riding “roughshod” over any of them. In fact, I found the opposite to be the case. DPR is determined to work with all stakeholders to come to a mutually acceptable solution to this issue.

Kevo's Tip:

The issue of copper contamination in California marinas is a complicated situation with many competing agendas and stakeholders. However, I feel that all of us who enjoy the waterways around the Bay and Delta share a common responsibility to be good stewards of the marine environment. The best way to resolve this controversy to everyone's satisfaction is to get involved and state your point of view. If you are a stakeholder in this issue I urge you to contact: Nan Singhasemanon at 916/324-4122 or nsinghasemanon@cdpr.ca.gov to find out more information on where this issue is heading. I will keep our readers informed of any (future) significant changes in DPR regulations regarding the use of AFPs in California.

As always, feedback is appreciated. I can be reached at 925/890-8428 or kevo@yachtsmanmagazine.com

Be safe & happy boating! ➤
