

Copper Antifouling Paint Regulations: What You Need To Know



Marinaharbor.com



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New Regulation

3 CCR § 6190: Copper-Based Antifouling Paints and Coatings

- No copper-based antifouling paint/coating shall be registered over a **leach rate** of $> 9.5 \mu\text{g}/\text{cm}^2/\text{day}$
- Any currently registered paint above that leach rate will be cancelled.
- For recreational boats only

Effective: July 1, 2018

Recreational Vessels ONLY.

- Only applies to vessels for pleasure and/or residences
- This does not apply to commercial vessels:
 - Passenger ferries, excursion vessels, tug boats, work boats, fishing vessels, etc.



What are examples of paints still registered?

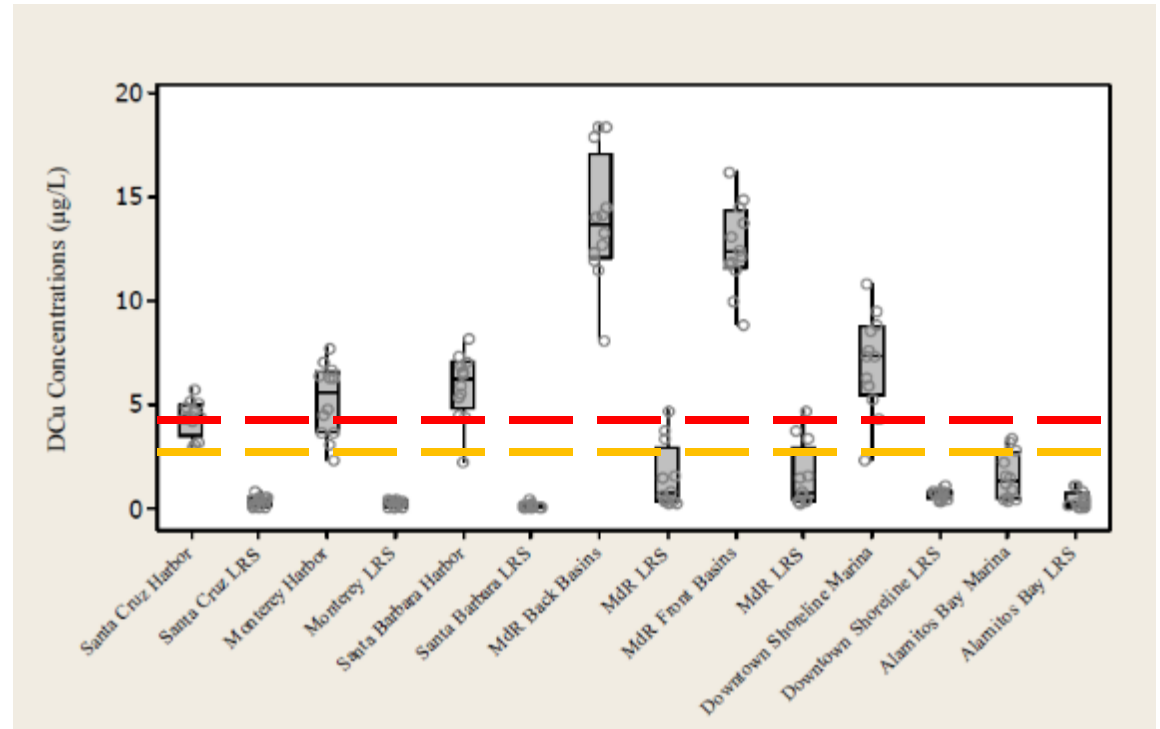
- DPR's Category 1 Paints:
 - Actively registered paints with leach rates ≤ 9.5 $\mu\text{g}/\text{cm}^2/\text{day}$.
 - July 20, 2017: **91** Products in Category 1



No endorsement implied.

Why is this happening?

- Dissolved copper (DCu) and associated toxicity exceeding water quality criteria in many California marinas.
 - Data from various studies
- Total Maximum Daily Loads for:
 - Marina del Rey
 - Lower Newport Bay
 - Shelter Island Yacht Basin in San Diego



Singhasemanon, et al., 2009

— — — = Acute Water Quality Criterion, 4.8 µg/L

— — — = Chronic Water Quality Criterion, 3.1 µg/L

LRS = Local Reference Site; OUT of the marina

Why can DPR do this?

- DPR has the authority to protect California's surface waters from pesticide pollution.
 - Continuous Evaluation of pesticides
- DPR formally put copper under reevaluation in 2010 due to copper exceedances and associated toxicity for California Toxic Rule standards.

DPR is the **ONLY** authority in CA to register or cancel the use of a pesticide
(AFP)

How do we calculate this leach rate?

- ISO method 10890:2010: Release rate mass-balance calculation
- Adjust the calculation with a correction factor of 2.9
- Data is from label, TDS, MSDS, and CSF.
- January 1, 2018: Registrants need to determine their leach rates and submit to us for verification approval.

How did we come to this leach rate as the regulation?

MAMPEC Modeling

- Marine Antifoulant Model to Predict Environmental Concentrations (MAM-PEC)
- California Toxics Rules (CTR) chronic criterion of $3.1 \mu\text{g}/\text{L}$ dissolved copper is the goal.
 - TMDLs in place already regulate to this concentration.
- What leach rate will be sufficient to achieve that concentration or lower in California marinas?

Modeling, continued

- Investigated leach rate and loading of copper in 5 marina scenarios:
 - #1: 733 boats
 - #2: 1,270 boats
 - #3: 1,833 boats
 - #4: 2,263 boats
 - #5: 4,754 boats (largest)
- Obtained maximum allowable leach rates ranging from 1.12 to 24.60 $\mu\text{g}/\text{cm}^2/\text{day}$

Modeling, continued.

- Hull cleaning
 - Regular refreshment of the paint leads to spike in passive leaching
 - Adjustment factor for both BMP and non-BMP cleaning to get a new leach rate cap based on the cleaning method.

Regulation based on Scenario #2:
REDUCTIONS IS EXPECTED TO OCCUR
EVERYWHERE

What is **NOT** included in the regulation?

Management on hull cleaning

- 9.5 $\mu\text{g}/\text{cm}^2/\text{day}$ relies on **BMP** cleaning method.
- No jurisdiction over BMP versus non-BMP cleaning.

Mitigation recommendations are highly recommended by DPR to achieve copper reductions.

Mitigation Recommendations

- BMP cleaning methods
- Reduce cleaning to once a month
- Increase boater awareness and acceptance of copper AFP alternatives
- Foster new incentive programs and continue to support existing programs to convert copper-painted boat hulls to those painted with alternatives
- Site specific objectives for copper for certain marinas or harbors.

When will we see copper reductions in California marinas?

- It takes time; we understand these paints are on boats for years and boatyard capacity for turnover is limited.
- At largest marinas, additional actions may be needed by TMDL stakeholders.
 - CTR values may not be fully and continuously met at these marinas.

Other Items

- We plan to have additional outreach on the subject.
 - Newsletters
 - Boating stakeholder events

- We plan on future monitoring as feedback on our regulations and stakeholder efforts as part of adaptive management.

Questions

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Please call or email if you have any questions.