

### **Benefits of a Healthy Newport Bay**

Newport Bay provides many beneficial uses that justify efforts to protect its health. The Upper Bay is an ecological reserve and a sensitive habitat which supports a variety of marine and terrestrial organisms. Copper has been found to be toxic to aquatic organisms such as fish, mussels, and crustaceans at relatively low concentration levels. These organisms are especially vulnerable during the development stages of their lifecycles. Newport Bay also offers recreational benefits to residents and visitors. Swimming and boating are popular activities in the highly developed Lower Bay. Commercial fishing and recreational fishing also provide economic incentives for ensuring good water quality throughout the ecosystem. A commitment to a healthy Newport Bay can allow for proper protection and management of this unique environment. Responsibility for looking after the well being of the bay is shared by all stakeholders.



Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board and the U.S. Environmental Protection Agency under the Federal Nonpoint Source Pollution Control Program (Clean Water Act Section 319). The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of any trade names or commercial products constitute endorsement or recommendation for use.

For more information regarding the Newport Bay Copper Reduction Program, contact Ray Hiemstra of Orange County Coastkeeper.

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### **Newport Bay Copper Reduction Program**



Recent studies have shown that metals are present in Newport Bay at levels that raise concerns for the health of the bay ecosystem. A significant portion of the copper found in the bay originates from copper-based antifouling paints used on recreational vessels. Boat owners, with support from the city of Newport Beach and OC Coastkeeper, are encouraged to explore alternative antifouling strategies to help

## Copper

Copper is an essential micronutrient necessary for life and it occurs naturally in all waters across the world. The metal has been used for centuries to prevent buildup of marine biota on the hulls of vessels. However, higher concentrations are known to be toxic and can harm marine life.

### CTR Non-Compliance

The California Toxics Rule (CTR) was established by the EPA to set water quality standards for toxic pollutants to protect human health and the environment. Water samples collected by OC Coastkeeper from Newport Bay contained copper levels that exceeded both short-term and long-term exposure limits.



## Sources

Copper does occur naturally in the environment, but a large percentage of the load in Newport Bay is produced by humans. Sources include:

- Antifouling Paints
- Urban runoff
- Freshwater rivers and channels
- Air deposition
- Ambient Seawater



### Marinas Are Most Toxic

Analysis of water and sediment samples has revealed that marina sites contain higher concentrations of copper than their neighboring channel sites. Copper leaching off boats with antifouling paints contribute the bulk of the pollutant copper within the bay. It is estimated that more than 80% of the copper within the bay can be attributed to copper-based antifouling paints on recreational vessels.

## Case Study: Shelter Island, San Diego Bay

Shelter Island Yacht Basin in the north end of San Diego Bay experiences high concentrations of dissolved copper due to a large number of vessels with copper-based antifouling paints. Studies revealed that 98% of the copper present in the basin originated from vessel paints. An amendment was made to the Water Quality Control Plan for the San Diego region to incorporate a Total Maximum Daily Load for dissolved copper. The amendment calls for a 76% reduction of copper input over a 17 year period, with antifouling paints targeted for the majority of the reduction. Boat owners are required to find alternative strategies to comply with the new water quality standards.

### Similarities With Newport Bay

Newport Bay has much in common with Shelter Island Yacht Basin. Both support a high density of recreational vessels in an area of low tidal flushing. Continued inputs of dissolved copper may lead to similar regulations in the Newport area. Newport Bay has already been placed on California's List of Impaired Water Bodies and a Copper TMDL is in development, placing priority on improving its water quality. OC Coastkeeper is coordinating a voluntary program to address the copper problem.