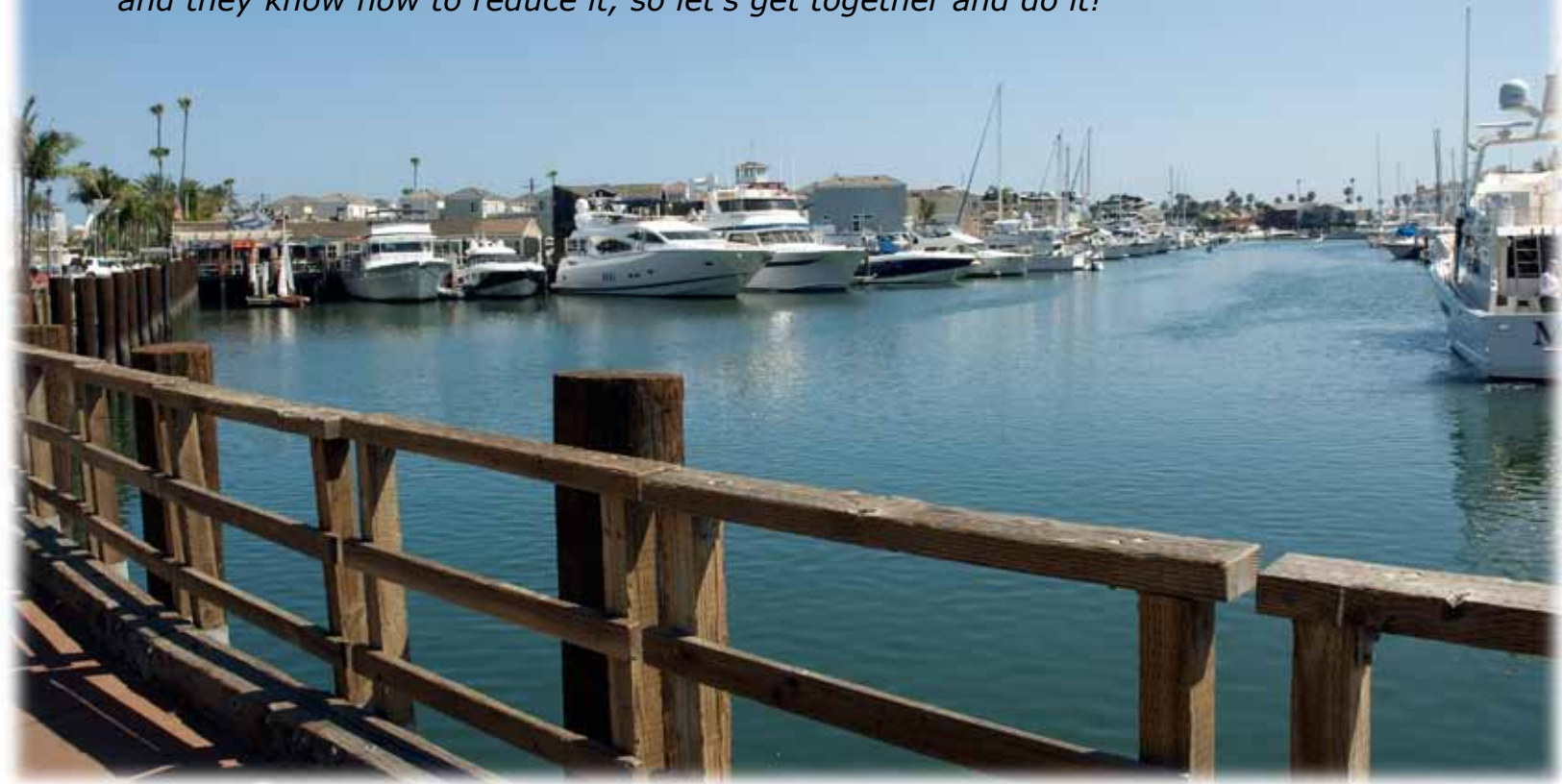


# Getting the Copper Out of Newport Bay

*Coastkeeper and its partners have proved it's there, where it's coming from and they know how to reduce it, so let's get together and do it!*



Newport Bay is one of the jewels of the California Coast and a valuable resource for 4 million Orange County residents. There is a great contrast between the upper and lower bays, defined as the areas above and below the Pacific Coast Highway bridge. The majority of Upper Newport Bay is an undeveloped ecological reserve—one of the last remaining large wetland areas in Southern California, and home to several endangered species and a wide variety of wildlife. The Lower Bay (also known as Newport Harbor) is fully developed, and serves as an economic engine for the community through tourist attractions, recreational boating and fishing activities.

Although the upper and lower bays are very different, both are magnets for tourists and vital areas for wildlife. As such, it is important to maintain and restore these areas to support both

wildlife and economic activity at Newport Bay. The most vital resource both parts of the bay have in common is water, and good water quality is fundamental to ensuring that the bay remains an asset to the community.

Orange County Coastkeeper has been working to improve water quality in Newport Bay for 10 years, in partnership with the City of Newport Beach, the Santa Ana Regional Water Quality Control Board and the U.S. Environmental Protection Agency (USEPA). During that time, the emphasis has been on conducting research to identify specific water quality and sediment problems in the bay and its tributaries, and developing plans and TMDLs to solve those problems. The next step is to implement these plans as soon as possible to improve the water and sediment quality in the bay.



This next step is occurring at all levels of government. Building on previous success in obtaining partial funding for dredging in Upper Newport Bay, the City has recently obtained new funding to complete the dredging of the upper bay and start necessary dredging in the lower bay to improve navigation and remove contaminated sediment. The Santa Ana Regional Water Quality Control Board has already adopted, and USEPA approved, the Total Maximum Daily Loads (TMDLs) for fecal coliform, nutrients and organophosphates. Included in these TMDLs is an implementation plan. Other key water quality issues in the bay are metals and pesticides, The USEPA promulgated a Toxics TMDL in 2002 that includes copper as a pollutant and the Regional Board staff are in the process of developing a Copper TMDL for Newport Bay that will contain a implementation plan for reducing copper concentrations in the bay. Coastkeeper is taking a major step in addressing this problem with our Newport Bay Copper Reduction Program.

This project, funded by the USEPA and the City of Newport Beach and managed by the Regional

Board staff, aims to decrease the amount of copper discharged into the bay from boat paints through a voluntary program to reduce copper from boat bottom paints; boat paints are the largest source of copper to the bay. Boat bottom paints are designed to leach copper (or other biocides) to reduce the growth of algae, barnacles, and other marine organisms on the underwater hulls of boats, which limits the damage these organisms can cause to boat hulls. The paints also improve performance and fuel efficiency. Pesticides such as copper are embedded in the bottom paint and slowly leach out over a number of years. Boat bottom cleaning activities (which are necessary on a regular basis)

also can result in the release of copper into the water and sediment. Since the elimination of the use of tributyl tin in boat bottom paints in the 1980s, copper has become the pesticide of choice in boat bottom paints throughout the United States. However, since copper is toxic to aquatic life, new water quality criteria (the California Toxics Rule) have been developed in the last decade, resulting in lower allowable pollutant concentrations and more waterbody listings on USEPA's 303d list.



## Getting the Copper Out of Newport Bay *continued...*

*The three-year Newport Bay Copper Reduction Program is intended to reduce copper concentrations in bay waters through a voluntary education program that will encourage boaters throughout the bay to switch to non-toxic bottom paints.*

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Since Newport Bay is listed for copper, there is a new focus on the use of this metal in marine applications such as bottom paint.

In the 2002 Toxics TMDL for San Diego Creek and Newport Bay, the EPA estimated that bottom boat paints discharge more than 50,000 pounds of copper a year into Newport Bay, by far the largest source. Additionally, studies in San Diego Bay showed that copper from boat bottom paints in Shelter Island Marina made up 98 percent of the copper load that created elevated copper concentrations in the water. As a result, the San Diego Regional Water Quality Control Board issued the Shelter Island TMDL in 2005 that mandated a 76-percent reduction in copper levels.

Following up on this work, Orange County Coastkeeper partnered with the Regional Board staff and conducted the Lower Newport Bay Cu-Metals Marina Study in 2007, under a contract from the city of Newport Beach and using funding from the Santa Ana Regional Board. The goal of this research was to determine whether copper and other metal concentrations were elevated in Newport Bay marina waters and sediments compared to channel concentrations. The study found that copper concentrations in water were above USEPA criteria in all marinas tested, and in three-quar-

ters of the marina samples and half of the channel samples tested; copper concentrations were noticeably higher in marinas than in the channel areas of the bay. These results demonstrated the need to reduce the discharge of copper from boats into Newport Bay to improve water quality, especially in the marinas.

It is important to note that while boat bottom paint is the largest source of copper to Newport Bay, it is not the only source. The County closely monitors copper discharged into the bay from San Diego Creek, which provides 90 percent of the fresh water to the bay, and copper loading from San Diego Creek and Santa Ana Delhi is estimated to be approximately 7,000 pounds per year. The other source of metals to Newport Bay are the >200 storm drains. In fall 2009, Coastkeeper will complete a study of metals inputs to the bay from storm drains. Coastkeeper, with support from Regional Board staff, is conducting this study under a contract from the city of Newport Beach with funds from the Regional Board. In addition to the marina and storm drain studies, Coastkeeper has received a grant to reduce the copper from boats in a target marina and baywide.

The three-year Newport Bay Copper Reduction program is intended to reduce copper concentra-



tions in bay waters through a voluntary education program that will encourage boaters throughout the bay to switch to non-toxic bottom paints. Additionally, the program will feature a focused education and financial incentive program for the Balboa Yacht Basin Marina by the City of Newport Beach, Coastkeeper and other partners, with a goal of encouraging 50 percent of the boats in that marina to switch to non-toxic bottom paints. To document the improvement in water quality resulting from the conversions to non-toxic bottom paints in the marina, Coastkeeper will monitor the water of Balboa Yacht Basin twice a year for the term of the project. By the end of this three-year program, we will be able to document the actual reduction in dissolved copper concentrations that can be achieved through the reduced use of copper bottom paint in Balboa Yacht Basin Marina, and will demonstrate a reduction in the overall load of copper to Newport Bay.

This project is an example of the type of voluntary initiative that Orange County Coastkeeper views as a logical first step in decreasing copper loads (and other pollutants) in Newport Bay and other waters. Through this program, Coastkeeper, the City of Newport Beach, Regional Board staff and our other partners will provide boaters with information explaining why a switch from copper bottom paints is necessary, and what types of non-copper and non-toxic bottom paint are available. We will also assist boaters in making the switch by working with local boat yards to develop non-toxic bottom paint services. The result of these efforts will be a reduction in copper loading to the target marina (Balboa Yacht Basin) and an overall copper loading reduction to the bay, which will yield a healthier bay that will better support the activities that make Newport Bay an attraction today and far into the future.



Volunteers like Julie Brelaxer help Coastkeeper in a number of projects to measure water quality in the bay.