

## Total Maximum Daily Load Progress Report

<b>Regional Water Board</b>	<b>San Diego, Region 9</b>
<b>Beneficial uses affected:</b>	MAR, WILD
<b>Pollutant(s) addressed:</b>	Dissolved Copper
<b>Implemented through:</b>	Investigative Order
<b>Approval date:</b>	December 2, 2005

## Shelter Island Yacht Basin Dissolved Copper TMDL

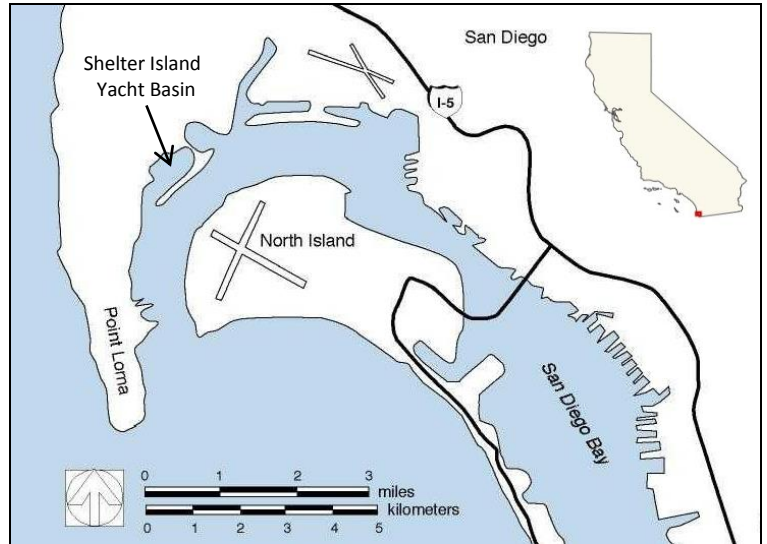
<b>STATUS</b>	<input checked="" type="checkbox"/> <b>Conditions Improving</b>
	<input type="checkbox"/> Data Inconclusive
	<input type="checkbox"/> Improvement Needed
	<input type="checkbox"/> TMDL Achieved/Waterbody Delisted

### TMDL Summary

As can be common in recreational marinas, elevated levels of dissolved copper in the Shelter Island Yacht Basin (SIYB) portion of San Diego Bay are the result of passive leaching from copper-based antifouling boat hull paints into a relatively small semi-enclosed area with reduced tidal exchange. SIYB surveys in the early 1990s and 2000 showed a dissolved copper concentration gradient with copper highest levels in the inner most reaches of SIYB; concentrations exceed the California Toxics Rule (CTR) based chronic and acute water quality objectives of 3.1 µg/L and 4.8 µg/L, respectively, for the protection of aquatic life. To address the high copper concentration, the San Diego Regional Water Quality Control Board adopted the [SIYB TMDL for Copper](#) in December 2005.

Under the leadership of the San Diego Unified Port District, the SIYB marinas, boat owners and hull cleaners have implemented a variety of copper reduction best management practices (BMPs) and implementation actions. To date, the most successful copper reduction strategy has been the conversion from copper-based anti-fouling hull coatings to “alternative” hull coatings containing little or no copper. The TMDL implementation schedule calls for reducing copper levels by 76% by 2022.

### Shelter Island Yacht Basin, San Diego Bay



### TMDL Waste Load Allocations/Load Allocations

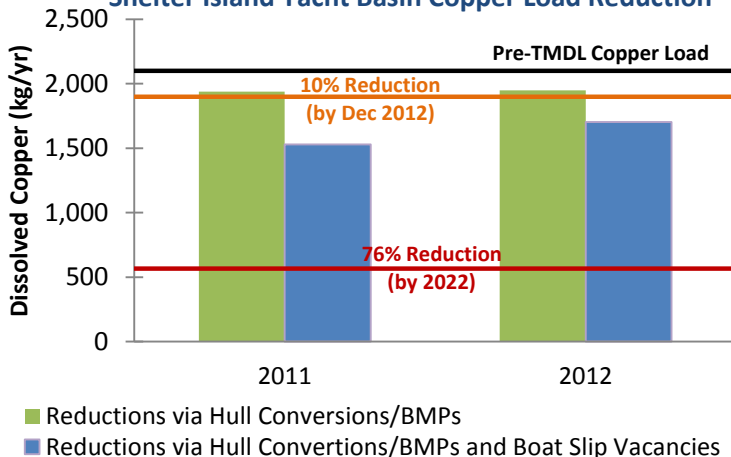
Phase	Year Phase is to be Completed	% Reduction from Current Estimated Loading	Estimated Interim Target Loading (kg Dissolved Cu/yr)
1	2007	0%	N/A
2	2012	10%	1,900
3	2017	40%	1,300
4	2022	76%	567 <sup>a</sup>

<sup>a</sup> Final compliance also requires full attainment of the acute (4.8 µg/L) and chronic (3.1 µg/L) water quality objectives for dissolved copper in SIYB.

### Water Quality Outcomes

- Water quality data show a decreasing trend in dissolved concentrations towards compliance with the acute and chronic water quality objectives.
- A 18.9% copper waste load reduction was achieved by December 2012; 7.3% copper waste load reduction was achieved through boat hull paint conversions and underwater hull cleaning BMPs and 11.6% copper waste load reduction was achieved through boat slip vacancies.
- Continue implementation actions to achieve long term dissolved copper targets by 2022.

### Shelter Island Yacht Basin Copper Load Reduction



### Shelter Island Yacht Basin Receiving Water Quality

