



## MEMORANDUM

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**To:** Leonie Mulvihill and Chris Miller,  
 City of Newport Beach

**Date:** October 14, 2016

**From:** Shelly Anghera, Ph.D., Anchor QEA, LLC

**Project:** 160243-03.01

**Re:** Technical Comments Submitted by the City of Newport Beach

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This memorandum summarizes our technical comments on the Staff Report for Basin Plan Amendments for Copper Total Maximum Daily Loads (TMDLs) and Non-TMDL Metals Action Plans for Zinc, Mercury, Arsenic, and Chromium in Newport Bay, California (Staff Report; RWQCB Santa Ana 2016).

Location	Comment
1.1	Rhine Channel is included as part of the Lower Newport Bay; however, the U.S. Environmental Protection Agency’s (EPA’s) 2002 Total Maximum Daily Load (TMDL) identifies it as its own waterbody. Resolution No. R8-2011-0037 states that Rhine Channel TMDLs are not included in organochlorine compound TMDLs because the impairment will be addressed through dredging. The City of Newport (City) has already dredged more than 90,000 cubic yards (cy). See the TMDL Current Data memorandum dated October 13, 2016. The City requests Rhine Channel continue to be managed separately from this metals TMDL.
3.3 State Board Data Assessment 2006	A review was conducted that concluded that general metals should be delisted and only copper is recommended for listing in Upper and Lower Newport Bay. We believe data that characterize the current conditions support lack of listing for all metals in sediment, tissue, and water with the exception of copper in the water column. We request the Regional Water Quality Control Board (RWQCB) staff correct errors and delist general metal categories for Upper Newport Bay.
Section 3.4 Current 303(d) listing and decisions Table 3.2	<p>We believe sufficient data are available to remove sediment toxicity in Upper Newport Bay and Lower Newport Bay waterbodies with the association of metals. See the TMDL Current Data memorandum dated October 13, 2016. Sediment toxicity is listed with organochlorine; compliance with copper TMDL should not be dependent on sediment toxicity because there is no linkage between copper concentrations and the presence of sediment toxicity.</p> <p>We request the RWQCB staff correct errors and delist general metal categories for Upper Newport Bay. We believe sufficient data are available to remove sediment toxicity in Upper Newport Bay with the association of metals. See the TMDL Current Data memorandum dated October 13, 2016. A TMDL listing for sediment toxicity is included with the organochlorine TMDL.</p>
4.1.2	The use of the California Toxic Rule (CTR) copper value is overly conservative as a tool for predicting adverse impacts to marine organisms within Marina del Rey. We believe a site-specific numeric target should be developed for use in the TMDL. The use of CTR

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Location	Comment
	<p>values is widely recognized within the scientific community to be overly conservative for use in a regulatory order and does not appear to be directly linked in any way to potential impacts in Newport Bay.</p> <p>The use of site-specific numeric criteria for metals will allow a clearer and more definitive demonstration of appropriate numeric standards. The use of strong science to demonstrate the linkage between boat paint and marine quality is necessary and required within the TMDL policy. Furthermore, EPA recommends the use of water-effects ratios (WERs) specifically for copper in marine environments when dissolved organic carbon is present. "When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate." See EPA's Aquatic Life Criteria Table for copper footnote: <a href="http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm#cc">http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm#cc</a>.</p> <p>We believe the CTR is not being applied appropriately. From the CTR guidance, the 3.1 micrograms per liter (<math>\mu\text{g/L}</math>) value should not be used until a WER is established. Where, as here, the use of the default WER leads to impairment findings that conflict with available toxicity data from the site, it is improper to use the default WER when evidence indicates it is incorrect. (See comments for Section 4.2.4.).</p> <p>Moreover, though the copper TMDL purports to apply the CTR Criteria Continuous Concentration, it fails to accurately apply the regulation as written and adopted by EPA. Specifically, footnote d to the table set forth under 40 C.F.R. § 131.38(b)(1) provides that "Criteria Continuous Concentration (CCC) equals the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects." There is no evidence that the RWQCB considered whether locations where instantaneous grab samples exceeded the (unadjusted) CTR CCC would actually exceed the CTR value over a 4-day average. This failure to consider the 4-day averaging period is especially significant because samples taken during different tidal events show variation at numerous locations.</p>
4.1.5	<p>The Staff Report provides a discussion regarding federal revisions to the copper water quality objectives. The City submitted comments to EPA and extended those comments to the RWQCB for consideration in potential revisions to the copper water quality objectives. See the Revised Federal Copper Criteria Standard letter from City of Newport Beach, September 16, 2016.</p>
4.1.5	<p>As stated in the Staff Report, "The CTR criteria for dissolved Cu are expressed as a function of the WER. The WER is generally computed as the acute or chronic toxicity value for a pollutant measured in the affected receiving water, divided by the respective acute or chronic toxicity value in laboratory dilution water. A default WER of one (1) is assumed for the purposes of determining the applicable numeric objectives. This means that the numeric values identified in the CTR for dissolved Cu apply, unless an alternative, scientifically defensible WER is developed, approved and applied to modify the numeric value of the objective. If approved, the revised objectives form the basis for discharge requirements and other regulatory actions."</p> <p>CCC criterion continuous concentration is based on the assumption that it is multiplied by the WER for site-specific impairment. CTR is not accurately applied as intended with</p>

Location	Comment
	<p>consideration of site-specific conditions, and the RWQCB has not demonstrated the CTR value without adjustment from a WER is not overly conservative.</p> <p>We believe the CTR is not being applied appropriately. From the CTR guidance, the 3.1 µg/L value should not be used until a WER is established.</p>
Section 4.2.1	<p>Sediment impairment should be removed from the TMDL. Sediment evaluations require the inclusions of all potential contaminants of concern to be managed appropriately. The State developed guidance for assessing sediment quality and RWQCB staff did not follow state guidance. The preponderance of relevant data does not provide any evidence of a linkage between sediment impairment and metals concentrations. Sediment impairment should not be included in a metals TMDL for Newport Bay.</p>
Section 4.2.1 Fish/Mussel Tissue data	<p>Wildlife and human health screening levels used in the Staff Report are not appropriate because they are: (1) not standardized and therefore in some cases were derived differently using different assumptions, depending on the chemical; and (2) not based on recommended screening levels for wildlife and human health screening level evaluations in California.</p> <ul style="list-style-type: none"> <li>• Wildlife screening should be based on a comparison of the total daily intake of contaminated fish by wildlife receptors relative to dose-based toxicity reference values (i.e., Ecological Soil Screening Levels; see <i>Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments</i>, EPA 540-R-97-006, 1997). Background concentrations in mussels and fish collected off the coast of Orange County (as part of regional monitoring programs such as Surface Water Ambient Monitoring Program [SWAMP] and California State Mussel Watch programs) should also be evaluated to determine if tissues from Newport Bay are statistically elevated relative to background concentrations. See the TMDL Current Data memorandum dated October 13, 2016. The fish in Newport Bay are equal to or less than the fish located outside of Newport Harbor during 2009 to 2011 monitoring efforts. Many of the fish evaluated in the Staff Report are not residential and are therefore exposed across a wide area; their exposures can be assumed to be coming from regional sources that are not related to Newport Bay.</li> <li>• Human health screening levels were not correctly applied. Screening levels should be based on regional (California) risk-based screening levels that are available through the EPA Region 9 website, as well as appropriate site-specific information.</li> <li>• For evaluation of data for listing purposes, inorganic arsenic in tissue should be measured directly and not estimated when data are being used in a listing determination. The assumption that inorganic arsenic makes up 10% of total arsenic is overly conservative and inappropriate. As indicated by the literature cited in the Staff Report and in many other studies, inorganic arsenic often makes up much less than 10% of the total arsenic. Because inorganic arsenic can be analyzed and quantified, it is imperative that tissue data are collected and analyzed for this arsenic species prior to comparison to screening levels and listing determination.</li> </ul>

Location	Comment
Section 4.2.2	<p data-bbox="431 285 1406 380">Staff did not accurately characterize current condition in Newport Bay. For a detailed review of relevant data, see the TMDL Current Data memorandum dated October 13, 2016.</p> <p data-bbox="431 422 1414 621">Studies older than 5 years should be removed from determining current conditions. In fact, all data presented in the Staff Report with the exception of OC Coastkeeper &amp; Candelaria (2014) should be removed from the analysis of current condition. More recent data are available and should have been included. A summary of the rationale for removing the studies related to water and sediment quality as descriptors of current condition is summarized below.</p> <ul style="list-style-type: none"> <li data-bbox="480 621 1422 1157"> <p data-bbox="480 621 935 653">• Copper Metals Marina Study (2007)</p> <ul style="list-style-type: none"> <li data-bbox="578 653 1398 716">– Data are too old and not relevant to current condition. This study should not be included for determining current sediment condition.               <ul style="list-style-type: none"> <li data-bbox="675 716 1406 926">• Water – Water condition changes constantly; only the most currently available data should be used to evaluate water condition. The City has dissolved copper data less than 18 months old. The Orange County (OC) Monitoring Program currently collects quarterly dissolved copper data from multiple locations in Upper and Lower Newport Bay.</li> <li data-bbox="675 926 1406 1157">• Sediment – Sediment condition has changed. Significant dredging has occurred in both Upper and Lower Newport Bay. Sediment quality has changed over time, which is evident through the recent evaluations summarized in the TMDL Current Data memorandum dated October 13, 2016. Current data are available for the Turning Basin area and Marina sites; therefore, additional data are not required.</li> </ul> </li> </ul> </li> <li data-bbox="480 1157 1406 1398"> <p data-bbox="480 1157 1065 1188">• OC Stormwater Monitoring Data (2006 – 2009)</p> <ul style="list-style-type: none"> <li data-bbox="578 1188 1406 1325">– Data from 2006 to 2009 are not reflective of current conditions. Therefore, data presented in the Staff Report should be amended to only include the last 5 years of monitoring data that are readily available.</li> <li data-bbox="578 1325 1422 1398">– Older data can be used to support trends but should not infer current condition.</li> </ul> </li> <li data-bbox="480 1398 1406 1598"> <p data-bbox="480 1398 1073 1430">• Copper Reduction in Lower Newport Bay (2013)</p> <ul style="list-style-type: none"> <li data-bbox="578 1430 1406 1598">– Data were summarized from the OC Monitoring Program for 2009 to 2011, limiting assessment to these years is not reflective of current conditions. Therefore, data presented in the Staff Report should be amended to include only data after 2011. Current monitoring data are readily available.</li> </ul> </li> <li data-bbox="480 1598 1422 1860"> <p data-bbox="480 1598 1308 1629">• Sediment Evaluation for Lower Newport Bay Study (Newfields 2009)</p> <ul style="list-style-type: none"> <li data-bbox="578 1629 1422 1860">– Dredge characterization data are not appropriate for defining surficial sediment condition. This study should not be included for determining current sediment condition. Dredge characterization studies characterize sediment cores that do not accurately assess the surface condition. Further, multiple dredge characterization studies have been implemented throughout the harbor; it is not clear why the Staff Report chooses to only present this evaluation.</li> </ul> </li> </ul>

Location	Comment
	<ul style="list-style-type: none"> <li>• Newport Bay Sediment Toxicity study (SCCWRP 2004) <ul style="list-style-type: none"> <li>– Data are not reflective of current condition. This study should not be included for determining current sediment condition. Sediment condition has changed. Significant dredging has occurred in both Upper and Lower Newport Bay. Sediment quality has changed over time, which is detailed in the TMDL Current Data memorandum dated October 13, 2016.</li> </ul> </li> <li>• Newport Bay and San Diego Creek Chemistry Study (SCCWRP 2003). <ul style="list-style-type: none"> <li>– Data are not reflective of current condition. This study should not be included for determining current sediment condition. Sediment condition has changed. Significant dredging has occurred in both Upper and Lower Newport Bay. Sediment quality has changed over time, which is detailed in the TMDL Current Data memorandum dated October 13, 2016.</li> </ul> </li> </ul>
Section 4.2.2	<p>OC Coastkeeper &amp; Candelaria (2014) support the lack of metals impairment to sediments.</p> <ul style="list-style-type: none"> <li>• Staff did not accurately summarize the toxicity results for OC Coastkeeper &amp; Candelaria (2014) in Table 4-10 (page 46). Table 4-10 should include the six amphipod toxicity tests that were conducted with no observed toxicity.</li> <li>• The lack of sediment toxicity to amphipods supports the lack of benthic impairment caused by metals. As stated in Section 4.2.1, sediment impairment is determined when there is an exceedance of effects range medians (ERMs) along with sediment toxicity. Therefore, this study supports the lack of sediment impairment related to metals and negates any actions to support sediment remediation actions (Implementation Task 2), monitoring in sediments (Implementation Task 5), and non-TMDL action plans (Table 6.1 of the Basin Plan Amendment [BPA]).</li> </ul>
Section 4.2 Data Analysis	<p>Sediment data presented in the Staff Report are not reflective of current condition. See the TMDL Current Data memorandum dated October 13, 2016.</p> <ul style="list-style-type: none"> <li>• Data representative of current conditions were not included in the Staff Report and should include the following studies. These studies (with the exception of Rhine Channel) support the lack of impairment to sediment quality by metals and, therefore, support the removal of non-TMDL action plans for zinc, mercury, arsenic, and chromium, as well as sediment quality evaluations and remediation from copper sources in this copper TMDL. Details of all studies are provided in the TMDL Current Data memorandum dated October 13, 2016, and summarized as follows: <ul style="list-style-type: none"> <li>○ OC Monitoring Program – Stormwater and Estuary Programs – 2011 to present (<a href="http://ocwatersheds.com/rainrecords/waterqualitydata">http://ocwatersheds.com/rainrecords/waterqualitydata</a>) <ul style="list-style-type: none"> <li>▪ The quarterly program includes 139 samples at seven locations during the last 5 years. There have been no ERM exceedances for copper, zinc, arsenic, or chromium. Only seven ERM exceedances for mercury were found in the Rhine Channel location (LNBRIN).</li> <li>▪ This monitoring program includes sediment toxicity testing. There have been 96 sediment toxicity tests conducted at</li> </ul> </li> </ul> </li> </ul>

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	<p>seven stations in Lower and Upper Newport Bay in the last 5 years (since January 2011). Stations included LNBHIR, LNBRIN, LNBTUB, UNBCHB, UNBJAM, UNBNSB, and UNBSDC. Each station was tested 15 times, except for LNBRIN (n = 7) and UNBCHB (n = 14). Of those 96, 18 of the tests had a toxic response (i.e., survival less than 80%). Of the 18, two toxic responses occurred in the Rhine Channel (LNBRIN). There has been no toxicity observed in the last three sampling events in the Rhine Channel (LNBRIN), the only location where ERM exceedances of metals are currently found. All other toxic responses occurred in locations where no ERM exceedances of metals were found.</p> <ul style="list-style-type: none"> <li>▪ The lack of sediment toxicity to amphipods supports the lack of benthic impairment caused by metals. As stated in Section 4.2.1, sediment impairment is determined when there is an exceedance of ERMs along with sediment toxicity. Therefore, this study supports the lack of sediment impairment related to metals and supports removal of known sediment copper impairment actions (Implementation Task 2), monitoring in sediments (Implementation Task 5), and all the recommended actions within the non-TMDL action plans (Table 6.1 of the BPA).</li> </ul> <ul style="list-style-type: none"> <li>○ Rhine Channel Post Remediation Study (Anchor QEA 2012)             <ul style="list-style-type: none"> <li>▪ Twelve sampling locations were included; 8 samples exceeded copper ERM, 12 samples exceeded mercury ERM, and 3 samples exceeded zinc ERMs. No arsenic and chromium ERM exceedances were found.</li> <li>▪ Sediment ERM exceedances are present in the Rhine Channel with occasional sediment toxicity. This study supports the approach to manage Rhine Channel separately from rest of Newport Bay.</li> </ul> </li> <li>○ Federal Dredging Post Sediment Condition (Anchor QEA 2013)             <ul style="list-style-type: none"> <li>▪ Eleven sampling locations were included; no copper, arsenic, chromium, or zinc ERM exceedances were found. There was only one mercury ERM exceedance.</li> <li>▪ This study included both sediment and sediment/water interface toxicity testing. No toxicity was observed.</li> <li>▪ The lack of toxicity in the sediment/water interface test supports the lack of impairment from copper in sediments to overlying water. Therefore, this study supports the lack of sediment impairment related to metals fluxing from sediments and supports the removal of special studies related to copper loading from sediment (Implementation Task 6.1).</li> <li>▪ The lack of sediment toxicity to amphipods supports the lack of benthic impairment caused by metals. As stated in Section 4.2.1, sediment impairment is determined when there is an</li> </ul> </li> </ul>

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	<p>exceedance of ERMs along with sediment toxicity. Therefore, this study supports the lack of sediment impairment related to metals and supports removal of known sediment copper impairment actions (Implementation Task 2), monitoring in sediments (Implementation Task 5), and all the recommended actions within the non-TMDL action plans (Table 6.1 of the BPA).</p> <ul style="list-style-type: none"> <li>○ Bight '13 Regional Monitoring Program, Sediment Quality Objective Assessment (SCCWRP 2015) <ul style="list-style-type: none"> <li>▪ The study included sediment chemistry analyses at nine stations. Copper, arsenic, chromium, mercury, and zinc were not detected in concentrations greater than the ERM in any sample.</li> <li>▪ This study included both sediment and sediment/water interface toxicity testing at nine stations. No toxicity was observed at all stations except three. Moderate toxicity was observed in two samples. High toxicity was observed in one sample; however, subsequent resampling at this station indicated no toxicity.</li> <li>▪ The lack of toxicity in the sediment/water interface test supports the lack of impairment from copper in sediments to overlying water. Therefore, this study supports the lack of sediment impairment related to metals fluxing from sediments and supports the removal of special studies related to copper loading from sediment (Implementation Task 6.1).</li> <li>▪ The lack of sediment toxicity to amphipods supports the lack of benthic impairment caused by metals. As stated in Section 4.2.1, sediment impairment is determined when there is an exceedance of ERMs along with sediment toxicity. Therefore, this study supports the lack of sediment impairment related to metals and supports removal of known sediment copper impairment actions (Implementation Task 2), monitoring in sediments (Implementation Task 5), and all the recommended actions within the non-TMDL action plans (Table 6.1 of the BPA).</li> </ul> </li> </ul>
<p>Section 4.2.2 Page 29, Table 4-4</p>	<p>The tissue data presented in the Staff Report are too old and not reflective of current condition.</p> <ul style="list-style-type: none"> <li>• Food Web Study in Fish (Allen et al. 2008) <ul style="list-style-type: none"> <li>○ Data presented in the Allen et al. (2008) study were collected in the winter of 2005 and the summer of 2006 and, therefore, are more than 10 years ago and are not representative of current exposures to Newport Bay sediment.</li> </ul> </li> <li>• Department of Fish and Game Monitoring Data (Frueh &amp; Ichikawa 2007) <ul style="list-style-type: none"> <li>○ Data were collected in July and August 2006 and, therefore, are more than 10 years old and are not representative of current exposures to Newport Bay sediment.</li> </ul> </li> </ul>

Location	Comment
	<ul style="list-style-type: none"> <li>• Bioaccumulation Fish Tissue Study (Allen et al. 2004) <ul style="list-style-type: none"> <li>○ Data presented in the Allen et al. (2004) study are more than 10 years ago and are not representative of current exposures to Newport Bay sediment.</li> </ul> </li> </ul> <p>Further, metals, with the exception of mercury, are not known to bioaccumulate or biomagnify to levels of concern in the Southern California Bight. The old data that are presented in the Staff Report do not indicate that copper or other metals were ever elevated to levels of potential concerns within Newport Bay. For more details on the most recently available tissue data, see the TMDL Current Data memorandum dated October 13, 2016.</p> <ul style="list-style-type: none"> <li>• More recent studies should be used to support TMDL listing actions. Fish and mussel data from Newport Bay collected after 2006 are available from the State's database, CEDEN (<a href="http://www.ceden.org/">http://www.ceden.org/</a>), and were collected as part of the Newport Bay Watershed Bio Trend Monitoring Program from 2007 through 2010.</li> </ul>
Section 4.2.3 Fish/Mussel Tissue summary Page 45	<p>Insufficient data are available to support a listing. In accordance with the State's Listing Policy, "A water segment shall be placed on the section 303(d) list if the tissue pollutant levels in organisms exceed a pollutant-specific evaluation guideline (satisfying the requirements of section 6.1.3) using the binomial distribution as described in section 3.1." (SWRCB 2004). In accordance with the binomial approach, a minimum sample size of 16 is required to evaluate whether there are exceedances of pollutant-specific guidelines.</p> <p>There are insufficient mussel and fish data available for human health and wildlife (fish tissue) listing purposes that are representative of exposure to current sediment conditions; all data collection occurred more than 10 years ago and, therefore, are not representative of current exposures to Newport Bay sediment. For human health, there are fewer than ten samples (and all older than 10 years) upon which listing recommendations are being made.</p> <p>Fish tissue listings are inappropriate because there was no consideration of background fish tissue concentrations of metals prior to listing recommendations. This is critical because background concentrations of mercury, arsenic, and cadmium in fish are elevated above the screening levels used in the Staff Report, based on ocean-collected fish data collected as part of the 2009 SWAMP program (see the TMDL Current Data memorandum dated October 13, 2016).</p>
4.2.2	<p>Sufficient sediment and toxicity data are available to assess impairment from metals.</p> <ul style="list-style-type: none"> <li>• Thirty-nine sediment/water interface toxicity tests with 48-hour <i>Mytilus</i> development tests have been conducted in Upper and Lower Newport Bay in the last 5 years. No toxicity was observed in any of the tests. The lack of toxicity in the sediment/water interface test supports the lack of impairment from copper in sediments to overlying water. Therefore, this study supports the lack of sediment impairment related to metals fluxing from sediments and supports the removal of special studies related to copper loading from sediment (Implementation Task 6.1).</li> <li>• One hundred twenty-two sediment toxicity tests with 10-day amphipod acute tests have been conducted in Upper and Lower Newport Bay in the last 5</li> </ul>

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	<p>years. A toxic response (i.e., survival less than 80%) was detected in 22 samples. However, the toxic response does not co-occur with ERM exceedance in metals, except for two instances in the Rhine Channel where mercury exceeds the ERM. The lack of sediment toxicity to amphipods supports the lack of benthic impairment caused by metals. As stated in Section 4.2.1, sediment impairment is determined when there is an exceedance of ERMs along with sediment toxicity. Therefore, this study supports the lack of sediment impairment related to metals and supports removal of known sediment copper impairment actions (Implementation Task 2), monitoring in sediments (Implementation Task 5), and all the recommended actions within the non-TMDL action plans (Table 6.1 of the BPA).</p> <ul style="list-style-type: none"> <li>• Wildlife and human health screening levels used in the Staff Report are not appropriate because they are: (1) not standardized and therefore in some cases were derived differently using different assumptions, depending on the chemical; and (2) not based on recommended screening levels for wildlife and human health screening level evaluations in California. A review of available fish tissue does not indicate any accumulation of metals at levels higher than regional concentrations. Therefore, these studies support lack of tissue impairment related to in-bay sources for metals and supports removal of all the recommended actions within the non-TMDL action plans (Table 6.1 of the BPA).</li> </ul> <p>We believe Rhine Channel should be managed outside of a metals TMDL.</p> <p>The entire Section 4 needs to be revised to include only current information.</p>
4.2.4	<p>The data do not demonstrate copper or any other metals are causing impairment in the water, sediment, and tissue in Upper and Lower Newport Bay.</p> <ol style="list-style-type: none"> <li>1) Although there have been exceedances of the CTR in localized areas of the harbor, there are no toxic responses to suggest that dissolved copper concentrations are causing impacts to the most sensitive of marine organisms. There are 39 sediment/water interface tests conducted in the last 5 years as well as five water column toxicity tests in the last 6 months. No toxicity to the most sensitive toxicity test (48-hour Mytilus development) has been observed.</li> <li>2) More than 215 sediment samples that represent the current sediment surface condition were evaluated. There are only two instances of a metal ERM exceedance occurring in the 122 sediment toxicity (10-day amphipod acute) tests. Therefore, the sediment and toxicity data do not support the determination of impairment based on the listing policy.</li> <li>3) Wildlife and human health screening levels used in the Staff Report are not appropriate because they are: (1) not standardized and therefore in some cases were derived differently using different assumptions, depending on the chemical; and (2) not based on recommended screening levels for wildlife and human health screening level evaluations in California. Tissue does not appear to be elevated above regional concentrations. There is an insufficient number of samples to support a fish tissue listing for wildlife or human health.</li> </ol>

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	<p>We believe sufficient data are available to delist sediment toxicity.</p> <p>We believe there is insufficient data to support listing of metals in sediments and tissues for all of Newport Bay.</p>
4.2.4 Table 4-13	<p>Table 4-13 is difficult to follow. It is unclear what actions the RWQCB are taking. Table 4-14 provides a clear understanding of the RWQCB's intent to add new listings to the 303(d) list. The Staff Report does not accurately assess the sediment, water, and tissue impairments related to metals and does not support the RWQCB assessment for listing.</p> <ul style="list-style-type: none"> <li>▪ Copper, zinc, and mercury in sediments should not be listed on the 303(d) list for Lower Newport Bay. There are insufficient exceedances of ERM's with the presence of toxicity. Only two instances in the last 5 years have found ERM exceedance of a metal with toxicity; both occurred in the Rhine Channel where multiple organic contaminants are also elevated above their respective ERM values.</li> <li>▪ There are exceedances of dissolved copper CTR; we recommend keeping dissolved copper on the 303(d) list, but a TMDL is not needed. Evidence suggests the Department of Pesticide Regulation (DPR) guidance and regional improvements in water quality will continue to support a healthy marine habitat and provide significant reductions into the future. Water column toxicity has not been demonstrated to be associated with CTR exceedances; therefore, impairment has not been shown.</li> <li>▪ Arsenic, zinc, copper, and mercury have no reason to be listed on the 303(d) and should be delisted.</li> <li>▪ Arsenic, zinc, copper, and mercury for fish tissue in either Upper or Lower Newport Bay should not be listed on the 303(d) list. RWQCB staff have not applied appropriate screening criteria and have not demonstrated any potential sources for these compounds to Newport Bay that do not exist off the coast. Levels in the fish are similar to fish in coastal zones outside the influence of Newport Bay sources.</li> </ul>
4.3	The Staff Report does not accurately assess the sediment, water, and tissue impairments related to metals and does not support the RWQCB assessment for problem statement.
4.3 Table 4-15	Toxicity in water and sediment have not demonstrated impairment and therefore should be removed from table.
5	<p>A copper TMDL is not needed. There are ongoing programs that will continue reductions of metals to the marine environment for the next 15 years. The effectiveness of ongoing source reductions should be evaluated to determine if additional actions are required.</p> <ul style="list-style-type: none"> <li>▪ Past actions have made a lot of progress <ul style="list-style-type: none"> <li>○ Dredging in Upper and Lower Newport Bay</li> <li>○ Ongoing municipal separate storm sewer systems (MS4s), source reductions</li> <li>○ Clean boating programs</li> <li>○ Regional air quality improvements</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>▪ Anticipated and expected future actions that will reduce copper in the coming years include:                             <ul style="list-style-type: none"> <li>○ Continued MS4 reductions/controls</li> <li>○ Brake pad initiative will reduce copper and zinc throughout California</li> <li>○ Future maintenance dredging may contribute to deepening of harbor and increases in circulation.</li> <li>○ The environment is naturally recovering and will only improve with time. Long-term monitoring programs have demonstrated reductions (e.g., Regional Bight Monitoring Program, California Mussel Watch Program).</li> <li>○ DPR paint restrictions will provide significant source reductions that we think will be sufficient to maintain water quality in Newport. If needed, a boater education program and a diver training program may be developed by interested stakeholders.</li> </ul> </li> </ul>
5.3.1	<p>The loadings from copper antifouling paints (AFPs) were incorrectly calculated (see technical memorandum: Newport Bay TMDL Copper Leachate Draft Memo_101216_v2.PDF).</p> <p>The Staff Report incorrectly calculated loading from copper AFP and failed to consider a range of leach rates from currently available copper AFP on the market, appropriate vessel counts, conditional best management practice (BMP) requirements.</p> <ul style="list-style-type: none"> <li>• Calculation Errors. 1) The conversion from a daily leach rate to a yearly leach rate used a greater number of days (368.96 and 368.39 for epoxy and ablative-type paints, respectively) than occur in a year (365). This overestimated the calculated loading. 2) The adjustments to the loading rate did not correctly apply findings from the Earley (2013) study. The Earley (2013) study presented percent decreases from non-BMP methods to BMP methods. Because the Staff Report had already calculated loading rates for BMP methods, it should have used data presented in the Earley (2013) report to determine the percent increase from BMP to non-BMP methods in order to calculate loading rates for BMP methods. This underestimated the calculated loading.</li> <li>• Other Considerations. 1) The DPR Environmental Monitoring Branch (EMB) 2014 memorandum identified leach rates from currently available copper AFP that ranged from 1.0 to 29.6 micrograms per square centimeter per day (<math>\mu\text{g}/\text{cm}^2/\text{day}</math>). It further determined that 58% of these AFP products were greater than the recommended maximum leach rate of 9.5 <math>\mu\text{g}/\text{cm}^2/\text{day}</math>. This suggests that 42% of the products are already below the maximum recommended leach rate. The Staff Report assumes none of the products currently being used on vessels have leach rates that are below the maximum recommended leach rate. This approach overestimates the loading rates from vessels. 2) The Staff Report is based on 10,000 vessels moored or berthed in Newport Bay. The City of Newport Beach has conducted a review of the available moorings, commercial (marina), and residential slips available and has determined a total of 4,470 vessels occur in Newport Bay. Using 10,000 vessels substantially overestimates the loading rate from vessels. 3) The DPR EMB 2014 memorandum recommended a maximum leach rate of 9.5 <math>\mu\text{g}/\text{cm}^2/\text{day}</math> provided that boat hull cleaning used suitable BMP methods (soft</li> </ul>

Location	Comment
	<p>cloth pile instead of abrasive scour pads). The Staff Report calculated an average loading rate assuming 50% of the vessels were continued to be cleaned with non-BMP methods. This approach overestimates the loading rate from vessels.</p> <p>After adjusting for the incorrect calculations and considering reasonable alternative approaches to the loading calculation, a more accurate loading rate of approximately 11,000 pounds per year (lbs/yr) is expected, rather than a loading rate of approximately 36,000 lbs/yr as stated in the Staff Report.</p>
5.3.4	Bay sediments are not elevated in metals at concentrations above the ERM and are not associated with the presence of sediment toxicity or overlying water toxicity. This section should be removed.
5.3.6	Algae and other vegetation have not been shown to be a concern or a pathway for metals uptake in higher trophic organisms in Newport Bay.
5.4	The City has a hydrodynamic model that can more accurately assess the loading capacity for copper. It should be used.
5.5	<p>A margin of safety (MOS) was not calculated correctly; therefore, load allocations were not accurately calculated for boats within Newport Bay (see technical memorandum: Newport Bay TMDL Copper Leachate Draft Memo_101216_v2.PDF).</p> <ul style="list-style-type: none"> <li>• MOS. The MOS was incorrectly calculated as 20% of the TMDL, rather than more appropriately calculated as 20% of the sum of the waste load allocation (WLA) and load allocations (LAs). This approach overestimates the MOS and simultaneously underestimates the allocation for one or more types of WLAs or LAs. See other comments provided by the City about the overly conservative use of 20% MOS in the TMDL calculation.</li> <li>• LA for boats. Because the MOS was overestimated, in order to make the TMDL equation equitable (<math>TMDL = WLA + LA + MOS</math>), one or more WLAs or LAs were underestimated. The Staff Report appears to be solving for the copper LA for boats (all other WLA or LA values had corresponding references supporting the development of those values). Therefore, it is reasonable to assume the difference in the overestimated MOS should have been applied to the underestimated LA for boats. As such, the LA for boats should be 6,448 lbs/yr instead of 6,060 lbs/yr.</li> <li>• Alternative MOS. The Staff Report failed to justify a MOS of 20%. Considerations should be made for the use of an alternative MOS value of 10%. Using a similar approach for recalculating the LA for boats as stated above, a 10% MOS would suggest LAs for boats should be 7,330 lbs/yr.</li> </ul>
5.5 Table 5.5	Please confirm how the boat LA was calculated. It appears to have been back-calculated from known values for the TMDL, WLAs (for MS4 permittees, CalTrans, Other NPDES permittees, and boatyards), and LAs (for Agricultural runoff, open space runoff, and air deposition).
5.6.1.3.1.4	Conversion to alternative paints is not as easy as RWQCB staff suggest. See other comments provided by the City about the difficulty in purchasing and applying proven paints that are non-toxic.
5.6.2.1	Reginal Board outreach was not sufficient. The TMDL was a surprise to most named responsible parties.

Location	Comment
6.2	Recent sediment chemistry data from the OC Monitoring Program (Mass Loading Station, and Wetland and Estuary elements), Bight '13 Regional Monitoring Program, OC Coastkeeper & Candelaria (2014) study, Federal Dredging Post Sediment Condition study, and Rhine Channel Post Remediation study do not support the justification for arsenic, chromium, mercury, and zinc impairments; therefore, these non-TMDL action plan should be removed from the Staff Report (see TMDL Current Data memorandum dated October 13, 2016). Only Rhine Channel shows elevated metals concentrations relative to ERM guidance values, but the Rhine Channel is subject of an ongoing Cleanup and Abatement Order.
7.0 and BPA Implementation Plan	As provided, the TMDL calculations to estimate harbor loading from boat paint are inaccurate and do not accurately assess the copper AFP reduction measures needed to comply with the CTR. The City or any other discharger cannot develop an implementation plan for copper reductions until the impairment has been defined accurately. The implementation actions have not been proven to be necessary to protect beneficial uses because impairment has not been accurately assessed and demonstrated.
8.3 Cost Considerations	<p>For a summary of the 5-year cost to implement the program without any cost considerations to the boat owners and marina operators, see the TMDL Cost Estimate memorandum dated October 13, 2016.</p> <p>The cost considerations fail to address the full spectrum of requirements under the TMDL, including implementation plan development; compliance monitoring and special studies; in-water hull cleaning diver certification; and continuing education programs for boaters, boatyards, and marinas. Furthermore, a more rigorous economic accounting should be conducted, including providing a range of costs for the specific items mentioned, such as dredging to remediate copper in Lower Newport Bay, ongoing maintenance costs associated with more frequent boat hull painting, and costs to implement specific BMPs.</p> <p>The potential cost impacts were only considered for individual boat owners and not the financial impact to marina operators and the local marina industry. Banning the use of copper-based AFPs may cause most boaters to move to nearby harbors or leave boating because of this financial (and perceived as unnecessary) hardship. Only the wealthiest boaters will be able to afford to stay involved with boating, and they may choose nearby harbors and hurt the local economy by creating unfair impacts on marina owners and businesses. Other harbors are scheduled for copper TMDL considerations, but those TMDLs are years away from being enacted, and when enacted will have years to become compliant. Thereby, the requirements set forth for Newport Bay will affect our community more than 10 years before other harbors are impacted by this legislation.</p>
9.0	This TMDL was not peer reviewed. The RWQCB cannot assume review for the EPA 2002 TMDL that included organics is either reflective or relevant to this copper TMDL.
9.2	The City does not believe the RWQCB has actively or has been willing to work with City. The City has provided comments multiple times and provided data for the last 5 years and the RWQCB has not incorporated the City's opinions or current data. Further Regional Board outreach was not sufficient. The TMDL was a surprise to most named responsible parties.