Comments and Responses for Documents Posted August 31, 2016, to Consider Proposed Copper (Cu) TMDLs and Non-TMDL Action Plans (Action Plans) for Zinc (Zn), Mercury (Hg), Arsenic (As) and Chromium (Cr)
(comments received by October 17, 2016 deadline)

City of Newport Beach

October 14, 2016 Letter from City Re: Regional Board Meeting – October 28, 2106; Basin Plan Amendments to Incorporate Total Maximum Daily Loads for Copper and Non-TMDL Action Plans for other Metals in Newport Bay

Comment 1 – The City of Newport Beach ("City") provided written and oral comments to you [Dr. Candelaria of Board staff] on July 24, 2015, when staff included Newport Bay Copper/Metals TMDLs as an informational item to the Reginal Board's regular agenda…the City was concerned about the proposal to require the City and others to restrict or ban the use of *legally-available* copper-based antifouling paints (AFP) through a new TMDL. In particular, we outlined to the Board that the implementation plan was both unenforceable and a circumvention of the legal role and rights of the Department of Pesticide Regulation ("DPR"), which is the exclusive regulator of pesticides, including copper AFP. We urged you to confer with the City and engage in a meaningful dialogue about the current copper levels in Newport Bay and the development of meaningful Amendments…we do not believe that this consultation about the practical impacts of the proposed implementation plan to our community and our harbor was robust or meaningful.

Response 1

1) The proposed Cu TMDLs do not require the City or any other party to ban the use of Cu antifouling paints (AFPs). In addition, there is no conflict between the authority of the Regional Board and that of the Department of Pesticide Regulation (DPR). We agree that DPR is the sole state agency with the authority to regulate the sale and use of Cu AFPs; however, the Regional Board has the authority and obligation to regulate the discharge of Cu (and other pollutants) from pesticides and other sources so that a water body meets applicable water quality objectives. While it is legal to buy and use Cu AFPs, dissolved Cu concentrations in Newport Bay continue to exceed the California Toxics Rule (CTR) criterion (3.1 µg/L); therefore, Cu TMDLs are required by federal law for both Upper and Lower Newport Bay. The largest source of Cu to the Bay is Cu AFPs on boats, and Cu discharges from these paints must be reduced to achieve the TMDLs.

In February 2014, DPR issued a determination of a maximum allowable leach rate of 9.5 µg/cm^2/d for Cu AFPs that inherently includes the use of BMPs. There is no conflict between DPR's determination of a maximum allowable leach rate for Cu AFPs and the Board's authority to regulate Cu discharges from Cu AFPs on boats. Board staff have had discussions with DPR regarding the legal issues surrounding the regulation of Cu AFPs. Board staff have engaged DPR on the issue of Cu AFPs and an appropriate leach rate for these paints, and on water quality standards impairment due to Cu discharges from these AFPs. DPR has set a maximum allowable leach rate for Cu AFPs of 9.5 µg/cm^2/d that includes the use of some BMPs; however, DPR has acknowledged that this leach rate alone will not achieve compliance with the CTR criterion in impaired marinas with boat numbers greater than 1270, and that some conversions to nontoxic or non-Cu AFPs will likely be necessary to achieve compliance in larger marinas[1].
DPR explicitly stated in their determination that some conversion to non-Cu paints/coatings will be necessary for marinas with greater than 1270 boats to reach compliance with the CTR chronic criterion. DPR added that it "will continue to work with stakeholder groups to facilitate greater adoption of AFP alternatives, including biocide-free products that are a growing presence in the marketplace".
In fact, these Cu TMDLs support the implementation of DPR's maximum allowable leach rate by including strategies outlined in DPR's letter of determination, such as the use of BMPs for hull cleaning (when

[1] *DETERMINATION OF MAXIMUM ALLOWABLE LEACH RATE AND MITIGATION RECOMMENDATIONS FOR COPPER ANTIFOULING PAINTS PER AB 425 (Department of Pesticide Regulation (DPR) memo from David Duncan to Brian Leahy, January 30, 2014).*

using Cu AFPs with leach rates at or below 9.5 µg/cm^2/d) and the conversion of some boats to nontoxic and/or lower leach rate Cu paints to achieve compliance with the dissolved Cu CTR criterion[2].

The proposed Cu TMDLs require that the City and other responsible parties take actions to reduce discharges of Cu into Newport Bay from boats (Cu AFPs). Board staff's proposed Implementation Plan identifies a number of recommended tasks whereby such reductions could be achieved, including providing incentives to boat owners to convert from Cu to nontoxic AFPs or lower leach rate Cu AFPs.

2) The proposed Cu TMDLs do not require the City or any other party to ban the use of Cu antifouling paints (AFPs). The proposed Cu TMDLs require the City and other responsible parties to take actions to reduce discharges of Cu into Newport Bay from boats. Board staff's proposed Implementation Plan identifies a number of recommended tasks whereby such reductions could be achieved, including providing incentives to boat owners to convert from Cu to nontoxic or lower leach rate Cu AFPs. The proposed Implementation Plan cannot, and does not, dictate the method or manner of compliance, but does require the City, the County and other responsible parties to develop their own proposed implementation plan(s) with strategies to achieve these Cu TMDLs. Those strategies would be required to be implemented by the responsible parties upon approval by the Regional Board (or the Board's Executive Officer). (It is Board staff's expectation that the City and County will take a lead role in developing proposed strategies to meet the Cu TMDLs, and implementing those approved strategies on behalf of marina owner/operators, boat owners and other responsible parties.)

3) Board staff have engaged in numerous discussions with the City. Following the July 24, 2015 Regional Board meeting where the Cu TMDLs and Metals Action Plans were presented as an informational item, Board staff transmitted working drafts of the proposed Cu TMDLs and Implementation Plan to the City to solicit the City's early input and recommendations. No response was received in response to these solicitations. Board staff subsequently met with City staff to discuss the proposed Cu TMDLs and Implementation Plan, and to again solicit comments and a proposed Implementation Plan from the City. A Regional Board hearing to adopt the proposed Cu TMDLs (and Action Plans for other metals) was then set for October 28, 2016, and on August 30, 2016, Board staff published a Notice of Public Hearing/Notice of Filing, Draft Basin Plan Amendments, Draft Metals Staff Report, and Draft Substitute Environmental Document. During the comment period for the Cu TMDLs and Action Plans for zinc (Zn), mercury (Hg), arsenic (As) and chromium (Cr), we received a report from the City demonstrating further collection of dissolved Cu data (Attachments 4 and 5). The data provided by the City confirm water column impairment of the Bay due to dissolved Cu.

Regional Board staff are well aware of the practical implications of the proposed Cu TMDLs, especially in light of the concerns raised during the adoption of Cu and Toxics TMDLs in other marinas in southern California (i.e., Shelter Island and Marina del Rey). Accordingly, the proposed Implementation Plan provides for the responsible parties to take a lead role in developing proposed strategies and schedules in their own Implementation Plan(s), to achieve the TMDLs and Action Plans. Board staff's proposed Implementation Plan identifies a number of recommended strategies that should be considered by the City and other responsible parties in developing their own implementation plan(s). Board staff also proposed an extended compliance schedule that allows the responsible parties time to implement their strategies and to assess their efficacy. The schedule also allows the City and other responsible parties to conduct further investigation(s) to confirm findings of impairment, and to consider whether a Water Effects Ratio (WER) should be determined to adjust the California Toxics Rule (CTR) criterion.

[2] *Department of Pesticide Regulation (DPR) letter from George Farnsworth, dated November 16, 2017, to Hope Smythe, Santa Ana Regional Water Quality Control Board (SARWQCB), response to SARWQCB's letter dated November 8, 2017.*

4) We remind the City that Cu TMDLs for Newport Bay are already in place since they were promulgated by USEPA in 2002. It is worth noting that like Board staff's proposed Cu TMDLs, USEPA's Cu TMDLs found that Cu AFPs on boats are the principal source of Cu discharges to the Bay. Note also that USEPA's Cu TMDLs require a greater reduction in Cu discharges from boats than Board staff's proposed Cu TMDLs (92 vs 60% reduction of Cu discharges from boats, respectively). In addition, USEPA promulgated TMDLs for Zn and Pb in both Upper and Lower Newport Bay, and for Cd in the Upper Bay. USEPA's TMDLs do not include either an implementation plan or a compliance schedule. If the revised Cu TMDLs and Action Plans are not approved by the Regional Board, the Board is required to implement USEPA's TMDLs for Cu, Zn, Pb and Cd through appropriate regulatory actions on responsible parties, including the City. Compliance would be expected immediately, since USEPA's TMDLs do not include a compliance schedule, unless the Regional Board adopts an enforcement order that includes a compliance schedule.

Note again that the primary goal for these Cu TMDLs is the consistent achievement of the dissolved Cu saltwater CTR criterion (3.1 µg/L); the Cu allocation for boats, along with the required percent reduction of Cu discharges from boats, are secondary goals. Board staff have revised the language in the proposed Cu TMDLs Basin Plan Amendments (BPAs) to state that "Compliance with the Cu TMDLs will be considered to be achieved if the dissolved Cu CTR criterion of 3.1 µg/L is consistently achieved (i.e. no impairment is demonstrated per the assessment methodology in the State Listing Policy (SLP)), and no further reduction in Cu discharges will be required even if the Cu load allocation for boats is not yet achieved. If, however, the Cu allocation for boats is achieved, but the CTR criterion is not consistently achieved, further reduction in Cu discharges from Cu antifouling paints (AFPs) will be required." (This language would also apply to an approved adjusted Cu CTR value that may be developed through a Water Effects Ratio (WER) determination.)
This provision makes moot the concerns regarding the accuracy of estimates of the number of boats in the Bay, the estimated Cu loading from those boats, and the margin of safety (MOS). Monitoring will be necessary to evaluate progress towards meeting the CTR criterion (3.1 µg/L) and the proposed Cu load allocation for boats (6060 lbs/yr).

Board staff have attempted to engage the City in meaningful dialog on these issues, and we welcome ongoing consultation with the City regarding the proposed TMDLs.

Comment 2 – We have since conferred with DPR's Pesticide Registration Branch. ..they confirmed DPR's status as the exclusive regulator of pesticides in California… Mr. Gutierrez shared our concern that the Regional Board appeared to be poised to take an action to regulate AFP, and that it was doing so on a piecemeal basis as opposed to working with DPR on a unified approach that could be implemented on a statewide basis. …DPR has determined that establishing a maximum allowable leach rate of 9.5 µg/cm^2/day may be the most effective way to reduce copper in California waters.

Response 2
See response to comment 1 above. We agree that DPR is the exclusive state regulator of pesticide sale and use in California. The Regional Board's authority pertains to discharges of waste, including residual Cu from Cu AFPs.

Regional Board staff have engaged DPR on the issue of Cu AFPs and an appropriate leach rate for these AFPs, and on water quality standards impairment due to Cu discharges from these AFPs. DPR has set a maximum allowable leach rate for Cu AFPs of 9.5 µg/cm^2/d that includes the use of some BMPs; however, DPR has acknowledged that this leach rate alone will not achieve compliance with the CTR criterion in impaired marinas with boat numbers greater than 1270, and that some conversions to

nontoxic or non-Cu AFPs will likely be necessary to achieve compliance in larger marinas[3]. See also further explanations in responses to the City's comment 6.44.

DPR has also opined that the proposed Cu TMDLs do not conflict with its authority to regulate pesticides. See responses to the City's comments 7.1–7.3 – Attachment 7.

Comment 3 – We believe that the proposed Amendments have the following significant problems:

3.1 - The Amendments seem to be underdeveloped, in part because they rely on data that is out-of-date, incorrect and overly conservative;

3.2 - The Amendments are impractical if not impossible for the City to effectively implement; and

3.3 - In light of the above, we believe if the proposed Amendments are adopted as proposed, the action may be the subject of litigation.

Response 3

3.1 The Impairment Assessment (included in the 2016 Staff Report) evaluated data from 2002-14, including the County's monitoring data from 2006-11 for metals in the water column, sediments and fish/mussel tissue. It is likely that there are some current data that were not evaluated since it was necessary to set a cutoff date for that evaluation; however, these data will be evaluated in future refinements to the proposed TMDLs, if adopted.

Note that the highest Cu concentrations, in water and sediments, were found in the marinas, which are not typically monitored by the County or City, along with the Turning Basin and S. Lido Channel areas. Note also that much of the data submitted by the City, although newer than Board staff's Impairment Assessment data, do not include marina data. Orange County monitoring data do not include marina data either. In addition, the data evaluated for Board staff's Impairment Assessment are more extensive and more current than the data used by USEPA to evaluate metals for their Toxics TMDLs (2002), and USEPA's Metals TMDLs, including Cu TMDLs, are still in place and will remain in place if the proposed Cu TMDLs are not adopted.

Note also that the State Listing Policy (SLP) has no time limitations with respect to data used for impairment assessment or listing purposes. (To date, the SLP does not restrict data to less than 5 years; in fact, there is no limitation in the SLP on the age of data used for impairment assessment/listing purposes, and the data used is left to the judgment of Regional Board staff).

The assertions that the data are incorrect and overly conservative are without merit.
See responses to comment 3.1 - Attachment 3.

3.2 <u>The amendments are both practical and possible</u> for the City to implement –recommended tasks include the use of BMPs during hull cleaning, diver certification, and the conversion of Cu AFPs to nontoxic or lower leach rate Cu AFPs. These strategies are recommended mitigation tasks in DPR's determination of a maximum allowable leach rate, and are already being implemented by the Port of San Diego in Shelter Island Yacht Basin (SIYB Cu TMDL). The Implementation Plan for the TMDLs also requires continued monitoring which is already ongoing.
In addition, the proposed TMDLs and Action Plans require responsible parties (including the City and County) to develop their own strategies and tasks that can be implemented upon Regional Board approval. The responsible parties have considerable flexibility to identify control strategies that can be accomplished.

[3] *DETERMINATION OF MAXIMUM ALLOWABLE LEACH RATE AND MITIGATION RECOMMENDATIONS FOR COPPER ANTIFOULING PAINTS PER AB 425 (Department of Pesticide Regulation (DPR) memo from David Duncan to Brian Leahy, January 30, 2014).*

3.3 Comment noted.

Comment 4 - The City's request to the Regional Board will be as follows:

4.1 - Do not adopt the TMDL at this time.

4.2 - Select an additional review period – up to four (4) years – for the Board staff, the City, DPR, and other stakeholders/dischargers to have a meaningful discussion about additional testing and monitoring, education, best management practices, the implementation timeline for DPR's updated AFP regulations, and more, with the goal of coming back to the Regional Board with more robust data and implementation ideas.

Response 4.1 - Board staff recommend that the proposed Cu TMDLs be adopted since they are based on newer data and State Board policy/guidelines. In addition, USEPA's Cu TMDLs are more restrictive and require a higher percent reduction of Cu discharges from boats than Board staff's proposed Cu TMDLs (92 vs 60%, respectively). (USEPA's TMDLs also include TMDLs (and allocations) for Zn, Pb and Cd.)
Board staff are proposing an Action Plan, rather than a TMDL, for Zn, and proposing that USEPA rescind their TMDLs for Zn, Pb and Cd. (Board staff found no impairment for Pb and Cd). In addition, Action Plans are proposed for sediment Hg, and As and Cr in fish tissue. The Action Plans require monitoring and evaluation for sediment Zn and Hg (and Zn in fish tissue), and As and Cr in fish tissue, and possibly source analyses and remediation plans if monitoring shows concentrations exceeding sediment or fish/mussel tissue guidelines.

As previously noted, in the absence of the adoption of the proposed Cu TMDLs, the Board is required to take regulatory steps to implement USEPA's Cu TMDLs that are already established.

Response 4.2 - The proposed Cu TMDLs include an extended final compliance schedule (12 years), and require that the City and responsible parties develop their own Implementation Plan(s) and schedule. This gives the City and other responsible parties ample opportunity to conduct further investigation(s) as part of TMDL implementation, and to consider the practicality and efficacy of their implementation strategies.

Board staff notes that the City had an early opportunity to comment on the draft Cu TMDLs. The City was given the draft Cu TMDLs and draft Implementation Plan in the fall of 2015 (after the initial CEQA meetings and Board presentation in July 2015) and asked to propose their own Implementation Plan and schedule. We did not receive any such documents from the City.

Comment 5 - To support this request, we have attached memorandums identifying the deficiencies in the proposed Amendments.
[*The City's letter includes a brief summary of the purported deficiencies addressed in these memos. Board staff has provided brief responses to the memo points below. More detailed responses are provided to the City's comments in Attachments 1 – 6.]*

5.1 - The Copper TMDL unlawfully attempts to force local agencies to solve a conflict caused by the Regional Board's failure to convince the Legislature or its sister state agencies to ban copper AFP.

5.2 - The Copper TMDL is unlawful because alternatives to copper AFP are not effective or available.

5.3 - The margin of safety is too large and unsupported and the data relied upon is inadequate.

5.4 - The phased implementation schedule is unreasonable, unsupported and would force substantial early investments that may be unnecessary.
5.5 - The Copper TMDL imposes unfunded state mandates.
5.6 - It is improper to promulgate a TMDL for the entire bay when only certain areas within the bay may be even arguably impaired.
5.7 - The substitute environmental document fails to comply with the California Environmental Quality Act ("CEQA"_ and CEQA's implementing guidelines.

5.1 - The Copper TMDL unlawfully attempts to force local agencies to solve a conflict caused by the Regional Board's failure to convince the Legislature or its sister state agencies to ban copper AFP.

Response 5.1
The Cu TMDLs do not attempt to force local agencies to solve any conflict—there is no conflict between the Regional Board's regulation of the discharge of Cu and DPR's authority to regulate the sale and use of Cu AFPs.
See also responses to the City's comments 1 and 2 above, and responses to the City's comments 7.1 to 7.3 – Attachment 7.

5.2 - The Copper TMDL is unlawful because alternatives to copper AFP are not effective or available.

Response 5.2
First, some nontoxic alternatives to Cu AFPs are available and effective. Also available are lower leach rate Cu AFPs and non-Cu AFPs that may include other biocides, such as Zn or organics. Nontoxic paints are the preferred option over non-Cu AFPs, since non-Cu AFPs may include other biocides, such as Zn or organics, that could result in aquatic toxicity. The use of non-Cu AFPs that contain other biocides is not recommended. The use of lower leach rate Cu AFPs could also result in decreases in Cu discharges; the extent of such reductions depends on the leach rates of Cu AFPs currently in use.

The Port of San Diego conducted a study on alternative paints (non-Cu and nontoxic paints), followed by a Cu Paint Conversion project in Shelter Island Yacht Basin (SIYB) as part of their Cu Reduction Program. Intersleek 900, a nontoxic paint, was the paint of choice for boat conversions and appears to be a viable option. (Note that since the Port's study, Intersleek 900 has been reformulated to Intersleek 1100, which is also a nontoxic paint.)
See also the Port of San Diego study on alternative paints at:
https://www.portofsandiego.org/environment/copper-reduction-program.html
and the State of Washington study on alternative paints at:
https://www.northwestgreenchemistry.org/event/fourth-stakeholders-call-wa-state-antifouling-boat-paint-aa

Second, compliance with the Cu TMDLs may be achieved, at least partially, by strategies other than, or in addition to, the conversion to alternative AFPs. It should be emphasized that the conversion of boats from Cu AFPs to nontoxic AFPs is one of the recommended tasks in Board staff's Implementation Plan for the Cu TMDLs. (This strategy is consistent with the City's own Resolution (No.2010-53), passed in June 2010, to promote the use of Cu-free boat paints.) Other strategies include the use of BMPs for hull cleaning and diver certification programs, dry docking and/or incentives for conversions to nontoxic paints. Note again that the Cu TMDLs require the responsible parties to develop their own proposed

implementation plan(s) and schedule and to consider the recommended tasks identified in the proposed TMDLs Implementation Plan, but does not require responsible parties to begin with, or even necessarily include, the conversion of Cu to nontoxic paints (although DPR's memo does state that in larger marinas, conversions to non-Cu paints will likely be necessary). The conversion of some boats to nontoxic paints may be necessary since approximately 5,000 boats occupy slips or moorings in Lower Newport Bay. Once again, the Regional Board cannot dictate the method or manner of compliance. The responsible parties must propose their own implementation plan(s) and schedule, and implement the plan(s) upon Regional Board (or Executive Officer) approval.

Note also that implementation of two other Cu TMDLs in southern California is moving forward. The Port of San Diego is responsible for the Shelter Island Yacht Basin (SIYB) Cu TMDL, and is currently meeting their compliance schedule through the use of diver certification for BMPs for hull cleaning and boat conversions from Cu AFPs to nontoxic AFPs/coatings. The County of Los Angeles is responsible for the Marina del Rey HarborToxic Pollutants TMDL (Marina del Rey Toxics TMDL), that includes Cu, and has developed a plan to implement this Cu TMDL. The work includes building a boat lift for dry docking, the conversion of 100 boats from Cu AFPs to nontoxic paints/coatings in 2 years, rebates for nontoxic AFP use, and the use of BMPs for hull cleaning.

5.3 - The margin of safety is too large and unsupported and the data relied upon is inadequate.

Response 5.3
The 20% margin of safety (MOS) is the same as the MOS used in Cu TMDLs promulgated by USEPA and it is reasonable; however, Board staff have revised the MOS to 10% (this reduces the Cu allocation for MOS from 2329 lbs/yr to 1165 lbs/yr). The Cu data relied upon are extensive and adequate, pursuant to the State Board's 303(d) Listing Policy (SLP). Further, the data are more recent and extensive than those used in USEPA's 2002 Metals TMDLs.

5.4 - The phased implementation schedule is unreasonable, unsupported and would force substantial early investments that may be unnecessary.

Response 5.4
See response to the City's comment 7.6 – Attachment 7.

5.5 - The Copper TMDL imposes unfunded state mandates.

Response 5.5
See response to the City's comment 7.7 - Attachment 7.

5.6 - It is improper to promulgate a TMDL for the entire bay when only certain areas within the bay may be even arguably impaired.

Response 5.6
Newport Bay is divided into Upper and Lower Newport Bay, which are considered to be separate water bodies for impairment assessment and 303(d) listing purposes. These water bodies have been listed for Cu on USEPA's 303(d) since 2006; it is therefore necessary and appropriate that Cu TMDLs are in place for both water bodies.

Once again, we remind the City that metals TMDLs for Newport Bay, including Cu TMDLs, are

already in place as they were promulgated by USEPA in 2002. The proposed Cu TMDLs are an update to USEPA's Cu TMDLs; they are based on more recent data, and include an implementation plan and compliance schedule. Again, USEPA's TMDLs do not include a compliance schedule, and if the proposed Cu TMDLs are not approved by the Regional Board, the Board must require immediate compliance with USEPA's TMDLs. (These include TMDLs for Zn, Pb and Cd, in addition to Cu TMDLs).

With respect to listing the entire Bay vs sections of the Bay; listing sections of the Bay would be difficult as the impaired sections would need to be listed as separate water bodies based on the State Listing Policy (SLP). This would not be practical as all existing TMDLs would then have to be split to separately address these impaired sections. The 303(d) listing process does allow for data from impaired sections to be documented in the lines of evidence (LOEs), noting that these data demonstrate impairment in certain impaired sections of a water body. The responsible parties' implementation plan(s) can then focus on the impaired sections rather than the entire Bay.

5.7 - The substitute environmental document fails to comply with the California Environmental Quality Act ("CEQA"_ and CEQA's implementing guidelines.

Response 5.7
See responses to the City's comments 7.9.1 to 7.9.6 - Attachment 7.

Comment 6 - The City lists a number of activities, including monitoring investigations, which the City has undertaken to evaluate and resolve copper water quality issues. The results of the monitoring investigations are described in certain attachments to the City's letter, with an analysis of the relevance of the findings to the proposed TMDLs and the City's concerns.

Response 6
Once again, the City's efforts are commended. These efforts should assist the City in the development of appropriate strategies by the City and others to ensure that the Newport Bay TMDLs, whether the established USEPA TMDLs for Cu, Zn, Pb and Cd, or the approved revised Cu TMDLs (and Action Plans), if and when adopted by the Regional Board, will be achieved. The information obtained from the investigations should help in the development of appropriate strategies to reduce and remediate Cu discharges, especially those from Cu AFPs.

p3 …our history of voluntary and cooperative efforts in the watershed. Specific to copper, these efforts include, but are not limited to:
6.1 Contracting with (and funding) Anchor QEA Consultants to provide professional/technical assistance with research/testing/analysis in an effort to better understand and define any potential copper-related issues in Newport Bay.
6.2 - Conducting two independent harbor-wide water column sample tests for Copper (July 2015 & February 2016).
6.3 - Conducting five toxicity tests in areas of higher copper concentrations (all showedno toxicity).
6.4 - Conducting boat zone testing to better assess copper bottom paint leachate concentration degradation.
6.5 - Visiting, observing and reviewing the experimental vessel skirt/vacuum hull bottom cleaning operation in Santa Cruz, CA.
6.6 - Meeting with bottom paint applicators and shipyards to better understand

available paints, application process, re-application rates, and cost of copper and non-copper AFPs.
6.7 - Since 2010, and with your assistance, financing and completing significant dredging efforts to remove sediments/legacy contaminants, and to improve flushingand circulation, thus improving the overall water quality of Newport Bay.
6.8 - Developing a web page to educate boat owners and provide updated copper water quality information.

Response 6.1 – Comment noted.

Response 6.2 - Prior to these City comments, these studies have not been submitted to Board staff.

Response 6.3 - Prior to these City comments, these studies were not submitted to Board staff.
It is not clear when these five toxicity tests were conducted and whether they are water or sediment toxicity tests. Please reference.
In addition, only exceedances of the dissolved Cu saltwater CTR criterion is used for listing purposes in water –toxicity in water is not required in addition to CTR exceedances to list a water body.

Response 6.4 - Please give a reference for the "boat zone testing" study described above. No study was submitted that investigated "leachate concentration degradation".

Response 6.5 - State funds were obtained for a Hull Cleaning Container/Filter Project to determine the dissolved and total Cu loads discharged from boats during hull cleaning. This cleaning methodology removes from the Bay Cu discharges (including solids) from hull cleaning, and could potentially result in decreased Cu concentrations in the Bay.

Response 6.6 - Board staff have seen no documentation on this research.

Response 6.7 – Comment noted, and Board staff thank the City for its efforts with respect to dredging in Newport Bay.

Response 6.8 - On the City's website, water quality was only found by searching, and Cu issues and documents were found by googling the word "copper". A few pages were found relating to the Cu TMDLs but the information was from 2016. A specific webpage on "boater education" or "copper issues in the Bay" could not be located.

We thank the City for the efforts listed above, and look forward to our continued work with the City. Note however, that <u>dissolved Cu concentrations continue to exceed the CTR criterion</u>. Further action is therefore is required, including the development of Cu TMDLs for Upper and Lower Newport Bay and the implementation of those TMDLs.

Attachment 1: Anchor QEA, TMDL Loading Calculations from Copper Antifouling Boat Paint and

Resulting Allocations, October 12, 2016
Attachment 2: Anchor QEA, Newport Bay Copper (Cu) TMDLs and Non-TMDL Action Plans for Zinc (Zn), Mercury (Hg), Arsenic (As), and Chromium (Cr), October 11, 2016
Attachment 3: Anchor QEA, Current and Relevant Sediment, Water, and Tissue Data to Support the Newport Bay Copper (Cu) TMDLs and Non-TMDL Action Plans for Zinc (Zn), Mercury (Hg), Arsenic (As), and Chromium (Cr), October 13, 2016
Attachment 4: Anchor QEA, Random Sample Points Methodology, July10,2015
Attachment 5: Anchor QEA, Newport Bay Copper Study: Winter2016, March25,2016
Attachment 6: Winter 2016 Anchor QEA, Technical Comments Submitted by the City of Newport Beach, October 14, 2016
Attachment 7: Greg Newmark, Meyers Nave, October 14,2016
Attachment 8: Declaration of Chris Miller, October 12, 2016
Attachment 9: City of Newport Beach Letter to US EPA, September 16, 2016
Attachment 10: Department of Pesticide Regulation, Memorandum, September 12, 2016

Attachment 1: Anchor QEA, TMDL Loading Calculations from Copper Antifouling Boat Paint and Resulting Allocations, October 12, 2016

INTRODUCTION
[*This section summarizes the contents of this memorandum. No response necessary.*]

Comment 1.1 - STAFF REPORT METHOD FOR CALCULATING DISSOLVED COPPER LOAD FROM BOATS TO NEWPORT BAY
The following elements describe the methods and calculations that were the basis for the Staff Report's determination of the total dissolved copper load from boats in Newport Harbor. For each step of the calculation, the general approach is presented and discrepancies with the calculations are identified. ..the corrected results are presented.

Response 1.1
Regional Board staff have reviewed the comments and calculations in this attachment. Anchor QEA's comments appear to arise from an initial and fundamental misinterpretation of Board staff's calculations, leading to subsequent incorrect analyses and commentary.
For clarification, Board staff's calculations are re-explained succinctly below and comments are responded to step by step.
Note that Board staff's calculated annual Cu loading is an estimate used to determine the percent reduction in Cu loading required by the proposed Cu TMDLs. Note, however, that the primary target is the dissolved Cu CTR criterion, and Board staff have revised the language in the proposed Cu TMDLs to state that "Compliance with the Cu TMDLs will be considered to be achieved if the dissolved Cu CTR criterion of 3.1 µg/L is consistently achieved (i.e. no impairment is demonstrated per the assessment methodology in the State Listing Policy (SLP)) and no further reduction in Cu discharges will be required, even if the Cu load allocation for boats is not yet achieved. If, however, the Cu allocation for boats is achieved, but the CTR criterion is not consistently achieved, further reduction in Cu discharges from Cu antifouling paints (AFPs) will be required."

Board staff have reduced the estimated number of boats/slips from 10,000 to 5,000. This change is consistent with boat counts from the City of Newport Beach and Orange County Coastkeeper. Following the calculations in the Staff Report, the reduction of the number of boats/slips from 10,000 to 5,000 reduces the estimated Cu load from boats from 36,000 lbs/yr to 18,000 lbs/yr (the lbs/boat/yr remains

the same at approximately 3.6 lbs/boat/yr).

Note that even with the reduction of the number of boats/slips to 5,000, Cu discharges from boats are still the largest source of Cu to the Bay.

Steps 1-7

Comment 1.1.1 - Step 1 - Identify a leach rate. To determine the dissolved copper load from boats to Newport Bay, the Staff Report uses a maximum leach rate of 9.5 micrograms per square centimeters per day (µg/cm2/day) - assuming appropriate best management practices (BMPs) were used during hull cleaning. The Staff Report applied this rate to both epoxy and ablative-type paint products.

Response 1.1.1

To estimate annual Cu loading rates from boats at a leach rate of 9.5 µg/cm^2/d (DPR's maximum allowable leach rate), for an epoxy and ablative paint, Board staff applied a conversion factor (DPR's leach rate/intrinsic leach rate) to the annual Cu loading rates determined by Earley et al for two test paints – one epoxy and one ablative. The estimated annual Cu loading rates at 9.5 µg/cm^2/d (for an epoxy and ablative paint) were then used to determine an average annual Cu loading for an average sized boat (41.062 m^2) in Newport Bay.

Board staff calculated annual Cu loading estimates for both BMPs and non-BMPs based on Earley et al's measured Cu loading rates for BMPs and non-BMPs.

Note that ALL Cu loading rates (except Earley et al's measured Cu loading rates) are ESTIMATES since Earley et al measured the Cu loading rate for only one epoxy and one ablative test paint; therefore, a linear relationship was not determined between Cu paints with a leach rate of 9.5 µg/cm^2/d and the lower leach rates of the test paints.

Comment 1.1.2 - Step 2 - Convert daily leach rate to yearly leach rate.

The Staff Report specifies a yearly leach rate of 3,505.1 µg/cm2/yr for epoxy-type paints and a yearly leach rate of 3,499.7 µg/cm2/yr for ablative-type paints. The Staff Report fails to identify the discrepancy for having two different yearly leach rates because the number of days in a year should be constant for both types of paint.

Furthermore, the Staff Report incorrectly calculates a yearly leach rate. The number of days in a year is 365 (considering adjustments for an extra day due to leap year every 4 years, it may be reasonable to consider a value of 365.25). By dividing the Staff Report yearly leach rate values (3,505.1 µg/cm2/yr and 3,499.7 µg/cm2/yr) by the maximum leach rate (9.5 µg/cm2/day) used, the results suggest that there are 368.96 and 368.39 days in a year.

The correct yearly leach rate for epoxy and ablative-type paint products should be 3,467.5 µg/cm^2/d (using the more accurate 365 days per year constant).

Response - 1.1.2

Board staff did not convert a daily leach rate to a yearly leach rate. We converted Earley et al's measured annual Cu loading rate directly to an annual Cu loading rate for a leach rate of 9.5 µg/cm^2/d (DPR's maximum allowable leach rate).

The estimated Cu loading rates at 9.5 µg/cm^2/d for the epoxy and ablative paints were somewhat different because they were based on Earley et al's measured annual Cu loading rates for the two test paints which had different intrinsic leach rates.

Board staff did correctly calculate an estimated annual Cu loading rate since we converted Earley et al's measured annual Cu loading rates for one epoxy and one ablative paint to annual Cu loading rates for both paints at a leach rate of 9.5 µg/cm^2/d.
Dividing the annual Cu loading rates by the 9.5 µg/cm^2/d leach rate to arrive at the number of days per year (as Anchor QEA suggests above) is an incorrect back calculation since the annual Cu loading rates at 9.5 µg/cm^2/d are calculated from Earley et al's measured annual Cu loading rates for the two test paints that have somewhat DIFFERENT intrinsic leach rates.

Comment 1.1.3 - Step 3 – Convert yearly leach rate to total loading (lbs) per boat. The Staff Report used an average hull length (40 feet) and width (13 feet) taken from Earley (2013) and then applied a wetted hull surface area factor (0.85). Appropriate conversion factors from the unit area of square centimeters to average boat wetted hull surface area (in square feet) and from micrograms to pounds were necessary. The Staff Report correctly applied these calculations and presented a result of 3.17 lbs/boat/yr.
Applying these same calculations to the corrected yearly leach rate (presented in Step 2 above) would result in a value of 3.14 lbs/boat/yr. This would ultimately result in a net decrease in the calculated copper load.

Response 1.1.3 - Board staff first calculated the total annual Cu loading (lbs/yr) for 10,000 boats/slips, then divided that loading value by 10,000 to determine the annual Cu loading per boat (lbs/boat/yr). The 3.17 lbs/boat/yr was the annual Cu loading per boat for boats using BMPs. The annual Cu loading per boat for boats using non-BMPs was approximately 4.02 lbs/boat/yr.
Note that the ESTIMATED annual Cu loading at a leach rate of 9.5 µg/cm^2/d may be an underestimation of current Cu loading to the Bay if Cu paints currently in use have leach rates higher than 9.5 µg/cm^2/d (DPR's maximum allowable leach rate).

Comment 1.1.4 - Step 4 - Calculate an average condition for epoxy and ablative-type paints (using BMP methods). Assuming 80% of the boats in Newport Harbor use epoxy-type paints and 20% use ablative-type paints, a weighted average can be calculated. In the Staff Report, because the same leach rate was used for epoxy and ablative-type paints, this calculation is not necessary, and the Staff Report presents the same value of 3.17 lbs/boat/yr. However, for future scenarios discussed herein, this proportion of vessels using epoxy to ablative-type paints is maintained and meaningful in the discussion of the total dissolved copper load from boats.

Response 1.1.4 - Board staff DID use the 80/20% assumption for epoxy and ablative paints based on discussions with boatyards in Newport Bay.
Note that the leach rates for the epoxy and ablative test paints are only the same if rounded to 2 decimal places; therefore, the starting 80/20% calculation IS necessary (especially when applied to the annual Cu loading values for non-BMPs).

Comment 1.1.5 - Step 5 - Adjust calculations to address boat hull cleaning using non-BMP methods (e.g., scouring pads). The Staff Report relies on a conclusion from the Earley (2013) study that indicates boat hull cleaning using BMP methods (soft cloths) results in 25.6% and 31.9% less dissolved copper into the water column for epoxy and ablative-type paints, respectively, than for boat hull cleaning using non-BMP methods. This adjustment could be made to the daily leach rate or to the calculated loading (in lbs)/year; the Staff Report chose the latter. However, the Staff Report incorrectly applied these percent reductions. The Earley (2013) study indicated BMP methods resulted in a specific percentage less than non-BMP methods (i.e., the percent reduction was based on the non-BMP leach rate [or non-BMP loading]). The Staff Report multiplied the percent reduction by the

BMP loading, rather than correctly multiplying the percent reduction by the non-BMP loading- which the Staff Report was attempting to calculate. Because only the BMP loading was known, the Staff Report should have used the Earley (2103) study to determine the correct percent increase in dissolved copper loading from boat hull cleaning using non-BMP methods compared to using BMP methods. This percent increase was 34.3% and 46.9% for epoxy and ablative-type paints, respectively. Based on the incorrect methodology, the Staff Report results suggest loading values of 3.99 lbs/boat/yr and 4.18 lbs/boat/yr for epoxy and ablative-type paints when non-BMP boat hull cleaning methods are used.
If the Staff Report had correctly applied the results from the Earley (2013) study, the loading values should have been 4.21 lbs/boatlyr and 4.61 lbs/boatlyr. This would ultimately result in a net increase in the calculated copper load.

Response 1.1.5 - Earley et al measured the annual Cu loading for two paints for both BMPs and non-BMPs use.
To estimate the annual Cu loading for boats using non-BMPs, Board staff added the additional loading for non-BMPs (measured by Earley et al) to the annual Cu loading for BMPs:
[annual loading (BMPs) + additional loading (non-BMPs) = annual loading for non-BMPs]
(e.g. 31730 lbs/yr + (0.256x31730 lbs/yr) = 39853 lbs/yr for non-BMPs w/epoxy paint)
This is the most direct conversion calculation.
Note again that these are ESTIMATED annual Cu loadings since a linear relationship between Cu loading at a leach rate of 9.5 µg/cm^2/d and Cu loading at the leach rates of the test paints has not been measured.

Comment 1.1.6 - Step6–Calculate anaveragecondition for epoxyandablative-type paints (using non-BMP methods). Similar to Step 4 (1.1.4), assuming 80% of the boats in Newport Harbor use epoxy-type paints and 20% use ablative-type paints, a weighted average can be calculated. Therefore, based on the Staff Report approach, the average copper loading when non-BMP methods are used was 4.02 lbs/boat/yr.
If the Staff Report had correctly applied the results from the Earley (2013) study, the average loading value should have been 4.29 lbs/boatlyr. Again, this would ultimately result in an increase in the calculated copper load.

Response 1.1.6 - The 80/20% calculations for non-BMPs followed those for BMPs.
See response to Step 4 (1.1.4).

Comment 1.1.7 - Step7- Calculatea totalcopper]oadingfromboats. TheStaff Report assumes 50% of the vessels have their boat hulls cleaned with BMP methods and the remaining 50% of vessels have their boat hulls cleaned with non-BMP methods. Based on this assumption, the Staff Report suggests a total copper loading of approximately 3.60 lbs/boat/yr. The Staff Report further assumes a total of 10,000 boats present in Newport Bay. Therefore, the total copper loading from boats is equivalent to 36,000 lbs/yr.
If the Staff Report had correctly applied the results from the Earley (2013) study, the average loading value should have been 3.71 lbs/boat/yr. Applying this value to the Staff Report's account of the total number of vessels {10,000), then the total copper loading from boats should have been 37,100 lbs/yr. This would ultimately result in a net increase in the calculated copper load from the 36,000 lbs/yr presented in the Staff Report.

Response 1.1.7 - Board staff's assumption is that 50% of the boats use BMPs and 50% use non-BMPs. This assumption is consistent with both the Shelter Island Cu TMDL and Marina del Rey

Toxics TMDL that have been adopted.

Comment 1.1.8 - A summary of the Staff Report (as-is and adjusted) copper loading rates (per boat/yr and total/yr) is presented in Table 1 (see "Staff Report" and "Staff Report Adjusted" columns).

Response 1.1.8 - Summary of calculations
Board staff estimated annual Cu loading rates directly from Earley et al's measured Cu loading rates for one epoxy and one ablative test paint for both BMP and non-BMP use. (See Response to 1.2.1 below). We then calculated the annual Cu loading in the Bay for an average 41.062 m^2 boat (40 ft.) and for 10,000 boats/slips, with the assumptions of 80/20% usage of epoxy/ablative paints and 50/50% BMP/non-BMP uses. These assumptions are consistent with the assumptions in USEPA's Cu TMDLs for Newport Bay.
See responses above.

Note again that the primary target for these Cu TMDLs is the dissolved saltwater Cu CTR criterion (3.1 µg/L), and the Cu allocation for boats, along with the required percent reduction of Cu discharges from boats, are secondary targets. Board staff have revised the language in the proposed Cu TMDLs to state that "Compliance with the Cu TMDLs will be considered to be achieved if the dissolved Cu CTR criterion of 3.1 µg/L is consistently achieved (i.e. no impairment is demonstrated per the assessment methodology in the State Listing Policy (SLP)) and no further reduction in Cu discharges will be required, even if the Cu load allocation for boats is not yet achieved. If, however, the Cu allocation for boats is achieved, but the CTR criterion is not consistently achieved, further reduction in Cu discharges from Cu antifouling paints (AFPs) will be required."
This provision makes moot the concerns regarding the accuracy of estimates of the number of boats in the Bay, the estimated Cu loading from those boats, and the extent of use of BMPS. (This language would also apply to an approved adjusted Cu CTR value that may be developed through a Water Effects Ratio (WER) determination.)

Monitoring and evaluation will be necessary to assess progress towards meeting the CTR criterion (3.1 µg/cm^2/day) and the proposed Cu load allocation for boats (6060 lbs/yr).

"ALTERNATIVE CONSIDERATIONS FOR CALCULATION DISSOLVED COPPER LOAD FROM BOATS TO NEWPORT BAY
1.2 Leach Rates
Comment 1.2.1 - Anchor QEA believes it is more appropriate to use the Earley (2013) published leach rates for recreational boats in California as a starting point for calculating loads from recreational boats. Using the total and dissolved Cu loading rate for a 3-year life cycle and adjusting to a daily rate, the following leach rates were derived:
Epoxy paints w/BMPs 6.47 µg/cm^2/day
Ablative paints w/BMPs 6.85 µg/cm^2/day
Epoxy paints w/nonBMPs 8.69 µg/cm^2/day
Ablative paints w/nonBMPs 10.07 µg/cm^2/day

Response 1.2.1
Rather than "deriving" a daily leach rate from Earley et al's measured Cu loading, Board staff applied a conversion factor (DPR's leach rate/intrinsic leach rate) to the annual Cu loading rates measured by Earley et al for two test paints (one epoxy and one ablative) using BMPs and non-BMPs.
Using a back calculation, as Anchor QEA did, gives an "apparent loading rate" rather than a leach

rate since Cu discharges from hull cleaning are included in Earley et al's measured annual Cu loading rates. See responses to the City's comment 1.1.

Note also that ALL Cu loading rates (except Earley et al's measured Cu loading rates) are ESTIMATES since Earley et al measured the Cu loading rate for only one epoxy and one ablative test paint; therefore, a linear relationship was not determined between Cu paints with a leach rate of 9.5 µg/cm^2/d and the lower leach rates of the test paints.
See response to Step 1 (1.1.1) above.

Comment 1.2.2 - Following the same steps in calculations as the Staff Report, the dissolved copper loading would be 2.56 lbs/boat/yr (or 25,600 lbs/boat/yr)."
[Note: in Anchor's text 2.56lbs/boat/day should be 2.56lbs/boat/yr
and *2.5625,600 lbs/boat/yr should be 25,600 lbs/yr for 10,000 slips not per boat]*

Response 1.2.2
Anchor QEA's results are possible using their "derived" daily leach rate, although Anchor's calculations are not given.
Board staff used a more direct method of converting Earley et al's measured annual Cu loading to an estimated annual Cu loading rate at a leach rate of 9.5 µg /cm^2/yr. This is DPR's maximum allowable leach rate; therefore, it represents a conservative estimate of annual Cu loading after DPR's leach rate is fully implemented. (The actual current Cu loading could be higher if Cu paints currently in use have leach rates higher than DPR's maximum of 9.5 µg /cm^2/yr.)
If Anchor QEA used the "derived" leach rates to calculate the annual Cu loading, the resulting calculated Cu loading values represent Cu loading for the test paints, which have lower intrinsic leach rates than DPR's 9.5 µg /cm^2/yr. They do not represent the annual Cu loading for paints having a leach rate of 9.5 µg/cm^2/yr, or the current annual Cu loading in the Bay for paints that may have leach rates higher than DPR's 9.5 µg /cm^2/yr.

Comment 1.2.3 - We expect this value to be reduced through the implementation of the Department of Pesticide Regulation (DPR) recommendations for maximum allowable leach rate for copper AFPs…. Assuming the distribution of AFP products on the market is similar to the distribution of AFP on boats, then a weighted mean of the Staff Report and the Earley (2013) study can be calculated to provide a more reasonable alternative estimate of the total dissolved copper loading. The results of this reasonable alternative calculation suggest total dissolved copper leach rate would be reduced to 2.75 lbs/boat/yr (or2.73 lbs/boat/yr using adjusted values).

Response 1.2.3
First, it is not clear what "this value" (stated in the above paragraph) represents.
Second, Anchor QEA suggests that "this value" (assumed to be the Cu loading) will be reduced when DPR's maximum allowable leach rate of 9.5 µg/cm^2/d is implemented; however, it is not likely that the Cu loading determined from the "derived" leach rates will be reduced by the implementation of the 9.5 µg/cm^2/yr leach rate, as the "derived" leach rates appear to be based on Earley et al's measured Cu loading values for the test paints which have leach rates since significantly lower than DPR's 9.5 µg /cm^2/yr.

Assuming the distribution of AFP products on the market is similar to the distribution of AFP on boats…

From Board staff's discussions with the boatyard owner/operators in Newport, boaters in Newport Bay tend to use a handful of Cu paints that are recommended by the boatyard owner/operators, and not the

range of Cu paints commercially available; therefore, the use of paints in Newport Bay is likely not reflective of all the paints on the market.

Second, with respect to the "weighted mean" statements. Earley et al experimentally determined the annual Cu loading for two test paints, it is therefore unclear why a weighted mean of the Staff Report and Earley et al's study should be used to provide an alternate estimate of the dissolved Cu loading. Earley et al experimentally measured the annual Cu loading for each test paint for both BMPs and non-BMPs, and Board staff converted these annual Cu loading rates to annual Cu loading estimates for a leach rate of 9.5 µg /cm^2/yr for both test paints. Note again that the annual Cu loading rates for a leach rate of 9.5 µg /cm^2/yr are only ESTIMATES, as Earley et al tested only one epoxy and one ablative paint, and a linear relationship between the annual Cu loading rates for the test paints and Cu paints with a leach rate of 9.5 µg /cm^2/yr was not determined. See also responses above.

Note that the leach rate of each paint is intrinsic to its formulation and does not rely on the use of BMPs or non-BMPs; only the Cu loading changes with the use of BMPs vs non-BMPs. Also, the annual Cu loading, as shown in the Staff Report calculations, includes both passive leaching (a function of the intrinsic leach rate) and hull cleaning discharges; therefore, it is inaccurate to use a back calculation to derive a 'BMP' or 'non-BMP' leach rate for the epoxy and ablative test paints.

Note also that the annual Cu loading calculated with the approximate leach rates of 6.47 and 6.85 µg/cm^2/day for the epoxy and ablative test paints, respectively, is likely an underestimation of the Cu loads for Cu paints with higher leach rates. This is likely the case in Newport Bay, based on discussions with boatyard staff. These discussions revealed that the leach rates of the most popular Cu paints, currently used in Newport Bay, may be higher than DPR's maximum allowable leach rate of 9.5 µg/cm^2/day; therefore, Cu loading in Newport Bay determined for the 9.5 µg/cm^2/day leach rate is likely an underestimation of the true Cu loading in the Bay. In addition, the Cu loadings determined for paints with leach rates higher than those of the test paints, are only an estimation since a linear relationship between the Cu loading for the test paints (with leach rates of 6.47 and 6.85 µg/cm^2/day) and paints with higher (or even lower) leach rates was not determined. In addition, the effect of the implementation of DPR's maximum leach rate (9.5 µg/cm^2/day) on the reduction of Cu discharges to the Bay is dependent on the leach rates of the Cu paints currently used in the Bay (i.e., if the Cu paints currently in use have leach rates lower than DPR's 9.5 µg/cm^2/day, then no reduction of Cu discharges from Cu paints will result when DPR's leach rate is implemented).

As stated in the Staff Report, these data show that Cu loading can be reduced through 1) the use of BMPs vs non-BMPs, and 2) the conversion of Cu paints with leach rates greater than 9.5 µg/cm^2/day to Cu paints with leach rates less than 9.5 µg/cm^2/day.

Note again that the estimated annual Cu loadings (for a leach rate of 9.5 µg /cm^2/d) are used solely to determine the percent reduction in Cu loading from boats needed to meet the TMDLs. As previously stated, if the dissolved Cu CTR criterion is consistently achieved the TMDLs will be considered to be met, even if the Cu allocation for boats (or the required percent reduction) is not achieved.

Comment 1.3 - Number of Vessels

The Staff Report assumes 10,000 boats are moored or berthed within Newport Bay. The City of Newport Beach used aerial photography to document the number of vessels typically moored or berthed within Newport Bay. The results of that survey suggest 4,470 vessels greater than 18 feet are moored or berthed within Newport Bay…copper is currently used in 90% of marine AFPs in California; therefore, only 4,023 boats should be considered in calculating the dissolved copper load from boats.

The loading calculation should be revised to reflect a more accurate number of boats with copper AFP."

Response 1.3
In the calculation of the annual Cu loading from boats, Board staff used the 10,000 slips used in USEPA's promulgated Cu TMDLs. This estimate included all boats and empty slips and moorings, and was used in USEPA's Cu load calculations in their Cu TMDLs. We understand that the City estimated the boat count to be 4470, but this number does not include empty slips or smaller boats. We also understand that the City is conducting a new count, which will include the entire number of slips (capacity of the Bay) and the current number of boats. It is the capacity of the Bay (#boats + #empty slips) that is needed to determine a conservative Cu loading for boats. To date, Board staff have not received the City's new count of all boats and empty slips; however, based on boat counts from the City and Coastkeeper,
Board staff have reduced the estimated number of boats/slips from 10,000 to 5,000. The reduction of the number of boats/slips from 10,000 to 5,000 reduces the estimated Cu load from boats from 36,000 lbs/yr to 18,000 lbs/yr. Note that boats would still be the largest source of Cu to the Bay.
Further, the reduction of the MOS to 10% (1165 lbs/yr) along with the reduction of the number of boats/slips to 5,000 increases the Cu allocation for boats to 7224 lbs/yr and reduces the required percent reduction of the Cu discharges from boats to approximately 60% in the proposed Cu TMDLs.

Note again that the primary target for these Cu TMDLs is the dissolved Cu saltwater CTR criterion (3.1 µg/L).Board staff have revised the language in the proposed Cu TMDLs to state that "Compliance with the Cu TMDLs will be considered to be achieved if the dissolved Cu CTR criterion of 3.1 µg/L is consistently achieved (i.e. no impairment is demonstrated per the assessment methodology in the State Listing Policy (SLP)) and no further reduction in Cu discharges will be required, even if the Cu load allocation for boats is not yet achieved. If, however, the Cu allocation for boats is achieved, but the CTR criterion is not consistently achieved, further reduction in Cu discharges from Cu antifouling paints (AFPs) will be required."
This provision makes moot the concerns regarding the accuracy of estimates of the number of boats in the Bay, the estimated Cu loading from those boats, and the extent of use of BMPS. (This language would also apply to an approved adjusted Cu CTR value that may be developed through a Water Effects Ratio (WER) determination.)

Comment 1.4 - Best Management Practices
The Staff Report developed the dissolved copper loading estimate assuming 50% of boats are cleaned using BMP methods and 50% are cleaned using non-BMP methods."

This scenario contradicts the DPR EMB (2014) recommendation of a "maximum allowable leach rate for AFP products at 9.5 µg/cm^2/day under the condition that in-water hull cleaners follow CPDA's [California Professional Divers Association's] BMP method with soft-pile carpet... " Therefore, it is overly conservative to assume any boats will be cleaned using non-BMP methods. The calculation to assess loading from copper AFP should be revised to account for 100% of boat hull cleanings using approved BMP methods. Adjusting the boat hull cleaning approach to use only recommended BMPs in the calculation, the total dissolved copper load (in lbs/yr) ranges from 8,702 lbs/yr based on the Earley (2013) study to 12,762 lbs/yr based on the Staff Report (see Table 1, row for "Total Annual Copper Load Assuming Cleaning Events Consist of 100% with BMPs and 0% without BMPs"). Using a reasonable alternative estimate described above, the total dissolved copper loading is approximately 11,057 lbs/yr (or 10,979 lbs/yr using adjusted values).

Response 1.4 - Yes, Board staff used the assumption that currently 50% of the boats are cleaned

with BMP methods and 50% are cleaned with non-BMP methods. This assumption was used by both the Shelter Island Cu TMDL, and the Marina del Rey Toxics TMDL. Responsible parties should consider a TMDL implementation strategy, pursuant to the Cu TMDLs Implementation Plan, that includes an investigation of current BMP use, and a program(s) to ensure that BMPs are consistently used by all divers.

The assumption of the use of 50% BMPs and 50% non-BMPs is the same assumption used in both the Shelter Island (San Diego) and Marina del Rey (Los Angeles) TMDLs, and does not contradict DPR's recommendation since DPR makes no assumption regarding current BMP use. .
The Cu loading estimate for boats is based on assumptions of practices currently in place. This is both reasonable and appropriate. We agree that an increase in the use of BMPs should somewhat reduce Cu discharges to the Bay from boat hull cleaning; however, the amount of the reduction of Cu discharges from the use of BMPs alone by all divers is dependent on the current use of BMPs vs non-BMPs and may not reduce Cu discharges enough to meet the TMDL allocation for boats.

Note again, that the primary target for these Cu TMDLs is the attainment of the dissolved Cu CTR criterion. See responses to comments above.

Comment 1.5 - Margin of Safety
The standard approach to calculate the TMDL is to quantify waste load allocations (WLAs) and load allocations (LAs) and add a margin of safety (MOS); in this case, the Regional Water Quality Control Board choose [chose] 20%... The Staff Report calculates a 20% MOS based on the TMDL value (11,646 lbs Cu/yr), rather than calculating the MOS on the sum of the WLA and LA…
Alternative MOS values should be considered because a change to 10% MOS would have significant impacts on the need for management alternatives."

Response 1.5
Yes, Board staff used a 20% Margin of Safety (MOS) and calculated the Cu load for the MOS from the total allowable Cu load to the Bay (11,646 lbs dissolved Cu/yr).
The 20% margin of safety (MOS) is the same as the MOS used in Cu TMDLs promulgated by USEPA and it is reasonable; however, Board staff have reduced the margin of safety (MOS) from 20 to 10 percent (%) based on comments received. (The reduction of the MOS to 10% decreases the Cu allocation for the MOS from 2,329 to 1165 lbs/yr).
The reduction of the MOS to 10% (1165 lbs/yr) along with the reduction of the number of boats/slips to 5,000 increases the Cu allocation for boats to 7224 lbs/yr and reduces the required percent reduction of the Cu discharges from boats to approximately 60% in the revised proposed Cu TMDLs.

As stated above, the primary target for these Cu TMDLs is the dissolved Cu saltwater CTR criterion of 3.1 µg/L; and Board staff have revised the language in the Cu TMDLs (See response to comment 1.3.)

Comment 1.6 - Implementation Considerations
It is important to properly quantify the LA for boats to understand the appropriate implementation requirements to meet the proposed TMDL. A comparison of the percent reductions required to meet the TMDL using the Staff Report LA for boats and the adjusted LA for boats based on corrected MOS calculations is presented in Table 1. The Staff Report suggests dissolved copper loadings from boats would need to be reduced by 83% to meet the TMDL numeric target of 3.lµg/liter dissolved copper. Applying reasonable alternative approaches to the leach rate, appropriate vessel inventory and boat hull cleaning methods, and a corrected LA

for boats, dissolved copper loadings from boats would only need to be reduced by 41% to meet the TMDL. Further, if an alternative MOS of 10% is applied, then dissolved copper loadings from boats would only need to be reduced by 33% to meet the TMDL numeric target."

Response 1.6
Board staff have reduced the margin of safety (MOS) from 20 to 10 percent (%). (The reduction of the MOS to 10%, decreases the Cu allocation for the MOS from 2,329 to 1165 lbs/yr).
The reduction of the MOS to 10% (1165 lbs/yr) along with the reduction of the number of boats/slips to 5,000 increases the Cu allocation for boats to 7224 lbs/yr and reduces the required percent reduction of the Cu discharges from boats to approximately 60% in the proposed Cu TMDLs.
Note that even with the revised assumptions/calculations discussed above, Cu discharges from boats are still the largest source of Cu to the Bay, and actions will need to be taken to reduce Cu discharges from boats. These actions should include the use of BMPs by all divers and diver training and certification and the use of new hull cleaning methodology (such as container/filter methods), and the conversion of some boats using Cu AFPs to nontoxic and non-Cu paints.

Note again that the primary target for the Cu TMDLs is the dissolved Cu criterion of 3.1 µg/L; and as previously discussed, Board staff have revised the language in the Cu TMDLs.
(See response to comment 1.3.)

Attachment 2: Anchor QEA, Newport Bay Copper (Cu) TMDLs and Non-TMDL Action Plans for Zinc (Zn), Mercury (Hg), Arsenic (As), and Chromium (Cr), October 11, 2016

Comment 2.1 - 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 2016a) identifies in-water hull cleaning diver certification, evaluation and augmentation to boater education programs, and continued compliance monitoring activities within Newport Bay as a means for assessing the effects of implementation strategies identified within the TMDL, among other pertinent details and implementation requirements. The Staff Report further identifies special studies to understand the potential ongoing contaminant loading from sediments, algae, and other vegetation.

Response 2.1
*The Staff Report for the proposed Cu TMDLs and Action Plans for Zinc (Zn), Mercury (Hg), Arsenic (As), and Chromium (Cr) and proposed Implementation Plans in the draft Basin Plan Amendment (BPA), does include the above recommended tasks. Strictly speaking, the diver certification and education recommendations are not intended "*as a means for assessing the effects of implementation strategies identified within the TMDL"*. Rather, these tasks are recommended tasks for consideration as part of the proposed implementation plan(s) and strategies to be developed by the responsible parties to implement the TMDLs. The responsible parties are required to develop their own implementation plan(s) and schedule(s) for approval by the Regional Board (or the Regional Board's Executive Officer (EO)). Board staff expect that the City and County will take a lead role in the development of these plan(s) and schedule(s) to implement the Cu TMDLs and Action Plans for*

Zn (zinc), Hg (mercury), As (arsenic) and Cr (chromium). In addition, the special studies identified would only be required if the implementation of recommended tasks 1 through 4 does not achieve compliance with the Cu CTR criterion.

Comment 2.2
The TMDL requires responsible parties to assist the Regional Water Quality Control Board (RWQCB) in efforts to gain state and federal support for removal of Cu antifouling paint (AFP) from distribution. The effort would likely include support from the City of Newport Beach (City) attorney, City staff, and lobbyist groups, as well as science-based memorandums from the technical support team. The estimated cost to the City is estimated to be $50,000 per year.

Response 2.2 - Board staff have removed the requirements that the City and other responsible parties assist the Regional Board in efforts to address the sale and use of Cu-based paints with USEPA and DPR (Task 1.1 Restrict the sale and use of Cu AFPs, and Task 1.2.2.5 Coordinate with Regional Board staff on work with DPR and USEPA on Cu AFP restrictions). However, such joint efforts are strongly encouraged. If successful, appropriate restrictions on the sale and use of Cu-based AFPs that would be sufficient to achieve the Cu TMDLs could reduce or eliminate other expenditures by the City that are anticipated to be needed to achieve the Cu TMDLs, if approved.

Comment 2.3 - "REQUIRED IMPLEMENTATION PLAN DEVELOPMENT
Within 3 months of the approved TMDL, the following two plans need to be developed:

1. Copper AFP Reduction Implementation Plan: Develop an implementation plan and schedule to reduce Cu discharges from Cu AFPs. Specifically, within 3 months of the approved TMDL, the dischargers shall submit one or more implementation plan(s) and schedule(s) to achieve reductions of Cu discharges from Cu AFPs, and then implement the plan(s) and schedule(s) after approval from the RWQCB. The estimated cost to develop a copper AFP reduction implementation plan is $100,000.
2. Sediment Remediation Implementation Plan: Within 3 months of the approved TMDL, the dischargers shall submit an implementation plan and schedule to correct Cu sediment impairment in areas that exceed the Effects Range Median sediment guideline for Cu, including the Turning Basin and South Lido Channel. This plan will include consideration of other metals (i.e., zinc and mercury). The estimated cost to develop a sediment remediation implementation plan is $75,000."

Comment 2.4 - "REQUIRED MONITORING AND SPECIAL STUDIES
The proposed plan shall include recommended corrective strategies for areas of known sediment impairment, and monitoring and evaluation necessary to determine: 1) the effectiveness of the corrective actions on sediment Cu impairment; and 2) the extent of sediment zinc and mercury (and Cu) impairment in areas of Newport Bay that have not been monitored (especially in marina and boatyard areas)…"

SUMMARY

The total costs to comply with the implementation tasks identified within the BPA and Staff Report are totaled in Table 5.

Table 5

Overall Program Costs to Implement Required Elements in Support of the Newport Bay TMDL

Required Implementation Tasks	Year I	Year 2	Year 3	Year 4	Years
Implementation Tasks 1.2.1and 2.1 Costs to Develop Implementation	$175,000	--	--	--	--
Implementation Task 1.2.2.6 Work with DPR and USEPA	$50,000	$50,000	$50,000	$50,000	$50,000
Implementation Tasks 1.2.2.4, 2.1, 3.2, 4.1, 5.1, 6.1, and 6.2. for Compliance Monitoring and Special Studies	$395,500	$434,000	$388,500	$209,000	$417,250
Implementation Task 1.2.2.2: Diver Certification Plan and Implementation	$220,000	$100,000	$100,000	$100,000	$100,000
Implementation Task 1.2.2.5: Continue Education Program(s) for Boaters, Boatyards, and Marinas	$190,000	$50,000	$50,000	$50,000	$50,000
Annual Cost	**$1,030,500**	**$634,000**	**$588,500**	**$409,000**	**$617,250**

Response to the City's comments 2.3, 2.4

[Note: Attachment 2 provides costs estimates for Compliance Monitoring Activities, Special Studies and Supporting Tasks that are based on Anchor QEA/the City's assumptions regarding the specific components of each of the recommended implementation tasks. These components and assumptions are also described in Attachment 2. No specific response to each of these components/assumptions is necessary or appropriate at this time. See response below.]

The proposed Implementation Plan provides the responsible parties the opportunity to develop their own implementation plan(s) and schedule(s) and to recommend appropriate strategies to achieve the Cu TMDLs. The proposed implementation plan(s) and schedule(s), including specific strategies, and the assumptions associated with those tasks, would be reviewed upon the submittal of the proposed implementation plan(s). (Note that Board staff's Implementation Plan for the Cu TMDLs includes recommended strategies that must be considered when responsible parties develop their proposed implementation plan(s). The proposed strategies would be implemented by the responsible parties upon approval by the Regional Board (or Executive Officer (EO)). Board staff acknowledge that there will be implementation costs. The proposed implementation plan(s) and schedule(s) can take these costs into account, provided that the costs are clearly delineated and justified, and that there is a demonstration that the TMDLs and Action Plans will be achieved as soon as possible, but no later than the final compliance date.

It is Board staff's expectation that the City and County will take a lead role in the development of these plan(s) and schedule(s) to implement the Cu TMDLs and the Zn, Hg, As and Cr Action Plans.

With respect to the Special Studies, Section 5.6.3.6 (Conduct Special Studies in the Staff Report): special studies will be required only if implementation tasks are not

sufficient to achieve the TMDL and do not result in the achievement of the dissolved Cu CTR criterion within the required time period.

(Note that the implementation of USEPA's TMDLs would likely be more costly than implementation of these proposed Cu TMDLs since the percent reduction required in USEPA's TMDLs is higher than the reduction required in the proposed Cu TMDLs.)

Attachment 3: Anchor QEA, Current and Relevant Sediment, Water, and Tissue Data to Support the Newport Bay Copper (Cu) TMDLs and Non-TMDL Action Plans for Zinc (Zn), Mercury (Hg), Arsenic (As), and Chromium (Cr), October 13, 2016

Comment 3.1 - 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) identifies several data sources to support metal listing of water, sediment, and tissue in the Upper and Lower Newport Bay. Most of the data presented were older than 10 years and were collected prior to significant dredging activities that took place in the Upper and Lower Newport Bay.

The State Water Resources Control Board recommends data must be less than 5 years for sediment quality assessments. For dredging evaluations, the U.S. Environmental Protection Agency and Regional Water Quality Control Board (RWQCB) require data to be less than 3 years old for issuance of permits. Only one study (Orange County Coastkeeper and Candelaria 2014) with data less than 5 years old was included in the Staff Report (RWQCB Santa Ana 2016).

Response 3.1
First, Board staff agree that sediment metals data collected in areas that were subsequently dredged should not be used for impairment assessment purposes, and Board staff's Impairment Assessment is based on data from areas not dredged and post-dredged areas. Note that only one monitoring site was affected by Lower Bay dredging; this was the Harbor Island Reach site used for the County's routine monitoring. Data collected at this site prior to dredging were removed from the data set used to evaluate sediments.

Second, while USEPA may have time restrictions on data used for dredging evaluations, no such time limitations are included in the State Listing Policy (SLP) for impairment assessment or listing purposes. To date, the SLP does not restrict data to less than 5 years; in fact, there is no limitation on the age of data used for listing purposes in the SLP and the age of the data is left to the judgment of the Regional Board.

The two studies, the Cu-Metals Marina study (OC Coastkeeper and Candelaria 2007) and the Metals Sediment study in Lower Newport Bay (OC Coastkeeper and Candelaria 2014), along with monitoring data from Orange County, were used to evaluate sediments. The sediment data from the Cu-Metals Marina study are approximately 10 years old; and the Metals Sediment study data are approximately 3 years old. In addition, monitoring data from Orange County (2006-2011) were evaluated.

In the Cu-Metals Marina Study, sediments were collected from marinas and channel areas that were not

dredged in 2012 with the open bay parts of the Lower Bay; therefore the sediment data from areas not dredged are valid for impairment assessment purposes. Some marina sediments were retested in the Metals Sediment Study which evaluated new surface sediments in post-dredged areas. (The Table below shows the numbers of exceedances of the Cu, Zn and Hg sediment ERMs (Effects Range Median).)

It is likely that there are some current data that were not evaluated since it was necessary to set a cutoff date for the evaluation of data; however, these data will be evaluated in future refinements to the proposed TMDLs, if adopted. Note that the highest Cu concentrations, in water and sediments, were found in the marinas, along with the Turning Basin and S. Lido Channel areas, which are not typically monitored by the County or City. Much of the data submitted by the City, although newer than Board staff's Impairment Assessment data, do not include marina data –where most exceedances of sediment metal guidelines occurred. Note also that Orange County monitoring data do not include marina data.

Table 3.1 Exceedances of Sediment Metals ERMs in Lower Newport Bay

Metal	Total Exceedances/n	Study References
Cu	23/122	1,2
Zn	14/122	1,2
Hg	30/122	1,2

[1]OC Coastkeeper & Candelaria 2007, [2]OC Coastkeeper & Candelaria 2014

Sediment data for the Lower Bay from Orange County monitoring data (2011 to 2016) include data from 2 sites in the Lower Bay (Turning Basin and Harbor Island Reach). The Turning Basin was NOT dredged in 2012; therefore, those data are valid. Sediment data prior to 2013 are NOT valid for the Harbor Island Reach site since this site was dredged, and were removed from the data set.

The State Board and Regional Board have established the approved 2018 Integrated Report, that evaluated data through 2010 (CWA Section 303(d) list/305(b) Report). For the purposes of assessing metals impairment in Newport Bay, as part of the current reconsideration of the Metals TMDLs promulgated by USEPA in 2002, the Regional Board is not constrained by this time limitation. As indicated elsewhere in the City of Newport Beach's comments, the City has collected more recent data that have been evaluated by Regional Board staff. Pursuant to the SLP, these data show continued water column impairment due to dissolved Cu.

Comment 3.2 - There are several relevant and current studies that are representative of current conditions that were not included in Staff Report. Those studies are as follows:

OC Monitoring Program - Stormwater and Estuary programs from 2006 to present
Rhine Channel Post-Remediation Study (Anchor QEA 2011)
Federal Dredging Post-Sediment Condition (Anchor QEA 2013)
Southern California Bight 2013 Regional Monitoring Program (SCCWRP 2015, 2016)

This memorandum was developed to summarize the best available data that should be used to assess current condition in the Upper and Lower Newport Bay."

Response 3.2
Board staff's Impairment Assessment was mostly completed in 2012, and work to develop the TMDLs and proposed Implementation Plan proceeded subsequently. The Impairment Assessment is included in the 2016 Board Staff Report for the proposed Cu TMDLs and Non-TMDL Action Plans for other metals. As indicated above, the responsible parties are required to develop their own implementation plan(s) and schedule(s), that include proposed strategies to address the TMDLs and Action Plans, and to implement those strategies upon approval. Strategies must include additional monitoring and evaluation designed to confirm or modify findings of impairment, such that corrective actions can be tailored accordingly.

Note that USEPA promulgated separate TMDLs for metals for the Rhine Channel. The proposed TMDLs and Action Plans do not include the Rhine Channel. That said efforts to address Cu in the water column are likely to affect the Rhine Channel as well as other areas of the Bay.

Study 3.2.1 - ORANGE COUNTY COASTKEEPER AND CANDELARIA (Metals Sediment Study)
3.2.1.1. Sediment Results - a brief discussion of the sediment results is provided in Attachment 3.

Response 3.2.1.1 - Sediment Results
The analysis summary for the Metals Sediment study shown in Attachment 3 is not correct.
In the Metals Sediment study, total Cu, Zn and Hg in sediments exceeded the Cu ERM (7/44 samples), the Zn ERM (2/44 samples), and the Hg ERM (6/44 samples), respectively. Sediment toxicity (Eohaustorius estuarius) was not found in the 6 samples tested for toxicity.
Note that sediment toxicity was only measured in August 2013 at only 6 sites (the 3 marina sites and 3 post-dredge sites). Note again that NO marinas, Turning Basin or S. Lido Channel areas were dredged; therefore, these data are valid. These data indicate that the marinas, Turning Basin and S. Lido Channel areas should be put on a 'watch list', and monitored and evaluated for sediment metals and toxicity.
In the Cu-Metals Marina study, which was not included in the City's analysis in Attachment 3, total Cu, Zn and Hg in sediments exceeded the Cu ERM (16/78 samples), the Zn ERM (12/78 samples), and the Hg ERM (24/78 samples). Sediment toxicity (Eohaustarius estuarius) was found in 6/8 samples in the Cu-Metals Marina study. The sediment ERM exceedances and toxicity indicate further monitoring in these areas is needed.
In addition, untested marinas should be evaluated to determine the extent of impairment for sediment Cu, Zn and Hg in marina areas in the Bay.

As discussed in more detail in the responses to the City's comments, State Board guidance and policy with respect to the evaluation of sediment quality and impairment has changed since Regional Board staff's Impairment Assessment was conducted, (2016 Staff Report). (See responses to the City's comments 3.1 above and 6.10, 6.18, 6.19, 6.32 and 6.33 – Attachment 6.) In part, State Board staff determined that to list sediment as impaired, sediment chemistry samples must be paired with sediment toxicity samples. This is a newer approach not reflected in Board staff's Impairment Assessment. (Previously, the SB staff's interpretation of the SLP was that water bodies could be considered to be impaired and listed for sediment metals based on ERM exceedances alone per the SLP methodology.) Further, more explicit policy guidance with respect to evaluating sediment quality is provided in the State Board's Enclosed Bays and Estuaries Policy – Part 1 Sediment Quality (EBE Plan – Part 1). Nevertheless, the significant number of exceedances of the ERMs (see Table 3.1 above) indicate that there is a need to continue to monitor and evaluate the sample areas (marinas, Turning Basin, and South Lido Channel - none of which have been subject to recent dredging).

The proposed Implementation Plans for the TMDLs and Action Plans require that responsible parties prepare and submit a proposed implementation plan(s) and schedule that includes strategies to evaluate metals impacts and impairment, consistent with the requirements of the EBE Plan – Part 1. These strategies can and should include additional monitoring and evaluation of metals in known areas of concern, and evaluate other areas of concern (including marina areas that have not been monitored).

3.2.1.2 Water Results - a brief discussion of the water results is provided in Attachment 3.

Response 3.2.1.2 - Water Results
A limited number of bottom water samples were collected in the Metals Sediment Study. (See response to comment 3.2.3 above .)

Study 3.2.2 - OC MONITORING PROGRAM - STORMWATER AND ESTUARY PROGRAMS FROM 2011TO PRESENT
RHINE CHANNEL POST-REMEDIATION STUDY
FEDERAL DREDGING POST SEDIMENT CONDITION
BIGHT '13 SEDIMENT QUALITY OBJECTIVE ASSESSMENT {SCCWRP 2015)

Response 3.2.2
The above studies were summarized in Table 1, Attachment 3.
Board staff's comments on the original Table 1 are shown below, and pertinent data are shown in Revised Table 1.
With respect to sediment data in Table 1, Attachment 3:
1 – Data from Upper and Lower Newport Bay should not be combined since they are considered to be separate water bodies for impairment assessment/303(d) listing purposes; therefore, all analyses must be completed separately for the Upper and Lower Bay.
Table 3.2 1 includes data only from the Lower Bay.
2 – The Rhine Channel is addressed by a separate TMDL as part of the Toxics TMDLs promulgated by USEPA. Data for the Rhine Channel should be considered separately from the rest of Lower Newport Bay data.
Rhine Channel data are not included in Revised Table 1.
3– Data older than 5 years are valid based on the SLP methodology.
(Again, we agree that data collected from sediments that were dredged and removed from the Bay should not be used for impairment assessment purposes. This includes only one site from the County's monitoring (Harbor Island Reach)).
Revised Table 1 includes data older than 5 years, including data from the Cu-Metals Marina Study.
4 – Orange County monitoring data from 2009-2011 were analyzed in Board staff's Impairment Assessment.
(Note that County data includes 3 sites in the Lower Bay – Turning Basin, Harbor Island Reach and the Rhine Channel. Only data from the Turning Basin are reported in Table 3.2 below since Harbor Island Reach sediments were dredged in 2012; Rhine Channel data is also not included in these Cu TMDLs.
5 – Except for the Metals Sediment Study (2014), most of the studies listed in Attachment 3 did not include marina sites which, along with the Turning Basin and S. Lido Channel areas, are the most contaminated areas in the Lower Bay. The Bight '13 sites in Lower Newport Bay included only one actual marina site, although the 3 additional Lower Bay sites were listed as marina sites (these samples were collected near marinas rather than in marinas).

Comment 3.2.3- Evaluation of Sediment Data

Response 3.2.3 – Evaluation of Sediment Data

Table 3.2 - Evaluation of Sediment Data - Lower Newport Bay (revised from Table 1, Attachment 3)

			Exceedances of ERM sediment guideline			
Lower Bay Data	**# samples**	**sample location**	**Cu**	**Zn**	**Hg**	**Toxicity**
Cu-Marina Metals study (2007) (added)	78	marinas & channels	16	12	24	6/8
Metals Sediment study (2014)	44	marinas & open bay	7	2	6	0/6
Bight '13 (July-Sept 2013)	4	1 marina, 1 channel & 2 open bay	0	0	0	0/4
Fed'l Dredging Post Sediment Condition	11	open bay	0	0	1	1/11[1], 2/11[2]
OC Monitoring (2006-2011)	21	open bay	0	0	3	2/11
Totals^	158	marinas, channels, open bay	23	14	34	11/51

Highlighted text & numbers are those that were revised from the original Table 1, Attachment 3.
*ERM = Effects Range Median sediment guidelines (Long et al. 1995)
^Totals are revised totals based on data presented in this revised table.
The majority of the sediment ERM exceedances were in the Turning Basin area.
1 = 10 day amphipod acute test
2 = 48 hour sediment/water interface *Mytilus* development test
References: [1]County of Orange 2009-2011, [2]County of Orange 2006-2009, [3]OC Coastkeeper 2013, [4]OC Coastkeeper & Candelaria 2007, [5]USEPA 2004, [6]Bay et al. 2004, [7]Bay & Greenstein 2003, [8]Allen 2008, [9]Frueh & Ichikawa 2007 (DFG), [10]NewFields 2009, [11]OCCoastkeeper & Candelaria 2014
Water Results: a brief discussion of water chemistry results is provided in Attachment 3.

The analysis summary given in Attachment 3 is not totally correct.
In the Metals Sediment study, bottom water samples (29) were collected; 4/14 samples exceeded the criterion in October 2012, no bottom water samples (0/15) exceeded in March 2013.

In addition, dissolved Cu exceeded the CTR criterion (3.1 µg/L) in 48/68 and 13/27 samples in the Upper Bay (OC monitoring data 2009-11, Cu-Metals Marina study - marina and channel samples), respectively); and 22/34 and 53/78 samples in the Lower Bay (OC monitoring data 2009-11, Cu-Metals Marina study, respectively).

Comment 3.2.4 - FISH TISSUE DATA ON CEDEN
Summary of Findings. Fish tissue from fish caught inside Newport Bay are similar to or less than fish tissue of fish caught just outside of the bay and along the Southern California coast. Therefore, fish caught in Newport Bay do not appear to be exposed to any additional metals that may be associated with Newport Harbor. The CEDEN database also includes mussel data; a more thorough data review should be included in any future tissue assessments for Newport Harbor.

Response 3.2.4 Regional Board staff are recommending Action Plans to address findings of zinc (Zn), arsenic (As) and chromium (Cr) at levels of concern in fish caught in Newport Bay. The proposed Action Plans require continued monitoring and evaluation of Zn, As and Cr in fish/mussel tissue, and recommend source evaluation studies of these metals, if impairment is determined. Where necessary, corrective Action Plans may be required to address these sources. Board staff

agree that monitoring and evaluation are appropriate, and this is the essence of the recommended Action Plans.

Attachment 4: Anchor QEA, Random Sample Points Methodology, July 10, 2015

Note - Attachment 4 presents Anchor QEA's Newport Bay Cu study, conducted on behalf of the City, with sampling results from June/July 2015 (Table 1). Water samples were collected at mid-depth from 40 random water sites in July 2015 and analyzed for dissolved Cu.

Comment 4.1 - In 1996, Newport Bay (the Bay) was listed on the 303 (d) list for metals, pesticides, and organic pollutants. A total maximum daily load (TMDL) for metals is currently required for dissolved copper, lead, and zinc in the Upper and Lower Bay as well as the Rhine Channel. The TMDL is being updated to include an implementation plan requiring the conversion of 87% of the boats to non-copper-based paints to address water quality concerns for dissolved copper in Newport Bay.

Response 4.1 – It is correct that USEPA promulgated TMDLs for Cu, Zn and Pb in the Upper and Lower Bay, and Cd in the Upper Bay (and separate TMDLs for the Rhine Channel). The initially- proposed Cu TMDLs <u>required</u> a reduction in Cu discharges from boats (83%), <u>not</u> a requirement to convert 87% of the boats to non-Cu based paints.
Board staff have since reduced the required reduction for Cu discharges from boats to 60%. See responses to the City's comments 1.3, 1.5 – Attachment 1.

Comment 4.2 - The CTR chronic target for dissolved copper for saltwater is 3.1 micrograms per liter (L). Previous investigations within the Bay have identified elevated copper concentrations in water from boat paint. However, these investigations sampled water adjacent to boats and were not designed to capture representative copper concentrations throughout the extent of the Bay.

Response 4.2
Board staff agree that the Cu-Metals Marina study was designed to sample metals in water and sediments in marinas and channels near marinas. This study targeted marinas and nearby channels to obtain data to determine whether Cu and other metals were elevated in areas of high concentrations of boats. Previous monitoring evaluated (mostly Orange County monitoring) did not include marina sites, which have been shown to be areas of exceedances of the dissolved Cu CTR criterion and the sediment ERMs for Cu, Zn and Hg (exceedances were highest in the marinas, Turning Basin and S. Lido Channel areas). This study also provided Cu data to DPR to support their decision to reevaluate Cu boat paints and their effects on the environment. Other studies, however, (including Anchor QEA's study for the City and County monitoring) show that both Upper and Lower Newport Bay are still impaired for Cu.

Comment 4.3 - The results of chemical analyses are presented in Table 1. Chemical

concentrations were compared to water quality criteria.

Response 4.3 - In the data set shown in Table 1- Attachment 4, dissolved Cu exceeded the CTR criterion in 18/40 samples. The SLP requires only 4 exceedances in 40 to make a finding of impairment and list the water body on USEPA's 303(d) list; therefore, these data show that Lower Newport Bay is still impaired for dissolved Cu.

Attachment 5: Anchor QEA, Newport Bay Copper Study Winter 2016, March 25, 2016

Note - Attachment 5 presents the continuation of Anchor QEA's Newport Bay Cu study on behalf of the City and shows data for both June 2015 and February 2016 (Table 1, Attachment 5). The 2016 study resampled the 40 sites from the June 2015 study, and water samples were collected at mid-depth. The 2016 study also included 14 water samples taken at several distances from 2 boats and collected at a depth of 1 ft. from the surface. (Note that at least some studies collect water samples at a depth of 1 meter since this is closer to the depth of the hull; samples are not normally collected at a depth of 1 ft. from the surface since samples can be affected by surface disturbances such as wind and debris.)
The February 2016 data show that dissolved Cu exceeded the CTR criterion in 10/40 samples (which alone are enough to show impairment).
By SLP methodology, however, when there are multiple data sets from the same study, the data sets are combined; therefore, the combined data set from February 2016 and June 2015 includes 28/80 exceedances for dissolved Cu. The SLP requires only 7 exceedances in 80 to show impairment and place a waterbody on USEPA's 303(d) list; therefore, these combined data show that Lower Newport Bay is still impaired for dissolved Cu.

Water samples were also collected near boats at 1 ft. below the surface; samples at this depth can be affected by surface disturbances such as wind and debris. The data from these water samples, showed no exceedances of the dissolved Cu CTR criterion (Table 2, Attachment 5).

Attachment 6: Technical Comments Submitted by the City of Newport Beach, October 14, 2016 (from Anchor QEA)

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).

Comment 6.1- SR Section 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. RB-2011-0037 states that Rhine Channel TMDLS are not included in organochlorine compound TMDLs because the impairment will be addressed through dredging… The City requests Rhine Channel continue to be managed separately from this metals TMDL.

Response 6.1
A description of the Rhine Channel is included in the description of Lower Newport Bay (Section 1.1 of the Staff Report). The description was taken directly from USEPA's Toxics TMDLs. The Rhine Channel and Lower Newport Bay are, in fact, considered to be separate water bodies for impairment purposes. No data from the Rhine Channel were included in Board staff's Impairment Assessment for the Lower Bay. The TMDLs proposed by Board staff assume that the Rhine Channel will continue to be addressed separately.

Comment 6.2 – SR Section 3.3. 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.

Response 6.2
First, note that Cu is already listed for both Upper and Lower Newport Bay. (Cu was first listed in 2006, and based on their own impairment assessment, USEPA promulgated Cu TMDLs for Upper and Lower Newport Bay in 2002).
Second, we do not agree that current data support no listings for metals other than Cu. Zinc (Zn), arsenic (As) and chromium (Cr) all exceeded fish/mussel tissue guidelines. (Sediment Cu, Zn and mercury (Hg) in the Lower Bay exceeded ERM guidelines and require continued monitoring and evaluation.)
(Also note that in the analysis conducted by Anchor QEA, data from the Upper and Lower Bay were combined (Table 1, Attachment 3); this does not follow SLP methodology since Upper and Lower Newport Bay are addressed as separate water bodies for impairment assessment purposes.)

Board staff have consistently recommended that the general metals category for the Upper Bay be delisted, and it was finally delisted in the 2018 listing cycle. (The general metals category for Lower Newport Bay was already delisted based on State Board's 2006 assessment.)

Comment 6.3 – SR Section 3.4. 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.

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 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.

Response 6.3
The delisting of sediment toxicity is a separate issue, based on Bay toxicity data, and is not addressed by these Cu TMDLs or Action Plans. The comment also states that "there is no linkage between copper concentrations and the presence of sediment toxicity"; Board staff believe that a relationship between sediment Cu and toxicity has not been ruled out.
A significant concern is that in most studies/monitoring conducted by the City and County, no

marina samples were collected and analyzed (marinas, along with the Turning Basin and S. Lido Channel, are the main areas where Cu, Zn and Hg exceeded the sediment ERMs, in the Coastkeeper & Candelaria studies).

In the Cu-Metals Marina study (2007), sediment Cu, Zn and Hg exceeded the ERMs in the marinas, Turning Basin and S. Lido Channel areas, and sediment toxicity was present. (Boats are routinely cleaned in marinas, and Cu and other metal discharges from hull cleaning (in water and solids) are released into Bay waters; solids containing metals may also settle onto the sediments. More marina samples should be collected and analyzed, as the analyses of marina sediments have been left out of most Lower Bay studies/monitoring.)
Note that although ERM exceedances and sediment toxicity occurred at the same sites, the data were not paired. For this reason, Board staff no longer consider the Lower Bay sediments to be impaired; however, since sediment Cu, Zn and Hg exceeded the ERMs and toxicity was present, further monitoring and evaluation is warranted. (The initial finding of sediment impairment in Board staff's Impairment Assessment was based on SB staff's interpretation of the SLP at the time which did not require paired chemistry and toxicity sediment data.) In addition, since the SB has adopted the EBE Plan –Part I, sediments should be reevaluated against the sediment quality objectives (SQOs).

Comment 6.4 – SR Section 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 *(sic)*. We believe a site-specific numeric target should be developed for use in the TMDL. The use of CTR 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.

Response 6.4
1 - The CTR was promulgated by USEPA in 2000 and specifies the legally enforceable water quality criteria (objectives, in California parlance) for toxic substances, including Cu. The CTR criteria are therefore the appropriate criteria for the evaluation of dissolved Cu (and other dissolved metals) in Newport Bay. USEPA relied on these criteria in establishing Cu TMDLs for Newport Bay in 2002.

2 – The CTR criteria are not overly conservative for Newport Bay. The toxic effects of Cu are inversely related to the dissolved organic carbon concentration (DOC), (i.e. when the DOC is low (less than 1mg/L), Cu is more bioavailable and therefore more toxic), and this relationship is used in the Biotic Ligand Model (BLM) to determine the Cu BLM criteria. While the Cu CTR criterion may be conservative in some water bodies in California in which DOC concentrations are high, it is <u>not</u> overly conservative in Newport Bay since measured DOC concentrations were below 1mg/L at certain times of the year (Cu Metals Marina Study); and when the DOC is below 1mg/L, the Cu BLM criterion is close to the Cu CTR criterion. In addition, the marine BLM may, in fact, underestimate the toxicity of Cu, since the model does not include the concentrations of other metals in its evaluation.

3 – With respect to the development of a site-specific numeric target, the CTR includes provisions for the development and use of a site-specific criterion through a Water Effects Ratio (WER) determination. The recommended compliance schedule (12 years) in the proposed Cu TMDLs allows for such an investigation, if responsible parties decide to pursue this option. If a revised CTR criterion, determined by a WER study, is found to be appropriate and is approved, then the need for and nature of these Cu TMDLs will be reviewed and revised accordingly if Cu TMDLs are

still required.

Comment 6.5 – SR Section 4.1.2. 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: http:ljwater.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm#cc.

Response 6.5
As stated in response to comment 6.4, above , the recommended compliance schedule (12 years) in the proposed Cu TMDLs allows for a WER and/or site-specific objective investigation, if responsible parties decide to pursue this option. Note again, however, that DOC concentrations were measured in the Bay and were found to be below 1mg/L at certain times of the year. The BLM was run for these Bay data, and the results showed that when the DOC is below 1mg/L, the Cu BLM criterion is close to the CTR criterion. This suggests that there may be little merit to a WER/site-specific objective investigation.

Both Board staff and USEPA (as reflected in the USEPA promulgated Cu TMDLs) found scientific evidence of exceedances of the dissolved Cu criterion. Both the Board staff- proposed and USEPA promulgated TMDLs were developed accordingly.

Comment 6.6 – SR Section 4.1.2. We believe the CTR is not being applied appropriately. From the CTR guidance, the 3.1 micrograms per liter (µg/L) 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.).

Response 6.6 - The CTR specifies the default criterion for dissolved Cu that must be applied unless a modified value is approved through a WER investigation (methodology allowed by the CTR). USEPA already established Cu TMDLs for Newport Bay in 2002 based on the CTR criteria, without conducting a WER investigation. See responses to comments 6.4 and 6.5 above.

Comment 6.7 – SR Section 4.1.2. 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, footnoted 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.

Response 6.7 - By SLP methodology, when a 4-day average cannot be calculated based on insufficient data, the CCC can be applied to a single sample if only one sample exists. The recommended Implementation Plan for the proposed Cu TMDLs includes requirements for

continued monitoring and evaluation. The results of this monitoring and evaluation will determine whether impairment continues to exist and remediation strategies are required.

Comment 6.8 – SR Section 4.1.5. The Staff Report provides a discussion regarding federal revisions to the coper [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.

Response 6.8 - The City's comment letter to USEPA is included as Attachment 9 to the City's October 14, 2016 transmittal letter. No response is necessary (see response to Attachment 9).

Comment 6. 9 – SR Section 4.1.5. 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."

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 consideration of site-specific conditions, and the RWQCB has not demonstrated the CTR value without adjustment from a WER is not overly conservative.

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.

Response 6.9 - This is a reiteration of comments 6.4 – 6.7 above regarding the WER and application of the CTR. See responses to these comments.

Comment 6.10 – SR Section 4.2.1. Sediment impairment should be removed from the TMDL...RWQCB staff did not follow state guidance for [assessing sediment quality]. The preponderance of relevant data does not provide any evidence of a linkage between sediment impairment and metals concentrations.

Response 6.10 – Sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets are now based on sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged. Sediment Cu should also be monitored and evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.

See responses to the City's comments 3.2 - Attachment 3, and 6.15 – 6.19 above,.

Comment 6.11 – SR Section 4.2.1 Fish/Mussel Tissue Data.
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.

Response 6.11
The SLP does not specify fish and mussel tissue guidelines, and leaves the selection of guidelines to the Regional Boards. See excerpt from the SLP below.

"SLP 3.5 Bioaccumulation of Pollutants in Aquatic Life Tissue 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 – see below) using the binomial distribution as described in section 3.1.
6.1.3 Evaluation Guideline Selection Process…
3. Evaluation Guidelines for Protection of Aquatic Life from Bioaccumulation of Toxic Substances: The Regional Water Boards may select the evaluation values for the protection of aquatic life published by the National Academy of Science.
For other parameters, evaluation guidelines may be used if it can be demonstrated that the evaluation guideline is:

- *Applicable to the beneficial use*
- *Protective of the beneficial use*
- *Linked to the pollutant under consideration*
- *Scientifically-based and peer reviewed*
- *Well described*
- *Identifies a range above which impacts occur and below which no or few impacts are predicted. For non-threshold chemicals, risk levels shall be consistent with comparable water quality objectives or water quality criteria."*

See also response to the City's comment 6.12 below.

Comment 6.12 – SR Section 4.2.1 Fish/Mussel Tissue Data
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 Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, 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."

Response 6.12 - Wildlife guidelines for fish/mussel tissue were evaluated and chosen from the literature in coordination with Katie Zeeman, PhD, USFWS. <u>All guidelines were based on values</u>

in peer reviewed literature. As stated above, the SLP allows the Regional Boards to select appropriate tissue guidelines, provided that the requirements of section 6.1.3 of the SLP are met. See Table 4-3 in the Staff Report 2016.

Comment 6.13 – SR Section 4.2.1 Fish/Mussel Tissue Data
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.

Response 6.13 - Human health guidelines used are from USEPA and are consistent with the SLP methodology. As stated above, the SLP allows the Regional Boards to select appropriate tissue guidelines, provided that the requirements of section 6.1.3 of the SLP are met.

Comment 6.14 – SR Section 4.2.1 Fish/Mussel Tissue Data
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.

Response 6.14 - According to USEPA, inorganic arsenic (As) is the most toxic form of As and ranges from <1 to 20% of the total As in fish tissue, while most As found in fish tissue is in the organic form (arsenobetaine) which is nontoxic (USEPA 2000a). USEPA recommends that inorganic As, rather than total As, be measured in fish tissue; however, much of the As analysis for fish tissue measures total As rather than inorganic As. The FDA, therefore, recommends measuring total As in fish tissue and estimating inorganic As as 10% of the total As (USFDA, 1993); therefore, the use of 10% of total As to represent inorganic arsenic is appropriate. Further monitoring and evaluation are required as part of the recommended Non-TMDL Action Plans. Note that the Action Plan for As requires no immediate corrective action but, rather, further investigation. This is consistent with the recommendation for monitoring and evaluation.

Comment 6.15 – SR Section 4.2.2. 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.

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 & 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 conditions is summarized below.

Copper Metals Marina Study (2007)

Data are too old and not relevant to current condition. This study should not be included for determining current sediment condition.

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.

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.

OC Stormwater Monitoring Data (2006 - 2009)

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. Older data can be used to support trends but should not infer current condition.

Copper Reduction in Lower Newport Bay (2013)

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.

Sediment Evaluation for Lower Newport Bay Study (Newfields 2009)

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.

Newport Bay Sediment Toxicity study (SCCWRP 2004)

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.

Newport Bay and San Diego Creek Chemistry Study (SCCWRP 2003).

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.

Response 6.15 - The comments above reiterate those in Attachment 3.
See responses to the City's comments in Attachment 3, and Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Comment 6.16 – SR Section 4.2.2. OC Coastkeeper & Candelaria (2014) support the lack of metals impairment to sediments. Staff did not accurately summarize the toxicity results for OC Coastkeeper & 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.

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]).

Response 6.16 - The comments above reiterate those in Attachment 3.
See responses to the City's comments in Attachment 3, and the Section III – Recommended Revisions to the Proposed Copper (Cu) TMDLs and Action Plans for Zinc, Mercury, Arsenic and Chromium in the Supplemental Staff Report.

Comment 6.17 – SR Section 4.2. Data Analysis Sediment data presented in the Staff Report are not reflective of current condition. See the TMDL Current Data memorandum dated October 13, 2016.

Data representative of current conditions were not included in the Staff Report and should be 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 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:

OC Monitoring Program - Stormwater and Estuary Programs - 2011 to present (http://ocwatersheds.com/rainrecords/waterqualitydata)

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).

This monitoring program includes sediment toxicity testing. There have been 96 sediment toxicity tests conducted at 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.

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).

Rhine Channel Post Remediation Study (Anchor QEA 2012)

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.

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.

Federal Dredging Post Sediment Condition (Anchor QEA 2013)

Eleven sampling locations were included; no copper, arsenic, chromium, or zinc ERM exceedances were found. There was only one mercury ERM exceedance.

This study included both sediment and sediment/water interface toxicity testing. No toxicity was observed.

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).

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).

Bight '13 Regional Monitoring Program, Sediment Quality Objective Assessment (SCCWRP 2015)

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.

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.

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 removal of special studies related to copper loading from sediment (Implementation

Task 6.1).

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).

Response 6.17 - First, Action Plans were not and are not proposed to address sediment impairment due to As (arsenic) or Cr (chromium).
Second, the comments above reiterate the City's comments in Attachment 3. See responses to these comments, and Section III – Recommended Revisions to the Proposed Copper (Cu) TMDLs and Action Plans for Zinc, Mercury, Arsenic and Chromium in the Supplemental Staff Report.
With respect to special studies, see responses to the City's comments 2.1, 2.3, 2.4 - Attachment 2.

Comment 6.18 – SR Section 4.2.2. Sufficient sediment and toxicity data are available to assess impairment from metals.
Thirty-nine sediment/water interface toxicity tests with 48-hour Mytilus 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).

Response 6.18 – First, sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets are now based on sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged. Sediment Cu should also be monitored and evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.

Second, sediment and toxicity data are available, but most data sets do not include data from the marinas and Turning Basin/S. Lido Channel areas, which had the highest number of exceedances of the ERM sediment guidelines; therefore, the data referenced by Anchor QEA are not sufficient to support a finding of no sediment impairment related to sediment metals, nor are the data sufficient to alleviate the need for further monitoring and evaluation. (Note that County monitoring data does include data from the Turning Basin.)
See responses to the City's comments in Attachment 3, 6.10 above, and Section III – Recommended Revisions to the Proposed Copper (Cu) TMDLs and Action Plans for Zinc, Mercury, Arsenic and Chromium in the Supplemental Staff Report.
With respect to special studies, see responses to the City's comments 2.1, 2.3, 2.4 - Attachment 2.

Comment 6.19 – SR Section 4.2.2. 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 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).

Response 6.19 - First, Upper and Lower Bay data must be analyzed as separate data sets since the Upper and Lower Bay are considered to be separate water bodies for impairment assessment purposes.
Second, we agree that the above data set does not support a listing for sediment impairment based on toxicity alone (with no ERM exceedances); it should be noted that amphipod tests in sediments are not that highly correlated with the presence of high metal concentrations. (The more appropriate toxicity test that correlates with metals is the pore water analysis.)
Sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets are now based on sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged. Sediment Cu should also be monitored and evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.
Third, with respect to sediments, metals do not exceed the ERMs (for the most part) in the post-dredged areas; however, metals DO exceed the ERMs mainly in marina and Turning Basin/S. Lido Channel areas (and marinas are not regularly sampled in other studies by the County or in Bight studies); *therefore, continued monitoring and evaluation of sediments are necessary.*

Comment 6.20 – SR Section 4.2.2. 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).

Response 6.20 - The comments above reiterate those in the City's comments in Attachment 3, and 6.11-6.14 and 6.20 above. See responses to these comments.

Comment 6.21 – SR Section 4.2.2. We believe Rhine Channel should be managed outside of a metals TMDL.

Response 6.21 - The Rhine Channel IS already managed under a separate TMDL that was promulgated by USEPA in 2002. These proposed TMDLs and non-TMDL Actions Plans will not supercede USEPA's promulgated TMDL for the Rhine Channel. See also response to comment 6.1 above.

Comment 6.22 – SR Section 4.2.2. The entire Section 4 needs to be revised to include only current information.

Response 6.22 - The State Listing Policy (SLP) leaves it to the best judgment of Board staff as to the appropriate age of the data used in an impairment assessment. Board staff believe that the data evaluated in the Impairment Assessment are appropriate for the purpose of assessing impairment. Monitoring and evaluation is a key component of the Implementation Plan for the proposed TMDLs and Action Plans. This monitoring is intended to inform the need for control actions as well as demonstrating progress in meeting the TMDLs. The TMDLs and Action Plans will be reviewed and revised as necessary, based on the results of this monitoring and other relevant information.

Comment 6.23 – SR Section 4.2.2 p29 Table 4-4. The tissue data presented in the Staff Report are too old and not reflective of current condition.

Food Web Study in Fish (Allen et al. 2008)

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 Baysediment.

Department of Fish and Game Monitoring Data (Frueh & Ichikawa 2007)

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.

Bioaccumulation Fish Tissue Study (Allen et al. 2004)

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.

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.

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 (http://www.ceden.org/), and were collected as part of the Newport Bay Watershed Bio Trend Monitoring Program from 2007 through 2010.

Response 6.23 - The comments above reiterate those in the City's comments 6.11 - 6.14, 6.20 and 6.24-6.25, and Attachment 3. See responses to these comments.

Comment 6.24 – SR Section 4.2.3 Fish/Mussel Tissue summary page 45
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 y.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.

Response 6.24
The above interpretation of the State Listing Policy (SLP) is incorrect.
Table 3.1 in the SLP shows the number of exceedances required to list a water segment for toxicants for various sample sizes from 2 – 129, and shows that 2 exceedances are required to list for a sample size of 2 – 24. These are the criteria for listing.
*The first footnote to Table 3.1 states that "**Application of the binomial test requires a minimum sample size of 16. The number of exceedances required using the binomial test at a sample size of 16 is extended to smaller sample sizes."*
This means that in order to use the binomial test to determine the number of exceedances required to list, a minimum sample size of 16 is required. The 2nd sentence of this footnote then states that this number of exceedances also applies to sample sizes smaller than 16 (down to a sample size of 2). For further information, see the Functional Equivalent Document - Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List, September 2004.

Comment 6.25 – SR Section 4.2.3 Fish/Mussel Tissue summary page 45
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.

*Response 6.25 - The above statement that "*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" *may be relevant if metals in fish tissue are from sediments – however, the source(s) of metals to fish has not yet been demonstrated. In addition, the number of tissue samples collected is sufficient to determine impairment based on the SLP methodology. See also responses to the City's comments 3 – City letter, 3.1 – Attachment 3, and 6.15 – Attachment 6.*

Comment 6.26 – SR Section 4.2.3 Fish/Mussel Tissue summary page 45
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).

Response 6.26 - Fish tissue contaminant concentrations were evaluated based on wildlife guidelines from the literature chosen in coordination with Katie Zeeman, PhD, USFWS. All fish and mussel samples were collected in Newport Bay and included both resident and non-resident species. The proposed Action Plans require monitoring and evaluation to evaluate current conditions and to determine sources of these metals (including chromium, not cadmium). Follow-up actions, if any, will be determined based on the results. This will include consideration of background concentrations and likely sources.

See also the response to the City's comment 6.14 above.

Comment 6.27 – SR Section 4.2.4. 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.

Response 6.27 - The data do show Cu impairment in water. The City's own data (Anchor QEA's study – Attachments 4 and 5) support the finding of impairment in water by Cu. Sediments in marinas, Turning Basin and S. Lido channel areas are no longer considered to be impaired, but should be 'watch listed' and monitored and evaluated for sediment metals and toxicity, based on exceedances of the Cu, Zn and Hg ERM guidelines. Available data indicate impairment in fish/mussel tissue due to Zn, As and Cr. However, additional monitoring and evaluation is necessary to confirm these findings and to determine the sources. See also responses to the City's comments 6.18 and 6.19 above.

Comment 6.28 – SR Section 4.2.4
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.

Response 6.28 - The finding of impairment in water is NOT dependent on the presence of toxicity in water. The finding of impairment in water is dependent only on the number of exceedances of the dissolved Cu CTR criterion per the binomial distribution in the SLP.

Comment 6.29 – SR Section 4.2.4
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.

Response 6.29 - See responses to the City's comments in 6.18 and 6.19 above, and in Attachment 3.

Comment 6.30 – SR Section 4.2.4
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.

Response 6.30 - See responses to the City's comments in 6.11-6.14, 6.20, and 6.23-6.25above, and Attachment 3.

Comment 6.31 – SR Section 4.2.4. We believe sufficient data are available to delist sediment toxicity.

Response 6.31 – The delisting of sediment toxicity is a separate action from these Cu TMDLs and Action Plans. There may be sufficient data available to show that sediment toxicity is not prevalent in open water areas of the Lower Bay; however, there is insufficient data to rule out sediment toxicity in marina sediments which are not routinely monitored.

Most toxicity found in Board studies was found in marinas, and the Turning Basin and S. Lido Channel areas (and marinas are not normally monitored in other studies). Sediment Cu, Zn (zinc) and Hg (mercury) should be monitored and evaluated in these parts of Lower Newport Bay, and more data are needed to determine whether impairment exists in areas not previously evaluated.

Comment 6.32 – SR Section 4.2.4 - We believe there is insufficient data to support listing of metals in sediments and tissues for all of Newport Bay.

Response 6.32
Sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment tasks now require continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets are now based on sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged. Sediment Cu should also be monitored and evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.

Based on numerous exceedances of the sediment Cu, Zn and Hg ERMs, the TMDLs and Action Plans require continued monitoring and evaluation of metals in sediments in Lower Newport Bay (marinas, Turning Basin and S. Lido Channel areas) for compliance with the sediment quality objectives, and evaluation of sediment Cu, Zn (zinc) and Hg (mercury) against the ERMs and ERLs for antidegradation analyses.
Board staff found impairment due to As (arsenic) and Cr (chromium) in fish tissue in both Upper and Lower Newport Bay.

Comment 6.33 – SR Section 4.2.4 Table 4-13. 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.

Response 6.33
With respect to Table 4-13 - this table is a modified version of USEPA's Metals Assessment Table 4-2 (Toxics TMDLs – Part H), in which USEPA identified each metal that required a TMDL (left column) and the data supporting that decision (right column) for both the Upper and Lower Bay. Table 4-13 is a revised version of USEPA's Table 4-2 in which Board staff's assessment for each metal was added under USEPA's analysis. In cases where USEPA did not have an assessment for a metal, only Board staff's assessment is presented.

Board staff believe that the findings regarding water column and tissue impairment are well supported by the data presented in the 2016 Staff Report, and by more recent information provided in the City's Attachment 3.

Note that sediments are no longer considered to be impaired based on State Board's current interpretation of the SLP, and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The revised sediment requirements require continued monitoring and evaluation of

sediments in Lower Newport Bay (rather than remediation), based on exceedances of the sediment ERMs and toxicity in areas of the Lower Bay that were not dredged (marinas, Turning Basin and S. Lido channel areas). In addition, the numeric targets were revised to include SQOs based on State Board's EBE Plan-Part I (Sediments). Sediment Cu should also be monitored and evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.

See responses to the City's comments 6.10, 6.15- 6.19, 6.27 and 6.32 above, and Attachment 3.

Comment 6.34 – SR Section 4.2.4 Table 4-13. Copper, zinc, and mercury in sediments should not be listed on the 303(d) list for Lower Newport Bay. There are insufficient exceedances of ERMs 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.

Response 6.34
Sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets are now based on sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged. Sediment Cu should also be monitored and evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.
(Note that Board staff's Impairment Assessment was based on earlier direction from State Board staff that water bodies could be listed for sediment metals (or other contaminants) based on ERM exceedances alone that met the binomial distribution in the SLP. Currently, State Board staff's interpretation is that sediments must be evaluated for compliance with the SQOs, or, if there is insufficient data for SQO evaluation, sediment chemistry data must be paired with toxicity in split samples to list sediments as impaired.)

Note that USEPA already established Zn TMDLs for the Upper and Lower Bay as part of the Toxics TMDLs (2002). Board staff are recommending that an Action Plan for Zn (and Hg) be adopted, and that USEPA depromulgate their Zn TMDLs.
The comments above reiterate those in Attachment 3. See responses to the City's comment 6.27 above, Attachment 3, and Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Comment 6.35 – SR Section 4.2.4 Table 4-13. 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.

Response 6.35
Cu TMDLs promulgated by USEPA in 2002 as part of the Toxics TMDLs are already in place for the

Upper and Lower Bay. Upper and Lower Newport Bay are already listed for Cu on the 303(d) list. In addition, there are sufficient exceedances of the dissolved Cu CTR criterion to keep Cu listed for both Upper and Lower Newport Bay; therefore, Cu TMDLs are still necessary. (See Attachments 4 and 5 – Anchor QEA's study.) No substantial evidence is presented in this comment (or elsewhere in the City's comments) to support the statement that a TMDL is not needed to address dissolved Cu in light of DPR guidance or unspecified regional improvements.

In the absence of the adoption of the proposed Cu TMDLs, the Regional Board is required to implement USEPA's Cu TMDLs. Note that USEPA's Cu TMDLs require a greater reduction of Cu discharges from boats than the revised Cu TMDLs proposed by Board staff (92 vs 60%, respectively). Note also that USEPA's Cu TMDLs are based on data that is much older than the data used in Board staff's Impairment Assessment. In addition USEPA's Cu TMDLs do not include an implementation plan or compliance schedule. The proposed Cu TMDLs, based on newer data, are therefore appropriate and necessary.

Comment 6.36 – SR Section 4.2.4 Table 4-13. Arsenic, zinc, copper, and mercury have no reason to be listed on the 303(d) and should be delisted.

Response 6.36 - It is unclear as to what listing the above comment refers to. No metal except for Cu is currently 303(d) listed, and therefore As, Zn and Hg are not subject to delisting. Sediment Cu, Zn and Hg are addressed in the response to comment 6.34 above, and no impairment was found for sediment As. Arsenic (As) in fish tissue is addressed in comment 6.37 below.

Comment 6.37 – SR Section 4.2.4 Table 4-13. 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.

Response 6.37 - Board staff do not propose to list Cu or Hg for fish tissue.
However, Board staff found impairment due to As and Cr (chromium) for fish/mussel tissue in both Upper and Lower Newport Bay, and Zn for fish/mussel tissue in the Lower Bay based on exceedances of the fish/mussel tissue guidelines.
See responses to the City's comments in Attachment 3, and 6.11-6.14, 6.20 and 6.23-6.25 – Attachment 6; and the Irvine Company's comment M4a.

Comment 6.38 – SR Section 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.

Response 6.38 - See responses to the City's comments 6.3 through 6.37 above.

Comment 6.39 – SR Section 4.3 Table 4-15. - Toxicity in water and sediment have not demonstrated impairment and therefore should be removed from table.

Response 6.39 - Toxicity in water is not a requirement for listing in water; a finding of impairment in water requires only that the number of exceedances of the CTR criteria meet the binomial distribution requirement in the SLP.
For sediment impairment, see responses to the City's comments 6.27 and 6.34 above, 3.1 -

Attachment 3, and Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Comment 6.40 – SR Section 5. 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.
*[*Board staff now propose a maximum schedule time of 12 years.]*

Response 6.40 - As stated above, USEPA's Cu TMDLs are already in place (2002). In addition, data evaluated per the SLP show that dissolved Cu continues to exceed the CTR criterion (3.1 µg/L); therefore, Cu TMDLs are still appropriate and necessary. Ongoing actions that result in the reduction of metals can be included in the strategies proposed and implemented by responsible parties to achieve the TMDLs. See also responses to the City's comments 6.3 through 6.37 above.

Comment 6.41 – SR Section 5. Past actions have made a lot of progress
Dredging in Upper and Lower Newport Bay
Ongoing municipal separate storm sewer systems (MS4s), source reductions
Clean boating programs
Regional air quality improvements

Response 6.41 - First, Anchor QEA does not explain what is meant by the term "progress". Second, the progress made by each of the above actions has not been documented with respect to reductions in Cu concentrations in the Bay or reductions in Cu discharges to the Bay. The Bay remains impaired due to dissolved Cu.

Dredging in the Upper Bay –sediment Cu does not exceed the ERM guidelines in the Upper Bay (except in marina areas in the lower Upper Bay (marinas).

Dredging in the Lower Bay –most sediment Cu exceedances of the ERM occurred in marinas, the Turning Basin and S. Lido Channel areas in the Lower Bay. Marinas, the Turning Basin and S. Lido Channel areas were NOT dredged when the Lower Bay was dredged in 2012. The County of Orange has 3 Lower Bay sites: Turning Basin, Harbor Island Reach (HIR) and Rhine Channel (which is addressed in a separate TMDL). Only the County's HIR site was dredged; therefore, sediment data prior to 2012 from the Turning Basin site are valid.

Ongoing MS4s source reductions – both Board staff's proposed Cu TMDLs and USEPA's Cu TMDLs show that the largest source of Cu to the Bay is recreational boats. While the reduction of Cu brake pads may somewhat reduce Cu inputs from San Diego Creek and Santa Ana Delhi, the MS4 source allocations are separate from Cu discharges from boat hull paints, and no reductions are currently required for Cu discharges from tributary and storm drain runoff. The Cu TMDLs only required that the allocation for tributary and storm drain runoff continues to be met.

Clean boating programs –Board staff are not aware of any clean boating programs in Newport Bay, except for the boater education programs that were part of a 319(h) Cu Reduction grant managed by Coastkeeper. In addition, the City passed a Resolution (No. 2010-53) to encourage the use of non-Cu paints. These clean boating efforts should be included as part of the strategies proposed and implemented by responsible parties to meet the TMDLs.

Regional air quality improvements –Again, the largest source of Cu to the Bay is recreational boats. Cu

from direct air deposition is not a substantial source to the Bay. Air deposition onto surrounding areas is included in the runoff from major tributaries.

Comment 6.42 – SR Section 5. Anticipated and expected future actions that will reduce copper in the coming years include:
Continued MS4 reductions/controls
Brake pad initiative will reduce copper and zinc throughout California
Future maintenance dredging may contribute to deepening of harbor and increases in circulation.

Response 6.42 - See responses to comment 6.41 above.

Comment 6.43 – SR Section 5. 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).

Response 6.43 - Anchor QEA does not explain what the environment is "naturally recovering" from, or the reductions that have been demonstrated by long-term monitoring programs. Again, the largest source of Cu to the Bay is recreational boats, and dissolved Cu concentrations continue to exceed the Cu CTR criterion. No substantial reductions in dissolved Cu have been demonstrated since USEPA promulgated the Cu TMDLs in 2002.

Comment 6.44 – SR Section 5. 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.

Response 6.44
The above statement is not necessarily correct, and there is no substantiation of the claim that significant source reductions will occur due to DPR's restrictions. DPR's leach rate restrictions for Cu paints (AFPs) may provide some reductions in Cu discharges from boats if the Cu paints currently used in the Bay have leach rates that are higher than DPR's maximum allowable leach rate of 9.5 µg/cm^2/d (see reference 1). Note that DPR's letter states that the use of the leach rate of 9.5 µg/cm^2/d inherently includes the use of BMPs, and notes that if these BMPs are not used then compliance will not be achieved. These BMPs include the use of soft cloths for hull cleaning, the use of slip liners, diver training and certification, and the development of boater education program(s).
In addition, DPR's determination letter states that [impaired] marinas with boat numbers higher than 1270 (marina size for which the 9.5 µg/cm^2/d leach rate with BMPs will achieve compliance) will need to convert 12% or more boats to non-Cu alternatives to meet the CTR criterion. (See reference 1.)

Leach rate calculations for Newport Bay, Marina del Rey and Shelter Island show that DPR would have to reduce the leach rate for Cu AFPs to less than 3 µg/cm^2/d to meet these Cu TMDLs (Staff Report 2016). If the implementation of DPR's maximum leach rate results in some reduction of Cu discharges to the Bay, control actions by responsible parties can be tailored accordingly.
See also responses to the City's comments 1, 2 and 5.1 – City Letter.

Comment 6.45 – SR Section 5.3.1. The loadings from copper antifouling paints (AFPs) were incorrectly calculated (see technical memorandum: Newport Bay TMDL Copper Leachate Draft Memo_101216_v2.PDF).

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.

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.

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 (µg/cm^2/ day). It further determined that 58% of these AFP products were greater than the recommended maximum leach rate of 9.5 µg/ cm^2/ day. 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 9.5µg/cm^2/ day provided that boat hull cleaning used suitable BMP methods (soft 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.

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.

Response 6.45 - These comments reiterate the City's comments in Attachment 1. Board staff do not believe that the calculations are incorrect. See responses to comments in Attachment 1.

Comment 6.46 – SR Section 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.

Response 6.46 - Sediment metals (Cu, Zn, Hg) exceeded the ERM guidelines in marinas, the Turning Basin and S. Lido Channel areas in the Cu-Metals Marina study and the Metals Sediment study. These areas were not dredged in 2012 (except for the Harbor Island Reach site); therefore, these data are valid for the assessment of sediment chemistry.

See also responses to the City's comments in 6.10, 6.15, 6.17, 6.29, 6.32, 6.34 and 6.39 above, Attachment 3, and Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Comment 6.47 – SR Section 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.

Response 6.47
There are no references to support the above statement.
Allen et al's study (2008) showed elevated concentrations of some metals in algae that could contribute to elevated fish/mussel tissue concentrations. Note that Section 5.3.6 – Algae and Other Vegetation is actually part of the Source Analysis Section (5.3) of the Staff Report 2016. Section 5.6.3.6 and Task 6 in the Implementation Plan (Conduct Special Studies) actually discuss potential recommended studies for responsible parties to conduct if other implementation strategies are not sufficient to reduce Cu in Newport Bay. See also responses to the City's comments in Attachment 2.

Comment 6.48 – SR Section 5.4. The City has a hydrodynamic model that can more accurately assess the loading capacity for copper. It should be used.

Response 6.48
First, Board staff is unaware of the City's hydrodynamic model; no reference is given for this model, and no documentation was provided to support the assertion that the City's model can more accurately assess the Cu loading capacity.
Second, the proposed Cu load allocations in the proposed Cu TMDLs are based on the RMA model used in USEPA's Cu TMDLs. After much discussion with a number of modeling experts, Board staff determined that since the carrying capacity values from the RMA model are only estimates, the substantial cost and staff time to construct another model would be an unwise use of state resources.

With this said, it is important to remember that the TMDLs are expected to be reviewed and refined over time, based on new information and data. The City is free to make recommendations for such review and refinement based on a different model, provided that the recommendations are supported by substantial data. Further, as has been noted repeatedly in the preceding responses, Board staff have revised the language in the proposed Cu TMDLs to state that "Compliance with the Cu TMDLs will be considered to be achieved if the dissolved Cu CTR criterion of 3.1 µg/L is consistently achieved (i.e. no impairment is demonstrated per the assessment methodology in the State Listing Policy (SLP)) and no further reduction in Cu discharges will be required, even if the Cu load allocation for boats is not yet achieved. If, however, the Cu allocation for boats is achieved, but the CTR criterion is not consistently achieved, further reduction in Cu discharges from Cu antifouling paints (AFPs) will be required."
(This language would also apply to an approved adjusted Cu CTR value that may be developed through a Water Effects Ratio (WER) determination.) This provision makes moot the concerns regarding the accuracy of estimates of the number of boats in the Bay, the estimated Cu loading from those boats, and the extent of the use of BMPS.

Comment 6.49 – SR Section 5.5. 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).
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.

LA for boats. Because the MOS was overestimated, in order to make the TMDL equation equitable (TMDL = WLA + LA + MOS), 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.

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.

Response 6.49
The margin of safety (MOS) was calculated correctly, and followed the methodology in USEPA's Cu TMDLs. Note, however, that the MOS has been reduced to 10%, with a resulting decrease in the MOS Cu allocation to 1165 lbs/yr.
The comments above reiterate the City's comments 5.3 – City Letter, 1.5 and 1.6 – Attachment 1, and 6.49 – Attachment 6. See responses to these comments.

Comment 6.50 – SR Section 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).

Response 6.50 - The allocation for boats is the remainder of the total allowable Cu load minus the other allocations; this is the same method that USEPA used to calculate the Cu allocation for boats in their Cu TMDLs (2002).

Comment 6.51 – SR Section 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.

Response 6.51 -First, some nontoxic alternatives to Cu AFPs are available and effective. Also available are lower leach rate Cu AFPs. Nontoxic AFPs are the preferred option over non-Cu AFPs, since non-Cu AFPs with other biocides, such as Zn or organics, may result in aquatic toxicity; therefore, the use of non-Cu AFPs that include other biocides is not recommended. The use of lower leach rate Cu AFPs may also decrease Cu discharges from boats, but the extent of the reductions depends on the the leach rates of the Cu AFPs now in use.

Note that the Port of San Diego conducted a study to determine the viability of using nontoxic or non-Cu AFPs in place of Cu AFPs, and have recommended some viable nontoxic and non-Cu AFPs. When the alternative paint project was completed, the Port then conducted a project to convert boats from Cu to non-Cu AFPs in partial compliance for the Shelter Island Cu TMDL. Intersleek 900, a nontoxic paint,was the paint of choice for boat conversions and appears to be a viable paint, so there is at least one nontoxic paint that is available and viable. (Note that since the Port's study, Intersleek 900 has been reformulated to Intersleek 1100, which is also a nontoxic paint.) The State of Washington also

conducted a study on alternative paints. In addition, the County of Los Angeles will be converting 100 boats using Cu AFPs to nontoxic paints in 2 years.
Port of San Diego alternative paint study
https://www.portofsandiego.org/environment/copper-reduction-program.html
State of Washington alternative paint study
https://www.northwestgreenchemistry.org/event/fourth-stakeholders-call-wa-state-antifouling-boat-paint-aa
County of Los Angeles Cu Proposed Plan
http://www.waterboards.ca.gov/losangeles/board_decisions/basin_plan_amendments/technical_documents/96_New/Revised_SIPJustificationReport__041817_final_RB.PDF

Second, the conversion of boats from Cu AFPs to nontoxic AFPs is one of the recommended tasks in Board staff's Implementation Plan for the Cu TMDLs. Compliance with the Cu TMDLs may be achieved, at least partially, by strategies other than, or in addition to, the conversion to alternative AFPs. (This conversion strategy is consistent with the City's own Resolution (No.2010-53), passed in June 2010, to promote the use of Cu-free boat paints (Cu-free AFPs). It is also consistent with the mitigation measures outlined in DPR's letter of determination for a maximum allowable leach rate for Cu AFPs.) Other strategies include the use of BMPs for hull cleaning and diver certification programs, dry docking and/or incentives for conversions to nontoxic paints. Note again that the Cu TMDLs require the responsible parties to develop their own proposed implementation plan(s) and schedule in which they must consider the recommended tasks identified in the proposed Cu TMDLs Implementation Plan, but the TMDLs do not require responsible parties to begin with, or even include the conversion of Cu to nontoxic paints. (Note that DPR's determination states that in larger marinas (greater than 1270 boats), conversions to non-Cu paints will likely be necessary. The conversion of some boats to nontoxic paints may, therefore, be necessary since approximately 5,000 boats occupy slips or moorings mostly in Lower Newport Bay.) Once again, the Regional Board cannot dictate the method or manner of compliance.

See also responses to the City's comments 5.2 – City Letter, and 7.4 (III) and 7.8 (VIII) – Attachment 7.

Comment 6.52 – SR Section 5.6.2.1. Regional Board outreach was not sufficient. The TMDL was a surprise to most named responsible parties.

Response 6.52
This statement is not true, and is a surprise to Regional Board staff. First, both the City and County participated in and commented upon the Toxics TMDLs (including Cu TMDLs) that were promulgated for the Bay by USEPA in 2002. USEPA conducted an informational workshop on their proposed TMDLs at the City of Newport Beach City Council Chambers; therefore, the City was clearly aware of TMDL regulatory efforts for the Bay.
Board staff provided working draft copies of the proposed draft Cu TMDLs documents, as they were being developed, to both the City and the County to solicit input and recommendations. Clearly, the development of revised Cu TMDLs by Board staff was known to the key responsible parties. As indicated in the Staff Report 2016, Board staff expect that the City and County of Orange will take lead roles in the implementation of these TMDLs.

Board staff conducted two CEQA Scoping meetings on July 23, 2015, and an informational presentation to the Regional Board on July 24, 2015, and all stakeholders, including the City, were informed via email and posting on the Regional Board website. City staff attended one CEQA meeting and the Regional Board meeting. Along with these meeting announcements, Board staff

established a Cu email list (lyris) to keep stakeholders, including the City, informed of actions relating to Cu and other metals.

Following these meetings, in the fall of 2015, Board staff supplied the City (and County) with working draft copies of the Impairment Assessment and proposed draft Cu TMDLs, that included an Implementation Plan, and conducted a conference call with the City to discuss these actions. At that time, Board staff requested that the City review the proposed Implementation Plan for the Cu TMDLs, review and consider Board staff's recommended strategies, and develop their own Implementation Plan(s). Board staff did not receive such a plan or other input from the City until the submittal of these comments.

A Regional Board hearing to adopt the Cu TMDLs (and Action Plans for Zinc (Zn), Mercury (Hg), Arsenic (As) and Chromium (Cr)) was then set for October 28, 2016, and on August 25, 2016, approximately one year after the initial CEQA Scoping meetings and RB presentation, Board staff published a Notice of Public Hearing/Notice of Filing, Draft Basin Plan Amendments, Draft Metals Staff Report, and Draft Substitute Environmental Document for a Regional Board hearing for October 28, 2016. Due to the extensive and comprehensive comments received by Board staff, the Regional Board hearing was changed to a workshop, and the Cu TMDLs and Metals Action Plans were presented to the Board. Many stakeholders, including the City and County, presented their concerns. In short, Board staff have conducted public outreach for these Cu TMDLs and Action Plans.

Stakeholder comments are posted on the Board's website, and Board staff have completed these responses to the comments received. The initial Basin Plan Amendments (BPAs) and Substitute Environmental Document (SED) were also revised based on these comments, and a Supplemental Staff Report developed. The revised documents, including revised Basin Plan Amendments, a revised Substitute Environmental Document and a Supplemental Staff Report, were posted on the Board's website on July 10, 2018 in anticipation of an adoption hearing on October 19, 2018.
Due to the comments received in August 2018, this Regional Board hearing has been currently postponed.

Finally, there have been a number of studies and actions initiated by Board staff to address Cu and other metals in the Bay; the City was always informed of studies and actually partnered with Board staff and Coastkeeper in at least 3 of these studies.
These studies include:

- *Evaluation of data and methodology of USEPA's Metals TMDLs (including Cu)*
- *Copper-Metals Marina Study (2007) –the City was informed of this marina study*
- *Newport Bay Stormdrain Metals Study (2010)*
  –the City was informed of this study and City permission was required for Coastkeeper to sample stormwater runoff from some manholes in City streets
- *Copper Reduction in Lower Newport Bay Study (2013)*
  --in this study, Board staff and Coastkeeper partnered with the City to convert boats from Cu to nontoxic hull paints
  --this study was conducted in Balboa Yacht Basin (a City owned marina), and required permission from the City to conduct this study
  --this study also this entailed close cooperation between Coastkeeper and the City, for Coastkeeper to conduct mailout campaigns and boater education meetings
  --the City also had boat conversion information in their harbor office to give to boaters, and a sign on the City boat about this project
  -- the City also passed Resolution No.2010-53 to encourage boaters to convert from Cu to

non-Cu hull paints

- *Metals Sediment Study in Lower Newport Bay (post-dredging) (2014) –the City was informed of this study as Board staff and Coastkeeper required maps of proposed and completed dredge sites to determine project sampling sites*
- *Evaluation of metals data and development of the Metals Impairment Assessment --the Impairment Assessment was shared with the City following the July 2015 Board meeting at which the proposed revised Cu TMDLs were presented.*

We look forward to our continued work with the City especially with respect to the Cu TMDLs and Metals Action Plans in the Bay.

Comment 6.53 – SR Section 6.2. Recent sediment chemistry data from the QC Monitoring Program (Mass Loading Station, and Wetland and Estuary elements), Bight '13 Regional Monitoring Program, QC 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.

Response 6.53 – Board staff agree that the sediment chemistry data from the studies listed above do not support a finding of impairment for As and Cr, and the remediation of sediment due to As and Cr is not and has never been part of the As and Cr Action Plans. Sediment Zn and Hg did, however, exceed the ERM guidelines in several studies, and therefore continued monitoring and evaluation of sediment Zn and Hg is warranted especially in marinas and the Turning Basin/S. Lido Channel areas.
The comments above reiterate the City's comments 6.10, 6.15-6.19, 6.27, 6.32, 6.34, 6.36 and 6.39 above and Attachment 3. See responses to these comments.

Comment 6.54 – SR Section 7.0 BPA [and] 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.

Response 6.54 - The comments above reiterate the City's comments in Attachment 1. See responses to these comments.

Comment 6.55 – SR Section 8.3 - Cost Considerations. 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.

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.

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.

Response 6.55
We appreciate the cost information provided by the City. Board staff recognize that there will be costs associated with the implementation of these TMDLs and Action Plans.
Note that USEPA's established Cu, Zn (zinc), Pb (lead) and Cd (cadmium) TMDLs would also require the expenditure of funds; and if these proposed Cu TMDLs and Action Plans are not approved by the Regional Board, the Board is obligated to require implementation of all USEPA's Metals TMDLs, including Cu, Zn and Pb for the Upper and Lower Bay, and Cd for the Upper Bay. (Recall that Board staff found no impairment for Cd and Pb, and are recommending revised TMDLs only for Cu, and Action Plans for Zn, Hg, As and Cr.)
In light of these costs, and the time needed to consider appropriate and reasonable TMDL compliance strategies, Board staff has recommended an extended compliance schedule of 12 years for the Cu TMDLs. Further, the proposed Implementation Plans for the TMDLs and Action Plans requires that responsible parties, including the City, develop their own implementation plan(s) and schedule with proposed strategies to achieve compliance with the TMDLs. Cost considerations can be factored into the proposed strategies and implementation schedules. (In addition, some of the recommended tasks in the 2016 BPAs have been removed, as described in the Supplemental Staff Report.)

The proposed Cu TMDLs <u>do not ban</u> the use of Cu antifouling paints (AFPs). Rather, the proposed TMDLs (and the Cu TMDLs already established by USEPA in 2002) require the r<u>eduction of Cu discharges from Cu AFPs on boats</u>. This may be accomplished, in part, by the use of Best Management Practices (BMPs), including the use of soft hull-cleaning cloths, container/filter hull cleaning methods, and/or lower leach rate Cu-based AFPs; and by the conversion of Cu AFPs to nontoxic or lower leach rate Cu AFPs for some percentage of the boats. The proposed Cu TMDLs Implementation Plan encourages the City and County to consider the use of incentives for boaters to convert from Cu AFPs to nontoxic or lower leach rate Cu AFPs as one of the strategies that may be included in their own proposed implementation plan.

Note again that Toxics and Cu TMDLs for Marina del Rey and Shelter Island have already been adopted by their Regional Boards (Los Angeles and San Diego, respectively); therefore, the assertion that Newport Bay will be affected by Cu TMDLs requirements far in advance of other harbors is simply not correct. (The comment also does not specify the legislation referenced in the last sentence of this comment.) In addition, the proposed Cu TMDLs allow 12 years for compliance which is more time than the time allowed in the Marina del Rey Toxics TMDL.

Comment 6.56 – SR Section 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.

Response 6.56 - Peer review is not required if a new application of an adequately peer-reviewed product does not depart significantly from its scientific approach. The recommended Cu TMDLs used the same scientific approach and peer-reviewed models that USEPA used in their Toxics TMDLs that included Cu and other metals (2002). Peer-reviewed models used by USEPA to calculate load allocations for Cu were also used in these Cu TMDLs. Peer-reviewed data for Cu discharges from two paint types determined by the US Navy and loading equations from USEPA's TMDLs were used to calculate Cu loading. Therefore, additional scientific peer review of the proposed Cu TMDLs is neither necessary nor required.

Comment 6.57 – SR Section 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 Reginal Board outreach was not sufficient. The TMDL was a surprise to most named responsible parties.

Response 6.57
Again, this comment is a surprise to Board staff. See responses to the City's comment 6.52 above. Board staff have not received written comments on the proposed Cu TMDLs prior to this present submission, despite solicitation of comments from the City on working draft documents. Board staff have actively solicited input from the City but received no such input until this submittal of the City's written comments.

Attachment 7: Greg Newmark, Meyers Nave, October 14,2016

Comments Regarding Basin Plan Amendments for Copper TMDLs and Non-Metals Action Plans for Zinc, Mercury, Arsenic and Chromium in Newport Bay, California

This law firm has been retained by the City of Newport Beach (City) to provide comments on legal deficiencies in the Basin Plan Amendments for Copper TMDLs and Non-Metals Action Plans for Zinc , Mercury, Arsenic and Chromium in Newport Bay, California, (Copper TMDL) being considered for adoption by the California Regional Water Quality Control Board, Santa Ana Region (Regional Board). Our comments are set forth in this letter.

I. Introduction
Comment 1
"…the Copper TMDL is subject to numerous legal defects such that it cannot be lawfully adopted in its current form.

First, the Copper TMDL is based upon an implementation plan that would require the City and other local agencies to ban Copper Anti-Fouling Paint even though the Legislature has expressly forbidden regulation of registered pesticide use by any agency other than the Department of Pesticide Regulation.

Response 1.1 - This assertion is not correct. The proposed Cu TMDLs do not require or even recommend that the City and/or other local agencies ban Cu AFPs.

See responses to the City's comments 7.1 – 7.3 below, and 1.2 and 5.1 - City letter.

Second, the Copper TMDL unlawfully requires nearly all the boats in Newport Bay to convert to nontoxic anti-fouling paints even though viable alternative products are essentially unavailable.

Response 1.2 -
*It is incorrect that "*the Copper TMDL unlawfully requires nearly all the boats in Newport Bay to convert to nontoxic anti-fouling paints".
The Cu TMDLs do not require any boats in Newport Bay to convert to nontoxic antifouling paints, but includes the conversion of boats from Cu to nontoxic AFPs (or lower leach rate Cu AFPs) as a recommended strategy to reduce Cu discharges from boats. Again, Board staff's Implementation Plan requires the City and other responsible parties to develop their own implementation plan(s) to achieve the TMDLs. Board staff's proposed TMDLs identify a number of recommended strategies whereby Cu discharges from Cu AFPs could be reduced; these strategies must be considered, but are not required to be included in the responsible parties' implementation plan(s).

*In addition, the comment "*even though viable alternative products are essentially unavailable" *is not correct since viable alternative paints are available and have been used in Shelter Island Yacht Basin and Marina del Rey as part of compliance with the SIYB Cu and Marina del Rey Toxics TMDLs.*
See also response to the City's comments 7.4 below, 5.2- City letter, and 6.51 – Attachment 6.

Third, the Copper TMDL's margin of safety is too large and is unsupported.

Response 1.3 - The margin of safety initially proposed was 20%, and was identical to the MOS employed by USEPA in their Cu TMDLs for the Bay. While this margin of safety is thus supportable, it has nevertheless been reduced to 10%.
See responses to the City's comments 7.5 below, 5.3 – City letter, 1.5 – Attachment 1, and 6.49 – Attachment 6.

Fourth, the implementation schedule unlawfully requires early investments that may prove unnecessary.

Response 1.4 - The implementation schedule does not unlawfully require early investments. See responses to the City's comment 7.6 below, and 5.4 – City letter.

Fifth, the Copper TMDL would impose unfunded state mandates on the City that the state is constitutionally required to reimburse.

Response 1.5 - The Copper TMDLs do not impose unfunded state mandates. See responses to the City's comments 7.7 below, and 5.5 – City letter.

Sixth, even if a TMDL is to be adopted, it is unlawful to regulate all of Newport Bay when only isolated areas even arguably exceed California Toxics Rule requirements.

Response 1.6 - See responses to the City's comment 5.6 – City letter.

Finally, the Substitute Environmental Document does not comply with the California Environmental Quality Act (CEQA).

Response 1.7 – See responses to the City's comments 7.9.1 – 7.9.6 below, and 5.7 - City letter.

II. The Copper TMDL Unlawfully Attempts to Force Local Agencies to Solve a Conflict Caused by the Regional Board's Failure to Convince the Legislature or its Sister State Agencies to Ban Copper Anti-Fouling Paint

Comment 7.1 - A. The Legislature Explicitly Preempted Any Attempts by Local Government Agencies Such as the City to Regulate the Use of Registered Pesticides Such as Copper Anti-Fouling Paint

"…the Copper TMDL Staff Report Proclaims that "[t]his TMDL cannot be met unless Cu loading from boats is reduced or eliminated." (Staff Report, p. 68, emphasis deleted.). In order to accomplish this objective, the Staff Report indicates that "Dischargers responsible for reducing and/or eliminating Cu discharges from AFPs to meet the TMDL load allocation (LA) include ... the City of Newport Beach ...." (Id. at p. 69.) Given that the Legislature has declared actions by the City do so [*sic*] are "void and of no force or effect," it is obvious that the Copper TMDL is fatally flawed and must be revised. (Food & Agr.Code, § 11505.1, subd. (a).)"

The Legislature clearly and unambiguously stated its intent to preempt any and all attempts by other government agencies to regulate the use of pesticides in Food and Agriculture Code section 11501.1, subdivision (a):

> This division and Division 7 (commencing with Section 12501) are of statewide concern and occupy the whole field of regulation regarding the registration, sale, transportation, or use of pesticides to the exclusion of all local regulation. Except as otherwise specifically provided in this code, no ordinance or regulation of local government, including, but not limited to, an action by a local governmental agency or department, a county board of supervisors or a city council, or a local regulation adopted by the use of an initiative measure, may prohibit or in any way attempt to regulate any matter relating to the registration, sale, transportation, or use of pesticides, and any of these ordinances, laws, or regulations are void and of no force or effect.

The statutory language establishes that the Legislature invoked the broadest doctrine of preemption, field preemption. "If the subject matter or field of the legislation has been fully occupied by the state, there is no room for supplementary or complementary local legislation, even if the subject were otherwise one properly characterized as a 'municipal affair.'

[Citations.]" (*Lancaster v. Municipal Court* (1972) 6 Cal.3d 805, 808.)

In addition, the Legislature's intent to preempt local regulation is stated expressly, so there is no need to evaluate if a comprehensive regulatory scheme implies an intent to occupy the field. Indeed, in an unrelated implied preemption case, the California Supreme Court noted section 11501.1 was adopted to overturn the High Court's decision in *People v. County of Mendocino* (1984) 36 Cal.3d 476 that California's pesticide regulation program did not impliedly occupy the filed [*sic*] such that local regulation would be preempted. (*IT Corp. v. Solano County Bd. of Supervisors* (1991) 1 Cal.4th 81, 93, fn. 9.)

As the Staff Report acknowledges, Copper Anti-Fouling Paints are regulated as pesticides by the Department of Pesticide Regulation as "the lead state agency." (Staff Report, p. 71.) Thus, Food and Agriculture Code section 11501.1 applies, express and complete preemption is imposed, and no action by the City "may prohibit or in any way attempt to regulate any matter relating to the ... use of pesticides." Any such actions would be "void and of no force or effect."

Further, the Regional Board's attempts to force the City to regulate the use of Copper Anti-Fouling Paints notwithstanding preemption by the Food and Agriculture Code would expose Newport Beach to lawsuits by the Department of Pesticide Regulation and potentially private entity lawsuits. In Food and Agriculture section 11501.1, subdivision (b), the Legislature imposed a mandatory duty on the Department of Pesticide Regulation to sue any local government entity that, after notification, does not repeal a preempted ordinance or regulation. (Food & Agr. Code,§ 11505.1 [*sic*], subd. (b) ["the director shall maintain an action for declaratory relief to have the ordinance or regulation declared void and of no force or effect, and shall also bring an action to enjoin enforcement of the ordinance or regulation." (Italics added)].) Likewise, if the City is forced flout the preemptive effect of section 11505.1, it may be exposed to lawsuits by private parties affected by City actions to ban Copper AntiFouling Paints. In either case, the City would contend the Regional Board is a necessary party and must be joined in the action as a defendant, but it is nonetheless inappropriate to subject Newport Beach to such potential litigation.

Response 7.1
The proposed Cu TMDLs do not require the City or other responsible parties to take actions that contravene Food and Agricultural Code section 11501.1. Section 11501.1 is not "a limitation on the authority of a state agency or department to administer or enforce or administer any law that the agency or department is required to enforce or administer." (See Food & Agr. Code, § 11501.1, subd. (c).) The Regional Board has the authority and responsibility to address waste discharges of Cu resulting from the use of Cu AFPs. (See, e.g., Wat. Code, §§ 13263, 13304.) The Regional Board also has the authority to adopt the proposed Cu TMDLs. (See Wat. Code, §§ 13240, 13242; 33 U.S.C. § 1313(d).)

The proposed Cu TMDLs address the discharge of Cu and do not require the City or other responsible parties to prohibit the sale or use of registered pesticides. If adopted, the proposed Cu TMDLs would require the City and other responsible parties to develop and implement a plan(s) to achieve the Cu TMDLs. The Cu TMDLs include recommended strategies to reduce Cu discharges that the responsible parties must consider in developing their implementation plan(s). The recommended strategies include consideration of controls and incentives in marina leases and other mechanisms that could affect the use of Cu AFPs, but do not include a recommendation (or requirement) that the City prohibit or regulate the sale or use of Cu AFPs.

Furthermore, DPR's Determination of Maximum Allowable Leach Rate included recommended mitigation measures. One of the recommended mitigation measures is the fostering of incentive programs to convert Cu-painted boat hulls to alternative paints. DPR contemplated that TMDL responsible parties and dischargers would be the primary parties involved with such incentives.[4]

See responses to the City's comments 1, 2 and 5.1– City Letter, and 6.44 – Attachment 6.

Comment 7.2 - B. The Copper TMDL Unlawfully Infringes on the Department of Pesticide Regulation's Jurisdiction By Attempting to Force the City to Undermine the Department's Quasi- Legislative Determination on How to Regulate Copper Anti-Fouling Paint

"The Copper TMDL unlawfully attempts to usurp the Department of Pesticide Regulation's exclusive authority under state law to regulate the use of registered pesticides because the TMDL is designed to do just that: the Staff Report states that "boats must be converted from Cu to nontoxic AFPs to achieve the Cu TMDLs." (Staff Report, p. 59.) Indeed, the Staff Report acknowledges that "[t]he California Department of Pesticide Regulation (DPR) and USEPA have the authority to restrict the sale and use of Cu AFPs." (Staff Report, p. 69.) Even though, as the Staff Report states, the Regional Board has "the authority to regulate the discharge of Cu into waters," it is unlawful for the Regional Board to exercise that authority in a manner that effectively bans the use of Copper Anti-Fouling Paints when the Department of Pesticide Regulation, the agency with rightful authority to govern the use of such registered pesticides, declined to adopt just such a ban. "To be valid, [quasi-legislative] administrative action must be within the scope of authority conferred by the enabling statute." (Association for Retarded Citizens v. Department of Developmental Services (1985) 38 Cal.3d 384, 391 [citations omitted].) The Copper TMDL violates this basic principle of administrative law.

The Legislature has plainly granted exclusive authority to the Department of Pesticide Regulation to regulate the use of registered pesticides like Copper Anti-Fouling Paint. As noted, the Department's comprehensive regulatory scheme is expressly intended to "occupy the whole field of regulation regarding the ... use of pesticides." (Food & Agr. Code,§ 11505.1, subd. (a).) Further, AB 425 and its legislative history demonstrate that the Legislature entrusted the Department of Pesticide Regulation to exercise its policy judgment balancing the water quality impacts of Copper Anti-Fouling Paint use against the important benefits provided by this effective product. Specifically, the Legislature required the Department to establish a maximum allowable leach rate and to make recommendations for mitigation measures to protect aquatic environments. The Department exercised its judgment on these matters, and issued its Determination of Maximum Allowable Leach Rate and Mitigation Recommendations for Copper Antifouling Paints Per AB 425 on January 30, 2014. Indeed, if the Department had attempted to establish an outright ban on use of Copper Anti-Fouling Paints, instead of establishing a maximum leach rate, that action would have been overturned as inconsistent with the legislature's direction. (Association for Retarded Citizens, supra, 38 Cal.3d at 391 ["Thus, if the court concludes that the administrative action transgresses the agency's statutory authority, it need not proceed to review the action for abuse of discretion; in such a case,

[4] DETERMINATION OF MAXIMUM ALLOWABLE LEACH RATE AND MITIGATION RECOMMENDATIONS FOR COPPER ANTIFOULING PAINTS PER AB 425, App'x 2, p. 3 (Department of Pesticide Regulation (DPR) memo from David Duncan to Brian Leahy, January 30, 2014).

there is simply no discretion to abuse. [Citations]."].)

The Copper TMDL's requirements that boats stop using lawfully registered pesticides is inconsistent with acts of the Legislature. "Administrative action that is not authorized by, or is inconsistent with, acts of the Legislature is void." (Association for Retarded Citizens, supra, 38 Cal.3d at 391.)

Response 7.2 – The Cu TMDLs do not undermine or otherwise conflict with DPR's authority to regulate the use and sale of pesticides. DPR's authority to regulate pesticides does not preempt the Regional Board from exercising its authority to regulate the discharge of waste. (See Food & Agr. Code, § 11501, subd. (c).) The proposed Cu TMDLs do not exceed the Regional Board's authority to regulate the discharges of Cu, and moreover, the TMDLs (either the adoption of the proposed TMDLs or the implementation of the 2002 USEPA TMDLs) are required by federal law.

The Cu TMDLs do not require boat owners to stop using Cu AFPs; rather, the Cu TMDLs require the City and other responsible parties to reduce Cu discharges to achieve water quality standards. While the TMDLs necessarily require a reduction of Cu discharges from boats to the Bay to meet applicable water quality objectives, these reductions may be accomplished by employing BMPs for hull cleaning, using lower leach rate Cu AFPs, and/or incentivizing the use of nontoxic paints.

As noted by the City, AB 425 required DPR to determine a maximum allowable leach rate for Cu AFPs and to make recommendations for appropriate mitigation measures to protect aquatic environments. DPR's recommendations included the following mitigation measures: require the use of BMPs for hull cleaning, increase awareness and acceptance of alternatives to Cu AFPs, and foster new and continue to support existing incentive programs to convert from Cu AFPs to alternatives.[5] DPR contemplated that other parties, including the State Water Resources Control Board and the Regional Water Boards, would have primary roles in implementing the recommended mitigation measures.[6] Additionally, DPR's January 2014 determination of a maximum allowable leach rate of 9.5 µg/cm^2/d for Cu boat paints was conditioned on the use of certain BMPs for in-water hull cleaning (i.e., cleaning to be performed with soft-pile carpet and cleaning frequency not to exceed once per month).[7]

The Regional Board also solicited the opinion of DPR on the issue of whether there was a conflict between DPR's regulation of the sale and use of Cu AFPs and the Regional Board's adoption of the proposed Cu TMDLs.[8] DPR opined that there was no legal conflict between DPR's authority to regulate Cu AFPs and the Regional Board's authority to regulate the discharges of Cu through the adoption of the proposed Cu TMDLs.[9] DPR also stated that use of BMPs for in-water hull cleaners, reduced frequency of hull cleaning, and incentives to convert to non-Cu alternative paints were consistent with DPR's recommended mitigation measures.

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[5] DETERMINATION OF MAXIMUM ALLOWABLE LEACH RATE AND MITIGATION RECOMMENDATIONS FOR COPPER ANTIFOULING PAINTS PER AB 425, pp. 3–4, app'x 2 pp. 1–3 (Department of Pesticide Regulation (DPR) memo from David Duncan to Brian Leahy, January 30, 2014).

[6] Ibid. App'x 2,

[7] Ibid. at p. 4.

[8] Hope A. Smythe, Santa Ana Regional Water Quality Control Board, letter to George Farnsworth, Nov. 8, 2017.

[9] George Farnsworth, Department of Pesticide Regulation, letter to Hope A. Smythe, Nov. 16, 2017.

The proposed Cu TMDLs do not exceed Regional Board's authority and do not infringe on DPR's authority to regulate pesticides.

See also responses to the City's comments 1, 2 and 5.1 – City Letter, and 6.44 – Attachment 6.

Comment 7.3 - C. It is Unlawful for the Regional Board to Attempt to Coerce the City Into Banning Copper Anti-Fouling Paints Instead of Pursuing the Established Dispute Resolution Process with the Department of Pesticide Regulation

It is inappropriate and unlawful for the Regional Board to abdicate its responsibility to resolve conflicts with the Department of Pesticide Regulation under an existing agreement and, instead, attempt to force the City to ban Copper Anti-Fouling Paints because the Regional Board failed to convince its sister state agency to do so. The Staff Report references the 1997 Management Agency Agreement between the two state agencies, but it fails to mention that the agreement includes a dispute resolution provision:

> It is the desire of both agencies to establish as speedy, efficient, and informal method for resolving interagency conflicts. Conflicts among staff of the State and Regional Boards, DPR, and the Commissioners, which cannot otherwise be informally resolved, will be referred to the Executive Director of the State Board and the Director of DPR. Conflicts which cannot be resolved at this level may be referred to the Secretary for Environmental Protection. [,r] The Executive Director of the State Board and the Director of DPR will each appoint onestaff member to assist in resolving conflicts. (Management Agency Agreement, p. 14.) Thus, the Regional Board has a procedure available to resolve its conflict with the Department of Pesticide Regulations. It would be arbitrary and capricious, and contrary to law, to end- run that process by compelling local governments to regulate the use of registered pesticides in a manner contrary to the Department of Pesticide Regulation's legislative judgment.

Response 7.3
The proposed Cu TMDLs do not coerce or otherwise require the City or other responsible parties to regulate the use of Cu AFPs, nor do they pose a conflict with DPR that requires dispute resolution. DPR has expressly stated that the proposed Cu TMDLs do not conflict with DPR's authority to regulate pesticides.[10] Furthermore, Regional Board staff have worked closely with DPR in the Statewide Marina IACC workgroup, the Copper Antifouling Paint workgroup, and the Antifouling Strategies workgroup; and have worked with DPR in conducting initial studies to determine whether Cu AFPs should be reevaluated.

See also responses to the City's comments 7.1 and 7.2 above, and 1, 2 and 5.1– City Letter.

Comment 7.4 - III. The Copper TMDL is Unlawful Because Alternatives to Copper Anti-Fouling Paint are Not Effective or Available

The Copper TMDL is unlawful because it depends upon an illusory compliance strategy. In order to implement the TMDL, according to the Staff Report, almost

[10] *See id.*

all of the boats in Newport Bay will have to be converted from Copper Anti-Fouling Paints to nontoxic alter natives . The Staff Report admits that "This conversion depends on the availability, efficacy and cost of nontoxic AFPs/coatings." (Staff Report, p. 80.) While the Staff Report discusses studies that purportedly found these alternative paints are "available and cost-effective, it does not directly state that alternative products are actually commercially available so that the paint conversion required by the Copper TMDL could actually happen.

Even if the Staff Report did make such a finding, it could not be supported by evidence. In fact, the record will show that alternative paints are not commercially available, are not effective and are not affordable. Moreover, as explained in Section VIII, below, the only alternative paints with any degree of effectiveness are not recommended by US EPA's technical contractor because they present serious environmental hazards.

Response 7.4
The proposed Cu TMDLs do not require the conversion of Cu AFPs to non-Cu alternative paints, nor do they require that most of the boats to convert to non-Cu AFPs. (The 60% reduction refers to the reduction in Cu discharges from Cu AFPs, NOT a percent conversion to non-Cu AFPs.)
The proposed Cu TMDLs do, however, include the conversion from Cu AFPs to alternative paints/coatings as one of the recommended strategies to reduce Cu discharges from boats. This recommended strategy is consistent with DPR's determination letter which states that the leach rate will allow scenario 2 marinas (up to 1270 boats) to be in compliance with the CTR chronic criterion (3.1 µg/L), but marinas with higher numbers of boats will need to convert some percentage of non-Cu alternatives to meet the CTR criterion.[11]
The Implementation Plan for the proposed Cu TMDLs requires responsible parties to develop and propose their own implementation plan(s) and schedule(s) that include strategies to achieve the TMDLs. The Cu TMDLs identify recommended strategies that must be considered in the development of the responsible parties' proposed implementation plan(s), including conversions to nontoxic or lower leach rate Cu AFPs. The recommended strategies are not requirements, and thus the TMDLs do not require boats to convert from Cu AFPs to nontoxic alternatives.

See responses to the City's comments 7.2 above, and 5.2 – City's letter.

Second, viable alternative paints are available and have been used in Shelter Island Yacht Basin, by the Port of San Diego, as part of compliance with the SIYB Cu TMDL. See responses to the City's comments 5.2 – City's Letter, and 6.51 – Attachment 6.

Comment 7.5 - IV. The Margin of Safety is Too Large and is Unsupported

The Copper TMDL is improperly and artificially lowered because the Regional Board proposes a margin of safety that is unreasonably large and unsupported. Under Clean Water Act section 303(d)(l)(C), TMDLs must include "a margin of safety which takes into account any lack of

[11] *DETERMINATION OF MAXIMUM ALLOWABLE LEACH RATE AND MITIGATION RECOMMENDATIONS FOR COPPER ANTIFOULING PAINTS PER AB 425 , (Department of Pesticide Regulation (DPR) memo from David Duncan to Brian Leahy, January 30, 2014).*

knowledge concerning the relationship between effluent limitations and water quality." The same requirement is repeated without elaboration in the applicable regulation. (40 § 130.7(c)(l).) The Copper TMDL Staff Report incorrectly summarizes this specific federal requirement by stating that the margin of safety is more generally "to address uncertainty in the analysis." (Staff Report, p. 10.)

The Staff Report does not include any explanation of why such a large margin of safety is appropriate, and none is apparent. The Copper TMDL calculations and analysis rely on multiple layers of "conservative" assumptions, and the California Toxics Rule is further based upon extremely conservative assumptions. There is no justification to add a margin of safety amounting to one fifth of the TMDL on top of all the other conservative assumptions, especially when the observed "impairment" are alleged and isolated technical exceedances of the chronic water quality criterion with little to no actual observed toxicity. Moreover, and importantly, there is no explanation of how the 20% proposed margin of safety "takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality," as required by the Clean Water Act. (33 U.S.C. § 303(d)(l)(C).) As a result, the TMDL and its load allocations are unlawfully and unreasonably low.

Response 7.5 - The Staff Report did include an explanation for the use of the 20% margin of safety (MOS); the 20% margin of safety (MOS) is the same as the MOS used in Cu TMDLs promulgated by USEPA in 2002 and it is reasonable. (The basis for selection of this MOS is described in USEPA's Summary TMDL Document (Total Maximum Daily Loads for Toxic Pollutants San Diego Creek and Newport Bay, June 2001, page 50).)
Having considered the comments concerning the MOS, however, Board staff have revised the MOS to 10% (which reduces the Cu allocation for the MOS to 1165 lbs/yr from 2329 lbs/yr).
See responses to the City's comments 5.3 – City Letter, 1.5 and 1.6 – Attachment 1, and 6.49 – Attachment 6.

Comment 7.6 - V. The Phased Implementation Schedule is Unreasonable, Unsupported and Would Force Substantial Early Investments That May Be Unnecessary

The Copper TMDL requires phased reductions in copper loading from boats beginning almost immediately, with a 20% reduction by the end of year 3, 50% by the end of year seven and so on to an 83% reduction by the end of year 15. (Staff Report, pp. 91-92.) This phased reduction schedule is unreasonable, unsupported and unlawful because it is too short and fails to allow time at the beginning of the schedule to address the many problems with the TMDL and its implementation.

Given that neither the Regional Board nor any of the entities regulated by the TMDL may legally restrict the use of Copper Anti-Fouling Paint, the Regional Board's acknowledgment that the Copper TMDL cannot be achieved without such a restriction, and the Regional Board's further conclusion that "voluntary compliance in Newport Bay is difficult," (Staff Report, p. 82) there is no justification for the failure to provide a reasonable period of time of at least five years when no reductions are required. This time period is necessary since

there is currently no mechanism in place to require the conversion of boats to nontoxic anti-fouling paints or coatings. The current plan to develop a program to "restrict the sale and use of Cu antifouling paints" is for "Regional Board staff and dischargers to work with DPR ...." (Staff Report, p. 102 [italics added].) The City submits that it will likely take considerable time for this vague plan to work, and the Regional Board's failure to allow for such time in its implementation schedule is improper.

Similarly, though the Staff Report asserts that the phased implementation schedule allows for the development of site-specific objectives for copper that would supercede the California Toxics Rule criteria, it would wastefully and unnecessarily require costly and controversial efforts to achieve early reductions in copper loading while these efforts are ongoing. Given that water quality trends already show improvement and there is little evidence of actual toxicity notwithstanding isolated exceedances, there is no justification for forcing these early efforts.

The lack of available, effective and affordable Copper Anti-Fouling Paint alternatives also demands that a reasonable time period be provided at the beginning of the implementation period. The Regional Board apparently intends to force development of new technologies and to create a new market for alternative products. Even so, it is irrational to adopt a schedule that does not allow the proposed new market time to respond and develop.

Response 7.6 – The implementation schedule is reasonable and supported. The schedule takes into account the compliance schedules specified in other established Cu TMDLs in southern California, and the knowledge and experience gained in implementing them. A Toxics TMDL for Marina del Rey (LA), that addressed Cu from boats, was adopted with a 10-year implementation plan. The implementation plan for the Shelter Island Cu TMDL had a longer timeline, but the Cu TMDL for Shelter Island was the first Cu TMDL adopted in southern California, and therefore more time was required to learn how to address Cu discharges from Cu AFPs.

Notwithstanding the reasonableness of the compliance schedule, Board staff have considered the comment, and the reductions in the MOS and number of boats/slips, and have revised the schedule. The proposed compliance schedule now requires a 60% reduction of Cu discharges from boats, as soon as possible but no later than 12 years from the date of USEPA approval. (The initial proposed compliance schedule required an 83% reduction of Cu discharges from boats as soon as possible but no later than 15 years from the date of USEPA approval.) The new compliance schedule provides responsible parties with additional time to comply as it requires a 60% reduction in 12 years, while the initially proposed schedule required an interim 70% reduction in 11 years and a total 83% reduction in 15 years.

The proposed compliance schedule provides sufficient time for boaters to repaint boats on their routine maintenance schedule, for divers to be trained and certified to implement BMPs for hull cleaning, and to develop and implement other strategies to reduce Cu discharges from boats.

With respect to restricting the use of Cu AFPs, see responses to the City's comments 1, 2 and 5.1 – City letter, and 6.44 – Attachment 6.

Requirements 1.1.1 and 1.1.2 in the initially proposed Cu TMDLs "Regional Board staff and the dischargers will work with DPR and USEPA "to restrict the sale and use of Cu antifouling

paints (Cu AFPs) in Newport Bay to achieve/help achieve the load allocation for boats" have been removed.

No substantial evidence has been presented to document improving water quality trends; moreover, even if such evidence exists, the available data indicate continued impairment due to dissolved Cu in Newport Bay, and require the implementation of Cu TMDLs for the Bay, whether USEPA's TMDLs or the proposed TMDLs.

As stated previously, viable alternatives to Cu AFPs are available and are being employed to meet Cu reduction requirements specified in other Cu TMDLs around the state.
See responses to the City's comment 5.2 – City letter.

Furthermore, there are other actions responsible parties can implement to reduce Cu discharges from boats, aside from converting to alternative paints (e.g., using BMPs for hull cleaning).
See response to the City's comments in Section 5.2, 5.4 – City's Letter, and 6.51 – Attachment 6.

Comment 7.7 - VI. The Copper TMDL Imposes Unfunded State Mandates the State Must Reimburse under the California Constitution

The Copper TMDL, if adopted, will impose unfunded state mandates that the state will be constitutionally obligated to reimburse. Article XIII B, Section 6, of the California Constitution, provides that "[w]henever ... any state agency mandates a new program or higher level of service on any local government, the State shall provide a subvention of funds to reimburse that local government for the costs of the program or increased level of service ...." The Copper TMDL will trigger this subvention obligation.

Though the regional boards and State Water Resources Control Board commonly argue that their programs are exempt from the reimbursement requirement under Government Code section 17513, that argument would not be well taken in this case. Federal law does not require the Regional Board to ban the use of Copper Anti-Fouling Paints. Indeed, the Staff Report acknowledges, as it must, that Congress chose to exempt discharges from recreational boats from any permitting requirement under the Clean Water Act. (Staff Report, p. 75, citing 33 U.S.C. 1342(r).) While US EPA is developing a best management practices program under the Clean Boating Act, implementation "is considered to be a 'long term action"' with no time schedule. (Staff Report, p. 91.) Thus, there currently is no federal requirement to ban Copper Anti-Fouling Paints and US EPA permits regulating commercial vessels actually allow the use of Copper Anti-Fouling Paints subject to some conditions. (See Staff Report, p. 76.)

The Copper TMDL would represent a discretionary decision by the state to impose requirements beyond those mandated by federal law. This would be a "true choice" by the state to impose the mandate (Hayes v. Comm'n on State Mandates (1992) 11 Cal.App.4th 1593) and subvention will be required.

Response 7.7 - This comment is appropriately raised with the Commission on State Mandates, and not the Regional Board. If the commenter believes that the Cu TMDLs, when implemented, constitute unfunded mandates, the proper course of action would be to file a test claim with the Commission on State Mandates.

Moreover, the adoption of the Cu TMDLs will not impose an unfunded state mandate subject to subvention under Article XIII B, Section 6, of the California constitution.
The Cu TMDLs are not unfunded state mandates that would be subject to subvention. The Cu TMDLs are not a new program or a higher level of service, the TMDLs are required by federal law, the TMDLs are applicable to all dischargers and not unique to municipalities, and municipalities may be able to levy fees or charges sufficient to cover costs associated with the implementation of the TMDLs. TMDLs are not self-implementing and do not require the City to take specific actions to achieve the TMDLs. Further, the adoption of these Cu TMDLs (or, in the alternative, the incorporation and implementation of USEPA's 2002 TMDLs) is required by section 303(d) of the Clean Water Act and its implementing regulations to address the impairment for dissolved Cu in both Upper and Lower Newport Bay. Federal law requires the Regional Board to adopt TMDLs for Cu for Upper and Lower Newport Bay to correct Newport Bay's impaired status for Cu. The TMDL is adopted solely pursuant to federal law and, therefore, does not represent a "true choice" to regulate above federal law requirements.

Comment 7.8 - VII. It is Improper to Promulgate a TMDL for Entire Bay When Only Certain Water Bodies Within the Bay May Be Even Arguably Elevated Above California Toxics Rule Levels

The Copper TMDL improperly proposes to establish TMDLs for all of Newport Bay notwithstanding the fact that only small areas of the Bay even arguably exceed the California Toxics Rule Criterion Continuous Concentration for copper. Federal regulations governing TMDLs require states to identify "water quality limited segments." (40 C.F.R §§ 130.l(i), 130.7(c)(l) ["Each State shall establish TMDLs for the water quality limited segments identified" on its 303(d) list].) The Clean Water Act does not require the development of a TMDL regulating an entire group of water segments when only a few arguably exceed water quality standards, nor is it proper to do so. Indeed, California's 303(d) list contains numerous examples of water quality limited segments within larger geographic water bodies. To use an example frequently cited in the Staff Report, the San Diego Regional Board developed a Total Maximum Daily Load for Dissolved Copper in the Shelter Island Yacht Basin, not all of San Diego Bay.

Evidence before the Regional Board on the Copper TMDL shows that only small and unique water segments within Newport Bay even arguably exceed the Criterion Continuous Concentration for copper. As demonstrated in technical memoranda submitted with the City's comments (Newport Bay Copper Study: Winter 2016 (Anchor QEA, March 25, 2016); Random Sample Points Methodology (Anchor QEA, July 10, 2015), areas of Newport Bay that were observed to exceed 3.1 µg/L of copper were limited to restricted, closed and often dead end channels like West Newport, the Rhine Channel and Linda Isle.
Though it would be improper for the Regional Board to adopted the Copper TMDL for the many reasons explained throughout the City's comments, if a TMDL is to be adopted, there is no basis to develop and implement a TMDL for the entire Newport Bay under these circumstances.

Response 7.8 - See responses to the City's comment 5.6 - City Letter.

Comment 7.9 - VIII.The Substitute Environmental Document Fails to Comply with CEQA

Comment 7.9.1
As a preliminary matter, the Substitute Environmental Document (SED) is inadequate since its analysis of impacts uses an invalid "baseline."

Environmental analysis under Certified Regulatory Programs such as that applicable to the Regional Board are subject to general principles applicable to CEQA review. One such general principle is that significance of environmental impacts is determined in comparison with a ''baseline" that generally consists of the environmental conditions that exist at the time of environmental review. It is legal error to determine significance of impacts in comparison with a non- existent hypothetically "permitted" condition.

The Regional Board's SED violates this principle throughout the document, repeatedly concluding that the proposed project will have "no" or less than significant impacts in comparison to a baseline that assumes implementation of the US EPA TMDL. (see, e.g., SED at pps. 44, 45, 49, 56, 57.) Since the US EPA's TMDL is not currently being implemented, the SED must be revised to determine impact significance in comparison to a baseline that does not assume the US EPA's TMDL is (or will be) enforced.

Response 7.9.1
The discussion of the regulatory background for the proposed TMDLs that is included in the SED 2016 (Section 3.0) properly recognizes that USEPA promulgated Toxics TMDLs in 2002, including TMDLs for Cu, and that absent the approval of the Regional Board TMDLs, the Regional Board is required to implement USEPA's TMDLs. It is correct that the Regional Board has not taken formal regulatory action(s) to implement the requirements of USEPA's Cu TMDLs with respect to Cu discharges from boats; however, USEPA's TMDLs have been implemented in relevant NPDES permits, including the Orange County MS4 permit.[12] The TMDL-related permit requirements in the Orange County MS4 Permit include monitoring and evaluation, a key implementation task in the proposed TMDLs (and Action Plans). In addition, while no formal regulatory action(s) have yet been taken to implement USEPA's Cu TMDLs requirements for Cu discharges from boats, Board staff have collected data and worked with DPR to assist in the initiation of the reevaluation of Cu AFPs by DPR; worked with the Statewide Marina IACC workgroup to attempt to develop a statewide marina permit; and worked with DPR to develop restrictions on Cu AFPs. Board staff have also been working with the City of Newport Beach and other responsible parties on a voluntary basis to monitor and evaluate Cu (and other metals) concentrations in marina and channel areas. Board staff and Coastkeeper conducted a Cu-Metals Marina Study to identify Cu and other exceedances in water and sediments, in a subset of marinas and the Turning Basin/South Lido channel areas; a boat conversion project to convert boats from Cu to nontoxic AFPs in a target marina in Lower Newport Bay; and a Metals Sediment Study to determine metal concentrations in post-dredged sediments and some marinas. (See Board Staff's Impairment Assessment in the Staff Report 2016.)

The environmental analysis in the draft SED has been revised as appropriate to address the environmental baseline concern identified.

[12] *Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the Incorporated Cities of Orange County within the Santa Ana Region - Area-wide Urban Storm Water Runoff - Orange County, Order No. R8-2009-0030 as amended by R8-2010-0062, at pp. 14–18.*

Comment 7.9.2
More particularly, the SED's impact analysis is flawed because it fails to properly account for or analyze the foreseeable significant impacts of a key part of its recommended compliance program: the conversion of boats from Copper Anti-Fouling Paint to allegedly "non-toxic" alternative paints. The SED does not identify any such "non-toxic" non-Cu AFPs. Staff report references Port of SD alternative paint study AND Port of SD Cu reduction project (that converted boats from Cu to nontoxic paints) for the SD Cu TMDL.

In fact, the Washington State Department of Ecology has concluded that there are no currently available non- toxic alternatives to Cu AFPs:

> "Although the assessors were able to select preferred alternatives, results indicated that none of them was a good alternative to copper antifouling paint. Some appeared to be slightly preferable to the copper antifouling paint in terms of hazard, but they all contained chemicals that posed human health and environmental concerns."

(Washington State Department of Ecology, Assessing Alternatives to Copper Antifouling Paint: Piloting the Interstate Chemicals Clearinghouse (IC2) Alternatives Assessment Guide (2014), page i.)

The Washington State Department of Ecology concluded that all non-Copper Anti-Fouling Paints analyzed should be categorized as "Benchmark 1" chemicals, i.e., chemicals that have a combination of either high persistence in the environment, high bioaccumulation potential, or high human toxicity or ecotoxicity, and avoidance of all of those products should be recommended.

In the absence of currently available non-toxic non-Copper Anti-Fouling Paints, the SED's assumption that foreseeable implementation will include use of "non- toxic" anti-fouling paint is erroneous and unsupported, which fatally undercuts all analysis in the SED based on that assumption.

Response 7.9.2 This response addresses the environmental impacts issue first. The SED 2016 has been revised to provide a more comprehensive review of the environmental impacts of the conversion from Cu to alternative AFPs based on the recommended strategies outlined in the Implementation Plan for the proposed Cu TMDLs. These strategies include conversions from Cu AFPs to nontoxic or lower leach rate Cu AFPs. It must be emphasized, however, that the Regional Board may not dictate the strategies by which the TMDLs are implemented, nor recommend particular products to use for TMDL implementation.

The approach employed in the Implementation Plan for the proposed Cu TMDLs is to require responsible parties to develop and propose their own implementation plan(s) and schedules that include strategies to achieve the TMDLs. Board staff's Implementation Plan identifies recommended strategies, including conversions to nontoxic or lower leach rate Cu AFPs, that must be considered in the development of the responsible parties' proposed implementation plan(s). The responsible parties must submit an implementation plan(s), but are not required to include any of the recommended strategies. The implementation plans would be implemented upon

Regional Board approval of the dischargers' plan (or Executive Officer approval of the plan if no significant public comments are received). The responsible parties will be responsible for project-specific environmental analysis of the plan and strategies that they implement.

Secondly, the SED does not identify specific a list of nontoxic AFPs; however, some nontoxic paints are available. The Port of San Diego Study, referenced in the SED (and Staff Report 2016), contains a number of recommendations for nontoxic and/or non-Cu AFPs that may be considered by the responsible parties in developing their proposed implementation plan(s). As previously noted, the Regional Board cannot dictate the specific method of compliance nor endorse specific products. It is up to the responsible parties to identify strategies to achieve the TMDLs, which may include the use of nontoxic AFPs. Note that the Port also conducted a Cu conversion project in Shelter Island Yacht Basin to convert Cu to nontoxic paints.

It should be noted that the State of Washington has banned the use of Cu antifouling paints, and has conducted a study on alternative paints/coatings. See https://www.northwestgreenchemistry.org/event/fourth-stakeholders-call-wa-state-antifouling-boat-paint-aa.

Comment 7.9.3

The SED must be revised to address the likelihood that reasonably foreseeable implementation of the Copper TMDL will involve application of toxic anti-fouling paints, and to analyze the environmental impacts of application of those toxic paints. These revisions must include analysis of potential impacts to both humans and the environment, including but not necessarily limited to impacts in the areas of Biological Resources and Hazards and Hazardous Materials.

Response 7.9.3 - The SED 2016 was revised to evaluate impacts associated with the conversion from Cu AFPs to nontoxic and lower leach rate Cu AFPs. (The conversion of boats from Cu AFPs to non-Cu AFPs with biocides is not a recommended strategy in Board staff's Implementation Plan.) Strategies proposed by responsible parties that include the use of non-Cu AFPs with biocides, such as Zn or organics, will be approved by the Regional Board (or the Board's Executive Officer) only if the parties demonstrate that the use of such AFPs will not have a significant effect on the environment.

Comment 7.9.4

Additionally, the SED is invalid for failing to analyze a reasonable range of alternatives, as it is required to do under CEQA's provisions for Regulatory Programs. Apart from the No Project alternative, the SED analyzes only one "action" alternative - a purported "Modified TMDLs and Action Plans, Modified Regulatory Approach" alternative. The SED's discussion of this alternative is completely without value, however, as it does not actually describe an alternative to the proposed project. Rather, the discussion of that alternative consists entirely of conclusory and unsupported statements that the proposed project is the "most scientifically and technically defensible approach."

Since the SED does not actually describe any "action" alternative to the proposed project, it also fails to disclose the potential environmental impacts and benefits of such an alternative. The failure of the SED to identify or analyze any actual "action" alternative to the proposed project fatally undercuts the requirement that the document adequately inform decision makers and the public of a reasonable range of alternatives to the project.

In particular, the SED should describe and analyze an alternative under which reduction in copper loading would be achieved on a statewide basis, by the state of California, pursuant to the exclusive authority of the California Department of Pesticide Regulation (DPR) to regulate pesticides, including Copper Anti- Fouling Paints. The SED additionally should describe and analyze an alternative under which implementation methods would be targeted at the limited areas of Newport Bay that are arguably exceed California Toxics Rule requirements for copper, rather than regulating the entire Bay. Such focused implementation must be discussed as an alternative, as it is likely to result in fewer environmental impacts than the project as proposed.

Response 7.9.4
The draft SED was revised to clearly identify an alternative action. However, an analysis of this alternative was not included because the revised SED 2018 concluded that the reasonably foreseeable methods of compliance would not result in any reasonably foreseeable significant adverse environmental impacts.

Board staff have determined that sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments).

The result of the modifications to the sediment tasks is that the proposed Implementation Plans no longer include sediment remediation and dredging is no longer a foreseeable method of compliance. Due to these revisions, the reasonably foreseeable methods of compliance will not result in any reasonably foreseeable significant adverse environmental impacts. Thus, the draft SED 2018 does not include an analysis of those alternatives proposed by the City or other alternatives.

Comment 7.9.5
The SED also fails to comply with CEQA because it does not include an economic factors analysis. In fact, the SED is misleading at best when it states:

> The Regional Board has analyzed the costs of implementing reasonably foreseeable BMPs to comply with the TMDLs and Action Plans. These economic factors have been considered in this environmental analysis and are summarized in the Staff Report (Section 8.3).

(SED, p. 28.) There is no such summary in Section 8.3 of the Staff Report. In fact, the only information to be gleaned from Section 8.3 is that there will be costs but the Board will make no attempt to quantify those costs. Such short shrift of its obligations under CEQA is unprecedented and contrary to law.

Response 7.9.5 - Economics were considered in developing these proposed Cu TMDLs. Economics were discussed in Section 8.3 Economics – Cost Considerations of the Staff Report (reference 1); and in the SED in each of the tasks in Sections 4.1.1 and 4.1.2. Note, however, that the SED has been revised to include a more robust economics analysis.

IX.Conclusion

Comment 7.9.6
Because of the many legal deficiencies described in this letter, the Copper TMDL cannot be lawfully adopted in its current form.

Response 7.9.6 - The proposed Cu TMDLs may be lawfully adopted.
See responses to City's comments 7.9.1 to 7.9.5 above.

Attachment 8: Declaration of Chris Miller, October 12, 2016

Comment 1 - "…11. My review and analysis indicates that there are 4,470 vessels in Newport Harbor that have bottom paint. Of these, an overwhelming majority use copper antifouling paint."

Response 1 - In November 2016, Board staff contacted Chris Miller, who informed us that he would be conducting a count of all slips in Newport Bay (rather than just boats) to determine boat-holding capacity of the Bay. Board staff contacted C. Miller again in April 2017, but we have still not received the new slip count.

The number of slips and moorings (occupied and empty) that could potentially contain boats using Cu AFPs is relevant in that this number is used to calculate an estimated Cu loading to Newport Bay from these vessels. The estimated Cu loading to the Bay from Cu AFPs was initially calculated using 10,000 boats/slips (the same number that USEPA used in their Cu TMDLs (2002) based on discussions with the City.) The reduction in Cu discharges from boats was then calculated to be 83%. Board staff have since reduced the estimated number of boats/slips to 5,000, based on boat counts from the City of Newport Beach and Orange County Coastkeeper. The reduction of the number of boats/slips to 5,000 reduces the estimated Cu load from boats to 18,000 lbs/yr (from 36,000 lbs/yr). The reduction in the estimated number of boats and the margin of safety (from 20 to 10%), reduces the required reduction of Cu discharges from boats to approximately 60% in the proposed Cu TMDLs.

Note also that, as stated in the City's comments 1.4 and 1.6 - Attachment 1, above, Board staff have revised the language in the proposed Cu TMDLs to state that

"Compliance with the Cu TMDLs will be considered to be achieved if the dissolved Cu CTR criterion of 3.1 µg/L is consistently achieved (i.e. no impairment is demonstrated per the assessment methodology in the State Listing Policy (SLP)) and no further reduction in Cu discharges will be required, even if the Cu load allocation for boats is not yet achieved. If, however, the Cu allocation for boats is achieved, but the CTR criterion is not consistently achieved, further reduction in Cu discharges from Cu antifouling paints (AFPs) will be required."
This compliance will be determined by an appropriate monitoring program.

Attachment 9: City of Newport Beach Letter to US EPA, September 16, 2016
Comments on the Revised Federal Standard Proposed for Copper in Marine Waters

Response 1 - These comments are directed to USEPA's proposed revisions to federal standards for Cu in marine waters. Unless and until the federal standard and CTR are revised by USEPA, the current CTR specifies the applicable, enforceable water quality objective for dissolved Cu in marine waters in California, including Newport Bay. The proposed Cu TMDLs properly rely on the provisions of the CTR, which include the opportunity to adjust the CTR value through a Water Effects Ratio (WER) investigation. The recommended compliance schedule for the proposed Cu TMDLs provides sufficient time for responsible parties to conduct such an investigation, if desired. If an alternative Cu objective is thereby developed and approved, the TMDLs would be reconsidered accordingly.

No response to the specific comments and recommendations to USEPA in this Attachment are warranted.

Attachment 10: Department of Pesticide Regulation, Memorandum, September 12, 2016
Comments List of Copper-Based Antifoulant Paints by Leach Rate Category

Response 1 - Board staff are familiar with this memo, which lists the leach rates for a number of Cu AFPs. No response necessary.

Irvine Company

We are writing to request that the Regional Board decline to adopt the proposed TMDL for copper and direct Regional Board staff to work collaboratively with stakeholders to update the evaluation of the current condition of the Bay, to define clearly any problems that require action, and to develop an effective, efficient, and collaborative solution for Newport Bay. Our request is based on the following concerns.

Comment 1 - The impairment assessment in the proposed copper TMDL relies primarily upon outdated data that are not representative of current conditions within Newport Bay. Management actions have resulted in declining concentrations of copper in Bay sediments, including dredging to remove more than 600,000 cubic yards of sediment in the Lower Bay (conducted in 2012-2013), the State's mandated use of anti-fouling paints (AFPs) with reduced copper leach rates (adopted in 2014), and legislation that mandates a switch from copper-containing brake pads to brake pads that contain minimal levels of copper (adopted in 2009 and to be fully implemented by 2025). These significant management actions are reducing copper concentrations and improving conditions within the Bay- and will result in continued improvement in the future.

Comment 1.1 - - "…outdated data that are not representative of current conditions"

Response 1.1 The comment above reiterates the City's comments 3.1 – City Letter, and 3.1 - Attachment 3. See responses to these comments.

Comment 1.2 - " Management actions have resulted in declining concentrations of copper in Bay sediments, including dredging…"

Response 1.2
This may be true for sediments in areas that were dredged, but it is not true for marina and Turning Basin/S. Lido Channel areas that were not dredged. Sediments in some sites exceeded the Cu ERM in the Cu-Metals Marina study, and some sites still exceeded the Cu ERM 7 years later when they were resampled in the Metals Sediment study (2014).
The comments above reiterate the City's comment 3.1 - Attachment 3. See responses to these comments.

Comment 1.3 - "Management actions have resulted in declining concentrations of copper…
the State's mandated use of anti-fouling paints (AFPs) with reduced copper leach rates (adopted in 2014), and legislation that mandates a switch from copper-containing brake pads to brake pads that contain minimal levels of copper"

Response 1.3
First, DPR's determination of a maximum allowable leach rate (LR) of 9.5ug/cm2/d for Cu antifouling paints (AFPs), in response to AB425, was made in January 2014; however, implementation of DPR's leach rate could take years. Whether and to what extent DPR's leach rate determination will result in substantive decreases in Cu discharges to the Bay from Cu AFPs are contingent upon the leach rates of the CuAFPs currently in use. Iin the meantime, dissolved Cu in Newport Bay continues to exceed the CTR criterion and must be reduced.
Second, Cu brake pad legislation may decrease Cu inputs to San Diego Creek; however, the Cu TMDLs do not require a reduction in Cu discharges from the major tributaries. Cu discharges from boats are still the largest input of Cu to the Bay.
See also responses to the City's comments 1.2 and 1.4 – City Letter.

Comment 2 - We disagree with the Regional Board's Staff Report that sediments are currently impaired- available data show that conditions in Bay sediments have improved markedly over time, and there is little indication of sediment toxicity in samples collected since 2013. While CTR criteria for dissolved copper are exceeded on occasion, available data indicate that the CTR criteria may not be reliable indicators of water column toxicity to aquatic organisms.

Response 2
First, with respect to improvement of sediment quality. See response to comment 1.2 above.
Board staff have revised their findings regarding sediments, and sediments are no longer considered to be impaired. See responses to the City's comments 6.17, 6.29, 6.32, 6.34 and 6.39 – Attachment 6, and 3.1 -Attachment 3.

Second, with respect to the CTR criteria - if a waterbody exceeds the CTR criteria, based on SLP methodology, the water body is considered to be impaired . Water toxicity is not required to list a water body for a contaminant. The CTR criteria are the legally applicable standards for Cu and other metals. See response to the City's comment 6.7 - Attachment 6. .

Comment 3 - The proposed TMDL does not include a peer review, as required by California law, and the

Regional Board does not have the authority to regulate marina owners and operators using a TMDL or using Cleanup and Abatement Orders, as they are not dischargers under the California Water Code and the Clean Water Act. We also note that the proposed TMDL implementation measures conflict with the federal regulations that apply to recreational vessels and their owners.

Comment 3.1 - no peer review

Response 3.1 - The comments above reiterate the City's comment 6.56 - Attachment 6. See responses to this comment.

Comment 3.2 - "Regional Board does not have the authority to regulate marina owners and operators using a TMDL or using Cleanup and Abatement Orders, as they are not dischargers under the California Water Code and the Clean Water Act."

Response 3.2 - The Regional Board does have the authority to regulate marina owners and operators based on their status as the owner or operator of the marina facility on which an activity occurs that results in the discharge of waste, their knowledge of the activity causing the discharge, and their ability to control the activity.

First, the marina owners and operators own or operate the facilities where Cu discharges from Cu antifouling paints (AFPs) indisputably occur. The marina owners and operators congregate boats in an area of water and thus cause or contribute to the discharge of Cu from the large number of boats in Newport Bay.

Second, the marina owners and operators have knowledge of the Cu discharges from Cu AFPs and the effects of these discharges on the water quality of Newport Bay. The owners and operators have participated in CEQA scoping meetings, Regional Board workshops, studies and projects, and outreach efforts by Orange County Coastkeeper related to Cu exceedances of the CTR criteria in Newport Bay and the availability of alternative AFPs, and are thus aware of Cu discharges from boats in Newport Bay.

Third, the marina owners/operators have the ability to control discharges of Cu to Newport Bay. Marina owners/operators exercise control and enforcement over boat owners and their discharges by way of conditional lease or license agreements with owners of boats moored within the marina. The marina owners and operators have the authority to exercise control over residual Cu discharges from boat hulls within the marina (and thus the bay) through conditions in the agreement. The marina owners/operators can include conditions in their agreements to control the number of moored boats, the types of hull coatings used, and hull cleaning activities allowed within the marina. Marina owners/operators can also require boat owners and hull cleaners (divers) to implement best management practices (BMPs) to control Cu discharges, and require boat owners to provide proof of hull coating composition.

Comment 3.3 - "We also note that the proposed TMDL implementation measures conflict with the federal regulations that apply to recreational vessels and their owners."

Response 3.3 - The commenter does not specify which federal regulations conflict with the proposed TMDLs. Thus, it is not clear why the commenter believes that the proposed TMDL implementation measures conflict with federal regulations that apply to recreational vessels and their owners.
Board staff's proposed Implementation Plan identifies a number of recommended strategies to meet the Cu TMDLs. These strategies must be considered by the City and other responsible parties in developing their own implementation plan(s) and strategies. Board staff have also proposed an extended

compliance schedule that allows the responsible parties time to implement their strategies and to assess their efficacy. In addition, the schedule also allows the City and other responsible parties to conduct further investigation(s) to confirm findings of impairment, and to consider whether an alternative to the California Toxics Rule (CTR) criterion should be applied using a Water Effects Ratio (WER) adjustment. The implementation measures do not appear to conflict with federal regulations.

Comment 4 - The proposed TMDL uses data dating back to 2000, which are not representative of current conditions, and calculations that overstate the amount of copper leaching from boats in the Bay. It relies on Sediment Quality Guidelines, which were superseded when the State Water Board's Sediment Quality Objectives {SQO) Policy became effective in 2009.

Comment 4.1 - "The proposed TMDL uses data dating back to 2000…"

Response 4.1 - See responses to the City's comments 3.1 – City Letter and 3.1 - Attachment 3; and the Irvine Company's comment 1.1.

Comment 4.2 - "…calculations that overstate the amount of copper leaching from boats…"

Response 4.2 - See responses to the City's comments in Attachment 1.

Comment 4.3 - "It relies on Sediment Quality Guidelines, which were superseded when the State Water Board's Sediment Quality Objectives {SQO) Policy became effective in 2009."

Response 4.3 - First, while it is true that the SQOs became effective in 2009, older data do not include all the data sets required by the SQOs. The SLP allows for the use of sediment ERM guidelines where data required by the SQOs are not available. Board staff used ERM guidelines and toxicity to evaluate sediment impairment –these are correct thresholds according to the SLP since there were insufficient data in most studies evaluated to use SQOs.
(Note that USEPA used even lower sediment threshholds –(ERLs and TELs) in their 2002 Metals TMDLs).

> *The State Listing Policy (SLP), Section 6.1.3 states that*
> *"B. <u>If no applicable sediment quality objectives apply, or insufficient data exists to interpret sediment quality objectives, the Regional Water Boards may select sediment quality guidelines that have been published in the peer-reviewed literature or by state or federal agencies</u>. Acceptable guidelines include selected values (e.g., effects range-median, probable effects level, probable effects concentration), and other sediment quality guidelines. Only those sediment guidelines that are predictive of sediment toxicity shall be used (i.e., those guidelines that have been shown in published studies to be predictive of sediment toxicity in 50 percent or more of the samples analyzed)."*

Based on the SLP, the use of ERM sediment guidelines is appropriate when there are insufficient data to use the sediment quality objectives.
With this said, Board staff has revised the findings regarding sediment impairment, taking into account the EBE Plan – Part 1. See responses to City's comment 3.1 - Attachment 3.

Comment 5 - Based on available information, it is not clear that the Bay is currently impaired with respect to copper. We believe a more appropriate course of action would be to revisit the impairment assessment and conducting targeted data collection as needed to evaluate the extent of any problem, and then to determine appropriate regulatory endpoints and actions. Consistent with the past collaborative model of stakeholder participation in the watershed, we are willing to participate in a

stakeholder program or working group to characterize current conditions and develop appropriate regulatory endpoints and implementation actions in lieu of a TMDL for copper.

Response 5 - The available dissolved Cu data indicate that Upper and Lower Newport Bay are impaired with respect to Cu. The legally applicable regulatory endpoint to assess water column impairment is already in place – this is the dissolved Cu CTR criterion (3.1 µg/L). In addition, USEPA Cu TMDLs (2002) are already in place. See responses to the City's comments 6.27, 6.28 and 6.40 - Attachment 6.

Attachment to the Irvine Company's letter- Exponent Memo
Memorandum: Technical Comments on Basin Plan Amendments for Copper TMDLs and Non-TMDL Metals Action Plans for Zinc, Mercury, Arsenic, and Chromium in Newport Bay, California by Susan C. Paulsen, PhD, PE, October 13, 2016

This memorandum summarizes our technical comments on the Santa Ana Regional Water Quality Control Board's (Regional Board's) proposed total maximum daily load (TMDL) for copper in Upper and Lower Newport Bay.1 Exponent's comments focus upon the technical basis of the TMDL, including concerns that the TMDL and Staff Report have not adequately characterized current conditions within Newport Bay (the Bay) and have not fully considered management actions that have already been taken to address copper in the water column and sediments of the Bay. Based on our analysis, it is not clear that a TMDL for copper in Newport Bay is needed. We recommend that the impairment assessment for the Bay be revisited, placing particular emphasis on recent data that are representative of current conditions within the Bay and identifying any additional data collection needs. The need for and extent of implementation measures should then be reassessed. The primary technical concerns we have identified, and that are discussed in this memorandum, are:

Note that Memo comments and responses are numbered M1, M2 etc.
Comment M1 - The sediment thresholds used in the impairment assessment and used as TMDL targets are not appropriate. Instead of evaluating impairment using California's SQOs, the TMDL and Staff Report used the "effects range medium" (ERM) sediment quality guideline (SQG), together with toxicity, to assess impairment of sediments. SQGs have historically been used to interpret the narrative requirements found in most Basin Plans…

Response M1 - The comments above reiterate the City's comment 3.1 - Attachment 3, and the Irvine Company's comment 4.3. See responses to these comments.

Comment M2 - Data used for impairment assessment are not representative of current conditions in the Bay.

Response M2 - The comment above reiterates the City's comments 3.1 – City Letter, and 3.1 - Attachment 3, and the Irvine Company's comment 1.1. See responses to these comments.

Comment M3 - Management actions have resulted in marked improvement within the Bay, and conditions will continue to improve in the future; these activities must be considered when assessing impairment.

Response M3 - The comment above reiterates the City's comment 3.1 - Attachment 3, and the Irvine Company's comment 1.1. See responses to these comments.

Comment M4 - The Regional Board's impairment assessment is incomplete, and …its conclusions are not

supported.

Response M4 - The comment above reiterates the City's comments 3.1 – City Letter, and 3.1 - Attachment 3, and the Irvine Company's comment 1.1. See responses to these comments. .

Comment M4.1 - A TMDL and implementation actions for biota are not needed**.** We agree with the Regional Board that no impairment of fish and mussel tissue is present in the Bay.
Copper concentrations in tissue did not exceed fish tissue guidelines for either human health or wildlife. Thus, no further action is needed with respect to the regulation of copper in tissue in the Bay.

Response M4.1 - The Irvine Company gives no data to substantiate the statement that "A TMDL and implementation actions for biota are not needed", or the assertion that the Regional Board agrees that no impairment of fish and mussel tissue is present in the Bay.
(Note that no TMDL is recommended for biota.)
Board staff found no impairment in fish/mussel tissue due to Cu; therefore, Cu in fish/mussel tissue is not addressed in the Cu TMDLs. Board staff did find evidence of impairment in fish/mussel tissue due to Zn, As and Cr. Additional data and evaluation is needed to assess this impairment and identify the sources. Accordingly, Action Plans that require these actions are recommended, rather than TMDLs for these metals at this time.
See also responses to the City's comment 6.27 - Attachment 6. .

Comment M4.2 - Sediment is not impaired by copper, and a TMDL for copper in sediments is not needed.

Response M4.2 - See response to comment 2 above. Note that Figure 1 of Exponent's Memo demonstrates some impairment in the Bay.

See also responses to the City's comments 6.17, 6.29, 6.32, 6.34 and 6.39 – Attachment 6, and Attachment 3; and Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Comment M4.3 - Copper concentrations in the water column do not appear to cause toxicity, and further study is warranted instead of a TMDL**.**

Response M4.3
First, USEPA's Cu TMDLs are already in place (2002).
Second, dissolved Cu concentrations continue to exceed the CTR criterion; therefore, Cu TMDLs are required in both the Upper and Lower Bay. Toxicity in the water column is not required to list or to develop a TMDL if dissolved Cu exceedances exceed the CTR criterion.
See responses to the City's comments 6.28 and 6.40 - Attachment 6, and the Irvine Company's comment 5 above.

Comment M5 - The Regional Board's calculations of copper loading to the Bay due to leaching from boat paints overestimate the current loading of copper to the Bay and need to be redone.

Response M5 - The comments above reiterate the City's comments in Attachment 1. See responses to these comments.

Comment M6 - The need for a TMDL has not been demonstrated, and the proposed implementation measures do not appear to be necessary.

Response M6 - There are sufficient exceedances of the dissolved Cu CTR criterion to keep Cu listed for both Upper and Lower Newport Bay; therefore, Cu TMDLs are necessary.
Note that Cu TMDLs already exist for both the Upper and Lower Bay, and were promulgated by USEPA as part of the Toxics TMDLs in 2002. Note also that USEPA's Cu TMDLs are based on data that is much older than the data used in Board staff's assessment. In addition USEPA's Cu TMDLs do not include an implementation plan or compliance schedule.
Revised Cu TMDLs, based on newer data, are therefore appropriate and necessary. If the proposed Cu TMDLs are not approved by the Regional Board, the Board must require immediate compliance with USEPA's TMDLs. (These include TMDLs for Zn, Pb and Cd, in addition to Cu TMDLs).
The comments above reiterate the City's comment 6.40 - Attachment 6, and Irvine Co.'s comments 5 and M4.3. See responses to these comments.

Comment M7 - First, the TMDL Staff Report states that no tissue impairment was indicated in any of the monitoring data collected, so monitoring of additional organisms (or vegetation) is unnecessary. The Regional Board's proposed special studies to determine copper loading from in-Bay sediments, algae, and vegetation (Section 6 in Attachment to the Staff Report) are not needed and should be removed. Benthic monitoring should be conducted only as needed to perform routine SQO assessments.

Comment M7.1 - "no tissue impairment was indicated in any of the monitoring data collected…"

Response M7.1 - The Staff Report did show fish/mussel tissue impairment for As, Cr and Zn.
The comments above reiterate the City's comments 6.23 through 6.26 - Attachment 6, and the Irvine Company's comment M4a. See responses to these comments .

Comment M7.2 - "proposed special studies to determine copper loading from in-Bay sediments, algae, and vegetation (Section 6 in Attachment to the Staff Report) are not needed and should be removed*."*

Response M7.2 Special studies will be required only if implementation tasks do not result in the achievement of the dissolved Cu CTR criterion within the required time period, or they are not sufficient to achieve the TMDLs. See response to the City's comment 2.1 -Attachment 2.

Comment M8 - Second, as discussed above, sediments in the Bay do not appear to be impaired by copper. While routine monitoring for SQO assessment metrics is required by and consistent with the State's SQO Policy, no additional monitoring is needed, and implementation actions such as dredging do not appear to be necessary. We recommend that the Regional Board's proposed targeted monitoring for copper concentrations in sediments as well as sediment toxicity be removed from the TMDL (Sections 1.2.2.4 and 5 in Attachment A of the 2016 Staff Report), and that future monitoring should be conducted in accordance with the SQO Policy.

Response M8 - See responses to the City's comments 6.17, 6.29, 6.32, 6.34 and 6.39 – Attachment 6, and Attachment 3; the Irvine Company's comment 2; and Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Comment M9 - Third, although some water column copper concentrations have exceeded CTR criteria values, these exceedances do not appear to be correlated with toxicity to aquatic organisms. The proposed TMDL water column targets and implementation measures to reach those targets are

inappropriate at this time and not supported by the impairment assessment or monitoring data used to conduct the impairment assessment.

Response M9 - The comments above reiterate the City's comments 6.28 and 6.40 - Attachment 6, and the Irvine Company's comment 5. See responses to these sections.

Comment M10 - Additionally, it appears that monitoring and TMDL targets and water quality-based effluent limits (WQBELs) are not needed for storm water runoff and upstream discharges to the Bay, as proposed and suggested by the Regional Board in the TMDL in Section 4 in Attachment A ("Evaluate Copper [Cu] discharges from storm drains for local impacts"). Monitoring data have shown that the dissolved copper concentrations are lower in the Bay's main channels than they are in marinas or near boats, indicating that the Bay has assimilative capacity for copper loading and that mixing and dilution of copper within the Bay must be considered when determining numeric targets for those loads or discharges.

Response M10 - The Staff Report indicates that the allocation for tributary runoff is currently being met; continued monitoring and evaluation are necessary and appropriate to assess and ensure ongoing compliance. Direct storm drain input to the Bay is not large compared to other sources; however, there may be local impacts at some of the larger storm drains – this is what this task addresses. The proposed numeric target for the Cu TMDL is the same as the established objective, ie., the CTR chronic criterion. The goal of the proposed Cu TMDLs (and USEPA's promulgated TMDLs) is to ensure consistent compliance with that objective.

Comment M11 - As noted above, available data describing current conditions within the Bay indicate neither tissues nor sediments are impaired by copper. Further studies and monitoring efforts are needed to assess impairment in the water column within Newport Bay.
We also recommend that additional water column toxicity tests be conducted to determine the relationship between dissolved copper concentrations in water and water toxicity to aquatic organisms. The data presented in Coastkeeper and Candelaria (2007) suggest that there is no correlation between water toxicity and copper concentrations; these analyses should be repeated with recent samples collected from the Bay to confirm or revise these conclusions.

Response M11
First, sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets have been revised to sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged, and in areas that have not previously been monitored. Sediment Cu should also be evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.
See responses to the City's comments 6.10, 6.18, 6.29, 6.32, 6.34 and 6.39 – Attachment 6, and Attachment 3; the Irvine Company's comment 2; and Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Second, with respect to fish tissue, research has already been conducted to determine toxicity to

aquatic organisms. See Table 4-3 (and references) in the Staff Report 2016. See also responses to the City's comments 6.11 – 6.14 – Attachment 6, and Attachment 3; and the Irvine Company's comment M4.1. The legally applicable criterion upon which water column impairment is to be judged, per the SLP, is the CTR criterion.

With respect to further studies to assess water column impairment, see responses to the City's comments 4.2 –City Letter, and the Irvine Company's comment M6.
With respect to water toxicity, Board staff did not find water toxicity in the study referenced above; however, only exceedances of the dissolved Cu CTR criterion are required to list a water body as impaired based on SLP methodology.
See responses to the City's comments 6.28 and 6.40 - Attachment 6, and the Irvine Company's comment 5.

Comment M12 - The data used to assess impairment in the water column should only come from recently-collected samples. Data collected prior to 2013 do not reflect current water quality conditions in the Bay and thus should not be considered when determining impairment.

Response M12 - The State Listing Policy (SLP) has no time limitations with respect to data used for impairment assessment or listing purposes. (To date, the SLP does not restrict data to less than 5 years; in fact, there is no limitation in the SLP on the age of data used for impairment assessment/listing purposes, and the data used is left to the judgment of Regional Board staff). The comment above reiterates the City's comments 3-1 – City Letter and 3.1 - Attachment 3, and the Irvine Company's comments 1.1 and 4.1. See responses to these comments.

County of Orange

General Comments
Comment 1 - The County generally supports delisting Newport Bay for the general 303(d) category of "Metals" and replacing the *Total Maximum Daily Loads for Toxic Pollutants – San Diego and Newport Bay, California*, promulgated in 2002 by the US Environmental Protection Agency (EPA). Numerous improvements have been implemented in Newport Bay and its watershed since 2002 (see 3) below) and both of these documents are now outdated and not reflective of current conditions.

Response 1 - As stated in the Staff Report, Board staff have consistently supported the delisting of the general category of metals in Upper Newport Bay, and it was finally delisted in the 2018 listing cycle. (The general metals category for Lower Newport Bay was already delisted based on State Board's 2006 assessment.) See responses to the City's comment 6.2 - Attachment 6.

Board staff also recommend "replacing the Total Maximum Daily Loads for Toxic Pollutants – San Diego and Newport Bay, California, [USEPA 2002]" and adopting the revised Cu TMDLs and Action Plans for Zn, Hg, As and Cr. Board staff also recommend that USEPA withdraw the 2002 TMDLs for Zn, Pb and Cd (cadmium).

Comment 2 - The Draft BPA and Staff Report are inherently in conflict with the recent actions taken by the Department of Pesticide Regulation (DPR) to reduce copper leaching rates from boat paints to 9.5 ug/cm2/day. The Regional Board, based on calculations in Appendix 6.1.3 and Section 5.6.3.1.2, concludes that this leach rate "will not meet the leach rates needed to meet the Cu allocation for boats in Cu TMDLs in southern California, even with the use of BMPs and reduced cleaning frequency". Given

the paucity of current data in the staff report (see 3) below), the current early implementation phase of the new DPR paint requirements, the lack of peer review of the Regional Board calculations (peer review by USEPA in 2002 is discussed in Section 9.1, but USEPA's responsiveness summary (https://www3.epa.gov/region9/water/tmdl/nbay/tsdi0602.pdf) indicates that no formal peer review process took place for the Metals TMDL promulgated by USEPA), and the potential significant economic and other impacts to the boating community in Newport Bay, it would be prudent for the Draft BPA not to move forward at the present time without significant updating and revision as discussed in several of the sections below. Engagement of stakeholders in this process is also important since many aspects of future implementation will depend on community support.

Comment 2.1 - The Draft BPA and Staff Report are inherently in conflict with the recent actions taken by the Department of Pesticide Regulation (DPR) to reduce copper leaching rates from boat paints to 9.5 ug/cm2/day.

Response 2.1 - The Draft BPA and Staff Report are not in conflict with DPR's actions to reduce Cu leach rate to 9.5 µg/cm^2/d –DPR's determination stated that the 9.5 µg/cm^2/day leach rate would not achieve compliance with the dissolved Cu CTR criterion in impaired marinas with greater than 1270 boats unless further mitigation, such as the conversion of some boats from Cu to non-Cu paints, was employed. Note also that the implementation of DPR's leach rate of 9.5 µg/cm^2/d requires the use of BMPs. See responses to the City's comments 1 and 2 – City Letter.

Comment 2.2 - The Regional Board, based on calculations in Appendix 6.1.3 and Section 5.6.3.1.2, concludes that this leach rate "will not meet the leach rates needed to meet the Cu allocation for boats in Cu TMDLs in southern California, even with the use of BMPs and reduced cleaning frequency". Given the paucity of current data in the staff report (see 3) below), the current early implementation phase of the new DPR paint requirements, the lack of peer review of the Regional Board calculations (peer review by USEPA in 2002 is discussed in Section 9.1, but USEPA's responsiveness summary (https://www3.epa.gov/region9/water/tmdl/nbay/tsdi0602.pdf) indicates that no formal peer review process took place for the Metals TMDL promulgated by USEPA), and the potential significant economic and other impacts to the boating community in Newport Bay, it would be prudent for the Draft BPA not to move forward at the present time without significant updating and revision as discussed in several of the sections below. Engagement of stakeholders in this process is also important since many aspects of future implementation will depend on community support.

Comment 2.2.1 - "…paucity of current data in the staff report"

Response 2.2.1 - The staff report contains data from 2002-14, including OC monitoring data from 2006-11 for metals in the water column, sediments and fish/mussel tissue. In addition, the data evaluated for this Impairment Assessment are far more extensive than the data evaluated by USEPA for their Metals TMDLs.

Comment 2.2.2 - "the current early implementation phase of the new DPR paint requirements"

Response 2.2.2 - The above statement is correct – DPR's leach rate requirements for Cu AFPs could take years to implement; however, the decrease in Cu loading achieved with the implementation of DPR's leach rate requirement of 9.5 µg/cm^2/d depends on the leach rates of the Cu AFPs currently in use. In addition, the Cu loading calculations are based on a leach rate of 9.5 µg/cm^2/d rather than the leach rates of Cu paints currently used in the Bay; therefore, the Cu loading estimate could potentially be an underestimation.

See responses to the City's comments 1.2 and 1.4 – Attachment 1, and 6.44 – Attachment 6.

Comment 2.2.3 - "…lack of peer review of the Regional Board calculations"

Response 2.2.3 – While there was no formal peer review of the USEPA's TMDLs, the models employed by USEPA to develop their Metals TMDLs were subject to extensive scientific review. Board staff relied on these models in developing the proposed TMDLs.
See responses to the City's comments 6.45 and 6.56– Attachment 6, and Attachment 1.

Comment 2.2.4 - "…potential significant economic and other impacts to the boating community in Newport Bay"

Response 2.2.4 - See response to the City's comment 6.55 - Attachment 6.

Comment 2.2.5 - "…it would be prudent for the Draft BPA not to move forward at the present time without significant updating and revision"

Response 2.2.5 - USEPA's Cu TMDLs were established in 2002 and must be implemented by the Regional Board in the absence of approval of the Regional Board's proposed Cu TMDLs.
See responses to the City's comment 4.2 – City Letter.

Comment 2.2.6 - "Engagement of stakeholders in this process is also important since many aspects of future implementation will depend on community support."

Response 2.2.6 - Board staff agree that it is important to engage the stakeholders in the process [of adopting these proposed Cu TMDLs. See response to the City's comment 4.2 –City Letter.

Comment 3 Data used in the impairment assessment (Staff Report Section 4.0) was collected from 2000-11 reflecting, in some cases, conditions almost 17 years ago. It is unclear why more recent data have not been utilized nor why the assessment was not restricted to the post-Upper Newport Bay Ecosystem Restoration Project period (2010 to the present) for the Upper Bay and to the post-Lower Bay dredging period (2013 to the present), which are more reflective of current conditions.

Response 3 - The comments above reiterate the City's comments 3-1 – City Letter and 3.1 - Attachment 3, and the Irvine Company's comments 1.1 and 4.1. See responses to these comments.

The following illustrates the range of projects implemented that have impacted conditions in Newport Bay and its watershed since 2000 and the consequential need for the impairment assessment to use current data:
Comment 3.1 - In addition to the Upper Newport Bay Ecosystem Restoration Project (over 2 million cubic yards), there have a number of smaller dredging projects in the Lower Bay (including 600,000 cubic yards in 2012-13) that have removed historic contamination and several storm drains have been diverted to the sanitary sewer reducing inputs of metals from *other sources*.

Response 3.1 - Board staff reviewed dredging data, and conducted our own post dredge sediment study in Lower Newport Bay. See Metals Sediment study (2014) in the Staff Report 2016.
See also responses to the City's comments 3-1 – City Letter and 3.1 - Attachment 3.

Comment 3.2 - At a watershed scale, large scale diversions to the sanitary sewer have been enacted, the

San Joaquin Marsh has been enhanced, the Natural Treatment System has been implemented, and land use changes are stabilizing the flows that previously were frequently driven by agricultural and nursery runoff. Input flows (and loadings) to the Bay from the watershed are at the lowest levels in many years and reflect a long term change not just a drought response. The report entitled Newport Bay Fecal Coliform TMDL 2016 Summary of Management Activities; County of Orange provides details of many of these watershed changes and is incorporated into these comments by reference.

Response 3.2 - Reductions in Cu concentrations in the Bay due to these diversions have not been demonstrated. The largest source of Cu to the Bay continues to be recreational boats, and dissolved Cu concentrations continue to exceed the Cu CTR criterion. No substantial reductions in dissolved Cu have been demonstrated since USEPA promulgated the Cu TMDLs in 2002.
See responses to the City's comments 6.40 through 6.43- Attachment 6.

Comment 3.3 - At a statewide scale, California Senate Bill No. 346 (Kehoe) approved in 2010 laid out a schedule to drastically reduce the copper content in brake pads, which are responsible for more than half of the copper in urban runoff. A report entitled Estimated Urban Runoff Copper Reductions Resulting from Brake Pad Copper Restrictions, CASQA 2016 concludes that newly manufactured brake pads contain significantly less copper than they did in the early 2010s and that on-road copper content is dropping. The report is incorporated into these comments by reference.

Response 3.3 - Board staff agree that the reduction of Cu in brake pads is likely part of reduction of Cu input from the tributaries; note, however, that the proposed TMDLs do not require a reduction in Cu discharges in tributary runoff. The Cu TMDLs require continued montoring and evaluation to ensure that the allocation for tributary runoff is not exceeded. See Table 5-2 in the Staff Report 2016.
Once again, the principal source of Cu inputs to the Bay is Cu AFPs.

Comment 4 - The assessment of sediment impairment should be based on the California State Sediment Quality Objectives – Part I policy (SQOs), adopted by the State Water Resources Control Board in 2008. The SQOs are a comprehensive and scientifically rigorous way to evaluate sediment quality in enclosed bays and estuaries. In developing the SQOs it was recognized that sediment chemistry alone was a poor measure of sediment quality, even coupled with sediment toxicity. A sediment chemistry exposure category is used instead, which is composed of two chemical index scores based on the concentrations of a wide range of chemicals. The sediment chemistry category is combined with two other lines of evidence – benthic community index and toxicity – to make a determination on the overall sediment quality. The impairment assessment, in contrast, uses sediment quality guidelines that are now widely recognized as scientifically unsound or inappropriate for this application and data that in some instance appears questionable.

Response 4 - The comments above reiterate the City's comment 3.1 - Attachment 3, and the Irvine Company's comment 4.3. See responses to these comments.

The following examples illustrate these concerns:
Comment 4.1 - The Staff Report makes extensive use of effect range low (ERL) and effect range medium (ERM) guidelines, both of which were originally intended only as screening levels for sediments. SQOs represent the latest science and have been shown to correlate with actual sediment quality better than other parameters, including ERM, which has an especially poor correlation with toxicity for data collected in California. Use of ERL is not appropriate in the context of a TMDL regulatory document.

Response 4.1 - With respect to ERM sediment guidelines, see response to the City's comments in

Attachment 3 and the Irvine Company's comment 4.3.
The ERLs were not used to determine impairment, they were only used as indicators to determine what metals to watch with continued monitoring. See responses to the City's comment 3.1 - Attachment 3 and the Irvine Company's comment 4.3.

Comment 4.2 - There is no basis for use of median international standards (MIS) in any kind of impairment assessment. Their scientific validity is highly questionable, since there has not been any attempt to our knowledge to verify their connection to adverse effects in humans or ecological receptors. Furthermore, it is speculative to assume that those numbers have any connection to adverse health effects in humans in Newport Bay even if they were valid in the countries from which they were derived, because such factors as differences in fish consumption, other dietary contaminant sources, or differences in susceptibility are not considered. For lead and zinc, it is especially arbitrary to pick MIS guidelines that were "closest to the Toxics TMDLs guidelines" when the basis of those guidelines is completely unknown, as is stated in the staff report.

Response 4.2 - The MIS guidelines for fish tissue were only used when no other guideline was available (for Cr, Cu, Pb, Zn). This is consistent with the State Board's SLP. These guidelines were also used by USEPA in their Metals TMDLs (2002). No impairment was found based on these guidelines.
See responses to the City's comments 6.11 – 6.13 – Attachment 6.

Comment 4.3 - The metals data from the 2007 Marina Study has significant QA/QC issues. The method blank samples yielded the highest metals concentrations among all samples, including actual water samples.

Response 4.3 - All data used was rigorously QA/QCd by CRG laboratories. The data referred to by the County was one set of pore water data – the pore water data was not included in the data set used to determine impairment in water. See Table 4-10 of the Staff Report 2016.

Comment 4.4 - The reason given in the Staff Report for not using the SQO approach is that SQO data were not available. However, SQO data have been collected in Newport Bay by the County since 2009 and reported in the County Unified Annual Progress Reports to the Regional Board.
SQO results since that time have shown both a reduction in toxic pollutants and a reduction in sediment toxicity. In the most recent year for which data were available (2014), all sites throughout the Bay were nontoxic, and most sites have shown very little sediment toxicity since 2010, the year the dredging was completed in Upper Newport Bay.

Response 4.4 - See responses to the City's comment 3.1 - Attachment 3, and the Irvine Company's comment 4.3. The proposed TMDLs/Action Plans require continued monitoring and evaluation to identify the need for and locations of remedial action, such as dredging, to address metals in sediments. To the extent that conditions in the Bay have improved, the need for these actions should be reduced.

Comment 4.5 - The data analysis in the impairment assessment needs to be updated to include recent County data and be based on the SQOs.

Comment 4.5.1 - "The data analysis in the impairment assessment needs to be updated to include recent County data…"
Response 4.5.1 – With respect to updating the data analysis, see responses to the City's comment 3.1 - Attachment 3.

Comment 4.5.2 - "…and be based on the SQOs."
Response 4.5.2 - Board staff have revised the numeric targets in the Cu TMDLs, to include sediment quality objectives (SQOs). The SQOs were added to implement the EBE Plan-Part 1.
With respect to the analysis being based on the SQOs, see responses to the City's comment 3.1 - Attachment 3, and Irvine County's comment 4.3.

Comment 5 - Dissolved copper loads in tributary runoff (freshwater) were estimated from total copper in stormwater samples using a dissolved/total metal translator. This approach is not appropriate since actual monitoring data are available, which should be used. Using the mean dissolved/total ratio of 0.8 increases the load calculation by at least 40% compared to using actual dissolved copper data.

Response 5 - The dissolved/total (D/T) ratio was used to translate total metals for freshwater runoff listed in Table 5-2. The D/T ratio of 0.8 is USEPA's standard translator for total to dissolved metals to determine an estimated dissolved metals concentration. This is a conservative estimate.
In addition, new data from San Diego Creek and Santa Ana Delhi were evaluated only with respect to Cu loading from those tributaries, since SD Creek is no longer listed for metals.
USEPA used this methodology to determine dissolved metals in their Metals TMDLs (2002). Board staff used this methodology to be consistent with USEPA's TMDLs.

The proposed TMDLs and Action Plans do not require reductions of metals in tributary runoff. The proposed Cu TMDLs include an allocation for tributary runoff that is already being met; therefore, no reduction is required for Cu discharges from tributary runoff. Continued monitoring and evaluation is required to ensure that the allocation for tributary runoff continues to be met.

Comment 6 - Dischargers/responsible parties listed for the Non-TMDL Action Plans are required to submit an Action Plan and schedule within 3 months from the date of USEPA Basin Plan Amendment. A 3-month period is insufficient to complete this task.

Response 6 - If approved by the Regional Board, the proposed Basin Plan amendments would need to be approved by the State Water Resources Control Board, Office of Administrative Law and USEPA before they become effective. This approval process is likely to take a year or more to complete. Responsible parties have ample time to develop a proposed implementation plan(s) and schedule. The proposed implementation plan(s) and schedule should consist of strategies to reduce Cu discharges from boats; and continued monitoring and evaluation, and source analysis, tasks with which the County is clearly very familiar, given the County's long-term and extensive monitoring in the Newport Bay watershed, including Newport Bay. Due to the lengthy approval process, we believe that a 3 month period (from the date of USEPA's approval of the TMDLs) to submit the proposed Plan and schedule is reasonable. In addition, these Cu TMDLs were first presented in July 2015, giving responsible parties ample time to consider appropriate implementation strategies.

Comment 7 - The implementation plans for both the copper TMDL and non-TMDL metals list out dischargers/responsible parties that will be difficult to regulate, for example boat owners of transient vessels. It is unclear how they will be required to comply with the requirements contained in this TMDL.

Response 7 - Board staff acknowledge that some responsible parties, such as owners of transient vessels, will be difficult to regulate. The proposed Implementation Plan requires the responsible parties to develop their own implementation plan(s) and schedule. This requirement may be implemented through the adoption of Waste Discharge Requirements or a Conditional Waiver of Waste Discharge Requirements that likely would be issued first to the City of Newport Beach and the County, under whose

direction considerable progress to achieve the TMDLs can be and is expected to be made. The need for further regulatory action would be assessed on the basis of the results of the implementation of the City's/County's approved and implemented strategic plans.
See responses to the City's comments 1 – Attachment 1, 6.5.4 – Attachment 6, and the Irvine Company's comment 5.

Comment 8 - As discussed in 3) above, California Senate Bill No. 346 (Kehoe), approved in 2010, lays out a schedule to drastically reduce the copper content in brake pads, which are responsible for more than half of the copper in urban runoff. After the milestones of 2021 and 2025, brake pads will no longer be a significant source of copper in the environment in California. These requirements are more than sufficient to reduce the urban runoff allocation and there should be no additional requirements for the MS4 discharges in the TMDL implementation plan.

Response 8 - Board staff agree that the Cu load from tributaries has decreased from the Cu load shown in USEPA's Cu TMDLs (2002), and this reduction is likely due in part to decreases from the implementation of the Sediment TMDL and possibly from decreases due to the reduction of Cu in brake pads. No reduction for tributary runoff is required by the proposed Cu TMDLs at this time. Continued monitoring and evaluation is required to ensure that the Cu allocation for tributary and stormdrain runoff continues to be met.
See responses to the City's comments 6.40 and 6.41 – Attachment 6, the Irvine Company's comment 1, and the County's comment 3.3.

Specific comments on Staff Report:
Note that specific comments are labelled S#.

Comment S1 - Section 3.2, last paragraph, page 13. The terminology should be clarified: Should bioconcentration be bioaccumulation and should bioaccumulate be biomagnify?

Response S1 - Comment noted. The term "bioconcentration" used in the Staff Report was taken from the reference cited and is synonymous with "bioaccumulation". The term "biomagnify" is more correct than "bioaccumulate" in this section.

Comment S2 - Section 3.3, second to the last paragraph, page 14. If a delist decision for general metals is warranted, the reasons for State Board staff not delisting the Upper Bay should be further clarified.

Response S2 - Board staff have consistently recommended that the general metals category for the Upper Bay be delisted, and it was finally delisted in the 2018 listing cycle. (The general metals category for Lower Newport Bay was already delisted based on State Board's 2006 assessment.)

See responses to the City's comment 6.2 – Attachment 6.

Comment S3
S3.1 - Section 4.2.1, page 23 under "Water data". Chronic objectives should not be used for this assessment. Samples collected are typically grab samples, representing only a moment in time, and cannot necessarily be assumed to represent long term water quality.

Response S3.1 - The comments above reiterate the City's comments 6.6 and 6.7 - Attachment 6. See responses to these sections.

S3.2 - Section 4.2.1, page 23 under "Water data". The Regional Board should evaluate water column exceedances of copper using either the water effect ratio (WER) or the Biotic Ligand Model (BLM; pending USEPA's final rule) for marine and estuarine waters, which was recently released as a draft [81 FR 49982 (July 29, 2016)] instead of California Toxics Rule (CTR) criteria. CTR marine criteria do not account for bioavailability, which often results in overly protective criteria. The BLM provides a robust, scientifically based method for estimating the potential toxicity of metals, with the understanding that the availability of binding ligands and competition from other cations in natural waters reduce the bioavailability of toxic metals. The water column impairment assessment should be deferred until the BLM is finalized and re-assessed using that approach.

Response S3.2 - Board staff did evaluate water column data for Newport Bay using the Biotic Ligand Model (BLM). The saltwater Cu BLM was run with data from the Cu-Metals Marina study (2007), and the results showed that when the DOC is below 1mg/L, the Cu BLM criterion is close to the CTR criterion. Note that the Cu BLM criterion calculated by the saltwater BLM is highly dependent on the DOC; therefore, to ensure determination of the most protective Cu BLM criterion, the DOC must be characterized throughout the year so that the lowest DOC can be used to determine the appropriate Cu BLM criterion.
In the Cu-Metals Marina study, DOC was analyzed for all samples and DOC concentrations varied widely seasonally; again, to be protective, the Cu BLM criterion derived with the lowest seasonal DOC concentrations should be used. Note that the County also ran the BLM for their Cu/DOC data; and found the same result as described above.
The compliance schedule for the proposed TMDLs allows for WER investigations by the responsible parties, if the parties elect to pursue them. If a revised CTR criterion is developed through the WER process, then reconsideration of the TMDLs would be appropriate.

Comment S4 - Section 4.2.1, page 23 under "Sediment data". Organics data are available for Newport Bay and Sediment Quality Objectives (SQOs) analyses have been performed since 2009. The impairment analysis should use the SQO policy rather than the sediment quality guidelines (SQGs) from Long et al.

It is not appropriate to perform an ambient sediment impairment analysis for only metals, or any other single class of pollutant, since there is a possibility of the presence of other contaminants in the sediment. Just because the Staff Report is analyzing the effects of the metals does not mean the effects of other contaminants go away.

It is also not appropriate to say Effects Range Medians (ERMs) represent values above which adverse effects are expected. That is not how these were calculated. ERMs represent the median of the observed effects range for the studies selected for inclusion by Long et al. (1995), and do not necessarily have any predictive value at all. They do not take into account such factors as natural geology or natural biotic assemblage, which may strongly influence the toxicity of some pollutants, especially metals that are elevated due to local geology.

Response S4 - This comment brings up a good point –the evaluation of sediment impairment should not be related to one group of contaminants and toxicity; however, this evaluation is allowed under the State Listing Policy (SLP) if there are not enough data to evaluate the sediments under the sediment quality objectives (SQOs). The studies evaluated for Board staff's Impairment Assessment did not include all the data required to evaluate sediment quality objectives (SQOs); therefore, the sediment data were evaluated against the ERM sediment guidelines. Toxicity was also evaluated.
Board staff have revised the numeric targets in the Cu TMDLs, to include sediment quality objectives (SQOs). The SQOs were added to implement the EBE Plan-Part 1. Board staff have addressed the

sediment guideline issues in Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report; and responses to the City's comment 3.1 - Attachment 3, the Irvine Company's comment 4.3

Comment S5 - Section 4.2.1, page 24 under "Toxicity data". Toxicity data used are from 2002-10. Current data should be used instead. Significant recent dredging projects have been conducted throughout Newport Bay that have significantly reduced Bay sediment toxicity (see also the General Comments) and recent data would be more reflective of current conditions.

Response S5 - The comments above reiterate the City's comments 6.17 through 6.19 - Attachment 6, and the Irvine Company's comment 4.3. See responses to these comments.

Comment S6 - Section 4.2.1, page 25 under "Fish/Mussel Tissue data" 3rd paragraph.
S6.1 - The 200 ng/g ww guideline for methyl mercury from Looker & Johnson (2006) should not be used for impairment assessment. This is calculated specifically for fish consumption rates in San Francisco Bay, to be protective of San Francisco Bay anglers. There are no known data to suggest fish consumption rates in Newport Bay are similar to those in San Francisco. It is reasonable to assume consumption rates are lower in Newport Bay.

Response S6.1 - Comment noted. This was the only human health guideline found for mercury (Hg) – other guidelines were for methyl Hg. The use of this guideline is allowed under the State Listing Policy (SLP).
See response to the City's comment 6.10 – Attachment 6.

As to fish consumption in Newport Bay, there is no documentation that it is lower than fish consumption in San Francisco Bay. While there may be less fishermen in Newport Bay compared to S.F. Bay, the fishermen in Newport Bay tend to fish for their families, and consume their catch[13].

S6.2 - It should also be specified that human health guidelines should be for filet only, the higher wildlife guideline should be for larger whole fish composites, and the lower wildlife guideline should be for composites of whole fish less than 5 cm in length.

Response S6.2 - Only fish filets were evaluated against human health guidelines.

Comment S7 - On page 25 5th paragraph, last paragraph and elsewhere. The specific pages from the publications that were the source of cadmium, chromium, and other fish tissue guidelines for wildlife protection derived from Eisler should be cited. We are unable to verify the fish tissue guidelines for wildlife protection from Eisler in any of his synopses. The only tissue guidelines apparent in the references are for protection of human health. At least one guideline, the guideline for chromium, appears to derive from a single study on black ducks, which do not occur on the Pacific coast. Use of such a guideline would not be appropriate.

Response S7 - Comment noted.
First, the tissue guidelines from Eisler (references 13, 13a in Table 4-3) are not given in the abstract, they are given in the text of each reference. The complete Eisler references are given in the Staff Report 2016, and can all be downloaded from the Internet (see list below for page numbers).

[13] Newport Bay Shellfish Harvesting Use Attainability Assessment. 2004. Kinnetic Laboratories for the County of Orange.

Eisler references
Cadmium - Eisler 1985, pages 2 and 22
Chromium (Cr3+) - Eisler 1986, pages 2 and 26
Copper - quote from DOI 1998 Table 8, page 51
Nickel - Eisler 1998, page 80
Lead - Eisler 1988, page 2
Silver - Eisler 1996, page 3
Zinc - Eisler 1993, page 4
--for Cr, Zn, Ag, Ni, wet wt. conversion from dry wt. screening values (assumes fish contain 75% moisture);
--Cr value is for Cr3+, no value could be found for total Cr
--Pb value is for reproduction impairment not a no effects level

Comment S8 - Section 4.2.2 (Data Analysis)
S8.1 - - The data review should include the most current data. Otherwise the review does not accurately characterize conditions in Newport Bay, but rather characterizes a historical condition. This wastes public resources examining impairments that perhaps no longer exist, and for stakeholders to respond and perhaps implement activities to correct impairments that have already been corrected.
S8.2- It was argued earlier in the Staff Report that SQO data were not available, resulting instead in the review of sediment toxicity and chemistry using SQGs from Long et al., which are widely recognized as a far inferior approach, including by the State Board. SQO data have been available for Newport Bay since 2009. Therefore, evaluation of sediment quality using SQO policy is not only possible, but is the necessary approach. It is especially important to use recent data because several dredging projects have since been completed in the Bay that dramatically improved sediment quality (see General Comments). Recent data shows a virtual absence of sediment toxicity in recent years at the County's Bay monitoring stations.

Response S8.1 - Sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets now include sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged, and areas that have not been monitored. Sediment Cu should also be evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.

See responses to the County's comment 3 above.
See also responses to the City's comments 3-1 – City Letter, and 3.1 - Attachment 3.

Response S8.2 Not all studies used for the Impairment Assessment had sufficient data to use the SQOs, and the SLP allows for the use of sediment guidelines when there is not enough data to use the SQOs.
See responses to the County's comment 4 above.
See also responses to the City's comments 3.1 - Attachment 3, and the Irvine Company's comment 4.3.

Comment S9 - Section 4.2.2.1, page 30 4th paragraph. It is incorrect to characterize samples from the

Marina Study as being from "Upper and Lower Bay." These samples were collected from marinas and adjacent to marinas and are representative of those areas only.

Response S9 - The Cu-Metals Marina study included marinas in both the Upper and Lower Bay. Marinas sampled included the Dunes and DeAnza marinas which are in the lower part of the Upper Bay. Board staff are aware that there are no marinas in the upper part of the Upper Bay as it is a State ecological reserve.

Comment S10 - Section 4.2.2.1, page 30 5th paragraph. SQGs should not be used for impairment assessment, even as a line of evidence, despite their use as targets in other regions. In the manner in which they were developed, they are scientifically indefensible for use as targets, or arguably, even for use as screening levels, which was their original purpose. The state SQO Policy has been adopted, and it should be applied for impairment assessment. In addition, SQO data are more recent than those used in the Regional Board staff assessment, and are more reflective of current conditions in Newport Bay.

Response S10 - See responses to the County's comment 4 above and Specific Comments 4, 8.1 and 8.2. See also responses to the City's comments 3.1 - Attachment 3, and the Irvine Company's comment 4.3.

Comment S11 - Section 4.2.2.1, page 30 under "Sediment toxicity". There are only 6, not 60 toxicity monitoring sites in Newport Bay. The data discussion likely references numbers of samples, not sites. Also, a major dredging project was in progress in Upper Newport Bay from 2006-10, which could have affected both sediment toxicity and benthic infauna samples.

Response S11 - Comment noted – this was likely a typographical error.

Comment S12 - Section 4.2.2.1, page 31 2nd paragraph, last sentence. The burden for future routine monitoring of marinas appears to be placed on the County. This is not appropriate since the County has limited ownership within Newport Bay and its marina is operated through a lease.

Response S12 - The referenced paragraph states that "Because of the ERM exceedances and the sediment toxicity, the Turning Basin area in particular needs future action including continued monitoring and evaluation. The City of Newport Beach dredged parts of Lower Newport Bay in 2012; however, these dredge sites did not include the Turning Basin area or marina sites." These statements do not reference the County or the City with respect to future monitoring. The Cu TMDLs and Action Plans require responsible parties, including the City and County, to develop and submit for approval their own implementation plan(s) and schedule for these TMDLs and Action Plans, including monitoring and evaluation, and to implement those plans upon Regional Board approval. We expect that the City and County will take the lead in the development and implementation of these plans.

Comment S13 - Section 4.2.2.3, page 33. There is much extraneous material in this discussion that is not related to impairment assessment.

Response S13 - Comment noted; however, Section 4.2.2.3 of the Staff Report 2016 is a description of the Cu Reduction Project in Lower Newport Bay. While some project tasks are not directly related to the Impairment Assessment, these tasks were included to give a complete description of the project.

Comment S14 - Section 4.2.2.4, page 34. These data should not be used in the impairment assessment since the samples for this study were sediment cores and not surficial sediments. There is no evidence

that any detected toxic pollutants were bioavailable and represent a current impairment. Instead, they likely represent a historical condition, and it is likely that contaminated cores have since been covered with cleaner sediments, rendering toxic contaminants unavailable for biological uptake. Consequently, the entire section should be deleted.

Response S14 - The use of core data is explained in the section "Impairment shown in this study: Mercury (Hg) in core sediments in the Lower Bay Sediment" which states "Surface samples should be analyzed from these areas since impairment determination for sediments is based on surface sample data." Core data were not used to determine impairment, and were initially included in Table 4-10 to show all the data.

Comment S15 - Section 4.2.2.5, page 35. Allen's study of food web transfer of contaminants in fish tissue also represents old data and should not be used for this impairment assessment. This report is also not available on the SCCWRP website, or anywhere else online, and consequently the information contained in the report cannot be independently verified.

Response S15 - The comments above reiterate the City's comments 3-1 – City Letter and 3.1 - Attachment 3. See responses to these comments. Allen's paper (and data) were obtained from the author, and are part of the administrative record.

Comment S16 - Section 4.2.2.6, page 39. As with other data used in this section, these data are old and should not be used for the impairment assessment, especially when California Department of Fish and Wildlife have continued to collect data in Newport Bay up to the present.

Response S16 - See responses to the County's comment 15 above, and the City's comments 3-1 – City Letter and 3.1 - Attachment 3.

Comment S17 - Section 4.2.2.8, page 42. These sediment toxicity studies, like other studies cited in this section, contain very old data that should not be used in the impairment assessment. It is worth noting, however, that while sediment from Upper Newport Bay was determined to be toxic to amphipods, use of a cation exchange resin did not remove toxicity, indicating metals were not the likely cause of the toxicity. Only the addition of coconut charcoal was effective at removing sediment toxicity, suggesting instead that unmeasured nonpolar organic chemicals were the likely cause of toxicity. At the same time, there were copper, zinc, and cadmium exceedances of their relative ERLs. This clearly shows that ERL exceedances are not evidence of metal toxicity and should not be used in the impairment assessment. As noted previously, sediment dredging in Upper Newport Bay after this study was conducted has removed the vast majority of toxic constituents and associated toxicity. The current condition of Upper Newport Bay sediments, as determined through routine monitoring by the County, is that it is primarily nontoxic.

Response S17 - The comments above reiterate the City's comments 3-1 – City Letter, and 3.1 - Attachment 3, and the Irvine Company's comments 1.1 and 4.1. See responses to these comments.

Comment S18 - Section 4.2.2.10, page 44. It is unclear why this 2014 study from OC Coastkeeper was included in the impairment assessment but recent County and SCCWRP Bight data from Newport Bay were not. With respect to this study, it is worth noting that it showed copper, zinc, and mercury ERM exceedances, which are supposed to be indicative of likely toxicity, and yet sediments were found to be nontoxic. This is further evidence that SQGs are not associated with toxicity and exceedances of SQGs cannot be used as evidence of impairment.

Response S18 - The 2014 Coastkeeper and Candelaria study (Metals Sediment study in Lower Newport Bay) was included as it sampled post-dredged sediments and resampled a subset of marina sites from the Cu-Metals Marina study (2007). In addition, Bight results were not available at the time this Impairment Assessment was being conducted, while data from the Metals Sediment study were readily available.
See also responses to the City's comments 6.10, 6.15 through 6.17 - - Attachment 6, and the Irvine Company's comment 4.3.

Comment S19 - Section 4.2.4, page 49 5th paragraph under "Water and Sediment Impairment". There are many instances of data in the impairment assessment that show exceedances of SQGs but no toxicity. This again indicates that sediment SQG exceedances are not evidence of impairment at all. Thus, the zinc and mercury impairments are not supported and they should not be 303(d) listed.

Response S19
Board staff agree that some sediment data show exceedances of ERMs but not toxicity.
Sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets are now based on sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged. Sediment Cu should also be monitored and evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.
See responses to the City's comments 6.10, 6.18, 6.29, 6.32, 6.34 and 6.39 – Attachment 6, and Attachment 3, and the Irvine Company's comment 2; and Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Comment S20 - Table 4-13 and Table 4-14, pages 50 to 55. New 303(d) listings are not justified by existing data. Many listings rely on median international standards (MIS) for tissue and SQGs for sediment. MIS are not only very old, but the data on which they were based is of unknown provenance. SQGs, as discussed previously, were developed as screening levels and not sediment targets, and despite their wide use, have no direct connection to sediment toxicity. Exceedances of MIS and SQGs are not reliable as indicators of impairment, and therefore listings based on such exceedances are not appropriate.

Response S20 – The County was not specific as to which new "303(d) listings are not justified by existing data" – does the County mean all new listings or some new listings, and if some new listings then listings for which metals?
With respect to MIS guidelines - MIS guidelines for fish tissue (for human health risk) were only used to determine impairment where no other standards were found, and <u>no impairment</u> was found based on these standards.
With respect to the use of SQGs – SQGs have been repeatedly addressed. See responses to comments 4.4 and specific comments S4, S8.2, S10 and S18 above. See also responses to the City's comments 3.1 - Attachment 3, and the Irvine Company's comment 4.3.

Comment S21 - Section 5.1, page 59. The problem statement as it relates to sediments should be edited. As discussed previously, SQGs should not be used for impairment assessment. Sediment toxicity should also be updated, since most recent data do not show sediment toxicity in either Upper of Lower Newport Bay. Moreover, recent SQO data do not support the listing for copper in sediment.

Response S21 - The comments above reiterate the County and City's comments. See responses to the County's comments 4.4 and specific comments S4, S8.2, S10, S18 and S20 above. See also responses to the City's comments 3.1 - Attachment 3, and the Irvine Company's comment 4.3

Comment S22 - Section 5.3.6, page 63. There is no evidence that macroalgae in Newport Bay are a substantial part of the diet of any significant wildlife populations, even though many might consume algae as part of their diets. Examination of copper in algae is not appropriate and this section should be deleted.

Response S22 - As explained in the Staff Report 2016, Allen (2008) found that some metals exceeded the fish tissue guidelines in algae. The investigation of metals in algae and other vegetation is noted since regular monitoring of algae/vegetation is not conducted, and algae/vegetation is a potential source of metals to fish. Note that Section 5.3.6 Algae and other vegetation is included under Section 5.3 Source Analysis for Copper of the Staff Report, as a potential source of Cu, and states that "In addition, algae and other vegetation may contain Cu; however, these sources have not been quantified." This section would be incomplete if algae and other vegetation were not included as a potential source of Cu (and other metals).

Comment S23 - Page 69, 4th paragraph item 1.3. The County has limited ownership within Newport Bay and any marina activities are developed and managed through a lease. The County should not be named as a discharger in this section.

Response S23 - Board staff have established why the County is considered to be a discharger to Newport Bay in Section 5.6.2 of the Staff Report 2016.

Comment S24 - Section 5.6.2.1, page 85 4thparagraph. The County does not manage any marinas in Newport Bay (see 23) above).

Response S24 - The County was listed as a responsible party because it owns some of the tidelands in Newport Bay, including the Dunes, not because it manages the Dunes marina. See response to comment S23 above.

Comment S25 - Section 5.6.2.2, page 88 and Section 5.6.3.2, page 97. The requirement to investigate and identify sediment impairment in areas with limited or no current data is ambiguous and could be an onerous burden on responsible parties. It could take years to robustly characterize Newport Bay sediments, even to characterize general areas within the Bay.
It would also be a very costly endeavor. Sediment toxicity and chemistry testing currently cost a minimum of $521 per sample. Sediment sampling is also very labor intensive and requires significant boat travel time. In a full work day, a team of two County employees can collect a maximum of only four sediment samples. The process is time-consuming because sediment sampling requires repeated use of a Petite Ponar dredge to collect sufficient sample for toxicity testing and is often complicated by the fact that the presence of rocks and shells can make sediment collection difficult in many areas.
Such monitoring would also be wasteful of resources since SQO results in 2014 (the last year for which data are available) have shown sediments are nontoxic at County monitoring stations, which are

throughout the Bay, including Rhine Channel and the Turning Basin.
The requirement to investigate and identify areas of potential sediment impairment should be removed.

Response S25 - The proposed TMDLs and Action Plans require the submittal of a proposed implementation plan(s), including monitoring and evaluation, by the responsible parties for approval by the Regional Board. The factors identified by the County in this comment can be considered in the development/approval of these plans. While there has been monitoring in the Bay, there are areas of concern where metal concentrations exceeded the sediment ERMS, in particular marinas and the Turning Basin/S. Lido Channel areas (note that the County does have one site in the Turning Basin). Monitoring is appropriate to determine whether impairment exists based on the 2014 sediment quality objectives (SQOs). The monitoring plans may be adjusted based on the results. Note also that based on the SQO analysis submitted by the Irvine Co., some sediment impairment is indicated.

Comment S26 - Section 5.6.3.1.2.2, page 95. The implementation tasks should be coordinated and prioritized in an adaptive framework, rather than through a prescriptive list. Many of the strategies/tasks may not be required unless monitoring results, particularly after initiation of implementation efforts, show that other copper sources need to be addressed, as described in the following points (see additional comments below).

Response S26 - The framework of the proposed Implementation Plan <u>is adaptive</u>, rather than prescriptive. The proposed Implementation Plan calls for the development of a proposed implementation plan(s) by the responsible parties that includes strategies to meet the TMDLs and Action Plans. Board staff's proposed Implementation Plan identifies strategies that must be considered by responsible parties in developing <u>their own proposed implementation plans</u>. It is recognized that the strategies implemented by the responsible parties will likely need to be revised over time.
See also responses to the City's comments in Attachment 2.

Comment S27 - Sections 5.6.3.4 and 5.6.3.5, page 99. A requirement to evaluate local impacts from storm drain copper discharges is unnecessary. The majority of copper conveyed by storm drains results from brake pad dust, which will be abated by the phase out of copper in brake pads by SB 346. There is no need to create and implement a plan for a problem that will largely cease to exist within the next few years, especially considering that copper discharges from storm drains are so small relative to marine anti-fouling paints (this is noted in the draft Staff Report).
In addition, many storm drains only discharge during storms. MS4 permit required wet weather monitoring already consumes a great deal of resources, including personnel and equipment. Wet weather storm drain monitoring is especially time-consuming and difficult to do and would compete with other required monitoring during the short wet weather periods.

Response S27 - The data show that Cu loading from storm drains is low compared to Cu discharges from boats and tributaries; however, there could be localized impacts in areas where the largest storm drains empty into the Bay and where those discharges have higher Cu concentrations. While Cu concentrations in storm drain runoff may have decreased in response to SB 346, it nonetheless remains appropriate to determine whether such runoff causes or contributes to adverse impacts in the receiving waters.

Comments S28 - Section 5.6.3.5, page 100. Fish and shellfish tissue monitoring in Newport Bay has historically been conducted by the state Department of Fish and Wildlife. The County does not have the current capability to conduct such monitoring, without hiring consultants.

Response S28 - Tissue monitoring is necessary to assess metals concentrations and potential impacts to

the biota, as well as to evaluate trends over time. The implementation of an appropriate monitoring and evaluation program may require the involvement of consultants, a process/procedure with which the County has extensive experience. The responsible parties have the opportunity to propose an appropriate program, which would be implemented upon Regional Board approval.

Comment S29 - Section 5.6.3.6.1, page 100. Determination of copper load from Newport Bay sediments would be an extremely challenging investigation, far beyond the normal capabilities of MS4 permittees and more suitable for specialized academic investigation. This requirement should be removed. If it is not removed, it should only be included as part of an adaptive management framework and pursued only if it is determined that this data are needed to achieve TMDL goals.

Response S29 - The load of Cu desorbing from sediments that are resuspended has been brought up in a number of discussions; however, the determination of the Cu loading from sediments is one of the special studies recommended, but not required, in the Implementation Plan of the proposed Cu TMDLs. Specifically, the Section 5.6.3.6 of the Staff Report states that "If the implementation tasks above are not sufficient to achieve the TMDL, then Cu loading from additional sources should be evaluated." This approach is consistent with the County's recommendation above. See also responses to the City's comment 2.1 - Attachment 2.

Comment S30 - Section 5.6.3.6.2, page 101. Copper load from algae is likely minimal relative to the load from anti-fouling paints. This is especially likely considering the decline in macroalgae in Newport Bay since the Newport Nutrient TMDL was established. There has not been a major algae bloom in the Bay in nearly a decade. As with sediments, investigation of algal copper load should only be included as part of an adaptive management plan and pursued only if it is determined this data is needed to achieve TMDL goals.

Response S30 - Board staff agree that it is likely that Cu loading from algae and other vegetation are low. Again the Special Studies, which include the investigation of algal Cu loading, are recommended rather than required studies. See responses to S29 above.

Comment S31 - Section 5.6.3.7, Page 106. There is no implementation task 1.2.2.8, it should be 1.2.2.5.

Response S31 - Comment noted. The reference has been revised.

Comment S32 - Section 9.1 Peer Review, page 130. USEPA did not conduct a peer review in 2002 for the Metals TMDLs. Per the response to comment L.14 on p. 8 of USEPA's responsiveness summary https://www3.epa.gov/region9/water/tmdl/nbay/tsdi0602.pdf USEPA writes, "While these TMDLs have not been subject to a formal peer review process, they have been subject to comprehensive public review, including workshops during and after development of the draft TMDL and the formal public comment period." A peer review should be conducted (see also Specific Comment 33)

Response S32 - The comments above reiterate the City's comment 6.56 - Attachment 6, and the Irvine Company's comment 3.1. See responses to these comments.

Comment S33 - Appendix 6.1.3, page 160. The method used to calculate copper loading for recreational boats has not been peer-reviewed. Given the importance of this calculation to the overall TMDL, peer review should be conducted. See also General Comment 2 on letter and Specific Comment 32.

Response S33 - See responses to the City's comments in Attachment 1.

Comment S34 - Appendix 6.2, page 162. The date range for County data used in Tables 6-2.1 and 6-2.2 is inconsistent. Moreover, dissolved copper loads were calculated from total copper even though dissolved copper data are available. Recalculations using actual dissolved copper concentrations yield lower loads than reported in the Staff Report. See also General Comment 5.

Response S34 - Table 6-2.1 shows the annual <u>total Cu loads (lbs/yr)</u> from San Diego Creek and Santa Ana Delhi (County data from 2006-11) and Table 6-2.2 shows the mean annual total Cu concentrations (µg/L) from San Diego Creek and Santa Ana Delhi (County data from 2006-11). Table 6-2.2 was corrected to show that the data were from 2006-11.

Specific Comments on Draft BPA:
Comment S35 - 1) Table 6.1 Cu-1, page 3, under "Source Analysis for Cu"- Dissolved copper loads in tributary runoff (freshwater) were estimated from total copper in storm water samples using a dissolved/total metal translator. Actual monitoring data are available and should be used instead. See General Comment 5.

Response S35 - See responses to the County's comment 5.

Comment S36 - 2) Table 6.1 Cu-1, page 5, under "TMDLs, Waste Load Allocations, and Margin of Safety for Cu"- For freshwater discharges, the mean copper discharge from San Diego Creek and Santa Ana Delhi for wet years from the County's calculation using actual data came out to approximately 1,880 pounds of dissolved copper per year vs 3005 pounds of dissolved copper per year using the translator.

Response S36 - See responses to the County's comment 5.

Comment S37 - 3) Table 6.1. Cu-1, page 7, under "Implementation Plan", tasks 1.2.1(1), 2.1(1), 3.2(1), 3.2(2), 4.1(1), 4.1(3) and 5(1). Responsible parties are required to submit plan(s) and schedule(s) within 3 months from the date of USEPA Basin Plan Amendment. A 3-month period is insufficient to complete this task (see also General Comment 6).

Response S37 - See responses to the County's comment 6.

Comment S38 - 4) Table 6.1. Cu-1, page 7, under "Implementation Plan". A number of the responsible parties listed will be difficult to regulate. It is unclear how they will be required to comply with the requirements contained in this TMDL (see also General Comment7).

Response S38 - See responses to the County's comment 7.

Comment S39 - 5) Table 6.1. Cu-1, page 13, under "Conduct Special Studies". Copper load from algae is likely minimal relative to the load from anti-fouling paints. Investigation of algal copper load should only be included as part of an adaptive management framework and pursued only if it is determined this data is needed to achieve TMDL goals (see also Specific Comments 22 and 30).

Response S39 - See responses to the County's comments S22 and S30.

Comment S40 - 6) Table 6.1. Zn, Hg, As, , Cr-1, page 16. SQGs from studies like Looker and Johnson, or

standards like MIS should not be used as numeric targets (see Specific Comments 6 and 20).

Response S40 - See responses to the County's comments S6 and S20.

Comment S41 - 7) Table 6.1. Zn, Hg, As, Cr-1, under "Implementation Plan", tasks 1.1(1) and 2.1(1) page 18. Responsible parties are required to submit plan(s) and schedule(s) within 3 months from the date of USEPA Basin Plan Amendment. A 3-month period is insufficient to complete this task (see also General Comment 6).

Response S41 - See responses to the County's comment 6.

Comment S42 - 8) Table 6.1. Zn, Hg, As, Cr-1, under "Implementation Plan" page 18, A number of the responsible parties listed will be difficult to regulate. It is unclear how they will be required to comply with the requirements contained in this TMDL (see also General Comment 7).

Response S42 - See responses to the County's comment 7.

Specific Comments on Draft SED:
Comment S43 - 1) Page 8 and 9. Zinc and mercury impairments are not justified by exceedances of SQGs alone (see prior comments)

Response S43 - See responses to the County's comments 4 and S4, and the Irvine Company's comment 4.3.

Comment S44 - 2) Page 9. The depromulgation of USEPA's TMDLs for Cu and Zn is discussed if the proposed TMDL and Action Plans are approved. The mechanism for this should be described.

Response S44 - Board staff will request that USEPA depromulgate these TMDLs. It is USEPA's decision as to whether or not they will depromulgate the TMDLs and the manner in which it would be accomplished.

Comment S45 - 3) Page 9, (2) Numeric targets for Cu in sediment. ERL should not be used (see prior comments).

Response S45 - See response to the County's comment 4.1.

Comment S46 - 4) Page 9, (1) Numeric targets for Zn, Hg, As and Cr in water. No impairment was found in the water column for these constituents. It is unclear why targets are needed.

Response S46 - These numeric targets are identified for monitoring and evaluation purposes.

Comment S47 - 5) Page 9, (2) Numeric targets for Zn, Hg, As and Cr in sediment. ERL should not be used (see prior comments).

Response S47 - See response to the County's comment 4.1.

Comment S48 - 6) Page 10, (3) Numeric targets for Zn, Hg, As and Cr in fish tissue. MIS and SQGs from Looker and Johnson should not be used (see prior comments).

Response S48 - See response to the County's comment S20.

Comment S49 - 7) Page 12, under "Upper Newport Bay". Last sediment dredging in Upper Newport Bay was in 2010 not 2005.

Response S49 - Comment noted and SED revised.

Comment S50 - 8) Page 19, under "(3) Continue monitoring in marinas, channels and Bay waters". see Specific Comments on Staff Report 12.

Response S50 - See response to the County's comment S12.

Comment S51 - 9) Page 20, section 4.1.1.2. see Specific Comments on Staff Report 25.

Response S51 - See response to the County's comment S25.

Comment S52 - 10) Page 21, section 4.1.1.4. see Specific Comments on Staff Report 27.

Response S52 - See response to the County's comment S27.

Comment S53 - 11) Page 22, section 4.1.1.5, (3) Storm drain monitoring. see Specific Comments on Staff Report 27.

Response S53 - See response to the County's comment S27.

Comment S54 - 12) Page 23, (4) Fish/Shellfish tissue monitoring. see Specific Comments on Staff Report 28.

Response S54 - See response to the County's comment S28.

Comment S55 - 13) Page 24, (2) Continued monitoring. see Specific Comments on Staff Report 28 on fish and mussel monitoring.

Response S55 - See response to the County's specific comment 28.

Orange County Coastkeeper

Comment 1 - The proposed timeline for compliance is too long. The draft TMDL includes a fifteen year timeline for compliance. This is unnecessary. The recently approved Marina Del Rey Copper TMDL has a ten year timeline, the Shelter Island Copper TMDL has a ten year timeline (after a five year voluntary compliance period) and ten years is long enough for Newport Bay. Newport Bay has already tried voluntary compliance, and the development of this TMDL has dragged on for four years, during which NO PROGRESS has been made in reducing copper in Newport Bay. TMDL history in Orange County has shown that longer timelines result on longer delays in implementation. The argument that action will occur as soon as possible but no later than the compliance date has been disproved over and over again. Copper bottom paint is replaced at an interval of three years. A ten year time period means that there are three opportunities for the average boater to switch to alternative boat bottom paints. Even using a five year operational life for copper bottom paint means that every boat in Newport Bay will replace its bottom paint twice in a ten year time frame. The fact is that alternatives to copper

boat bottom paint and the boatyard capacity to apply them exist now. The TMDL being developed should not have more than a ten year time frame.

Response 1 - The compliance schedule has been reduced to 12 years since the Cu allocation for Cu discharges from boats was increased, thereby reducing the required percent reduction of Cu discharges from boats to 60% (from 83%). The proposed TMDL compliance schedule is to be "as soon as possible but no later than 12 years from the date the TMDLs become effective", i.e., the date of their approval by USEPA. The proposed Implementation Plan requires that the responsible parties, including the City and the County, develop their own proposed implementation plan(s) and schedule(s) that include strategies to achieve the TMDLs and Action Plans. The implementation plan(s) and schedule(s) to be developed by responsible parties must document that compliance will be achieved "as soon as possible but no later than 12 years from the effective date" schedule of the TMDLs before they can be approved. The responsible parties' proposed plans and schedules will be reviewed by Board staff and must be implemented upon approval by the Regional Board (or the Executive Officer). These plan(s) and schedule(s) will also be subject to public review and comment, including Coastkeeper.

Board staff believe that the timeline is reasonable and will allow for the conversion of boats from Cu to to nontoxic AFPs during routine maintenance and repainting. The proposed Cu TMDLs assume that, in general, boats are repainted once every three to four years. It is also Board staff's understanding that repainting frequencies vary widely. If boat repainting occurs more frequently, allowing earlier conversion to nontoxic AFPs or lower leach rate Cu AFPs, then compliance with the TMDLs may be achieved more rapidly than the maximum allowable 12 years proposed.
In addition, note that some nontoxic paints require spraying rather than rolling on like Cu paints; therefore, the boatyards need time to obtain this equipment. It should be emphasized that the responsible parties may propose to implement other strategies, including the use of BMPs by underwater hull cleaners or the use of slip liners, to achieve the requisite Cu reductions.

Board staff agree that alternative paints are available based on the alternative paint study by the Port of San Diego, and the boat conversion program that the Port conducted for the implementation of the SIYB Cu TMDL. See responses to the City's comments 5.2 – City Letter, 6.51 – Attachment 6, and 7.4 and 7.8– Attachment 7.

Comment 2 - The draft TMDL compliance deadline will begin after the approval of the TMDL by the California Office of Administrative Law. This is unnecessary and adds delay to the implementation of the TMDL and confusion over the actual compliance deadlines. The TMDL being developed should include a specific start date using the adoption date of the TMDL along with date specific reporting deadlines and an end date as in the Marina Del Rey TMDL.

Response 2 - The proposed TMDLs will become legally effective upon approval by the USEPA, not approval by the California Office of Administrative Law. The compliance schedule proposed in the TMDL properly relies on the date of approval by the USEPA. Once the date of approval by USEPA is known, dates that are contingent upon the USEPA approval date will be specified in the Basin Plan.

Comment 3 - It is important that the TMDL recognize that Upper Newport Bay is designated both as a State Marine Conservation Area as well as a Ecological Reserve. The draft TMDL continues to ignore the State Marine Conservation Area (SMCA) designation for Upper Newport Bay.
This is a significant issue since the boundary of the SMCA includes the entire Upper Bay including the Newport Dunes and De Anza marinas, the Ecological Reserve does not. The October 16 2012 Supplemental Environmental Document for State Board Resolution 2012-0056 states that "… marine

water quality would play a role in the success of MPAs." In section 5.7.2 it states "If these newly designated MPAs require additional protection from potential impacts associated with degraded water quality, the State and Regional Water Boards under the authority of Porter Cologne would be responsible for developing and adopting more stringent permits or discharge conditions, including prohibitions within these areas. It is clear that the Regional Board does have a responsibility to recognize Marine Protected Areas and protect water quality within them. The Marine Protected Area designation were created because of the critical ecological functions of the Upper Bay and its significance to the state and local community. It needs and deserves the highest level of protection from all forms of pollution. The TMDL should specifically address this issue and the boats in the upper bay should be prioritized for copper reduction activities within six years.

Response 3 - The Marine Protected Area (MPA) status of the Upper Bay is noted in the description of the Upper Bay (Section 1.1)
The goal of the proposed TMDLs is to achieve water quality standards in Upper and Lower Newport Bay. There is no "higher level of protection" that can be afforded to receiving waters, whether or not they are designated as MPAs. The implementation plan(s) and schedule(s) to be developed by responsible parties must document that compliance will be achieved "as soon as possible" before they can be approved. This approach provides for the opportunity for review of the proposed implementation plan(s) that address Cu discharges from boats in the Upper Bay and Lower Bay.

Comment 4
4.1 The Non TMDL Action Plans implementation schedules and the Action Plans themselves should include specific dates for compliance. The activities detailed in the Actions Plans must be completed within the TMDL timeframe. The existing lack of any date specific deadline for the creation or completion of the Action Plans will result in unnecessary delays in their creation and a unlimited time period for their completion.

4.2 The Non TMDL Action Plan for zinc should specifically work with the Copper TMDL to insure zinc concentrations to not increase as a result of the use of alternative boat bottom paints.

Response 4.1 - Dates for compliance will be inserted where "upon EPA approval" is now shown, as stated in Board staff's proposed Implementation Plan and schedule. As stated previously in response to comment 2 above, the TMDLs become legally effective upon USEPA approval. The date of this approval is therefore the appropriate trigger for compliance actions/schedules.

Response 4.2 - Comment noted. The proposed Cu TMDLs already state that Board staff's preference is for boats to convert from Cu to nontoxic AFPs or lower leach rate AFPs, rather than to non-Cu paints with biocides (such as Zn or organics). The Regional Board will approve implementation plan(s) from responsible parties that include the use of non-Cu AFPs containing other biocides only if there is a demonstration that there would be no adverse environmental impacts associated with such use.

Comment 5 - In conclusion Coastkeeper supports the immediate implementation of a Copper TMDL and Non TMDL Action Plans for Zinc, Mercury, Arsenic and Chromium that includes a date specific start and end with a ten year timeframe.
We also support an expedited six year compliance schedule for the Upper Bay in recognition of its status as a State Marine Conservation Area.

Response 5 - Comment noted. Thank you for your support of the Cu TMDLs and Action Plans for Zn, Hg, As and Cr.

Recreational Boaters of California

With regard to the proposed basin plan amendments, RBOC endorses and concurs with the comments of the City of Newport Beach:

Comment 1 - The Copper TMDL unlawfully attempts to force local agencies to ban copper anti-fouling paint. The Copper TMDL is unlawful because: (1) It explicitly relies on an implementation plan that requires local agencies to take actions the Legislature has prohibited; and (2) The Regional Board purports to usurp the authority of the Department of Pesticide Regulation to govern the use of copper anti-fouling paint. The Legislature states that the City does not have the legal authority to ban copper paint, and that any action by the City would be "void and of no force or effect." Local governments cannot regulate the use of pesticides in Food and Agriculture Code Section 11501.1, subdivision (a). The Legislature has plainly granted exclusive authority to DPR to regulate the use of pesticides such as copper antifouling paint. It would be arbitrary, capricious and contrary to law to end-run that process to compel local governments to regulate the use of registered pesticides in a manner contrary to DPR's legislative judgment. There is a 1997 Management Agency Agreement between DPR and the State Water Resources Control Board that includes an established dispute resolution process in place to address conflicts between the two state agencies.

Response 1 - Board staff agree that DPR has the authority over the sale and use of pesticides; the Regional Board has authority to regulate discharges into state waters.
The comment above reiterates the City's comments 1, 2 and 5.1– City Letter, and 6.44 – Attachment 6. See responses to these comments.

Comment 2 - The Copper TMDL is unlawful because alternatives to copper anti-fouling paint are not effective or available. Alternative paints are not widely commercially available, do not have a track record of being effective and are not affordable. The only alternative paints with any degree of effectiveness are not recommended by US EPA's technical contractor because they present serious environmental hazards.

Response 2 - See the Port of San Diego study on alternative paints.
https://www.portofsandiego.org/environment/copper-reduction-program.html
The comment above reiterates the City's comments 5.2 – City Letter, 6.51 – Attachment 6, and 7.4 and 7.8– Attachment 7. See responses to these comments.

Comment 3 - The margin of safety is too large and is unsupported.
The Copper TMDL is improperly and artificially lowered because the Regional Board proposes a margin of safety that is unreasonably large. The Regional Water Board's staff report does not include any explanation of why such a large margin of safety is appropriate, and none is apparent. There is no justification to add a margin of safety amounting to one fifth of the TMDL on top of all the other conservative assumptions especially when the observed "impairment" is alleged, and isolated technical exceedances of the chronic water quality criterion have no observed toxicity.

Response 3 - Board staff have revised the MOS to 10% (which reduces the Cu allocation for the MOS to 1165 lbs/yr from 2329 lbs/yr). The comment above reiterates the City's comments 5.3 – City Letter, 1.5 and 1.6 – Attachment 1, and 6.49 – Attachment 6. See responses to these comments.

Comment 4 - The phased implementation schedule is unreasonable, unsupported and would force early

investments that may be unnecessary.
The 20% reduction by the end of year 3, 50% by the end of year 7, and 83% reduction by the end of year 15 is unreasonable, unsupported and unlawful because it is too short and fails to allow time at the beginning to address the many problems with the TMDL and its implementation. The Regional Board concludes that "voluntary compliance in Newport Bay [would be] difficult" given that neither the Regional Board nor any of the entities regulated by the TMDL may legally restrict the use of copper anti-fouling paint. The City submits that it will likely take considerable time for this vague plan to work, and the Regional Board's failure to allow for such time in its implementation schedule is improper. Similarly, it would be wasteful and unnecessarily costly and controversial to develop site-specific objectives while at the same time being held to early and high percentage decreases. And lastly, with the lack of available and affordable copper anti-fouling paint alternatives on the market today, it is irrational to adopt a schedule that does not allow the proposed new market to respond and develop.

Response 4
With respect to the Implementation Plan and schedule, see responses to the City's comment 5.4 – City Letter. (Note that since the margin of safety was reduced to 10% and the number of boats/slips was reduced to 5,000, the required percent reduction of Cu discharges from boats was reduced to 60% (from 83%); therefore, the compliance schedule has been reduced to 12 years.)

With respect to the availability of alternative paints, see responses to the City's comments 5.2 – City's Letter, 6.51 – Attachment 6, and 7.4 and 7.8– Attachment 7.

Comment 5 - The Copper TMDL imposes unfunded state mandates that the State must reimburse under the California Constitution.
Though the regional boards and the State Water Resources Control Board commonly argue that their programs are exempt from the reimbursement program under Government Code 17513, the Copper TMDL would represent a discretionary decision by the state to impose requirements beyond those mandated by federal law. This would be a "true choice" by the state to impose the mandate, and subvention will be required.

Response 5 - See responses to the City's comment 5.5 - City Letter, and 7.7 - Attachment 7.

Comment 6 - It is improper to promulgate a TMDL for an entire bay when only certain areas of water bodies within the bay may even be arguably impaired.

Response 6 - See responses to the City's comment 5.6 – City Letter.

Comment 7
7.1 The Substitute Environmental Document (SED) fails to comply with the California Environmental Quality Act (CEQA).
Prior to approving the proposed TDMLs, the Regional Board must comply with CEQA and its guidelines. The SED is inadequate since its analysis of impacts uses an invalid "baseline" which generally consists of the environmental conditions that exist at the time of environmental review. It is legal error to determine significance of impacts in comparison with a non-existent hypothetically "permitted" action.
7.2 Further, the SED's impact analysis is flawed because it fails to properly account for, or analyze, the foreseeable significant impact of its program. In fact, the Washington State Department of Ecology has concluded that there are no currently available non-toxic alternatives to copper anti-fouling paints.
7.3 The SED must be revised to address the likelihood that a reasonably foreseeable implementation of the Copper TMDL will involve application of toxic anti-fouling paint, and to analyze the environmental

impacts of applying those paints. Additionally, the SED is invalid for failing to analyze a reasonable range of alternatives, and it does not include an economic factors analysis.

Response 7.1 - These comments reiterate the City's comments 5.7 - City letter and 1.6, 7.9 - Attachment 7. See responses to these comments.

Response 7.2 - See responses to the City's comments 5.2 – City Letter, 6.51 – Attachment 6, and 7.4, 7.92– Attachment 7.

Response 7.3 - Board staff are recommending that Cu AFPs be replaced with nontoxic AFPs or lower leach rate Cu AFPs rather than non-Cu AFPs that contain biocides, such as zinc or organics. The Regional Board will approve implementation plans from responsible parties that include the use of non-Cu AFPS containing other biocides only if there is a demonstration that there would be no adverse environmental impacts associated with such use.
See responses to the City's comments 5.6 – City Letter, and 7.4, 7.92 - Attachment 7.

Comment 8 -The data sources in the staff report are older than 10 years, and were collected prior to significant dredging activities that recently occurred in the Upper and Lower Bay.

Response 8 - The comments above reiterate the City's comments 3-1 – City Letter and 3.1 - Attachment 3, and the Irvine Company's comments 1.1 and 4.1. See responses to these comments.

Comment 9 - The vessel count used in the calculations is significantly different than the actual, verified number of 4,470 vessels in Newport Harbor.

Response 9 - See responses to the City's comment 1.3 - Attachment 1.

Comment 10 - In addition, RBOC objects to the provision of the basin plan amendment that would specifically identify boaters as dischargers responsible to reduce copper loads and correct sediment impairment. This will impose significant, costly and burdensome requirements on individual boat owners in the implementation of the basin plan amendment.

Response 10 - The largest source of Cu to Newport Bay continues to be Cu discharges from Cu AFPs on boats. Individual boaters, therefore, <u>are</u> responsible parties, as their boats discharge Cu to state waters, and they choose the paints for their boats. Board staff do not, however, propose to issue individual permits for every boater,. It is our expectation that the City and County will take the lead on these Cu TMDLs to develop an implementation plan(s) and schedule(s) to reduce Cu in Newport Bay along with other responsible parties.
See response to the Irvine Company's comment 3.2.

BoatU.S.

BoatU.S. has worked on the issue of antifouling paints and other bottom coatings for more than a decade, and based on that experience we have severe reservations with the draft basin plan amendment. Our primary interest is to ensure that boaters have effective, affordable and available anti-fouling options. The Board should consider the following:

Comment 1 - Recreational boats have a very wide range of operating characteristics and thus require a number of different antifouling paint options. For example, according to studies by the national Sea Grant program conducted over 10 years in San Diego Bay, nontoxic bottom coatings (i.e. Teflon or ceramic coatings) are only effective for boats that regularly get used – they need to leave their slips and attain speeds of at least 8 knots. The slick surface allows slime to slip off but only if the boat is used regularly at speed. They do not work for a sailboat that operates at slower speeds, or any boat that only leaves the dock once a week. It is important that a range of effective coatings be available for the many different types of boats and boat uses.

Response 1 - Board staff are familiar with this publication, and we recognize the range of vessel operating characteristics and the need for AFP options. Nontoxic AFPs options are available and effective. See responses to the City's comments 5.6 – City Letter, and 7.4 - Attachment 7.

Comment 2 - Effective antifouling paints help to prevent the spread of invasive species, lengthen boat life, reduce maintenance costs, and increase fuel efficiency. Antifouling paints have been a key part of reducing the spread of invasive species nationwide. According to the International Union for the Conservation of Nature (IUCN), "In the absence of anti-foulants that are as effective, it is likely fouling will increase and that more species will be transported this way in the future."

Response 2 - Comment noted. Note, however, that some invasive species are becoming tolerant to Cu AFPs such that Cu AFPs are not as effective as they were in years past.

Comment 3 - The proposal for 83% of all vessels in Newport Harbor utilize copper free antifouling paint to achieve water quality objectives is a drastic measure. It disregards other methods for reducing copper discharges such as best management practice for in-water hull cleaning, treatment of land-based process water, and low-leach rate copper paints.

Response 3 - The 83% in the Staff Report 2016 actually represents the required percent reduction of Cu discharges from boats, not the percent of boats that need to be converted from Cu to nontoxic AFPs; however, Board staff have reduced the required percent reduction in Cu discharges from boats to 60% (from 83%), based on a reduced margin of safety and number of boats/slips.
See responses to the City's comments 1.3 and 1.5 – Attachment 1, and 6.49 and 6.50 - Attachment 6.

Comment 4 - While alternative antifoulants such as Econea ™ and zinc are available, they do not always meet the various operating characteristics and maintenance regimes of many boaters. Studies of some of these products have found them to have a wide range of effectiveness. It should also be noted that these products are only in a limited number of approved anti-fouling paints.

Response 4 - Board staff agree with the above comment and the Implementation Plan in the proposed TMDLs recommends that boaters convert to nontoxic AFPs(or lower leach rate Cu AFPs) rather than non-Cu AFPs with biocides.

Comment 5 - We are opposed to the specific identification of individual boat owners as being dischargers responsible for reducing copper loads and correcting sediment impairments. The possibility that individual boat owners could be named as "responsible parties" and potentially subjected to permitting requirements and their attendant costs is particularly alarming.

Response 5 - See responses to the Irvine Company's comment 3.2 and RBOC's comment 10.

Comment 6 - BoatU.S. was a very active participant in the passage of the Federal Clean Boating Act in 2008 that specifically provides that recreational vessels shall not be subject to the requirement to obtain a Clean Water Act permit to authorize discharges incidental to their normal operation. We are not only on the water, but also often in the water and eating fish that live in the water. It will be difficult for this user group to accept regulations and policies that are not fully supported by science, cost effective and reasonable to achieve.

Response 6 - The revised Cu TMDLs are supported by scientific data.
In addition, a Port of San Diego alternative paint study showed that nontoxic paints are economically viable since they last longer than Cu AFPs. Federal permitting authority is distinct from the Regional Board's authority to issue waste discharge requirements under the California Water Code. The Board is obligated to employ its authority to ensure that Cu discharges do not cause or contribute to violations of water quality standards in the receiving waters. The Implementation Plan for the proposed Cu TMDLs provides a reasonable, flexible, adaptive management approach, enabling the responsible parties to develop their own implementation plan(s) and schedule(s), taking feasibility, costs and other factors into account. The proposed TMDLs also include a 12 year compliance schedule whereby the TMDLs can be achieved. Once again, it should be emphasized that absent the approval of the Board staff's proposed Cu TMDLs, the Board will be obligated to require implementation of USEPA's already established TMDLs, which require a greater reduction of Cu discharges from Cu AFPs. Further, USEPA's TMDLs do not specify a compliance schedule. The Regional Board would be obligated to require immediate compliance, unless an enforcement order providing compliance schedule relief is adopted.
See also response to the City's comment 5.2 – City Letter.
With respect to Regional Board authority, see response to the Irvine Company's comment 3.2 and RBOC's comment 10

County of Los Angeles, Department of Beaches and Harbors

Comment 1 – Staff Report (SR) Section 1.1 Environmental Setting
The text for the description of San Diego Creek (page 7) in the staff report does not align with Figure 1-2 and it is unclear as to what is designated as Reach 1 and 2. The Department recommends that consistency be achieved by adding missing drainage such as Rattlesnake Canyon and Round Canyon conveyances to the figure and the other conveyances shown on the map be described in detail. The Department also recommends that the dividing point between Reach 1 and 2 be clearly shown on the map.

The Department recommends providing a map that shows the features described in the Upper Newport Bay subsection as the purpose of Section 1.1 as a whole should be to clearly describe and identify the location, size and appearance of important features.

The Department recommends providing a map that shows the features described in the Lower Newport Bay subsection as the purpose of Section 1.1 as a whole should be to clearly describe and identify the location, size and appearance of important features.

Response 1 - Comment noted. The Lower Bay and part of the Upper Bay are shown more clearly in Appendix Figure 4-1 of the Staff Report 2016. The Lower Bay and most of the Upper Bay are also shown in Appendix Figure 6-1 of the Staff Report 2016.

Comment 2 – SR Section 4.1.5 Potential Revisions to Copper (Cu) Objectives: Water Effects Ratio and Marine Cu Biotic Ligand Model (Cu BLM)
The Department contends that reference to the estuary/marine biotic ligand model (BLM) is not

relevant to the discussion and should be removed from the staff report as it is still in draft form.

Response 2 - The discussion of the Cu Biotic Ligand Model is relevant as Section 4.1 of the Staff Report 2016 relates to water quality standards.

Comment 3 – SR Section 4.2.2.3 Copper (Cu) Reduction in Lower Newport Bay (CWA 319(h) grant) And Section 5.6.1.3.1.5 Conversion of Boats from Cu AFPs to Nontoxic Coatings

The Department recommends that it should be noted in Section 4.2.2.3 that all 10 boats that were converted to non-toxic paints converted back to copper antifouling paints at the conclusion of the study as reported by the Los Angeles Times http://www.latimes.com/local/california/la-me-newport-bay-copper-20150806-story.html.

Response 3 – While this may be true for the boats in Newport Bay that used Bottomspeed, the Port of San Diego has had success in Shelter Island in converting boats from Cu AFPs to Intersleek 900.
https://www.portofsandiego.org/environment/copper-reduction-program.html
See also responses to the City's comments 5.2 – City Letter, 6.51 – Attachment 6, and 7.4 and 7.8– Attachment 7.

Comment 4 – SR Section 5.4 Loading Capacity and Linkage Analysis for Copper

It has not been clearly demonstrated as to how the input values for the calculation of the dissolved mass loading have been developed or how the calculations in Appendix 7 have been derived. The Department recommends that further detail documenting the development of the input parameters, assumptions and equations including a sensitivity analysis with regard to estimated parameters be included in the staff report.

Response 4 - The linkage analysis calculations in the Staff Report 2016 follow those of USEPA's Cu TMDLs (2002) which are established TMDLs. The spreadsheet in Appendix 7 is the same spreadsheet used by USEPA for their Cu TMDLs and is based on a model by RMA.

Comment 5 – SR Section 5.6 Implementation Plan for the Copper TMDLs, Section 6.0 Non-TMDL Action Plans (Action Plans) for Zinc (Zn), Mercury (Hg), Arsenic (As), Chromium (Cr) and Section 8.0 CEQA Analysis, Antidegradation and Economics

The Department does not believe that the sediment in Newport Bay should be remediated until after all copper load and waste-load allocations for copper antifouling paints and tributary runoff have been met as exemplified in the excerpts below. The Department recommends that all sources of recontamination be eliminated before any sediment remediation occurs.

Response 5 - Sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). In addition, the numeric targets are now based on sediment quality objectives (SQOs) in the EBE Plan. Monitoring and evaluation should be conducted in areas that previously showed exceedances of the sediment ERMs and toxicity, including marinas, Turning Basin and S. Lido channel areas that were not dredged. Sediment Cu should also be monitored and evaluated against the Cu ERM (Effects Range Median) and ERL (Effects Range Low) to ensure that concentrations do not increase over time consistent with antidegradation principles.
See response to the City's comment 6.10, and number 5 in Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

Comment 6 – SR Sections 5.6.1.1 Authority to Regulate the Sale and Use of Copper Antifouling Paints (Cu AFPs) (DPR, USEPA)

For clarity, it should be noted that the California Department of Pesticide Regulation (DPR) established two maximum leach rates depending on the allowed cleaning practices on the painted boats:

- 9.5 ug/cm2/day if cleaning is allowed no more frequently than once per month and the in-water hull cleaners follow California Professional Divers Best Management Practices method using soft-pilecarpet.

- 13.4 ug/cm2/day for products which claim to not require in-water cleaning.

Response 6 - DPR's current determination no longer includes allowing a leach rate of 13.4 µg /cm^2/yr. See new proposed determination at:
http://www.cdpr.ca.gov/docs/legbills/rulepkgs/16-005/16-005.htm

Comment 7 – SR Section 5.6.1.3.1.5 Conversion of Boats from Cu AFPs to Nontoxic Coatings
The Department does not agree that adequate nontoxic coatings are available at this time, is skeptical that the paints will become available in the future and recommends that acknowledgement in the staff report text according to the information below:

To further clarify the findings from the primary three studies reported in the staff report additional detail has been added to the summaries below:

- In the USEPA (2011) study (referred to as the Port of San Diego study in the staff report), two paints were found to be effective in replacing copper based paints: lntersleek 900 and Hempasil X3. Since the study was completed, the manufacturer of lntersleek 900, International Paint Company, LLC, has changed formulations, and the exact lntersleek 900 that was tested during the study is no longer available in the U.S. market. The new lntersleek 900 consists of different lntersleek products and is currently available.

- In the CalEPA (2011) study (referred to as the Katy Wolf, PhD, IRTA study in the staff report), the researchers found that **XP-A**101, Hempasil XA 278, BottomSpeed, and Sher Release performed the best. However, **XP A**101 and Hempasil XA278 have since been removed from the market and only BottomSpeed and Sher Release are available potential alternatives to copper- based paint.

In addition to the studies cited in the report, there is a more recent study that looks at nontoxic paints from a different perspective.

In the Ecology (2014) study, three non-biocidal paints, lntersleek 900, BottomSpeed TC Base Coat/Top Coat Clear, and Surface Coat Part A - Black, showed somewhat positive results. However, a hazard assessment conducted as a part of the study indicated that all formulations tested contained hazardous chemicals that could pose human health and/or environmental risks as a result of use. Further, the study indicated that the hazard assessment was limited and incomplete due to undisclosed chemicals in the primers and the paints. Thus, the study concluded that the safety of the test paints was

uncertain, and none of the test non-biocidal paints were ideal (hazardous risk free) alternatives to copper based paint.

Response 7 - Comment noted. Bottomspeed was a new product recommended to us by Dr. Wolf, but did not work for boats in Newport Bay. As stated above, the Port of San Diego was successful in the conversion of boats from Cu to nontoxic AFPs using Intersleek 900. The Cu TMDLs also allow for the conversion of boats from Cu to lower leach rate Cu AFPs. Board staff do not recommend the use of non-Cu AFPs that contain other biocides (such as Zn and organics). Again, it should be emphasized that the responsible parties may employ alternative methods to achieve the Cu reductions required by the proposed TMDLs.
See responses to the City's comments 5.2 – City Letter, 6.51 – Attachment 6, and 7.4 and 7.8– Attachment 7.

Comment 8 - Section 5.6.1.4 Regional Board Authority to Compel Action to Identify and Correct Sediment Impairment from Copper (Cu)
The Department does not believe that dredging is the only solution to sediment contamination and believes that significant thought and investigation into alternative solutions such as monitored natural recovery (MNR), enhanced monitored natural recovery (EMNR) or capping should be ruled out first. It is recommended that referral to dredging be taken out of the staff report or all types of remediation be included.
Dredging should be looked at as a last resort as exemplified from the excerpts below.
[Comment goes on to provide specific examples. See below]
US Army Corps of *Engineers, Dredging Operations and Environmental Research Program, The Four Rs of Environmental Dredging: Resuspension, Release, Residual, and Risk (January 2008)*

> "Perhaps the most significant issue associated with dredging's potential effectiveness is the extent of residual contamination following dredging. No dredging operation can remove every particle of contaminated sediment, and field results to date for completed environmental dredging projects suggest that post-dredging residual levels, expressed as contaminant concentration in surface sediments, have often been greater than the cleanup levels. This experience suggests that in many situations achieving low risk-based cleanup levels may pose significant engineering and cost challenges."

> "Perhaps the clearest example of this occurred at Manistique Harbor, where post-dredging average surficial concentrations (approximately 17 ppm of PCBs) were virtually identical to pre-dredging surficial concentrations (15 ppm), yet, four years later, the average surficial concentrations dropped to 0.74 ppm due to an undefined mixture of enhanced and natural recovery processes."

Sediment Dredging at Superfund Megasites: Assessing the Effectiveness Committee on Sediment Dredging at Superfund Megasites, National Research Council (2007).

> "However, the committee was able to draw several conclusions and derive recommendations on the basis of monitoring data from a range of dredging projects and by evaluating factors that affected their success. The analysis indicates that dredging can be effective for removal of mass, but that mass removal alone does not necessarily achieve risk-based goals. Monitoring data demonstrate that dredging can have short-term adverse effects, including increased contaminant concentrations in the water, increased contaminant concentrations in the tissues of caged fish adjacent to the dredging activity, and short-term increases in tissue contaminant concentrations in other

resident biota. However, monitoring for those effects was not conducted at many sites."

"The committee's analysis of predredging and post-dredging surface sediment concentrations indicates a wide range of outcomes: some sites showed increases, some no change, and some decreases in contaminant concentrations. Residual contamination after dredging can result from the incomplete removal of targeted sediments or the deposition of sediment resuspended during dredging. Residual contaminated sediments hamper the ability to achieve desired cleanup levels and are exacerbated by site conditions like obstructions in the dredging area and impenetrable or uneven formations underlying the contaminated sediments. Overall, the committee found that dredging alone achieved the desired contaminant-specific cleanup levels at only a few of the 26 dredging projects, and that capping after dredging was often necessary to achieve cleanup levels."

US Environmental Protection Agency, Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (December 2005).

"In addition, Chapter 4 discusses the potential advantages and limitations of MNR. In most cases, the two key advantages of MNR are its relatively low implementation cost and its non-invasive nature. While costs associated with site characterization and modeling can be extensive, the costs associated with implementing MNR are primarily associated with monitoring. Because no construction or infrastructure is needed, it is generally much less disruptive to human communities and the ecosystem than active remedies."

"The principal limitations of sediment removal are that it is usually more complex and costly than in-situ management, and that the level of uncertainty associated with estimating residual contamination can be high at some sites. The need for transport, storage, treatment (where applicable), and disposal facilities may lead to increased impacts on communities. In some parts of the country, disposal capacity may be limited in existing municipal or hazardous waste landfills and it may be difficult to site new local disposal facilities. Another limitation may include the potential for contaminant losses during dredging through resuspension, and to a generally lesser extent, through other processes such as volatilization during excavation, transport, treatment, or disposal. Finally, similar to in-situ capping, dredging or excavation typically includes at least a temporary destruction of the aquatic community and habitat within the remediation area."

"EPA's policy has been and continues to be that there is no presumptive remedy for any contaminated sediment site, regardless of the contaminant or level of risk.

At many sites, but especially at large sites, a combination of sediment cleanup methods may be the most effective way to manage the risk. The remedy selection process for sediment sites should include a clear analysis of the uncertainties involved, including uncertainties concerning the predicted effectiveness of various alternatives and the time frames for achieving cleanup levels and, if possible, remedial action objectives. The uncertainty of factors very important to the remedy decision should be quantified, so far as this is possible. Where it is not possible to quantify uncertainty, sensitivity analysis may be helpful to determine which apparent differences between alternatives are most likely to be significant."

"Identifying and controlling contaminant sources typically is critical to the effectiveness of any Superfund sediment cleanup. Source control generally is defined for the purposes of this guidance as those efforts are taken to eliminate or reduce, to the extent practicable, the release of contaminants from direct and indirect continuing sources to the water body under investigation. At some sediment sites, the original sources of the contamination have already been controlled, but subsequent sources such as contaminated floodplain soils, storm water discharges, and seeps of ground water or non-aqueous phase liquids (NAPLs) may continue to introduce contamination to a site. At sites with significant sediment mobility, areas of higher contaminant concentration may act as continuing sources for less-contaminated areas."

"The identification of continuing sources and an evaluation of their potential to re-contaminate site sediment are often essential parts of site characterization and the development of an accurate conceptual site model, regardless of source areas within the site. When there are multiple sources, it is often important to prioritize sources to determine the relative significance of continuing sources versus on-site sediment in terms of site risks to determine where to focus resources. Generally, a source control strategy should include plans for identifying, characterizing, prioritizing, and tracking source control actions, and for evaluating the effectiveness of those actions. It is also useful to establish milestones for source control that can be linked with sediment remedial design and cleanup actions. If sources can be substantially controlled, it is normally very important to reevaluate risk pathways to see if sediment actions are still needed."

Response 8 – These comments are no longer relevant to the proposed TMDLs and Action Plans since sediments are no longer considered to be impaired based on State Board's current interpretation of the State Listing Policy (SLP), and the sediment requirements in the proposed TMDLs/Action Plans have been revised. The sediment task now requires continued monitoring and evaluation of sediments in Lower Newport Bay (rather than remediation), based on the State Board's EBE Plan – Part I (Sediments). There are no longer requirements for dredging in the proposed Cu TMDLs and Action Plans. Where impairment is identified as the result of monitoring, a remedial Action Plan will need to be developed and implemented. This plan may include dredging and/or another methodology, including those identified in the comment above.
Dredging is normally conducted in Newport Bay to deepen channels for navigation, or, in the case of the Upper Bay, to remove sediments from areas that are used as nesting sites by waterfowl, but are filling in with sediments deposited from tributary runoff. Sediments in Newport Bay have not traditionally been dredged <u>solely</u> because of contamination. The Regional Board will consider appropriate remediation strategies, if found to be necessary based on the results of the monitoring and evaluation required by the proposed TMDLs, as a regulatory matter separate from these TMDLs and Action Plans.

Comment 9 - Section 5.6.3.1.1 Restrict the sale and use of Cu AFPs (Task 1.1, Table 5-8) and Appendix 6.1.3

The leach rates calculated for Newport Bay, Shelter Island and Marina del Rey Harbor do not take into account salinity gradients, tidal flushing, and other types of flushing (wind driven, groundwater, dry and wet weather flows). Therefore, the estimates are overly conservative and should not be used to set leach rate levels. The Department recommends that the staff report qualify the estimates as overly conservative and/or conduct site specific hydrodynamic fate and transport modeling of each harbor.

Response 9 - The leach rates calculated in Appendix 6.1.3 of the Staff Report 2016 are estimated leach rates that were back calculated using USEPA's Cu loading calculations in their promulgated Cu TMDLs. The point of these calculations was to demonstrate that DPR's maximum allowable leach rate of 9.5 µg/cm²/d is not low enough by itself to meet the Cu TMDLs in these Bays and marinas in southern California without further mitigation including the conversion of boats from Cu to non-Cu paints. This is stated in DPR's letter of determination of leach rate for Cu AFPs – the leach rate of 9.5 µg/cm²/d includes the use of BMPs, and for larger marinas (with boat numbers above 1270) some boats will need to be converted to non-Cu paints to achieve compliance with the CTR criterion.
See responses to the City's comments 1,2 and 5.1 – City Letter, and 6.44 – Attachment 6.
Salinity gradients, tidal and other flushing, and dry/wet weather flows were part of the model that determined the Cu allocation for Newport Bay. See also the spreadsheet in Appendix 7 of the Staff Report 2016.

Comment 10 - Section 5.6.3.1.2.2 Implementation Tasks to reduce Cu discharges from Cu AFPs
The Department believes that an additional mitigation alternative should include the encouragement of using boatlifts. The Department recommends that a discussion of boatlifts be included as a mitigation alternative that would include facts such as:

- Boatlifts do not require antifouling paint on the boat or on the boatlift
- Boatlifts costs can be offset by decreasing hull cleaning from 1 to 2 times per month to annually or never.

Response 10 - The responsible parties are required to develop their own implementation plan(s) and schedule, and the use of boatlifts could be a potential strategy included in their implementation plan(s). Boaters and boatyard owner/operators, however, have indicated to Board staff that the dry docking of boats may not be an option in Newport Bay, since it is expensive and space is limited. Another alternative might be to use slip liners for newly painted boats for several days after painting, to capture and filter the Cu discharges from passive leaching. These and other options are available.
See responses to the City's comment 1 – City Letter, and Attachment 2. Also see Task 1.2.1 in the Implementation Plan of the proposed Cu TMDLs.

Newport Landing Sportfishing

Comment 1 - With respect to the proposed regulations concerning the use of copper based anti-fouling paints in Newport Harbor I wish to make the following comments.

First I will defer to the city of Newport's review of the legal and technical aspects of the issue. The analysis they have provided in their letter is very comprehensive.

Response 1 - See responses to the City's comments 1, 2, 5.1 – City Letter, and 6.44 - Attachment 6.

Comment 2 - Second from a boat owners viewpoint I feel this is an example of the government's desire to let the carriage proceed before the horse.

2.1 There is no realistic alternative to ablative copper based anti-fouling coatings for use in the marine industry.

2.2 Elimination of copper would have several negative impacts. Increased growth of marine organisms on submerged services would lead to decreased fuel efficiency and a greater carbon footprint for marine user groups. This would be in direct contradiction to the State of California's mandate to reduce carbon emissions. Also, many vessels in Newport Harbor

are constructed of wood. These vessels are subject to damage from invasive marine organisms like shipworms if a proper barrier of copper based paint is not in place to prevent the intrusion of these organisms. Finally, thru- hulls and associated screens which provide water to engine cooling systems could be compromised. In the case of passenger vessels inspected by the US Coast Guard and marine support organizations like the Coast Guard, fire departments and harbor police this would further complicate the issue.

For these reasons I strongly urge you to reconsider any action you take on this issue.

Response 2 – Comment noted. Note, however, that dissolved Cu continues to exceed the CTR criterion in Newport Bay; therefore, it must be addressed by Cu TMDLs. Note also that USEPA already established Cu TMDLs for Newport Bay in 2002, and Board staff's proposed TMDLs are based on newer data and require a lower reduction in Cu discharges from boats.

Response 2.1 - There are viable alternatives to Cu AFPs including some nontoxic and lower leach rate Cu AFPs. See responses to the City's comments 5.2 – City's Letter, 6.51 – Attachment 6, and 7.4 and 7.8– Attachment 7.

Response 2.2 - Board staff are aware of the invasive species issues; however, note that a number of invasive species are becoming tolerant to Cu. See response to BoatUS's comment 2.

Lido Peninsula Co., LLC

Comment 1 - We are concerned about the proposal to require marina owners to restrict or ban the use of legally-available copper-based antifouling paints through a new TMDL. We are concerned that the implementation plan will be both unenforceable and that the practical impacts of the proposed implementation plan to the harbor and individual stakeholders is unknown. We believe this plan could have significant detrimental economic impacts to the harbor and its stakeholders.

Response 1 - See responses to the City's comment 1 - City Letter.

Comment 2 - We are asking that the Water Board allow more time to look into this matter and meet with stakeholders.

Response 2 - USEPA has already established Cu TMDLs for Newport Bay (2002), which the Regional Board will be obligated to implement via appropriate regulatory actions if Board staff's proposed TMDLs are not approved.
See responses to the City's comment 1 - City Letter.

Marina Recreation Association

Comment 1
Marina Recreation Association (MRA) national membership consists of public and private entities that support recreational boating with a California centric perspective. MRA's members are recognized for their dedication to vibrant marine habitats which is understandable-considering the symbiotic relationship between their lifestyle/business/mandates and clean water. Of concern has been the regional debate between coper[copper]-based hull paints and the impact it has on water quality. While the noise from the fringe on both sides of this debate has been distracting at times, we have sought meaningful solutions based on best available science. We have followed and appreciate the opportunity to comment on the proposed total maximum daily load (TMDL) for copper in Upper and Lower Newport Bay as described in the Basin Plan Amendments for Copper TMDLs and Non-TMDL Metals Action Plans for Zinc, Mercury, Arsenic and Chromium in Newport Bay, California, dated August

30, 2016. It was our hope that Regional Board staff would incorporate lessons learned from previous Copper TMDLs and stakeholder feedback provided at and subsequent to the CEQA Scoping Meetings held July 23, 2015.

We respectfully request that the Regional Board decline to adopt the proposed Copper TMDL. Perhaps the most glaring example of staff's failure to consider stakeholder feeder is their continued use of 10,000 as the assumed number of boats in Newport Harbor. Notwithstanding the fact that staff has known for over a year that their assumption is wrong by a magnitude of 2, for unexplained reasons they continue to hold to 10,000 boats. Staff's trusted consultant, City of Newport Beach and marina experts have all advised staff that 10,000 is not the correct number with the actual number ranging from 4,300 to 5,000. Regional Board staff does not explain the methodology of how they came up with 10,000 boats – they just do. Considering staff's calculation is based on inaccurate assumptions, their conclusion that dissolved copper loading to Newport Harbor from recreational boats of 36,000 lbs/year is knowingly false.

Considering how important it is to use the correct number of boats in the bay, it is hard for us to understand why staff chose not to redo their calculations after they learned of their mistake back in July of 2015. Regardless of staff's motives, it would be wrong for the Regional Board to accept this know flaw and pass it on by approving the proposed Copper TMDL. It would be equally unfair to shift the burden of recalculation onto those that the TMDL proposed to regulate post approval. Regional Board staff has ample time to satisfy themselves as to the true number of boats in the bay and perform the necessary recalculations before coming to the Regional Board with their recommended Copper TMDL. It was our hope that Regional Board staff would incorporate lessons learned from previous Copper TMDLs and stakeholder feedback provided at and subsequent to the CEQA Scoping Meetings held July 23, 2015.

Response 1 – Board staff have been incorporating lessons learned from previous Copper TMDLs and stakeholder feedback. Board staff have been working closely with the Port of San Diego (responsible for the Shelter Island Yacht Basin Cu TMDL) and Los Angeles Regional Board staff (responsible for the Marina del Rey Toxics TMDL) to incorporate "lessons learned" from the development and implementation of these Cu TMDLs. In addition, Board staff have been working with DPR and other state agencies in the statewide marina workgroup on Cu AFP issues in California. Board staff have also had a number of discussions with the City, the County and other stakeholders, and have made numerous revisions to the proposed TMDLs and Action Plans based on stakeholder comments.
See responses to the City's comments 5.2 – City letter, and 6.51 – Attachment 6.

Response 2 - number of boats
Board staff initially used the number of 10,000 boats/slips for Newport Bay since USEPA used this number in their Cu TMDLs (promulgated in 2002), and this number based on USEPA's discussions with City staff. (This was explained in the Staff Report 2016.)
Board staff have since reduced the estimated number of boats/slips to 5,000 (from 10,000) based on boat counts from the City of Newport Beach and Orange County Coastkeeper. Following the calculations in the Staff Report 2016, the reduction of the number of boats/slips to 5,000 reduces the estimated Cu load from boats from 36,000 lbs/yr to 18,000 lbs/yr.
Note though that the primary goal for these Cu TMDLs is the consistent achievement of the dissolved Cu saltwater CTR criterion (3.1 µg/L), and the Cu allocation for boats, along with the required percent reduction of Cu discharges from boats, are secondary goals.

Board staff have revised the language in the proposed Cu TMDLs to state that "Compliance with the Cu TMDLs will be considered to be achieved if the dissolved Cu CTR criterion of 3.1 µg/L is consistently achieved (i.e. no impairment is demonstrated per the assessment methodology in the State Listing

Policy (SLP)) and no further reduction in Cu discharges will be required, even if the Cu load allocation for boats is not yet achieved. If, however, the Cu allocation for boats is achieved, but the CTR criterion is not consistently achieved, further reduction in Cu discharges from Cu antifouling paints (AFPs) will be required." This provision makes moot the concerns regarding the accuracy of estimates of the number of boats in the Bay, the estimated Cu loading from those boats, and the margin of safety (MOS).
See responses to the City's comment 1.3 - Attachment 1, and number 3 in Section III - Recommended Revisions to the TMDLs and Action Plans in the Supplemental Staff Report.

John F. Skinner, MD

Comment 1 - I have read the summary of the comments submitted to your agency by the City of Newport Beach relative to the proposed Copper TMDL for Newport Bay. I strongly concur with the comments from the City. Until and unless there is a cost-effective non-copper product developed that has proven to be effective as an anti-fouling paint without creating environment problems, I believe this copper TMDL is unenforceable and should not be implemented.

Response 1 - USEPA has already established Cu TMDLs for Newport Bay (2002), which the Regional Board will be obligated to implement via appropriate regulatory actions on responsible parties if the Board staff's TMDLs are not approved.
See responses to the City's comments, especially the responses to the City Letter.
With respect to cost effective, non-Cu paints, see responses to the City's comments 5.2 – City's Letter, 6.51 – Attachment 6, and 7.4 and 7.8– Attachment 7.
See also the Port of San Diego study at https://www.portofsandiego.org/environment/copper-reduction-program.html and the State of Washington study on alternative paints at https://www.northwestgreenchemistry.org/event/fourth-stakeholders-call-wa-state-antifouling-boat-paint-aa.

Sections on Economics are discussed in the Staff Report 2016 in Section 8.3 Economics – Cost Considerations; and in the SED 2016 in Sections 4.1.1 and 4.1.2. In addition, the SED 2016 has been revised to include a more robust economics analysis in Section 6.

Brian H. Ouzounian

This memo is intended to oppose the actions that have been proposed for Newport Beach Harbor as related to the subject action. In brief, the following main points are in support of my opposition.

Comment 1 - The Copper TMDL unlawfully attempts to force local agencies to ban copper anti-fouling paint.
Comment 2 - The Copper TMDL is unlawful because alternatives to copper anti-fouling paint are not effective or available.
Comment 3 - The margin of safety is too large and is unsupported
Comment 4 - The phased implementation schedule is unreasonable, unsupported and would force early investments that may be unnecessary.
Comment 5 - The Copper TMDL imposes unfunded state mandates that the State must reimburse under the California Constitution.
Comment 6 - It is improper to promulgate a TMDL for an entire bay when only certain areas of water bodies within the bay may even be arguably impaired.
Comment 7 - The Substitute Environmental Document (SED) fails to comply with the

California Environmental Quality Act (CEQA).
Comment 8 - The data sources in the staff report are older than 10 years, and were collected prior to significant dredging activities that recently occurred in the Upper and Lower Bay.
Comment 9 - The vessel count used in the calculations is significantly different than the actual, verified number of 4,470 vessels in Newport Harbor.

Response 1 - See responses to the City's comments 1, 2, 5.1 – City Letter.
Response 2 - See responses to the City's comments 5.2 – City Letter, 6.51 – Attachment 6, and 7.4– Attachment 7.
Response 3 - See responses to the City's comments 5.3 – City Letter, 1.5 and 1.6 – Attachment 1, and 6.49 – Attachment 6.
Response 4 - See responses to the City's comments 5.4 – City Letter.
Response 5 - See responses to the City's comment 5.5 - City Letter, and 7.7 - Attachment 7.
Response 6 - See responses to the City's comment 5.6 - City Letter.
Response 7 - See responses to the City's comments 5.7 – City Letter, and 7.9 - Attachment 7.
Response 8 - See responses to the City's comments 3 – City Letter, 3.1 - Attachment 3, and 6.15 – Attachment 6.
Response 9 - See responses to the City's comment 1.3 - Attachment 1.

Comment 10 - I won't be able to afford my boat maintenance.

Response 10 – No evidence is presented to document that the TMDLs would render boat maintenance unaffordable. The proposed TMDLs include a compliance schedule that is intended, in part, to allow conversion to alternative AFPs during routine hull maintenance activities over time. Alternative paints are available and boats in Shelter Island Yacht Basin have converted to nontoxic paints. The conversion to lower leach rate Cu paints is also an option.
See responses to the City's comments 5.2 – City's Letter, 6.51 – Attachment 6, and 7.4 – Attachment 7.

William J. Kenney, Jr., CLS

Comment 1 - I have reviewed the proposed regulatory order requiring a reduction in the total maximum daily load, "TMDL", copper in Newport Harbor by 83% from boat hulls within 15 years [now revised to 12 years]. First, the proposed reduction is unlawful because it relies on an implementation plan that requires local agencies to take actions that the Legislature has prohibited, (Agriculture Code Section 11501.1, Subdivision (a)), and it attempt to override the authority of the Department of Pesticide Regulation which has the authority to govern copper boat paints.
Comment 2 - Second, based upon the research that I have reviewed, it appears that the margin of safety being proposed by the Board is much too large and can't be supported by current science. Other regions of the country are not being saddled with TMDL's anywhere near what it being proposed.
Comment 3 - Third, the Board is proposing a requirement that significantly exceeds that mandated by Federal law which means that the State should be responsible for reimbursement of the cost of compliance under the California Constitution.
Comment 4 - Fourth, the proposed reduction is unlawful because alternatives to copper anti-fouling paint are not available or effective. As a boat owner, I have tried bottom paints that do not contain copper. The paints only lasted several months where copper anti-fouling paints last two to three years. That means that the residue in the water from the paints that do not contain copper is $\pm$ six times greater than the copper residue. What impact will this residue have on water quality in Newport Harbor if all boats use it?

Comment 5 - Fifth, based on the studies that I have reviewed, the whole of Newport Harbor is not in non-compliance with the proposed copper TMDL, only certain specific areas are non-compliant. I'm sure every harbor, no matter how clean, has specific areas that are non-compliant.
Comment 6 - Finally, having had to deal with the California Environmental Quality Act, "CEQA", during my entire career in real estate development, it is my opinion that the Substitute Environmental Document fails to comply with CEQA and is subject to challenge.

Response 1 - See responses to the City's comments 1, 2, 5.1 – City Letter.
Response 2 - See responses to the City's comments 5.3 – City Letter, 1.5 and 1.6 – Attachment 1, and 6.49 – Attachment 6.
Response 3 - See responses to the City's comment 5.5 - City Letter, and 7.7 - Attachment 7.
Response 4 - See responses to the City's comments 5.2 – City Letter, 6.51 – Attachment 6, and 7.4– Attachment 7.
Response 5 - See responses to the City's comment 5.6 - City Letter.
Response 6 - Response 7 - See responses to the City's comments 5.7 – City Letter, and 7.9 - Attachment 7.

Comment 7 - I have lived on Newport Harbor for 25 years and have raised two healthy children who spent their childhoods swimming, kayaking and boating in the harbor. As a boater, it is my opinion that the proposed copper TMDL reduction will do more harm than it will do good. As a citizen, I have seen a marked improvement in the water quality in Newport Harbor over the last several years. Let the current policies work. Don't attempt to implement science that isn't necessary, proven or legal. Leave the current copper TMDL's in place.

Response 7 - Dissolved Cu concentrations in the Bay continue to exceed the applicable CTR criterion, and Cu TMDLs continue to be necessary. The proposed TMDLs are based on sound science. No evidence is presented to support the assertion that the proposed Cu TMDLs will do more harm than good.
USEPA's Toxics TMDLs, including TMDLs for Cu and other metals, are already in place, but are based on data that is much older than the data used in Board staff's assessment. Board staff's proposed TMDLs are based on newer data, and require less reduction of Cu discharges from boats than USEPA's TMDLs (60 vs 92%, respectively).
See also response to the City's comments 6.27 and 6.40 -Attachment 6.

Senator John M. W. Moorlach

Comment 1 - It has come to my attention that certain proposed Amendments to the Water Quality Control Plan for the Santa Ana River Basin are both in conflict with policy guidelines from related agencies and not enforceable given current law. Specifically, the Copper TMDL proposal circumvents the jurisdiction of the Department of Pesticide Regulation (DPR), and enforcement raises issues because copper-based antifouling paint is legally available.

Given that the DPR is the exclusive regulator of pesticides in California, the proposed Amendments conflict with their suggestions. It would be most effective—and prudent--to work first with the DPR on an efficient implementation plan so that your agency is not in conflict.

Placing the onus of regulation onto the City of Newport Beach may potentially place them in a cumbersome position between complying with conflicting laws- not to

mention the costs to implement this regimen. We politely ask that you refrain from adopting further Copper TMDL at this time. Creating a review plan now with the pertinent agencies would ultimately lead to a more effective execution of new regulations and keep all groups in synchronization.

Response 1 - While DPR has the regulatory authority over the sale and use of Cu AFPs, the Regional Boards have the authority over the discharge of pollutants, including Cu discharges from Cu AFPs which are pesticides. The Regional Board is obligated to ensure that such discharges do not cause or contribute to violations of water quality standards.
See responses to the City's comment 1, 2 and 5(1) – City Letter, and 6.44 – Attachment 6, and Attachment 7.

Paul Blank

Comment 1
I am a resident of the City of Newport Beach and I own a boat moored in Newport Harbor.
I am also the current Chairman of the Newport Beach Harbor Commission although I am not writing on behalf of that Commission.
The City of Newport Beach has prepared a well-crafted letter in response to the proposed Basin Plan Amendments related to Copper TMDLs. I fully support the City's arguments against the proposed amendments at this time.
In addition, I offer my own experience (anecdotal evidence) in attempting to get ahead of the proposed changes. Representing users of the harbor as I do, I felt compelled to become familiar with and make use of alternative, non-copper based antifouling paint on the bottom of my 38' powerboat moored in Newport Harbor. Twice I have used the current, best available non-copper based antifouling paint. Twice those paints have failed to be effective requiring me to have the boat repainted much sooner than expected. Further, in both cases, the paint itself was more expense than the copper-based paints and the application of the non-copper based paints was more expensive than the application of the paint previously used on my boat. Specifically:

	Non-Cu based paint			Traditional Paint		Cost/gallon
Year	Application cost	Cost/gallon	length-service	Application cost	Cost/gallon	[length-service]
2014	$3,200	$229	7 months	$2,400	$179	18 months
2016	$3,600	$299	3 months	$2,600	$199	18 months (est.

Said simply, my experience using non-copper based anti-fouling paint has been negative because it is expensive and ineffective.

Comment 2
The product I have tried, twice, is Petit, Hyrdocoat Eco.
Here's a
link: http://www.jamestowndistributors.com/userportal/product.do?part=403603&engine=adwords&keyword=google_product_ad&gclid=Cj0KEQjw4rbABRD_gfPA2-uQqroBEiQA58MNdOC-jC8Z4CBJsSLpyThTlilDZLbjIIYBAFE4Ec60CPMaAgmY8P8HAQ
I note that the reviewers, who gave this paint high ratings are ALL on the east coast and boat in conditions/situations/waters very different than those found here generally in Southern California and specifically in Newport Harbor.

Response 1 - See responses to the City's comments 5.2 – City's Letter, 6.51 – Attachment 6, and 7.4 (III) and 7.8 (VIII) – Attachment 7.

Response 2 – Comment noted.