Santa Ana Regional Water Quality Control Board Meeting
October 28, 2016

City of Newport Beach –
Comments, Thoughts and Recommendations with regard to:

The Santa Ana Regional Water Quality Control Board Staff's Report on a Proposed Basin Plan Amendments For Copper, Zinc, Mercury, Arsenic and Chromium in Newport Bay

So what do we know, and

what is/has the City doing?

- Most of the Harbor Generally Falls Below CTR (3.1 ppb)
- Copper Concentrations in some areas of Newport Harbor slightly exceed CTR water quality criteria.
  - Rhine Wharf area
  - J-Mooring field
  - West Newport Island

  Remember we are talking Parts Per Billion here!
- Lots of Variables in Play
  - Tidal Flushing Rates, Depth of Channels
  - Number, Concentration and Sizes of Vessels
  - Types and Concentrations of Cu Paints currently in use
  - Frequency and Method of Vessel Bottom Cleaning
  - Sampling set size, locations, dates taken, Relevant or Out-Dated
  - Overly Conservative CTR value, Loading Rates,
  - New Paint Formulas on the Horizon
  - Other

City Efforts to Understand and Reduce Copper in Water and Sediment

- ☑ Hired Anchor QEA to provide Professional/Technical assistance
- ☑ City has undertook Independent Harbor Wide WQ Testing.
  - In July 2015
  - In February 2016
- ☑ City Conducted 5 Toxicity Tests at areas of concern.
  - Rhine Channel
  - Newport Island
  - J Mooring Field
- ☑ City Conducted Boat Zone Testing to look at/better understand Cu Concentration Degradation.

City Efforts to Reduce Copper in Water and Sediment

- ☑ Reviewed/Observed trial skirt/vacuum hull bottom cleaning operation (Santa Cruz)
  - System still in Beta Testing stage and not ready for widespread commercial operation.
  - Requires several staff and support vessel to operate.
  - Takes about 45 to 60 minutes for typical sailboat.
  - Billing rate structure not set yet, but appears will be 3 to 4 times current hull cleaning rates.

- ☑ Met with Bottom Paint Appliers/Shipyards and Convened Discussion with DPR to understand:
  - Available paints
  - Application process
  - Re-application rates
  - Cost

FYI – Current DPR approved Paints have Leach Rates ranging from 2.9 µg/cm^2/day to 29.6 µg/cm^2/day

The Three Primary Cu Paints Being Applied in Harbor

Ultra-Kote (Most Popular)

- Last 2-3 years on average
- Current Leach Rate per DPR is 11.5 µg/cm^2/day
- Modified Epoxy Shell - cleaned as needed
- Typical 40’ boat application ~ $2,500

Micron CSC

- Last 2-3 years on average
- Current Leach Rate per DPR is 14.2 µg/cm^2/day
- Ablative – Mostly used on trailered boats
- Typical 40’ boat application ~ $2,500

Vivid

- Last 10-12 months on average
- Current Leach Rate per DPR is 2.9 µg/cm^2/day
- Ablative - cleaned as needed
- Typical 40’ boat application ~ $2,500

Non-Cu Paints

- Last 6 months on average
- Typical 40’ boat application ~ $3,325 (approx. 1/3 more)
- So 2.5 year coverage = approx. $16,625 vs. $2,500
- **Not an Economically Viable Alternative**
- **Use Zinc, Biocide’s, other ingredients that can be toxic as well**

City Efforts to Reduce Copper in Water and Sediment

- ☑ Continued dredging efforts to deepen channels areas and improve circulation.

  (currently starting next round of dredging including many private properties & Grand Canal)

- ☑ Developed City Website for Updated information

  www.newportbeachca.gov/copperTMDL

- ☐ Send Notices to Visit Shipyards and Marina's and discuss proper paint use and hull cleaning methods.

- ☐ Explore Hot Spot areas in the field for obvious sources *(suspect vessels, improper wash-down & cleaning, storm drain outlets)* and simple solution.

City Efforts to Reduce Copper in Water and Sediment

- Look for opportunities to reduce boat densities in Hot Spot areas.
- Sponsor a “Proper Boat Hull Cleaning Training Course” for Divers. *(Possibly Spring/Summer 2017)*
- Promote Increased Times between Hull Cleanings.
- Send Notice to Mooring and Pier Permittee’s discussing Proper Paint Use and Hull Cleaning Methods.

Data Used to Determine Impairment in Staff Report

- Not reflective of current conditions
- Not sufficient to support determination of impairment
- Criteria exceedance not directly linked to impairment
- Copper CTR exceedance limited to small portions of the harbor
- Data misuse leads to unnecessary and unwarranted implementation actions

Loading Allocations from Boats

- The Staff Report methods greatly overestimate the copper loading from boat paint
  - Assumes maximum leach rates and fails to consider the likely range of paints currently available and anticipated to be available in the future
  - Assumes 10,000 vessels, more than double the actual 4,470 vessels in the harbor
  - Underestimates the use and effectiveness of best management practices (BMPs) that are required by the Department of Pesticide Regulations
  - Applies an overly conservative 20% margin of safety (MOS)

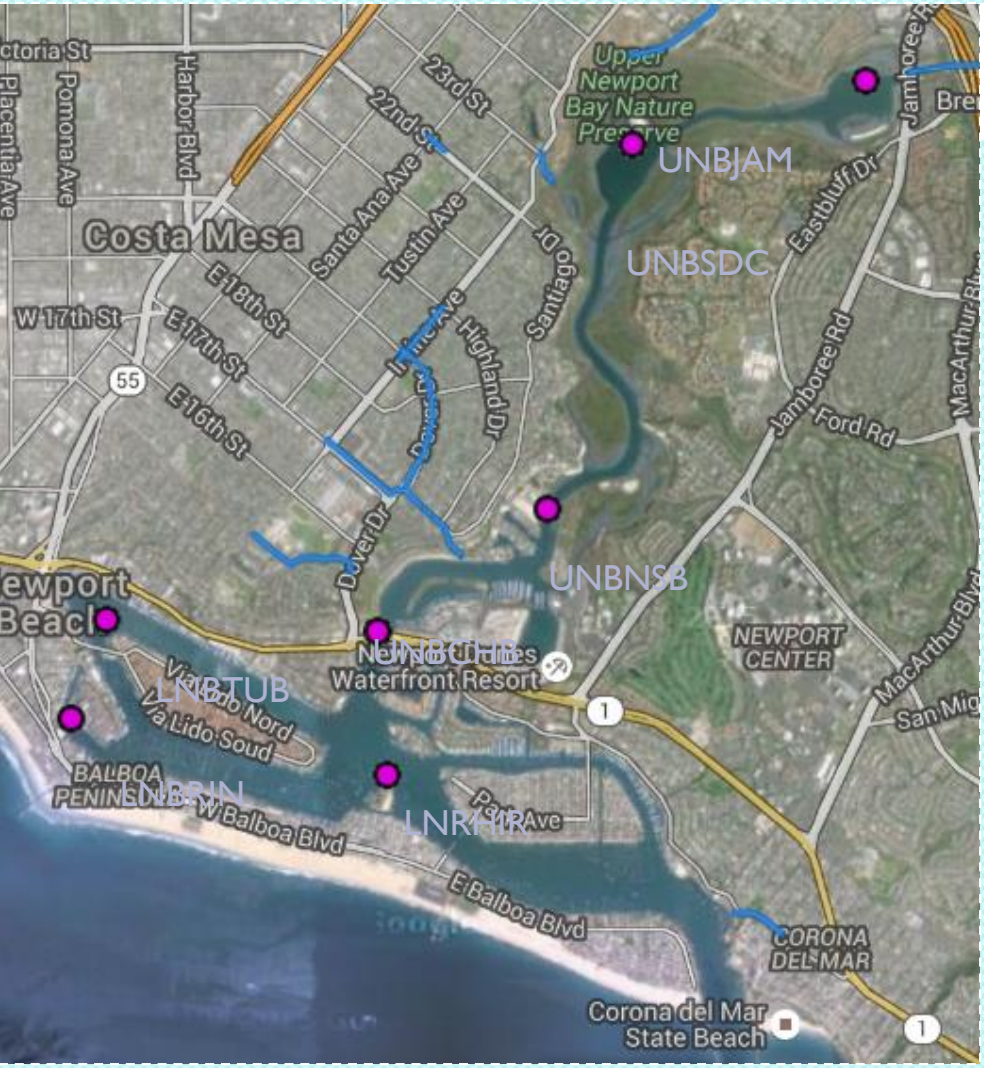
Loading Allocations from Boats

- The additive effects of the overly conservative assumptions contribute to overestimating the copper contribution from antifouling paints (AFP)
- The use of more accurate loading calculations suggest no more than a 33% reduction in copper AFP

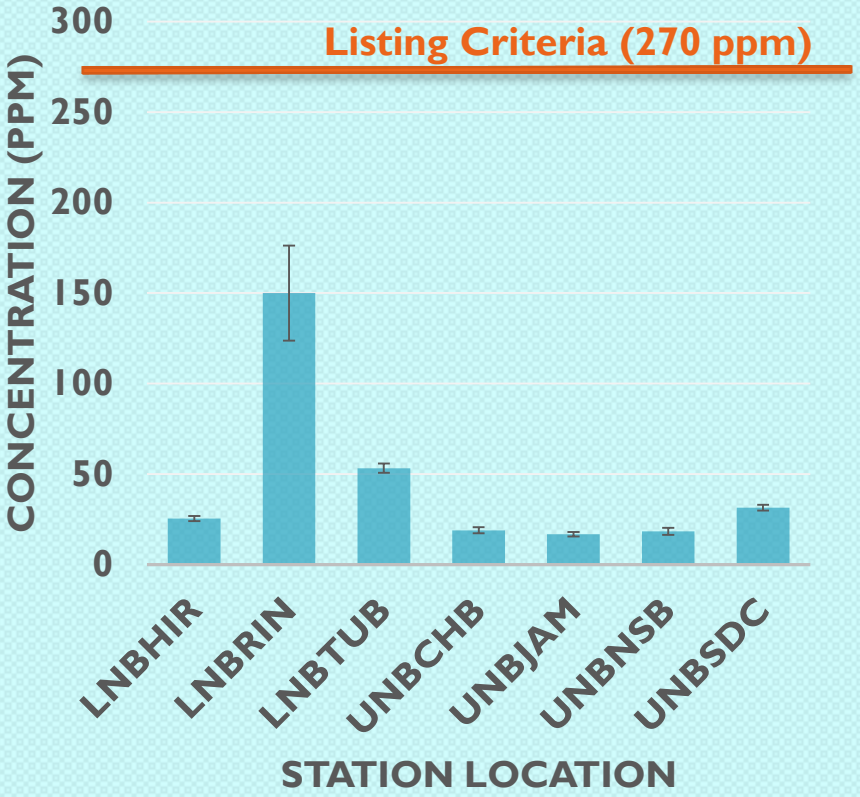
To provide an example of the sensitivity in the calculations, if the water quality criteria was 4.1 ppb, then 0% reduction in copper AFP would be needed.

Staff Report Does Not Reflect Current Conditions

- Upper Newport Bay Restoration Program
- Federal, City, and County dredging in Lower Newport Bay
- Rhine Channel remediation



Total Copper In Sediment



- 2011-2016: Does not meet Staff Report's methods for 303(d) listing (ERM exceedance + toxicity)

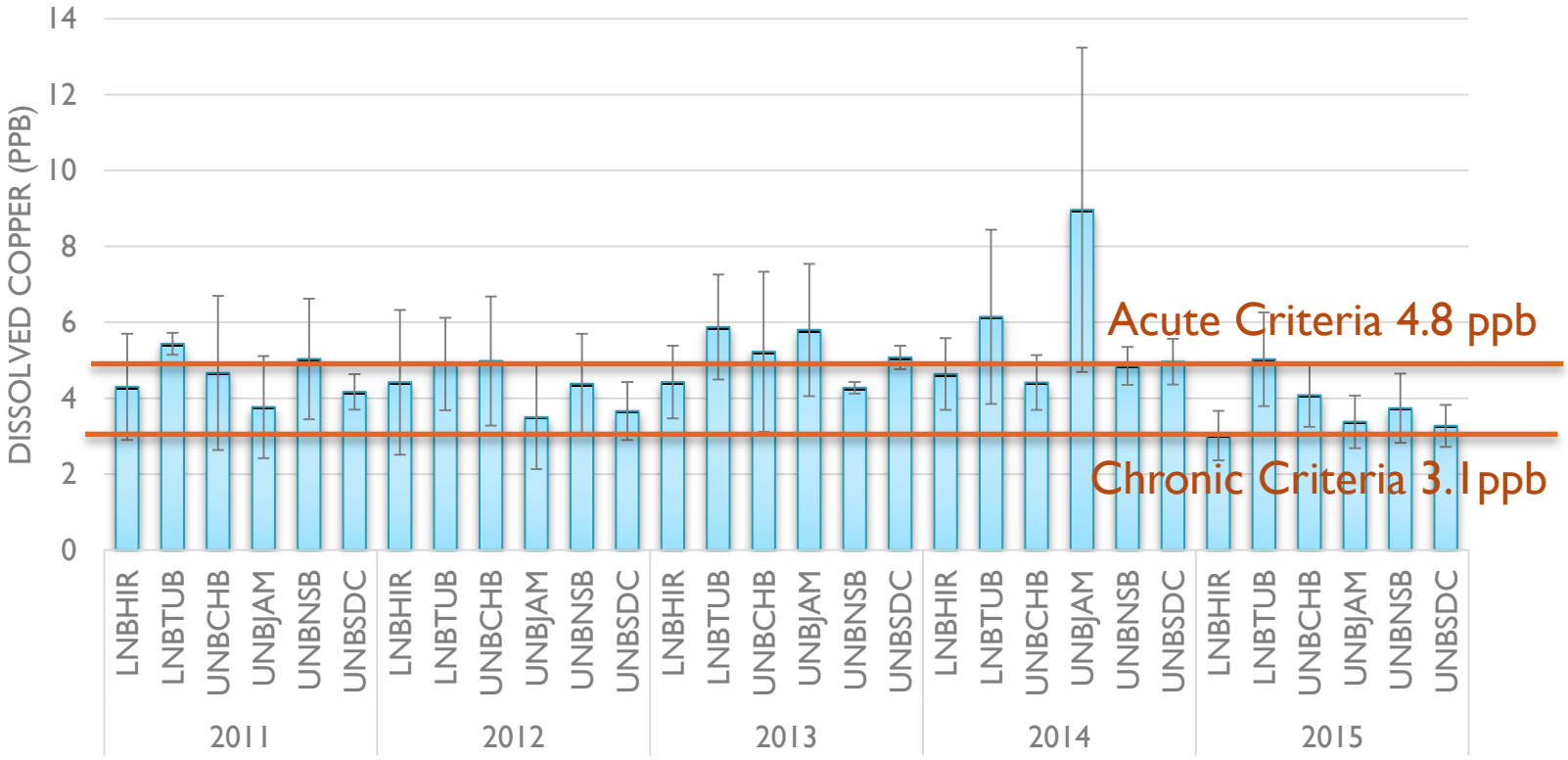
Sediment Quality

Sediment Impairment = ERM Exceedance + Sediment Toxicity

OC Monitoring (2011-2016)	Number of Samples	Number of ERM exceedances					Number of Toxic Samples
		Copper	Mercury	Zinc	Arsenic	Chromium	
Sediment Chemistry	139	0	7 (Rhine)	0	0	0	
Sediment Toxicity[a]	96		2(Rhine)				18[d]
Sediment/Water Interface Tests[b]	19						0

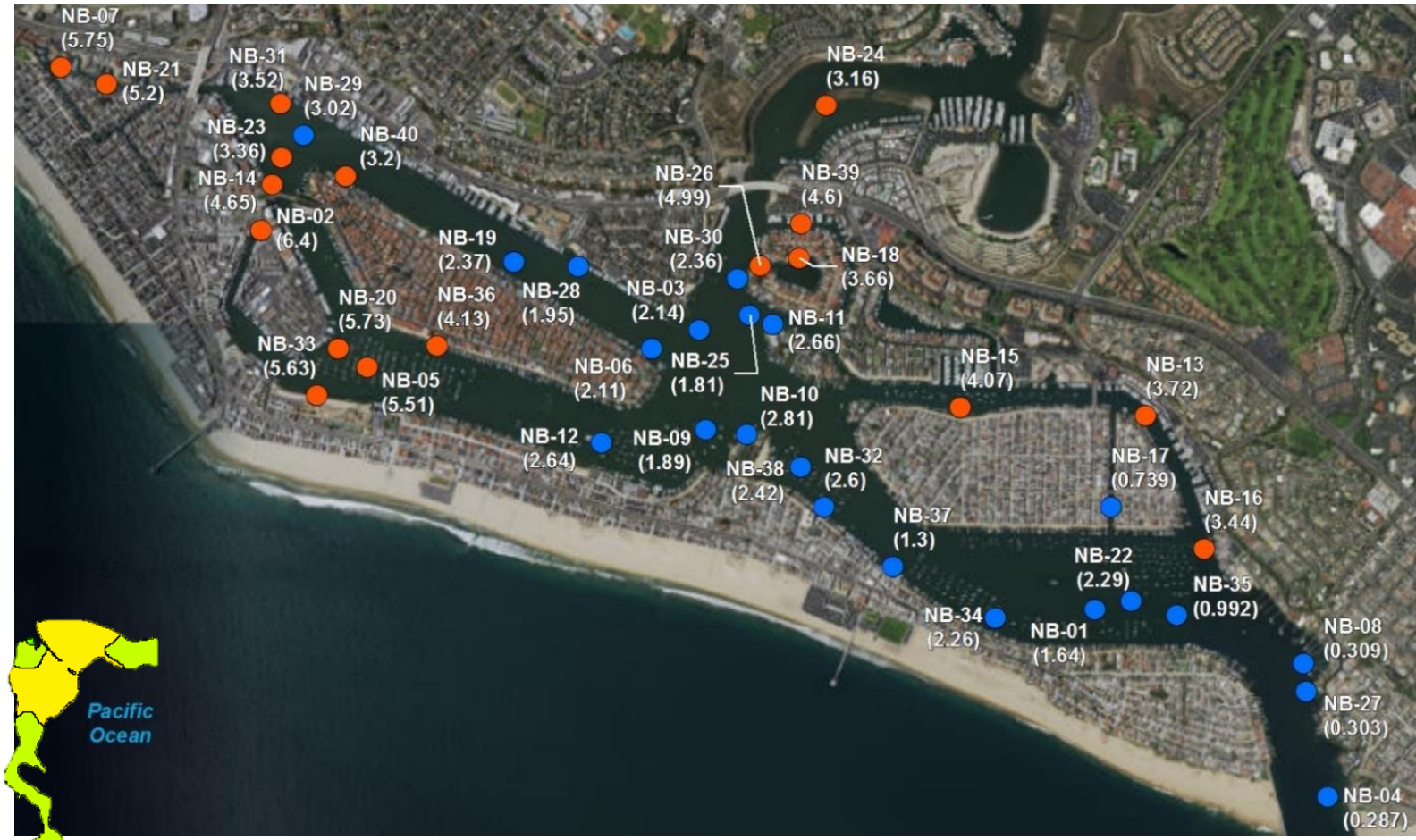
a = 10-day amphipod acute test
b = 48-hour sediment/water interface Mytilus development test
c = Toxic response does not co-occur with ERM exceedance in metals, except for two instances in the Rhine
d = Toxicity likely due to organic contaminants

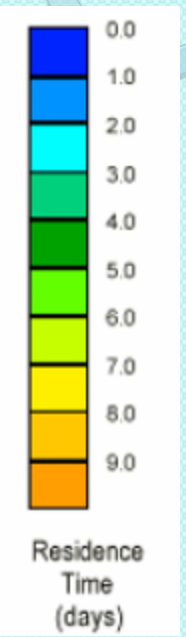
Dissolved Copper Concentration in Newport Bay (2011 to 2016)



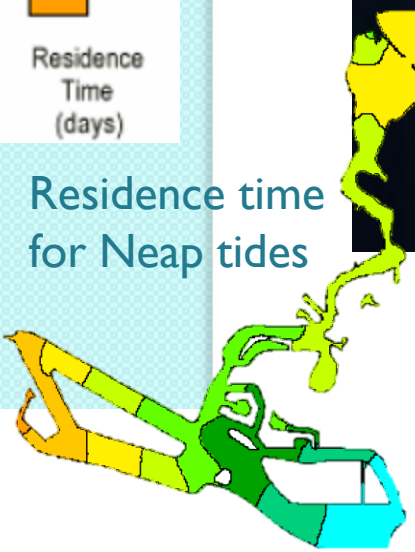
- 205 samples in 5 years at six stations
- Acute = 24 hour; Chronic = 96 hour exposure

Low Flushing Tide Copper Levels –Summer 2015





Residence time for Neap tides

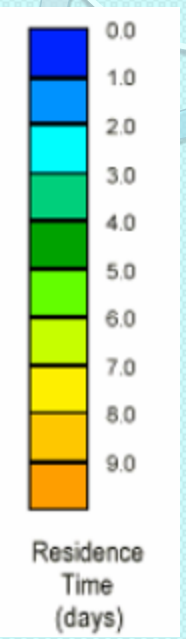


Copper Conc. in µg/L

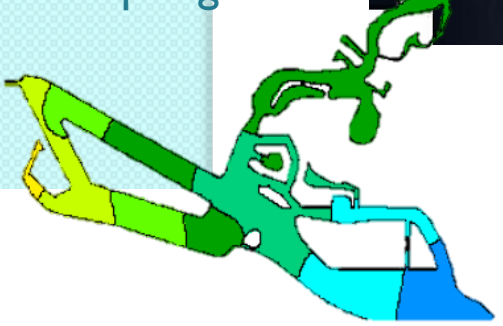
- 0 - 3.09
- ≥ 3.1

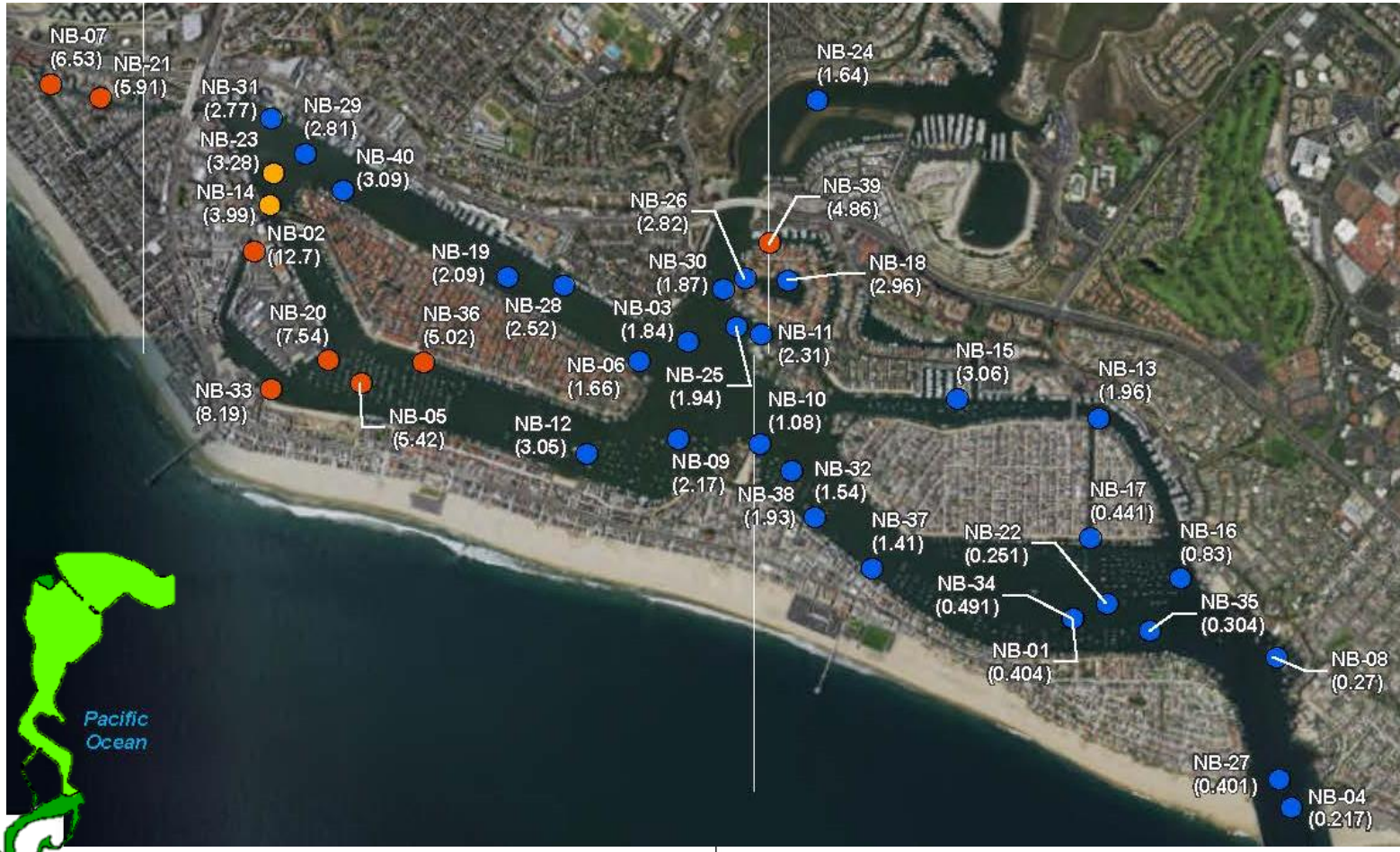
Note: Water quality criteria is 3.1 µg/L for dissolved copper.

High Flushing Tide Copper Levels – Winter 2015



Residence time for Spring tides





Copper Conc. in µg/L

- 0 - 3.09
- ≥ 3.1

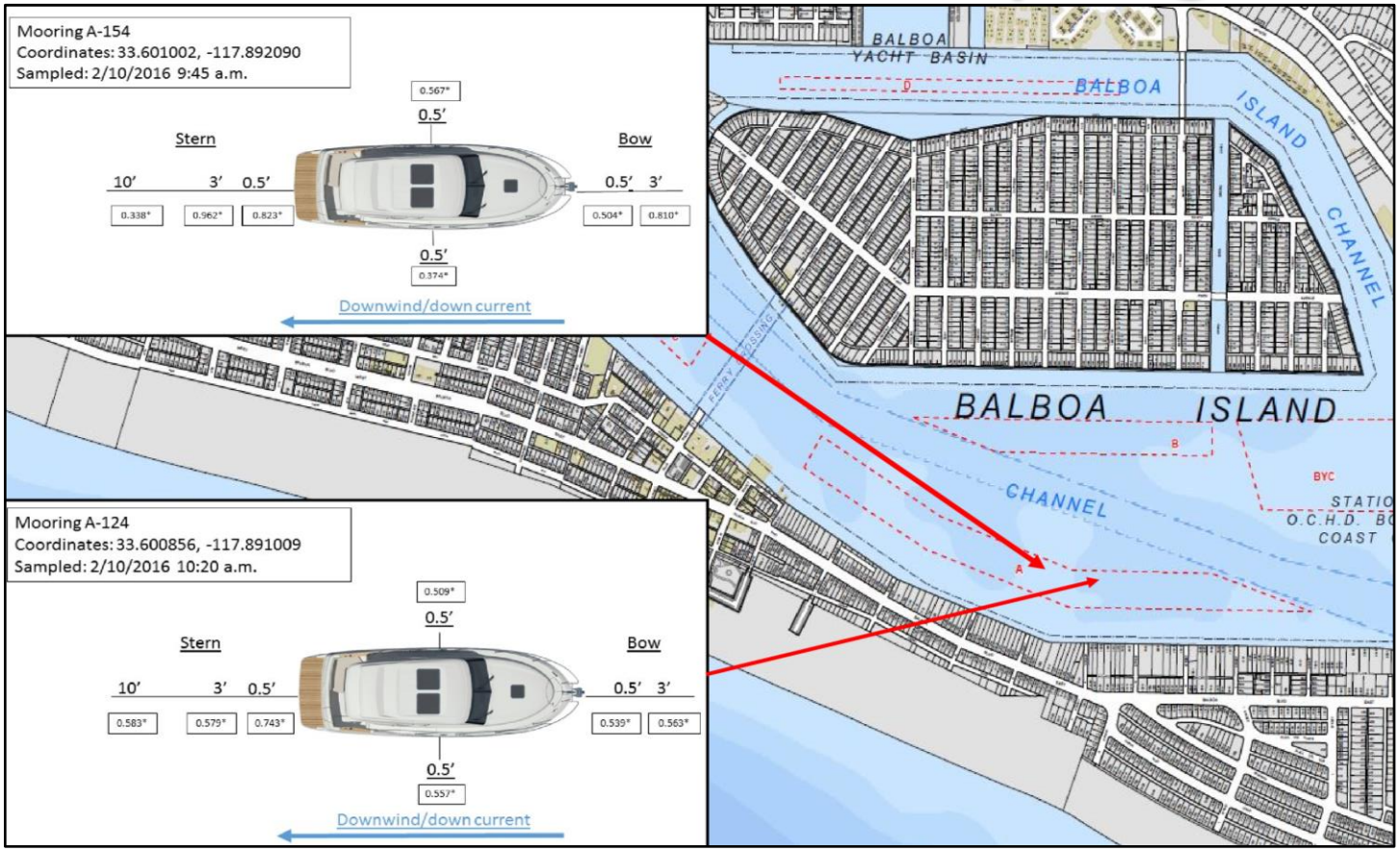
Note: Water quality criteria is 3.1 µg/L for dissolved copper.

Copper Toxicity Study – Spring/Summer 2016 Mussel Larval Development Test

Sample locations and copper concentrations (PPD) toxicity test.

No significant toxicity observed compared to laboratory controls

Copper Concentrations Adjacent to Vessels – Winter 2016 Spring Tide



- Findings suggest: Increase in copper concentration is not evident in water adjacent to individual vessel; increase in copper likely due additive effect of multiple vessels

Newport Bay Does Not Show Impairment as Described in the Staff Report

- Water
  - In the last 5 years, no toxic effects have been found using the most sensitive organism to copper (48-hour Mytilus development test) in 44 tests
- Eelgrass
  - Water quality and water clarity are good indicators of water quality
  - Eelgrass population is aggressively growing (33 acres more = 65% increase since 2009!)
- Sediment
  - No sediment toxicity associated with elevated metals
- Fish
  - Similar or lower than metal concentrations to all of SoCal
  - Diverse species now seen frequenting harbor (seahorse, dolphin, shark, tuna)

Consideration for Environment has been Improving

- Anticipated and expected future actions that will continue to improve our marine resources in the coming years include:
  - Continued MS4 reductions/controls/dry weather diversions
  - Brake pad initiative will reduce copper and zinc throughout California
  - Future maintenance dredging will contribute to deepening of harbor and increases in circulation.
  - DPR paint restrictions will provide significant source reductions that we think will be sufficient to meet water quality in Newport through boater education program and diver training programs.
  - Natural recovery with time

No Need for a Metals TMDL

- The Harbor does not need additional controls at this time, but we need more time to allow state regulations and TMDL requirements to reconcile so as to see impacts of actions already taken
- Any future efforts should be focused in areas where impairment has been clearly demonstrated
  - Elevated copper in water + toxicity = Potential Impairment
  - Update monitoring program to collect needed information
  - Continue to handle legacy pollutants in Rhine Channel separately
  - Delist sediment toxicity as it relates to metals
- Support AB 425
  - Advocate the use of legal paints
  - Best Management Practices for In-water hull cleaning
  - Boater Education

Any legal concerns with this

the proposed action?

Yes! Legal & Implementation Concerns

- ☑ Basin Plan Amendments are underdeveloped and rely on data that is out of date, incorrect and overly conservative.
- ☑ The Implementation Plan is impractical, if not impossible to effectively implement.
- ☑ Basin Plan Amendments unlawfully forces the City to resolve a conflict between the Regional Board and DPR.
- ☑ The Regional Board is being asked to approve an Environmental Document that fails to comply with CEQA and the CEQA Guidelines.
- ☑ The Basin Amendments impose Unfunded State Mandates.

So what to do?

Our Thoughts

1. **<u>Water Quality is a Primary Concern for the City</u>.**
   - We have, and continue to be an Active Partner in Improving/Ensuring Good Water Quality Levels in the Bay.
   - In Addition to the NPDES program, we are currently involved in efforts to address Sediment, Bacteria, Nutrients, Trash, Selenium, Organochlorine and other Toxicity concerns.
   - Overall Water Quality and the Health of Newport Bay has significantly Improved since the 80's. Overall we would consider it Very Good!

2. The Majority of Newport Harbor Is compliant with current CTR Limit for Copper in the Water Column.

3. Per published studies, prior sampling and our recent testing, we really question if Copper is even an issue of concern.

Our Thoughts

4. TMDL Analysis is Obsolete and Mis-Portray's Actual Conditions

- Lots of things have changed. Sampling data is out-of-date and needs updating. *Since original sampling, Major dredging has occurred in Upper Bay (2010), Rhine Channel (2011), Lower harbor (2012), Private Docks & Grand Cannel (2016)*
- Leach rates and water column loading data/calculations based off out-dated data older/high Cu paints
- Load Calculations over estimated boat count in Harbor *(10,000 vs. actual 4,470) in Newport Harbor*
- Not sufficient to support determination of impairment
- Criteria exceedance not directly linked to impairment
- Copper CTR exceedance limited to small portions of the harbor
- Leads to unnecessary and unwarranted implementation actions

Our Thoughts

5. DPR (State of CA) is in the process of Requiring New Formulated Copper Bottom Paints adjusting Leach Discharge Rates Downward to 9.5 µg/cm^2/day.
   - Approved Paint List just out September 2016.
   - New Paints will need several 3-5 years to work into system prior to any further determination if additional measures may be necessary.

6. <u>Copper Based Paints are Legal</u>
   - DPR worked with EPA and State Water Board
   - DPR and EPA approved current Copper Bottom Paints, as well as New Lower Copper Discharge Paints (9.5 µg/cm^2/day).
   - New Paint still effective with Minimal Environmental Impacts

Our Thoughts

7. Any Copper Boat Paint Regulations should be applied Statewide, not just to any specific Marina or Harbor.

8. Regulatory Oversight of Paint Application, Compliance Testing, Monitoring & Enforcement should be Performed at State Level.

   - Individual Cities/Counties/Marinas do not control/monitor where/how individual boat hulls are painted nor the paint being used, nor where vessels travel on public/private waterways!
   - This is no different than the State overseeing Vehicle Air Emissions and Bi-Annual Smog-Checks for compliance!

9. Requiring the County/City/Others to Oversee/Monitor/Enforce would possibly Violate Un-Funded Mandate Provision.

Our Thoughts

10. We recognize there are a couple of areas with higher Cu levels that may require further review/efforts.
    - Newport Island
    - Rhine Channel
    - J Mooring Field

    (We are happy to keep chipping away at it)

11. The CTR appears Overly Conservative and there are Compounding Safety Factors *(CTR, DPR Paint Formula, Loading Analysis …)*

12. With new lower level Cu bottom paints coming into play, recently approved Copper-Free Brake Pad Initiative, and more dredging in the future, we see Cu levels in both the water and sediment only reducing in the future.

13. We would support efforts for better science such as development of site-specific criteria for copper that is protective of Newport Bay resources.

14. Newport Beach supports continued dialogue with the Water Board and Other Concerned Parties

Our Recommendations

- Do Not Proceed with further Consideration or Adoption of this Basin Plan Amendment for Newport Bay.
- Have Board Staff work with Stakeholders to Develop a Five Year Plan that:
  - Allows the new generation of Lower Copper Leaching Bottom Paints to replace current paints in use. (could take up to 4-5 years for most vessels).
  - Recognizes that DPR/EPA Approved Copper Paints are acceptable for use, and may cause minor exceedance of CTR in some localized areas.
  - Develops and Implements a Reasonable and Scientific Harborwide Water and Sediment Sampling program to Identify any Areas of Real Concern.
    (Funding will need to be figured out – but Newport Beach is willing to contribute)
  - Convene and Participate in Stakeholders Meetings to Review Data and Develop Action Plans for Items of Real Concern.