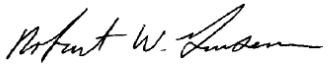
Comment	Response
GEI Consultants October 1st, 2012 Geotechnical Environmental Water Resources Ecological Richard Booth California Regional Water Quality Control Board Lahontan Region 2501 Lake Tahoe Boulevard South Lake Tahoe, CA 96150 **Re: 2012 Triennial Review of the Water Quality Control Plan for the Lahontan Region** Dear Mr. Booth: We contacted the Lahontan Regional Water Quality Control Board (Regional Board) in fall 2010 on behalf of our client, the International Copper Association and Copper Development Association (ICA/CDA), to request information concerning the region's copper criteria and the schedule of the upcoming triennial review of the Water Quality Control Plan for the Lahontan Region (Basin Plan). ICA/CDA played a significant role in sponsoring scientific research used in development of the freshwater Biotic Ligand Model (BLM) for copper, which was adopted by the United States Environmental Protection Agency (EPA) in its latest national ambient water quality criteria (EPA 2007). ICA/CDA is now interested in encouraging efforts by states and tribes to incorporate these latest recommended EPA national criteria for copper into their water quality standards programs. It is our understanding that the triennial review of the Basin Plan is currently underway and that public comments on the proposed amendments are due by October 19th, 2012. Thus, the purpose of this letter is to urge the Regional Board to consider updating its aquatic life criteria for copper to use the BLM as currently recommended by EPA. The current aquatic life criteria in the California Toxics Rule (CTR) used to derive freshwater copper standards, like most states' criteria, only take into account hardness as a factor that modifies toxicity. Using only hardness as a modifying factor for metals criteria is an outdated approach that excludes a substantial body of peer-reviewed scientific literature demonstrating that additional modifying factors can and should be incorporated into regulatory benchmarks or standards, while providing the same levels of aquatic life protection required under the Clean Water Act (EPA 1985, 1994, 2001, 2007). Like most metals, copper toxicity is a function of its bioavailability, which in addition to being controlled by hardness, is also strongly related to other important factors such as dissolved organic carbon (DOC), alkalinity, pH, and temperature. The key strength of the BLM is that it accounts for www.geiconsultants.com GEI Consultants, Inc./Ecological Division 4601 DTC Boulevard, Suite 900, Denver, CO 80237 303.662.0100 fax: 303.662.8757	**GEI-1**: This project is a low priority for basin planning resources. There is no need to amend the basin plan to require use of the freshwater Biotic Ligand Model (BLM) for copper. The basin plan currently contains a narrative water quality objective for toxicity: "All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. *Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration and/or other appropriate methods as specified by the Regional Board*." The toxicity water quality objective does not preclude the use of a model such as the BLM. This water quality objective is sufficiently flexible for the Regional Board to require use of the BLM, or other appropriate methods, through established regulatory methods on a case-by-case basis.

Comment	Response
  multiple factors—in addition to hardness—that mitigate or exacerbate copper's toxic effect on aquatic life. Similar to copper, BLMs have been developed, validated, and are available for regulatory use for several other metals, including zinc, lead, nickel, and cadmium. While EPA has yet to develop formal recommended national ambient water quality criteria using BLMs for these other metals, the models are widely available and are being applied in regulatory programs in several European countries and Canada. ICA/CDA fully supports and shares their desire to move towards bioavailability models such as the BLM as being the current state of both scientific and regulatory practice. There also are practical advantages for using the BLM; it is a cost effective regulatory tool compared to other site-specific toxicity test procedures (e.g., water-effect ratios), and the BLM software is publicly available, sanctioned by EPA, and requires only brief training to generate rapid and useable output. Therefore, BLM-based criteria provide a practical means of deriving demonstrably more accurate levels of aquatic life protection across a broad range of water quality conditions. Please let us know how we can assist the Regional Board in its consideration of the BLM during the triennial review. GEI or ICA/CDA could help in a variety of ways, including preparation of written or oral testimony supporting the technical basis of the BLM, or providing guidance on application of the BLM to water quality criteria and what type of implementation approach would best fit your available datasets. ICA/CDA has also sponsored BLM training sessions over the past several years, and they have been well-attended by both regulators and the regulated community. If desired, it may be possible to provide this course or related education materials if you would find that helpful as a means of helping inform the public and stakeholders as to the basis and application of the BLM. We appreciate the opportunity to provide you with this prospective proposal. Please let us know if you have any questions. We look forward to discussing this with you further. Sincerely, GEI CONSULTANTS, INC.  Robert W. Gensemer, Ph.D. Senior Ecotoxicologist bgensemer@geiconsultants.com (303)264-1130	

Comment	Response
  RWG cc: Joe Gorsuch, CDA Steven Canton, GEI Stephanie Baker, GEI David DeForest, Windward Environmental Eric Van Genderen, International Zinc Association **References** U.S. Environmental Protection Agency (EPA). 1985. Guidelines for deriving numerical national water quality criteria for the protection of the aquatic organisms and their uses. PB85-227049, U.S. Environmental Protection Agency, Washington, D.C. U.S. Environmental Protection Agency (EPA). 1994. Interim guidance on determination and use of water-effect ratios for metals. EPA-823-B-94-001, U.S. Environmental Protection Agency, Washington, D.C. U.S. Environmental Protection Agency (EPA). 2001. Streamlined water-effect ratio procedure for discharges of copper. EPA-822-R001-005, U.S. Environmental Protection Agency, Washington, D.C. U.S. Environmental Protection Agency (EPA). 2007. Aquatic life ambient freshwater quality criteria – copper. EPA-822-R-07-001, U.S. Environmental Protection Agency, Washington, D.C.	