March 17, 2009

Matt St. John
North Coast Regional Water Quality Control
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

Subject: NCRWQCB staff report for 2008 305b-303d combined report - February 2009

Dear Mr. St. John,

This letter is a summary of the comments I made to staff at the February 19th public meeting in Yreka, California, regarding the proposed listing of Lake Shastina as impaired for Mercury. For the record, I do not believe this listing is supported by data nor will it achieve the stated objective of notifying the public at large of a theoretical health risk.

I first must tell you that I don't have a formal background in chemistry or science. The information I present here is based on research I performed over the course of 4 days. My research included a review of agency documents; i.e., NCRWQCB staff report for 2008 305b-303d combined report - dated February 2009, the Department of Water Resources (DWR) Northern District report - "Mercury Contamination in Fish from Northern California Lakes and Reservoirs" - dated July 2007, the OEHHA report on "Fish Contamination Goals and Advisory Tissue Levels for Contaminants in Sport Fish" - dated June 2008, and a number of public domain articles, documents, and abstracts from universities and government agencies on the web.

In researching the proposed 303d listing for methyl-mercury (MMHg) by the NCRWQCB staff, I have been able to learn the following:

The listing is based on 3 fish tissue samples collected by CDF&G on a single day in the summer of 2000. The samples were tested at one of 4 laboratories, and three different methodologies were employed in analyzing the samples.

If the staff recommendation to list is accepted by the full Board in June (this date needs to be confirmed based on the agenda for the meeting) another TMDL will be mandated specifically for MMHg in Lake Shastina. Water chemistry is believed to play a significant role in the development of MMHg in aquatic environments. There aren't any peer reviewed or accepted protocols for measuring or monitoring water chemistry for MMHg. Therefore, the proposed future TMDL monitoring or mitigation scenarios/parameters can't be reasonably envisioned at this time. So listing Lake Shastina at this time is a bookkeeping exercise that will place an undefined future obligation on local communities.

From my research I have learned that Mercury (Hg) is found widely in the environment. Due to Hg's physical properties it can be found in the air, water, and soil, and it is highly mobile making a specific source hard to identify. Additionally, Hg can be found in a number of forms including elemental, inorganic, and organic. It is widely believed that the form Hg takes is dependent on a number of variables and factors. The

Mercury that bioaccumulates in aquatic life is generally, and for our purposes, referred to as methylmercury (MMHg). It is my understanding that MMHg develops as the result of a methylation process that is dependent to varying degrees on three factors: level of available organic mercury, water chemistry (e.g., alkalinity, PH, temperature, etc), and the concentration of Dissolved Organic Carbon (DOC). In the case of Lake Shastina, the source of Hg and DOC are likely the same, wood smoke. MMHg in water bodies is absorbed in the lowest life form usually at the Plankton level. MMHg contamination travels up the food chain through a trophic (to eat) process (little fish eat the plankton, bigger fish eat the little fish, bigger fish eat the smaller fish, people eat the big fish). Therefore, the largest predators, theoretically, (Artic wildlife studies show top predators don't always have the highest MMHg levels) have the highest concentrations of MMHg.

The health risk associated with MMHg consumption is controversial. There are three studies associated with populations that regularly ingest fish with high MMHg levels. These studies were conducted in the Faroe, and Seychelles islands, and in New Zealand. All of the studied populations ingest an average of 14 servings of fish per week. The results of the studies were mixed. The Faroe island populations seemed to show symptoms of MMHg related neurological development issues, such as delayed motor skill development in infants (delayed speech, delayed walking). The results from New Zealand seemed to indicate there were some health impacts but more subtle than those seen in the Faroe study. Causes other than MMHg ingestion couldn't be ruled out. The Seychelles population however showed no signs or symptoms of MMHg toxicity. In addition to these studies of naturally occurring exposure to MMHg, there are two well documented cases of man made exposures to high levels of MMHg that are cited as examples of the health risk. One incident was in Japan where food workers inadvertently contaminated fish with industrial grade MMHg. The public subsequently consumed the contaminated product. The other example was in Iraq where a fungicide used for the wheat crop was mixed with MMHg and was distributed throughout the region in bread. In these examples, populations were exposed to very high levels (400 to 900 times EPA recommended exposure levels) that resulted in death and/or neurological maladies to the primary ingestors and also showed subsequent neurological effects in the infants of pregnant women who had been exposed.

The California "Office of Environmental Health Hazard Assessment" (OEHHA) has (or is trying their hardest) to establish MMHg as a toxic substance and health risk. One of their efforts is to have cans of tuna fish sold in California labeled with a MMHg warning label. To date, this effort has been unsuccessful. In fact a California appeals court ruled in January 2009 that the data and science they are presenting is flawed and misleading. The OEHHA folks have also developed a standard that is 10 times more sensitive than standards developed by the EPA. The public health risk assessment OEHHA has developed relies heavily on statistical models and very little on epidemiological data (studies of actual illnesses caused by a specific agent or toxin). Using epidemiological data to support statistical models should be required when developing public health guidelines.

In summary, while it is possible that MMHg may exist in the bass population in Lake Shastina, the facts are that this current recommendation is based on a single day's sampling that took place almost 9 years ago. The testing methodology (due to numerous labs used and different testing methodologies used) makes these test results questionable. The test

results could change dramatically due to environmental conditions; e.g., recent forest fires, low water levels in the lake, or changing water chemistry caused by any number of factors. The other water body listed for Hg in the Klamath watershed is the Trinity River. It was listed due to the Altoona Mercury mine that for decades drained contaminated wastewater into the main stem Trinity. There is no doubt that Trinity River situation called for a listing and monitoring plan. However, in no way is the Lake Shastina situation comparable.

The NCRWQCB staff's recommendation may be based on the DWR's July 2007 report. But, there is no denying that a "self-described" environmentalist attempted to have MMHg contamination added to their petition regarding Baxter site pollution at last year's (April) NCRWQCB meeting in Weed. All of this individual's other allegations of pollution and demands for testing have resulted in proving the allegations were false.
So, characterizing this as another witch hunt by a special interest certainly has a foundation. I personally feel this is regulatory harassment. If we have to jump through hoops to appease the unfounded allegations of area environmentalists, why do we need science, data, or the Board?

In closing, the staff recommendation to list Lake Shastina for MMHg is uncalled for, if for no other reason than the recommendation is based on a single test conducted nearly 9 years ago. Additionally, if the primary issue is a public health concern, there are a number of existing ways to alert bass fishermen in Lake Shastina. The CDF&G's Fishing Regulations booklet lists health warning for water bodies, locations and species. Also, according to OEHHA , their web site is supposed to have similar warnings available. Though when I checked, the designated web page was unavailable. Either of these approaches will address any public health concerns regarding MMHg without the burden of a TMDL. In fact, the TMDL actually does nothing to alert people about the potential health affects associated with over consuming MMHg tainted bass from Lake Shastina or anywhere else. For all of the reasons stated, I ask that the recommendation to list Lake Shastina for MMHg be rejected, or at least deferred until further testing and data analysis can substantiate a true (rather than perceived) need.

Sincerely,

Tom Wetter
Lake Shastina

cc: Lake Shastina Property Owners Association - Board of Directors
Lake Shastina Community Services District - Board of Directors
Montague Water Conservation District - Board of Directors
Natural Resources Manager Siskiyou County – Ric Costales
Director of Public Health Siskiyou County – Terry Barber