



NIAWO NEWS

MERCURY IS RISING
IN MINNESOTA WALLEYE AND
NORTHERN PIKE,
IS THE CAUSE GLOBAL WARMING?

Mercury contamination data collected from fish tissues by Minnesota governmental agencies shows that the trend line of a problem previously thought to be declining, is now reversing itself, and is in fact on the rise.

The trend reversal has been happening since 1995 and we are only now getting the information. The data shows a 28% increase since 1995. We are within 4% of returning to levels of mercury contamination in fish tissue recorded decades ago.

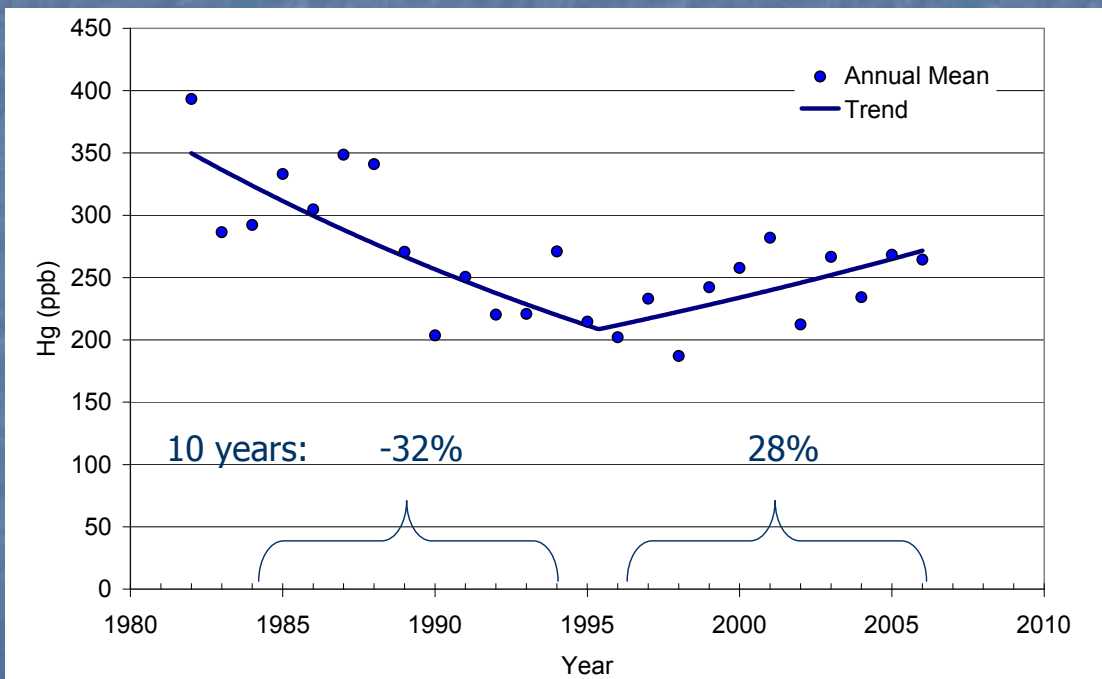
This information was presented during the **Total Maximum Daily Load (TMDL) Mercury Rule** Strategy Group by the Minnesota Pollution Control Agency staff. The TMDL is a United States Environmental Protection Agency stakeholder process to develop a plan to clean up some of our mercury polluted (impaired) waters.



SPRING EPHEMERALS

Is it global warming?

Trend on linear scale with annual means and decadal rates of change



2/8/2008

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Figure 1 Standard predator fish mercury concentration 1982-2006

Minnesota Pollution Control Agency

Minnesota Pollution Control Agency staff scientist, Dr. Bruce Monson, completed research in January 2008 that suggests that the cause of a trend reversal in mercury contamination levels in Minnesota walleye and northern pike is potentially twofold:

- 1) an increase in global mercury emissions between 1990 and 1995 (3.6% per year), and
- 2) environmental changes associated with climate change (e.g., increased temperature and water-level fluctuations) could be increasing mobilization of mercury from the water shed and increasing its bioavailability.



Northern pike



Walleye



The complete power point presentation as given before the TMDL Mercury Strategy Group is available at the link below.

<http://www.mn-ei.org/policy/SWG%20meeting%20info/MonsonPresentation.pdf>

“Mercury Concentration Trends in Standard Length Northern Pike and Walleye from Minnesota Waters: 1982-2006” The full report is also available by contacting Dr. Bruce Monson at the Minnesota Pollution Control Agency. His phone number is 651-296-7607.

Minnesota’s 1990 levels of mercury emissions were 11,272 pounds a year from all estimated sources, and by 2005 those levels had fallen to approximately 3,326 pounds per year. This massive reduction, while it is encouraging, does not explain the dramatically rising levels of mercury, now occurring in fish.

The work of the TMDL gives us the hope and perhaps, commitment from Minnesota’s mercury polluters along with the MPCA that we will reduce our mercury loading into our air and water down to the goal of 789 pounds a year.

A more depressing piece of information also surfaced during TMDL Strategy Group meetings in a discussion on what happens to “recycled” mercury from compact fluorescent light bulbs and other sources. You may think you are being responsible when you recycle those compact florescent light bulbs, but it seems that frequently, the retorted (recycled and purified) mercury is used in artisanal (manual) gold mining with abhorrent human health and environmental consequences in developing regions such as the Amazon River Basin that have less than stringent pollution controls.



Federal Law could stop this policy of reusing and reemitting mercury. H.R. 1534 “Mercury Export Ban Act of 2007” is legislation that proposes to prohibit certain sales, distributions and transfers of elemental mercury, and to prohibit the export of elemental mercury. This Act intends to keep mercury out of the global market and thereby force the shift to non-mercury alternatives.

Research cited in H.R. 1534 states according to the US Geological Survey that the US exported 506 million metric tons of elemental mercury during the period of 2000-2004. Under this Act the Federal Government would take title of elemental mercury generated in the US for the purpose of long term management and storage.

H.R 1534 had only passed the House as of November 2007. The Act must pass the Senate and be signed by the President to become law. A similar bill, authored by Senator Barack Obama, failed in 2006. The State of Minnesota could also pass legislation modeled after H.R. 1534 to prevent this recontamination by taking responsibility for the mercury waste we generate.

Another one of those Ohmygawd realizations.

The Dental Industry representative giving a presentation before the TMDL Strategies Group meetings revealed that the alternative for mercury amalgam (our dental cavities problem) is substituting a neurotoxin for a endocrine disrupter and potential prostate and breast cancer agent. ¹

One of the ingredients in some dental composites is none other than 2,2-bis(4-hydroxyphenyl) propane, or one of its other more commonly known synonyms, **Bisphenol A**. Our good friends at 3M, wouldn't you know it, first introduced this magnificent technological advancement in 1964. ²

The Center for Disease Control recently released a report that states that 92.6% of everyone in the United States over the age of six years old has measurable amounts of **Bisphenol A** (Bis-GMA) in their bodies. ³

3M changed the chemistry of their dental composite resin in 2007 to a substance (siloxane) they call Silorane.™ The new three part system includes the Silorane™ resin restorative, an adhesive primer, and an adhesive bond. The adhesive primer still contains "Bis-GMA" ... an obscure synonym of **Bisphenol A**. ⁴ There has been little research on siloxane resins and their potential health effects posted in the literature. ⁵

Notes:

¹ Journal of American Dental Association, Vol 137, No 3, 353-362. **PHARMACOKINETICS OF BISPHENOL A RELEASED FROM A DENTAL SEALANT**, ERIC Y.K. FUNG, PH.D., NELS O. EWOLDSEN, D.D.S., M.S.D., HENRY A. ST. GERMAIN JR., D.M.D., M.S.D., M.ED., DAVID B. MARX, PH.D., CHANG-LING MIAW, PH.D., CHAKWAN SIEW, PH.D., HWAI-NAN CHOU, M.S., STEPHEN E. GRUNINGER, M.S. and DANIEL M. MEYER, D.D.S.

² <http://www.3m.com/intl/kr/medi/medi5/pdf/Filtek%20Z350.pdf>

³ http://cerhr.niehs.nih.gov/chemicals/bisphenol/BPADraftBriefVF_04_14_08.pdf

⁴ <http://multimedia.mmm.com/mws/mediawebserver.dyn?6666660Zjcf6lVs6EVs66SoPzCOrrrrQ->

⁵ http://www2.mst.dk/common/Udgivramme/Frame.asp?http://www2.mst.dk/udgiv/publications/2005/87-7614-756-8/html/kap03_eng.htm



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