

John Stone

From: Ashton, William S (DEC) [william.ashton@alaska.gov]
Sent: Tuesday, February 23, 2010 1:59 PM
To: John Stone
Cc: Firstencel, Heidi POA; Chris Meade; deborah_rudis@fws.gov; Chiska Derr; Walters, Bret L POA; Brody, Matthew T POA; Bohan, Carrie D (DNR); Timothy, Jackie L (DFG); Hitzelberger, Joseph P (DFG); Dugaqua, Alexandria R (DNR); Heffern, Richard K (DEC); Teas, Howard J (DEC); Verbrugge, Lori Ann (HSS); Stambaugh, Sharmon M (DEC); Andrew Schicht; Groom, William M (DNR)
Subject: Use of Bulletin on "Fish Consumption Advice for Alaskans"
Importance: High

John,

In an email dated January 12, 2009 (see below) I referred to the Alaska Division of Public Health Epidemiology Bulletin Volume 11, Number 4, entitled "Fish Consumption Advice for Alaskans: A Risk Management Strategy to Optimize the Public's Health" (Bulletin). I referred to the Bulletin in the context of the Inland Testing Manual and it's reference to state fish advisories (see email of January 12, 2009). From the Bulletin I extracted the number 0.32 ppm wet weight of total mercury as a number to use in reviewing the results of testing that the City and Borough of Juneau and its consultants conducted on sediments from Douglas Harbor.

It has been recently pointed out to me that I used the Bulletin inappropriately (see email of February 23, 2010 from Lori Ann Verbrugge, Alaska Division of Public Health). This means based on the comments from Division of Public Health do not use the 0.32 ppm. As to what number ADEC will give as a replacement to the 0.32 ppm, we do not have a number at this time. We will be working on that shortly. I have invited Lori Ann Verbrugge to participate in our meeting of March 5th to answer any questions you might have.

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From: Verbrugge, Lori Ann (HSS)
Sent: Tuesday, February 23, 2010 10:01 AM
To: Ashton, William S (DEC)
Subject: RE: Use of Bulletin on "Fish Consumption Advice for Alaskans"
Importance: High

Hi William,

Thanks very much for your question. I'm afraid you have inadvertently used our "Fish Consumption Advice for Alaskans" inappropriately, and I really appreciate the opportunity to clarify and explain our concerns. I'd like to propose an alternate approach that would be more appropriate to protect public health.

Mercury is a serious contaminant in Alaskan waters. It is the first (and so far the only) contaminant for which our Alaska Department of Health and Social Services has had to issue statewide consumption advice that is more restrictive than "unlimited consumption" (our blanket advice for fish consumption prior to October 2007). Methyl mercury is of concern because it is exquisitely toxic to the developing brain, and it biomagnifies in aquatic food chains. Regulators must be sure to incorporate the potential for methylation and subsequent biomagnification when considering disposal of mercury into the aquatic environment in Alaska.

When assessing the risk of mercury in the aquatic environment, I applaud you for recommending an alternate approach to the use of FDA's tolerance level for mercury in fish tissue. The FDA tolerance level for mercury in fish is quite high, and is not protective of public health when applied in a site-specific context. I think the FDA value is based on two assumptions that are not valid in this context:

- 1) The consumer has purchased the fish with 1 ppm mercury from a grocer, and many other purchased fish would have a lower level (i.e., that not all fish in the diet are coming from the same place)
- 2) Average levels of fish consumption from the Lower 48 apply

That is why the U.S. EPA recommends a different fish advisory approach when considering fish caught recreationally from local waters. In that instance, all fish may be obtained from the same place, making contamination a more serious risk to the consumer.

So, I appreciate that you wanted to move beyond the FDA approach, to consider our Alaska-specific fish consumption advice. Unfortunately, that advice is not valid for use in a regulatory context. Our fish consumption advice was developed as a balanced consideration of both the risk of contaminants and the benefits of fish consumption, as

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people are deciding what to eat. It takes into account such factors as the health risks of alternative foods, and the trends in nutrition-related disease rates as Alaska Natives change from a subsistence-based diet to a western, market-based diet. Unfortunately, these changes have led to epidemics of diabetes and obesity, and increased rates of heart disease in Alaska Native communities.

In developing this balanced risk-benefit guidance, the Alaska Scientific Advisory Committee for Fish Consumption consciously shifted back from a purely risk-based approach, which would have led to a more restrictive advisory. The risk/benefit approach is appropriate for the provision of dietary advice in a situation where the food item is already contaminated, but it is not appropriate in a regulatory context when you have the opportunity to avoid contamination by the harmful substances in the first place.

We did anticipate this potential misuse of our guidance document when we wrote it in 2007. For this reason, the first section of the document beyond the Executive Summary (page 3) attempts to make the point clear. I will quote that section in its entirety here:

Purpose of Document

This document provides updated fish consumption guidance to the public, specific to Alaska-caught fish. The levels of mercury in Alaska-caught fish, as reported by the ADEC's Fish Monitoring Program in 2006, are described and interpreted. The risks of mercury exposure are weighed against the health benefits of fish consumption to develop fish consumption guidance that is both balanced and protective. Our intent is to assist individuals, families and communities in Alaska as they make decisions about their fish consumption patterns.

This document is not intended to influence Air Quality or Water Quality criteria, or other regulatory standards. The allowance of daily intake levels for mercury that exceed the reference dose established by the U.S. Environmental Protection Agency (EPA) should not be interpreted as a recommendation to relax air or water quality standards. The Alaska Division of Public Health (DPH) appreciates the health risks posed by mercury, and encourages regulatory agencies to control mercury releases to the fullest extent possible to protect our environment and the health of all Alaskans.

This topic is further discussed on pages 29 – 30 of the report:

Acceptable Daily Intakes for Contaminants Vary According to their Purpose: Public Health Practice vs. Regulation

Some confusion may result from varying safety guidelines developed by numerous government agencies. In this case, the chronic oral Acceptable Daily Intake for methylmercury for women who are or can become pregnant, nursing mothers, and young children adopted by the State of Alaska for fish consumption advice is 0.0004 mg/kg body weight/day. This is four times higher than the EPA's Reference Dose of 0.0001 mg/kg body weight/day.

The differences in the two agency's guidelines are based on the different purposes for which they were derived. Even though the ultimate goal of both agencies is to protect public health, they each approach that goal from different perspectives, entailing different basic responsibilities.

The EPA is a regulatory agency charged with protecting the environment from pollutant-caused degradation. This agency must establish "acceptable" levels of pollution, and manage and enforce their decisions through the issuance of waste discharge permits, punitive actions on violators, and other regulatory mechanisms. These acceptable levels of pollution must be scientifically defensible, and based on potential harm to pollutant receptors such as humans or endangered species. Since the EPA is responsible for controlling the input of pollutants into the environment, it is important for that agency to be conservative, and incorporate adequate safety factors to err on the side of caution. EPA's over-riding goal is to minimize risk.

In contrast, as public health agencies grapple with the issue of fish consumption advice, public health officials must balance the risks of contaminant exposure against the known benefits of fish consumption. In this task, they must react to environmental pollution that has already occurred, by developing the most appropriate consumption guidance given the circumstances faced in their respective jurisdictions.

In developing fish consumption advice, public health officials maximize public health by finding a balance between two opposing actions that each carry a risk of harm. If the public is encouraged to eat fish, they encounter potential health risks associated with exposure to contaminants. If the public is encouraged not to eat fish, they encounter potential health risks associated with replacement foods that may be of inferior nutritional quality, and the loss of health benefits associated with fish consumption. In this case, Alaska public health officials have reached a balance by adopting a smaller safety factor than the regulatory agency, while still protecting Alaskan fish consumers from being exposed to potentially harmful levels of mercury.

Regulatory agencies have expressed concern that the chronic oral Acceptable Daily Intake of 0.0004 mg/kg body weight/day established by DPH for fish advisory purposes may be used as a justification for higher allowable levels of mercury waste disposal into Alaska's environment. DPH asserts that this would be inappropriate. The chronic oral Acceptable Daily Intake of 0.0004 mg/kg body weight/day should not be used for regulatory purposes. Instead, the dependence of many Alaska residents on subsistence fish harvests argues for sustained or enhanced protection of Alaska's environment from mercury pollution relative to national standards. A significant portion of Alaska's population depends on fish consumption, and Alaskans consume larger quantities of fish than the average American does. We have provided evidence of the types of adverse health effects that could occur if Alaskans were compelled to reduce fish consumption due to contaminant concerns. To maintain clean, healthy fish stocks upon which the health of many Alaskans depend, Alaska must protect its environment from mercury pollution.

I'm not a regulator, so it isn't my place to decide how you approach your mercury evaluation. However, I'm happy to provide a recommendation from a public health perspective as you move forward. In developing an acceptable risk-based level for mercury in fish, I would recommend the following:

- 1) Utilize the U.S. EPA approach, "Guidance for assessing chemical contaminant data for use in fish advisories" to derive a "safe" mercury level for fish. Here's a link to that guidance: <http://www.epa.gov/waterscience/fish/technical/guidance.html>
- 2) Be sure to take the potential for methylation, and subsequent biomagnification, into account.
- 3) Use the EPA's reference dose for mercury, which is 0.1 µg/kg body wt/day
- 4) Be sure to take into account the high rates of fish consumption exhibited by subsistence consumers in Alaska.

In case you need it, here's a link to our complete guidance document:
http://www.epi.hss.state.ak.us/bulletins/docs/rr2007_04.pdf

I hope this helps! Please let me know if I can answer more questions or provide additional assistance. Thanks again for the opportunity to comment.

Lori Verbrugge, Ph.D.

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From: Ashton, William S (DEC)
Sent: Friday, February 19, 2010 4:00 PM
To: Verbrugge, Lori Ann (HSS)
Subject: Use of Bulletin on "Fish Consumption Advice for Alaskans"

Hi,

I am interested in your review and comment on whether or not I properly used the Epidemiology Bulletin Volume 11, Number 4 entitled, "Fish Consumption Advice for Alaskans: A Risk Management Strategy to Optimize the Public's Health." See my email below dated January 12, 2009. The project is the dredging of the Douglas Boat Harbor near Juneau. To give you an idea of the project I have included a description of the project from the Corps Public Notice. The project record is available on-line at www.juneau.org/harbors/DHRP.php

Thank you for any assistance you may provide.

William

5) The dredging of approximately 30,000 cubic yards of material from the harbor to return the harbor to its original depth of -14 ft MLLW (Mean Lower Low Water).

The applicant is proposing to perform the dredging with a combination of clam shell and bucket excavators. Dredge material would be deposited in a barge, with return flow, for transport to the disposal site. Dredging would be performed outside the boating season which runs from May to September. The applicant is proposing to dispose of the dredged material within open waters of the Gastineau Channel.

Sediments were evaluated using federal guidelines for discharge of dredged material into waters of the United States provided in the "Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S." (EPA/USACE). The sediment from Douglas Harbor has elevated levels of mercury. The applicant has contracted with Newfields of Port Gamble, Washington, to prepare reports on assessments to verify the concentrations of mercury present in the sediment and to determine if the mercury concentrations in the sediment are either toxic or bio-available to selected aquatic species. The following are summary statements from these reports: "The results of this assessment demonstrated the dredged sediment from Douglas Harbor would not negatively influence the water quality or water column organisms of Gastineau Channel outside of the dredged material disposal site and would not adversely affect the organisms exposed directly to the sediment. The dredging and unconfined aquatic disposal of sediment would result in some accumulation of mercury into the tissues of aquatic organisms exposed to Douglas Harbor sediment for an extended period of time but at concentrations less than the lowest observed effects levels established in scientific literature."

From: Ashton, William S (DEC)
Sent: Monday, January 12, 2009 11:05 AM
To: Andrew Schicht; Bret Walters; Chris Meade; Heffern, Richard K (DEC); Jackson, Richard G POA
Cc: John Stone; Gary Gillette; Jack Q. Word ; Meg Pinza; Dick Somerville
Subject: RE: Douglas Harbor soil testing - ADEC Comment

Hi,

We've had some discussion back and forth, with a response to comments about ADEC & COE earlier comments. Here is ADEC response to the response to our earlier comment about tissue concentrations for mercury.

In the Inland Testing Manual on page 6-7 the paragraph at the bottom of the page says the following: "(t)he above comparisons to FDA values address human health concerns, and follow from EPA/USACE (1991). Other approaches which should be considered in addition to the use of the FDA values include comparisons to *state fish advisories*, cancer and non-cancer risk models, existing ambient fish concentration data." (emphasis added)

In 2007 the State of Alaska Division of Public Health published the Epidemiology Bulletin Volume 11, Number 4 entitled, "Fish Consumption Advice for Alaskans: A Risk Management Strategy to Optimize the Public's Health." This Bulletin includes information about mercury in fish in Alaska and gives recommended consumption allowances. The Bulletin describes an EPA screening value for unlimited consumption defined as over 16 meals per month (p.5). In Table 8 of the Bulletin it lists for 16 meals per month a monthly consumption allowance for fish of 0.32 ppm wet weight of total mercury (assumed that all mercury is methylmercury)(p.31). ADEC considers the 0.32 ppm as the tissue concentration number to use based on the Alaska fish advisory.

We look forward to reviewing the results of the testing.

2/25/2010

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From: Andrew Schicht [mailto:ASchicht@pndengineers.com]
Sent: Monday, December 15, 2008 9:39 AM
To: Bret Walters; Chris Meade; Heffern, Richard K (DEC); Jackson, Richard G POA; Ashton, William S (DEC)
Cc: John Stone; Gary Gillette; Jack Q. Word ; Meg Pinza; Dick Somerville
Subject: Douglas Harbor soil testing - response to agency comments

All-

Attached are comments prepared by NewField's in response to recent comments received from COE & ADEC regarding the Douglas Harbor soil testing program. COE has requested another teleconference to discuss selected topics. We would like to hold this teleconference Tuesday morning (12-16) at 9:00 AM AKDT w/COE, ADEC & EPA. We hope to reach final consensus about the testing procedures by the conclusion of this meeting. Please advise if this date & time is acceptable. If it is not, please propose one that is.

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