

**To:** The Staff of the Concord Health Department  
The Concord Board of Health

**From:** The Supporters of Concord's new bottled water bylaw

**Date:** March 7, 2013

**Subject:** Bottled Water and Public Health

## Introduction

The hundreds of supporters of Concord's new bottled water bylaw would like to express their deep gratitude for the work that the Concord Health Department is doing to enforce the new bylaw. We are dismayed by Cumberland Farms' disrespect for our community's choices and laws and are sorry that the Health Department must waste its time dealing with this issue. After hearing about the extensive involvement of the bottled water industry in the effort to repeal the bylaw via Article 30, we believe that the Cumberland Farms action might be part of the industry's strategy to urge repeal at Town Meeting.

Over the past two years, we have gathered extensive information on the public health concerns related to bottled water, some more direct in nature, and some as a result of bottled water's contribution to carbon emissions and therefore climate change. We thought it would be a good time to share this information with you in support of your mission to promote the public health of our community and the greater world of which we are a part.

## Suggested Resources

We pride ourselves in the fact that we provide substantive data in support of our position. We'd like not to overwhelm you with data so we have summarized what we can and then have provided links and attachments to allow further reading.

We do recommend that you view the video: The Story of Bottled Water at the following link:  
<http://www.storyofstuff.org/movies-all/story-of-bottled-water>

This is a short, entertaining video that talks about "manufactured demand" for bottled water and the waste issues caused by bottled water consumption.

And if you do have the time, attending a screening of the movie "**Tapped**" is recommended. The town of Westford is sponsoring a screening on March 15<sup>th</sup> from 7 – 9pm at First Parish Church, 48 Main Street. We are planning to schedule a screening in Concord in early April and will keep you posted.

The 2009 report by the Governmental Accountability Office is also a good report to review in its entirety. It highlights the many issues with bottled water, from lack of regulation to waste issues to impact on the environment. You can find it here: <http://www.gao.gov/assets/300/291465.pdf>

## **Bottled Water and Public Health – A Brief Discussion, with References**

Bottled water has been marketed by the industry as a “healthy choice” for consumers. We disagree with this assertion for many reasons, including the following:

- bottled water regulation is limited
- toxic chemicals leach from the bottle into the water during normal use
- empty bottles decompose in our oceans and enter the food chain
- empty bottles clog landfills leading to the need for incineration with its attendant air pollution
- bottled water uses fossil fuels and contributes to climate change

### Bottled Water Regulation is Limited

The FDA assigns a low priority to testing bottled water, with the equivalent of only 2.6 workers assigned to testing the 9 billion gallons/50 billion bottles sold in the US in 2008. It largely relies on the \$15 billion industry to police itself. Most bottled water (60%) escapes FDA regulation as it is bottled and sold in the same state. FDA regulation of imported bottled water is even more limited. Bottled water companies are not required to publish their testing results and most don't.

In 2008, the Environmental Working Group sampled 10 brands of bottled water and found an average of 8 contaminants in each brand; 38 different contaminants were identified, including chemicals known to cause cancer. You can read more about the study here:

<http://www.ewg.org/research/bottled-water-quality-investigation>

The following link displays a list of over 100 bottled water recalls which was compiled by Peter Gleick of the Pacific Institute to supplement his 2010 book entitled “Bottled and Sold: The Story of Our Obsession with Bottled Water”. Contaminants found ranged from algae, yeast, mold, sand, and filth to coliform bacteria, arsenic and benzene. In most cases, the recalls were announced to the public weeks or months after the fact; in some cases the public was never notified.

[http://www.pacinst.org/topics/water\\_and\\_sustainability/bottled\\_water/bottled\\_water\\_recalls\\_summary\\_table.pdf](http://www.pacinst.org/topics/water_and_sustainability/bottled_water/bottled_water_recalls_summary_table.pdf)

As you know, Concord's tap water is highly regulated by the Environmental Protection Agency. The town tests its water system continually. Serious problems detected must be communicated to citizens immediately. Concord's Water Department publishes an annual Water Quality Report, posts it online and mails it to all households in Concord. We know what we are getting when we drink our own water; we don't when we drink bottled water.

### Toxic Chemicals Leach from the Plastic Bottle into the Water during Normal Use

A growing body of evidence indicates that endocrine disruptors leach from plastic bottles into bottle contents. You probably recall bisphenol A (BPA), a notorious endocrine disruptor found in polycarbonate plastic of which Nalgene bottles and 5-gallon containers of water used to be made. The specific endocrine disruptors linked with bottled water are phthalates. Di-ethylhexyl phthalate (DEHP), a plasticizer commonly associated with PVC pipe, has been found in bottles of water.

The following is an excerpt from the report entitled “Polyethylene Terephthalate May Yield Endocrine Disruptors” by Leonard Sax as included in the April 2010 issue of the National Institutes of Health's Environmental Health Perspectives (minus references):

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“A growing literature links many of the phthalates with a variety of adverse outcomes, including increased adiposity and insulin resistance, decreased anogenital distance in male infants, decreased levels of sex hormones, and other consequences for the human reproductive system, both for females and males. Infants and children may be especially vulnerable to the toxic effects of phthalates. Indeed, legislatures and government agencies in Australia, Canada, the European Union, and the United States have already acted to restrict or prohibit the use of phthalates in consumer products.” Please access the following link for more information: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854718/?tool=pubmed>

Also, please note that two of the phthalates found in bottled water, di-ethyl-hexyl phthalate (DEHP) and di-butyl phthalate (DBP) are listed as “Chemicals Known to the State to Cause Cancer or Reproductive Toxicity” on the website of the State of California EPA’s Office of Environmental Health Hazard Assessment. Proposition 65, approved by CA voters in 1986, requires that businesses provide consumer warnings on their products if they contain chemicals known to cause cancer, birth defects or other reproductive harm. Bottled water should be labeled under these guidelines. More information is provided here: <http://www.oehha.ca.gov/prop65/background/p65plain.html>

The United Nations Environment Programme (UN EP) in conjunction with the World Health Organization recently published a study entitled “The State of the Science of Endocrine-Disrupting Chemicals – 2012”. From the Executive Summary (page XV) “It is clear that a large number of all non-communicable diseases have their origin during development. It is also clear that one of the important risk factors for disease is exposure to EDCs during development. Exposure to EDCs during development can, as demonstrated in animal models and in an increasing number of human studies, result in increased susceptibility to, and incidence of, a variety of diseases. These include some of the major human diseases that are increasing in incidence and prevalence around the world.” This is a very lengthy report and is not for the faint of heart. It can be found at [http://www.unep.org/pdf/9789241505031\\_eng.pdf](http://www.unep.org/pdf/9789241505031_eng.pdf)

The UN EP has also recently issued a report entitled “Global Chemicals Outlook: Towards Sound Management of Chemicals”. Table 20 associates phthalates with neurotoxicity and reproductive toxicity. More information can be found here: [http://www.unep.org/hazardoussubstances/Portals/9/Mainstreaming/GCO/The%20Global%20Chemical%20Outlook\\_Full%20report\\_15Feb2013.pdf](http://www.unep.org/hazardoussubstances/Portals/9/Mainstreaming/GCO/The%20Global%20Chemical%20Outlook_Full%20report_15Feb2013.pdf)

While more research is needed, enough has been done to generate concern about phthalates and other endocrine disruptors. It makes sense to limit our exposure where we can. Recently we were interviewed by a freelance writer for the New York Times. Her article on the issues surrounding bottled water for the Science section of the Times is being edited and should appear this month or next. Another article for the LA Times about endocrine disruptors is in process.

### The Bottled Water Waste Problem

There is a lot of talk about recycling as the answer to the bottled water waste problem, but no one seems to be able to get people to recycle more. For the past 17 years, the legislators for the State of Massachusetts have been unable to pass an Expanded Bottle Bill to put nickel deposits on additional types of containers. The beverage industry is a strong opponent of bottle deposit legislation.

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Recent estimates are that 50 billion half-liter bottles of water (30 gallons per person) are consumed in the US each year and that only about 25% of the empty bottles are recycled. Most of the discarded bottles end up in landfills. PET plastic in landfills never decomposes because it never receives air and sunlight. Massachusetts is now looking to suspend its moratorium on garbage incineration because landfills are filling up. Potential hazardous emissions from incinerating plastics include hydrogen chloride, dioxin, cadmium, and fine particulate matter. View this report for more information. <http://www.no-burn.org/downloads/BlowingSmokeReport.pdf>

Other discarded bottles make their way into waterways and to the oceans. There is now evidence that discarded plastic bits are consumed by lanternfish which are small feeder fish that are eaten by larger fish such as tuna and mahi-mahi. We should be concerned about what ends up on our dinner plates. Here's the link: <http://articles.latimes.com/2011/mar/11/local/la-me-fish-plastic-20110311>

Recently the journal Nature contained a Comment from scientists in California suggesting that the US start classifying plastic as toxic waste because of its harmful effect on the health of people and wildlife. The article is attached to this memorandum.

Concord's share of the annual US 50 billion is approximately 2.6 million bottles of water. Assuming a higher recycling rate of 30%, 1.8 million bottles are discarded each year and .8 million are recycled, leading to 45 tons of bottled water recycling and waste each year. Also, many empty bottles are thrown on our public lands reducing our enjoyment of these natural areas and giving us more work to do during spring cleanup. Concord's action follows rule #1 of solid waste – Reduce.

### Bottled Water's Contribution to Climate Change

A lot has been written about climate change and its potential impact on plant and animal species and the human race. We are well along the path of significantly warming the planet and have just recently seen such extreme events as droughts, heat waves, superstorms, record glacial melting and floods. The negative impact on human health is well-documented – threats to the food supply, loss of life, homelessness, increases in insect-borne disease, etc. In 2012, in addition to those who were hurt, lost their homes or died in weather-related events, a record number of people died of West Nile virus. Recently the Government Accountability Office added climate change to the federal government's 2013 High Risk List. See this link for more information: [http://www.gao.gov/highrisk/limiting\\_federal\\_government\\_fiscal\\_exposure](http://www.gao.gov/highrisk/limiting_federal_government_fiscal_exposure)

The Pacific Institute estimates that producing and transporting bottled water in the US alone uses the energy equivalent of between 32 and 54 million barrels of oil each year. Every year, the bottled water industry produces as much carbon dioxide as 2 million cars. It can take as much as 2,000 times the energy to produce and distribute bottled water as it does tap water. While bottled water's contribution to climate change may be small, removing bottled water is something communities can do to help reduce carbon emissions and the unnecessary consumption of fossil fuels.

### **A Word about Sugary Drinks**

We have heard that some are concerned about people drinking sugary drinks if bottled water is not available. We note that no data has ever been presented by those who assert this. What we do know is that tap water is readily available throughout town, that over 70% of our high

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school students play one or more school sport, that our measured middle school and high school obesity rates are much lower than the State averages, that our stores provide many other no or low-calorie drinks such as tap water, flavored water and sparkling water, and that our community is very smart, health-conscious and active. Interestingly enough, the phthalates that leach from the plastic bottle into the water have been associated with increased adiposity (as reported above). Bottled water may in fact be fattening!

### **Concord on Tap**

Concord on Tap is a current program to increase citizen and visitor access to Concord's excellent tap water and to help our local businesses adapt and thrive. 11 local businesses are now selling Concord on Tap Camelbak reusable bottles; total profits from these sales will be over \$10,000. A Visitor Brochure and Tap Water Map (draft attached to this memo) have been developed for the Concord Visitor Center. About 30 businesses are participating in this program. Hydration stations (that easily refill reusable bottles) have been installed in all of our public schools. Tap water is readily available throughout town to help people stay hydrated.

### **Summary**

Concord has joined a growing movement on college campuses, in America's National Parks, and in states and communities across the country. We have inspired others. The city of Boston is improving access to tap water, Westford is screening "Tapped", and the town of Arlington will consider a similar bylaw at its own town meeting next month. We have connected with people across the country to help them help their communities rethink the bottled water habit. Concord's action has advanced the national conversation about the unnecessary use of bottled water and its potential harm.

Thanks for your consideration and for all of the good work that you do to promote the public health in our community. We recommend that you vote No on Article 30.