

Get to Know Your H₂O

An Independent Learning Project

Presented by

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To

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Abstract

This Independent Learning Project seeks to address an issue fundamental to all people: safe and sustainable drinking water. While bottled water corporations are spending millions of dollars each year to convince U.S. citizens to choose bottled water over tap, the goal of this ILP is to encourage the consumer to be curious and think critically about their daily water choices and how they impact the world around them. Although this ILP is an exploration into the public water supply of Salem, Massachusetts, it provides information and action steps that any community can use to take greater responsibility for the protection and conservation of their local watershed. This project illustrates the relevance of community managed water supplies and the dangers of the bottled water industry. It informs the residents of Salem that their tap water is indeed of high drinking water quality and introduces them to some of the people involved in the local water works while simultaneously instilling a critical sense of duty among the residents to view this precious natural resource with admiration and reverence.

This ILP includes a twenty minute film with companion materials designed to offer sustainable and compassionate drinking water choices, teach the community of Salem about their watershed areas, and connect the viewer with the resources to find answers to other questions or concerns about water. The intended audiences are not only the residents, business owners, and water consumers of Salem, but also any student curious about water distribution, conservation, and protection.

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Chapter One

Rationale

This Independent Learning Project (ILP) seeks to address an issue fundamental to all people: healthy drinking water. The National Academies Institute of Medicine suggests that an “adequately hydrated” adult woman takes in approximately 90 ounces of water each day and an adult man approximately 125 ounces (The National Academies, 2004). About 80 percent of this comes from drinking water and other beverages; the rest comes from food sources (The National Academies, 2004). As a student of humane education, I have been encouraged to become a curious consumer, one who thinks critically about my daily choices and how they impact the world around me. I have also been emboldened to take responsibility for the information that I gain as a student and to take action that inspires those around me to make compassionate and sustainable choices. Chapter Three of this ILP will include *Get to Know Your H₂O*, a short film that will document my research into the community water supply in Salem, Massachusetts.

The intention of the film is to detail my path as a mindful consumer questioning the safety and sustainability of my tap water. Is bottled water a necessity for the residents of Salem and if so, what are the consequences on humans and our environment? If not, what are the benefits of choosing tap water? How does this choice impact us financially and ecologically? Whichever the case, how can I fulfill my role as a humane educator in conveying these questions and solutions to my community?

The information available to the average consumer is both plentiful and conflicting. The Safe Drinking Water Act (SDWA) is “the principal federal law in the United States

that ensures safe drinking water for the public” (Wikipedia a., n.d., ¶ 1). The Federal Citizens Information Center informs us that:

The Safe Drinking Water Act (SDWA) requires that information be made available to the public so that you can learn how to help protect your drinking water and make personal health decisions about it. SDWA is the principal federal statute that protects the 250 million Americans who drink water from public supplies. When SDWA was amended in 1998, numerous provisions were added and give consumers greater access to information about and opportunities for involvement in, drinking water issues. (n.d., ¶ 1)

Each year the Salem and Beverly Water Supply Board mails this mandatory information, in the form of a water quality report, to all residents. This report includes data on numerous topics from where the watershed originates to what levels of 24 different contaminants were detected in the tap water during 2007. What this report does not state definitively is: Can the population of Salem trust that their tap water is safe and healthy to consume? This ILP intends to show how to find answers beyond what the annual water report discloses with the objective that the community of Salem will use the information to make educated decisions on drinking water consumption. The project also aims to instill a critical sense of duty among the residents of the city to protect and conserve our precious water supplies.

For at least the last 150,000 years, water has been the essential beverage for human, plant, and animal life as we know it. (Royte, 2008) Royte summarizes that:

From the beginning of human time, access to sufficient clean water was the sine qua non for the establishment of a settlement. Lack of good water cramped expansion, and the search for new sources drew civilization's map. Waterborne diseases could wipe out entire communities, so fresh springs were protected and fiercely defended. (Royte, 2008, p. 21)

As the book *Bottlemania* explains, sometime in the late eighteenth century, Europe's mineral springs were made over as destinations for the wealthy and royal to find cures to a variety of ailments. Following a trip to the spa, "it was a short step from offering guests water in situ to sending them home with water in a ceramic or glass container" (Royte, 2008, p. 24).

From this time begins the commercialization, regulation, and privatization of the bottled water industry. Until the 1980s bottled water was still considered a niche market in the United States. In 2007 msn.com reported that:

At Whole Foods Market, the upscale emporium of the organic and exotic, bottled water is the No. 1 item by units sold... Last year Americans spent more on Poland Spring, Fiji Water, Evian, Aquafina and Dasani water than they spent on iPods or movie tickets--\$15 billion. (Bottled Water: a River of Money, 2007, p. 1)

In 1991 I was a student living in Ashland, Massachusetts. My landlord at the time was kind enough to inform me that I should not drink the tap water. Nyanza Inc., a chemical and textile dye factory, closed since 1978, had contaminated the ground water. In 1985 Ashland was an Environmental Protection Agency (EPA) Superfund site, defined by the

EPA as, “an uncontrolled or abandoned place where hazardous waste is located, possibly affecting local ecosystems or people (Environmental Protection Agency [EPA] a., n.d., Superfund Sites Where You Live, ¶ 1). This was my first experience putting careful consideration into my drinking water. In 1998 while living in my home town of Peabody, Massachusetts, I was made aware of another EPA Superfund site nearby in Woburn, Massachusetts. This case was brought to national public attention by the film *A Civil Action* in which eight cases of childhood leukemia were linked to contaminated drinking water, the contamination again coming from the chemical dye industry, in this case tannery products (Ryan, 1979). This contamination was not discovered until the late 1970s but it was speculated that arsenic contamination had been in the ground for 65-80 years (Ryan, 1979).

When I moved to Salem in 2006 I found out that there is a coal burning power plant on the harbor, two miles from my front door. I have the opportunity through my studies at Cambridge College and with the Institute for Humane Education to research my tap water and gain the confidence and security that every human in this world deserves: to know that the water I am drinking is healthy and safe.

The film that I create will allow me to take the information from my research and share the results with the residents in my community who may not have the time or inclination to ask these questions. If the results show that our tap water in Salem is indeed of high quality, my role as a humane educator will be to motivate people, with my film as a tool, to disregard the intense marketing and public relations of the multi-billion dollar global bottled water industry and choose the local and sustainable option of tap water. If

the results indicate that our water is not of high drinking quality, my role as a humane educator will be to use this film to motivate my community to begin the steps needed to determine if our water source is contaminated, how it happened, and what methods can be explored for cleanup or remediation.

Goal

My primary goal is to create a film that will inform the residents of Salem about their drinking water. It will document my own path of learning where my water comes from and in what condition it arrives at my tap. The film will detail how the watershed is protected from pollution and other contaminants, how it is pumped, filtered, and distributed to each household, business, and school, and the ultimate question: Is it of high drinking water quality? With cautious optimism I expect that by the end of my journey I will feel confident not only drinking my tap water, but also encouraging my community to do so as well. I hope to gain a better understanding of the water that I consume and how it interconnects with other aspects of my desire to model an increasingly compassionate and just lifestyle.

Professionally I intend to develop a working knowledge of this information along side a tool used to distribute this research, the film, in a manner that inspires others to explore their relationship to water (with the focus on drinking water). Personally I hope to connect to my own innate awareness of the ancient sacred quality of water and to act on that awareness in making changes in my life and as a humane educator. The goal of this ILP is to create a film that not only informs but also entertains and allows me the knowledge and confidence to take on other issues of concern in the field of humane

education. The film will portray valuable information learned in the research and will in turn inform the members of my local community about the search for humane options and sustainable choices in our everyday lives beginning with the basic need for water.

I propose the resulting video will:

1. inform the members of my community of our drinking water options
2. model sustainable and compassionate drinking water choices
3. teach the local community about our watershed areas, where they are located, why they are important, and how to protect them
4. connect the viewer with the resources to find answers to other questions or concerns about water
5. instill the ubiquitous humane education teaching of the inter-connected impact of consumer water choice on people and on our environment

Problem statement

The problem addressed in this project is the complicated and conflicting information disseminated to the population at large on drinking water safety and standards. The bottled water industry, regulated by the U.S. Food and Drug Administration, organizes multi-million dollar ad campaigns each year to convince U.S. citizens that they should choose bottled over tap water (Food and Water Watch [FWW], 2007). Municipalities across the United States are spending billions of dollars to supply these same citizens with clean and cheap drinking water from the tap, which is regulated by the U.S. Environmental Protection Agency (FWW, 2007). Poland Spring tells us that, “bottled water is generally required to be tested for the same parameters as tap water, but the standards are, in many cases, stricter than for tap water” (Poland Spring, n.d., p. 5).

Simultaneously, the Natural Resources Defense Council (NRDC) has stated that tap water goes through more intensive and more frequent testing than bottled water (1999). Residents of Salem deserve to know if their tap water is indeed clean and safe and this film will fill an information gap with the consumers of this community.

Population

This ILP will benefit several groups of people, although the principle objective is to reach the residents of Salem. This project will also impact those who work, visit, or otherwise spend any substantial time within the city. Outside of those potentially drinking the city's water, this ILP will be helpful to community leaders to demonstrate concerns and solutions regarding the topic of drinking water. This can be of benefit within our small city of Salem, and as a model to other municipalities across the country. Chapter Three of this ILP will be a film easily shown at festivals, in the classroom, and on the internet. Based on the ease of distribution of digital video, the population is not significantly limited in any way, other than by imagination.

Methodology

To begin my research into Salem tap water, I will start with an overall exploration into tap water regulations, quality, and distribution in the United States. There is a tremendous amount of information available from non-profit organizations, corporate entities, and government agencies, and academic journals. The research must be narrowed down based not only on its relevance to this ILP, but also with judicious insight into the intentions and motivations of the source. Equipped with a basic understanding of the water cycle, potential contaminants, nonpoint source pollution, and EPA regulations,

I will begin traveling with my camera to document my trail and put to video the answers to my question: Can Salem residents feel confident and safe drinking their tap water?

For the purposes of this ILP it will be assumed that if the tap water in Salem, (and in turn any municipality in the U.S.) is of high drinking water quality, it will be a preferable alternative to bottled water except in the case of individual medical needs or an emergency situation. Research on the impact of bottled water on our environment consistently shows far-reaching and profound drawbacks. A 2003 cover story from *E Magazine* reported that:

The World Wide Fund for Nature argues strongly that the product is a waste of money and is very environmentally unfriendly, Co-op America concludes: “By far the cheapest--and often the safest--option is to drink water from a tap. It’s also the most environmentally friendly option.” Friends of the Earth say, “We might as well drink water from the tap and save all this waste.” (Howard, 2003, ¶ 36)

Specific information on bottled water such as the plastic used for packaging, the human rights conflict of taking water from communities that need it, and calculations on the average financial costs to consumers will be researched and included in Chapter Three. This will allow for informative and well-thought out comparisons and invite the viewer/reader to come to their own personal conclusions as well.

My field research will begin at the Ipswich River, the source of my local drinking water. It will progress through the canal pump station to one of three reservoirs. The reservoir that I will be focusing on for the purposes of this ILP is the Wenham Lake

Reservoir. This water source had been the cause of much scrutiny since 2001 when a substantial amount of fly ash residue was found covering the bottom of the reservoir. For additional information I intend to interview Lori Ehrlich, local state representative and an important figure in the clean-up initiative of the Wenham Reservoir. Ehrlich is a spokesperson for the Wenham Lake Watershed Association and is a passionate activist for our local water supply and other areas of concern regarding environmental toxins. During this part of my research, I will also be in contact with HealthLink, a citizen based group that is very active in Salem monitoring the power plant and keeping the public informed of their progress.

Following my visit to the reservoir, I will visit the filtration plant and pump station. I intend to interview workers at both of these locations and have started this process by contacting Thomas Knowlton, the superintendent of the Salem and Beverly Water Supply Board. The Board has monthly public meetings that I will attend and, if allowed, will be filming there also. Once the water leaves the pump stations, it enters into the city's distribution system. I will be looking to interview a civil/environmental engineer to find out more about this system. While I am inspecting the flow of water from the rivers and reservoirs to my tap, I will also be calling the EPA's Safe Drinking Water Hotline and visiting their website to supplement my research. Food and Water Watch, a non-profit group involved in educating, lobbying, and organizing activists on the topics of safe food and water, suggests that as a concerned consumer I can contact my local health department and ask them to test my water. I will document in my film this process as well as the outcome of this attempt.

During my examination of my drinking water, I will simultaneously be learning how to make a documentary intended to be used as a teaching tool. My methods for this part of my project revolve around the local public access television station, Salem Access TV (SATV). I have discovered that for a small fee, I am able to become a member, have access to their equipment, cameras and editing tools, and also participate in a variety of courses designed to teach beginners the elementary knowledge necessary to create my film.

Using the medium of film, I anticipate reaching more of my target audience than with writing alone. I believe that distributing this information to the members of my community through film screenings will be more personal than a written document, and allow for face-to-face interactions that will prompt more dialogue throughout the city. I have begun sourcing upcoming opportunities through organizations like HealthLink and Salem State College, who will allow me to show the film at their collaborative spring 2009 Earth Day festivities. I will also network with local Salem businesses who have expressed interest in all matters of promoting humane education through their storefronts, two examples of which are an organic baby goods shop and a health food store.

The use of video in or out of the classroom is a current and exciting method of education and activism. As stated in the recent edition of *Radical Teacher* magazine, “the Internet has ushered in a revolution in social activism . . . the critical question is: How do we make learning about democratizing the current media system and making effective use of alternative media an everyday part of public schooling?” (Leistyna, n.d.,¶ 15). I believe that by using the digital video format, this ILP could have a place in classrooms as well, although the precise topic may be of local concern, the big picture

shows how one curious consumer can use this medium to document the efforts of questioning the systems that many of us depend upon every day. Not unlike the films *Blue Vinyl* (Gold, 2002) or *The Witness* (LaVeck, 2000), the humane education opportunities are only as limited as the teacher or facilitator allows.

As I have previously mentioned, one limitation of this study is that the subject matter is of local interest. However, I intend to counteract this in some way by placing emphasis not just on the specific results, but also on the path that any citizen could follow to inquire about their own drinking water sources. A second limitation will be the access that is given to me to explore the reservoir, filtration plant, and pump stations. I have also considered that my research will be representing a specific period of time and the results that I find are subject to change on a regular basis. The best response I can envision regarding this limitation is to circulate *Get to Know Your H₂O* to as many Salem residents as possible and hope that it will inspire the community to keep a caring eye on our water and cherish it for all that it is worth to us. Finally, I presume that my lack of film-making experience will be a limitation in this ILP. This will be my first venture into filming and in all probability will show the imperfections of an amateur filmmaker.

I hope that this film will encourage those of us who can access safe water from our taps to hold a deep reverence and appreciation for this utility. This is not something that all people on earth can say. If those of us in Salem are able to get clean, healthy water from our taps, then we should embrace this basic human right with open arms and not fall prey to the heavy influence and public relations of the multi-billion dollar bottled water industry. I believe that if we can be mindful of the miracle of water and its relevance to our own personal health, the well being of other species, and the sustainability of our

ecosystems, we will be more likely to protect, conserve, and uphold others' rights to fresh drinking water.

Chapter Two

Introduction

As citizens of the consumer-driven economy and culture of the United States of America, we face a plethora of choices throughout our every day lives. We are consistently bombarded by images and ideas, the purposes of which are to influence our consumer behaviors and purchasing choices. If we are to be active and educated in our buying patterns, there are countless matters that we can decide to minimize or opt out of completely. This ILP is a creative project that focuses on drinking water, an area of human consumption that cannot be avoided and must not be taken for granted. This film intends to inspire people to make sustainable choices in regards to their daily drinking water habits while simultaneously fostering a deep concern for the long-term welfare of the earth's fresh water supplies.

Water crisis and controversy

Water is being diverted at escalating levels from long established drinking sources to support industry, agribusiness (animal and vegetable), and the generation of electric power. Although not all residents of the U.S. are feeling the effects just yet, the daunting reality is “the world's demand for fresh water is currently overtaking its ready supply in many places, and this situation shows no sign of abating” (Rogers, 2008, p. 46). In his recent article on the water crisis, Rogers clarified his point by explaining that, “today one out of six people, more than a billion, suffer inadequate access to safe freshwater” and continues with United Nations data projecting “by mid-century as much as three quarters of the earth's population could face scarcities of fresh water” (Rogers, 2008, p. 46).

As young students in our public schools, many of us were amazed to learn that our planet holds more water than land. To look at the colorful maps of the world bathed in blue re-enforces this balance. What the maps leave out is this: “most of our water is salty; only 3 percent is fresh, and of that fraction only a third is available for human use. The rest is locked up in snowcaps and ice fields” (Royte, 2008, p. 15). To be specific, our consumption of water here in the United States has not maintained an important ecological balance. The EPA “projects that 36 states will experience water shortages by 2013. The Southeast and Southwest are in severe drought now; New Mexico has a ten-year supply of water; Arizona is already importing everything it drinks” (Royte, 2008, p. 16).

The scarcity of fresh drinking water is not only about drought and lack of source water supplies, but also about contamination. Released from a variety of locations and industries, the contaminants in our waterways include a wide range of toxins and chemicals. “Nearly 40 percent of the nation’s rivers and streams are too polluted for fishing and swimming, to say nothing of drinking” (Royte, 2008, p. 84). A pertinent example can be found in big business agriculture and animal agribusiness. In 2002 even the EPA admitted to recognizing the danger. Their administrator, Christine Todd Whitman, stated, “animal waste generated by concentrated feeding operations poses a real threat to the health of American waters” (Cook, 2004, p. 175).

The first sign of this problem was the tens of millions of fish being killed in rivers supplied by factory farm waste (Cook, 2004,). In his book *Diet for a Dead Planet*, Christopher Cook explains that animal manure is a plentiful source of nitrogen and phosphorus which is excellent for fertilizing soil, but the factory farms create an over-

abundance (2004). This effluent is often used to spray on farmlands and these toxins make their way into ground water supplies (Cook, 2004). Nitrate, which is highly soluble and toxic to humans at low doses, is created when the ammonia from hog manure is exposed to oxygen. The Centers for Disease Control and Prevention (CDC) have observed such severe poisonings to suggest, “a relationship between nitrite consumption and spontaneous abortions” (Cook, 2004, p. 182).

These examples and statistics are not to lay blame with any one industry or to conclude unequivocally that we are now having a water “crisis.” For the purposes of my review of literature, I simply intend to show some of the information that I came across in my research that moved me to contemplate my own relationship with water, culminating in the most intimate of associations: consumption. Through many conversations and questioning of my peers, I determined that I was not alone in my ignorance of the state of our water supplies. Whether in crisis or not, there was no substantial research available that discredited the idea that we as a species have been irreverent and outright abusive to our precious and life-sustaining sources of water.

For the purposes of this project, my role is of an activist and educator primarily in my hometown of Salem. This research has already inspired me to make changes in my personal water intake and the film will document my journey into the more specific details of the public water supply of Salem.

Bottled water

In 2006, *Beverage World* magazine reported that Americans drank 8.3 billion gallons of bottled water, 26 gallons per person, in that year (FWW, 2007). Research shows that not only are we drinking more bottled water each year, 6.4 billion gallons in 2004 and 7.2

in 2005, but the amount of money we spend on this product has increased similarly (FWW, 2007). In fact, the price of bottled water is just one dissension from an incriminating list of objections that many organizations are now promoting as reasons to encourage consumers to switch back to tap water. One calculation of this expense can be found in *Take Back the Tap*, a publication of Food and Water Watch, a non-profit consumer rights organization (FWW, 2007). Using data from the Natural Resources Defense Council, *Waste Management World Magazine*, and the EPA, they conclude that the average consumer cost of one gallon of tap water equals \$0.002 per gallon, as opposed to \$0.89 to \$8.26 for bottled water (FWW, 2007).

In 1999 the NRDC issued a notable report on bottled water entitled *Bottled Water: Pure Drink or Pure Hype?* This report indicated that a \$1.50 bottle of water generated a profit of \$0.50. Food and Water Watch summarized the costs:

Leaving out the cost of the water, this means that bottling, packaging, shipping, marketing, retailing, and other expenses account for the lion's share of the company's costs. One should note that those are internal costs—what the company bears. They do not include the external economic, social, and environmental costs that society must pay, such as loss of groundwater, toxic emissions from plastic production and destruction, air pollution from transporting the products, and the disposal of loads of empty bottles. (p. 2)

Even after reading this brief introduction to bottled water one might wonder why is it that U.S. consumers can't seem to get enough of the stuff? The short answer to this

question appears to be well-thought out marketing and public relations campaigns. The industry had a \$158 million advertising budget across the U.S. in 2005 (Royte, 2008). PepsiCo spent at least \$20 million in 2006 to promote its bottled water brand, Aquafina, and reports show that it is likely Coca-Cola spent a similar amount to encourage sales of its brand, Dasani (Royte, 2008). Nestle, owner of Poland Spring, has arranged focus groups to help advance its image in the media and has also hired pollster Frank Luntz (Royte, 2008). Wikipedia describes Frank Luntz as such:

An American corporate and political consultant and pollster who has worked most recently with the Fox News Channel running focus groups after presidential debates. Luntz's specialty is “testing language” and “finding words” that will help his clients sell their product or “turn public opinion on an issue or a candidate” (Wikipedia b. n.d., ¶ 1).

In this arena of big money corporations, a consumer might imagine that these companies are spending their time and money on products vastly different from what comes out of our taps. Poland Spring is in fact spring water from the state of Maine. Aquafina and Dasani, on the other hand, are actually drawn from the same municipal sources that our tap waters come from (Royte, 2008). They are simply filtered more (Royte, 2008). Forty-four percent of the bottled water sold in the U.S. in 2006 was derived from municipal sources, however, Elizabeth Royte, author of *Bottlemania*, believes, “those brands, filtered to the nth degree, are nothing like the stuff that flows

from municipal pipes and out through kitchen faucets” (Royte, 2008, p. 38). How do they differ?

One primary distinction between bottled water and tap water is who regulates each and to what extent. The U.S. Food and Drug Administration regulates all bottled water under the regulatory authority of The Federal Food, Drug, and Cosmetic Act (U.S. Food and Drug Administration [FDA], n.d.). This act regulates food products that will be sold through interstate commerce, (although noticeably missing is the mention of *intrastate* commerce) (FDA, n.d.). The FDA website tells us that, “because FDA’s experience over the years has shown that bottled water has a good safety record, bottled water plants generally are assigned low priority for inspection” (FDA, n.d., Inspection of Bottled Water Plants section, ¶ 2). The EPA regulates municipal water supplies and more information on that will follow in the tap water section of this literature review.

The International Bottled Water Association assures the public that its standards must be as strict as the EPA’s standards for public water but the NRDC worries that the FDA “provides no specific requirements--such as proximity to industrial facilities, underground storage tanks, or dumps--for bottled water sources” (Howard, 2003, Largely Self Regulated section, ¶ 4). Add to that risk factor the discrepancy between violations of tap water regulations, which are enforceable by law, and violations of bottled water regulations, which are not always enforceable (Howard, 2003). Finally, as Food and Water Watch reminds us, bottled water regulations are not as strong as those for tap water because although they are monitored as a food under the FFDCFA, tap water is watched closely under the Safe Drinking Water Act (FWW, 2007, p. 4).

Knowing there is no proof to date that bottled water is any safer than tap water, that reports show that 89 percent of U.S. tap water “meets or exceeds federal health and safety regulations” and that the tap water in this country often trumps name-brand bottled waters in taste tests, one might turn to sociological explanations of the bottled water phenomenon (Royte, 2008, p. 40). Some social psychologists have marked a new trend in our society’s approach to certain cultural problems, indicating a shift from cooperatively managing a concern, to relying on the paid services of the private sector (Royte, 2008 p. 45). Author and activist Bill McKibben defines “hyperindividualism” as the “movement away from a sense of common purpose and toward personal enhancement” (Royte, 2008, p. 45). This trend is allowing the bottled water companies to market their products, under the guise of purity and freshness, to individuals who can afford to pay as much for their water as they do for their gasoline.

After the economic, advertising, public relations, regulatory, and societal concerns are reviewed and considered, we must pay distinctly critical attention to how the bottled water industry impacts all living beings and our environment. Due to the extensive volumes of information regarding this topic, for the purposes of this literature review and the intended outcome of Chapter Three, I have chosen to limit this material to a selective list. In Chapter Three the viewer will be put in touch with more detailed information. What follows is a series of impacts the bottled water industry has on humans, other animals, and our environment:

1. Municipal water suppliers pump only as much water as local consumer demand calls for, corporate water bottlers have no such limits; Nestle is currently taking just under

300,000 gallons a day from just one Canadian county, to be shipped and sold hundreds or thousands of miles away (FWW, 2007).

2. Worldwide, bottled water companies are drawing substantial amounts of water from the same few locations, and shipping them to other watersheds. When water is pumped and consumed within the same region, the watershed is naturally replenished; however, when it is moved to another ecosystem, the original watershed loses its supply (Royte, 2008).
3. Non-domestic water is shipped across the ocean, trucked across the country, and stored in refrigerators; this uses incredible amounts of fossil fuels (Royte, 2008).
4. The Container Recycling Institute (CRI) reports that it takes 15 million barrels of oil per year to make all of the plastic bottles in America (Howard, 2003).
5. CRI reports that eight out of ten water bottles end up in landfills (Howard, 2003).
6. It takes approximately 1000 years for a plastic bottle to break down. As they do, they break into small particles that fish and birds mistake for food; scientists are finding dead animals on beaches with bellies full of plastic (Howard, 2003).
7. Phthalates, chemicals used to soften plastic water bottles, can disrupt human endocrine function (FWW, 2007).
8. Privatization and globalization of fresh water threatens the human right to water supplies that have sustained communities for generations (The Turning Point Project, n.d.).
9. Farmers in Indonesia are fighting each other with machetes over the allotment of water that Nestle leaves behind (Royte, 2008).

Tap water

Researching the bottled water industry gave me the assurance that I needed to create a film about my tap water with the eventual intention of using the film as an educational tool. I would have considered myself inattentive as a humane educator to leave out an integral portion of data by not educating myself with an in-depth comparison of the alternatives. Once I explored the complexities of bottled water, it was time for me to understand the municipal water supplies that I would be examining for Chapter Three of my ILP.

While reading the book *Bottlemania*, I came across an informal poll carried out by the author. She asked a group of people this: “Do you know where your tap water comes from?” (Royte, 2008, p. 92). Anecdotally, Royte informs the reader that compared to eras in the past, when there was no water infrastructure, today most people do not know where their tap water comes from (2008). Moved by the idea of hyperindividualism, I believe that educating myself and my community about our drinking water, from the source to the tap, would assist in combating the concern that we are lacking a sense of common purpose. It begins with this disclosure: I did not know where my tap water came from either.

Drinking water comes from one of two sources, groundwater or surface water (Royte, 2008). Surface water, as the name implies, is pulled from lakes, river, and streams (Royte, 2008). Groundwater begins as precipitation and finds its way through many layers of earth into the water table (Royte, 2008). Groundwater can be protected in aquifers, or as Royte calls them, “underground bathtubs” (Royte, 2008, p. 58). The U.S. Geological Survey has shown that a vast majority of sinkholes across our country are the

outcome of overpumping of groundwater supplies (Royte, 2008). Royte refers to my community when mentioning that, “in Massachusetts, groundwater pumping for municipal supplies converts parts of the Ipswich River, in the summertime, into a shallow canyon of mud” (2008, p. 58).

Early in my research, I received my Salem and Beverly Water Supply Board 2007 Water Quality Report in the mail. Through the Consumer Confidence Rule (CCR), the EPA mandates most public water suppliers to provide consumer confidence reports to the public served (EPA b., n.d.). This rule applies to community water systems including my hometown of Salem. After reading the pamphlet, which included five pages of text, I was certainly a more educated consumer. The essentials of where my water came from, a general list of contaminants found in drinking water, and a full page of 24 contaminants that were detected in my drinking water in 2007 were all included in the report. Nowhere in this report, however, did I read that it was a good idea to drink my tap water. This led me to wonder, is this report intended to *give* me confidence as a consumer of my tap water, or is this information being told to me *in* confidence?

I was reassured when reading this paragraph:

The board is committed to providing drinking water that meets or surpasses all primary and secondary health and safety standards. State and federal regulators routinely monitor our compliance and testing protocols to ensure that we deliver safe drinking water to customers. Laboratory staff at our water filtration plant conduct more than 38,000 water-quality tests on your drinking water every year

(Salem and Beverly Water Supply Board [SBSWB], n.d., Compliance with Health and Safety Standards section, ¶ 1).

I was discouraged, however, with my struggle to read and make sense of the treated water quality data page that detailed the contaminants that were found and in what amounts. I decided to visit the EPA's website to see if I could find some assistance. I found pages full of information, however, nothing that answered my ultimate question of whether or not I should be drinking from my tap (EPA b., n.d.).

While putting aside the more specific questions regarding my tap water quality for Chapter Three of this project, there is ample information available to the consumer on the topic of drinking water contaminants. The EPA's website has an extensive section on the variety of substances found in drinking water besides H₂O, including microbial contamination, which can cause gastrointestinal illness and comes from animal fecal waste, human and non-human, soil runoff, and natural occurrences (EPA c., n.d.).

Cryptosporidium, Giardia lamblia, and E. Coli are some of the more common microorganisms that are monitored in our water. The World Health Organization (WHO) maintains that the most prevalent drinking water health risks are caused by microbial contamination (The World Health Organization [WHO], n.d.).

Disinfectants and disinfection byproducts are also mixed in with the water that we drink from the tap. Disinfectants, chlorine for example, are added to control microbes, and the byproducts, such as bromate and chlorite, can increase the risk of cancer and cause nervous system effects (EPA c., n.d.). Inorganic chemicals such as nitrite and lead come from the variable sources of fertilizer runoff and corroded plumbing systems inside

private residences (EPA c., n.d.). Fluoride is an inorganic chemical that is purposefully added to our water to prevent tooth decay (EPA c., n.d.). Dioxin is an organic chemical that is carefully monitored in water supplies. Dioxin is discharged from chemical factories and is known to cause reproductive difficulties and an increased risk of cancer (EPA c., n.d.). Finally, radionuclides are on the EPA's list of contaminants. The WHO asserts that radionuclide content in water supplies is "rarely of public health significance" (WHO, n.d., Radiological Aspects section, ¶ 3). These contaminants come from the decay of natural and human-made sources of radioactive materials and all radioactive materials are known to cause increased risk of cancer (EPA c., n.d.).

The list, even in this incomplete format, might be the impetus for many to reach for a bottle of Poland Spring. As mentioned in the bottled water section of this literature review, Nestle, Coke-Cola, Pepsi-Co, and other water bottlers spend millions to spread the word that their product is safe and fresh; the municipalities do not. In their groundbreaking water report from 1999, the NRDC determined that the water consumers of the U.S. have no real assurance that the bottled water they are drinking is any safer than the water from the tap. Although tap water is not a perfect product; a solution lies in allocating our resources to the sustainability of municipal supplies over the bottled water industry. In other words, in this supply and demand economy, consumers can vote with their dollars by eschewing bottled water while simultaneously supporting their municipal sources.

My research thus far has granted me a well-informed perspective on this fundamental topic. While it appears that most of our planet's water supplies are becoming increasingly contaminated, we continue to have the choice to drink local municipal

supplies, or to drink bottled water. The story behind the industry that bottles this water is fairly standard; the water has been taken from other watersheds, often times against the preference of the community. In addition to the new roads that must be laid, the air, water, and noise pollution from the factories that must be erected to pump, bottle and distribute the water, the communities surrounding these factories can be faced with water shortages due to the overpumping that generally takes place due to the corporate intention of increasing the bottom line. Historically, municipalities across the U.S. have not made a profit on their water utilities; their asset management merely provides enough money to keep the systems running and employ the workers.

Armed with the knowledge that the FFDCA regulates bottled water in a weaker manner and with less frequent testing than the EPA demands of its water via the Safe Drinking Water Act, I can begin Chapter Three with the best intention to further educate myself and my community on our precious drinking water supply (FWW, 2007).

Recognizing that we are reaching a crisis of worldwide proportions, I am motivated by this suggestion in an essay by The Turning Point Project: “leave water where nature put it, in its own watershed, as part of larger ecological systems. Decisions about its use should be localized” (The Turning Point Project, n.d., p. 286).

Teaching with film

While preparing to undertake the challenge of educating myself and the reader about Salem’s tap water, I am simultaneously embarking on a journey to familiarize myself with film and its application as a teaching tool. This track begins with acquiring a basic understanding of filming and editing. I am able to become a member, with great advantages, of my local public access television station. Salem Access Television

(SATV) is a non-profit community based media center whose staff is more than happy to teach its members how to make a film, from pre-production through post-production. With three hours of classroom participation and a \$25 fee, any Salem resident may become a member. Members have access to cameras, tri-pods, external microphones, editing equipment, and a well lit studio, if necessary.

My enthusiasm to use film as a medium for Chapter Three of this ILP came from a variety of sources. From the perspective of being a student of humane education for the past two years, I have been introduced to a wide range of feature films, documentaries, and shorts through the assigned curriculum. While studying environmental ethics, I was impressed by Judith Helfand's documentary *Blue Vinyl* highlighting her desire to shed light on the dangers of the vinyl (PCV) covering her parent's home (Gold, 2000). With his film *The Witness*, Eddie Lama provoked me (with laughter and tears) into deeper levels of community activism regarding animal welfare concerns (LaVeck, 2000). At the same time, *The Future of Food* shocked me into realizing the impact of genetically modified organisms (GMO's) not only on family farms, but also on the safety and integrity of our food supply (Garcia, 2004). For me, each of these films denotes a pivotal moment, a flash of awareness where the student becomes the teacher. I watched these and other films and benefited not only from the information gathered, but also from the conviction that I could be part of the solution.

I am not alone in my assertion that film is a motivating and stimulating instrument for learning. In 2002, International Studies Perspectives presented a forum on teaching with film. Although the professors were discussing film as a tool for teaching foreign policy, the advantages outlined in using this method were as follows, to: "(1) stimulate the

senses, (2) concretize abstractions, (3) trigger affective learning, (4) generate historical connections, and (5) generally advance ‘the learning paradigm’” (Boyer, 2002, p. 89). A further benefit of this framework is that it can easily be applied to students of all ages.

One example is this quote from the *Journal of Adolescent and Adult Literacy*:

In “*Media Literacy and Cultural Studies*,” Luke (1997) argued that because today’s students have grown up in a world pervaded by “the electronic, symbolic, commodity, and ideological signification system of popular culture,” teachers and teacher educators should engage in “teaching with and about media and popular culture” (Trier, 2006, p. 434).

For the purposes of this ILP and the resulting film, my intention as an educator is to teach to the community, in the community. With this population in mind, I must also be aware of the adult viewer. The Associated Press polled 1003 adults in August of 2007 and discovered that 25% of those polled had gone one year without reading a book (Bartholomew, 2007). Barbara Bartholomew, an Assistant Professor of Reading and Literacy at California State University Bakersfield, suggests these two destructive forces are to blame for a considerable decrease in adult reading habits: overwork, and competing choices (Bartholomew, 2007). By “overwork” the author refers to worker productivity and regarding “choices,” she refers to other preferred leisure activities (Bartholomew, 2007). Her conclusion suggests “adults are not all that different from children in how they like to unwind. Some will read because they love to, but most would prefer to run around outside, watch TV or a movie, or surf the web” (Bartholomew, 2007, p. 35).

In addition to being encouraged by these films and studies, I have likewise been informed by an article describing a course offered to undergraduate social work students in two schools in Israel, the title of the course being, “Community Practice Through Production of Television Reports” (Boehm, 2004). The participating students took part in various stages of producing television reports concentrating on social change. The students found that the process of creating the films, and the consequent screenings of the films, allowed both the students and the viewers to gain a greater awareness of their socio-political surroundings (Boehm, 2004). The students concluded that the production process provided “considerable power to influence social change (Boehm, 2004, p. 426).

While utilizing films as teaching tools, the students found they were able to convey their messages, advance their ideas, and promote behavior change based on these points: “(a) building awareness and understanding of populations with regard to a specific or general idea; (b) influencing attitudes with messages in support of positive values and beliefs; (c) enhancing and influencing existing activities and behaviors” (Boehm, 2004, p. 426). Other advantages of using film as a tool for teaching noted by the students included the building of social networks during the production and screening phases, advancing relations with institutions and authorities for the purposes of lobbying, and finally, enlisting the support of community members with the intention of fundraising (Boehm, 2006).

There are of course some downsides to my choice of film as part of my ILP, primarily, as previously mentioned, my lack of experience as a filmmaker. The Boehm article also points out other challenges that I was made aware of. Mobilizing resources, a concern for most amateur film makers, refers to the cost of high quality cameras and editing

equipment (Boehm, 2006,). Using high end equipment can directly impact the quality of the production and in turn, lead to larger scale broadcast, even the potential of national recognition. Seeing that my project is of local concern to the residents of Salem, I have reason to trust that the quality of the equipment available to me through SATV is satisfactory for my goals. One other notable concern Boehm noted was the lack of students' technological training (2006). I intend to address this apprehension with several hours of training at SATV with experienced staff who will guide me through the steps of post-production.

Conclusion

Preparing this literature review has aided me in uniting my ILP in a manner that combines my research of drinking water and of educating through film with the ultimate goal of producing a video that educates and inspires change in my local community. I will be deeply gratified as a humane educator if the audience walks away asking these questions: Is the water I drink a financial decision? An ethical assessment? Or maybe a matter of personal health? How do I make the most humane choice? And, what can I do every day to ensure that I am being a mindful consumer of our natural resources?

In his book *Voluntary Simplicity*, Duane Elgin asks, "Do I consider the impact of my consumption patterns on other people and the earth?" (Elgin, 1993, p. 149). Although this project will focus on drinking water, I also intend to bring to the viewers' consciousness a reverence of the earth's water supplies that will encourage critical thinking and responsible action through the practice of humane education.

Chapter Three

How my research impacted my film

Without undertaking the research that allowed me to write chapters one and two of this project, I do not think that I could have conceived the story that I believe need to be told. The research is what gave me goals; before I embarked on my research, I was rather ignorant of not only where my drinking water came from and whether or not it was of high quality, but I was also shockingly unaware of the worldwide water crisis. The research gave me information, ideas, and opinions on current water and environmental issues and this contributed to most of my decisions from whom I wanted to interview, to what questions I would ask of them, to how I would edit down a 60 minute interview to the two or three minutes that I felt told a piece of this story, the story of Salem's tap water.

Most importantly, the research in which I immersed myself for chapters 1 and 2 gave me a sense of purpose within the project and a deep passion for my drinking water. It made me curious of times gone by in this country when communities would gather together to celebrate the completion of water works projects and to rejoice at the miracle of potable water. It caused me to long for a re-awakening among my community, something that would reignite our wonder and respect for this gracious resource that we continue to contaminate and misuse yet, cannot live with out.

Finally, my research brought me from a place of carelessness, through a fearful and distressing edification, to an outlook of hope and action. I suspect that without the research, the film would have lacked the sense of optimism that I intended to incorporate.

Film making challenges

1. Other people: it was difficult coordinating their schedules and reaching out to strangers while convincing them to interview on film.
2. Learning to videotape: I had audio troubles, lighting problems, struggles creating space to film the interviews, and hurdles scheduling the camera person (who volunteered his time).
3. Learning to edit: imovies software is complicated and time consuming, much more than I had expected. For the first several sessions, I averaged only ten seconds of footage per hour of filming.
4. SATV: I underestimated how far ahead of time I had to schedule to sign out a camera, tripod, and microphone. Getting access to the editing bays for the long periods that I needed was difficult due to a busy membership.
5. Filming and editing in Salem, MA in October: I somehow forgot to factor in the overcrowding of Halloween fascinated visitors in the month of October.
6. Carrying the gear: This was heavy, awkward, and created spasms in my neck on more than one occasion.
7. My job: I am lucky to have flexibility and an understanding director who let me take last minute time off for interviews, and leave early to work within the SATV schedule.
8. Learning how to interview people: I had never interviewed anyone before, let alone for film. I needed to lead people into sound bites and encourage people to talk about the specific topics that I was looking for, without dictating their words. Cutting down a one hour interview into two or three minutes was massive! It feels like a loss to

take all of that information and break it down into one or two key points, and makes it considerably more challenging to maintain the integrity of the interview and the intentions of the subject.

9. Being on film: I did not expect to feel as uncomfortable as I did. I did not like being on film and got very nervous the day of each interview.
10. It was a challenge not to be disappointed when many of the people who I had intended to interview could not find the time, did not want to be filmed, or simply did not respond: It was a constant effort to stay malleable with my ideas and continue to generate ways of telling the story when plan A fell through and then plan B fell through as well.
11. Letting go of pre-conceived notions: Allowing the film to unfold naturally to truly document my search and research. I really wanted the viewer to learn as I was learning to see the story the way it really did unfold.
12. The incredible learning curve: Taking on a topic about which I was so uninformed and at the same time learning to film and edit in a way that tells the intended story through my eyes while also informing the viewer and maintaining their interest.
13. Keeping in mind realistic boundaries: With my time and with my movie editing abilities. I watched quite a bit of television while trying to understand editing. Mainstream TV programming is a high standard of comparison based on the amount of financing and well trained professionals creating each image. I found that I needed to watch more public access TV to have more reasonable expectations of my film making abilities.

TEACHER'S GUIDE

The teacher's guide to *Get to Know Your H₂O* includes companion materials to the film intended to be discussed with and displayed and/or distributed to the audience or classroom. The movie itself is a 20 minute documentary style short that was filmed and edited during the fall of 2008, on location in Salem, MA and its surrounding communities. The film is part of a larger body of work representing the thesis project of Andrea Cohen while earning her Masters of Humane Education from the Institute of Humane Education and Cambridge College.

The intended audience of this film ranges from Salem residents and consumers of Salem's public drinking water, to all consumers who continue to purchase bottled water, while remaining greatly unaware of the quality of their own municipal water. The film is well suited for open screenings at venues such as community centers, eco fairs, and public access television. *Get to Know Your H₂O* is also designed to allow for enthusiastic classroom dialogue regarding systems of municipal water distribution, federal regulations of the drinking water in the United States, as well as the greater picture of the growing worldwide water crisis. Most students over the age of 10 would find value in the film as an educational tool, particularly with a teacher's guidance.

Included in the [Teacher's Guide](#) is as follows:

- [Film Goals](#)
- [Who's Who in *Get to Know Your H₂O*](#)
- [Drinking Water Terms](#)
- [Leak Facts](#)
- [Did You Know](#)
- [Water Trivia](#)
- [Discussion Guide](#)
- [Resources](#)

Film Goals

The goal of this film was to document my exploration as a student, teacher, and member of the Salem, Massachusetts community into the distribution, de-contamination, protection, and conservation of my local drinking water supply. Researching this project brought me into an abrupt awareness of the worldwide water crisis including how lucky I am in my city to have access to safe, cheap potable water.

After considerable reading I decided that with all of the information available on tap water, bottled water, water shortages, pollution, and privatization, it would be helpful to inform the residents of Salem on where our drinking water comes from, how it gets to our taps, and in what condition. Jim Rivard, the PE from Woodard & Curran engineering firm, explains the process of how water is distributed from the river to our taps. The interviews with Ray Raposa and Kirsten King from New England Water Works Association describe to the viewer some of the rules, regulations, and training that are involved in the safety and cleanliness of our water. Also of great significance is information on conservation and protection of our local supply. Environmental journalist, Andrea Fox, and Director of the Ipswich River Watershed Association, Kerry Mackin, both help to illuminate the viewer in these areas. I thought local "water" professionals and

activists could share their expertise and supply reliable information and thus allow the viewer to see some of the research that had gone into making the film.

The goal of informing the viewer of the quality, quantity, and distribution of the Salem water supply was primarily to encourage my community to appreciate the effort that goes into the distribution of our drinking water, the high quality in which it arrives, and its ceaseless supply. The intention of including information on conservation and protection measures was not only to demonstrate the careful work of the municipality, but also the continuing responsibility required of each and every consumer. The aim of including clips of interviews of people in Salem's water world was to build trust and to authenticate the information.

At its deepest level, the goal of this film is to document my journey from unawareness to consciousness regarding not just *my* water, but *our* water. If there was one underlying theme throughout all of my interviews for this film it was that there is only *one* water environment, and we are *all* downstream. If this film can inspire Salem residents to care about *their* water, then I believe it has inspired them to also care about *our* water. The water of this planet connects us all. Although we in Salem live in a water rich community and may not see first hand the brutal water crisis that is taking place throughout the world, that

should not allow us to close our eyes to the illness and suffering that is occurring for lack of potable water on this planet. The sad irony seems to be this: our water works utilities have done such an excellent job in supplying us water that many of us have forgotten to be careful and grateful of this life giving resource. This project had changed my relationship with water to the point where my gratitude brings me to tears. The greatest goal of this film is to move others to the same responsiveness and to inspire them to make lifestyle changes accordingly.

“Water is life’s matter and matrix, mother and medium.

There is no life without water.”

-Albert Szent-Gyorgyi, Hungarian biochemist

Water Consciousness, 2008

Who's Who in Get to Know Your H₂O

- ◆ Andrea Cohen: a student of humane education currently working on her M.Ed. with the Institute of Humane Education and Cambridge College. Andrea is a resident of Salem and also works there as a social worker. Andrea expects to graduate in the spring of 2009 at which point she intends to become employed at a non profit organization whose focus is animal welfare, human rights, environmental ethics, or, preferably, a combination of all three.

- ◆ Andrea Fox: a local environmental journalist and Salem community activist. Andrea has been writing about water issues for the past eight years and currently contributes to the *Salem News* with a weekly column dedicated to informing readers on strategies to achieve greener lifestyles.

- ◆ Ray Raposa: the Executive Director of the New England Water Works Association (NEWA) in Holliston, MA. Ray has an extensive knowledge of water legislation and regulation. He is passionate about the world of water utility and has a great appreciation for the history of water works in New England. Ray works with many municipalities across New England, including Salem.

- ◆ Kirsten King: the Director of Communications at New England Water Works Association (NEWA) in Holliston, MA. Kirsten works with the U.S. EPA and MA DEP grants, manages the NEWWA newsletter and handles member communications. Kirsten is also well informed of NEWWA community outreach efforts and public education campaigns.

- ◆ Kerry Mackin: the Executive Director of the Ipswich River Watershed Association (IRWA) in Ipswich, MA. She has her MS in Natural Resource Management and serves on numerous state and regional advisory boards and committees that focus on watershed protection. Kerry had been the director of the IRWA since 1993 and models a truly heartfelt dedication to the protection and conservation of our waters.

- ◆ James Rivard: a PE (professional engineer) with the engineering firm of Woodard & Curran in Andover, MA. He has 28 years of experience in both the public and private sectors on projects such as water storage facilities, water treatment facilities, and water and sewer pumping stations. Jim is an expert in finding solutions to client concerns such as improving efficiency of operations and creating cost-effective solutions to infrastructure problems.

Drinking Water Terms

Aquifer: A natural underground layer, often of sand or gravel, which contains water.

Chronic Health Effect: The possible result of exposure over many years to a drinking water contaminant at levels above its Maximum Contaminant Level.

Coliform: A group of related bacteria whose presence in drinking water may indicate contamination by disease-causing microorganisms.

Community Water System: A public water system which supplies drinking water to 25 or more of the same people year-round in their residences.

Contaminant: Anything found in water which may be harmful to human health.

Cryptosporidium: A microorganism commonly found in lakes and rivers which is highly resistant to disinfection. Cryptosporidium can cause outbreaks of gastrointestinal illness with symptoms that include diarrhea, nausea, and/or stomach cramps

Disinfectant: A chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet light) that kills microorganisms such as bacteria, viruses, and protozoa.

Disinfectant Byproducts: Chemicals that may form when disinfectants used by water treatment plants react with plant matter and other naturally occurring materials in the water.

Distribution System: A network of pipes leading from a treatment plant to customers.

Finished Water: Water that has been treated and is ready to be delivered to customers; see Source Water.

Drinking Water Terms

Giardia Lamblia: A microorganism frequently found in rivers and lakes, which, if not treated properly, may cause diarrhea, fatigue, and cramps after ingestion.

Ground Water: The water that systems pump and treat from aquifers

Inorganic Contaminants: Mineral-based compounds such as metals, nitrates, and asbestos. These contaminants are naturally-occurring in some water, but can also get into water through farming, chemical manufacturing, and other human activities.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. MCLGs are non-enforceable health goals.

Monitoring: Testing that water systems must perform to detect and measure contaminants. A water system that does not follow US EPA's monitoring methodology or schedule is in violation, and may be subject to legal action.

National Primary Drinking Water Regulations: Legally enforceable federal standards that apply to public water systems.

Organic Contaminants: Carbon-based chemicals, such as solvents and pesticides, which can get into water through runoff from cropland or discharge from factories. US EPA has set legal limits on 56 organic contaminants.

Potable: fit or suitable for drinking, as in potable water.

Primacy: Primary enforcement authority for a drinking water program.

Drinking Water Terms

Public Water System (PWS): Any water system which provides water to at least 15 service connections or 25 people for at least 60 days annually.

Radionuclide: An unstable form of a chemical element that radioactively decays, resulting in the emission of nuclear radiation. Prolonged exposure to radionuclides increases the risk of cancer. All of the radionuclides known to occur in drinking water are currently regulated, except for radon and naturally-occurring uranium.

Raw Water: Water in its natural state, prior to any treatment for drinking.

Sample: The water that is analyzed for the presence of US EPA-regulated drinking water contaminants.

Secondary Drinking Water Standards: Non-enforceable federal guidelines regarding cosmetic effects (such as tooth or skin discoloration) or aesthetic effects (such as taste, odor, or color) of drinking water.

Sole Source Aquifer: An aquifer that supplies 50 percent or more of the drinking water of an area.

Source Water: Water in its natural state, prior to any treatment for drinking.

Surface Water: The water that systems pump and treat from sources open to the atmosphere, such as rivers, lakes, and reservoirs.

Turbidity: The cloudy appearance of water caused by the presence of tiny particles. High levels of turbidity may interfere with proper water treatment and monitoring.

Watershed: The land area from which water drains into a stream, river, or reservoir.

LEAK FACTS

- ◆ A 1/8 inch hole in a metal pipe, at 40 psi, leaks 2500 gallons of water every 24 hours
- ◆ A leak the size of a pinhead can waste 360,000 gallons each year, enough to fill 12,000 bathtubs to the overflow mark
- ◆ A leaking toilet can use 90,000 gallons of water in 30 days
- ◆ A typical toilet leak at today's rate can add \$500 to a single yearly water bill
- ◆ A dripping faucet can lose up to 180 gallons a month or 2160 gallons per year
- ◆ Approximately 1 in every 20 pools has a leak
- ◆ Approximately 1 in every 318 homes or buildings has a leak

Did You Know?

- ◆ One trip through the car wash uses 150 gallons of drinking water
- ◆ Collecting water for gardening from the faucet while waiting for hot water saves about 250 gallons of water a month
- ◆ Using a broom to clean the sidewalk instead of a hose saves 150 gallons of water
- ◆ Using a pool cover prevents about 1,000 gallons per month from evaporating

Water Trivia

- ◆ How much of the human body is water?
66%
- ◆ How many community public water systems are there in the United States?
56,000
- ◆ How much water do these utilities process daily?
34 billion gallons
- ◆ What does a person pay for U.S. municipal water on a daily basis?
The national average is 25 cents
- ◆ How much water is used in the average five-minute shower?
25-50 gallons
- ◆ On the average, how much water is used to hand wash dishes?
20 gallons
- ◆ How much water is used on the average for an automatic dishwasher?
9-12 gallons
- ◆ What is the total amount of water used to manufacture a new car, including new tires?
39,090 gallons per car
- ◆ How much water does it take to make one pound of wool or cotton?
101 gallons
- ◆ How much water does it take to refine one barrel of crude oil?
1,851 gallons
- ◆ How much water does it take to process one ton of cane sugar to make processed sugar?
28,100 gallons

Water Trivia

- ◆ How much water does it take to make one pound of plastic?
24 gallons
- ◆ How much water does it take to process one chicken?
11.6 gallons
- ◆ How much water does it take to process one can of fruit or vegetables?
9.3 gallons
- ◆ How much of the earth's surface is water?
80%
- ◆ Of all the earth's water, how much is ocean or seas?
97%
- ◆ How much of the world's water is frozen and therefore unusable?
2%
- ◆ How much of the earth's water is suitable for drinking water?
1%
- ◆ The U.S. federal government requires far more rigorous and frequent safety testing and monitoring of municipal drinking water over bottled water
- ◆ The World Health Organization (WHO) estimates that 1.7 billion people worldwide lack access to clean water
- ◆ The WHO estimates that 2.3 billion people suffer from water-borne diseases each year
- ◆ UNICEF estimates that **every 15 seconds** a child dies of thirst or water related disease

[DISCUSSION GUIDE](#)

1. How can I become more active with conservation and protection of Salem's public water supply?

A great place to start is at the **Ipswich River Watershed Association** (IRWA) at www.ipswichriver.org. Kerry Mackin, the executive director since 1993, has invited anyone who is interested to come visit them at their location in Ipswich. The IRWA not only offers educational programs and demonstrations, but they are always looking for volunteers to work indoors and outdoors monitoring, surveying, or simply organizing.

2. What are some concerns with the bottled water industry?

Corporate Accountability International tells us:

"Bottled water corporations use clever marketing and misleading advertising that makes people doubt the safety and quality of their own tap water. In reality, bottled water is less regulated than public water systems, and studies reveal that bottled water can actually contain harmful bacteria and other contaminants."

-www.stopcorporateabuse.org

Worldwide, bottled water companies are drawing substantial amounts of water from the same few locations, and shipping them to other watersheds. When water is pumped and consumed within the same region, the watershed is naturally replenished; however, when it is moved to another ecosystem, the original watershed loses its supply.

-*Bottlemania*, by Elizabeth Royte

It takes approximately 1000 years for a plastic bottle to break down. As they do, they break into small particles that fish and birds mistake for food; scientists are finding dead animals on beaches with bellies full of plastic.

-*Message in a Bottle, E Magazine* June 2003

Privatization and globalization of fresh water threatens the human right to water supplies that have sustained communities for generations.

-[The Turning Point Project](#), 800.249.8712, info@turnpoint.org

[DISCUSSION GUIDE](#)

3. How is drinking water regulated in the United States?

The **Environmental Protection Agency** regulates our drinking water through the Safe Drinking Water Act (SDWA), the main federal law that ensures the quality of Americans' drinking water. Under the SDWA, the EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards.

The U.S. **Food and Drug Administration** (FDA) regulates bottled water as a food product under the Federal Food, Drug and Cosmetic Act (FFDCA or the Act). FDA and state bottled water programs are seriously under funded. The FDA has indicated that bottled water is a low priority; the agency estimates it has the equivalent of *fewer than one* staff person dedicated to developing and issuing bottled water rules, and the equivalent of *fewer than one* FDA staff person assuring compliance with the bottled water rules.

Find out more on EPA and FDA water regulations at the **Natural Resources Defense Council** at www.nrdc.org.

4. What can I do to find out more about choosing tap water?

Visit www.stopcorporateabuse.org to explore the campaign run by Corporate Accountability International, **Think Outside the Bottle**.

Visit www.foodandwaterwatch.org to read more about their campaign, **Take Back the Tap**.

Visit www.drinktap.org to find out about the **American Water Works Association** and their tap water advocacy programs.

DISCUSSION GUIDE

5. Although I realize that my tap water is of high drinking water quality, I don't like the taste.

Food and Water Watch reminds us that water is very rarely pure H₂O. Here is what they recommend in their **Guide to Home Water Filtration:**

→ Find out what's in your water and request a copy of your annual water quality report from your local utility. In Salem you can call Thomas Knowlton, the superintendent of the Salem and Beverly Water Supply Board, at 978.922.2600. Also, if your water utility cannot provide additional water testing for you, they will provide you with a list of certified laboratories that can.

→ Finding out what contaminants are in your water will help you to decide the filtration product that you need to remove or reduce the contaminants. Visit www.foodandwaterwatch.org for a detailed explanation of this process.

→ Be sure to consult with your doctor if you are on kidney dialysis, are pregnant, or have a compromised immune system.

6. What is my best option for a portable water bottle?

The plastic used in both single-use and reusable bottles can pose contamination threats. #1 polyethylene terephthalate (PET or PETE) is the most common resin used in disposable bottles. As #1 bottles are reused, they can leach chemicals such as DEHA, a possible human carcinogen, and benzyl butyl phthalate (BBP), a potential hormone disrupter. Because the plastic is porous, you also risk ingesting harmful bacteria while reusing #1 plastic bottles. **Single-use** water bottles should never be used more than once. Some **reusable** water bottles simply shouldn't be used at all. The debate continues over the safety of bisphenol A (BPA), a hormone-disrupting chemical known to leach out of the #7 polycarbonate plastic used to make a variety of products.

Avoid plastic altogether with a metal water bottle that can handle a variety of liquids, including acidic fruit juices, and won't leach chemicals into your beverage. **Klean Kanteen's** stainless steel bottle is lightweight, durable, and entirely chemical free.

DISCUSSION GUIDE

Avoid detergents that contain chlorine when cleaning Klean Kanteens; chlorine can corrode stainless steel. Another alternative to plastic is the aluminum **Sigg** bottle with a taste-inert, water-based epoxy lining.

Visit these sites to learn more:

www.thegreenguide.com

www.kleankanteen.com

www.mysigg.com

7. What is the Universal Declaration of Human Rights and how can I help to ensure that water is one of those rights?

In 1948, after being ratified by all member countries, the United Nations adopted the **30 articles of the Universal Declaration of Human Rights**. These 30 articles guaranteed a broad sweep of human rights across many human endeavors, from life to liberty to freedom of thought.

There is currently a global push to "call upon the United Nations to add a **31st article** to the Universal Declaration of Human Rights, establishing access to clean and potable water as a fundamental human right." www.article31.org

To find out more and to sign the petition please visit:

www.article31.org

"When the well's dry, we learn the worth of water."

—Benjamin Franklin
Poor Richard's Almanac, 1746

RESOURCES

Trade Organizations

American Water Works Association

www.awwa.org

International Bottled Water Association

www.bottledwater.org

New England Water Works Association

www.newwa.org

Non-Governmental Organizations/Publications

AlterNet

www.alternet.org

Blue Planet Project

www.blueplanetproject.net

Clean Water Action

www.cleanwateraction.org

Corporate Accountability International

www.stopcorporateabuse.org

E/The Environmental Magazine

www.emagazine.com

Environmental Working Group

www.ewg.org

Food and Water Watch

www.foodandwaterwatch.org

Global Green USA

www.globalgreen.org/water

Grace

www.gracelinks.org

Greenscapes

www.greenscapes.org

Ipswich River Watershed Association

www.ipswichriver.org

International Rivers

www.internationalrivers.org

Natural Resources Defense Council

www.nrdc.org/water

www.onearth.org

Water for the Ages

waterfortheages.wordpress.com/about

Government Agencies

EPA Safe Drinking Water Hotline

1 (800) 426- 4791

Federal Citizen Information Center

www.pueblo.gsa.gov

Massachusetts Department of Environmental Protection

www.mass.gov/dep

Massachusetts Water Resources Authority

<http://www.mwra.state.ma.us>

U.S. Environmental Protection Agency

www.epa.gov

U.S. Food and Drug Administration

www.fda.gov

Tap Water Advocacy

Corporate Accountability International

www.thinkoutsidethebottle.org

Food and Water Watch

www.foodandwaterwatch.org/water/pubs/reports/take-back-the-tap

National Tap Water Quality Database

www.ewg.org/tapwater/yourwater

Only Tap Water Delivers

www.drinktap.org

Turn to Tap

www.turntotap.com

UNICEF Tap Project

www.taproject.org

What's Tappening?

www.tappening.com

Public Education/Research

American Museum of Natural History

www.amnh.org/exhibitions/water

Andrea Fox Communications

www.andreafoxcommunications.com

David Suzuki Foundation

www.davidsuzuki.org

Earth Policy Institute

www.earthpolicy.org

Environmental Working Group

www.ewg.org/reports/bottledwater

The Global Water Policy Project

www.globalwaterpolicy.org

The National Academies

www.nationalacademies.org/morenews/20080828.html

Pacific Institute

www.pacinst.org

Polaris Institute

www.polarisinstitute.org

United Nations International Year of Fresh Water

www.wateryear2003.org

University of Florida

waterconservation.ifas.ufl.edu/trivia.htm

Green Businesses/Eco-consulting
(For profit)

Aaron's Rain Barrels

www.ne-design.net

American Leak Detection

www.americanleakdetection.com

Brita (water filters)

www.shopbrita.com

Green Roofs for Healthy Cities

www.greenroofs.org

Klean Kanteen (water bottles)

www.kleankanteen.com

Pur Water Filtration

www.purwater.com

**Rainwater Harvesting
for Dry lands and Beyond**

www.harvestingrainwater.com

Sigg (water bottles)

<http://www.mysigg.com/>

Zero Water (water filters)

www.zerowater.com

Teaching Activities

Environmental Protection Agency

www.epa.gov/teachers/water.htm

LEARN NC

www.learnnc.org/lp/pages/756

National Geographic

www.nationalgeographic.com/xpeditions/lessons/14/g912/tgsouhegan.html

National Wildlife Federation

www.nwf.org/water/watercalculator.cfm

The New York Times

www.nytimes.com/learning/teachers/lessons/20070710tuesday.html

River of Words

www.riverofwords.org

Science Net Links

www.sciencenetlinks.com/lessons.cfm?BenchmarkID=4&DocID=393

UNICEF

www.unicef.org/voy/explore/wes/explore_wes.php

Water Environment Federation

www.wef.org/AboutWater/ForEducators/CurriculumMaterials

What is Your Water Footprint?

www.h2oconserve.org

Books

Blue Covenant

www.thenewpress.com

Blue Gold

www.thenewpress.com

Bottlemania

www.bottlemania.net

Water Consciousness

www.oaecwater.org/water-consciousness-book

Water Wars

www.southendpress.org/2004/items/WaterWars

Films

Flow

www.flowthefilm.com

Liquid Assets

www.liquidassets.psu.edu

Thirst- The Movie

www.thirstthemovie.org

The Water Front

waterfortheages.wordpress.com/water-films

Home Water Testing

Discover Testing

www.discovertesting.com

Home Water Testing

www.epa.gov/ogwdw/faq/pdfs/fs_homewatertesting.pdf

Human Rights

Article 31 Petition

www.article31.org

Friends of the Right to Water

www.blueplanetproject.net/documents/SecureHumanRight2Water.pdf

Grassroots International

www.grassrootsonline.org

Green Cross International

www.watertreaty.org/index.php

The Peoples Health Movement

www.righttowater.net

Play Pumps International

www.playpumps.org

United Nations

www.un.org/millenniumgoals/environ.shtml

Miscellaneous

Poor Richard's Almanac

www.vlib.us/amdocs/index.html

“If all the world’s water were fit into a gallon jug, the fresh water available for people to use would equal only about one tablespoon.”

-Water Consciousness, 2008

Chapter Four

Summary

Following the research, writing, filming, and digital film editing of this ILP, I now have a very tangible and constructive understanding of the benefits of a thesis project. I had never before dedicated myself with such force to an academic project and can now look back with satisfaction at all that I have experienced and learned. While considering which topic I would immerse myself in for my ILP, I had a predilection towards animal welfare, specifically in regards to human dietary choices. Although I had already begun my research, gathering information and formulating my ideas for this ILP possibility, I had a shift of consciousness over the summer while visiting family in North Carolina. I was sitting outside in 100 degree heat, drinking a bottle Poland Spring water and witnessing the neighbor's irrigation system drenching their carpet of lawn at exactly twelve noon. This struck me as wasteful, even reckless; I looked down at my bottle of water and decided that I wanted to learn more about this resource that we know we cannot live without, yet don't always treat with the respect and deliberation that it deserves.

I began by narrowing down my topic to drinking water, and further condensed my research to the municipal drinking water of my home town, Salem, Massachusetts. My decision to address my public water supply was two-fold: I wanted to have a personal relationship with my studies and I was searching for a subject matter that would allow me to connect with my community as an activist and humane educator. Because this topic was previously unfamiliar to me, I did not know what I would find, or where I would find

it. Since my preliminary goal was to advocate the advantages of tap water, I set off at first to become more informed about the bottled water industry.

It did not take long to surmise the dominant views from books, journals, magazines, and various non-profit organizations. I could summarize the prevailing opinions of bottled water as an industry as such: indifferent to human health, hazardous to our environment, and detrimental to the human right to clean, potable water. The following quote from Royte gave me greater insight into the struggles of disseminating this information to the public:

The outrageous success of bottled water, in a country where more than 89 percent of tap water meets or exceeds federal health and safety regulations, regularly wins blind taste tests against name-brand waters, and costs 240 to 10,000 times less than bottled water, is an unparalleled social phenomenon, one of the greatest marketing coups of the twentieth and twenty-first centuries. (p. 40)

I decided that if I were going to create a short film intended to teach the audience about the benefits of drinking local, I would need to have a base of knowledge that included not only the negatives of the bottled water industry, but also the assurance that our tap water was carefully scrutinized and of high drinking water quality. This segment of my research involved more technical information such as analyzing my water quality report, (see appendix A), and comparing and contrasting the results with EPA standards. Although this report appears precise and informative, it is not easy for the average water

consumer to discern the answer to this fundamental question: can I feel confident in the safety and sustainability of my tap water?

I decided at this time that alongside the information I was gathering from interviewing key people in the world of my tap water, I also needed to embark in my own water testing at home. I choose two different tests: one that provided me with home results and the other involved sending a sample to a laboratory that would issue me a personal report on my water quality within seven to ten business days.

My anticipation was significant because I knew that the results of these tests would be integral to my mission of showing support for the use of Salem tap water and encouraging my community to use, protect, and conserve this precious resource. I was keenly aware that if the results were not satisfactory, I would still have an important role to fulfill in my hometown, however, I would have to shift my purpose to finding out what was contaminating our waters and how we could be responsible consumers by taking action together to find long-term solutions. Although my alternate plan was a viable project, my true passion was to demonstrate that our water was already of high quality and use this information to encourage the Salem community to appreciate the work that goes into sourcing, treating, and delivering our drinking water.

I was delighted when I completed my home test with great success. The findings were as follows, (see appendix B for more details) my kitchen tap water tested negative for nitrates, nitrites, chlorine, lead, pesticides, and bacterial contamination. My pH level was 7.5, the desired range being from 6.5 to 8.5, and my total hardness was approximately 120. The hardness range of 60-120 is considered only moderately hard, and was the only indication from this home test that my water was anything other than perfect. During an

interview with Thomas Knowlton, the superintendent of my water supply board, I asked him for more information on hard water. I found out that hard water does not have enforceable standards from the EPA because it is considered an aesthetic contaminant that poses no ill health effects. The term hard water simply indicates a high mineral content, typically calcium and magnesium, and can be remedied by “softening” the water with an ion exchange water softener. People with hard water might notice that their soap does not lather easily. While, hard water can causes lime scale and left over mineral deposits which can cause plumbing problems in the home, hard water causes no ill health affects.

Upon receiving my laboratory tested water results (see Appendix C) in the mail I was absolutely exhilarated. This sample, also from my kitchen sink, tested for 27 different contaminants. Of this list of 27, my test showed either no detection level at all, or some detection, but well below the EPA’s standard. It was interesting to note that both my pH and my hardness were detected at lower levels than my home test had indicated, however, the other comparable contaminants, lead, nitrate, and nitrite, were once again not detected.

With my newly found confidence in the quality of my tap water, I set out to pursue the interviews that would be vital in illustrating where this public water supply comes from, who is treating it to ensure its safety, how it is distributed from the source to my home, and what my community can do to be a part of its conservation and protection.

Initially, lining up the interviews proved to be more difficult than I had anticipated. I was thrilled to meet with Thomas Knowlton until he informed me that, due to federal security regulations, I could not bring any recording devices into the water supply

building. We completed the interview and I gained quite a lot of valuable information, however, it was difficult to make use of it in my film. I decided not to let this discourage me; I still had the option of David Knowlton (no relation to Tom Knowlton) who is our chief city engineer in Salem as well as a member of the Salem and Beverly Water Supply Board. I had met David at the first board meeting that I attended and although he told me that I could contact him for an interview, he ultimately did not return any of my emails or phone calls. The third strike was with Lori Ehrlich, local state representative and environmental activist. Lori and I had been planning to meet for at least two months when she informed me that due to the upcoming November elections, she had run out of time for anything other than campaigning. Lori did win her election, but I was unable to interview her.

These hurdles which first appeared to be major setbacks, turned out to be good fortune for me on my ILP path; I had to reach out to different people, I had to think with broader creativity, and I began to learn the power of digital video. I was able to let go of my preconceived notion that my filming must include certain people articulating specific sound bites. I realized that there are infinite ways to tell a story and my film only needed to live up to the expectations that I had created for it. I can look back and see that without this looser approach, combined with my increasing proficiency of filming and editing, I would not have been able to create a film that did meet my own expectations of being an informative and entertaining teaching tool.

The imovies software that was available through SATV was more intricate and demanding than I would have predicted. I had no quantifiable way of knowing that I could easily spend 20 hours editing a one hour interview. I did not know that a one

second error could occupy one hour of my time in the editing bay. I also did not know that, happily, I love digital video editing. I enjoyed every tedious second of it and look forward to doing more of this insufferably detailed work in the future. My interviews with Kirsten King, Ray Raposa, James Rivard, Andrea Fox, and Kerry Mackin were wonderfully enriching experiences, as a student, a humane educator, and as networking for my future career. Interestingly, what was most gratifying was editing the content with my film in mind. It was a fresh perspective for me to chronicle a journey with video and use the resulting film to engage others with the ideas in the film, keeping in mind the definitive goal of inspiring sustainable lifestyle choices.

Every day that passes I see more indication that video plays an enormous role in contemporary culture. Home videos of social injustices are making their way to both alternative and corporate news sources, students as young as ten years old were arriving at SATV to complete school video assignments, and most recently I read that president elect Barack Obama will be airing his future radio addresses on YouTube. I believe that video is a relevant, effective, and straightforward way of disseminating information. Of course, I also witnessed the ease by which audio and video clips can be manipulated to sway the viewer in an intended direction. As with all teachings of humane education, it is important to consistently remind the students to think critically about any film they encounter and maybe more so with the advancements in home editing software. You truly cannot believe everything you see in this day of digital video.

Conclusion

On a personal level, I could not have asked for more out of my project. I have gained an amazing amount of information on a topic about which I was relatively unaware. I

went from wondering *if* there is a pending worldwide water crisis to knowing that the crisis has begun and I must be part of the solution. I learned that water is a child's right because around the globe a child dies of thirst or water related disease every 15 seconds (UNICEF, n.d.). These deaths are from diseases the likes of which I have never seen, such as typhoid and cholera. I learned that water is a woman's right because worldwide, the efforts of providing potable water to households traditionally falls to women. In some more rural lands, it is not uncommon for a woman to walk up to ten miles a day to provide clean water for her family, and this trek is done with no assurance that the water will be safe to drink once collected (Susskind, 2008). I learned that water is a human right and there is a movement to add the right to water as the 31st article to the United Nations Universal Declaration of Human Rights (Article31.org, n.d.).

I have seen in my research that while the U.S. federal government has been dedicating less and less to the funding of clean water (a 66% drop since 1991), we have been living through a radical shift that is placing our water resources in the hands of multi-national corporations (Snitow & Kaufman, 2008). Unfortunately, these corporations do not take into account sustainability or compassionate business practices when making their decisions; their goal is to make money at any cost, and so far they are succeeding.

Here in the United States, Arizona, California, New Mexico, and Nevada are currently struggling with indisputable water shortages. Texas, Florida, and North and South Carolina are experiencing the grim reality of drought (Lohan, 2008). I learned that I am incredibly lucky here in New England to live in a water rich environment. The irony is this: growing up in a water rich area whose utilities have done a terrific job of bringing me clean, safe water at less than full cost pricing, had left me detached from appreciating

the true miracle of water and it's value, not as a commodity, but as a source of life--*the* source of life.

The water crisis that the planet is facing is a multi-faceted dilemma with numerous causes and even more solutions. It would not be fair or accurate to lay the blame in just one industry, such as bottled water. The United States uses 46% of its water for industrial purposes, 41% goes to agricultural needs, and a mere 13% for municipal and personal use (Sterling & Vintinner, 2008). My hope as an educator is to use my film to gain the attention of my community, to get people talking about gratitude, and to use that gratitude as a conduit to set to action greater participation in the protection and conservation of our public water.

I am already discussing the possibility of having an exhibit table for my film at an Earth Day celebration in the spring of 2009 at Salem State College. I am in contact with the local theatre in town that is sponsoring the annual Salem Film Fest and I am going to try my best to be included. I also have plans to continue my work from the past semesters into my practicum for my final semester of school. I have visions of a website, and more public appearances in town, and even in the surrounding communities.

I was informed during all of my interviews that full cost pricing is on its way in the world of water utilities. I, for one, am not disturbed by this. Most of the U.S. has clean, safe municipal water, yet many of us are willing to spend more for pretty plastic packaging suggesting crystal clear streams, than we do for gasoline. Our water infrastructure requires serious and immediate attention and municipalities need to start educating their consumers on the benefits of drinking locally; we will need full cost pricing to do this.

If the residents of Salem can make a few small changes, I believe that it will bring water into the forefront of their consciousness and inspire us all to be more cognizant of the miracle of water.

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PROFESSIONAL EXPERIENCE:

Eliot Community Human Services
Vocational Specialist

Salem, MA
 July 2009 to present

- Collaborate with the local community to locate job prospects for a caseload of adults served by the Massachusetts Department of Mental Health
- Motivate and support those clients who are ready for gainful employment
- Create opportunities for learning and growth with clients looking to establish the groundwork for future career goals

Health & Education Services
Service Coordinator

Salem, MA
 2001 to 2009

- Interacted directly with the Department of Mental Health searching for and obtaining housing for homeless clients
- Initiated and expedited disability claims with the Social Security Administration
- Managed bank accounts for 30 adults with chronic and persistent mental illness
- Supported colleagues in situations requiring crisis intervention

North Shore ARC
Service Provider

Peabody, MA
 1999 to 2001

- Provided in-home services for children under the age of three recently diagnosed with Autism and Pervasive Developmental Disorder
- Utilized a variety of therapeutic modalities such as physical therapy, speech therapy and occupational therapy
- Trained in Applied Behavioral Analysis

Harvard Vanguard
Medical Assistant

Peabody, MA
 1998 to 1999

- Assisted in Managing Mental Health Department of HMO
- Scheduled appointments for a staff of 12 clinicians
- Documented intakes for new patients and organized existing patients' records

EDUCATION:

*Cambridge College and
 Institute for Humane Education*
M.Ed. - Humane Education

Cambridge, MA
 June 2009

Framingham State College
B.S. - Clothing and Textiles

Framingham, MA
 1994

VOLUNTEER:

Human Rights Officer
Community Educator

July 2009 to present
 April 2009 to present