

Utilizing the Media to Enhance Florida's Educational Outreach Program for the Owners of Private Water Wells

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EXECUTIVE SUMMARY:

During 2007 the Florida Department of Health (FDOH) initiated a public education outreach program targeting the owners of private water well systems which are not regulated within the state, aside from the initial construction of the water well. An educational brochure for well owners was developed by Bureau of Water Programs staff. The brochure describes precautionary measures that well owners should take, including the annual sampling of their drinking water for total coliform bacteria and nitrate. To complement this effort, the FDOH also made considerable changes to its web-site, incorporating specific educational information for private well owners including; assessing water well vulnerability to contaminant sources and recommendations for periodic water quality sampling. The brochure was completed in 2/08 and distributed to the environmental health field offices that serve Florida's 67 county health departments (CHDs), to other state agencies, and to the state's five Water Management District Offices which permit the construction of water wells.

After a few years it became apparent that the FDOH needed to do more to educate well owners. Typically well owners take the quality of their drinking water for granted, and don't consider periodic sampling of such to verify that their water is safe. The brochures were distributed to the public. However, distribution was primarily focused on the owners of newly constructed water wells during the permitting process. Still, there was a notable gap in not being able to provide this important information to the owners of existing water wells located within rural and remote areas. This need was also emphasized as a result of Florida's well surveillance program, whereby many water wells located within vulnerable areas have been identified as contaminated through the water well sampling efforts of the county health departments.

To address the need for additional educational outreach to the owners of water wells it was determined that the utilization of the media via carefully worded press releases might be the best option to inform those individuals. As such, two counties were targeted in the utilization of a two tiered approach to accomplish this objective. Within the central/western portion of the state, the FDOH's well surveillance program was observing many water wells with high levels of arsenic. Florida has a unique program whereby the FDOH will sample water wells within areas of concern at no charge to the homeowners. Furthermore if contaminants are noted to exceed the state's maximum contaminant or health advisory levels, then the water well is provided with a water treatment system by the state at no cost to the well owner. As such, a press release was drafted and a newspaper article published in Dixie County during May, 2010. The article informed well owners that moderate to high levels of arsenic had been observed in some wells within that county and it's vicinity, and it urged the public to contact the Dixie County Health Department to have there water well sampled at no charge.

The response to the newspaper article was significant. The Dixie County Health Department received a total of 179 requests from private well owners to have their drinking water sampled and analyzed for arsenic. As of 1/7/11, 112 water wells have been sampled, with 67 remaining. Of the 112 water wells sampled, 30 (27%) exceeded the maximum contaminant level for arsenic (10 mg/L) and will be provided with a treatment system by the state.

As part of the two tiered approach mentioned above and to enhance Florida's educational outreach program, Volusia County and vicinity was targeted for a second press release. In this case the press release was designed as an educational resource for water well owners informing them about water well vulnerability to contamination sources, and urging the public to have their water wells sampled. It also included the telephone number for the Volusia County Health Department for additional information. The press release resulted in a newspaper article being published in the Daytona Beach Sun on 12/8/10, and also a public service announcement on the radio on 12/9/10. The media's involvement in Volusia County was also successful in generating several telephone calls and requests to the Volusia County Health Department to have their water wells sampled.

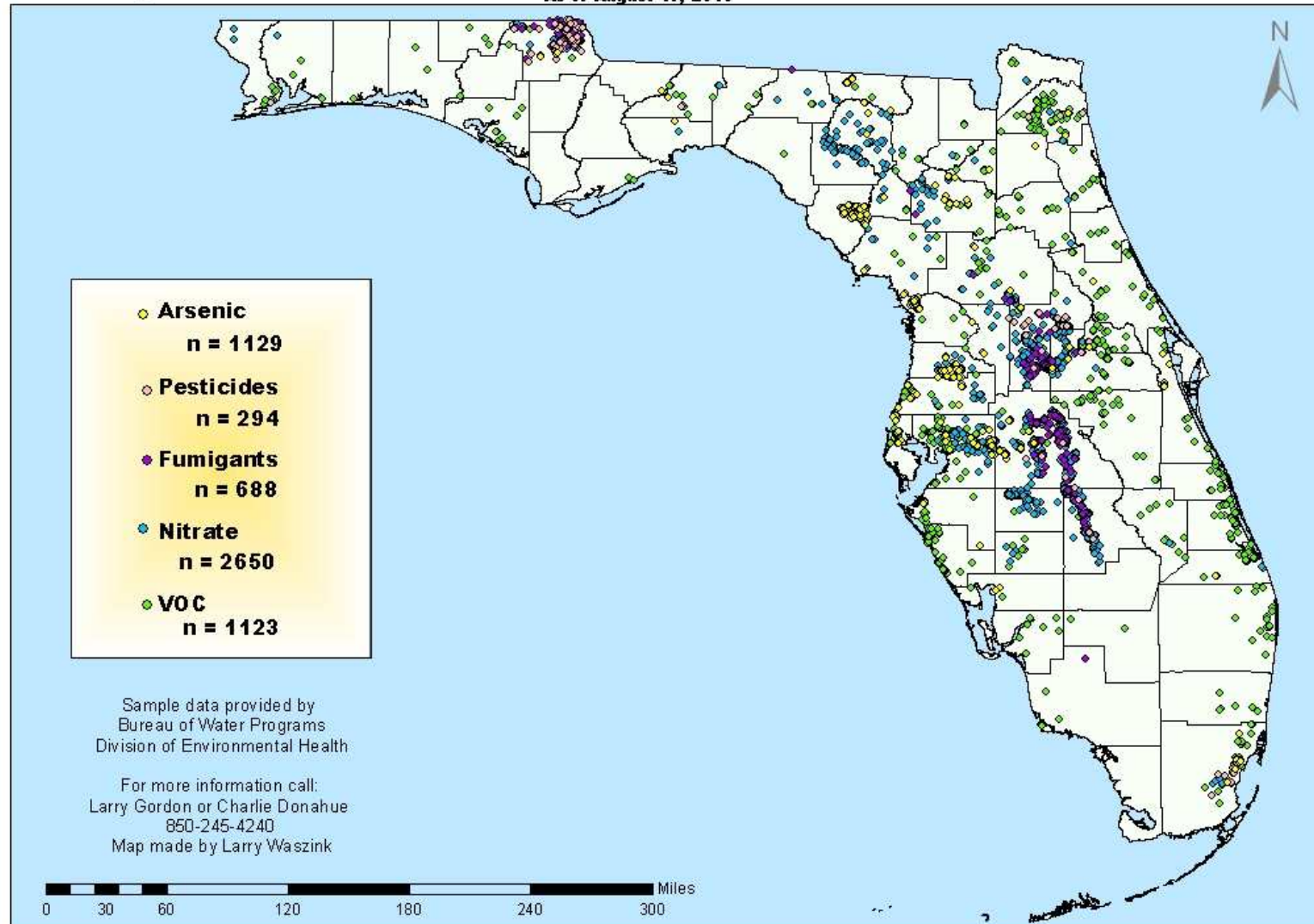
INTRODUCTION/BACKGROUND:

The Federal EPA has established strict regulations to promote the safety of public water systems and the quality of drinking water provided to the public, however those regulations don't apply to private well water systems that are utilized in many areas of the country. Florida has an estimated two million private water wells. The owners of private water well systems are the ones solely responsible for ensuring that their well water is safe from contaminants. Alternatively, it's been found that most well owners often assume that their well water is satisfactory for consumption without considering nearby potential contamination sources, or even taking time to have their water wells periodically sampled and analyzed for microbiological and chemical contaminants.

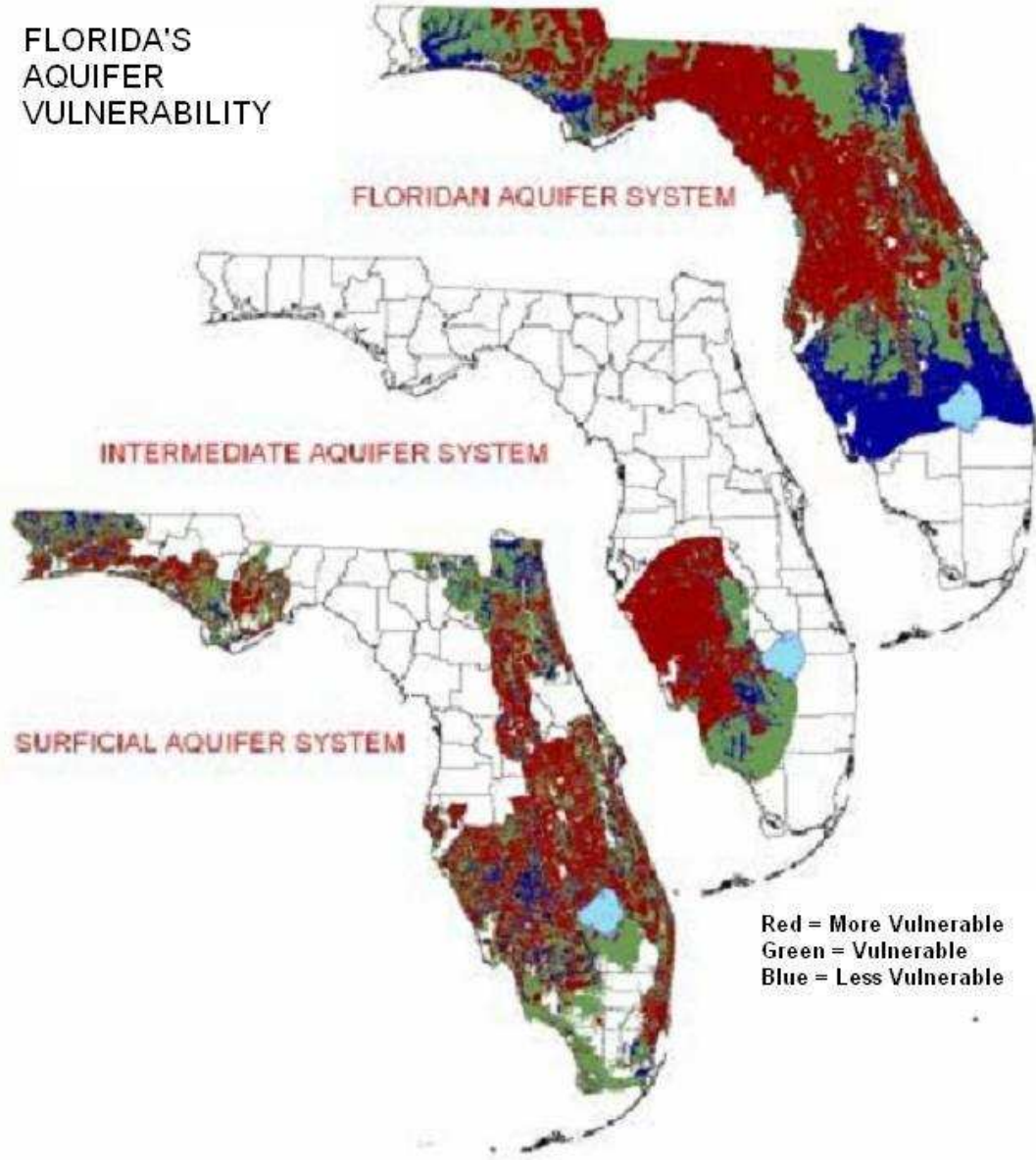
The public health risk to water well owners is compounded by Florida's unique geology, making groundwater very susceptible to contamination. Furthermore, many identified areas of groundwater contamination exist in the state, and there are hundreds of documented cases where private wells have been adversely affected (see map below). The presence of contaminants in well water can lead to health issues, including gastrointestinal illness, reproductive problems, and neurological disorders. Infants, young children, pregnant women, the elderly, and people whose immune systems are compromised may be especially susceptible to illness from contaminants (1).

In view of the potential health risks associated with the utilization of private well water systems it is incumbent on the state to educate the owners of those water systems as to measures that they need to take to protect themselves and their families. The ability to educate these individuals however is difficult because of Florida's diverse geography, various nationalities and ethnic groups, and a seemingly low interest by well owners to get their water wells sampled on a regular basis.

Historic Potable Well Sample Data Concentrations Exceeding MCL/HAL As of August 17, 2010



FLORIDA'S
AQUIFER
VULNERABILITY



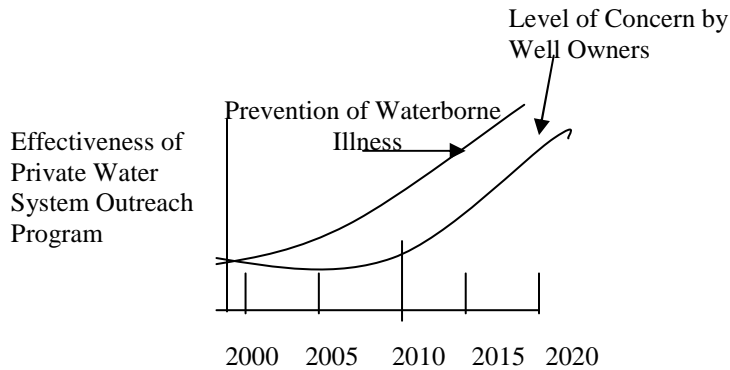
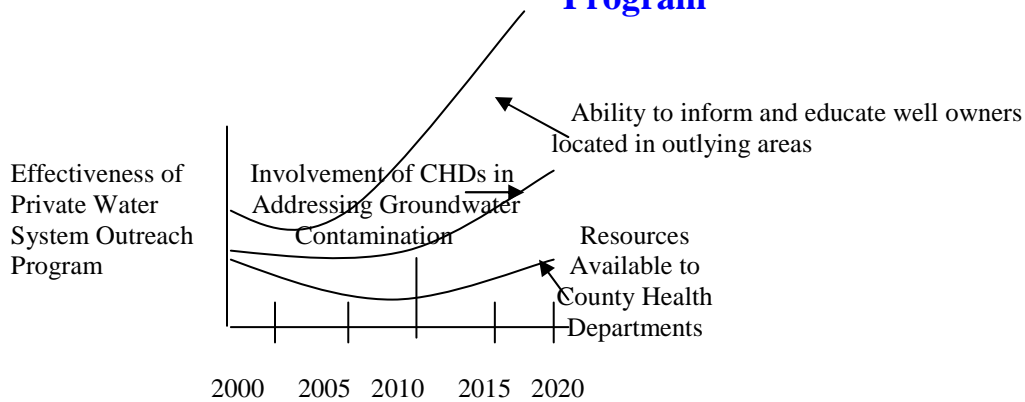
(2) Florida Department
of Environmental
Protection, 2004

Problem Statement:

Florida lacks an effective educational outreach mechanism for the owners of private water well systems that has the ability to provide information to well owners that are located within rural or remote areas where the risk of well water contamination may be heightened. Thus this project utilized the following **Focusing Question:** Why hasn't the Florida Department of Health's outreach program for the owners of private water systems been more effective in educating the owners of existing private water systems located in rural or outlying areas (as measured by the number of private water well sampling requests)?

Behavior Over Time Graphs:

Key Variables for the Success of Florida's Private Water System Outreach Program



Florida's educational outreach program for private well owners has been affected by several important variables, but is progressing as a result of heightened awareness within the public health community regarding the risk of waterborne illness. Prior to 1995, very little was done in the state to educate well owners by the FDOH through its 67 CHDs. The state had a water well surveillance program that still exists today, which primarily targets wells located within the vicinity of leaking underground petroleum storage tanks (SUPER Act Program), and another program that focuses on water wells constructed within areas of known groundwater contamination associated with the utilization of the pesticide, ethylene dibromide. FDOH's well

surveillance program has however expanded because of an increase in monies provided by the Florida Department of Environmental Protection through the state's "Water Quality Assurance Trust Fund", and also because of increased awareness concerning the high vulnerability of private wells to contamination.

Because of the increase in monies for water well surveillance, and more opportunities for environmental health personnel to engage the public which depend on well water, the FDOH has been better able to educate well owners through the activities of its CHDs. It's assumed that more education targeting well owners through the efforts of the FDOH and CHDs creates a greater level of concern by those individuals, and thus results in the prevention of waterborne disease.

Florida's public outreach program for private well owners was initiated in 2007, and is expanding with the development of additional educational materials. It's assumed that the utilization of the media via this project to educate and inform well owners about the risks of contamination will only enhance Florida's ability reach well owners located in out-lying areas. The success of the program though is dependent upon the willingness of the CHDs to work with their local media sources in developing respective press releases, and their willingness to be called upon to answer specific questions concerning water well contamination and the associated public health risks.

10 Essential Environmental Health Services

This project seeks to enhance or fulfill six of the ten Essential Environmental Health Services (3).

Monitor: This project provides additional water quality monitoring data for private water wells in Florida, and addresses areas of suspected groundwater contamination.

Diagnose and Investigate: The water well testing data obtained during this project will enable state and county environmental health officials to identify private water wells with noted chemical contamination, and thus allow for the remediation of those wells via a water treatment system at no cost to the water well owner. The results create a greater degree of public health protection for the owners and families utilizing those private water systems.

Inform, Educate, and Empower: This project serves an educational role in educating the owners of private drinking water systems about the actions that they should take to periodically test their well water, and also address potential problems near their water systems to prevent the contamination of their drinking water supply.

Mobilize: This project assists in the identification of groundwater contamination problems, and the subsequent impact upon private water well systems. It will furthermore assist in forming partnerships, and mobilizing the joint efforts of state and local entities to address these issues, and further educate the owners of private water systems about the measures that they need to take to continually provide safe water for themselves and their families.

Link: This project provides a beneficial link for the owners of private water well systems to state and local resources to assist them in addressing well water quality issues.

Research: This project has assisted in identifying the most effective outreach mechanism for educating the owners of private water well systems that are located within rural and outlying areas where the threat of groundwater contamination may be heightened. Furthermore, the project has helped the State of Florida identify new areas of suspected groundwater contamination.

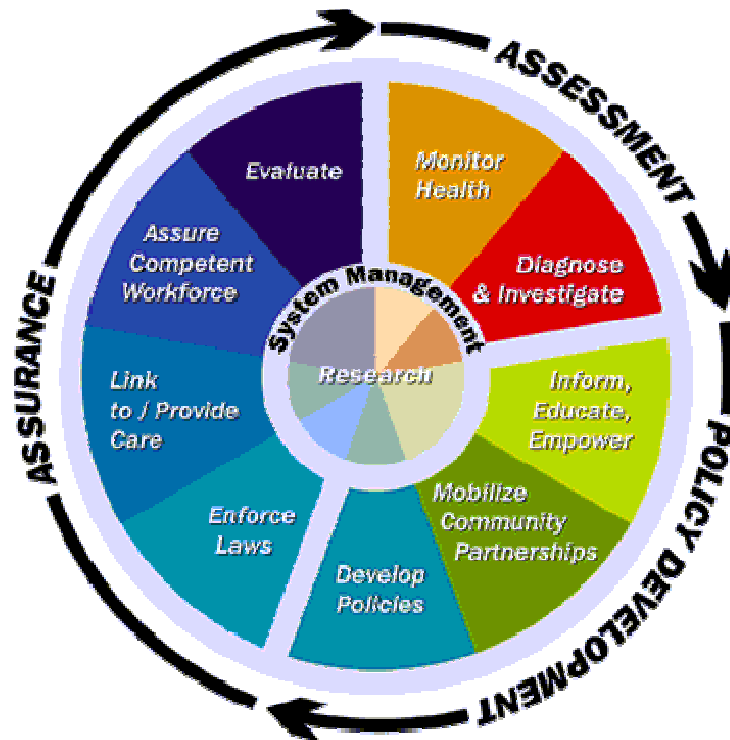


Figure 1: Osaki, Ten Essential Environmental Public Health Services

National Goals Supported

National Strategy to Revitalize Environmental Public Health Services (4)

This project supports Goal I, *Build Capacity*, within the National Strategy to Revitalize Environmental Public Health Services. Goal I is to strengthen and support environmental public health services at the state, tribal, territorial, and local levels. This project builds the capacity of the FDOH and its 67 CHDs in its ability to educate the owners of private water wells, and also in identifying and addressing areas of groundwater contamination affecting drinking water supplies. This project furthermore enhances the FDOH’s capacity to prevent water borne illness through enhanced educational outreach to private well owners.

Goal II, *Support Research*, is also addressed within this project. Goal II supports research to define effective approaches to enhance environmental public health services. This project supports research by assessing private water wells and their vulnerability to contamination. Groundwater quality is assessed and the potential to cause waterborne illness. In addressing the quality of drinking water in private wells, several factors are also assessed. These include, the possible presence of microbiological and chemical contaminants in a given area, the local geology, water well construction, activities that may contribute to groundwater contamination, and also the attitudes of the public that utilize private water wells.

This project also supports Goal IV, *Communicate and Market*. Goal IV is important in that it promotes improved communication and information sharing among environmental public health agencies, communities, strategic partners, and other stakeholders. It also endorses better marketing of public health services to policy makers and the public. This project is important in that it enhances the sharing of information to the public, community based organizations, and local governments. By utilizing the media as an educational outreach mechanism, a greater awareness of water well contamination and the public health significance is heightened in the minds of the public and policy makers. Also, the data and information gathered during the execution of this project is beneficial to the FDOH, and other state, federal and local agencies.

Lastly, this project supports Goal VI, *Create Strategic Partnerships*. Goal VI emphasizes the fostering of interactions among agencies, organizations, and interests that influence environmental public health services. During the implementation phase of this project, the Dixie County Environmental Health Director met with the Dixie County Commission to acquire their approval for the press release. This was a very important step in getting buy-in from the county commission to conduct this project, and inform them that the FDOH and the Dixie CHD were committed to protecting the health of private well owners in that county. Also, the Dixie CHD effectively worked with the local news media to provide them with the established the goals of this project, and provide them information for the newspaper article that was presented in a beneficial manner without causing hysteria in the public's eyes. In December of 2010, staff from the Dixie and Alachua CHDs were also asked to make a presentation to a community services group to discuss the water well arsenic sampling program and discuss some of the geologic factors involved in arsenic contamination, and measures that the public can take to protect themselves and their families. The public meeting was very successful, and the attendees were very happy with the work the Dixie County Health Department was doing to protect their health and drinking water supplies.

In Volusia County, the Volusia CHD was also successful in creating a strategic partnership with the Volusia County Commission and working effectively with the local news media. The public information officer for the Volusia CHD and the environmental health engineering administrator worked effectively with the news media, and as a result, the educational information provided in the newspaper article and broadcasted in the public service announcement was presented in an effective manner to emphasize the various risks of well water without causing panic.

Project Logic Model:

Resources	Activities	Outputs	Outcomes	Impact
<p>Funding</p> <ul style="list-style-type: none"> • Monies from Florida's Water Quality Assurance Trust Fund, managed by the Florida Department of Environmental Protection. 	<p>Interagency Coordination</p> <ul style="list-style-type: none"> ⇒ Assess the availability of monies from DEP to pay the CHDs to sample water wells, pay the DOH laboratory for analyses, and remediate water wells if contaminated. 	<p>Measures</p> <ul style="list-style-type: none"> ⇒ Number of sampled private wells. ⇒ Number of analyses of water samples by DOH laboratory. ⇒ Number of contaminated water wells remediated. 	<p>Results</p> <ul style="list-style-type: none"> ⇒ Additional private water wells will be sampled. ⇒ An additional amount of contaminated private wells will be identified and remediated. 	<p>Achievement</p> <ul style="list-style-type: none"> ⇒ An added degree of protection will be provided to well owners with sub-standard water quality. ⇒ The occurrence of unsafe, contaminated drinking water in private water wells will be reduced.
<p>Staff</p> <ul style="list-style-type: none"> • Environmental Health (EH) staff from local county health departments (CHDs), EH staff in headquarters, Department of Health Bureau of Laboratories, public information officers at CHDs and headquarters, local media sources. 	<p>Inner department Coordination</p> <ul style="list-style-type: none"> ⇒ Assessment of the CHDs' feedback regarding participation and available resources (personnel and time) to sample water wells. ⇒ Determination as to the CHDs' desire to participate in project. 	<p>Measures</p> <ul style="list-style-type: none"> ⇒ Private water well locational information provided to DOH staff. ⇒ Private well water quality data provided to well owners and to the DOH. 	<p>Results</p> <ul style="list-style-type: none"> ⇒ Additional locational data is obtained to supplement the DOH, GIS data base. ⇒ Additional private water well, water quality data will be obtained by the well owners and the DOH. 	<p>Achievement</p> <ul style="list-style-type: none"> ⇒ The DOH will obtain useful information concerning the geographic locations of private water wells. ⇒ The DOH and CHDs will be able to identify the locations of potentially contaminated areas. ⇒ The DOH and CHDs will obtain additional and important water quality information concerning private drinking water wells.
<p>Private water system informational resources and documents</p> <ul style="list-style-type: none"> • Educational brochures and DOH web-site information. • Newspaper articles directed to the owners of private water systems. 	<p>Outreach Mechanisms</p> <ul style="list-style-type: none"> ⇒ Assessment of the interest of local newspapers to publish articles concerning private water well issues. ⇒ Draft newspaper articles. ⇒ Provide additional educational materials to the owners of private water systems. 	<p>Measures</p> <ul style="list-style-type: none"> ⇒ Newspaper articles printed ⇒ Distribution of educational information to private water well owners. 	<p>Results</p> <ul style="list-style-type: none"> ⇒ Additional private water well owners will receive educational information and be further educated concerning measures they should take concerning the upkeep of their private water system. 	<p>Achievement</p> <ul style="list-style-type: none"> ⇒ Private well owners will become informed about the importance of periodically sampling their well water. ⇒ The public health protection of private water well owners will be enhanced by increasing their knowledge about water quality issues that may affect the quality and safety of their drinking water.

PROJECT OBJECTIVES/DESCRIPTION/DELIVERABLES:

Program Goals

Expand Florida's educational outreach program for the owners of private water systems located within rural and outlying areas, allow the Florida Department of Health to identify and address contaminated private drinking water wells, and in doing, provide an added degree of public health protection for the consumers of well water.

Health Problem

The health of the consumers of private water wells is placed at risk when precautionary measures are not taken to assess the quality of their drinking water, and address associated natural and man-made contaminants in groundwater supplies.

Outcome Objectives

By January 1, 2011, develop outreach mechanisms utilizing the media to further educate the owners of private water wells located within Dixie and Volusia Counties and also address private water wells that are determined as contaminated.

Determinant

Educate the owners of private water wells located within rural and outlying areas and address potential water well contamination issues.

Impact Objective

Protect the health of private water well owners and their families through education and intervention when the risk of water well contamination is identified.

Contributing Factors

1. The ability and desire of water well owners to receive, understand, and utilize educational information concerning the associated risks of their drinking water supplies.
2. The desire of county environmental health directors to approach and work with the media for the purpose of providing educational and risk based information to the owners of private water well systems.
3. The availability of resources and personnel from the FDOH and its CHDs to sample private water wells.
4. The desire of the news media to assist the FDOH and its CHDs as an educational outreach mechanism for the owners of private water wells.

Process Objectives

1. On 4/19/10 and 4/27/10 respectively, the Dixie and Volusia County environmental health directors are contacted to provide them with the goals, objectives and information concerning this project and request their assistance in the project's implementation.
2. On 5/4/10 and 6/15/15 respectively, draft press releases and associated talking points to respond to inquiries from the public are provided to the Dixie and Volusia CHDs.

3. On 5/10/10 two local newspapers publish the press release information in Dixie County regarding arsenic in local water wells, and solicitation to provide free sampling for the public that are served by private water systems. The Dixie CHD is asked to track all requests that they receive concerning requests well water arsenic sampling.
4. As part of Dixie CHD's well surveillance program, the Alachua CHD is asked to provide assistance in the sampling, GPSing, and tagging of all private water wells that are sampled for arsenic during this project. Water well educational materials are also provided to well owners.
5. Information pertaining to the private wells that are sampled is compiled into a spreadsheet for tracking purposes.
6. On December 8, 2010, the Volusia CHD gets press release published in local newspaper and public service announcement broadcasted on the radio. They are requested to track all inquiries from the public, and requests for water well sampling.
7. Upon consultation with the drinking water laboratory director at the Volusia County Health Department, the press release generated five requests from the owners of private water well systems to have their wells sampled, and also generated several telephone calls from the public concerning the quality of their well water.

METHODOLOGY:

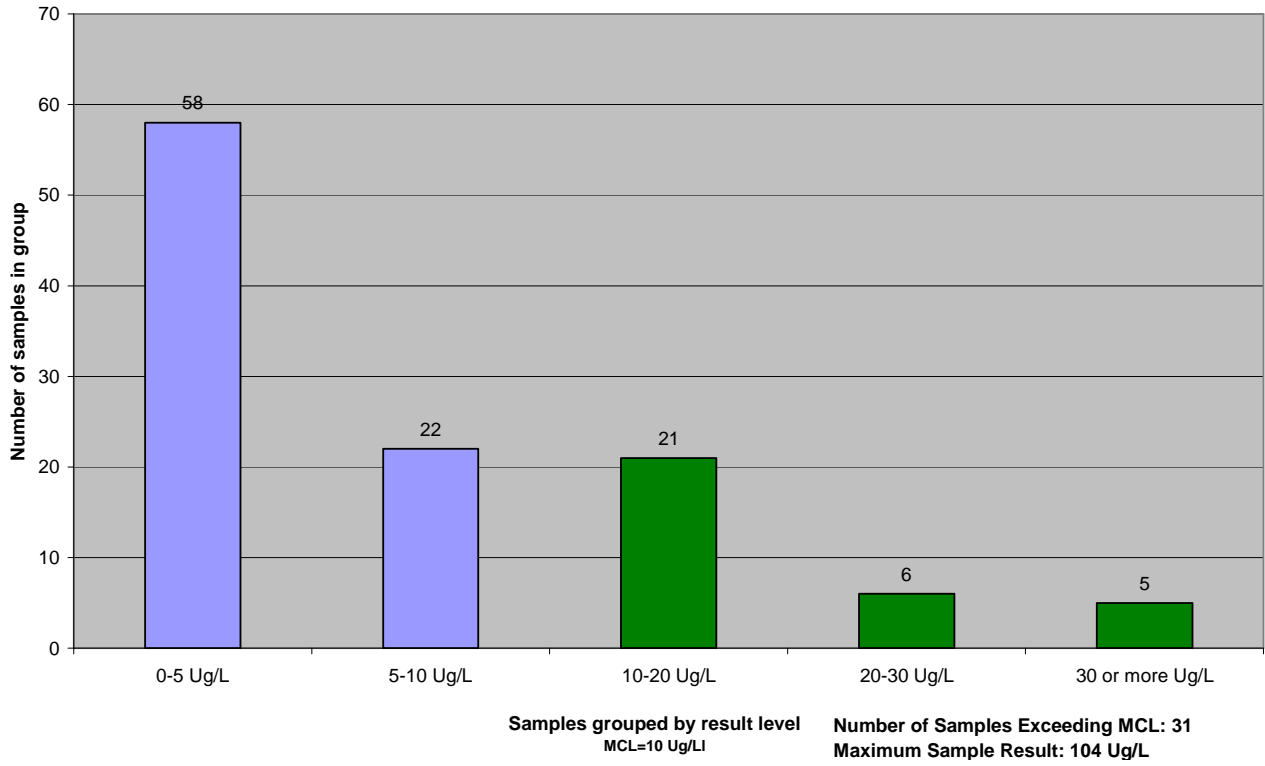
Events and Activities

1. Event: Contact and Coordination with County Health Departments
 - a. During the Spring of 2010, the environmental health directors at a few county health departments will be contacted to solicit their participation in this project. The noted areas of significance where arsenic contamination has been documented will be focused on for a press release, as well assistance from a CHD to develop a general educational press release for water well owners.
2. Event: Establish the counties for the focus of project.
 - a. By May, 2010, two counties and respective CHDs will be selected to participate in this project.
3. Event: Establish the content of press releases with the selected CHDs and provide information to address inquiries from the public, and a tracking system for water well sampling requests.
 - a. During May and June of 2010, contact and coordinate with selected CHDs about the distribution of press releases, the specific content, response activities, and the management of data, including requests for water well sampling.
4. Event: Establish management system for the tracking of water well sampling requests and subsequent arsenic water quality results.
 - a. During June of 2010 a spreadsheet will be developed to compile and track requests for water well sampling requests from the public including water well information (owner name, address, phone number, well ID tag number, GPS coordinate and analytical results).
5. Event: Compile and finalize information regarding press releases.
 - a. During December, 2010 compile all information and data that was generated as a results of press releases, and prepare for incorporation into final project report.

RESULTS:

1. Following initial discussions, during April, 2010 the Dixie County agreed to create and have published a press release requesting that those in the county being served by private wells contact the Dixie CHD to have their water wells sampled at no cost for arsenic.
2. On 4/27/10, the Volusia CHD indicated their desire to provide an educational press for the owners of private water wells.
3. On 5/10/10 the Dixie CHD provided a press release to the media. Newspaper articles were published in two local newspapers on that same date. The news articles provided information concerning the noted arsenic content within some water wells within Dixie County, and also requested that the public contact the Dixie CHD if they would like to get their water wells tested for arsenic at no cost.
4. The response to the information published in two newspaper articles was well received by the public in Dixie County. The Dixie CHD received on-going requests from the owners of water wells for arsenic sampling from May 10, 2010 up until November 19, 2010.
5. On 12/8/10, Volusia CHD's public information officer, Stefany Strong provided the educational press release to the media, and it was published on that same day in the Daytona Beach Sun, and also a public service announcement incorporating the educational information for water well owners was broadcasted on a local radio station during that same week.
6. The Dixie County water sampling information for the private wells sampled for arsenic was compiled into a spreadsheet for the time period of 5/10/10 through 11/19/10. During that time period a total of 180 requests were made for the testing of arsenic in water wells. As of 12/30/10, 112 of those water wells were sampled for arsenic, and of those, 31 of the wells exceeded the maximum contaminant level for arsenic (10 mg/L) and will be retrofitted with an appropriate water treatment system at no cost to the homeowner (See graph below).
7. The response to the educational press release provided by the Volusia CHD was somewhat limited because the press release didn't make it into the larger and more applicable newspapers that serve rural areas where well owners reside (See newspaper article below). The press release generated five requests for well sampling, but generated several telephone calls from the public inquiring about the safety of their wells.

Dixie County, Private Water System Owner Outreach Project
Arsenic Sample Results



Volusia County Health Department Recommends Testing of Private Drinking Water Wells



DAYTONA BEACH, FL -- Do you have your own private drinking water well? If so, when was the last time you had your water tested? New wells are tested for bacteria, nitrate, and chlorides but your well water should be re-tested on an annual basis to ensure your drinking water remains safe.

Many water contaminants are not noticeable. Bacteria and nitrates can reach the groundwater through poorly maintained septic systems, nearby livestock areas and farm lands, poorly constructed wells, and as a result of flooding. Chlorides are only noticeable at very high levels.

You can collect your own samples (if the sample is not to be used for a new well or mortgage approval) for bacteria (total coliform), nitrates and chlorides or you can call to have Environmental Health staff visit your home (for a fee) to collect the samples. Either the Volusia County Health Department or a properly certified private laboratory can perform these services for you.

If a nearby contamination source is present, or neighboring wells are showing up with high levels of other chemical contaminants, well owners may want to consider more extensive testing of their well. Dangerous chemicals can enter into the groundwater from leaking underground gasoline storage tanks, over-use of pesticides, landfills, improper dumping of hazardous wastes and storm water run-off.

For additional information concerning the testing of your water well, you can contact the Volusia County Environmental Health Laboratory at (386) 248-1781, or you can obtain information at the following web-site: <http://www.myfloridaeh.com/water/index.html>

CONCLUSIONS:

By utilizing the media as an outreach mechanism for the owners of private water well systems, the FDOH was able to provide important information to well owners to assist in the protection of their drinking water supplies, and identify wells that were affected by arsenic contamination. Because of known or suspected areas of groundwater contamination and the inherent risks of consuming untreated water from private water wells, it is incumbent on the FDOH to provide as much information to the public as possible. An informed/educated public is better able to make important decisions concerning the safety of their drinking water. Since this project was so successful, the FDOH hopes to expand its educational outreach program. The information will thus allow the owners of private water wells to make prudent decisions concerning measures that they need to take to ensure that themselves and their families are continually provided with safe well water.

LEADERSHIP DEVELOPMENT OPPORTUNITIES:

Edward A. Bettinger, R.S., M.S.

During the past year, my participation in the Environmental Public Health Leadership Institute enhanced both my professional and personal development. The institute's curriculum, especially the introduction to the "Systems Thinking" approach for evaluating and addressing problem areas was exceptional. The curriculum, my team, and the various issues I encountered during the execution of my project enhanced my leadership skills as a professional, and the things I learned about myself through my individual development plan has made me a better person.

I now look at problems with a different view, and I'm better able to address unintended consequences in solving those problems. I also enjoyed working with my mentor, Tim Jenkins and my team members. Our team had a great camaraderie, and I learned several things from my team during my participation in the EPHLI. It was also interesting hearing from my team and other participants about some of the specific environmental health issues that they were addressing in their states, and the differences in the environmental health programs around the country. In all, participation in the EPHLI was a great experience for me, and it allowed me to develop a successful project that will have a lasting impact on those Florida residents that were identified with arsenic contaminated water wells. They now have a safe source of drinking water for themselves and their families, and an added degree of public health intervention and protection was provided in that region of the state.

ABOUT THE EPHLI FELLOW

Ed Bettinger is an environmental health program consultant for the Florida Department of Health in Tallahassee, Florida. Mr. Bettinger serves as the FDOH's statewide manager for the Florida Safe Drinking Water Act Program and for the department's responsibilities within the state's water well construction program. He works within the Division of Environmental Health's Bureau of Water Programs, and is involved drinking water issues, affecting both public and private water systems.

Mr. Bettinger began his career with the State of Florida in 1986 as an environmental health specialist for the Volusia County Health Department. During the period of 1986 through 1994 he assumed several responsibilities within the environmental health section of the health department. In 1991 he was promoted into the Volusia CHD's environmental health engineering section to assist in fully implementing the Florida Safe Drinking Water Program when the CHD first received delegation from the state to oversee the program in Volusia County. He worked as an environmental specialist in that program up until 1994. In April of 1994 he received a promotion and moved to Tallahassee to become the drinking water program coordinator of the FDOH.

Mr. Bettinger has enjoyed his career in addressing Florida's environmental health issues. Working with dedicated professionals that are innovative and knowledgeable about the issues affecting Florida's water supplies has provided him with great direction and satisfaction, and he looks forward to continuing these efforts for several years to come.

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