Water safety along the Rappahannock River in Stafford County Virginia

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _____

Abstract

The problem is that even with a water safety program in place, Stafford County, Virginia continues to experience water rescues and drowning along the Rappahannock River.

The purpose of the research is to review the current water safety program and find areas to improve and expand the program, thus reducing civilian injuries and drowning along the river area.

This research will utilize a descriptive research method to address the following questions: a) What types of information are currently available to inform the public in regards to water safety along the Rappahannock River? b) What support agencies are available to the SCFRD to help improve and expand the current water safety program? c) What drowning prevention programs are currently used by other public safety agencies, the United States that have reduced drowning incidents along similar river recreation areas? d) What can the SCFRD feasibly due to prevent water related injuries and drowning along the Rappahannock River?

The procedures used for this research came from print, internet, and survey information. Additionally, the author conducted a literature review of current journal articles about drowning and water rescue.

The results suggest the Stafford County Fire and Rescue Department should form a coalition with other support agencies, and implement some similar programs to ones used around the nation.

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Introduction

Summertime temperatures throughout the Mid-Atlantic States can be very hot. As the temperatures rise, citizens tend to seek recreational activities to cool themselves. In Stafford County Virginia, this includes spending time in the many waterways and lakes throughout the county.

The county is bordered on two sides by rivers. To the East the Potomac River offers deep open waters which are normally calm and routinely used for recreational boating. To the South the Rappahannock River is a tidal river which dramatically changes in depth and power depending upon the amount of rain water runoff flowing in from its tributaries. During calm periods the Rappahannock can be an inviting shallow river to wade and swim in. Though calm on the surface, the river can hide swift undertows, which can be dangerous to bathers.

Stafford County holds jurisdiction over the Rappahannock River. The Stafford County Fire & Rescue Department (SCFRD) maintains a well trained Swift Water Rescue Team (SWRT) and has developed a water safety program with the assistance of other partner agencies. The problem is that even with a water safety program in place, Stafford County continues to experience water rescues and drowning along the Rappahannock River.

The purpose of the research is to review the current water safety program and find areas to improve and expand the program, thus reducing civilian injuries and drowning along the river area.

This research will utilize a descriptive research method to address the following questions: a) What types of information are currently available to inform the public in regards to water safety along the Rappahannock River? b) What support agencies are available to the

SCFRD to help improve and expand the current water safety program? c) What drowning prevention programs are currently used by other public safety agencies, the United States that have reduced drowning incidents along similar river recreation areas? d) What can the SCFRD feasibly due to prevent water related injuries and drowning along the Rappahannock River?

The research reviewed Executive Fire Officer (EFO) research papers, trade journal articles, and emergency service books that dealt with water safety and drowning. Further research regarding water safety and drowning was obtained through online internet search engines to identify web sites, trade journal papers, and partner agencies that deal water safety and public information programs. An online survey was conducted to gain information on water safety programs used by other public safety agencies. The information was organized into groups dealing with each research question. The information was then evaluated by seeking to answer each of the questions.

Background & Significance

The Stafford County Fire and Rescue Department is an all-hazards agency, providing fire, rescue, basic and advanced life support emergency medical services (EMS), and environmental hazard materials (HAZMAT) response and mitigation. In addition, the department is responsible for emergency management, building plan review and fire code enforcement, fire and environmental crime investigation, and public education and preparedness. (Stafford County Fire & Rescue Department [SCFRD], 2009, p. 1)

The department serves Stafford County Virginia with an integrated workforce of 450 volunteers and 110 career personnel operating from 16 fire and rescue stations in cooperation with 14 volunteer rescue or fire/rescue companies. The County is divided into north and south Battalions. The department operates with 1 Division Chief/Shift Commander, 2 Battalion Chiefs,

18 Engines, 4 Ladders, 3 Heavy Rescues, 20 EMS units, 3 fire-rescue boats and various other support equipment. The SCFRD answers over 24,000 calls annually. (SCFRD, 2009, p. 7)

The proximity of Stafford County to Washington, DC, presents many challenges to the fire and rescue system. In addition to the customary hazards found in a bedroom community, Stafford County is bordered by rivers on two sides. To the East the Potomac River offers deep open waters which are normally calm and routinely used for recreational boating. To the South the Rappahannock River is a tidal river which varies in depth and power.

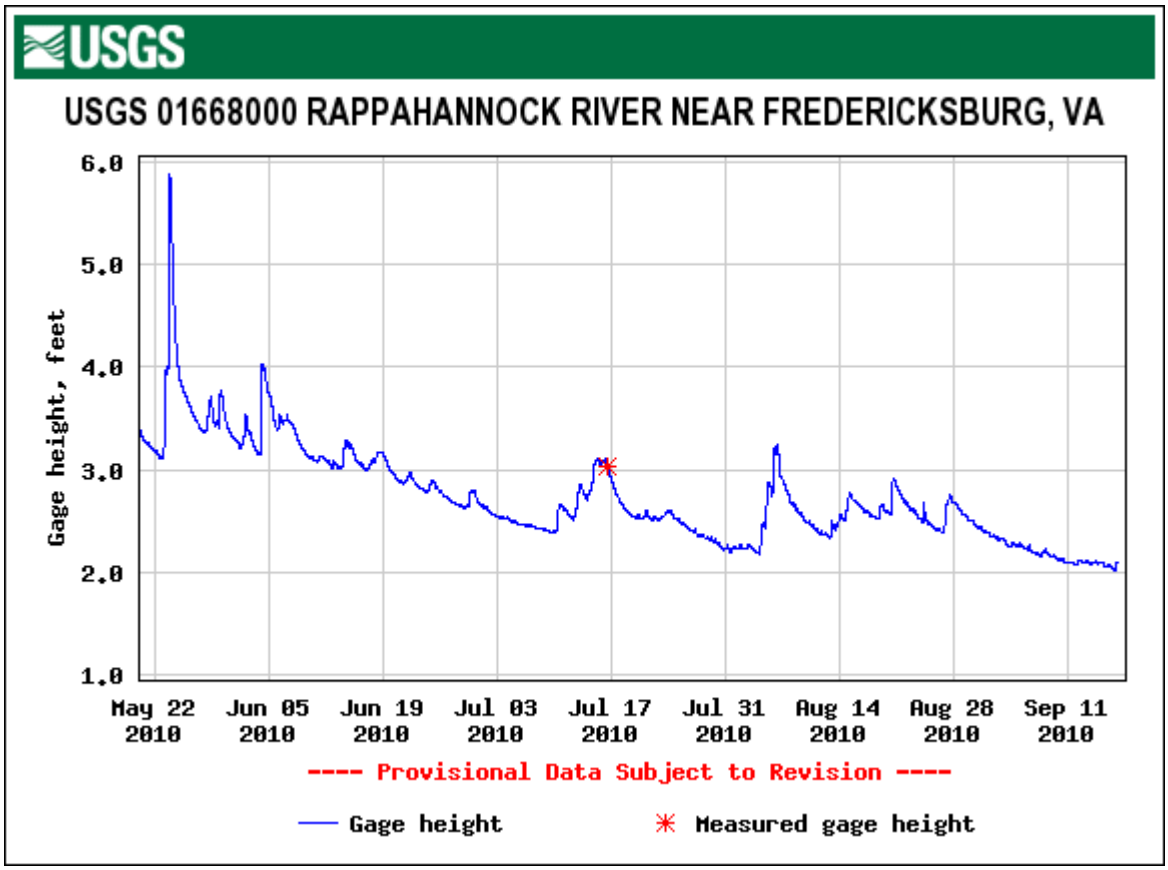
Since 1972, 86 people have drowned in the Rappahannock River in and around Stafford County. None of these drowning victims wore personal floatation devises (PFD). (Hannon, 2010, p. 2) The latest incident occurred on August 8, 2010. During the period of research for this paper of March 2010 until September 2010, SCFRD responded to 47 calls for assistance along the river area, including 11 other near drowning incidents and the 1 drowning. (Stafford County Fire & Rescue Department [SCFRD], 2010, p. 1)

The Rappahannock River itself is approximately 184 miles in length. It traverses the entire northern part of Virginia, from the Blue Ridge Mountains to the Chesapeake Bay. Almost 26 miles of the river form the southern border of Stafford County. ("Rappahannock River", 2010, para. 1) The river drains an area of 2,848 square miles, approximately 6% of Virginia. Much of the watershed is rural and forested, but it has experienced increased development in recent decades. The depth and power of the river dramatically changes depending upon the amount of water runoff flowing in from its tributaries. ("Rappahannock River", 2010, para. 3)

During calm periods the Rappahannock can be an inviting shallow river to wade and swim in. Though calm on the surface the river can hide swift undertows, which can be dangerous to bathers. The U.S. Geological Survey (USGS) maintains a water height gage along the river

near the city of Fredericksburg. The gage records the river height and discharge amounts throughout the day. A support agency, Friends of the Rappahannock, recommend that river levels greater than 3.2 ft at the Fredericksburg gage are unsafe for recreational use. (US Geological Survey [USGS], 2010, p. 1) During the drowning on August 8, 2010, the historical gage data shows the river was receding from a high of 3.5 caused by a thunderstorm on August 7, 2010. This was one of the highest levels the river rose during the research period as shown in figure 1. (USGS, 2010, figure 1)

Figure 1. Water height gage historically data May 2010 – September 2010



Stafford County has jurisdiction over the Rappahannock River and provides primary response for incidents along the river. The SCFRD maintains a well trained Swift Water Rescue Team (SWRT). After several drowning incidents in 2008, SCFRD in partnership with the

Stafford County Department of Parks and Recreation (SCPR) developed a water safety information program to reinforce the importance of the river's danger and water safety.

This program installed warning signs at key areas along the river shoreline. Since several victims in recent years have been of Hispanic decent, the warnings are displayed in both English and Spanish. Stafford County has also issued several media advisories throughout the summer seasons as to the dangers of the river. These advisories urge all visitors to the Rappahannock River to practice water safety in and around the water. Individuals should always wear a PFD if they must enter the river. (Riddle, 2010, p. 1)

While there are drowning hazards associated with the Potomac River and the multiple static water sources such as lakes and reservoirs in Stafford County, this research will be focused on the Rappahannock River. This river historically accounts for more incidents of injury and drowning then other recreational water areas.

The research relates to the National Fire Academy EFO course "Executive Analysis of Community Risk Reduction" through its approaches to identifying community risks. Risk prevention involves anticipating potential hazards with the community and facilitating interventions to prevent occurrences. (Federal Emergency Management Agency [FEMA], 2006, p. 1-10)

The enhancement of the water safety program will "Encourage the State, local, and tribal adoption of risk reduction, prevention, mitigation, and safety strategies" and "Expand efforts to work with organizations that will provide entry into multiple channels to reach all audiences". (United States Fire Administration [USFA], 2009, p. 18) Both of these objectives relate the research with the United States Fire Administration (USFA) operational objectives in their strategic plan for fiscal years 2010-2014.

Literature review

This literature review will focus on three prevailing themes. First, the focus will be on the national problem of unintentional drowning incidents to include frequency of occurrence and identifiable factors that may be used as indicators or predictors of unintentional drowning. Second, the existing body of knowledge concerning the general prevention of unintentional drowning will be review. Third, a review of current water safety and drowning prevention programs utilized by public safety agencies will be provided. Finally a brief summery will be given on how this literature review has guided this research and analysis.

The review began in March 2010, at the Learning Research Center of the National Emergency Training Center. Further review was later conducted via internet search, to gather information of current practices and procedures performed by other emergency services agencies for water safety and drowning prevention.

Online research was also conducted through the Himmelfarb Library of Health Sciences of The George Washington University. This search engine provided current journal articles and research papers written on the topics of drowning, injury prevention, and the effectiveness of warning signs.

Further analysis at the Central Rappahannock Regional Library and via the internet reviewed historical data as to incidents of drowning along the Rappahannock River.

There is a large amount of research which has been conducted on the significance of drowning in the United States. The Center for Disease Control (CDC) provides comprehensive information on the leading causes of death via their Web-based Injury Statistics Query and Reporting System (WISQARS) database. In 2007, the CDC listed drowning as the sixth leading

cause of unintentional injury death in the United States across all races, both genders, and all ages. Unintentional drowning is listed as the third or greater cause for ages up to 34 years old. (Appendices A) (Center for Disease Control [CDC], 2010, table 1)

In the Commonwealth of Virginia, the Virginia Department of Health (VDH) reported in their report *Drowning/Submersion Related Injuries in Virginia, 2002-2006,* the Commonwealth has an unintentional drowning mortality rate of 1.15 per 100,000 of population annually. ("Drowning/Submersion Related Injuries in Virginia, 2002-2006", 2008, p. 2) The VDH also reports that of the use of alcohol influences a person's balance, coordination, and judgment. From 2004-2006 of the 306 unintentional drowning deaths occurred in Virginia. Of these, 93 had a blood alcohol, at a level of 0.01 or greater. ("Drowning/Submersion Related Injuries in Virginia, 2002-2006", 2008, p. 5) Sixty-six percent of the 93 cases had a measured level of 0.08 or greater (the legal limit for operating a motor vehicle in Virginia). The VDH also found males experienced a higher percentage of alcohol related drowning; 33% compared to 20% among females. ("Drowning/Submersion Related Injuries in Virginia, 2002-2006", 2008, p. 6)

L. Quan and P. Cummings (Quan & Cummings, 2003, p. 165) found that 72% of all drowning were in open water. Among victims aged 15-35 years, greater than 90% of the drowning occurred in open water. Children under 4 years of age, had rates that were nearly equally distributed between swimming pools and open water. Bathtub drowning rates were highest among those over 65 years of age and those under 5 years old.

Their research also found that drowning in open water was the major site of drowning for those 15-64 years old. They stressed greater focus should be given to increasing the use of life vests while boating, since boating was a common activity with the age range. (Quan & Cummings, 2003, p. 165) They also discovered the highest use of alcohol, 28%, were in those

aged 15-35 years, stressing multiple approaches, in addition to focusing on the use of alcohol are necessary to prevent drowning while swimming and boating in this age group. (Quan & Cummings, 2003, p. 167)

Overall their research found that victims' characteristics, pre-existing health conditions, activities and location of drowning varied with age. Therefore, different strategies to prevent drowning are necessary for each age group. (Quan & Cummings, 2003, p. 168)

Boening (Boening, 2009) found that there are many variables used in determining the rates of drowning, which leads to inconsistencies across the nation. One community may define drowning as only occurring if a death takes place, while others include reports of water related injuries, regardless of the disposition of the victim. He found his research on local data did not fall into range of national averages in regards to drowning data. He concluded that without a uniform national system, these variables would continue to make the compilation of accurate and consistent data difficult. (Boening, 2009)

Giles (Giles, Strachen, Stadig, & Baker, 2010, p. 332) found water related activities resulted in a large number of fatalities annually throughout Canada, especially in the Canadian north, where drowning rates are up to ten times the national average. This study aimed to understand why residents of the, Northwest Territories (NWT) rarely wear lifejackets.

Throughout the research three themes emerged. Residents largely perceived lifejackets to be inaccessible, they felt drowning was attributed to factors other than failing to wear a lifejacket and last that lifejacket use is not encouraged by important individuals in the community. (Giles et al., 2010, p. 323) Their research suggested that successful lifejacket promotion for the population requires drowning prevention programs that move away from simplistic approaches that encourage people to wear lifejackets, and instead must utilize an approach that addressed

theories of planned behavior. The theory of planned behavior reasons that the best predictor of behavior is intention. Intention is the cognitive representation of a person's readiness to perform a given behavior. (Ajzen, 1991, p. 189) In other words, if the person does not want to do it they will not.

In research on alcohol related injuries and drowning, Driscoll (Driscoll, Harrison, & Steenkamp., 2004) found that alcohol consumption widely occurs in association with recreational aquatic activity. They also concluded alcohol consumption is an important risk factor for drowning associated with recreational aquatic activity. Overall, the most important factor relate to understanding the attitudes and alcohol use of persons engaging in recreational aquatic activity. (Driscoll et al., 2004, p. 111)

Conversely, Driscoll (Driscoll et al., 2004) found that information about the use of alcohol in the context of aquatic activities is inadequate in most countries for reliable estimation of the proportion of drowning attributable to alcohol. The lack of reliable information hinders development of prevention based policy response (for example, monitoring effects of programs to discourage drinking before swimming or while boating). Effective prevention is likely to result from a thorough understanding of aquatic activities, alcohol use, and the way that these interact. (Driscoll et al., 2004, p. 111)

McCool (McCool, Ameratunga, Moran, & Robinson, 2009) found there were differences between males and females with regard to their appraisal of risk and concern when it came to their swimming abilities. Female respondents to surveys given at local beaches were more likely to perceive greater severity, vulnerability, response efficacy, and concern of their swimming abilities, then male respondents. Youths and males were considered to be at increased risk of drowning. The research found that the tendency to underestimate the risk associated with aquatic

activities and overestimate their ability to cope with that risk could help explain the higher rates of drowning among males and youth. (McCool et al., 2009, p. 361)

In the book *Handbook of injury and violence prevention,* Quan (Quan, Bennett, & Branche, 2006) discuss several interventions to help prevent drowning. First is the use of signs at water recreation sites for drowning prevention. While the authors felt warning signs have not fully been evaluated, they found consideration should be given to developing signage with internationally recognized symbols warning of specific hazards such as undertow, currents, dangerous swimming or boating, or beach drop off. (Quan et al., 2006, p. 84) Any writing on these signs should be multilingual; to deliver their message to a diverse group of citizens. These signs would also need to be tested for comprehension before any evaluation of the prevention program can be assessed. Signage to reinforce key messages and promote specific behaviors such as wearing a PFD should be distributed to multiple access points to hazardous areas. (Quan et al., 2006, p. 86)

Quan (Quan et al., 2006) also found that in many regions, hazardous waters areas are known to local public safety agencies. Some communities have identified these areas and have restricted access to these hazardous areas. Overall Quan found this intervention has not been evaluated. (Quan et al., 2006, p. 86)

In terms of drowning awareness education, Quan (Quan et al., 2006) found many Organizations that help distribute water safety and drowning educational materials. Such groups as the United States Coast Guard, the YMCA, and auxiliary groups, offer water safety training and awareness. The Boat Owners Association of the United States (BoatUS) helps fund a life jacket loaner program. The BoatUS Foundation for Boating Safety & Clean Water sponsors the

program to kids' life jackets for the day or weekend to families who have a temporary need for one. (BoatUS Foundation for Boating Safety & Clean Water [BoatUS], 2007)

Another educational program Quan discussed was the Risk Watch program of the National Fire Protection Association (NFPA). Risk Watch is a comprehensive injury prevention program administered at school for kindergarten to eighth grade. While not specific to drowning, the program includes sections on water safety for each age group. After administration of the program, Quan (Quan et al., 2006) found the children showed significant changes in knowledge of water safety.

One drowning prevention strategy is to provide lifeguards in public areas where people are known to swim. Quan (Quan et al., 2006) found that lifeguards may deter behaviors that could put swimmers at risk for drowning, such as horseplay or venturing into rough or deep water. It is generally accepted that the presence of lifeguards increases the likelihood of a favorable outcome during water recreation. Therefore, it is recommended that when choosing natural bodies of water for recreation, parents and caregivers of young children select locations that are designated swim areas with lifeguards present. (Quan et al., 2006, p. 87)

Lastly Quan discussed the Water (or Child) Watchers program. To ensure direct supervision while swimming, the program promotes the designation of a single adult to watch children while they swim. If this adult needs to undertake another task, he or she passes the "watcher whistle" to another dedicated adult. The draw back to the program is it lacks an educational component of water hazards, hazardous behaviors, recognition of a drowning event, and what to do. (Quan et al., 2006, p. 88)

In his development of a drowning prevention program, Watson (Watson, 2006) affirmed that chief officers must recognize that they are the leaders in the community risk reduction

process. They should constantly be evaluating community risks, identifying at risk populations, and working with community leaders to reduce the negative outcomes of those risks. (Watson, 2006) One of the first steps a department should take when educating the public is creating a strong sense of affiliation with the community, between the community and the fire department, and the need for the education explained to the community. Creating a community concern for safety should be followed by finding local solutions to local problems. (Watson, 2006)

Several jurisdictions throughout the United States have very active drowning prevention programs. In Shasta County California, the Shasta County Drowning Prevention Coalition (SDPC) has identified several risks factors to their population in terms of drowning. In their younger population the main risk is a lack of supervision and barriers to keep children away from open water. (Shasta Downing Prevention Coalition [SDPC], 2008) In those over 15 years of age, drowning in natural water settings increases with age. Risks in this area include recreational swimming and from boating. As with other studies, SDPC also found alcohol consumption involved in about 25% to 50% of adolescent and adult drowning deaths. (SDPC, 2008, p. 1) SDPC's last identified risk was drowning in seizure patients. For persons with seizure disorders, drowning is the most common cause of unintentional injury death, with the bathtub as the site of highest drowning risk. (SDPC, 2008, p. 1)

SDPC has formed a strong coalition of community partners involved in water activities, water safety and water rescue. The coalition helps develop safety programs to neutralize the identified community risks. Members of the coalition include city and county recreation departments; the local YMCA and swim teams; Fire and Sheriff's Departments; and local businesses such as pool companies and boat sales.

Some of their main awareness programs include their “Stay on top of it” and “Water Watchers” campaigns. The “Stay on top of it” campaign is a public awareness and prevention program to inspire the use of PFD by all swimmers, especially children. Their “Water Watchers program, encourages a dedicated parent to be in charge of watching children while they swim. The SDPC offers free “Designated Water Watcher” lanyards, whistles, and tags. Parents or guardians take turns wearing the “Designated Water Watcher” tag and take turns watching the kids as they swim in the pool. (SDPC, 2008, p. 1)

Finally, one water safety campaign in King County, Washington, has a clear objective and outcome measures: to increase PFD use. It included a community coalition; educational materials and messages using multimedia, including news, radio, and television, billboards, bus advertising. (The Seattle - King County Drowning Prevention Coalition, 2010, p. 1) The coalition also works with PFD manufacturers to increase PFD loaner programs and off coupons for discounted purchases of PFDs and increasing availability by coupon distribution, PFD loan programs, and working with a PFD manufacturer. Quan (Quan et al., 2006, p. 87) found before and after surveys indicated a significant increase in PFD use and ownership among children whose parents were aware of the campaign.

This literature review has demonstrated there is significant community risk associated with water related recreation. It also showed there are a wide variety of programs which have previously been developed by other public safety agencies and other water safety support agencies that have shown to reduce incidents of drowning.

Based on the literature review, this research will focus on developing some of these programs to assist Stafford County in water safety and drowning prevention.

Procedures

The problem statement of the project was reevaluated to make sure the research was focused towards the individual research questions which were:

a. What types of information are currently available to inform the public in regards to water safety along the Rappahannock River?
b. What support agencies are available to the SCFRD to help improve and expand the current water safety program?
c. What drowning prevention programs are currently used by other public safety agencies, the United States that have reduced drowning incidents along similar river recreation areas?
d. What can the SCFRD feasibly due to prevent water related injuries and drowning along the Rappahannock River?

Literature Review

A review of EFO applied research projects, trade journals, books, and manuals was conducted at the Learning Research Center of the National Emergency Training Center, in March of 2010. The review looked into the history of water safety programs and drowning as a national problem. The research yielded several articles and EFO projects on water safety, drowning and development of water safety risk reduction programs. Most provided valuable information in the establishment of these programs.

Online research was also conducted through the Himmelfarb Library of Health Sciences of The George Washington University. This search engine provided current journal articles and

research papers written on the topics of the search including; drowning, injury prevention, and the effectiveness of warning signs.

Further analysis at the Central Rappahannock Regional Library and via the internet reviewed historical data as to incidents of drowning along the Rappahannock River. This included accessing the records of the main local newspaper, *The Free Lance Star*.

Internet Search

An internet search was conducted using several major search engines including Google, Bing, Yahoo, and Alta Vista. Searches were conducted on such topics as; water safety, drowning prevention, Rappahannock River safety, and life jacket usage were used to gather information about local and national water safety programs. Special attention was given to websites found referencing fire or EMS based programs and programs focused around similar water conditions found along the Rappahannock River.

Departmental Survey

In an effort to further research water safety programs currently utilized by public safety departments across the nation, an online survey was developed. The Drowning Risks in Open Waterways (DROW) survey consisted of five questions (appendix B). It was developed utilizing the website surveymonkey.com. The survey was then solicited to several groups of public safety officers. This solicitation included the 580 members of the National Society of Executive Fire Officers (T. Curtis, personal communication, August 27, 2010), and various fire service groups on Facebook and Google, to which the author is a member. All raw data was then downloaded and analyzed. A total of 73 persons responded to the survey at least in part. 59 participants included department demographical information allowing for further internet research into their individual water safety programs.

Research Limitations and Assumptions

Since the majority of the data utilized in this research is secondary in nature, it is assumed that all data from literature review items were collected in an unbiased and honest manner by their author(s). The primary data collected via departmental survey holds the same assumption that all respondents answered honestly, openly and accurately.

The research was limited by insufficient number of responses to the survey. The survey was used to collect information to further literary research, not specifically for hard incident data as to the problem of drowning in the United States. The survey also represents a convenience sample of public safety agencies across the United States, and may not include information on all water safety programs across the nation.

Other limitations were time and weather. The six-month research period allocated for this research limited the amount of data to test the effectiveness of the current water safety program, The research would need to cover multiple summer seasons to collect and analysis the effects of rainfall upon the research. The research period of March 2010 until September 2010, included one of the driest summer time period in almost a decade. The level of the river dropped to its lowest point in more than 100 years during the month of September, according to the U.S. Geological Survey. (Dennen, 2010, p. 1) Since rainfall directly affects the intensity of the Rappahannock River, full analysis of weather effects in relationship to drowning was not possible.

Results

This applied research project started with a desire to evaluate the current water safety program in Stafford County by evaluating its effectiveness over the period of March 2010 until September 2010. The research also looked to find programs in place in other jurisdictions which may be applied to the drowning problem in Stafford County to reduce the incidents of drowning.

A total of 73 persons responded to the DROW internet survey. The survey did not distinguish if the respondent was a chief officer or held other rank within their department. The results of the survey can be found in Appendix B.

In the response to survey question #1; *Does your jurisdiction have open waterways, either natural or man-made which swell during moderate rainfall causing hazardous conditions,* only 9.7% of the respondents responded that their jurisdiction did not have open waterways which swell during moderate rainfall causing hazardous conditions. This value indicates that water hazards are present in a large amount of communities across the country.

The responses to survey question #2; *What is the estimated number of water rescues or drowning incidents in your jurisdiction involving open waterways in the past five years?,* indicated the jurisdictions with water related hazards incurred an average of one drowning each year for the last five years. Stafford County did experience one drowning in 2010 but has experienced a total of seven drowning events in the past five years. (SCFRD, 2010, p. 4)

The responses to survey question #3; *Briefly describe any special training or response capabilities your organization has in place for such incidents,* reveled 30 respondent departments having a swift water rescue team. Stafford County also has a very well trained water rescue team. The focus of the research was into prevention and not response. The question was used to distinguish if other jurisdictions were reactionary or preventive in their actions. All thirty jurisdictions reporting a rescue team also had prevention programs in place.

These DROW survey questions were used to compare Stafford County to other jurisdictions across the nation. Question #4; *How has your organization and community addressed the risk of drowning in open waterways,* was used to address research question #c and will be discussed later within these results.

Answers to Research Questions

a) What types of information are currently available to inform the public in regards to water safety along the Rappahannock River?

In 2008, after two drowning incidents near the Historic Port of Falmouth Park in Stafford County, the SCFRD and SCPR teamed up to refresh the river water safety program within the county. This included evaluating the current information available to the public in regards to water safety. The water safety committee decided to post new warning signs within the park to warn of dangers of wading and swimming in the river. At the time, several drowning incidents had included park patrons whom did not use English as their primary language. To help elevate these barriers, the signs posted were designed to provide warnings in English, Spanish, and by the use of pictograms.

Figure 2 shows current signage used to provide a pictorial warning of the hazards of the river. The pictograms describe under water hazards and currents that could cause injury or death.

Figure 2. Pictorial warning sign - Historic Port of Falmouth Park

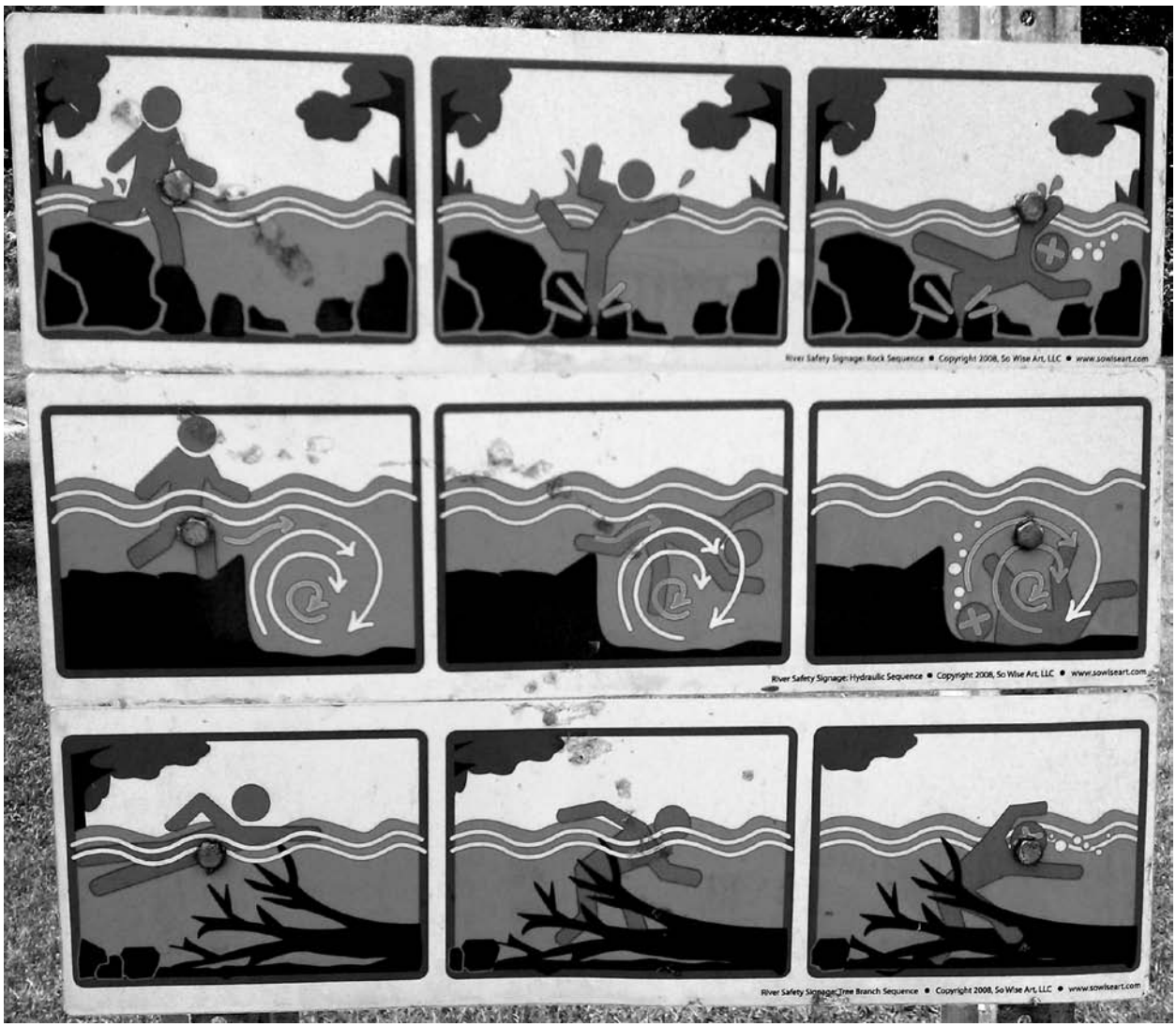
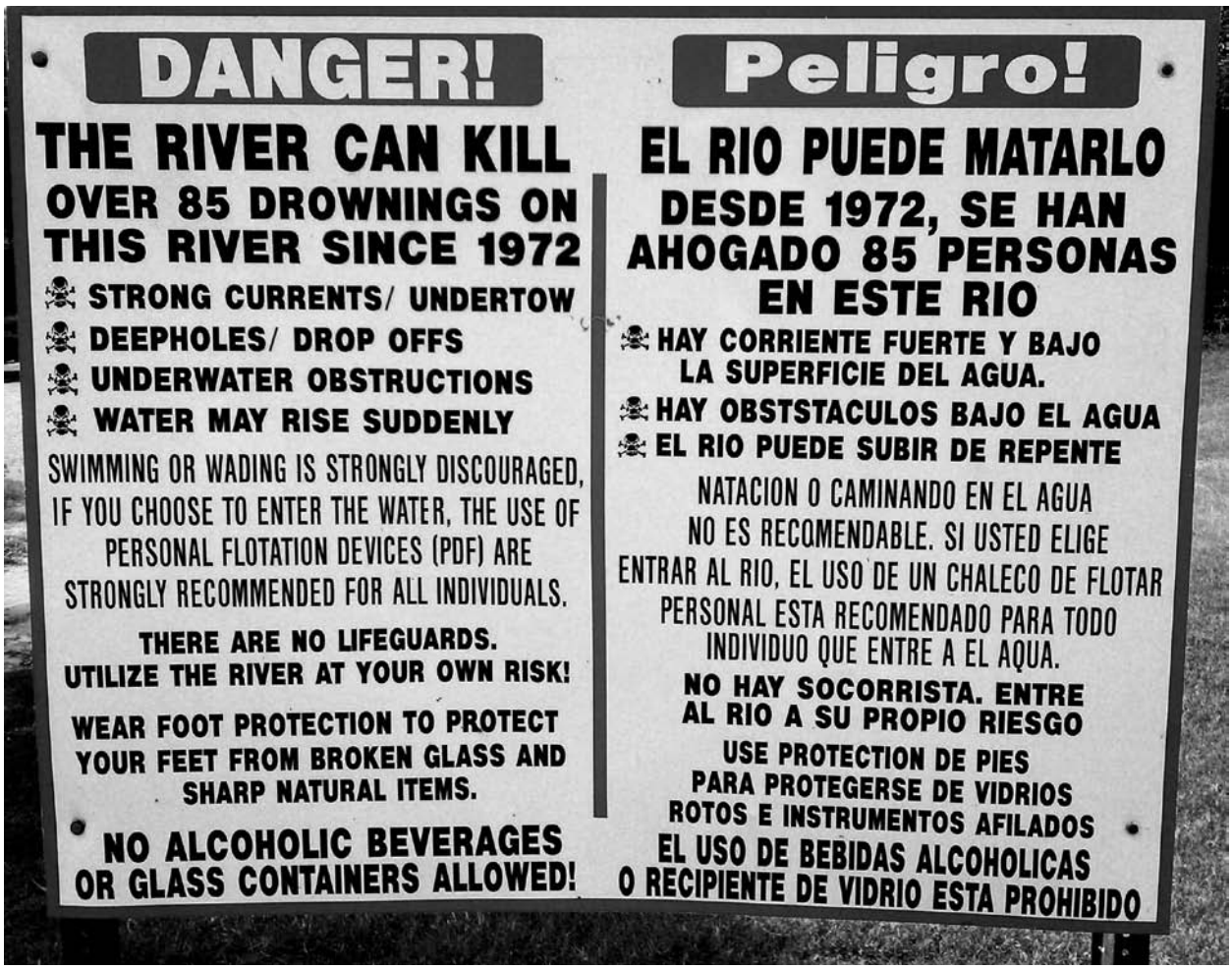


Figure 3 shows the written sign which provides warnings written in both Spanish and English. The warnings are again towards discouraging any type of entry into the water. It warns that no lifeguards are on duty and encourages the use of a PFD in you must enter the water.

Figure 3. Water danger warning sign - Historic Port of Falmouth Park



These warning signs are currently in place at the main entrance to the river area from the parking lot and at two different points near the river itself. The signs act as the main drowning warning intervention to patrons coming to the park.

Along the edge of the riverbank, the river advocacy, restoration, and education group Friends of the Rappahannock (FOR) have placed water height markers. These markers are color-coded to show both depth of the water and the danger to swimmers that such a water height entails. The colors of green, yellow, and red are used to indicate the danger of the water level. The markers are placed along the river where citizens are known to enter the river for water related activities, including near the Historic Port of Falmouth Park. FOR recommends that when

the river water level greater than 3.2 ft in the Fredericksburg area that the river is unsafe for recreational use. (Friends of the Rappahannock [FOR], 2008, p. 2) This is the level in which the marker goes from green to yellow.

FOR has also produced a pamphlet called *Water Safety on the Rappahannock.* This pamphlet is made available and distributed at area businesses which cater to water recreation along the river. The pamphlet provides a map of the river through the Fredericksburg area, highlighting the more dangerous areas. The pamphlet also explains how to read the color-coded water height markers. The pamphlet is currently available only in English.

FOR also maintains the website www.riverfriends.org. The site has a page dedicated to river levels and safety. The page provides links to the current USGS water height gage reading, the water safety pamphlet, river maps, and a short public service announcement (PSA) video on river safety.

The PSA video was developed by a local internist, Steven Massey M.D. who draws cartoons and animated movies as a hobby. His 2008 PSA for the use of PFDs along the river has been shown on the local cable access channels during summer months.

During the research period, the life safety education section of SCFRD, along with SCPR, issued water safety press releases. These press releases occurred both before and during the summer water recreation months. The press releases were aimed to remind citizens as to the dangers of the river and were covered by both local newspapers the *Stafford Sun* and *Free Lance Star*.

b) What support agencies are available to the SCFRD to help improve and expand the current water safety program?

Several support agencies were found which support general water safety and the use of PFDs. SCPR is the main agency involved in overseeing the operations of the parks along the river. During the Fourth of July weekend SCPR was able to have staff available to answer any questions about river safety. While they were available to educate on water safety, the staff's main job was to maintain the flow of vehicle traffic and vehicle parking in the area of the park.

FOR is another strong support agency available to SCFRD. FOR is already heavily involved in advocacy, restoration, and education along the river. They also provide several items which are considered part of the current water safety program.

The Boat U.S. Foundation (BoatUS) is a national nonprofit organization formed to promote safe boating. One of the foundation's goals is, "to be the leader in boating safety… with the purpose of reducing accidents and fatalities." (Boat U.S. Foundation for Boating Safety and Clean Water, 2010, p. 1) BoatUS operates a life jacket loaner program across the nation. There is a BoatUS life jacket loaner station located at Hope Springs Marina in Stafford County. The marina is along Aquia Creek which a tributary of the Potomac River, not the Rappahannock River.

The Mid-Potomac Power Squadron is a boating organization based in Stafford County which promotes safe boating throughout the area. They teach boating safety courses to their members and to grade school children when requested. They focus their safety efforts towards boating operations along the Potomac River and not the Rappahannock River.

Other national organizations such as the National Safe Boating Council, the American Red Cross, and the Safe Kids Coalition have established water safety programs which are available. These programs could be utilized to cover not just water safety along the river, but also safety while boating, and swimming in pools.

To help jurisdictions with creating a life jacket loaner program, the Children's Hospital and Regional Medical Center, in Seattle, WA created their *Life Vest Loan Program Guide*. This guide is available for free online. The guide is designed to help prevention professionals start their own life vest loan program. The *Life Vest Loan Program Guide* walks you through crucial set-up steps, identifies important choices to be made, highlights successful programs and program elements and refers you to resources you may need. (Children's Hospital and Regional Medical Center [CHRMC], 2001, p. 3)

All of the agencies can be called upon as resources and partner agencies to help address the drowning problem in Stafford County.

c) What drowning prevention programs are currently used by other public safety agencies, the United States that have reduced drowning incidents along similar river recreation areas?

The DROW survey question #4; *How has your organization and community addressed the risk of drowning in open waterways,* was used to address this research question. The answers provided varied depending on the importance given to water safety prevention within the jurisdiction.

A lot of emphasis was given to training and outfitting personnel for response to water emergencies. This included vehicles being equipped with PFDs and rope available in throw bags. Thirty of the responding agencies, reported on having more advanced water rescue teams.

In terms of prevention, a large number had PFD loaner programs, including Miramar, Florida; Vista, California; and McKenzie, Oregon. The life jacket loaner program in McKenzie Fire District (MKFD) is in place to help prevent drowning along the McKenzie River, which is very similar to the Rappahannock River. The MKFD life jacket lending program is available not only from each of their five fire stations, but also several convenience stores in the area of the river. The life jacket lending program operates on the honor system; having faith the patron will return the life jacket when they have finished with its use. In the Fall all life jackets are turned in

cleaned, repaired and or replaced and stored for the winter. In Spring they are returned to their checkout locations. The KFD reports “the life jacket program has been a huge success with the McKenzie River community and its many visitors.” (McKenzie Fire & Rescue [MKFD], 2010, p. 1)

The Tucson Fire Department in Tucson, Arizona, is very active in drowning prevention. One of the programs the use for water safety is the “Designated Child-Watcher” program. Under the program a Designated Child-Watcher is responsible for providing uninterrupted adult supervision when children are near water. This responsible adult, then holds onto the Designated Child Watcher lifeguard whistle, which the department hands out for free. The whistle serves as a concrete reminder to all of the parents in the area that an adult is watching the children while they are in or near the water. If the Designated Child-Watcher needs a break or must attend to another activity, they hand over the whistle to another adult who then watches the children. This helps prevent a lapse in adult supervision. (Tucson Fire Department [TFD], 2010, p. 1) While designed more towards water activities at a home swimming pool, the program is also used at some beaches along the Florida coast.

Montgomery County Fire & Rescue Department (MCFRD) in Maryland hosts a webpage on “Facebook” devoted to water safety along the upper Potomac River. This page sends out friendly reminders about river water safety and posts warnings when the water is high and especially dangerous. MCFRD also sends out press releases and public educations messages out in the form of a podcast. This delivery method of electronic media allows further exposure of their prevention messages to the public.

Other prevention programs reported by the DROW survey question included the same type of programs currently in-place in Stafford County, including PSA and warning signs.

d) What can the SCFRD feasibly due to prevent water related injuries and drowning along the Rappahannock River?

Even with the warnings in place, citizens have and will continue to wade and swim in the Rappahannock River. Even if the main park at the Historic Port of Falmouth was closed, citizens access the riverbank from other areas nearby. The prevention efforts in place at this time have improved the warnings given the patrons at the park. SCFRD needs to continue to evaluate its current prevention efforts while working with partner agencies to continue water safety prevention efforts.

Neither the SCFRD nor SCPR have the financial resources currently available to place life guards or even a park attendant at the park on a full time basis. By revitalizing the water safety committee between the SCFRD and SCPR, new and old support agencies can be brought together to help refine and improve the water safety program.

Discussion

The results of this study have shown that Stafford County is experiencing a slightly higher rate of drowning then other jurisdictions across the nation. With the current population of Stafford County estimated at 125,000, the average of just over one drowning per year is in line with the VDH reports of 1.15 per 100,000 annually. ("Drowning/Submersion Related Injuries in Virginia, 2002-2006", 2008, p. 2)

L. Quan and P. Cummings stressed in their report on drowning, that a greater focus should be given to increasing the use of life jackets. (Quan & Cummings, 2003, p. 165) The Seattle – King County Drowning Prevention Coalition also supports the expanded use of life jackets. Since the only current life jacket loaner station is Stafford County is not located on the

Rappahannock River, any further expansion of the water safety program should include a life jacket loaner program near the Historic Port of Falmouth Park.

Stafford County classifies an incident a drowning when the patient dies. Incidents of water rescue are not included. Stafford County also does not follow up with the autopsy of the victim to see if there was any blood toxicity from alcohol or drugs. Driscoll (Driscoll et al., 2004) found that alcohol consumption was an important risk factor for drowning. Boening (Boening, 2009) also found difficulty researching data on drowning incidents. He concluded that without a uniform national system, the compilation of accurate data on drowning incidents would be difficult. Driscoll (Driscoll et al., 2004) also found difficulty in obtaining accurate data on the relationship between the uses of alcohol and drowning. Driscoll found, the lack of reliable information hinders development of prevention programs. (Driscoll et al., 2004, p. 111)

The last time a female drown in the Rappahannock River in Stafford County was 1992. ("Rappahannock Drowning", 1992) Since that time 13 males have drown in the river. McCool (McCool et al., 2009) found female respondents to a swimming survey were more likely to perceive greater severity and vulnerability when it came to their swimming efforts. In contrast males underestimated risks and overestimated their abilities to swim. These findings agree with the research data that revealed most drowning victims in the Rappahannock are young, strong, male, and know how to swim.

Since 2008 Stafford County has formed a strong coalition between the SCFRD and SCPR to help deal with river safety. SDPC (SDPC, 2008) has also formed a strong coalition of community partners which helps to keep their program active. Watson (Watson, 2006) agreed saying chief officers must recognize they are the leaders in the community risk reduction process. This included creating a strong sense of affiliation between the community and the fire

department. Creating and utilizing community equity is an important part to a successful prevention program. The water safety committee with Stafford County should not become stagnant due to a decrease in drowning; they should keep their efforts strong and even further expand the program.

Several common types of water safety programs were found in both the literature review and the research survey. Some of the most popular programs where life jacket loaner programs and designated water watchers.

The literature review found references to major life jacket loaner programs in King County, Washington and Shasta County, California. Loaner programs are also administered by several private foundations such as BoatUS and Safe Kids Coalition. The research survey found life jacket loaner programs in other area such as McKenzie, Oregon and Palm Beach, Florida.

Tucson Fire Department reported using a Designated Child Watcher Program to provide adult supervision for children swimming. The use of similar programs were noted during literature review including the “Water-Watcher Program” review by Quan (Quan et al., 2006), and the “Designated Water Watcher Program” of SDPC. (SDPC, 2008) Quan did note that they program lacks an education component to deliver education on hazard and behaviors.

I feel that the results of the literary review coincide with the results of the research questions. The information collected from the research survey also correspond results of the literary review. Drowning continues to be a national and local problem. SCFRD has moved forward to address the prevention of drowning by forming a water safety committee with the SCPR. Even with drowning incidents on the decline, SCFRD should continue with current prevention activities and seek to expand their programs. The research has exposed several active programs across the nation that can be adjusted to assist SCFRD in these prevention efforts. The

implication of this research is that SCFRD will be able to adapt these programs to further prevent drowning along the Rappahannock River.

Recommendations

The following recommendations come from the research gained during this project.

- SCFRD should continue to be in partnership with SCPR to help coordinated for water safety along the Rappahannock River. The Stafford County Water Safety Committee (SCWSC) should also other support agencies, such as FOR on the committee to help with community equity and ideas from the outside.
- SCWSC should continue its current water safety program and continue to give it an annual review to seek ways to enhance it.
- SCWSC should use the Life Jacket Loan Program Guidebook, established by Seattle Children Hospital, to establish a life jacket loaner program at the Historic Port of Falmouth Park.
- SCWSC should be the lead entity in gathering of data for incidents of rescue and drowning in the Rappahannock River along Stafford County.
- SCWSC should establish a website/page on river safety which allows the visitor to monitor the current conditions of the river. This should include a procedure to notify patrons by email or Short Message System (SMS) when the river is above a recreational stage.

Additional Research

- SCWSC should conduct further research into the effect of water depth and height on drowning in the area. It is hypothesized that the current reduction in drowning may also be in correlation with the lack of rainfall over the past two summer seasons. Further

research into this area is needed to properly establish a prevention program based upon water height.

- SCWSC should research the feasibility of a Dedicated Water-Watcher program, not just for the Rappahannock River, but for all rivers, lakes, and pools in the County.
- SCWSC should research the feasibility of a volunteer life guard program for the Historic Port of Falmouth Park. These guards could be “Water-Watchers” or fully trained lifeguards.

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Appendix A

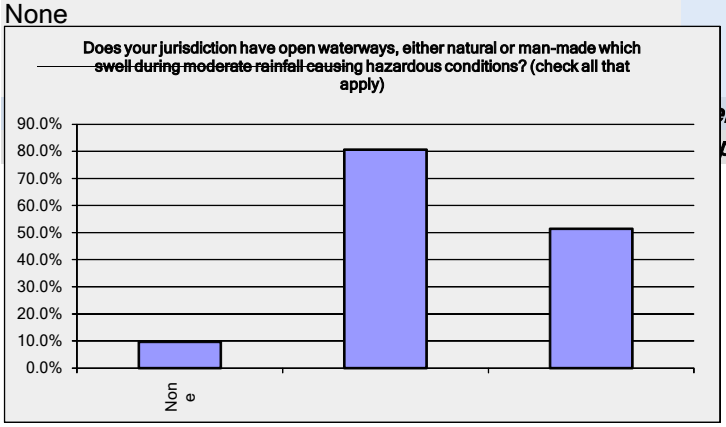
10 Leading Causes of Unintentional Injury Deaths, United States
2007, All Races, Both Sexes

	Age Groups										
Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	All Ages
1	Unintentional Suffocation 959	Unintentional Drowning 458	Unintentional MV Traffic 456	Unintentional MV Traffic 696	Unintentional MV Traffic 10,272	Unintentional MV Traffic 6,842	Unintentional Poisoning 7,575	Unintentional Poisoning 9,006	Unintentional MV Traffic 4,177	Unintentional Fall 18,334	Unintentional MV Traffic 42,031
2	Unintentional MV Traffic 122	Unintentional MV Traffic 428	Unintentional Fire/burn 136	Unintentional Drowning 102	Unintentional Poisoning 3,159	Unintentional Poisoning 5,700	Unintentional MV Traffic 6,135	Unintentional MV Traffic 6,262	Unintentional Poisoning 3,120	Unintentional MV Traffic 6,632	Unintentional Poisoning 29,846
3	Unintentional Drowning 57	Unintentional Fire/burn 204	Unintentional Drowning 122	Unintentional Other Land Transport 80	Unintentional Drowning 630	Unintentional Drowning 381	Unintentional Fall 593	Unintentional Fall 1,304	Unintentional Fall 1,739	Unintentional Unspecified 4,855	Unintentional Fall 22,631
4	Unintentional Fire/burn 39	Unintentional Suffocation 149	Unintentional Suffocation 42	Unintentional Fire/burn 78	Unintentional Other Land Transport 310	Unintentional Fall 334	Unintentional Drowning 417	Unintentional Fire/burn 496	Unintentional Fire/burn 505	Unintentional Suffocation 3,209	Unintentional Unspecified 6,019
5	Unintentional Fall 24	Unintentional Pedestrian, Other 124	Unintentional Other Land Transport 40	Unintentional Poisoning 69	Unintentional Fall 233	Unintentional Other Spec., classifiable 244	Unintentional Fire/burn 313	Unintentional Drowning 481	Unintentional Suffocation 484	Unintentional Fire/burn 1,179	Unintentional Suffocation 5,997
6	Unintentional Other Spec., classifiable 20	Unintentional Struck by or Against 44	Unintentional Pedestrian, Other 32	Unintentional Suffocation 60	Unintentional Fire/burn 196	Unintentional Other Land Transport 233	Unintentional Suffocation 289	Unintentional Suffocation 479	Unintentional Unspecified 392	Unintentional Poisoning 1,149	Unintentional Drowning 3,443

Appendix B

Drowning Risks in Open Waterways

Does your jurisdiction have open waterways, either natural or man-made which swell during moderate rainfall causing hazardous conditions? (check all that apply)		
Answer Options	**Response Percent**	**Response Count**
None	9.7%	7
	80.6%	58
	51.4%	37
	ered question	72
	ped question	0



Drowning Risks in Open Waterways

What is the estimated number of water rescues or drowning incidents in your jurisdiction involving open waterways in the past five years?

Answer Options	Response Average	Response Total	Response Count
Water Rescues	16.64	1,098	66
Drownings	5.07	340	67
		answered question	68
		skipped question	4

Number	Response Date	Water Rescues	Drownings
1	Aug 27, 2010 7:21 PM	1	4
2	Aug 27, 2010 7:32 PM	3	1
3	Aug 27, 2010 7:38 PM	75	5
4	Aug 27, 2010 7:42 PM	5	3
5	Aug 27, 2010 7:45 PM	10	2
6	Aug 27, 2010 7:49 PM	3	1
7	Aug 27, 2010 7:49 PM	2	2
8	Aug 27, 2010 8:00 PM	0	0
9	Aug 27, 2010 8:07 PM	4	0
10	Aug 27, 2010 8:09 PM	37	100
11	Aug 27, 2010 8:17 PM	5	2
12	Aug 27, 2010 8:18 PM	6	26
13	Aug 27, 2010 8:23 PM	2	3
14	Aug 27, 2010 8:29 PM	8	2
15	Aug 27, 2010 8:38 PM	16	7
16	Aug 27, 2010 9:20 PM	25	10
17	Aug 27, 2010 9:46 PM	2	0
18	Aug 27, 2010 11:13 PM	20	10
19	Aug 28, 2010 12:56 AM	10	3
20	Aug 28, 2010 1:08 AM	100	7
21	Aug 28, 2010 1:22 AM	40	20
22	Aug 28, 2010 1:32 AM	30	4
23	Aug 28, 2010 1:34 AM	2	1
24	Aug 28, 2010 2:05 AM	10	3
25	Aug 28, 2010 3:11 AM	1	0
26	Aug 28, 2010 12:09 PM	0	0
27	Aug 28, 2010 12:16 PM	14	9
28	Aug 28, 2010 12:34 PM	1	2
29	Aug 28, 2010 12:55 PM	5	0
30	Aug 28, 2010 1:06 PM	0	0
31	Aug 28, 2010 1:38 PM	5	0
32	Aug 28, 2010 1:50 PM	11	2
33	Aug 28, 2010 2:22 PM	50	10
34	Aug 28, 2010 6:28 PM	0	0
35	Aug 28, 2010 7:59 PM	10	2
36	Aug 28, 2010 9:29 PM	5	3
37	Aug 29, 2010 12:53 AM	25	5
38	Aug 29, 2010 4:07 PM	6	4

Drowning Risks in Open Waterways

Briefly describe any special training or response capabilities your organization has in place for such	
Answer Options	Response Count
	63
answered question	63
skipped question	9

Number	Response Date	Response Text
1	Aug 27, 2010 7:23 PM	swift water rescue team lightweight rescue boats
2	Aug 27, 2010 7:33 PM	Swiftwater rescue and surface ice rescue
3	Aug 27, 2010 7:40 PM	As part of our technical rescue team we have a swift water rescue group. Members are trained to the level of SWI and SW2. We have two boats and a fully equiped swift water rescue truck.
4	Aug 27, 2010 7:42 PM	We have a dive team, which includes swift water rescue.
5	Aug 27, 2010 7:47 PM	Regional dive team, water rescue certification, technical rescue Type II, certified life guards
6	Aug 27, 2010 7:56 PM	Dive Team w/ three different levels. Support staff-helps prepare other team members, Rescue divers-those who are trained in the use of our quick rescue packs- i.e. summerged vehicles, Recovery diver-advanced dive team members who are trained to use dry suits and do more advanced dive operations.
7	Aug 27, 2010 8:03 PM	swift water rescue team, access to a dive team
8	Aug 27, 2010 8:10 PM	Swift water rescue training, basic thru technician for all personnel
9	Aug 27, 2010 8:11 PM	Locals conduct water rescue operations. State wide USAR teams
10	Aug 27, 2010 8:22 PM	dive rescue team (27 members) PSSI's (3)PSD Instructors (2)Swt Water I (3)Swift Water II (3)Boat Rescue w/ 3 Boats
11	Aug 27, 2010 8:26 PM	6 career firefighters are certified through Dive Rescue International - open water / swift water / ice rescue / ice diving
12	Aug 27, 2010 8:31 PM	Swift Water Rescue Team
13	Aug 27, 2010 8:47 PM	we use the city pool every June to refresh our policies and procedures for water rescue. This includes certification for life gaurds. This training is out of service two to four hours for each of the 3 shifts and 5 stations. ICS is applied and strong swimmers are logged into a roster.
14	Aug 27, 2010 9:23 PM	Dive Team.
15	Aug 27, 2010 9:48 PM	swift water
16	Aug 27, 2010 11:15 PM	Swift water rescue team, dive team.
17	Aug 28, 2010 12:58 AM	Swift Water
18	Aug 28, 2010 1:12 AM	Advanced Technical Rescue team is dispatched, along with two boats, and a rescue assignment. The State Police Helicopter also assists. We have a volunteer dive team also.

19	Aug 28, 2010 1:23 AM	swift water rescue team, dive team
20	Aug 28, 2010 1:37 AM	swift water, dive program, etc
21	Aug 28, 2010 1:37 AM	Marine rescue unit for ocean and lake rescue also trained in open/ice water rescue
22	Aug 28, 2010 12:11 PM	None
23	Aug 28, 2010 12:18 PM	Dive team with swift water training.
24	Aug 28, 2010 12:36 PM	Swift water rescue team
25	Aug 28, 2010 12:56 PM	None except thru mutual aid
26	Aug 28, 2010 1:19 PM	we do not have any teams, although we have had some training for open water rescues involving a near-by lake and the Gulf of Mexico. Automatic aid allows us access to their boats and equipment. And making sure that FD members can swim!
27	Aug 28, 2010 1:39 PM	We have a Zodiac type boat
28	Aug 28, 2010 1:52 PM	Technical Rescue Team that includes swift water. All personnel at Operational Level for swift water
29	Aug 28, 2010 2:25 PM	Swift water team, dive rescue team, all special hazards personnel trained in water rescue, all personnel trained in initial water rescue, boat training - we have four boats.
30	Aug 28, 2010 6:29 PM	My department relys on a USAR Swift Water Rescue Team
31	Aug 28, 2010 8:02 PM	swift water rescue capability on 3 apparatus within our dept. and 3 other departments are trained to the same capability. Plus an underwater recovery unit managed by a volunteer organization.
32	Aug 28, 2010 9:30 PM	basic water rescue
33	Aug 29, 2010 12:55 AM	Pennsylvania water rescue training-shore based
34	Aug 29, 2010 7:53 PM	Water rescue through Rescue Technician Standard
35	Aug 29, 2010 8:36 PM	Swift water rescue training, and using the county PD dive team on the initial response as well.
36	Aug 30, 2010 11:12 AM	Monthly water rescue training is performed by all shift members from April through September
37	Aug 30, 2010 11:58 AM	Currently operate at minimum two diver rescue trucks per shift. Each truck operates with two Diver Rescue International certified dive rescue technicians.
38	Aug 30, 2010 12:02 PM	Dive Rescue Team and surface water rescue training for all Firefighters
39	Aug 30, 2010 12:39 PM	Had a boat and got rid of it. We have a county dive team.
40	Aug 30, 2010 2:20 PM	Some rope rescue courses
41	Aug 30, 2010 2:45 PM	Trained FD in swift water rescue and ice rescue.
42	Aug 30, 2010 3:14 PM	None
43	Aug 30, 2010 3:15 PM	Water and ice rescue and recovery.
44	Aug 30, 2010 3:25 PM	Our Department is trained swift water and ice rescue
45	Aug 30, 2010 3:29 PM	Cold Water Rescue Swift Water Rescue We have sent guys to the Dive Rescue course, but we do not have a Team. They are there to assist the Mutual Aid Dive Team from the County or neighboring department.

46	Aug 30, 2010 5:34 PM	Awareness for swift water to all personnel, Pre plan specific areas known to create problems
47	Aug 30, 2010 6:20 PM	Swift water trained firefighters on the special ops team.
48	Aug 30, 2010 6:59 PM	Throw bags, PFD's, Water Rescue Training
49	Aug 30, 2010 8:04 PM	22 engines each are equipped with swift water rescue throw bags, pfds, helmets and floatation rescuer. 8 ladder trucks each are equipped with rescue rings, throw bags, pfds, helmets and floatation rescuer. Swift water rescue teams (3 specialized teams) equipped with high angle rescue rope, rescue boat and other specialized equipment
50	Aug 31, 2010 3:47 PM	swiftwater rescue awareness training, swiftwater and flood responder safety equipment
51	Aug 31, 2010 5:31 PM	Swift wate training
52	Sep 1, 2010 4:50 PM	Dry Suits for Ice Rescue
53	Sep 1, 2010 7:39 PM	Swift water Rescue and a Dive Team
54	Sep 2, 2010 4:33 AM	Swift Water Rescue Technician level training and equipment. Swift water team in area available for response.
55	Sep 3, 2010 12:50 PM	Have a full Swift Water / Dive Team in the county. Swift Water trained to NFPA operations level (3-day training) and Dive trained to ERD1 level, along with Full-face and Dry-suit. Technical Rescue Team is currently training people to either the NFPA operations (3-day) or an Awareness-plus class. Department has 2 inflatible boats for response, as well as 2 flat-bottom 'jon boats'. Some members have attended the Swift Water Boat Operators course. Also have a 27' marine patrol unit for the main river operations.
56	Sep 3, 2010 8:57 PM	Swift water rescue team, boat ops, technical rescue team
57	Sep 4, 2010 5:14 AM	Swift water rescue team
58	Sep 8, 2010 2:34 AM	surface water teams, locator first due appratus, dive team
59	Sep 15, 2010 2:16 PM	Swift Water rescue team
60	Sep 15, 2010 2:20 PM	Basic water rescue training
61	Sep 15, 2010 2:24 PM	none
62	Sep 15, 2010 2:25 PM	Rescue swimmer, Swift Water Rescue, Air Rescue
63	Sep 15, 2010 2:30 PM	8 firefighters trained as swift water rescue lead personnel

Drowning Risks in Open Waterways

How has your organization and community addressed the risk of drowning in open waterways?

Answer	Response Count
	72

1	Media releases on water safety, facebook site on water safety
2	None
3	None
4	We have had to close the waterway to recreational activities during periods of high runoff via the county sheriff. We do constant PSA's and media blitz.
5	N/A
6	Local prevention programs
7	Preplanning, and pre summer prevention programs.
8	preplanned river rescues
9	work with parks/recreation to promote safety
10	Equipped all vehicles with throw bags, life jackets and training with same. pre-planned who would repsond to which access points in the event of a rescue attempt.
11	none
12	yes. Educational
13	
14	
15	yes and no Within House , not o/s side
16	Developed a cooperative response with all adjacent dive teams.
17	None at this time.
18	Every summer the Public Education division reaches out to the community to stress water safety and pool safety. pbgfl.com
19	none other than responder training

20	State Department of Natural Resources is the lead agency regarding water safety in our state. County Sheriff's Office is also very actively involved in water safety education and prevention.
21	fences , auto aid from full swift water rescue and dive team
22	site preplanning for recues - life jacket loaner program
23	Preplanning by rescue team, Training on the waterways
24	Unsure
25	Education by messages from Emergency Management. Please call me!! I am an EFO and wrote an ARP on developing a Swift Water Rescue program for my department!!
26	response only.
27	n/a
28	None
29	
30	
31	No current community programs addressing this issue. This has not been identified as a target hazard for the jurisdiction.
32	Preplanned access and collection points.
33	PSA commercials over the local cable tv
34	N/A
35	It has been addressed in a county-wide training event. not aware of any community -wide awareness program.
36	none specific
37	Any Fire Department vehicle that sees people swimming in canals or ditches stop and advise of the danges of doing such. News paper articles of injury
38	Preparedness - 4 boats in service, dive team, swift water team, PFD's and helmets for personnel in every truck, annual training on water rescue of all
39	N/A
40	Nothing more than news media reminders during storms or heavy rain.
41	no action
42	none
43	
44	Rescue training

45 awareness program is about it..
46 We offer classes to the different marinas...we post personnel at local boat ramps with flyers and safety tips
47 Most open waterways within the city are man made lakes. There are very strict guidelines regarding the slope and depth of these lakes, when being constructed.
48 Drowning prevention programs through out all communities. Public Education Programs.
49 Minimal annual training
50
51
52
53 No
54 No current programs in place. Water safety is covered at our annual open house in October by the Sheriffs Dept.
55 We conduct training several times a year, both open water and ice rescue.
56
57 Public awareness
58 Pre-plan the incidents, and safe water practice prevention programs during other events. ie Fire Prevention Week
59
60 Annual flood warning PSAs
61 No current programs other that we mention the topic in first aid training.
62 FD loans out PFD's to citizens
63 Drowning prevention messages to the public. Alarms to be worn on children's wrists.Parent-preschool drowning program. Bus bench message posters. 3rd-grade Adopt-A-School Drowning Prevention Program. Information to radio stations on holiday weekends such as July 4th.Bumper stickers provide to the public. Designated Child Watcher Tags provided to public.
64
65 None
66 None
67 Team training on a regular basis, but no active community outreach
68 Training for personnel, equipment cache for response, pre-planning of water
69 Pre-event - ensuring that all fire units have life jackets on them for the providers. Provided an awareness class for the department approximatly 3 years ago.
70 public information notices, special ops teams preplanning,
71 No formal address. Local TV does spots during fall and spring seasons when flooding is heaviest
72 Public Education, Safety fairs, training by station and with dive team.