

WATER RESCUE FOR AMERICAS FIREFIGHTERS

1 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

INTRODUCTION

Every Community will eventually face an emergency that calls for a rescue in the water. It isn't just the large metropolitan areas located geographically near large bodies of water that need to be concerned about responding to water rescue events. Weather changes around the globe are making flooding a common event in normally dry areas. Water sports, boating and fishing are hugely popular throughout the country. Water is rarely viewed as a danger, but when its power is underestimated drivers can become trapped in vehicles on flooded streets. Weekend water play can lead to tragedy when a canoe is overturned or a child falls in the water. In Minneapolis a bridge collapsed into a river sending cars and travelers into the water. A 911 call for help will bring the local firefighter to these scenes. Will they possess the skills and equipment needed to rescue these victims or will they need to stand by and call upon another agency to perform the rescue?

If firefighters commit to rendering aide, they will need to do so without jeopardizing their own safety. They will require the proper training and equipment to be successful. Search and Rescue teams are often expensive, thus community support is required to secure the funding for these programs.

FIREFIGHTER SAFETY FIRST

Firefighters must always be prepared to self rescue if accidents occur during water rescue operations. These accidents can occur at docks or piers and waterfront properties, or even at a residential swimming pool while fighting a residential fire. A firefighter may fall through a collapsed floor into a water filled basement during a structure fire. Survival is dependent upon the actions taken by the firefighter during the first critical seconds in the water and his ability to self rescue.



The weight of a firefighter in the water, wearing full turnout gear with SCBA is increased by approximately 60 pounds, but the extra weight does not automatically condemn a firefighter to death by drowning. If the firefighter in the water knows

WATER RESCUE FOR AMERICAS FIREFIGHTERS

2 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

what to do, he can use the air that is trapped inside his gear to provide buoyancy. The floating firefighter can then work his way to safety or survive in the water until he can be rescued by other firefighters. In order for buoyancy to be maintained the firefighter must remain horizontal in the water. If he turns vertical the trapped air in his gear will be lost. While maintaining a horizontal position, the firefighter should only use underwater swimming movements to propel himself in the water. Over arm movements will cause the trapped air to be lost from the coat, and the weight of the waterlogged arms of the gear can lead to fatigue. Once immersed, many air packs will automatically free-flow breathing air. If the seal has not been compromised, the positive pressure in the air mask will allow the firefighter to continue to breathe with the mask in place.

If rescue from the water is delayed, the firefighter can use his helmet to trap air in it and position it over the lower half of the body to help elevate the hips in the water. He can also remove one, or both boots, and invert them to trap air. The trapped air inside the boots can provide sufficient buoyancy to keep the firefighter above water. All Fire Departments should provide the opportunity for firefighter personnel to practice these survival procedures. Initial practice of these skills should be performed in shallow water with a qualified instructor and a safety officer in attendance. After the self rescue skills are mastered in a shallow controlled environment these skills should then be practiced in deep water with a rescue team nearby. Additional instruction on these self rescue techniques is available by contacting Lifesaving Resources Inc.¹

THE NEED FOR WATER RESCUE PROVIDERS

In 2004, there were 3,308 unintentional fatal drownings in the United States, averaging nine people per day. This figure does not include the 676 fatalities, from drowning and other causes, due to boating-related incidents (CDC 2006; USCG 2006). Victims that are not rescued from the water in a timely manner but experience a nonfatal drowning can still suffer brain damage, long-term disability and permanent loss of basic functioning (i.e., permanent vegetative state). CDC studies found that young children believed that they have greater swimming ability

¹ Lifesaving Resources Inc. - www.lifesaving.com

WATER RESCUE FOR AMERICAS FIREFIGHTERS

3 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

than older children believed of their own skill levels. Men of all ages, races, and educational levels consistently believed they had greater swimming ability than women believed of their own skills in the water. Thus, in 2004, males accounted for 78% of all fatal unintentional drownings in the United States (CDC 2006). Also noted in 2004, of all children 1-4 years old who died, 26% died from drowning (CDC 2006). Although drowning rates have slowly declined, fatal drowning remains the second-leading cause of unintentional injury-related death for children ages 1 to 14 years (CDC 2005). Factors such as the physical environment (e.g., access to swimming pools) and a combination of social and cultural issues (e.g., valuing swimming skills and choosing water-related activities when making recreational choices) may contribute to the differences in the drowning rates.

In 2001 the US Coast Guard had 39,486 Search and Rescue cases. In that same year their Search and Rescue program had a 92.7% success rate. These Coast Guard statistics prove that a well trained and equipped water rescue team can be highly effective and beneficial to a community. Water rescue experts know that:

- As little as one foot of (moving) water can move most cars off the road.
- Just six inches of fast-moving flood water can sweep a person off his or her feet.
- Most flood-related deaths occur at night and are vehicular.
- Urban and small stream flash floods often occur in less than one hour.
- Tropical cyclones pose significant risk well inland due to fresh water flooding.

WHO PROVIDES WATER RESCUE SERVICES

Technical water related rescue services are provided by a wide variety of agencies around the country. There is no national system or policy that dictates who will provide water rescue services, thus the organizational membership of these specialty rescue providers vary widely from community to community. Search and Rescue workers generally serve under the management of providers such as a County Emergency Management Department, a City or County Police or Sherriff office, or a City or County Fire Department. Even NASA is a participant in the SAR (Search and Rescue) process. The leader in the Search and Rescue service and primary provider has historically been the US Coast Guard, but their area of service

WATER RESCUE FOR AMERICAS FIREFIGHTERS

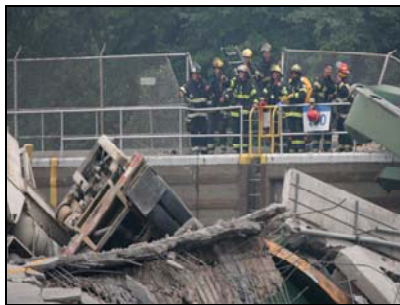
4 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

is generally limited to deep water and coastal areas. Regardless of who is the established water rescue provider, in most towns across America a local firefighter will likely be the first on the scene when the call for help is made.

FIREFIGHTERS ON THE SCENE

The collapse of the I-35W highway bridge in **Minneapolis, Minnesota** brought water rescues to the forefront of the mind of firefighters and emergency responders everywhere. Local Firefighters were initially called out and found themselves involved in a scene that required the immediate rescue of multiple victims who were trapped in vehicles. Some of these vehicles were in the water and the occupants of the vehicles were in immediate need of rescue. Firefighters responded to the calls for help and went to the aid of anyone they could reach.



Mr. Rocco Forte leads the Minneapolis Emergency Management Department. His background is in firefighting and prior to the collapse he was committed to preparing the city for just such an event. The emergency response involved land and water rescue efforts, firefighting, hazardous materials and possibly a crime scene that spanned the river. An effective communication system, pre-planning, proper equipment and training made for an effective response. The Twin Cities had months earlier been cited by the federal Department of Homeland Security as one of six urban areas with top scores for how well emergency agencies fund, set procedures and know how to use the technology that lets them talk to one another in a crisis. Forte noted that, "We could not do this if we did not plan, if we did not train, if we did not have the equipment and if we did not have the support of our

WATER RESCUE FOR AMERICAS FIREFIGHTERS

5 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

elected officials." ² As a result the firefighters on the scene were adequately trained and equipped to effectively respond to this water based emergency.

In **Scottsdale Arizona** the streets are flooding this summer in this desert city. The fire department is frequently called upon to rescue foolish drivers who attempt to drive through flooded areas and find themselves trapped in deep water. "Water can hurt you if you don't respect it," Scottsdale police Sgt. Jim Butera said. ³ On July 31, 2007, summer storms poured 2 1/2 inches of rain in some areas of the city. Fire crews made four water rescues in three areas of north Scottsdale in one day. One of the rescues in that storm involved a Metro van filled with nine people and also of one man pulled from a pickup truck in swift-moving waters that were about two feet deep on the Carefree Highway near East Terravita Way in north Scottsdale.

The **Pueblo Fire Department** responded to a 911 call on a Saturday afternoon to find a family of four drifting down the Arkansas River in an inner tube. The call came from a third-party source that saw the family drifting toward the treacherous low-head dam behind City Park. Low-head dams typically trap and recirculate people and objects and are termed by emergency river rescuers as "killing machines." Two firefighters in Hamilton Ohio nearly died while training for this same type of water rescue. The Pueblo Firefighters were able to rescue the family of 4 before coming within range of the dangerous current that precedes the dam. ⁴

A 58-year-old woman was pinned head-down in the Boise River when the raft she was floating in snagged on a fallen tree in the channel and flipped over. The unidentified woman was unconscious, not breathing and had no pulse when she was freed from the snag and pulled ashore. The swift actions of the **Boise Idaho** firefighters and the Fire Department dive team saved the woman by performing CPR. ⁵

² Steve Brandt, Star Tribune

³ Mike Sakal, Tribune

⁴ The Pueblo Chieftain, Colorado – August 5, 2007

⁵ kmoeller@idahostatesman.com

WATER RESCUE FOR AMERICAS FIREFIGHTERS

6 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

The United States Coast Guard is a military, multi-mission, maritime service within the Department of Homeland Security and one of the nation's five armed services. Its core roles are to protect the public, the environment, and U.S. economic and security interests in any maritime region in which those interests may be at risk, including international waters and America's coasts, ports, and inland waterways. The Coast Guard provides unique benefits to the nation because of its distinctive blend of military, humanitarian, and civilian law-enforcement capabilities. To serve the public, the Coast Guard has five fundamental roles including:



A Coast Guard Rescue at Sea

Maritime Safety - To eliminate deaths, injuries, and property damage associated with maritime transportation, fishing, and recreational boating. The Coast Guard's motto is Semper Paratus—(Always Ready), and the Coast Guard is always ready to respond to calls for help at sea.

THE TOOLS, EQUIPMENT, VEHICLES AND VESSELS OF WATER RESCUE

Water Rescue teams require specialized equipment to protect themselves and effectively rescue others. Thermal protection is essential to prevent hypothermia. Equipment must be constantly tested and maintained between uses. A well funded team will not only maintain the essential complement of personnel and equipment, but they may also have access to some of the technological advancements available to water rescue teams today. **In Mesa County Colorado**, the South Metro Fire Rescue dive crews use a side-scanning sonar device which allows a moving motorboat to scan the river in a much shorter period of time than it could take teams of divers to search. It provides a clearer picture of objects in the water. The technology saves searchers time and energy by allowing them to more clearly see what objects are below the water's surface and is much more effective than older sonar equipment.⁶

⁶ Mike Saccone and Le Roy Standish, The Daily Sentinel 08/09/07

WATER RESCUE FOR AMERICAS FIREFIGHTERS

7 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

The boats and vessels used by Water Rescue Teams vary dramatically from department to department. **In Aurora, Kentucky** a fireboat, which belongs to the East Marshall Fire Department, was purchased for the water rescue team but since purchasing the boat in 2003 it has also responded to two marina fires, numerous boat fires and served as well as a rescue vehicle for medical emergencies on the water.⁷

The Dallas Bay Volunteer Fire Department has acquired a water response unit for their fleet. Tennessee Homeland Security purchased the fire/rescue boat to increase their response capabilities for emergencies on the local river. The boat is also used for hazardous material incidents, boating accidents, fire suppression operations in marinas and homes along the water; and as a mutual aid response to support other agencies, such as, Hamilton County Sheriff's Office, Chattanooga Fire Department and water rescue agencies.



Dallas Bay Fire/Rescue Boat



Wave Runner

In South Florida, firefighters often use a motorized inflatable raft to perform a rescue. Wearing helmets and life jackets, they are able to get to people and pull them out of the water. Firefighters can also rapidly get to a victim riding numerous types of personal watercraft including wave runners and "Sea Doo's" to conduct rescues. Miami-Dade Fire Rescue believes they are well equipped, trained and prepared for whatever emergencies come its way.

⁷ Paducahsun.com 08/07/07

WATER RESCUE FOR AMERICAS FIREFIGHTERS

8 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

Here in **Brevard County Florida** extensive coastline, inland waterways, canals and lakes present unique challenges for emergency rescue operations. The responsibility to meet these challenges is not with the firefighters, but falls to The Brevard County Sheriff's Office Agricultural and Marine Unit. They use specialized equipment such as V-hull vessels and airboats, to respond to calls for help. They use these vessels to investigate boating accidents, conduct boating education and conduct safety inspections.



The **NASA** Search and Rescue Mission is to provide technical support to NOAA and other Federal agencies in their operation and use of the international Cospas-Sarsat satellite based search and rescue system. The Search and Rescue Mission maintains a facility called the System Evaluation and Development Laboratory (SEDL), which assists, in much of this technical support.

The National Search and Rescue Plan states that NASA will support Search and Rescue (SAR) objectives through research and development or application of technology to search, rescue, survival, and recovery systems and equipment, such as location tracking systems, transmitters, receivers, and antennas capable of locating aircraft, ships, spacecraft, or individuals in potential or actual distress. The NASA Goddard Space Flight Center's Search and Rescue Mission Office is responsible for research and development of the Distress Alerting Satellite System (DASS), Emergency Beacon Development and "Beaconless" Search or Remote Sensing. NASA, in cooperation with the Department of Defense (DOD) and Sandia National Laboratories (SNL), has undertaken the development of the Distress Alerting Satellite System (DASS) and has selected the GPS constellation as the best mid-earth orbiting (MEO) satellite constellation to host the search and rescue instruments.

WATER RESCUE FOR AMERICAS FIREFIGHTERS

9 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

Incidents of beacon failure, as a result of damage as well as false alarms present difficult and dangerous visual search challenges to SAR responders in locating persons in distress. The NASA Search and Rescue Mission Office maintain a System Evaluation and Development Laboratory (SEDL), which assists in this research and development effort. Examples of work which falls under Emergency Beacon Development are: Installation of Search and Rescue 406 MHz repeaters on U.S. Geostationary Operational Environmental Satellites (GOES) weather satellites, and incorporating these repeaters into the Cospas-Sarsat System; development of a new class of beacons called "self-locating beacons." These beacons contain Global Positioning System (GPS) or other navigation receivers and transmit coded location information in the emergency message. When the geosynchronous satellites receive transmissions from these new beacons in the Cospas-Sarsat System, they can be located within minutes to the accuracy of the navigation receiver (presently 100 meters in the case of GPS); and, development of a portable, prototype Personal Locator Beacon (PLB) under NASA's Small Business Innovative Research (SBIR) Program that has been successfully used in numerous exercises.

NASA also performs research and development in the area of "Beaconless" Search or Remote Sensing. Two examples of the "Beaconless" Search or Remote Sensing development work are: Search and Rescue Synthetic Aperture Radar or SAR² Program: This project investigates the use of high-resolution, full-polarization, low frequency Synthetic Aperture Radar (SAR) to locate crash wreckage, especially in difficult environments such as mountainous and forested regions. SAR² is capable of penetrating foliage cover at low operating frequencies and quickly imaging large areas in all weather conditions, day and night. Coupled to an advanced computer processing system, which would include Crash Site Detection algorithms, this system has the potential to become a significantly useful search tool; Laser Search and Rescue (L-SAR) Program: This project investigates the use of a wide-area laser scanner onboard a search aircraft to locate crash wreckage. Special material on the crashed plane reflects the laser light back to the search plane in a unique way that can be detected by another component of the scanning system.

WATER RESCUE FOR AMERICAS FIREFIGHTERS

10 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

WATER RESCUE TRAINING

NFPA 1670 establishes standards for organizations operating at water incidents involving, diving, ice, surf, and swift water for search and rescue activities. Although there is no standard requiring a specific agency to perform water rescue activities, the National Fire Protection Association recognized that firefighters were likely to be conducting the water rescues, thus; the agency established NFPA 1006, Standard for Rescue Technician, that defines the minimum job performance requirements necessary for fire service and other emergency response personnel who perform technical rescue operations. The standard specifically addresses the job performance requirements that shall be met prior to certification in surface water rescue. It establishes the basic knowledge and skill levels needed to perform water rescue. It emphasizes the need for anticipating rescue-specific personal protective equipment and specialized equipment needs, and predict victim behavior and movement. Skills must include the ability to select appropriate water rescue personal protective equipment based on water temperature extremes. They must be able to demonstrate an ability to self-rescue and for summoning help as needed. Organizations operating at the technician level at dive incidents must be proficient regarding:

- Skin and SCUBA diving equipment
- Applying an understanding of physics and physiology as it relates to the underwater environment
- Using dive tables
- Dealing with the various underwater environments with which the rescue diver could come into contact
- Avoiding and dealing with underwater plants and animals
- Conducting and supervising dive operations
- Using accepted search techniques
- Identification and management of dive-related maladies including psychological and physiological stress, air embolism, and decompression sickness
- Recognizing and managing the impact of near-drowning in cold water

WATER RESCUE FOR AMERICAS FIREFIGHTERS

11 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

- Utilizing electronic communications within full-face mask equipment during operations

Water rescue training needs to include both technical knowledge and field exercises. There have been numerous firefighter deaths and injuries resulting from water rescue training accidents, thus; the need for professional quality training can not be over emphasized.

Firefighters Chris Gabbard and John Hansbougher of the Hamilton, Ohio Fire Department were seriously injured during river rescue training on April 17, 2007. The preliminary review of the accident found numerous areas needing improvement. These findings have resulted in changes in the Hamilton Fire Department training policies. These changes will provide for a much higher level of safety for the training participants. For example: all future water training events will be monitored by a Safety Officer, better communications systems will be utilized and river rescue training policies now require that all participants near the water wear personal floatation devices⁸.

Channahon, Illinois firefighter Kenneth Frayne drowned during water rescue training in a lake. NIOSH investigators concluded that, to minimize the risk of similar occurrences, fire departments should:

- Develop, implement, and enforce standard operating procedures (SOPs) regarding diver training.
- Ensure that each diver maintains continuous visual, verbal, or physical contact with his or her dive partner.
- Ensure that a backup diver and a ninety-percent-ready diver are in position to render assistance.
- Ensure that the dive coordinator stays informed about the rates of air consumption by divers.
- Provide divers with refresher training on the hazards of lung overexpansion injuries and prevention measures.

South Florida firefighters say they are prepared for water emergencies, even one as catastrophic as the bridge collapse in Minnesota. Firefighters from Fort

⁸ Hamilton Fire Dept., Neilan Investigative Committee Report

WATER RESCUE FOR AMERICAS FIREFIGHTERS

12 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

Lauderdale, Hollywood, Miami-Dade Fire Rescue, Miami and other agencies conduct week long rescue training programs in the water. They test their skills in a canal near the Florida Power & Light Plant at Port Everglades, where they simulate rescues of people who were drowning, floating in the water, unconscious and trapped in submerged cars. The 60 firefighters involved in the training this year are all members of the urban search and rescue team and have experience dealing with catastrophes. This years training focused on urban flooding and swift water training, such as what would be used in rescue techniques should a bridge collapse.⁹

Firefighters from several **Tennessee Fire Departments** combine their efforts and train for water rescue in the Holston River. They practice maneuvers with a rescue boat, pulleys and ropes strung across a section of the river in the shade of the Interstate 26 Bridge. They have had numerous opportunities to put their training to use in the rescue of fishermen or cars in the water.



Training in Tennessee

The teams from Red Oak, Clarinda, and Cass, Adams, Ringgold counties and Lewis Township, **Iowa** also participate in group training drills. They practice difficult scenarios using various rescue techniques such as a straight-line search method where tenders keep track of divers and what they find by either communicating directly or through a series of hand signals. There are some divers who have built-in headsets that allow for verbal communication between divers and tenders. They also train using a sweep search, trying to locate a swimmer that is missing. A sweep search is done from the shoreline where the search area is smaller. In order to be

⁹ The Miami Herald August 4, 2007

WATER RESCUE FOR AMERICAS FIREFIGHTERS

13 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

prepared for any conditions, the team holds drills when the water temperatures are at varying degrees.¹⁰

DOLLARS AND SENSE

The roadblock for many fire departments that recognize the need for water rescue teams is funding. Fire Chiefs must be able to convince local leaders that the need for the expensive equipment and training that may or may not be needed in the budget year is a worthy expense. Fire Service personnel have found that extensive preparation and timing are keys in gaining the funding support needed. Often the best time to present the request for funding of a water rescue program is directly after a tragedy, when public support is at its highest levels and political leaders are receptive. Using donated resources and applying for grant money is a time consuming effort but it can prove to be a tremendous funding resource when other efforts fail. Dr. Beverly Browning spoke at the 2006 International Association of Dive Rescue Specialists (IADRS.org) conference and provided teams with resources for possible funding. For a listing of those sources see the Funding Resources section at the end of this document.

CONCLUSION

Water related tragedies will continue to happen and even the most well trained and equipped fire department may not be prepared to respond to an event like the collapse of the I-35 Highway bridge in Minneapolis, Minnesota, but each day additional Fire Departments are finding ways to establish new water rescue programs. Firefighters must be provided with essential training as well as learning self rescue skills. Training can be accomplished through the cooperative efforts of neighboring communities and agencies. Funding sources for these water rescue programs are available through gifts and grants.

No firefighter responding to a 911 call for help, wants to stand at the edge of a flooded street, with a member of the community in the water and attempt to perform a safe and successful rescue without the essential equipment and training needed. Committed firefighters will always make a "best effort" attempt to rescue a person in peril with the tools they have on hand. With the current availability of

¹⁰ vallen@crestonnews.com

WATER RESCUE FOR AMERICAS FIREFIGHTERS

14 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

resources and training, the community that employs those firefighters can make sure that the proper equipment and training required will be there when it is needed.

INFORMATION RESOURCES

www.uscg.mil/hq/g-o/g-opr/g-opr.htm

www.uscg.mil/lantarea/iip/

IMO/ICAO, International Aeronautical and Maritime Search and Rescue Manual: Vol. I – III, International Maritime Organization (IMO) and International Civil Aviation Organization (ICAO), London/Montreal, 1999

Bechel, Les and Ray, Slim, River Rescue, Second Edition, Appalachian Mountain Books, Boston, 1989

Jackson, F. and Bielmaier, M., Standard Operating Procedures and Guidelines Manual, Dive Rescue Intl., Inc., 2002

Jackson, F., Carney, J. and White, L., Public Safety Diver Survival, International Association of Dive Rescue Specialist, 2002

Ohio Department of Natural Resources, Division of Watercraft, River Rescue, Instructional Materials Laboratory, Ohio State University, 1980
United States Lifesaving Association, Guidelines for Training & Standards of Aquatic Rescue Response Teams, 1996.

U.S. Department of Commerce, NOAA Diving Manual, October 1991
Hendricks, Walt "Butch," and Zaferes, Andrea, Surface Ice Rescue, Fire Engineering Books & Videos, Tulsa, OK, 1999

FUNDING RESOURCES

Dr. Beverly A. Browning
Beverly Browning's grant writing website – www.grantconsulting.com

Grant Writing for Dummies – (A great book with super information) Wiley Publishers

Department of Homeland Security
Find out more about Homeland Security Grants By visiting the FOIA Group link

Find a Community Foundation in your area using the Council on Foundations agencies website. – www.cof.org

WATER RESCUE FOR AMERICAS FIREFIGHTERS

15 of 15

Written by Margo Linder
Term Paper - Firefighter Safety
Presented to Lawrence Bennett
August 2007

Hoovers web site can help you find companies with large revenues who may help fund your project – www.hoovers.com

The European Foundation Centre - www.efc.be/

The Foundation Center - <http://foundationcenter.org/findfunders/>

World Bank Foundations - <http://web.worldbank.org>

Healthcare providers may help your team with funding, especially with water safety programs.

Healthcare-Informatics - <http://www.healthcare-informatics.com/ME2/Default.asp>

Fundsnet Online Services - <http://www.fundsnet services.com/>

Note: This paper was reviewed by the KSC/CCAFS Fire Department Safety Officer. Assistant Chief Carol Everette may be reached by calling (321) 476-5502.