



## IN-BRIEF

### Aquatic Death and Homicidal Drowning Investigation | October 4–6, 2017



#### Overview

Team Lifeguard Systems, Inc. and the Longmont Department of Public Safety hosted an Aquatic Death and Homicidal Drowning Investigation educational opportunity on October 4–6, 2017 in Longmont, CO. This 3-day course was instructed by Ms. Andrea Zaferes, a certified diver, expert witness, published author, and notable public speaker, who has almost 20 years of experience with aquatic death investigations.<sup>1–3</sup>

The course objective was to educate death investigators, law enforcement personnel, dive team members, and other relevant stakeholders on the proper methodologies to use when investigating an aquatic death scene. The techniques and knowledge explored will help attendees better determine the cause and manner of death at aquatic scenes by implementing the proper methods for investigating such scenes.

The Forensic Technology Center of Excellence (FTCoE) identified a gap in the field of aquatic death investigation and supported two practitioners to attend this training. The information learned by the attendees intends to positively impact casework and, thus, the forensic and criminal justice communities.

**“I assisted in an investigation of an infant death, and the suspect stated he had given the victim a bath before her death. I used what I learned in the class to document the scene in the bathroom and bathtub.”**

*—Class Attendee*

#### Objectives

- ▶ Educate death investigators on scene findings when investigating an accidental aquatic death or homicidal drowning.
- ▶ Communicate proper methodologies for the investigation of open water, bathtub, bucket, and other aquatic drowning scenes.
- ▶ Instill the importance of proper documentation procedures.
- ▶ Demonstrate techniques to use on land and in the water during an investigation.
- ▶ Simulate an aquatic death scene, including documentation and recovery of a body, personal possessions, and other physical evidence.



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## Aquatic Death and Homicidal Drowning Investigation Class

### Background

#### Forensic Technology Center of Excellence

The FTCoE, led by RTI International, is supported through a cooperative agreement with the National Institute of Justice (NIJ), award number 2016-MU-BX-K110. The FTCoE supports the implementation of new forensic technologies and best practices by end users, bridging the gap between the scientific and criminal justice communities. One way the FTCoE moves knowledge from research to impact is by providing practitioner support to attend courses and workshops to better enhance the understanding and application of a forensic subject matter.

#### Addressing a Need

Drowning is one of the most common causes of death in the United States.<sup>4</sup> According to the Centers for Disease Control and Prevention, in 2005-2014, on average, 3,500 fatal unintentional drowning cases occurred each year in the United States.<sup>5</sup> However, historical data suggest that some of these reported aquatic deaths may have been incorrectly diagnosed as accidents or suicides when they were truly homicides.<sup>1</sup> To reduce the likelihood that criminal cases are overlooked, police officers, death investigators, and medical examiners must learn the proper techniques for investigating aquatic death scenes.

Often, identifying signs of foul play at an aquatic death scene is more difficult than at a land scene because of the perceived lack of evidence and indicators at the former. For example, rescue responses may focus on life-saving measures instead of questioning the reporting party and documenting the scene and decedent. Additionally, upon arrival at the scene, investigating parties may view the event as a “tragic accident” based on witness statements and behaviors, which is one reason that many cases are originally overlooked as having involved malintent.<sup>1</sup>

The aim of this class was to fill a knowledge gap in this area of death investigation and to provide practitioners with resources to use when an aquatic death is encountered. Ms. Zaferes reinforced the importance of approaching drowning and other death investigations with the same degree of questioning as any other suspected homicide.

### Summary of Class Material

This class consisted of 2 days of lectures followed by a third day of field skills. The field skills portion included exercises and scenarios that allowed attendees to apply the information learned during the lecture portion of the class. The information provided in this document comprises a brief overview of the content presented during this class and should not be regarded as a sole source of information regarding the investigation of aquatic death scenes.

#### Introduction

Aquatic death scenes occur in many different settings, but some of the most common include open water, bathtub, pool, hot tub, and bucket settings. Upon arriving at a scene, the investigator must not assume the cause and manner of death without first assessing the evidence and the eyewitness testimony. The investigating party should ensure that all scenarios are explored with the same rigor and consideration before drawing a conclusion.

The following three questions can help an investigator determine what transpired at an aquatic death scene:<sup>1</sup>

- 1) Does it make sense that the victim was in the water?
- 2) Do the location and physical state of the victim and reporting parties make sense?
- 3) Does it make sense that the victim did not survive the immersion or submersion into water?

These are not the only questions that should be asked during an investigation, but they are a good starting point. Preliminary questions like these can help an individual to consider all information and keep an open mind when assessing a scene. For example, assuming a death was an accidental drowning without considering the possibility of homicide could cause important evidence to be overlooked during the investigation.

The information covered throughout this course provided attendees with procedures and tactics to assess and answer these three questions along with a myriad of other concerns that are crucial in determining the cause and manner of death.

#### Cause and Manner of Death

When investigating aquatic deaths, it is important to keep in mind that determining the cause and manner of death



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may not be straightforward. This class discussed four categories of homicide relevant to aquatic death investigations:<sup>1</sup>

- 1) Homicidal drowning staged as an accidental drowning or a natural/suicidal death.
- 2) Homicidal drowning staged as a land-based, “dry” death (e.g., sudden infant death syndrome or motor vehicle accident).
- 3) Land-based, “dry” homicide (e.g., suffocation, strangulation, or poisoning) staged as a water accident, suicide, or natural in-water death.
- 4) Land-based homicide that ended with the victim’s body disposed of in the water.

Considering these categories can help an investigator properly discern questionable findings at a crime scene.

### Scene Documentation

Upon arriving at an aquatic scene, it is critical to document the scene in its entirety before anything is altered. Documentation, which should parallel the documentation of a traditional land investigation, aids in identifying ‘red flags’. Documentation should, at a minimum, include notes, sketching, and photography.

Questionable findings in a death investigation include anything that is suspicious and should serve as a warning sign that additional investigation is needed.<sup>1</sup> Investigators should document the position and location of the body, the level of the water (if applicable), the appearance of witnesses (e.g., wetness of clothes, demeanor, and bodily trauma), and anything that could support or refute witness statements before altering the scene. Documenting potential red flags can help an investigator determine the cause and manner of death.

### Open Water Situations and Dive Team Training

How the body is recovered from the water, especially in open water situations, is critical to ensuring that evidence is preserved. Some bodies in deep, open water situations require dive teams, whereas others can be recovered from the water’s surface.

After documenting the location and position of the body, other details to note include the speed of the water current, wind speed, water and air visibility, bottom topography (of the body of water), water/land temperature, and tide height and speed. These

measurements may, for example, help investigators to determine where the body entered the water. Alternatively, if the point at which the body entered the water is known but the body’s location is not, knowing the speed of the water current and wind conditions can help an investigator determine where the body may have traveled. Such information can also help to corroborate or dispute witness accounts.

As course exercises, attendees practiced relevant calculations to facilitate applying these techniques to future casework scenarios. These calculations are important when a witness recounts the events prior to the drowning, but the body is found in a location that does not support that scenario, necessitating a more-detailed investigation.

### *Open Water: Evidence Recovery*

Bodies in the water should be handled with the same procedures as bodies on land. For example, the body should be bagged prior to removal from the recovery location. Additionally, floating bodies should not be tethered and dragged to shore—this process can damage the body and even obscure and/or remove previously present evidence.

If a body is suspected to be at the bottom of a river, lake, stream, or ocean, for example, it may be necessary to call a dive team for retrieval. If a dive team is not properly trained, the possibility of failing to recover important evidence increases. Additionally, without proper training, it is almost impossible to know whether the dive team missed relevant evidence or if no evidence was present in that area to recover. This course also taught attendees some of the techniques that dive teams use when searching for evidence.

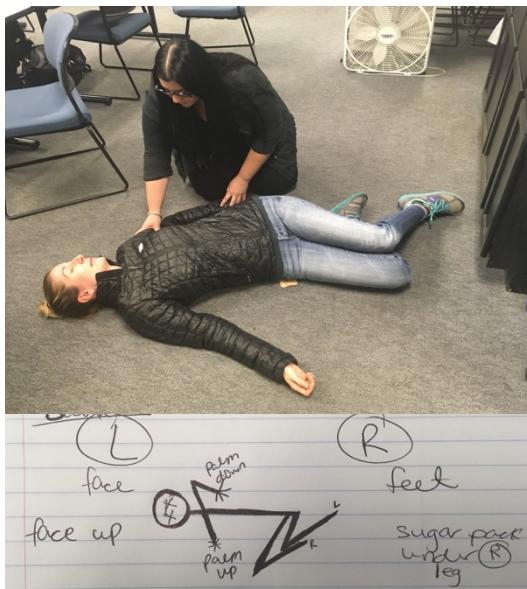
Large bodies of water can pose challenges to body recovery, as the environment can be dark and murky, reducing visibility to zero. Therefore, divers are trained to identify and recover evidence without visual assistance. Students completed a field exercise simulating body recovery without using their vision to better understand some of the difficulties that divers face.

In this exercise, one individual laid on the ground in a position of their choice to simulate a body at the bottom of a lake. A second individual, the diver, was required to close their eyes (to imitate the zero-visibility conditions experienced by divers) and discern the position of the first individual by feeling the position of the body. The diver



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then reported their observations to a third individual who sketched the position of the body. The diver and sketcher had to communicate effectively to ensure an accurate representation of the body and the evidence. **Figure 1** depicts the outcome of this exercise and demonstrates the significance of proper dive team training and communication skills. Properly recording the position of the body and relevant evidence can aid investigators in determining the course of events prior to submersion.



**Fig. 1.** Top: Attendee posed as body under water while the other acts as a diver; Bottom: Sketch produced from the diver's description of the body and surrounding evidence. Photo credit: RTI staff.

### Importance of Autopsy

Autopsy is a critical step once the death scene has been documented and the body removed. Because victims of homicidal drowning often do not display external trauma, it is critical to ask the medical examiner to complete a full autopsy with posterior neck and back dissections if foul play is suspected.

Attendees were instructed to imagine the following scenario: a parent reports leaving their 2-year-old child alone in a bathtub for only a few minutes, and says that the child drowned while unattended. There do not appear to be any signs of a struggle or foul play, and the parent appears to be genuinely upset over the loss of the child. If, for example, the child had been held down over the toilet and the scene was staged as a bathtub drowning, an autopsy may reveal bruising under the skin (e.g., on the

neck) that was not visible at the scene. In such cases, the autopsy can play a critical role in determining the manner of death.

### Case Studies

Many case examples were used to help attendees grasp important concepts to simulate realistic scenarios. Students not only learned the information that is necessary to properly investigate an aquatic death scene but also how to apply it in a practical situation.

### Field Skills

On day 3, attendees applied their classroom knowledge. The field skills consisted of two different activities: land exercises and mock aquatic scenes. These exercises helped to demonstrate proper aquatic death investigation techniques.

### Land Exercises

Students completed two land exercises that highlighted the need for dive team training and proper documentation. The first exercise stressed the importance of taking accurate measurements when searching an underwater scene. For example, accurate measurements are necessary if a dive team must search a large area on the bottom of a body of water over multiple days. Without accurate measurements, time may be lost while searching the same aquatic area, or relevant evidence may be missed because an area is not searched.



**Fig. 2.** Attendee completing a land exercise demonstrating the difficulties of searching for a small piece of evidence (a penny) with her eyes closed to simulate zero-visibility conditions. Photo credit: RTI staff.

The second activity demonstrated the difficulties that divers face in zero-visibility conditions underwater. Attendees realized the difficulties of searching for a small object, such as a penny, without the ability to see (**Figure 2**). Both land activities reinforced the importance of dive team training for effective evidence recovery.



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### Mock Aquatic Scenes

Two different scenarios, both based on real cases, were demonstrated during this part of the course. These mock cases allowed attendees to gain experience both in and out of the water to ensure that they were equipped to handle multiple casework situations.

The attendees were divided into two groups for the exercises. The first group assisted with evidence recovery in the water (**Figure 3**), while the second group assisted on land (**Figure 4**). The individuals in the water learned how to properly search for, mark the location of, and recover a body from the water and how to measure the speed of the water current. Those on land searched the shore for evidence, completed water current calculations, interviewed witnesses, sketched the scene, and practiced tending (guiding) the individuals conducting the lake search. These exercises fostered the skills of identifying evidence and applying the knowledge learned in the lectures in a field setting.



**Fig. 3. Top:** Attendees in a line search formation measuring the location of a mannequin submerged at the bottom of the lake; **Bottom:** Attendees measuring the speed of the water current using a milk jug and a tennis ball. Photo credit: class attendee.



**Fig. 4.** Andrea Zaferes explaining how to search the shore for evidence during the field skills portion of day 3. Photo credit: class attendee.

### Impact

Overall feedback on course evaluations was very positive, and many attendees mentioned that this training would definitely improve the techniques they use when investigating aquatic death scenes. In fact, 3 months after the conclusion of this class, one of the FTCoE-supported attendees revealed that they used the information learned in the course during a subsequent infant death investigation. The attendee noted, “I assisted in an investigation of an infant death, and the suspect stated he had given the victim a bath before her death. I used what I learned in the class to document the scene in the bathroom and bathtub.” This is only one example of information from courses like these being used in casework situations.

**“In 11 years of attending countless trainings, I felt like I learned the most from this class.”**

*—Class Attendee*

**“AN AMAZING COURSE!! By far the best investigative course I have ever attended.”**

*—Class Attendee*



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[www.ForensicCOE.org](http://www.ForensicCOE.org) | [ForensicCOE@rti.org](mailto:ForensicCOE@rti.org) | 866.252.8415

RTI International

3040 E. Cornwallis Road PO Box 12194, Research Triangle Park, NC 27709 USA



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Launched May 2017 with  
over 100,000 reached

## Take-home Message

This course ultimately provided attendees with the proper techniques and methodologies to approach an aquatic death investigation. Additionally, attendees were reminded that photography and proper scene documentation are critical, as they can prove instrumental in the investigation, even years later. Finally, Ms. Zaferes stressed the importance of approaching all aquatic death scenes as if they were crime scenes on land; assuming that the death was an accident can prove detrimental to the investigation.

**"I found the training to be very valuable and it will be very useful in my position. I am very appreciative of the opportunity to attend this training and plan to utilize the information I learned."**

*—Class Attendee*

## Resources

- [1] Hendrick, W., & Zaferes, A. (2014). *Aquatic and homicidal drowning investigations class manual*.
- [2] Zaferes, A. (1997). Communicating in zero visibility. *Immersed*, Fall, 36–37.
- [3] Team Lifeguard Systems, Inc.: Public Safety Dive Training. (n.d.). *Bio – Andrea Zaferes*. Retrieved from <http://teamlgs.com/about/bio-andrea-zaferes/>
- [4] Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. (2018). *Welcome to WISQARS™*. Retrieved from <http://www.cdc.gov/injury/wisqars>
- [5] Centers for Disease Control and Prevention. (2016). *Unintentional drowning: Get the facts*. Retrieved from <https://www.cdc.gov/homeandrecreationsafety/water-safety/waterinjuries-factsheet.html>
- [6] Turvey, B. E., Savino, J. O., & Mares, A. C. (Eds.). (2017). *False allegations: Investigative and forensic issues in fraudulent reports of crime*. London: Elsevier.

## Image Credits

Page 1 - Image of attendees during field skills exercise. Photo credit: Class attendee.

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## More Information

### FTCoE Contact:

Jeri Ropero-Miller, PhD, F-ABFT  
Director, FTCoE  
RTI International  
[jerimiller@rti.org](mailto:jerimiller@rti.org)

### NIJ Contact:

Gerald LaPorte, MSFS  
Director, Office of Investigative and Forensic Sciences  
[gerald.laporte@usdoj.gov](mailto:gerald.laporte@usdoj.gov)

### Technical Contacts:

Ashley Cochran, MS  
RTI International  
[acochran@rti.org](mailto:acochran@rti.org)

Andrea Zaferes, BA  
Team Lifeguard Systems  
[az@teamlgs.com](mailto:az@teamlgs.com)

## Disclaimer

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