

Minimizing the risk of electric shock around pools and lakes

May 26 2017, by Katherine Shonesy

A danger that you can't see or hear—electric shock in water—can easily go undetected. Electricity is deadly and often discovered only after it is too late.

When alternating current of electricity is running through freshwater bodies, such as [pools](#) and lakes, there is risk that a person could succumb to [electric shock](#) drowning.

Donald Burke, Ph.D., director of UAB's Advanced Safety and Engineering Management concentration in the Master of Engineering Program, explains.

"Electric [shock](#) drowning can occur in any fresh [body](#) of [water](#), and anywhere you may have an electrical device that has faulty or damaged wiring, and equipment can cause the body of water to become energized," Burke said. "Then, when the human body comes into contact with that energized body of water, it overwhelms our body's natural electrical signals that control our muscles."

According to Burke, depending on the current level, a person could experience anything from tingling all the way to paralysis and cardiac arrest—potentially causing electric shock drowning and, if the level is high enough, electrocution.

Following some simple steps when adding electricity to a structure that is near a body of fresh water, and remaining vigilant in testing it, is a key

to preventing the possibility of electric shock drowning.

"Most importantly, you want to be sure you hire a certified electrician who is certified to American Boat and Yacht Council standards and who will know how to install all the wiring to code," Burke said. "You should also work with your certified electrician to add devices that will lessen the likelihood of electric shock."

Pools can be a dangerous location for electrical currents, if the right safety protocols are not followed.

"With pools, you again need to make sure that a certified electrician is performing the inspections and maintenance on your electrical components—pool lighting, pool pumps—any of those devices could lead to electric shock if not properly installed and repaired," Burke said. "Remember that a pool technician may not necessarily be a certified electrician."

And, if you visit a community pool, ensure that these same steps are being taken.

"You can check yourself to see if there's any wear and tear along the bonding of the pool," Burke said. "But the best thing, again, is to make sure a certified electrician is coming out and doing regular checks, whether the pool is in your backyard, or you're a member of a community pool."

Lake-goers need to be aware of safety requirements. Beginning this year, there are new standards for electrical safety components required in all new boats and new dock construction. They must include:

- Ground-fault Circuit Interrupter: A GFCI can be added directly to your outlets and serves as a fail-safe that shuts off the

electricity if a difference in current is detected in the water.

- Equipment Leakage Circuit Interrupter: When a current is coming from the boat itself, the ELCI will immediately cut electricity.

"You want a certified electrician to inspect all of your electrical devices and wirings annually, at the minimum," Burke said. "Right now, at the beginning of the summer lake and pool season, is a great time to have your electrical systems inspected."

Burke encourages pool and lake-goers to check their safety devices, such as GFCIs, on an even more frequent basis themselves.

"You want to visually inspect all of your own equipment as often as you can," Burke said. "If you see any fraying or damage, you need to assume that there is now an electrical current in the water."

Burke provides a few more tips for boat owners and users:

- Educate yourself, and your fellow boaters, about safe electrical practices.
- Never swim in a marina, where the potential for electric shock is even greater.
- Do not swim within 100 yards of another dock, because you do not know where [electricity](#) may exist.

Provided by University of Alabama at Birmingham

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