Talking Points

Electric Shock Drowning

About Electric Shock Drowning (ESD):

- ESD is the result of electricity leaking into fresh water and passing through the body, causing death.
- Lower levels of electrical current can cause skeletal muscular paralysis, making the victim unable to swim. This results in drowning.
- Higher levels of electricity will result in electrocution.
- Although ESD can occur in any location where electricity is provided near fresh water, the majority of ESD deaths have occurred in public and private marinas and docks.
- Typically, the electricity entering the water and causing ESD originates from faulty wiring of the dock, marina, or boats connected to a shore power supply.
- If an electric fault occurs on a boat while connected to shore power and the boat or marina is not properly wired to meet current American Boat and Yacht Council (ABYC) and National Fire Protection Association (NFPA) standards, the water surrounding the boat will become energized.
- When looking at an area of water surrounding a boat, marina, or dock—there is no visible warning or way to tell if that water is energized or will become energized with electricity.
- Water that is safe to swim in one minute could be deadly the next.
- It is difficult to track ESD. In many cases, a death is recorded as drowning, and there aren't signs of electrocution on a victim's body.

For first responders:

- By sight alone there is no visible warning or way to tell if water surrounding a boat, marina, or dock is energized. So if someone is in trouble, *do not* jump into the water if there is a power supply near the water. You could become a victim yourself.
- If there is any chance electricity is involved, turn off the shore power connection at the meter base, and/or unplug shore power cords. Make sure the electricity is off *before* jumping in the water to help the victim.

- There is no immediate, visible way of determining if ESD was the cause of a victim's death. Unlike electrocution on dry land, if a victim is electrocuted in the water, there will not be any burn marks on the body.

For water recreation enthusiasts:

- Do not swim around docks with electrical equipment or boats plugged into shore power.
- If you are in the water and feel electric current, shout to let others know, try to stay upright, and swim away from anything that could be energized.
- If you are on the dock or shore when a swimmer feels electrical current, do not jump in. Throw them a float, turn off the shore power connection at the meter base, and/or unplug shore power cords. Try to eliminate the source of electricity as quickly as possible. Then call for help.

For boat/marina owners:

- Regardless of the size of boat, maintenance of the electrical system should be done by a professional familiar with marine electrical codes.
- Boats with alternating current (AC) electrical systems should have isolation transformers or equipment leakage circuit interrupter (ELCI) protection, comply with ABYC standards, and should be serviced by an ABYC Certified Tech.
- Fuses are rated to protect the wire, not the appliance. If a fuse blows continuously, it should NOT be replaced with a larger one just to keep it from blowing again—something else is wrong. It needs checked out.
- Have your boat's electrical system checked at least once a year. Boats should also be checked when something is added to or removed from their systems.

For dock owners:

- All electrical installations should be done by a professional electrical contractor familiar with marine codes and standards and should be inspected at least once a year.
- Have a ground fault circuit interrupter (GFCI) breaker installed on the circuit(s) feeding electricity to the dock. A GFCI will trip the circuit and cut off power quickly if there is a problem.
- The metal frame of docks should be bonded to connect all metal to the AC safety ground at the power source.
- Neighboring docks can also present a shock hazard. Make your neighbor aware of the need for safety inspections and maintenance. Marinas and docks should comply with the National Electrical Code (NEC) and NFPA standards.