

Carbon Monoxide (CO) is an odorless, colorless, and potentially deadly gas produced anytime a carbon-based fuel, such as gasoline, propane, charcoal, or oil burns. Sources on your boat include gasoline engines, generators, cooking ranges, and space and water heaters. As of March, 2005, carbon monoxide has killed at least thirteen people at Lake Powell and threatened the lives of dozens of others. Nationwide, more than 570 people are known to have been poisoned while boating, and 113 of them lost their lives as a result. These poisonings occurred both inside and outside the boat cabin, and surprisingly, both locations have proven to be equally dangerous. 160 of the above poisonings occurred outside the cabin, 71% of which produced fatalities (48) or lost-consciousness (65).

Carbon monoxide can accumulate in certain areas of a boat in concentrations that can kill in a matter of seconds. Learn about the dangers of this silent killer so you can protect you and your loved ones from harm.

What Is CO Poisoning?

CO is colorless, odorless, and tasteless. It replaces oxygen in the blood. Carbon monoxide bonds with blood cells at a rate 250 times that of oxygen, thereby depriving the body of oxygen.

The symptoms of CO poisoning are often overlooked because they mimic other boat-related health problems. Immediate medical attention is required in suspected cases of CO poisoning. One or more of the following symptoms may signify dangerous CO accumulations: headache, inability to concentrate or think coherently, drowsiness, nausea, dizziness, vomiting, collapse & convulsions.

THE FOLLOWING ARE SOME OF THE WAYS CARBON MONOXIDE CAN INVADE A BOAT

The Death Zone

The highlighted area shows where exhaust gases can quickly accumulate to lethal levels, especially on some houseboats which vent these gases directly from the rear into an area under the boat where swimmers may surface. This area can contain especially deadly concentrations of carbon monoxide. However, swimming or playing in or around this area can also be deadly.



Station Wagon Effect

The "Station Wagon" Effect

This occurs when air moves around a boat and forms a backdraft behind the transom. Engine exhaust can be fed into the entire boat by this backdraft. Though this flow can affect people any time of the year, it is especially common in colder weather when people put enclosures on their boats. Often, they leave the back of these enclosures completely or partially unzipped. This funnels the deadly monoxide directly into the cabin. Stay off the rear deck of any boat when engines and/or generators are running. At least two fatalities have occurred on Lake Powell from this phenomenon.

FACT SHEET

CARBON MONOXIDE

Side-to-Side Tie-Offs

Carbon monoxide from an adjacent boat can invade your boat through hatches, doors, and even drains. Opening your boat to a flow of air does NOT ensure safety. That incoming air may be bringing in deadly carbon monoxide from the vessel next to you.



Side to Side Tie Offs

Teak Surfing or Platform Dragging

This dangerous practice involves hanging on to the stern or transom of a boat as it moves through the water. When the boat moves along at about 10 to 12 miles per hour, the center displacement wake allows the hangers-on to engage in a form of body surfing. Not only can this put people dangerously close to the engine's prop, but their heads are almost directly over where the engine exhausts exits the boat, allowing them to breathe large amounts of carbon monoxide in a very short period of time. Additionally, teak surfers usually don't wear life jackets, so when they begin to lose consciousness, they immediately sink below the water. Don't engage or allow others in your party to engage in this deadly activity.

Reduce Your Risk

- Think carbon monoxide! CO is produced any time engines or generators are running. In certain areas, lethal amounts of CO can remain even after generators are turned off.
- Have a working CO detector on board and pay attention to it.
- Know where your exhaust vents are located. Don't allow anyone to sit or play in these areas.
- Don't leave generators running at night when people are sleeping.

Carbon Monoxide General Hazard Information:

- U.S. Coast Guard Boating Safety. <http://www.uscgboating.org/command/co.htm>
- Boat US Information on [CO and CO detectors](http://www.boatus.org/onlinecourse/course_rewrite/carbonmonoxide.html#picture). http://www.boatus.org/onlinecourse/course_rewrite/carbonmonoxide.html#picture
- Carbon monoxide [sources on boats](http://www.carbonmonoxidekills.com/boats.htm) from "Carbon Monoxide Kills". <http://www.carbonmonoxidekills.com/boats.htm>
- [NIOSH Alert No. 96-118](http://www.cdc.gov/niosh/carbon2.html), Preventing Carbon Monoxide Poisoning from Small Gasoline-Powered Engines and Tools. Information on the health effects from CO inhalation, examples of poisoning, and recommended guidelines to control hazard. <http://www.cdc.gov/niosh/carbon2.html>
- Consumer Product Safety Commission [Questions and Answers](http://www.cpsc.gov/cpscpub/pubs/466.html) about carbon monoxide. <http://www.cpsc.gov/cpscpub/pubs/466.html>
- [CO Safety Alert](http://www.homesafe.com/coalert/). General information about CO hazards around the home. <http://www.homesafe.com/coalert/>
- Glen Canyon National Park Service <http://www.nps.gov/glca/monoxide.htm>
- Department of Interior/NIOSH <http://safetynet.smis.doi.gov/COhouseboats.htm>