



[Vessel afire!](#)

Jan 20 2012 in [Seamanship](#), [Slider](#) by Vincent Pica



This boat and two others moored on Lake Union were destroyed by a fire in December 2009 that caused \$2 million in damages. An electrical failure was blamed for the fire. Marty McOmber photo

A recent **fire** at the Port of Edmonds Marina destroyed two boats, serving as a stark reminder that a fire onboard is one of the most frightening circumstances a boater can encounter.

A fire is loaded with high-octane fuel, creating toxic smoke. Using water to fight the fire can sink the boat; leaving the boat may entail going into another hostile environment — cold and unforgiving water.

It doesn't sound like there are many, if any, good alternatives. Also, fire prevention professionals quote that on average a fire will double in area every five minutes. At that rate, it wouldn't take long to engulf an entire boat. So, time is of the essence and it is highly unlikely that anyone can get to you in time to assist in the fire suppression. You and your crew, most likely, are it.

Causes of Fires

According to many studies such as those conducted by entities such as BoatUS, surprisingly, the engine is not the most likely source of fires on boats — electricity is. More than half of boat fires

(55 percent) start with wiring or appliance failures. Next come fires started by an overheated engine, but they are less than half as likely (24 percent).

Less than 10 percent of boat fires (8 percent start with a fuel leak. Of course, those can reach catastrophic proportions if the fire backs up into the tank itself. The rest is a mixed bag of “miscellaneous” — dropped match, stove spills, flare “slag” landing on the boat, etc.

An electrical fire such as the one that starts from a frayed/chafed wire is very different than one which is fed by a malfunctioning inverter or generator. The first is going to act like someone was smoking in bed — material is aflame but not being fed by the electricity itself. But it counts as the cause of the fire.

Types of Fire Extinguishers and Who Needs What

First, fire extinguishers themselves are classified into “A”, “B” and “C” types. (There is a type “D” for chemical/combustible metals fires such as would be created by the magnesium in a flare but I have never seen it successfully used before the flare involved surrounding materials – get the flare off the boat [let the fish below deal with it] and then deal with the fire.)

The easiest way to remember what the various types of extinguishers are used for is thus:

“A” – the fire creates ash – paper, bedding, clothes, wood, etc.

“B” – the subject afire can boil – “POLs” or petroleum, oils and lubricants, etc.

“C” – a charge runs through it – electronic equipment

They also come in sizes (pounds of suppressant). For the private boater, size 1 (I) or 2 (II) are the most common and manageable. The question is really, “How many do I need for my size boat?” And the answers are:

All power boats, except outboards, less than 26 feet and of open construction must carry one B-I, U. S. Coast Guard approved fire extinguisher.

All power boats 26 feet to less than 40 feet must carry two B-I or one B-II U. S. Coast Guard approved fire extinguishers.

40 feet to less than 65 feet must carry three B-I or one B-II and 1 B-I U. S. Coast Guard approved fire extinguishers.

Larger vessels must adhere to federal regulations about automatic fire-suppression systems in enclosed spaces. Well, the next logical questions might be, “What are the suppressants and what is best for my boat?”

As would seem obvious to even the casual reader, carbon dioxide (CO₂) is one suppressant. It

smothers the fire by withholding oxygen from the fuel-oxygen-heat equation. CO₂ has one not-so-obvious drawback. If you use it on a type-A fire, the high pressure of the CO₂ coming out of the canister may very well spread the fire. So hold CO₂ aside.

Another suppressant type is “dry chemical.” It can handle “A”, “B” and type “C” fires but it also has a problem. The chemical suppressant tends to be corrosive in a marine environment. Yikes ... So hold that dry chemical aside too.

What tends to be best, at least for “A” and “B” fires, is foam. It smothers the fire like a blanket. The foam is water-based, so the use of it on an electrical fire (“C”) can be problematic as it may give a medium for the electricity to reach the salver – you! Of course, in a private boat a foam extinguisher will work just fine for your chart plotter that shorted out. I just wouldn’t use it in an environment where a generator is putting out high-voltage power to a large vessel with a myriad of electronic needs such as A/C, TV, radar, microwave oven, refrigerator, etc. That much juice is clearly something you don’t want to be in the middle of!

Where Do I Keep The Extinguishers?

Where you can get to them — plus the sleeping berths. If you awake to a fire, you may have to fight your way out of it. Every other extinguisher should be kept in a convenient place — near the galley but not in it, near the engine but not within the engine space, etc. Use common sense.

Boat’s Afire – Now What!???

Act quickly. If you have help aboard, use it. Have someone turn the boat so the fire is downwind and proceed ahead as slowly as possible to maintain steerage. This will buy you time as the fire can’t fight its way upwind easily. And have the helmsman call the USCG on VHF-16.

Get the “rescue starts now” clock going. While reaching for the fire extinguishers, yell, “Everybody into life jackets!” If you do have to abandon ship, you are prepared.

Aim the fire extinguisher at the base of the flame, not the flames themselves. You are seeking to smother the source of the fire, not the flames, per se. Move the fire extinguisher back and forth across the source of the flame to spread the coverage. If the fire has a source such a flowing charge or liquid, and you can get to a shut-off valve, shut it off and starve the fire.

And be sure to call the US Coast Guard ASAP. Get the rescue-starts-now clock going as soon as possible. They won’t get there in time to stop the fire – but they will task someone or something to get there in time to fish you out of the water if you have to abandon ship.

And make sure the watchstander knows how many people you have aboard. When the rescuers come, you don’t want them leaving anybody behind ... and you might not be in good enough

shape, mentally or physically, to say, “Hey, where’s Charlie?”

BTW, if you are interested in being part of USCG Forces, email me at JoinUSCGAux@aol.com or go direct to the D1SR Human Resources department, who are in charge of new members matters, at [DSO-HR](#) and we will help you “get in this thing...”