Marina Fire Safety – The Best Practices to Implement Now

By Troy Wiltbank

Downtown marina, Toronto, Ont., Canada

Growing up in the Puget Sound of the Pacific Northwest, I found myself on the water often, as it is a way of life in the area. From a young age, I was taught about the risks of boating and over the years witnessed, or have seen, the aftermath of many accidents. Some of these included fires—large, small, offshore and on shore. Life on the water is meant to be enjoyed and pleasurable, but we must not overlook the inherent fire risks associated with marine vessels and moorage. As my career path took me into the fire and life safety business, I became even more aware of some of the dangers aboard vessels and the risks they brought to marinas.

There are many fire risks to manage with a vessel while moored—not only on the vessel, but also on the dock. While our national codes give us direction and guidance within the International Fire Code (IFC CH36) and National Fire Protection Association (NFPA 303) Standards, we must do our part to uphold these standards and, in some cases, go beyond the code where necessary.

International Fire Code requires that any mooring of five vessels or more requires fire protection as well

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as any marine facility that dispenses fuel. Fire protection includes items such as standpipes, fire extinguishers, access, signage and electrical circuit breakers/switches. Refueling stations have the obvious combustible liquid risk, so it is vital to follow Chapter 5 of NFPA 10 closely and use the correct type of extinguisher and enclosures. Emergency fuel shut-off switches should be properly installed and inspected regularly, as well. While these codes provide the proper guidance in providing a safe environment for mooring of vessels and their occupants, there are many factors that can increase the fire load that lead us to consider further precautions.

Increases to the fire load

Let's look at some of these risk factors in reference to the increased fire load. For example, on-deck plastic furniture, foam cushions, exterior carpeting/rugs and propane grills add more combustibles to these vessels. The onboard galleys, onboard fuel, electrical systems, energy storage (battery), generators and fuel for onboard tenders are just a quick list of additional risk factors. Let us not forget the many toys that are brought aboard these vessels, such as kayaks, paddle boards, plastic flotation devices and coolers. These items are big impacts to the fire load if an event were to occur at a marina.

Marina slips—which can be spaced as closely as 60 inches between vessels—provide a very small buffer for separation in the case of an onboard fire. This can cause an intense fire to jump quickly from one vessel to another and gain more and more energy, continuing to escalate very quickly. As moorage becomes more expensive, smaller slip sizes become more vacant or seasonal, and many owners utilize more cost-effective dry boat storage. With the need for marinas to utilize these vacating smaller sized slips, they must consider options to accommodate larger vessels in those locations or price more competitively. An owner may get more value out of having space available for a 32-foot closed cabin vessel over a 23-foot open bow runabout, but how does this impact risk analysis?

More than likely, the fire load has been increased or should be evaluated. Knowing the occupants' vessels at your marina is valuable in considering the fire load with regular dock inspections, paying close attention to accessories that may be stored on the exterior. These items may seem minimal, but if not stored properly or stored in excessive amounts, could be considered unsafe for the marina and the other vessels nearby.

On January 27, 2020 in Scottsboro, Alabama, eight individuals lost their lives due to a fire that was determined to be an electrical ignition. There were several overnight occupants who had attempted to flee to safety during the night as they awoke to fire. Due to the extra fire load of plastic furniture and propane tanks, the owner of the houseboat was not able to combat the fire himself. After the owner of the boat used two fire extinguishers, there was an

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effort to cut the vessel free, but the fire was far too hot and had begun engulfing nearby vessels. The common fiberglass construction of most boats can allow for neighboring craft to catch fire quickly, in this case, resulting in over $500,000 in damages, 35 boats lost and the loss of eight lives, one from drowning and the other seven from fire.

This was an existing marina that predated many code requirements. Can we continue to allow these exceptions? We must apply what is discovered from these incidents to new construction, as well as to the inspections of existing marinas. This event also showed that the fire extinguishers utilized were not effective, as the fire grew far too large, too quickly. Could they have utilized more appropriate and larger capacity extinguishers? What safety instructions were in place for the occupants and could this event have been minimized? This tragic event really was a worse-case scenario with time of year, day and location of the fire isolating the major portion of the B dock.

Fire risks and requirements

From the Scottsboro fire and similar events, we must consider fire risks with both new and existing marinas.

• Assessing the fire load and fire protection capacity available at existing marinas is important for providing a safe environment for boat owners. This includes safety plans and training practices that meet or exceed local jurisdiction requirements, as well as diligent inspections.
• On-site staff are responsible for monitoring the condition of fire protection equipment and its accessibility, and ensuring that occupants of the marina are following the safety guidelines. Many marinas allow a percentage of live-onboard occupants (10 percent, for example). A large portion of these occupants perform self-repair, which presents several potential hazards as well. Implementing and upholding these safety procedures and training for occupants is a critical function in providing life safety.

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• Fire codes require Class I standpipes to be provided where the hose lay distance from the fire apparatus exceeds 150 feet, as well as hose connections at each point exceeding 150 feet from the standpipe hose connection. All standpipe outlets should be clearly identified with a flag or approved means that is easily visible. Standpipes in cold climates should be designed and installed to perform winterization or the standpipes should be dry.
• Flexible connections from shore to floating platform should be utilized for tidal water marina locations. Portable fire extinguishers should be located at each of these hose connections and be suitable for the hazards involved.
• Space for this equipment must be provided when constructing float systems that are a minimum area of 4 feet wide by 10 feet long and utilize approved signage, such as "Fire Equipment Staging Area – Keep Clear." These locations with emergency equipment need to be kept clear, accessible with the approved signage and inspected regularly.
• Rubbish containers for waste need to meet IFC requirements for safe containment of dangerous garbage such as oil rags. If this type of rubbish were to be left on a vessel or stored in an improperly rated container, it could pose a major fire risk.
• For marinas with fuel dispensing services on-site, Chapter 23 of the IFC should be followed. In addition, an attendant should be on site or with a clear view of onsite staff to monitor use. Main disconnects for power, circuit breakers, emergency fuel shut off and fuel leak detection should all be in place and not overlooked.

Like many other industries, the boating industry is advancing rapidly toward alternate forms of propulsion (i.e. electric motors). More vessels are upfitting their onboard energy storage, and less wood is being utilized in manufacturing the vessels and the accessories inside. Instead, materials are being used that, with enough energy, can produce a high energy fire that is difficult to fight. Everyone—whether you are an inspector, owner, designer or engineer—must put the safety of the occupants of these vessels at the forefront.

Insist on safety and providing better solutions in your jurisdiction to meet codes. Safety plans and guidelines for the use and operation of these vessels at your facility should be communicated with a requirement to acknowledge. Design or engineer moorage with all the necessary provision of fire protection with path of egress in mind. It is critical for occupants and personnel to gain access to fire and life safety equipment, have fire prevention procedures in place, conduct training and inspections regularly. Well informed, well trained occupants

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and personnel provide a safe boating environment at a marina. Research and understand the national and local code requirements then look to industry professionals to go beyond the code wherever the risk may require a more robust solution.

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