

SOUTH PORTLAND FIRE DEPARTMENT

STANDARD OPERATING GUIDELINES

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Title:	Marina Firefighting Operations	# of pages:	4
Category:	Fire Ground Operations	Classification:	Red

1. **PURPOSE:** To ensure safety and coordination at any fires at a marine facility whether in the fire involves structures/vessels in the water or stored on land.
2. **PROCEDURES:** Fighting boat fires in marinas involves unusual hazards and tactics and requires large numbers of personnel. Failure to recognize the unique circumstances of marina fires can cause firefighter injury and catastrophic dollar losses. Most marina fires involve boat fires to some degree.

Boats are very similar to RVs and mobile homes with the obvious exception that they are floating. Boats contain a multitude of hazards such as propane and kerosene for cooking, gasoline and diesel for propulsion, electricity for lights, appliances, and heating/AC. Larger boats have multiple staterooms, bathrooms (heads), kitchens (galleys), and entertaining areas.

During summer weekends (particularly at night) a marina may have the population of a small town in a very congested area with limited escape routes. Marinas in our city also have year round "live-aboards" to consider.

Virtually everything on a boat, including the hull, is flammable or potentially explosive. The fire will be extremely hot and will generate dense clouds of black toxic smoke.

Electric service ranges from 15 amp 120 volt service for smaller boats to 400 amp 240 volt service for larger boats.

Boats are designed to shed rain and spray and are extensively compartmentalized within the hull for structural strength. Reaching the seat of the fire with exterior hose streams may be very difficult.

Marinas use different types of docks, some are rigid and some are floating. Main docks will be from 6 to 10 feet wide and are attached to the shore. Runs are at right angles to main docks and are usually lettered (A run, B run, Etc.). Finger piers are at right angles to either runs or main docks and separate adjacent boats from each other to create the slips. They are usually no more than 2 or 3 feet wide. The fingers may only be attached at the main dock end so the finger becomes increasingly unstable and weak towards the outward end.

The most common causes of boat/marina fires are:

- a. Engine compartment fires
 - a. Defective fuel lines
 - b. Lack of maintenance (winter storage)

- c. Defective or removed spark arresters
- b. Cooking fires
 - a. Galley fires
 - b. Grill fires (gas and charcoal)
- c. Electrical
 - a. Poor electrical connection between dock and boat
 - b. Overloaded circuits (both dock and boat)
- d. Fueling
 - a. Lack of following fuel transfer procedures

Marina and In Water Boat Fires

- a. Look at the fire location from the head of the dock. Consider calling for additional personnel if distances are considerable. Locate and use dock carts to carry hose bundles, SCBA bottles, five gallon foam cans and eductors, and other equipment to the fire location.
- b. Everyone operating on a pier/dock should be wearing some sort of PFD, as much as practical.
- c. Proper firefighting PPE and SCBA shall be worn at all times per other SPFD SOGs.
- d. Secure power to the individual run and if not possible/quick secure to the whole marina. Also, ensure that any fuel pumps are secured.
- e. Water supply systems at marinas are typically unreliable, involving flimsy construction and low water pressure due to long runs and minimum pipe diameters. Many systems are turned off in winter to avoid freeze damage.
- f. Marina supplied hoses tend to be unused, cracked, and leaky.
- g. A team should try a quick attack using dock systems or large dry chemical extinguishers. Simultaneously, a 2 1/2" line should be extended down the dock to the fire site and Y'd off to two 1 3/4" attack lines, considering the probability of inadequate dock systems.
- h. The initial set back distance should be at least 100' and use hose streams to cool and protect. Attempt to limited water volume, only use as much as needed to cool and knock down the fire. Sinking the boat may extinguish the fire but will cause numerous other issues.
- i. Protect the exposures on both sides of the involved boat. More lines will have to be laid if additional boats are involved.
- j. Falls are the number one hazard to firefighters in a marine environment. Dock can be slippery.
- k. Fuel in the water should be boomed (Pier 2) for containment and a class B foam blanket applied. Be aware that fuel can deteriorate the Styrofoam (which is what is used to float most piers).
- l. Look for victims everywhere including in the water near other slips.
- m. RIT should be assigned with primary attack team. They should have boat hooks (not pike poles) and throw rings/floating cushions/ throw bags/rings to assist in retrieving anyone who might falls in.
- n. Marine 408 and/or mutual aid boats should be assigned to the remote side of the fire to limiting fire extension and rescuing any trapped inhabitants.

- o. Marine 408 and/or a mutual aid boats should be on hand as RIT boats for in the event of an emergency (firefighter in the water) and as an evacuation option. This is in addition to any boats on scene assigned to firefighting operations.
- p. Limit the number of responders on floating piers; they too can sink if overloaded. Finger piers are significant hazards as they are only attached to the main or run on one end.
- q. Only allow the necessary number of firefighters on the piers. Establish a control zone and keep strict accountability.
- r. The tightly closed nature of boats makes backdrafts likely, considering high fuel loads and few ventilation openings. Ventilation is mandatory. Have charged lines ready, then break portholes and windows with pike poles or boathooks borrowed from adjacent boats.
- s. Prevent dock lines from burning through. If the boat drifts away from the dock, or is pushed away by hose streams, there is limited control and it is now a danger to other boats and structures. Do not cut dock lines unless order by the IC.
- t. Do not make interior attacks unless the boat is well ventilated and the fire free-burning. Escape routes must be short and easy. Extensive compartmentalization and low visibility makes it easy for a firefighter to get disoriented, in a high fire load situation with explosive potential.
- u. Boats which have taken on considerable water from hose streams become unstable. Be cautious about committing firefighters to the interior at this stage, as the boat can capsize easily and trap firefighters working inside.
- v. If the boat has taken on water, make pumps available to start de-watering the boat as soon as the fire is out.
- w. SCBA must be worn during salvage and overhaul until all traces of smoke or vapor are gone. Use of 4 gas and HCN meters per SPFD SOG is required.
- x. Cut off boat battery power as soon as the battery switches can be found. Batteries usually survive fires, and large battery banks can deliver up to 400 amps at 12 volts.

Boat Fires on Land

Boats hauled out for service and/or storage are typically set on cradles, or rest precariously on keel blocks, with side supports (jacks). Boats are packed tightly into boatyards, so the same exposure problems exist as in marinas. Fire suppression requires foam and careful water use, as water is added to the hull it may increase vessel weight past the strength of the supports. The boat may topple sideways, threatening firefighters on the ground and possibly boats alongside.

The most significant concerns with a land based boat fires at a marina are:

- a. Chances of conflagrations (numerous tightly packed boats with very flammable shrink wrap coverings).
- b. Difficult access due to the storage which could lead to firefighters getting lost or disoriented.
- c. The domino effect, once one boat loses stability it can topple over onto its neighbor and continue down the line.

Boat fires on land, in storage, should be attacked with deck guns and ladder pipes until knocked down and even then caution should be taken with regards to the boat's stability.

Boats also are stored at private residences and other locations that are not necessarily marine related. Extreme care should be taken when encountering a boat fire in this situation as vessel condition, stability, and temporary electrical supply and possible even persons residing onboard.

3. REFERENCES:

- Marine Firefighting Institute

By Order Of:

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