SEAWORTHY The BoatU.S. Marine Insurance and Damage Avoidance Report

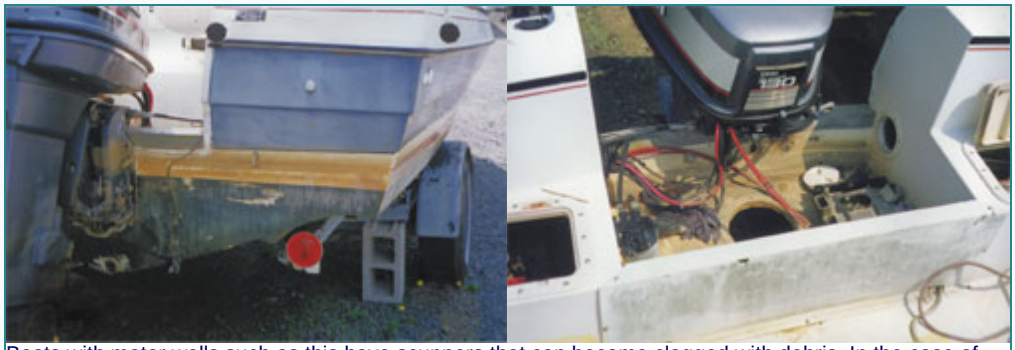
Sinking

Seaworthy Magazine: Why Boats Sink (And How to Keep Them Afloat)

The cost of repairing a boat that has been underwater, even briefly, is usually about 40% of its value. Besides having to pay the deductible, the skipper typically loses the use of the boat for several weeks while it is being repaired. The best defense against a dockside sinking? Visit your boat. And, at least twice a season, inspect any fittings above or below the waterline that could be letting water into the boat. All too often, skippers rely on bilge pumps to bail them out when they can't visit their boats. The pump fails and the boat sinks. If you can't visit your boat regularly, consider using a buddy system with other boat owners to watch each other's boats.

Modern boats sink for a variety of reasons, which is the point of this discussion. According to the BoatU.S. Marine Insurance claim files, for every boat that sinks underway, four boats sink in their slips. There are two reasons for this discrepancy. One reason is whenever a boat leaves the dock, someone is aboard, which leaves open the possibility that the leak will be discovered and the problem corrected before it sinks the boat. And, reason # 2, boats tend to spend a majority of their time at the dock.

Why Boats Sink at the Dock



Boats with motor wells such as this have scuppers that can become clogged with debris. In the case of this boat, the access port had been opened but not resealed. Water trickled into the bilge when it rained, eventually overwhelming the bilge pump.

The handsome sportfisherman had been an impressive floating beauty when the owner left the marina on Monday afternoon, barely 13 hours earlier, which is why he was having so much trouble believing that it was his boat that was on the bottom when the call came from the marina manager. There were five bilge pumps aboard, all of which were working. How could his boat have sunk so quickly?

The answer was traced to a cracked generator intake hose, which, according to the surveyor's report, may have been leaking steadily for weeks or even months. The bilge pumps kept the water out until the batteries (and the pumps) died and the boat filled with water. BoatU.S. Marine Insurance claim #970083A.

When a boat sinks at the dock, the question most likely to be asked is: "What happened to the bilge pump?" That's the wrong question, however. By dutifully emptying the bilge periodically, a bilge pump can actually hide a problem--until the pump clogs or the battery goes dead. Water, not bilge pumps, sinks boats. The correct question should be: Where did the water come from? For an answer, BoatU.S. Marine Insurance examined 100 claim files of boats that sank in their slips.

It doesn't take much to to hold a float switch down. Switches should be oriented so that they are clear from interference and secured to the bilge floor. This boat sank when its bilge pump switch was blocked by the hose.

Where the Water Came From Click on a link below for more information:	
Reason	**Percentage**
Underwater Fittings:	**50%**
Rain and Snow:	**32%**
Fittings Above the Waterline:	**9%**
Poor Docking Arrangements:	**8%**
Other:	**1%**

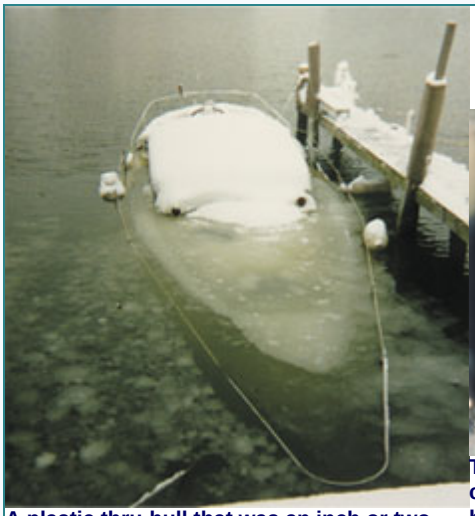
Prevention: Protecting Your Boat

Visiting Your Boat: The First Line of Defense Against a Dockside Sinking

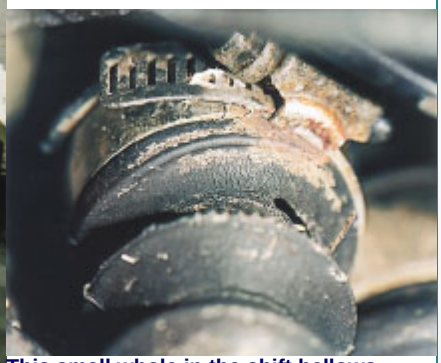
If you need a reason to visit your boat more often, consider that the cost of repairing a boat that has been underwater, even briefly, is usually about 40% of its value. Besides having to pay the deductible, the skipper typically loses the use of the boat for several weeks while it is being repaired.

At least twice a season, inspect any fittings above or below the waterline that could be letting water into the boat. All too often, skippers rely on bilge pumps to bail them out when they can't visit their boats. The pump fails and the boat sinks. If you can't visit your boat regularly, consider using a buddy system with other boat owners to watch each other's boats. Another alternative is to ask your marina manager to keep an eye on the boat. Many marinas offer routine inspections, but usually at an extra cost.

Plastic thru-hulls turn brittle and eventually crack form ultraviolet (UV) sunlight. Failures usually occur inside the thru-hull opening. If the thru-hull is only an inch or two above the waterline, rainwater or snow accumulations can force it underwater and sink the boat.



A plastic thru-hull that was an inch or two above the waterline cracked and the weight of the snow lowered the damaged fitting to just below the surface. The boat gradually filled with water and sank.



This small whole in the shift bellows cable was not found until after the boat had sunk.

Click on the links below for more information about prevention:	
Outdrive Boots	**Seacocks and Gate Valves**
Mufflers	**Thru-Hulls Above the Waterline**
Anti-Siphon Loops and Check Valves	**Dockside Freshwater System**
Cabin, Deck, and Scuppers	**Keep the Boat Away from the Dock**

Why Boats Sink Underway


This boat filled with water and sank because the scuppers were clogged with leaves.

In addition to studying why boats sink at the dock, BoatU.S. Marine Insurance examined 50 claim files for boats that sank underway, ranging from a tiny personal watercraft to a 54' ocean going sailboat. None of the 50 sinking claims involved fatalities, although that is always a possibility when a boat sinks with passengers aboard. One thing that became clear after reading the various claims: wearing life jackets or at least keeping them handy, should be a priority on any boat.

Any boat has the potential to sink underway for the same reasons that it could sink at the dock--a hose slips off, a packing gland leaks, etc. While Thirty four percent of the boats in the study sank because of leaks at thru-hulls, outdrive boots, or the raw water cooling system, all of which are routinely implicated when boats sink at the dock. There are many other reasons that boats sink underway, however, which have nothing to do with loose hose clamps or broken fittings. Boats underway can strike floating debris or stray onto a rocky shoal ("Navigation error"). There were claims for careless skippers who forgot to install drain plugs. Six percent of the boats sank after coming down hard off of waves and splitting open.

Why Boats Sink On Open Water Click on a link below for more information:	
Reason	**Percentage**
Taking Water Over the Gunwales:	**30%**
Leaks at Thru-hulls:	**18%**
Leaks at Raw water Cooling System/Exhaust:	**12%**
Drain Plug Missing:	**12%**
Navigation Error (Grounding):	**10%**
Boat Construction (Hull Split Open):	**6%**
Leaks at Outdrive Boots:	**4%**
Struck Floating Debris:	**4%**
Other:	**4%**

Once a boat starts to sink, it will gain momentum as it settles into the water. If a boat has a two-inch hole that is a foot below the waterline, for example, over 78 gallons of water will pour into the boat per minute. When the same hole is three feet below the surface, the flow of water increases to 136 gallons per minute. Keep in mind also, that other thru-hulls that had been above the waterline will be underwater. If any of these fittings are cracked or missing, the flow of water into the boat will accelerate further.

A Few Important Words About Pumps and Bilge Alarms

Two BoatU.S. Members, Cliff and Sandy Steele, tell a harrowing story about a log that almost sank their boat just before nightfall. After hearing a loud "thump," Cliff checked the bilge and continued on. Sometime later the boat seemed to be losing power and felt sluggish, so he opened the hatch and discovered water was almost over his engine. Although Cliff had checked the bilge earlier, the damaged hull didn't fail until it had pounded over some waves. Thanks to some nearby boaters who responded to Cliff's "Mayday" by putting extra pumps aboard, the boat was saved.


32% of boats that sank at the dock did so due to rain or snow accumulations.

The sooner a skipper discovers a leak down below, the more likely he or she will find and correct the problem before it's too late. High capacity bilge pumps and even extra pumps can help in an emergency. So too can using the engine's raw water intake hose (close the seacock first) for extra pumping capacity in an emergency.

While more and better pumps may be able to keep up with the flow of water, it is critical that you discover the leak quickly, before the electrical system, the engine, and the leak itself are underwater. A bilge alarm is a simple device that warns you when water begins rising in the bilge. This early warning gives you more time find the leak, get passengers into life vests, deploy extra pumps, and put out a distress call, Bilge alarms are available from most marine chandleries, including BoatU.S.

Would you like the information above in a handy brochure that you can take with you?

Click here to order "Why Boats Sink"
