



## Why Does My Boat Leak? Or

### The Mystery Answered From Within

By Sherwood Heggen

Why does a boat leak? It is actually very simple. There is something not sound about the hull. So, you look inside the bilge and you see dirt, oil, maybe some water left over from the last trip across the lake. Things look normal. They have looked like that for years, but it is leaking! Why?! Every spring, while the boat is on the trailer, you put the hose in the bilge and fill it to the chines to soak it. Water runs out at the seams but the flow slows down to a drip after a couple of days. Ahh, we're good, but out on the water, if you didn't have a bilge pump running, the water would be over the floor boards. What gives?

It's simple. The bottom is probably shot. The inspiration for this article came from a recent boat job to fix some leakage problems. It was with hopeful optimism that only minor repair would be needed to correct the problem. Reality set in, as should have been expected, when probing deeper into the problem areas, major problems were revealed.

If a boat has an original bottom, even if it has been re-screwed, there may be a lot of surprises not thought possible existing in the bilge. This applies regardless of the type of construction a boat has. Wood has a lifespan affected by use and conditions. Under the duress of being soaked, dried, and pounded, and twisted by waves, something has to give. When you get done reading this, hopefully you will have a better understanding of a boat's bottom – the most important part of the boat.

This article mainly gives reference to the typical carvel planked, sawn frame boat such as Chris Craft, Century, etc., but it can essentially be applied to almost any wooden boat. Where there is wood, air, and water, there can be rot.

There are many places that problems can exist, so let's try to track them down. Typically, the worst problem area seems to be from the transom to

the engine area. Here, there is a lot of water sloshing around mixed with oil and heat from the engine. While at the dock, if the hatches are left closed, humidity and heat build from the heat of the sun shining on the decks. Also, the oil in the water makes a mess of the bilge. So far, wet and oily doesn't seem to be too great of a threat. However, heat and humidity creates a great nursery for rot and the oil will soak into the wood making it unfit for being a solid structure. Both conditions will require replacement of the affected parts to correctly repair the bottom.

A physical inspection of the bilge area can reveal a lot the problems, but it is important to remove as many obstacles to clear viewing and accessibility as possible, i.e., remove floor boards, seats, ceiling panels, etc. The basic tool for inspection is a flashlight and a sharp object like a pocket knife or ice pick. Any or all of the areas covered ongoing can contribute to a leaky bottom.

Rot usually happens where wood can't breathe, so probe with your sharp object at areas where wood meets wood. If you can pick away wood, there is significant enough deterioration to be concerned that all is not well in that area and is most likely an indicator of much worse issues beyond what can be seen. The condition of the ends of the frames is a usually a good indicator of how solid the rest of the frames are. If the ends are soft, even a little bit, it is likely the rest of the frame is on its way out.

What can be found, in areas that might appear solid, is hidden damage caused by screws wedging the wood apart, creating splits that show only when the boat is disassembled. Screws have no holding power in these cracks and planks can become loose. Transom bases that appear solid viewed from the bilge can literally fall apart when the bottom planks are removed which is what had been holding them together. Broken frames and joiners are often hard to see because of an accumulation of dirt and oil covering them, and here too, the bottom planks are holding them together.





**Cracked Frame**

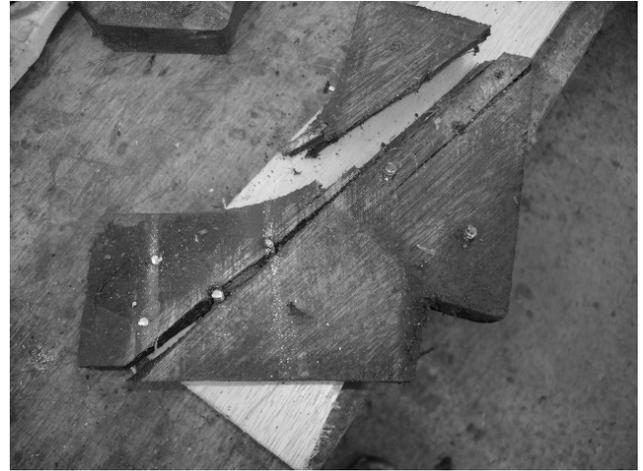
While the boat is underway, these frames will flex a lot, creating opportunities for water to come squirting in under pressure wherever it can. Once the bottom planking is off, the frame possibly will come free of the bottom with very little disassembly effort.



**Broken frame**

A condition that exists with all wooden boats is that the bottom will swell laterally. This expansion in width causes the chines to spread. The wood takes a set and when it dries out, a gap exists between the planks. Now the vicious circle starts of caulking the gaps in the seams to keep the water out which, when the boat swells again, causes the chines to spread further. When the boat dries out again, the seams open up. The spreading of the chines creates another problem of damaging the topside and bottom frame junction. The knee brace holding them together will be stressed and fail. Now, little holds the top and the bottom of the boat together at that area except planking and the

planking was not expected to do that job. The knee shown below is rendered totally useless.



**Useless knee**

Holding every boat together are the fasteners, or screws and bolts, which are typically brass or silicon bronze. To try to physically break one of these fasteners by hand is nearly impossible, yet during disassembly many of these “unbreakable” fasteners will be found snapped in two. Swelling and flexing of the hull has caused this to happen. The lack of fasteners holding the boat together contributes to even more flexing, causing more fasteners to fail and wood to come loose. Soon the boat will become so loose, it will twist from stem to stern in rough water. Not good!

The word to the wise says boats which show the above signs of deterioration are not going to get better on their own. They are signs that the boat should be turned over, the bottom disassembled, and replacement of questionable frame members should take place. To do anything less is asking for more trouble down the road, or lake, as it might be.

Take this matter seriously. Boats with questionable bottoms have been known to sink from the stress of a heavy wake. Water pressure on a boat bottom is enormous while underway and risking yourself, your passengers, and your boat with a weak bottom is not a wise thing to do. Take a look at your boat bottom with a pessimistic point of view and be safe by doing the right thing – replace the old with new.

If you want to discuss problems you might find with your boat, call me. I can be reached at 715-294-2415 or at [Heggensj@Centurytel.net](mailto:Heggensj@Centurytel.net). I look forward to hearing from you. In the meantime, don't destroy it; restore it.

