10 Ways Winter Can Wreak Havoc With Your Boat

These winter gotchas don’t just happen where there is snow

By Beth A. Leonard

Winter may not be out to get you, but it sure seems to be after your boat. Reading through 10 years’ worth of winterizing claims, the Seaworthy editors were astonished at how many ways cold weather and ice can damage something made of metal, plastic, and fiberglass that lives its life out in the elements. The single most common winterizing mistake is not getting all the water out of – or enough antifreeze into – the engine, which is why our new winterizing brochure focuses on making sure you don’t end up with a cracked engine block or manifold. But there are a lot of other ways winter can get your boat, most of which could be avoided with good winterizing practices. Engine damage aside, these are the 10 most common winter “gotchas” and how to avoid them.

Continued on page 4
SHEDDING MORE LIGHT

The “Light Up The Night” article in the July 2014 issue was well-written and addressed an extremely important topic, seeing and being seen at night. I know because I was at the helm of the sailboat in the example cited in the 2012 collision with a sportfisher off the coast of Delaware in the opening photo. The last statement about that incident, “because she too, was in violation of a navigation rule (use of lighting),” is incorrect. This statement is not a fact that could be proven. The Coast Guard Report of Investigation does not state that at all. It cited two rules for the sailboat: Rule 5. Look-Out, and Rule 7. Risk of Collision (radar reflector on board, but stowed away); and five rules for the sportfisher: Rule 5. Look-Out, Rule 6. Safe Speed, Rule 7. Risk of Collision, Rule 8. Action to Avoid Collision, and Rule 15. Crossing Situation.

C.S.

During the 12 years I spent as a USCG Auxiliary Vessel Examiner, I ran across many nav light failures. While the usual broken and corroded wire connectors were in the majority, some standouts made me stop and think:

“Holy cow! How lucky was this guy!”

Here are a few examples:

- A nearly new 55-foot sportfisher with red sidelights on both sides! Came from the factory with the upside-down red light on the starboard side.
- The combination light that used to be on top of the pulpit that was relocated to the underside of the pulpit to make way for an anchor roller. Not only was the light now obscured by the anchor flukes, but the color sectors were reversed!
- The masthead white light was replaced with a floodlight to light up the cockpit. “The wiring was already there.”
- A welded aluminum hard top frame bolted to the flybridge within an inch of and directly in front of the sidelights.

The masthead light was obscured by a radar dome directly in front of it. This was a charterboat with a USCG vessel inspection decal that routinely ran at night.

Lights were routinely obscured by canvas, life rings, radar domes, fender baskets, and fenders, and even the helmsman in normal operation.

The common theme for all of these is the boat owner’s lack of understanding of a simple concept: The nav lights tell everyone else what you are doing.

Archie Faulkner
Cape May, NJ

Just read Daniel Rutherford’s excellent “Light Up The Night” article in the July 2014 Seaworthy. As he points out, the term “masthead light” does suggest that it is found at the top of the mast (wrong). A way to avoid this confusion is to think of it as a mast headlight, often located on a mast but always aimed ahead and visible only in the 225-degree arc forward of the boat.

Bill Greenwald
Delmar, NY

Mr. Rutherford’s article “Light Up The Night” uses the terminology “privileged” and “burdened” in the paragraph “COLREGS and Night Navigation.” This is incorrect and no longer used. Rules 16 and 17 of the Navigation Rules International-Inland states that the terminology is “Action by Give-way Vessel” and “Action by Stand-on Vessel.”

Vince Whalen
Hobe Sound, FL

Oops, you’re right. We goofed and used the outdated terms. Thanks to all the readers who caught the error!

If any of the scenarios described in the nav light article does result in a collision, does the failure to comply with the COLREG rules assign blame for the collision to the noncompliant boat in a court of law? I mean, does liability for damage and injury fall to the noncompliant boat legally?

Randy Romaine
Lancaster, VA

Dan Rutherford: In my experience, there is never (unless one of the boats is unattended on a legal mooring and it is struck by another) a case where only one of the parties is at fault in an accident under the COLREGS. Remember that all boat operators have the principal duties to keep a proper lookout and to take action to avoid collision. Obviously all factors will be taken into account, but in the end, the fault will be apportioned between the two vessels, usually with the higher percentage falling on the vessel with the most rule violations.

I live on a lake five miles long, and we have sailboats, powerboats, and rowing shells (35-40 feet). The rowers go out at night with only a small light on the tip of the bow and stern that is not visible with eight oars out. They say there is no regulation on rowboats. Are they right?

Alan Hokanson
Shrewsbury, MA

Dan Rutherford: Any boat operating at night must carry a light. As to what rules apply, if your lake is non-contiguous with another state, it is probably not a federal waterway and thus state regulations may apply. You need to check to see if your particular state has adopted the COLREGS or if there are any specific state regulations governing this activity. That said, I refer you to COLREGS Rule 25 Sailing Vessels Underway and Vessels Under Oars, Sub Section (d) (ii), which states: “A vessel under oars may exhibit the lights prescribed in this rule for sailing...”
vessels, but if she does not, she shall have ready at hand an electric torch or lighted lantern showing a white light which shall be exhibited in sufficient time to prevent collision." I have read the rules carefully and I do not see any length restriction when it comes to “Vessels Under Oars.”

There have been many high-profile accidents involving rowing shells in collisions. They are low, dark, and difficult to see. My advice to anyone who knows that this sort of activity is close by is to keep a vigilant watch and have a powerful light available to search forward of your position. My advice to those involved in rowing is to wear bright clothing and to put SOLAS reflective tape on the oar tips.

Note to anyone working on a bicolor bow light. On some lights the lens can be put back with red to port, green to starboard or green to port, red to starboard. In changing a lightbulb while hanging nearly upside down over the bow pulpit and trying not to drop any tools or parts into the water, I accidently put the lens back in backwards. I had green on port and red on starboard. I didn’t even notice it until a race when there was a boat to starboard of us with their lights on, and I could see his red light. Then I looked at my lights and realized that they were different than the other boat.

Frank Albert
Manassas, VA

MORE LIGHTNING TALK

Marine antennas in the vertical position can have an induced charge from nearby lightning strikes at times sufficient to cause damage to equipment. In theory, the induced charge from a nearby lightning strike will be much less if the antennas are in the down position. Look at any marina, all the boats have the antennas in the up or vertical position. A strike a few boats away will often result in melted radios, which could be avoided with the simple task of putting the antennas down.

Richard Baker
Fort Myers, FL

Many thanks for the article, “Lowering The Lightning Odds,” in the July 2014 issue of Seaworthy. I look forward to the promised future issue with an article on boats and lightning. Specifically, what happens in a boat when directly or indirectly struck by lightning? Do all the wiring and instruments go poof? And, what happens to the people onboard?

Svein Kopfelt
Annandale, NJ

Unfortunately, the answer is, “It depends.” Lightning is unpredictable at best, and, at worst, it can appear completely irrational. Our claim files show a wide variety of damage with fried electronics at the top of the list. More serious damage occurs when lightning cannot find an easy exit out of the boat and ends up blowing through fiberglass or out thru-hulls. That can result in sinking.

Luckily, injuries to people aboard are quite unusual based on the claim files. The lightning is looking for the most efficient route to ground, and that doesn’t normally include passing through a person unless they are holding on to something along that route, like a wire stay on a sailboat. But these generalizations are not based on a thorough analysis of our claim files – we plan to do that next winter and report our findings sometime next year. Stay tuned!

ESD AND DEFIBRILLATORS

In the “ESD Or Drowning?” article in the July 2014 issue, AED stands for “automated external defibrillator.” The “automated” part is important because it will analyze the heartbeat and advise that a shock is needed if ventricular fibrillation (VF) is detected. If VF is not detected, it will advise no shock should be delivered.

Barron Batchelder
Sinking Spring, PA

NEED A LIFT?

After reading your spring articles about checking out your boat, I discovered the starboard aft cable of my boat lift was more than 75-percent rusted through. Fortunately I caught it before the stern of the boat, a 21-foot Mariah Talari, ended up under water. I now have four stainless steel cables and no more galvanized cables for me. Thanks for prodding me to inspect all aspects of the “boat.”

Walter Plaine
Chesapeake, VA
1 THE SLIP AND SLIDE. If jack stands are not set up properly, they can end up shifting out from under the hull and dumping your boat in the middle of the winter. Jack stands should be placed as far out from the boat as practical to support the boat in high winds, with at least three per side for boats over 26 feet and additional supports at overhangs. The weight of the boat can easily force a jack stand base deep into mud, sand, or asphalt. Even clay that seems brick hard can become a quagmire in heavy spring rains, allowing stands to loosen, shift, and spill the boat. Placing a piece of plywood under each base and using safety chains to connect the stands will help to stabilize the support upon which your boat rests.

2 THE TATTERED TARP. Covering your boat in the winter benefits it by protecting gelcoat, preventing snow and ice accumulation, and keeping water from pooling on the decks. More frugal skippers seem to think that a few tarps stitched together with a spiderweb of lines qualify for winter duty. In the first serious storm, these often end up shredded, and in their death throes they deposit large amounts of snow and ice into the boat they are supposed to be protecting. If you’re going to cover the boat, use a custom cover or shrinkwrap it, but either way make sure there’s lots of ventilation to prevent mold from taking over down below.

3 THE SHRINKWRAP SMOLDER. If you do choose to shrinkwrap, think twice and even three times before doing it yourself. All it takes is a moment of inattention to ignite the shrinkwrap, and if the fire occurs inside the cover, it might not even be visible right away. Every fall we get several claims involving flaming shrinkwrap, including multiple claims with damage to several boats. This is one job best left to the pros.

4 THE STANCHION PUNCH. Stanchions are not meant to take the weight of snow and ice that can accumulate on a cover. And, as this photo shows, neither are the decks. This stanchion drove right through the deck on this 26-foot sailboat when the ice overloaded the stanchion and the deck beneath it. If you decide to cover the boat, do yourself – and your boat – a favor, and build a proper frame.

5 THE CHEATER HEATER. Our claim files show that “winterizing” a boat by leaving a heater running onboard is just not a good idea. First, your engine is least likely to be protected when it most needs it – in a big storm when the temperature plummets and the power
THE SNOW JOB. If you’re going to leave your boat in the water, you need to make sure that snow and ice do not accumulate in the cockpit over the winter. Not only can the weight force the boat low enough in the water that it can backfill and sink, but the thaw and freeze cycle can create a plug of ice that slows drainage through the scuppers. It’s best to cover a boat that’s to be left in a slip, but if that’s not possible, make sure to get to the marina after every storm to clear out the ice and snow and make sure scuppers are not blocked.

THE WATER TRAP. Many places on boats have small holes so that water can drain out—boats are wet places after all. If those drains get plugged, it doesn’t matter that much in the summer, though corrosion may follow in the long run. But if they are plugged in the winter, the water inside will expand as it freezes and could do serious damage. Check drain holes in stanchion bases, mast steps, live wells, locker lips, and anywhere else you have found them to make sure they are not clogged and no water has accumulated. If some areas are not draining adequately, consider adding a few more drain holes to facilitate the process.

THE SOGGY BOTTOM. When you haul your boat for the fall and you notice that the rudder is dripping water a few days after it has been on the hard, or a keel has a blister that develops in the warm sunshine and recedes at night, the chances are you have water trapped in the rudder or the keel. If you leave it that way through the winter, it will freeze, and may damage the fiberglass. Before the first freeze, you need to get that water out. Large blisters can be punctured and drained. On rudders, you may need to drill a hole at the bottom of the leading edge of the rudder. If you leave it open through the winter, that should help the laminate dry out, and you’ll have an easier time filling and patching it in the spring. Before you put your baby back in the water, though, you’ll want to figure out where that water came from and how to keep it from getting into the rudder or keel again next season.

THE BUDDY SPECIAL. A lot of the freezing claims we get start with an owner calling and saying, “I let my buddy winterize the boat.” The rest of the news is never good and most often involves cracked engine blocks spewing brown bubbles or muddy-looking oil. Winterizing is not rocket science, but forgetting even one detail, or doing it incorrectly, can spell disaster for the boat—and your friendship—next spring. If you’re not comfortable winterizing your boat, have an experienced professional do it.

THE HE SAID/SHE SAID. And if you are going to have an experienced professional do it, make sure to get everything in writing. The term “winterizing” is not universal and your idea and theirs may not be the same. Will they just run antifreeze through the engine, or will they service the AC and refrigeration units, too? Spell out what will be done so, if anything goes wrong, it’s clear who is responsible.
FOR AS LONG as humans have been floating around on the water in vessels, they’ve also needed a way to hold those vessels in place when not underway. One suspects that, from the very beginning, they have also argued about the best way to do that. And for as long as humans have been doing anchor tests, you can bet they’ve been arguing about the results, as well as the methodology, the bottom, the conditions, and the validity of the whole darn enterprise.

Recently, the *Seaworthy* editors were invited to observe the most sophisticated and comprehensive testing of anchors to date. Fortress Marine Anchors, from Fort Lauderdale, Florida, organized the event to test 11 different anchors to determine the holding power of each in a typical soft mud bottom. The huge amount of data gathered during the tests shed some light on how well different anchors work, but as good science tends to do, also produced many questions, along with some surprises. The testing confirmed what many of us already know: Anchoring tends to be as much art as science and – even in the most controlled of circumstances – can be unpredictable. Despite that, every anchor test adds to our knowledge, not just of holding power in specific bottoms and under specific circumstances, but also of the importance of technique and experience in anchoring success.

**STATE-OF-THE-ART TECHNOLOGY**

The anchors were tested on a typical soft mud bottom, the kind in which many boaters routinely anchor. The location at the mouth of the Patuxent River near Solomons Island, Maryland in the southern part of the Chesapeake Bay was chosen because of the relatively consistent mud bottom – and the proximity of a first-class testing platform. The *s/v Rachel Carson*, a 5-year-old, 81-foot aluminum vessel owned by the University of Maryland Center for Environmental Science, is used most often for scientific research in Chesapeake Bay. She was selected because of her ability to use her twin 1,200-hp diesel jet drives and bow thrusters, combined with a state-of-the-art dynamic positioning system, to “hover” motionless over one spot regardless of wind and current. She is equipped with an aft winch that is capable of reading how much line is paid out to the inch and precisely controlling the speed at which it is paid out or retrieved. These last two things were important because they allowed precise and repeatable testing for every anchor.

Each anchor was attached to 20 feet of 3/8-inch chain, which was in turn connected to a 5/16-inch wire rope. The anchors were lowered by hand to the bottom of the bay and then the wire rope winch paid out 200 feet of wire over the stern while the boat moved forward at the same speed. The depth was pretty consistent at around 27 feet, and the aft deck of the vessel where the testing was done was four feet above the water, giving an initial scope of about seven to one. Once the wire was paid out, the vessel stopped, the captain actuated the dynamic positioning system, and the winch began pulling the cable at 10 feet per minute for 10 minutes until 100 feet had been pulled in. This had the effect of decreasing the scope gradually to about four to one and giving each anchor 10 minutes to engage the bottom.

The pull was recorded by a custom-built strain gauge that measures the force in pounds while sophisticated software recorded a real-time graph of each anchor’s holding power as it was hauled along the bottom. Each anchor was selected at random to be tested a total of five times over the course of three days. The vessel moved to a slightly different location between sets so that each anchor was pulled along a different trajectory, ensuring no anchor fell into the furrow of another.
FINDING THE BOTTOM
The one thing you can predict about anchoring is that it’s often unpredictable. The seabed (or lakebed) can vary from rocky to sandy to muddy and every combination in between, and the composition can change from one area to another within a few feet or from layer to layer as an anchor buries itself deeper. This makes it particularly tough on anchor designers because they want their anchors to set and hold in all kinds of bottoms, at varying scopes.

At this point, we’ll cut to the chase and tell you that the Danforth and Fortress anchors, with their long, wide flukes, held in the mud with the most tenacity. See the sidebar for some other observations from the data. For a look at the test results for each of the anchors, go to www.boatus.com/seaworthy/assets/pdf/anchor-test.pdf

The tests revealed more than the holding power of each anchor. How soon and how hard an anchor initially set could be determined as well, by observing the graph. The tests found that the anchors that set the quickest and hardest were usually the ones with the sharpest flukes. Also, the difficulty in retrieving an anchor showed how deeply it had buried as it brought up mud, oyster shells, and clay from the bay bottom.

THE FINE ART OF ANCHORING
It’s not a huge surprise to those who have anchored often that a lot of the anchors didn’t set right away. When anchoring in the real world, most boaters know to let the anchor settle before they begin to back down on it. It took between 10 and 20 feet for most anchors to reach 300 pounds of holding power, a bare minimum to consider for an anchor of this size. During this period, it would often look as if the anchor was starting to set as the tension increased, only to have it break free again and the tension drop back down. A boater could easily be fooled into thinking that the anchor was set, even though it was just barely hanging on. Putting the boat in full reverse and powering back against the anchor for more than a minute after it appears to be set would ensure that the anchor had really found the bottom.

What was most striking was the lack of consistency in the results for the same anchor. Most had one good set that far exceeded the rest, and almost all had one trial where the anchor did not seem to engage the bottom at all. During the first test done with the Fortress 37, with its ideal 45-degree mud-bottom fluke angle, it failed to set during the entire 100-foot drag. Chagrinned, the Fortress representatives nervously joked that at least it was obvious the test wasn’t rigged in their favor. Subsequent tests demonstrated the Fortress’ mighty holding power, but the failure on the first set proves that no anchor will set perfectly every time, and if you want to be certain of staying put, you need to check the set and reset if necessary.

Several observers commented on how helpful it would have been to actually view the anchor’s behavior as it set and dug in so they could see what was
really happening. Unfortunately, the turbid water of the Bay made that impossible. Most people know that there is no one anchor that holds in all conditions. Some anchors do very well in sand, some hold better in mud, and some excel in grassy bottoms. What makes one anchor work well in, say, sand tends to limit its ability in mud and vice versa. At the very least these results attest to the variability that can be experienced using the same anchor in the same bottom. That could be due to differences in the consistency of mud or clay layers the anchor finds on each set, to shells or gravel that foul the anchor, or to the way an anchor lands and how well it does or does not right itself – among other things. All of this reinforces the need to have a variety of anchors aboard, to use the right one for the conditions, and to switch anchors if one just won’t set.

Testing an anchor while pulling it along the bottom might seem contrary to what an anchor is actually supposed to do – stay put. But anchors do move, especially during a blow, and a test of how well they resist being dragged across the seabed can be illuminating. Anchors need to remain buried under strain, rather than simply giving up.

But there were some things the tests couldn’t measure. For example, a straight-line pull test can’t predict how well an anchor will reset during a wind shift. The tests also can’t tell the ultimate holding power of a well-set anchor that’s subject to dynamic loads, such as when wind and waves act on a boat. Finally, the results hold for just this one bottom. But there are so many different types of bottoms that testing in them all would be an overwhelming undertaking.

No anchor test will ever manage to be complete, and despite all the caveats, the process was a commendable attempt to conduct consistent and comparable straight-line holding power tests in a specific bottom. While the testing wasn’t perfect and won’t begin to satisfy everyone, it succeeded in adding to the limited body of knowledge that exists about anchoring and to confirm that anchoring remains as much fine art as hard science.

The first thing you notice when you flip through the charts showing the holding power of the various anchors is how few of them exceeded 700 pounds, the American Boat and Yacht Council’s calculated load in high winds for a 30-foot boat. In fact, 5 of the 11 anchors only reached 700 pounds once. The Fortress FX-37 reached 700 pounds on four sets out of five at both fluke angle positions, but the fifth set in both cases barely reached 200 pounds of tension. The FX-37 at the 45-degree fluke angle was the overall holding power winner with three sets holding over 1,000 pounds and two sets exceeding 2,000 pounds.

While the Fortress and the Danforth clearly outperformed the claw- and plow-type anchors in holding power in this soft mud bottom, the differences between trials for the rest of the anchors are much more mixed. The Mantus and the Ultra were the only two that exceeded 700 pounds of tension on three of the five sets. All of the other anchors reached 700 pounds on only one or two sets. The “next-generation” anchors did not perform any better than the older designs, and there was some speculation as to whether those anchors were landing upside down and not righting themselves.

If you’re going to be anchoring in soft mud, the Danforth or the Fortress will deliver the most holding power, and both are relatively lightweight and easy to stow compared to their plow and claw counterparts.
Loving The Lowly Hose Clamp
Treat them right, and they’ll take care of you and your boat
By Charles Fort

AFTER A 27-FOOT cruiser sank at its dock, investigators couldn’t figure out where the water had come from. When the boat was raised, they found that all the seacocks were closed; there had been no heavy rains recently; and the boat’s bilge pumps had been operating, though the battery was dead from trying to keep up with the inflow of water. Eventually, the surveyor spotted an outdrive shift bellows that seemed a bit loose. The hose clamp that was supposed to hold it in place was still there and appeared to be serviceable. It wasn’t until the surveyor started to remove the clamp that he noticed it was completely rusted in half on the side opposite of the screw.

We find a lot of problems in the BoatUS. Marine Insurance claim files caused by hose clamps that failed: exhaust leaks, gas spills, and sinkings. Don’t take hose clamps for granted — the safety of your boat depends on them.

USE GOOD ONES
Clamps should be made completely of 316 stainless steel by a reputable company. Some clamps have screws that are made of cheap steel and rust easily. If the screw rusts, the clamp fails. Running a magnet over a clamp can tell you if there is any non-stainless steel, but unfortunately that can’t always tell you if there is any lower-quality stainless used in the manufacture. Companies such as Ideal Tridon and AWAB are known for making suitable clamps if they are marine grade and not for automotive use. The best clamps, such as those made by AWAB, use smooth non-perforated bands, which prevent the inevitable corrosion in the slotted-type clamps. The rounded solid bands also prevent your clamps from acting like a cheese slicer on your hoses. Don’t cheap out and buy clamps from the local auto parts store. Cheap hose clamps are not good, and good hose clamps are not cheap.

USE CLAMPS THAT FIT
A clamp that’s too big leaves a long, sharp metal tail just waiting to slice the next errant finger or catch on a wire. A clamp that’s too small may not have enough threads holding it closed and could fail right when you need it.

INSTALL THEM RIGHT
Clamps should be installed so that about a quarter-inch of hose is visible between the band and the hose end, and so that the band is completely seated on the barb of the fitting to which the hose is attached. Note that the Coast Guard doesn’t require double clamps anywhere on recreational vessels. The American Boat and Yacht Council (ABYC) requires them in only two places — fuel fill hoses and exhaust systems. But both the USCG and ABYC standards are minimums. Below-waterline fittings, including stuffing boxes, should always have two clamps installed if at all possible. Keep in mind that a hose fitting has to be long enough to accommodate two clamps, plus a quarter-inch space between them, otherwise the second one can damage the hose.

TIGHTEN THEM JUST ENOUGH
Most boaters are a little fuzzy as to how tight a hose clamp should be. Too loose, and you’ll have a leak; too tight, and the hose clamp will damage the hose and cause premature failure. How to get it just right?

A few years ago, Craig Senovich, an engineer at Tridon, did an informal test for Seaworthy to find out how much torque an average person could muster on a hose clamp. Craig gathered a few coworkers and, using a sophisticated measuring device, invited everyone to crank their hardest on a hose clamp using a nut driver (similar to a screwdriver, but less likely to slip). The average person could produce about 37 inch/pounds (interestingly, using gloves nearly doubled that figure). That number happens to be very close to the specifications for a clamp in the 5/8- to 1 1/2-inch range. When a ratchet was used, the hose clamp ended up over-tightened.

Lesson: Avoid the ratchet. Use a screw or nut driver and don’t be afraid to hand-tighten unless you’re built like a linebacker — then you’ll need to use a proper torque wrench.

INSPECT THEM
Assume the clamp-inspection position and give your hoses a firm pull (best done out of the water) — it’s better to have the clamps fail now than when you’re underway or the boat’s on its own. Keep in mind that any corrosion is likely to be on the bottom of the clamp where water collects. This is often the hardest place to look, but a small dental mirror and a flashlight can make the job easier. Any corrosion, kinks, or other damage means their life is over — replace them.
Whipping The Problem
Protecting your boat from dock damage using mooring whips
By John Tiger

The boats parade past your dock, towing wakeboards and tubes, sometimes inadvertently trailing large wakes. Your boat gets tossed like a cork, crashing it against your dock. That leaves a mark – rub rail damage and “dock rash” (gelcoat chips and scratches) that are expensive and tough to fix. What to do?

If yours is a single-pier dock and you can’t center your boat between two piers so it won’t hit either, and a boat lift is impractical for your waters (perhaps it’s too shallow), then mooring whips may be your solution to protecting your boat from high winds and passing boat wakes.

TENSION MOUNTING

Mooring whips have been around for many decades, and they’re extremely effective. Basically, mooring whips are like big fishing poles mounted to the dock. Most consist of two large, tapered fiberglass poles affixed to the dock at a specific angle, connected to your boat via light nylon lines that can be adjusted. Properly tensioned, the poles arc downward when hooked to the boat, using that spring tension to hold the boat a couple of feet away from the dock – and keep it there even when wakes come crashing.

The entire setup can appear intimidating, not just to Taylor Made’s Premium line features adjustable mounting bases that angle straight up when not in use, and line keepers that make it easier to pull the boat in for boarding.

Monarch’s systems offer angle-adjustable bases and removable poles for easier storage, as well as a pivoting base that stands the poles up straight when not in use.

> TAYLOR MADE

> MONARCH

hook and unhook the boat, but to board and debark as well. Never fear – releasing the boat and pulling it into the dock only takes a minute. Four docklines (two securing lines and two spring lines) and the two whips, and you’re done. As for boarding and debarking, that’s done with the whips disconnected. Of course it can also be done by simply pulling on one whip’s line for a minute, which brings the boat in closer to the dock momentarily so you can board. Release the line and the whip’s reactive spring force moves it back away from the dock again. Today’s fiberglass mooring whips are very similar to those offered decades ago, with subtle refinements, and some newer systems don’t use tension poles at all. Some of the more common options are shown below. One precaution: Don’t select whips that are too small for your boat’s length and weight. They won’t have the strength and tension to be able to keep the hull away from the dock if hit by large wakes or moderate winds, and will break prematurely due to the oversize load.

PROPER INSTALLATION

The most common problem with mooring whips is improper installation and tie-up.

Installation requires a significant base area with good strength and ability to spread the load of the whip’s bases out over a greater area on the dock. This can be accomplished by reinforcing the dock underneath the whips’ mounting bases, especially if your dock is an old-school wooden one with thinner top treads. Whips bolted to treated pine top boards will soon pull out or break under the stress of the boat’s pulling from wind and waves. A large aluminum plate or thick...
The Wake Watchers system from Dock Accents uses steel arms swivel-mounted to rigid steel bases, which position the boat away from the dock but without the tension mounting of fiberglass poles, and no spring lines to add confusion. It’s a neat system, and reasonably priced.

The SlideMoor system features extruded aluminum rails mounted vertically to the dock poles, and bumpers that slide up and down with the boat tied tightly to them. This system is ingenious in its simplicity, but the dock must have posts or pilings to mount the slide assemblies to for it to work.

CARE AND MAINTENANCE
Whips require little in the way of maintenance or care; often they get abused and forgotten, yet many are still in service after 30 years or more. This author’s Monarch whips were purchased in 1979 when I was a teenager, and after over 30 years, countless boats, and a replacement of the dock they were bolted to, they’re still in excellent shape today. Replacing the whip lines is common after a few years or so, and keeping the whips and aluminum mounting bases coated with wax will prevent them from getting chalky after years in the sun. If possible, remove them from the dock in the off-season, and store them inside to keep them protected from the sun, snow, and wind in winter.

One caveat: Mooring whips are not strong enough for real storm duty unless the boat is also held in place with anchors or shore lines. If a hurricane is on the way, get the boat out of the water and take it inland.

COST-BENEFIT
A set of whips for a 24-foot boat will cost between $250 and $600 depending on the manufacturer and the vendor. Some larger manufacturers, like Monarch and Taylor Made, even offer special whip sizes for the smallest PWC all the way to larger cruisers and sailboats. Online vendors typically sell for less; however, watch carefully for high shipping charges as most whips are too long to ship by UPS or FedEx. Truck shipping can easily add a few hundred dollars or more to the final cost.

The benefit after installation is nearly priceless. For less than a grand and some time thinking through installation and hook-up, you’ll rest easy knowing you won’t have to sand and buff out dock dings and scratches or replace your boat’s rub rail.

Mooring Whip Manufacturers

Dock Accents (Wake Watchers Mooring Systems)
888-219-0112
www.dockaccents.com

Dolphin Mooring Whips
877-943-4133
www.dolphinmooringwhips.com

Monarch Marine Products
800-793-3833
www.monarchproducts.com

Moorings Products Worldwide
800-277-WHIP (9447)
www.mooringproducts.com

SlideMoor Boat Docking Systems
239-963-8983
www.slidemoor.com

Taylor Made
800-628-5188
www.taylormadeproducts.com

Mooring Whip Manufacturers
MAST WINTERIZING

In our cover story, we mentioned the importance of making sure drain holes are not plugged as part of your winterizing prep. Clogged drain holes in stanchion bases, mast bases/steps, and live wells have all resulted in claims. Reader Dennis Krizek of Gaithersburg, Maryland added one more item to that list: roller furling masts. As he explains on his website (Frozenmast.com), “The ... furling mast system [on the Beneteau 393] consists of a cylindrical tube for the furled mainsail, inside the mast extrusion. Essentially a mast within a mast. The sail slot for the mainsail to roll in/out, also allows water and debris to accumulate inside the mast. The drainage holes provided to allow this water to escape are minuscule and easily blocked by debris.” When the water inside this cylinder froze, it expanded and tore the mast wall open between the boom and vang goosenecks. Other roller furling masts with similar construction could have the same problem. To be sure there is no water left in the extrusion, you may need to enlarge the drain holes. But consult with your spar manufacturer first to find out how to do so without compromising mast strength or integrity.

UNDERSTANDING CLASS E AIS

The Automated Identification System (AIS) is the newest tool for collision avoidance. An AIS transceiver combines an integral GPS with a VHF transmitter. It broadcasts the vessel’s name, GPS course, speed, and, if enabled, data on its route and cargo on a VHF frequency (most units are dual frequency using VHF 87B and 88B). AIS transceivers also pick up that data from the vessels around them and calculate when they’ll be at their closest point of approach (CPA) and how close they will pass; an alarm goes off if the vessels will pass within a certain preset distance. Most commercial vessels are required to use Class A transceivers, while recreational vessels may use the lower-power Class B transceivers. Class B “receive only” units don’t transmit their own position but do receive AIS signals and allow you to determine if a risk of collision exists.

Several online websites track vessel movement using AIS signals picked up by shore-based receivers (such as VesselFinder and Marine Traffic), and these can be accessed on a tablet to provide you with information about the traffic around you. Accessing these websites from the boat can be an inexpensive alternative to buying a Class B “receive only” unit, but you must have a tablet aboard, be in range of a cell phone signal, and be able to access the Internet. As with the “receive only” units, no one will be able to see you because you are not transmitting your position, but you will be able to avoid the traffic around you in crowded areas with cell phone coverage.

Class E AIS, the newest addition to the AIS pantheon, builds on the tablet idea by using the cell phone network to provide your position information to others. The Smart Chart AIS app (www.smartchartais.com) is downloaded to your smartphone or tablet, and it accesses the online tracking websites to provide you with information about the traffic around you. But it also transmits your position over the cell system, so others using Class E AIS on their phones will be able to see you.

But, since the Class E signal is not a VHF signal, your boat will not appear on Class A and B AIS receivers on vessels around you. That ferry bearing down on you will not know you are there – unless the captain happens to be looking at the Smart Chart AIS app on his cell phone while driving, which wouldn’t be such a good idea. Class E AIS is an accessible, affordable way to avoid collisions in crowded waterways, but users need to understand its limitations and not confuse it with Class A and B transceivers.
**LIGHT HOT SPOTS**

This halogen lamp (photo at right) in the master stateroom of a large powerboat is within half an inch of the top of the closet door when the door is open. Gregory Group, a surveyor from Cleveland, Ohio, sent us these photos and said that with the door open, “in about one minute the wood door began to smoke.” He measured the temperature under the light at over 400 degrees Fahrenheit. If you have incandescent or halogen lights on your boat that may be near flammable surfaces in some situations, switching them to LEDs will reduce the heat, and with it, the risk of fire. Group also noted that on many boats, “these lamps all look the same, but some are 110 V AC, some are 24 V DC, and others are 12 V DC, all unlabeled.” Putting the wrong bulb in a fixture could also lead to a fire. If you have a variety of bulbs aboard, label them or store them in separate, labeled compartments to prevent confusion.

---

**GASOLINE GENERATORS AND CARBON MONOXIDE HAZARD**

Gasoline generators offer a handy source of additional energy for our power-hungry boats, but they also pose real dangers to the boat’s occupants, most importantly the possibility of carbon monoxide (CO) poisoning. In addition to the two generators on the bow, the boat in the photo had a third generator running on the stern. Member Dan Marchetto, who took the photo, wrote, “The foredeck generator power cables were brought in through the forward hatch (albeit stuffed with towels) making a perfect path for the noxious fumes to the sleeping quarters below.” Just how dangerous is this?

A study published online in the *Journal of Occupational and Environmental Hygiene* and conducted by the National Institute for Occupational Safety and Health (NIOSH) looked at the dangers of using gasoline-powered generators without emissions controls on houseboats. The study found that these “uncontrolled” generators routinely emitted carbon monoxide in concentrations well above NIOSH’s immediately dangerous to life or health (IDLH) value of 1,200 parts per million. “[For] houseboats that exhaust uncontrolled generator combustion gases beneath or near the rear deck, [the study] indicated that extremely hazardous carbon monoxide concentrations can accumulate in that area,” said Captain Ronald M. Hall, the deputy branch chief in the Engineering and Physical Hazards Branch in the NIOSH Division of Applied Research and Technology in Cincinnati, Ohio. “These hazardous conditions were exacerbated when the drive engines were operating, placing employees who worked on or around the boats, as well as the boat operators, at risk.”

Between 2004 and 2005, the two largest manufacturers of marine generators introduced fixed models with advanced engineering controls to lower CO emissions. These reduced CO concentrations by up to 99 percent in occupied areas on and around the boats. If you need a generator, *Seaworthy* recommends installing a low-emission fixed generator that is designed for marine use with the exhaust properly vented and installed by a professional. And make sure your boat has at least one working CO detector in its living spaces.
THE TOWBOATU.S./VESSEL ASSIST CAPTAINS had their usual busy summer retrieving disabled boats from waters all around the country and getting them and the people aboard safely home. But people weren’t the only ones who needed assistance on the water this year. These are just three of the many stories that hit our inboxes over the past few months.

Captain Paul Amaral’s team at Vessel Assist Ventura, California assisted a NOAA rescue team in freeing a young humpback whale that had become entangled in some fishing gear anchored to the bottom near Santa Barbara. While close enough to the surface that it could still breathe through its blowhole, one of the whale’s fins was pinned to its body, and a rope was wrapped around its back and tail flukes. It took eight hours to free the whale, which appeared a bit banged and bruised but had every likelihood of surviving, according to the NOAA team.

Captain Brian Joseph of TowBoatU.S. New Bedford, Massachusetts was minding his own business crossing Buzzards Bay when he saw something in the water. When he got closer, he found two deer trying to swim across Buzzards Bay and well on the way to being exhausted. After getting a line around their necks, Captain Joseph managed to get them aboard the boat, where they looked pretty stupefied by the entire experience. When he got to shallow water, he had to all but push them off the boat, but once on solid ground they recovered and wandered off.

Captain Chase Hawkinson of TowBoatU.S. Jacksonville, Florida had just finished a tow from 16 miles offshore and was headed to another when he saw what he thought was a person in the water near the jetties. As Hawkinson got closer, he realized what he saw swimming was a dog. The dog kept swimming away from the boat, but Hawkinson finally got close enough to pick the dog up out of the water. Seeing a couple on the beach, he took the dog over to them, but it wasn’t theirs. “No tags, nothing. Just a pretty little Lab,” said Hawkinson. He held onto the Lab, which he named Jetty, for about two weeks, but no one came forward to claim the dog. The local Labrador rescue society did get in touch, and they have taken Jetty in and will place him in a good home.

IN RESPONSE TO the “Light Up The Night” article in the July issue, Seaworthy reader Dick Mills wrote in to share a story of a night collision that, thankfully, wasn’t.

It seems that he and his wife, Libby, were crossing Lake Champlain, on the border between New York and Vermont, at night. Libby was at the helm, and Dick was on deck helping to keep watch for buoys with a handheld searchlight. Suddenly, a vessel a quarter-mile to starboard that had been stationary roared to life, a searchlight came on, and it came straight at them at a speed of 30 knots or more. “There was no time to reach for the horn and give...
The danger warning of five blasts, nor time to reach for the VHF radio ...,” Dick wrote. “I flashed my searchlight at the driver’s eyes.”

The vessel did not change course or slow down. Desperate now, Dick yelled to Libby, “Emergency full reverse!”

It was right about then that another powerboat appeared between them and the speeding boat, overtaking on their starboard side. All three boats came to an abrupt stop. “There we were, that whole big lake with 1,000 square miles of surface, with three boats in the middle of the night stopped with less than a boat length between us. After a minute to catch our breath, all three boats went on their way. Whew, what a close call.”

Dick believes that the speeding boat’s own searchlight ruined the driver’s night vision so that he could not see the navigation lights on the other two vessels. “Coast Guard rules dictate minimum lighting, but not maximum lighting. In my humble opinion, any lights which impair the helmsman’s ability to see ahead of his vessel should be banned.”

SEVERAL YEARS AGO Seaworthy reader Cort Schult was sitting on his dock when his neighbors came down to their dock and proceeded to refuel their inboard engine boat. The father, a retired fireman, was pouring gas out of five-gallon plastic fuel jugs into a plastic funnel that was inserted in the fill. The five-gallon jug was several inches above the funnel when he told his daughter, who was in the boat, to turn on the ignition key to check the fuel level in the tank. There was a loud explosion and the fuel jug in his hands was suddenly aflame. He threw the jug into the lake and the fire burned the fuel on the water’s surface before going out. Fortunately the fire did not go down the funnel into the tank, no one was hurt, and the boat was not damaged.

This incident just goes to show that even the most knowledgeable people can make stupid mistakes. Schult pointed out three things for others to avoid:

- Not grounding the fuel jug on the funnel.
- Turning on the ignition key and creating a spark while fueling.
- Having someone in the boat when refueling.

THE LEAVES ARE changing color and the days are getting shorter. While most of us reluctantly start to prepare for freezing temperatures, ice, and snow, lucky liveaboards on each coast are getting ready to follow the sun south. Instead of slogging around in winter boots and foul weather gear come December, they’ll be stylin’ in flip-flops and shorts. But getting there is not always the fun part. If you’re preparing to make the migration, here are a few suggestions to make sure your passage to paradise is as trouble-free as possible:

- Attend to any maintenance you’ve been avoiding, give your engine a complete tune up, and do a thorough inspection of every system aboard.
- Check your spares and tools — you’ll want to have some of everything, just in case.
- Inspect your safety gear to make sure it’s all up to date and ready to be put into service. Among other things, you’ll want to change cartridges on inflatable life jackets, recharge fire extinguishers or buy new ones, have your life raft inspected, and test your EPIRB. If you don’t have an EPIRB, you can rent one from the BoatU.S. Foundation for Safety and Clean Water — at a 10-percent Snowbird discount (discount code DISC10).

- Make sure you’ve got unlimited towing coverage — don’t leave home without it, especially if you’re planning a trip down the ditch.
- Check your insurance coverage and notify BoatU.S. Marine Insurance if you need to extend your cruising ground. If you’re traveling to Mexico, you’ll also need proof of liability coverage with a Mexican carrier. For more information, click on the “Liability in Mexico” tab at www.BoatUS.com/insurance/policy.asp.
The Afterdeck:
Even the Best of Us

ONE OF THE many interesting and amusing letters we got in response to the “Light Up The Night” article came from … the author. Dan Rutherford, who in his most self-deprecating moments refers to himself as “Captain America,” wrote in to take himself to task just a few days after the July issue came out:

So there I was … ME … CAPTAIN AMERICA, surveyor, safe boater, accident investigator, boating safety instructor … loading some guests (only two) onto my Zodiac RIB to head out to escort the fire-works barge for the Lower Township (Cape May, New Jersey) fireworks. Timecheck: It’s about 2000 hours. I flick the switch on my nav lights and … NOTHING. Not one of those little buggers lit up. So much for my own advice.

So I took the combination bow light apart. Just corrosion on the tips of the bulb. No problem. I whip out a piece of emery cloth and presto, working combination bow light. Then I head to the white all-round astern. Nothing. No way to fix. I tried everything, but the corrosion damage was so severe, it was a lost cause.

So, being the good Boy Scout (and safety nut), I reach into my pocket and pull out my Surefire flashlight. It has two settings: low, which is about 200 lumens, and high, which is 800 (very bright). I took a towel, wet it, folded it in half and then nestled the white light (on low) facing astern to cover my 135-degree stern arc. On went the amber flashing light for the escort and (drumroll, please) ta da! I’m legal.

I truly felt like one of the cobbler’s children with no shoes. Today’s job? Replace the stern light, buy spare bulbs, and complete a safety check on my own boat!

Dan’s story just goes to show that bad stuff happens even to the best of us. Mix saltwater and metal and leave for seasons at a time, and problems will result. Your safety, and the safety of your crew, doesn’t depend upon never having a problem. It does depend upon what you do to make sure everything is in working order before you leave the dock and, if it’s not, what you do then. Dan didn’t take the boat out without working lights. He found a solution before he set off.

Seaworthy is dedicated to using the BoatU.S. Marine Insurance claim files to let you learn from others’ mistakes. But it works even better when readers write in to share their what-can-go-wrong stories and hard-earned wisdom. Sometimes the letter writer even happens to be the author of the article.

If you know any boaters who could use a little hard-won advice, give them some for Christmas. Just buy a gift subscription to Seaworthy at www.BoatUS.com/Seaworthy/giftsub.asp