

Seaworthy

KEEPING YOU AND YOUR BOAT SAFE ON THE WATER

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by Beth A. Leonard

BACK IN 2005, *Seaworthy* took a look at the top 10 claims for the BoatU.S. Marine Insurance Program. After eight eventful years (think Ike, Irene, Snowmageddon, tornadoes, drought, Sandy ...), the time seemed right to revisit our findings to see what, if anything, had changed, and what those changes might mean for conscientious boaters. We analyzed five years of claims, from January 1, 2008 to December 31, 2012, and ranked loss categories by the total dollar value of claims paid out over that time period. The Top 10 will give you a good sense of where boaters can go wrong, and for each type of loss, we have numerous resources on our website to help you avoid becoming a statistic.

You'll find the countdown to No. 1 on pages 4 and 5. You'll also see two additional numbers for each loss category. The average payout per claim shows the category ranking in terms of the average dollars paid out per claim over the last five years. The 2005 rank shows where that category stood in the *Seaworthy* Top 10 eight years ago. A few things have changed in that time. Striking submerged objects has moved down the list; non-hurricane weather damage has moved up. We've broken out injury as a separate category, and that has joined the Top 10, pushing theft of equipment off the list. But the No. 1 cause of losses in terms of total dollar value paid out has not changed — and most *Seaworthy* readers can guess what that is. In coming issues, *Seaworthy* will be digging deep into each of the Top 10 to share the causes that lie behind the losses, and what you can do to avoid them.

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ESD FAQs

Excellent article. Heard about ESD but never understood it. Is there a way to test the water for current before swimming? Are we at risk when anchored and running a generator?

Thanks for this valuable information.

Jim Dobbs
Deer Park, IL

Unfortunately, there is no reliable way to test the water for stray current. The electrical fields that are generated can be very small and localized. The exact strength, size, and shape depend upon the amount of current, size of the underwater metal fittings, water temperature, and a host of other factors. You'd have to test the entire area where anyone might go while swimming. Even then, cycling loads further complicate things because you could test and find no current and then a compressor could kick on and the same area would now be dangerous. That's why we recommend so strongly simply not swimming within 100 yards of an electrified dock. That will not help if someone falls into the water accidentally, which is why it is still important to follow all the electrical codes and standards for boats and docks to minimize the chance of current leakage into the water.

On the generator question, unless you are sharing power with another boat (by passing the output cable to another boat to charge its batteries), the source of the electricity is on your boat, so any stray current trying to return to the source will NOT travel through the water.

Our community marina in the Providence community outside Annapolis is located on Mill Creek.

I would submit that the salinity level in the Providence Marina is at least equal to and probably lower than out

in the Chesapeake Bay off Annapolis, particularly after storm runoff. How high must the salinity level be to be protected from ESD from alternating current leakage?

Jim Stoops
Annapolis, MD

There is no absolute answer to this question because there are too many variables. The problem arises at the point when it is easier for a dangerous amount of current in the water to pass through the human body than through the surrounding water. But that exact point depends on many things besides salinity including water temperature, the body composition of the victim, and the amount of current leaking into the water. Even if we knew the answers to these questions, the salinity in a given place varies greatly depending upon rainfall and tidal fluctuations, so an area that might be "safe" one day may not be the next. This is another reason why we recommend to marinas and owners of shared docks like condo associations that they prohibit swimming completely within 100 yards of the docks.

Our boat club members at Minisceongo Yacht Club in Stony Point, New York were engaged with your *Seaworthy* article on electrical leakage. We are going to check our boats in our marina for AC leakage. Your article displayed a clamp meter. Can you tell me the brand and model?

Harvey Rosenberg
Paramus, NJ

David Rifkin of Quality Marine Services, who has tested hundreds of docks, recommends the Hioki 3280-20 Clamp On HiTester, which has a multimeter function as well. It retails for about \$150.



Hioki 3280-20 Clamp On HiTester

PRE-LOVED SAILBOATS

Your *Seaworthy* article titled "Inspecting Older Sailboats" in the July issue was dead-nuts on. As a surveyor with a lot of experience in surveying older boats, the only thing I felt was missing was a suggestion that owners periodically unstep their masts for inspections. Asking longtime boat owners, "When was the last time you unstepped your rig and completely examined it?" usually elicits a blank look. Many times, I will be told that the 30-year-old boat has never had the mast unstepped. That's when I ask my next question: "So, when was the last time a rigger went aloft?" I am often told that it was when the owner lost a main-sail halyard (or jib halyard, or something else) and had a rigger go aloft to retrieve it. When asked whether the rigger inspected the rig while aloft, the answer is usually, "No."

In regard to going aloft for inspections: Wisdom has also taught me to be reluctant in putting my life in the hands of someone I may have only just met, especially going up a rig that is suspect enough to warrant a rigging inspection. I have no fear of height or depth — only a healthy fear of impact.

I have done a considerable amount of rigging work, and I am reasonably knowledgeable about it. During an inspection aloft, important details can be missed. Rig inspections from aloft are

beyond the scope of a normal survey. For a proper inspection and/or survey, the rig should be unstepped and removed from the vessel for close and detailed inspection.

Just saying.

Fred C. Bieberbach, Jr., AMS
Bravo Marine Associates
Riverside, RI

We bought a 1981 Endeavour 37 in Florida when I was still working in Arizona, so I went by the professional survey. I had looked the boat over but not as carefully as I might have because there was another offer on it. After I took delivery, we discovered some very important things that the professional surveyor missed! The steering mechanism was rotted, the fuel tank leaked, and the generator that “powered up” did not even exist! So it is important not only to thoroughly know and inspect your boat, but also to check the credentials of any surveyor you use.

Charles Smith
Port Charlotte, FL

I recently bought an old Morgan 24, which had spent many years either on land or on a private lift — out of the water. The glass hull is in fine condition, but the interior plywood “ribs” and structure have suffered from dry rot. The “supports” are generally hollow, as much of the wood has turned to dust. I did have a survey on this boat, but these areas were apparently overlooked. As a longtime tinkerer and boat rebuilder, I am making the repairs; but this effort was not something I planned to have to tackle.

Dane Hahn
Englewood, FL

Your chances of getting a quality surveyor that can find such “hidden” problems increase greatly when you hire one who belongs to one of

the recognized professional marine survey societies (NAMS and SAMS). Additionally, try to find a surveyor who has experience in the model of boat you’re looking at and, for a sailboat, consider hiring someone who specializes in rig surveys. For more on picking a surveyor, see www.BoatUS.com/Magazine/2013/August/dont-fall-for-a-pretty-face.asp

BOATU.S. MMSI

I’m in the process of purchasing electronic equipment that requires an MMSI (Maritime Mobile Service Identity). I filed with BoatU.S. and received my number but, according to the July *Seaworthy*, my number is no good outside the U.S. I plan to go to Mexico and/or Canada in the future. Do I now have to get a different MMSI number from the FCC and remove and send my equipment back to the manufacturer for reprogramming?

John McDonnell
Evergreen, CO

As the website explains (www.BoatUS.com/MMSI), BoatU.S. is only authorized to issue MMSIs for national waters. We have recently changed the site to make this absolutely clear. If you intend to go to Canada and Mexico, you will need to get an FCC Ship Station License and they will issue you an MMSI which you would then program into the radio. Your owner’s manual will tell you how many attempts you have to program the number. If your radio gives you two attempts to program, you should be able to put the new number in without contacting the manufacturer. If it only allows you to program the unit once, call your manufacturer. They may be able to provide you with a reset code so you can reprogram the MMSI number without sending it back to the manufacturer. Your FCC-issued MMSI will work in U.S. waters.

TRAILERABLE BOAT THEFT PREVENTION

Regarding the article, “From Locks to Lockdown,” that appeared in the July *Seaworthy* magazine, one simple way to prevent trailer theft is to paint your trailer a bright color. This has been suggested before by BoatU.S. I have a yellow and an orange trailer for my two boats. At my boat ramp where sometimes 60 trailers are parked, my trailers are the only ones that aren’t galvanized gray.

Bruce Smith
Cape Coral, FL

The best place for your hitch when not in use is in your trunk. In fact, it should be a law that all hitches should never be left on the tow vehicle. I was the last car in a three-car pileup one day when taking my wife to her doctor. The hitch had been left on the SUV in front of me. The ball left a hole in the radiator and pushed the engine back. We were lucky we did not get hurt. Yes, it destroyed our car.

I tow my boat, and it’s very simple to remove the hitch. Keep it in your vehicle trunk where it will not get stolen — and where it won’t hurt anyone.

Bob Spagnola
Lake Murray, SC

Addendum:

*The first paragraph of the “ESD Explained” article in the July *Seaworthy* described the death of Noah Winstead in Cherokee Lake near Knoxville, Tennessee over the 4th of July weekend last year. Noah’s good friend, 11-year-old Nate Parker Lynam, was also incapacitated by ESD in that same incident. Nate was pulled from the water and resuscitated but died early the following evening. We thank Noah’s mother for helping us set the record straight and reminding us of the terrible tragedy of two young boys’ deaths.*



2005 rank: 8th
Average payout per claim: #6

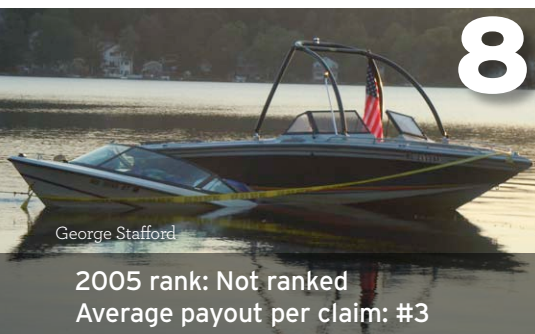
LIGHTNING While only 1.2 percent of the claims filed by our insureds are for lightning strikes, the average payout for those claims is twice that of flooding or collision. Damage to the electrical system doesn't come as much of a surprise after a lightning strike, but there can also be extensive hull damage due to "exit wounds." From *Seaworthy's* perspective, lightning is the most frustrating thing in the Top 10 — we have no proven advice to offer on how to avoid getting struck. Most often, the only visible signs are scorched areas along wiring runs, around rigging, or in the vicinity of electrical panels. If you think your boat might have been hit, call the BoatU.S. Claims Department. We'll usually cover a short haul to check for damage.



Norfolk Police Department

2005 rank: 9th
Average payout per claim: #1

THEFT While boat theft only ranks #16 in terms of number of claims, it's #1 in terms of the average payout per claim. Even if a boat is recovered, there's usually very little left that's worth anything. Ninety percent of stolen boats are taken while on their trailers; high-performance boats in South Florida are most vulnerable. Your best tool for foiling the bad guys is frustration. Thieves are lazy and anything you can do to increase the time or difficulty (work!) it takes to steal your boat will discourage theft. When stowing your trailerable boat for the winter, taking the wheels off the trailer and supporting it well on blocks is one of the best ways to make your boat an unattractive target.



George Stafford

2005 rank: Not ranked
Average payout per claim: #3

INJURY Like theft, injuries tend to be infrequent but expensive. Only one percent of the claims filed by our insureds are for injury alone, but the average pay out per claim comes in at #3. Settlements for injury claims can reach six figures, which is the reason why having personal liability coverage is so important. Many injury claims involve inexperienced guests, so be sure to warn your non-boating friends about wakes, waves, slippery surfaces, and other hazards. And remember that, unlike in a car, passengers who have been drinking on a boat are not strapped into their seats, so they can — and do — get into trouble.



2005 rank: 7th
Average payout per claim: #7

GROUNDING Grounding ranks consistently at #7 no matter which way you look at it, and that was also true in 2005. While some boats end up total losses from a grounding, others escape almost entirely unscathed. The average payout per claim ends up being halfway between the two. Accurate charts — whether paper, electronic, or on a mobile device — and a depth sounder are your best defense against grounding. But a depth sounder's assistance will be limited to confirming that you are indeed aground unless you know how to use it and how to plot your position on the chart. Once you are aground, waiting for the tide or a tow is less likely to do more damage than trying to power off.



2005 rank: 6th
Average payout per claim: #11

COLLISION It's the too-close encounters with docks, pilings, and other stationary objects that help keep collisions from climbing higher up the list because these result in a lot less damage than running into another boat. (Note: Technically a collision is between two vessels, while an allision is between a vessel and a fixed object. For this discussion, we'll use "collision" for both.) Most collisions result from some combination of three factors: inattention, blind spots, and too much speed. Inattention includes leaving the steering to the autopilot. Misunderstandings of the Rules of the Road also play a role. You won't go far wrong if you do whatever is necessary to avoid a collision and make obvious course changes early.

FIRE/EXPLOSION While fire and explosion make up only 2.5 percent of all claims in the past five years, the average payout per claim ranks second only to theft. That's because, like theft, fire or explosion all too often results in the total loss of the boat. Faulty wiring causes most fires; most explosions result from fueling issues. Inspect your boat regularly for chafing wires or wires that aren't properly supported and for corrosion of AC shore power inlets and damaged shore power cords. If you ever smell raw gas, something's really wrong. Get everyone off the boat and have it checked immediately. Finally, make sure you have the proper number and type of working fire extinguishers aboard.



STRIKING SUBMERGED OBJECT Between 2008 and 2012, the number of claims for striking a submerged object increased by almost 30 percent, at least in part due to the prolonged drought across much of the country in 2011 and 2012. Unlike fire/explosion and theft, hitting something below the water rarely results in a total loss. But don't let the claim turn into a sinking. That large clunk from down under could have put a huge strain on struts, stuffing boxes, and other underwater gear. Stop and check the bilge for leaks and, when you get back to the dock, check again — thoroughly. Any water could mean serious damage and a haulout (covered by insurance, but notify BoatU.S. Marine Insurance first) is in order.



WEATHER/WIND Non-hurricane wind and weather damage advanced farther up the ranks from 2005 than any other category. That reflects the devastating storms of the last few years with heavy snowfall across much of the country in the winters of 2009/2010 and 2010/2011, the second most active tornado season on record in 2011, and the wind storm called a super derecho that affected a dozen states in June of 2012. Most of the advice on preparing for hurricanes applies to these other storms: minimize windage, tie your boat securely, and guard against chafe. Unfortunately, for many of these storms you'll get considerably less warning than for a hurricane. So our best advice is to keep your boat in a well-protected place.



SINKING The first rule of boating: Keep the water out! All too often when that simple rule gets violated, the boat ends up a total loss. In 2011, the dollars paid out for sinking claims exceeded the payouts from Hurricane Irene, though Irene generated more than 10 times the number of claims. Water most often finds its way in through those pesky holes below the waterline. Many underwater holes have a way to keep them closed when they're not needed — seacocks. But seacocks must often remain open, so it falls to lesser fittings like hoses and clamps to keep the water out. Check, squeeze, and tug on all fittings below the waterline at least once a season to make sure your boat stays afloat.



HURRICANE Between 2008 and 2012, there were three major hurricanes — Ike, Irene, and Sandy — and the last two had claims numbering in the thousands. Our average payout per claim, however, comes in at #10 and ranks significantly below other categories where the entire boat is often lost — like theft, fire/explosion, and sinking — for two reasons. First, the increasing use of the hurricane haulout provision by our insureds has reduced losses. Second, our skilled and efficient Catastrophe Team handles large numbers of boats at one time and can negotiate the best rates for salvage and wreck removal. Hurricane preparation begins with the development of a well-thought-out hurricane plan (see www.BoatUS.com/hurricanes). ⚓



LONG WINTER'S NAP

Protect, maintain, and drain your outboard before putting it to bed so it will be raring to go come spring

by John Tiger



Neglecting your outboard over winter could be an expensive mistake come spring.

WELL BEFORE WINTER'S cold arrives, your outboard needs to be prepared — especially if you live where freezing could occur (more places than most people think). You can do it yourself with hand tools, an afternoon's time, and some pretty inexpensive supplies. You'll need a place to work, where you can start and run the engine(s) for a short while without incurring complaints about the noise and (some) smoke, a good water supply, and adequate ventilation. While winterizing procedures vary somewhat for older engines vs. newer ones, and for two-stroke vs. four-stroke outboards, the basics are the same. To do the job right, you need to protect, maintain, and drain.

PROTECT YOUR MACHINERY

Consult your engine's owner's manual or service manual before you begin. Today's engines (especially four-stroke and direct-injected two-stroke outboards) may have special winterizing, flushing, and maintenance instructions, so follow them closely. For example, Evinrude's E-Tec outboards feature a self-winterizing mode in the engine's electronic programming. What a great feature — it's simple to do by following the instructions in the winterizing section of the owner's

manual, yet if you don't know about it, you might be tempted to try it the traditional way. If your engine is still under warranty, and you don't winterize it according to the manufacturer's instructions, you could easily void the warranty coverage.

While the specific instructions might vary, in most cases, you'll need to do the following:

- The engine's fuel supply must be treated for storage or drained completely. For a discussion of expert opinions, see "The Ethanol Debate," page 8.
- The engine should be flushed according to the manufacturer's instructions. Sometimes, this doesn't involve running the engine at all; newer engines have a garden hose fitting that allows for a quick flush without starting the engine. Check your manual for specifics.
- The engine's lubricants (engine oil for four-stroke outboards, and lower unit gear lube for all outboards) should be drained and refilled, and the fuel filters changed. Water or other contaminants must be flushed out and replaced with fresh lube before winter. Any water present in the gearcase, for example, will sit on steel shafts and bearings over the winter, coating them with rust. Run the engine to get

the oil and lower unit lubricant warm before draining. This will make it flow easier and also get any contaminants in suspension so they drain instead of sitting inside. Change the oil filter when you change the oil. Change the fuel filter. If your engine doesn't have a water-separating fuel filter, consider installing one now.

- After treating the fuel and running the engine for a few minutes, the engine should be "fogged" with a storage lubricant. This protects the internals (bearings, seals, and rotating surfaces) with a thin film of lubricant, which helps keep rust and corrosion away. With the engine running, inject fogging oil through the carburetors or electronic fuel injection (EFI) system air intakes in such a way as to "flood" the engine with oil until it begins to smoke, then continue fogging it until it stalls. Fogging can also be done with the engine shut down; in this case, the spark plugs are removed and the oil is sprayed into the cylinders, rotating the flywheel to distribute the oil.

PERFORM PERIODIC AND ROUTINE MAINTENANCE

Check your owner's manual and have all periodic maintenance done. Much of this will be beyond the expertise of the average do-it-yourselfer — valve adjustments, belt tension adjustments, etc. — and must be done by a qualified technician. Perform all necessary repairs, or at least put them on the list for spring. Then take the opportunity to complete routine maintenance so there aren't any surprises next year. That includes the following:

- Pay particular attention to gearcase damage. If the propeller is damaged,

▶ ONLINE EXTRA

For the latest on flushing techniques go to: www.BoatUS.com/Magazine/2013/August/outboard-flushing-the-right-way.asp

have it repaired now, not in spring. You may even get an “off season” discount. Check the blades, and look for cracks — especially on stainless steel props. Small cracks can quickly spread and grow, and sometime next season you may find yourself short a blade. When you remove the prop, rotate the propeller shaft to check for damage. Check for fishline snarls around the forward thrust washer (the one between the forward end of the prop and the rearward end of the gearcase). If there’s fishline there, check the lube carefully when you drain the gear case. Snarled fishline often damages the seals in the gearcase’s rear bearing carrier. This lets lubricant out and water in. If there’s water present in the lubricant, it will be milky-appearing and a light coffee color, and the gearcase must be resealed.

- Check for electrolysis corrosion on the lower unit, propeller, and any surrounding metal, and repair it. Electrolysis appears as small white crystals of fine powder attached to the prop, gearcase, and other metal surfaces. It occurs as a reaction to dissimilar metals or electrical current in the water. To repair the lower unit, sand corrosion off, clean, and paint with primer and then factory-matched paint. While automotive primer will work, it’s better to use a marine primer with zinc chromate to help further retard corrosion. This is also a good time to replace the anodes.
 - Lightly lubricate all moving parts with a fine silicone lube. This includes throttle and shift linkages, tilt pins, and steering shafts.
 - Check the manual for greasing points, and grease them with a marine (preferably synthetic) water-resistant grease. Typically, these greasing points are at pivot areas: steering, tilt, trim, engine cowl latches, etc. Don’t
- don’t over-grease; the excess typically hardens over time and clogs up the works. Grease the propeller shaft before reinstalling the propeller.
- Lubricate the steering system. Steering cable systems also need to be greased (there is typically a grease fitting at the engine end of the cable). To keep old grease from building up and hardening inside the cable, it’s best to remove the cable from the engine, then rotate the steering wheel so the cable is fully extended. Clean all old grease from inside the cable end, then lightly coat the inner cable shaft with fresh synthetic marine grease. Reattach the cable to the engine and rotate the steering lock-to-lock a few times to distribute the new grease. If your steering system is hydraulic, check the fluid level and free play in the system. If fluid level is low, top it off with fresh hydraulic steering fluid, and then, if necessary, bleed the system to purge excess air.
 - The engine trim system should be checked carefully for leaks. The fluid level should be topped off with the correct fluid. Coat the electrical connections lightly with silicone lubricant.
 - Inspection and maintenance of a performance outboard rig equipped with a jack plate is safety-critical. Check the engine and jack plate mounting bolts for tightness, as well as the up/down movement and any side-to-side free play. Look carefully for cracks in the plate; if any exist, replace the plate — don’t attempt to fix it.
 - Clean out water pressure gauges and/or a speedometer that uses water pressure. Consider removing the gauge pressure hose and using compressed air, blowing any remaining water out of the hose and fittings. Removing the hose from the backside of the gauge will allow any water to drain out of the gauge itself, reducing the chance of freezing damage.
 - If your boat will be stored out of the water, remove the batteries and store



John Tiger

Check your owner’s manual for the correct winter flushing technique for your engine.

them in a cool, dry place. Clean the terminals; use a trickle charger to keep them charged during the winter.

DRAIN ALL WATER

After all this is done, all water should be drained from the engine and drive to eliminate the chance of freezing. If there’s water in the engine block or in the gearcase and it freezes, chances are high it will crack the surrounding material, which is an expensive repair bill for you. Most outboards can be drained simply by tilting them to the upright, running position. Allow all the water to drain from the powerhead through the propeller and/or exhaust outlets. Store the engine in the running (tilted down) position; otherwise water that gets in through the hub can freeze and crack the lower unit housing.

PROTECT FROM THE ELEMENTS

All the painted, exposed surfaces of the outboard should be protected with a coat of wax. The engine should be covered with a fabric or plastic cover that can be secured tightly enough to keep it from flapping and abrading the paint. After it drains, the exhaust opening should be covered with plastic tape and sealed to keep water and rodents out.

Properly winterizing your outboard engine will assure that your engine — and you — will be able to nap comfortably during the cold months ahead and hit the water running at the first sign of warm weather. 🦁

The Ethanol Debate

Leave your gas tank full or empty over the winter?

by Charles Fort

EVER SINCE E10 (a gasoline blend with 10 percent ethanol) became widespread, there have been two schools of thought when it comes to winterizing your boat: Keep the tank full, or empty it completely.

Both sides agree on the basic facts. Ethanol is hydrophilic — it attracts and holds water. Small amounts of water will be burned in the combustion cycle, but ethanol can only absorb so much water. When it becomes completely saturated, phase separation occurs, and the corrosive ethanol-water mixture sinks to the bottom of the tank. If the engine is run, this mixture can damage seals, O-rings, injectors, and other delicate engine parts. The upper “gasoline” layer will be depleted of ethanol and have a reduced octane level, which can also cause engine problems. If a tank is left partially full, there is more room in the tank, which means more surface area for condensation formation and less ethanol to absorb the resulting water. Cycling temperatures from warm to cold also increases the amount of condensation. Finally, ethanol cannot absorb as much water at low temperatures as it can when it’s warmer, so the gasoline will phase separate more quickly in colder temperatures.

The obvious answer is to completely empty the tank — and even the fuel lines and filters if possible. But any boat owner with a gas tank capacity of more than a few gallons will tell you how problematic it is to completely drain it. USCG regulations prohibit drain valves on the bottom of a gas tank (imagine what would happen if one corroded through or broke off, leaving a bilge full of gasoline) so the only way to remove gas is by pumping it out. Too many of our claim files prove that using something like a shop vac to do the job will land you in the hospital. Finding ignition-protected equipment and transporting and disposing of the gas afterward is simply not practical for the average boat owner.

That’s why *Seaworthy* has always been in the keep-it-full camp. We are, after all, boat owners, so we’re forced to take our own advice. If it’s impractical or impossible to empty the tank completely, then keeping it full should make it more difficult for enough water to get into the fuel to cause problems.



If you have ethanol in your gas, you need to take steps to protect your boat over the winter.

But just in case we missed something, we asked some industry experts for their thoughts on the subject.

Bob Popiel, head of marine service at Yamaha, said his preference is complete draining of the fuel system including tank, fuel lines, carburetor bowls, and the vapor separator tank (VST). VSTs, he says, can hold a cup of fuel and they’re vented to the atmosphere, as are carburetor bowls. The VST has a drain, but it is hard to access for a typical owner, while on older engines, carburetor bowls have drains that most people can get to, he says. Draining the system is even more important on older engines (10-15 years old) because they don’t have the same ethanol-resistant parts that new engines do. That said, Popiel knows that draining the whole

fuel system is often difficult, so another option is to simply disconnect the fuel supply and let the engine run out of fuel, which will at least drain most of the gas from the VST or float bowls. If you choose not to drain the system, he recommends keeping the fuel tank completely full, adding a good quality stabilizer, and running the engine enough to get fuel all the way through the system. Ten minutes ought to do it, he says.

John McKnight, director of environmental and safety compliance with the National Marine Manufacturers Association, says, if you’re storing gasoline for two months or more, try to drain the tank if possible. If it’s not practical, add stabilizer and run the engine for 10 minutes to allow it to get into the fuel system.

Mercury Marine says that if it is difficult or not possible to remove the fuel, maintain a full tank of fuel with a fuel stabilizer added to provide fuel stability and corrosion protection. Top off the tank until it’s full to reduce the amount of exchange with the air that might bring in condensation, don’t cap the tank vent, and don’t fill with fuel to the point of overflowing so there is some extra space in the tank to allow for fuel expansion and contraction with temperature changes.

So there you have it. If you can empty your tank — and entire fuel system — for the winter, then do it. But where that’s impractical, keep the tank full, add a stabilizer, run the engine for 10 minutes, and sleep well. 🛏



Courtesy Jolie Yacht Transport

Navigating The Asphalt Ocean

What you need to know if you transport your boat overland

by Charles Fort

LAST YEAR, STEFFEN Schmidt wanted to move his Beneteau 373 Oceanus from Seattle, Washington to Wickford Cove, Rhode Island. He hired a boat transport company to handle everything and assumed the move would go as well as it did four years earlier when he'd shipped the boat from Rhode Island to Washington. But this time was different; the boat's prop and cutlass bearing were damaged where it rested on one of the trailer struts and the mast was gashed and mangled.

Schmidt called the trucking company, hoping they would send an insurance adjuster to inspect the damage. After all, their advertisement claimed, "Insured for \$1,250,000, which assures that your investment will be protected while it's on our trailers." His first surprise came when the company said that they handle claims of less than \$100,000 "in house," and wouldn't even

give him their insurance carrier's name. The second surprise was how they handled in-house claims. Instead of asking Schmidt to get estimates, the company began trying to negotiate the claim and wanted to fix the mast themselves, even though it was obvious it would have to be replaced. Schmidt eventually hired a marine surveyor who, with Beneteau's input, helped get a repair quote from a

local yard. The cost to repair his boat would be over \$25,000, several times more than the transport cost, and the boat would be out of commission for weeks.

Every spring and fall, thousands of boats are transported by truck across a state or across the country. Before you ship your boat, you need to know how to find a reliable shipper, how to pre-

pare your boat properly, and what to do if something goes wrong.

FINDING A SHIPPER

Transportation service providers (TSPs), or shippers, are state licensed and are issued an Operating Authority document by the U.S. Dept. of Transportation (DOT). In addition, TSPs must obtain vehicle insurance and drivers must have commercial driver's licenses, which include testing requirements for drugs and alcohol. Equally important, they should have liability and cargo insurance to protect your boat. Ask to see the DOT or state documents and copies of the cargo insurance; reluctance to provide this information is reason enough to look elsewhere. DOT makes it easy to check up on the status of commercial carriers' licenses, their motor carrier insurance data, and their safety ratings (see sidebar). Had Schmidt known, he could have checked the DOT website and found his TSP failed a much higher percentage of truck inspections than average — an indication of sloppy maintenance and a red flag.

Choose a TSP that specializes in boat transport, not one that carries boats simply to fill their empty trucks. The transporter needs to know how the

boat must be supported, balanced, and secured, and they need experience working with state permit agencies because most larger boats exceed width restrictions and may be over the maximum height restriction.

All transportation agreements should be in writing, with complete information about costs, taxes, tariffs, scheduling, security, and pickup and delivery locations, as well as rules about refunds for cancellations or delays. Make sure you read the shipper's contract and if you don't understand something, ask. Consult with an attorney if you're still unclear.

PREPARE YOUR BOAT PROPERLY

The most important thing to know about preparing your boat is that it's usually not the job of the transport company. Unless they've agreed otherwise — and most don't — their job is simply to ship the boat from one point to another without damaging it. Smacking a low bridge at 60 mph will certainly damage a boat, but the Marine Insurance claim files and Consumer Protection databases show that the most common cause of damage is due to improper or incomplete preparation. Consider that your boat may be traveling down the highway in hurri-

cane-force winds and experience road vibration for days. Your best bet is to use a boatyard experienced in preparing boats for transport. For larger boats, consider hiring a marine surveyor to supervise the preparations and coordinate with another one at the boat's destination to supervise the off-loading and recommissioning.

Dana Holland, a senior BoatU.S. Marine Insurance claims adjuster, says, "The prepping of the boat is critical." She has handled a lot of claims that resulted from damage during transport, so she knows what can go wrong. "When you hire someone to prep your boat for transport, get a contract in writing that specifies what they do," she recommends. So what should they do? Canvas, frames, mast spreaders and lights, and other equipment on the masts should be removed. Stays and halyards should be removed or secured tightly to the mast — pallet wrap works well — and the entire mast wrapped in padding, such as carpet. Note that if the stays are left on, they may mark up the mast and it may be better to remove them, especially for a painted mast. On large powerboats, the flybridge will have to be taken off and may even be shipped separately. Bow and stern rails as well as stanchions may have to be removed if the boat is particularly tall. Remove loose items from lockers and secure all locker doors; the boat may experience rough roads and sudden stops. All hatches must be securely dogged down and taped over from the outside to keep rain out. Keep in mind that your boat may be going down the road stern-first and will be subjected to unusual winds. Windshields may have to be removed. Dinghies must be removed from davits and transported below or shipped separately if they won't fit. Expensive electronics should be removed and shipped separately or securely stowed inside the boat with all access locked. Holland says, "Attend the preparation if you can and take lots of pictures of the boat — bow to stern and top to bottom, including the mast

Grouped photos courtesy of Joule Yacht Transport



Top left: Larger boats will likely need pulpits and stanchions removed. Lower left: This radar arch was too high to make it under a bridge. It's the owner's job to remove anything that might be too high. Right: This mast is well-protected and secured for travel.

and hull supports — to show there was no prior damage. Set your camera to show the date.”

Shippers usually provide a “condition of cargo” form that is filled out after loading that specifies any existing damage and notes the overall condition of the boat. Make sure the driver or a representative of the TSP signs it. Expect your boat to arrive dirty, especially if it’s a long cross-country trip. Many TSPs recommend against shrinkwrapping boats because it can be torn off and cause damage at high speeds. For freshwater boats, thoroughly inspect your boat for zebra mussels or other invasive species. Your boat may be checked for them at weigh stations, which could cause delays. If a Southern boat is being transported during winter months, it should be winterized completely, because it may experience much colder temperatures than normal. Water and fuel tanks should be drained and battery cables should be disconnected. Be sure to settle up with the boatyard that prepares your boat before the truck arrives so there won’t be any delays; boatyards typically won’t allow a boat to be loaded until their services are paid for, especially those going cross-country.

Usually, a TSP will require a deposit up front, which is often necessary to get permits and escorts. Full payment is due at delivery and shippers will probably not release the boat until they’re paid, so make arrangements to have a certified check at the drop-off point if

BE WARY OF ONLINE SHOPPING

Finding a transporter online may seem like a great way to save money, but beware. BoatU.S. Consumer Protection has received numerous complaints from members who used bid-type clearinghouses to find transportation service providers (TSPs). For a fee, the websites allow you to enter your information and receive bids from several TSPs. In theory, you simply pick the best price and make the arrangements with the shipper. Unfortunately, the websites don’t verify or validate the claims about experience, insurance coverage, and licensure made by trucking companies that are bidding for your business. They also won’t help if you have problems with the shipper. Some members who posted negative reviews on one site found their comments had been deleted. If you decide to use such a service, use the same diligence you would if you called a shipper directly. Verify their status with the DOT, and get copies of their cargo insurance. Don’t forget to search the Consumer Protection database as well to see if we have any record of complaints against the shipper you are considering.

you won’t be there. Some shippers will allow you to make a wire transfer. If you can’t be there for the drop off, make sure someone you trust can make a thorough inspection. Emailing or sending them a disc of the pictures you took makes it easier to spot problems. Keep in mind that delivery dates are approximate and weather, traffic, or road construction issues can cause unforeseen delays. You may need to coordinate a new schedule at the drop-off point.


WHAT TO DO IF SOMETHING GOES WRONG

If you hired a marine surveyor to supervise the loading, arrangements should be made for a local surveyor to check over the boat on arrival. If you wait for the boatyard to inspect the boat as they’re reassembling it, you won’t be able to document any problems before the driver leaves — if you can’t make

it, try to get someone from the boatyard or a knowledgeable friend to be there at the delivery. Whoever does the inspection should go over the boat inside and out, make a detailed report, and have the driver sign it. The driver may have his own condition report but make sure he gets a copy of yours and

that you get a copy of his. Most TSPs require the shipping to be paid even if there is damage. Since smaller claims are usually handled without involving their insurance company, you may need to hire a marine surveyor to prepare an estimate and protect your interest. If you find the shipper reluctant to fix your boat, the DOT will investigate complaints about carriers.

If you are insured with BoatU.S. Marine Insurance, damage while shipping is covered. Holland says that if you find damage after shipping, call BoatU.S. Insurance immediately and file a claim. The pictures that you took may prove invaluable in settling the claim. BoatU.S. Insurance will then file a claim against the shipper or their insurance carrier. But keep in mind that if you are moving from one cruising area to another, you must notify BoatU.S. Insurance before you launch your boat.

Steffen Schmidt’s story had a happy ending. When he called BoatU.S. Consumer Protection about the damage to his Beneteau, they learned that he was insured through the BoatU.S. Marine Insurance program and helped him open a claim. After sending a marine surveyor to inspect and estimate the damage, Marine Insurance paid for the repairs and filed a claim against the shipper’s insurance. Instead of dealing with a prolonged negotiation and legal fees, Schmidt got to enjoy his boat in a new cruising ground. 

RESOURCES

TSP STATUS. FEDERAL MOTOR CARRIER SAFETY ADMINISTRATION (FMCSA) WEBSITE:

<http://safer.fmcsa.dot.gov/CompanySnapshot.aspx>

DEPARTMENT OF TRANSPORTATION COMPLAINTS:
888-368-7238

SOCIETY OF ACCREDITED MARINE SURVEYORS (SAMS):
www.marinesurvey.org

NATIONAL ASSOCIATION OF MARINE SURVEYORS NAMS:
www.namsqglobal.org

BOATU.S. MARINE INSURANCE CLAIMS: 1-800-937-1937

BOATU.S. CONSUMER PROTECTION DATABASE:
my.BoatUS.com/consumer/database.aspx



ELECTRIC HEATERS ≠ WINTERIZING

A heater is no substitute for properly winterizing a boat! Numerous freeze claims over the years have proven that point again and again. If you're tempted to leave your boat with a heater running this winter rather than winterizing, consider these examples:



1 THE OWNER OF a 24-foot Bayliner in Portland, Oregon never got around to winterizing his twin gas engines and instead put a heater in the engine compart-

ment. Like a lot of other people, the owner probably didn't realize that temperate states like Oregon often have nearly as many claims from freeze damage as frigid places like Minnesota. In fact, 40 percent of the ice/freezing claims in the past year came from nine states you wouldn't normally associate with freezing weather, including California, Texas, Georgia, and Tennessee. He also probably thought that a heater would provide enough protection even if it did get really cold. Unfortunately, power outages most often occur right when you need electricity most — when the worst winter weather hits. An ice storm came through just before Christmas, downing power lines and cutting off power to the heater long enough to freeze water in the engines. The next spring, when the owner fired up the engines, instead of heading out for the first cruise of the season, he limped back to

the dock with the manifolds from both engines cracked and spewing water. Because the marina was busy with launching and recommissioning boats for the season, the repairs couldn't be completed for weeks (Claim #0813453).



2 THIS 27-FOOT RINKER was "winterized" by placing a space heater in the engine room. The boat, which was afloat in her slip in Alabama (another "no-freeze" state), caught fire when the extension cord used to power the heater shorted where it had been damaged at some point. The boat was destroyed and damaged another boat as well as the dock (Claim #0300330). Other boats have been lost when the heater itself has caught fire, when the heater has ignited something combustible inside the boat, or when the heater has been tipped over by a large wake that rocked the boat. Even light bulbs in the engine room have caused fires.

Don't rely on an electric heater to keep your boat safe this winter — it may not, and it might even destroy your pride and joy. Winterize your boat properly, even if you live in an area that seems safe from hard freezes. It only takes a couple of hours to prepare a boat properly — or to destroy an engine in a cold snap if the power goes out.

EARN MONEY BY CHARTERING

Have you ever considered chartering your boat as a way to earn a bit of extra money? Whether you have a fishing boat up on the Great Lakes or a sailboat down in the Caribbean, chartering can be an attractive alternative to defray the costs of boat ownership. But beware — that little bit of extra money could turn into a big expense.



Most recreational boat insurance policies do not cover the losses incurred while the boat is being chartered. So

if something goes wrong with the boat or — even worse — someone gets injured, you might find yourself with a huge liability you hadn't anticipated. Check your policy over carefully, and, if in doubt, call and ask. The BoatU.S. Marine Insurance program can often find a way to meet your needs whether you're renting the boat out a few weekends during the summer or putting the boat into charter for an entire season.

SHRINKWRAPPING? TAKE CARE

Shrinkwrapping looks like a great way to protect your boat over winter, right? It is, as long as you don't ignite your boat while you're trying to wrap it. Last year there were several fires caused by owners trying to shrinkwrap their boats, and all the fires were serious. In one claim in Michigan, the owner of a 34-foot SeaRay used a roofing flame torch to tighten the wrap. After seeing smoke coming from inside the cockpit, he cut the wrap open and found flames, which quickly got out of control. Before the fire department could put out the fire, two boats were destroyed and three others were damaged (Claim #1216496). Fire and flammable shrinkwrap (and equally flammable fiberglass) don't mix. All it takes is a moment of inattention to ignite shrinkwrap, and sometimes the flames aren't even visible right away. Shrinkwrap is one job best left to the pros.



DRAIN PLUGS IN OR OUT?

It's that time of year again, time to tuck in the boat for another season. It's also the time of year when *Seaworthy* reminds you to make sure to take your drain plug out. But this year, our message is a bit more complicated than in the past.

You can thank Superstorm Sandy for that. Last year, many boats had already been winterized when Sandy came calling. Most of those boats ended up as total losses — because the drain plugs were out. The surge filled the boats

with saltwater and sank them on land, destroying the engines in the process. Dante Grover at Al Grover's High and Dry in Freeport, New York, had already winterized some of the boats when he saw Sandy coming. But for those that had not been winterized, he decided to leave drain plugs in, make sure bilge pumps were working, add extra bilge pumps, and top off batteries. All of the boats floated off their jackstands or dry stacks, but the boats with drain plugs out were almost all destroyed, while those with drain plugs in were not unin-

dated by the surge and most survived. BoatU.S. Catastrophe Team surveyor Ron Alcus, who worked at the marina after the storm, told *Seaworthy* he found "half the engine damage of any other marina in the area."

So, yes, drain plugs must be out for the winter to prevent freeze damage, and if you don't have to worry about hurricanes, that's all that needs to be said. But if you're in a hurricane-prone area, there are a couple of alternatives. If you shrinkwrap the boat before hurricane season is over, purchase a one-way drain plug (such as the CR Marine Automatic Drain Plug), leave that in, and cover the boat. That way, water would only get into the boat if the cover were ripped off, and then the drain plug would allow water out but not in.

Those plugs do clog easily, though, so the best solution might be to wait until after hurricane season to cover or shrinkwrap your boat, and to leave the drain plug out until then. But, if you see a hurricane approaching, you'll need to go to the marina and put the drain plug in. Then make sure the bilge pumps are working and the battery is topped up!

Carol Hasse



THE LATEST INSTALLMENT of boater versus beast involves a particular left-coast hazard — marauding otters. Port Townsend Sails founder and wooden boat virtuoso Carol Hasse, known as Hasse to her friends, has been trying to keep the cute critters off her Nordic Folkboat, *Lorraine*, for the last decade. But Hasse may have gained the upper hand.

“Those (maybe not so) adorable river otters that share our Salish Sea marinas are a real problem for vessels with low freeboard. The otters prefer to make themselves at home aboard boats with covers of any sort that will protect them from the elements while they urinate and defecate with great enthusiasm,” Hasse told *Seaworthy*. “Strategies for repelling them abound — open containers of mothballs, ‘markings’ left on the dock or mooring lines by male dogs or ‘salty dogs’ (also of the male variety), carpet tacks pointy end up, radios left on (arguments abound as to the effectiveness of NPR news, country, rap, hard rock, ...). In my experience, none of the above works 100 percent of the time, if at all. Not even high-pitched audio pest deterrents!”

For years Hasse tried to protect *Lorraine*’s brightwork from sun, snow, and rain with every conceivable type of boat cover. “I discovered that otters ALWAYS found their way under or around and created quite a water closet in *Lorraine*’s cockpit,” she said. “Nordic

Folkboats have an open cockpit and a common bilge — meaning hosing the cockpit sends any and all messes into the bilge to ripen aromatically. Hand cleaning the inside of a lapstrake hull is a special challenge; add otter droppings (or shall I say, explosions), and cleaning gets downright dangerous. Who would have thought that the thin shells that pass through an otter’s entrails could slice through surgical gloves? Or that their urine is nature’s best paint/varnish stripper?

“Tiring of that kind of spring cleaning made me stop using any of *Lorraine*’s lovely boat covers ... leaving her to the elements, but generally otter-free. Then one day I had an inspiration for a snug-fitting cover that would close off the cockpit to otters, relieve me of regular de-watering detail made necessary by winter rains, and protect the cabin sides and companionway hatch varnish. I approached my friend Leah Kefgen (now of Port Townsend Rigging and Canvas) who made the cover fit like a glove — I call it *Lorraine*’s dachshund sweater. It has worked brilliantly for three winter seasons, although perhaps our dog’s territorial expressions when visiting *Lorraine*’s dock deserve some credit, too!”

Score one for Hasse. We’ll be sure to let you know all the details if the otters make a comeback.

THE APTLY NAMED *Running Free* washed up on a sandy beach on Martha’s Vineyard on July 5, 54 days after being abandoned off Bermuda. The boat’s owner, Bill

Heldenbrand, left Jacksonville, Florida alone in May, bound for the U.K. with a planned layover in Bermuda. On the seventh day, he encountered heavy weather some 400 miles west of Bermuda. After battling 40-knot sustained winds and 15- to 20-foot waves for 18 hours, he hove to in order to get some rest. He woke to find the jib sheet chafed through and the jib flogging. A passing tanker offered to take him off the boat, and given the continuing deterioration in the weather, he decided to leave his belongings and the uninsured vessel, never expecting to see either one again.



Daniel Carpenter

But, as so often happens, boats prove to be much stronger and more capable than sailors expect. Not only did *Running Free* manage to survive the storm, but she ran the gamut of the busy East Coast shipping lanes, dodged the myriad rocky ledges and outcroppings along the New England coast, and beached herself on a sandy shore some 700 miles from where she was abandoned. The jib was shredded and the boom broken, but otherwise she was in fine shape. The solar panels had kept the batteries fully charged, and the electronics were all still working when Daniel Carpenter from TowBoatU.S. Falmouth set to work freeing her. “It took three days to remove, and the hull was still in very good shape,” Carpenter told *Seaworthy*.

There are numerous examples of sailboats being recovered intact after their owners abandoned them in even more extreme weather, including the

▶ ONLINE EXTRA

For a link to Coast Guard footage of *Satori*, check out Small Stuff in this issue online

sailboat featured in the movie, *The Perfect Storm*. Anyone who saw that movie or read the book will remember the Westsail 32, *Satori*, whose crew was plucked off the boat in the midst of the raging storm. Several days later, the boat washed up on a Maryland beach. A bag of personal items the skipper had mistakenly dropped when he left *Satori* was still on the afterdeck.

Running Free, *Satori*, and numerous other vessels in legendary storms like the 1979 Fastnet race, the 1994 Queen's Birthday storm, and the 1998 Sydney to Hobart race demonstrate how well boats can take care of themselves even in extreme conditions. Leaving the boat, whether for a life raft or a freighter, can be extremely dangerous. Among offshore sailors, the hard-won lessons from those storms can be boiled down to one piece of advice: "Don't abandon ship until you have to step up into the life raft."

IN THE "YOU MUST NOT BE A boater" category comes a story about a PLB (personal locator beacon) being put to an unusual use. It seems that a burglar broke into William Malloy's truck in Bakersfield, California and made off with approximately \$5,000 worth of boating and outdoor equipment, including an ACR PLB. Malloy reported the theft to the Bakersfield Police Department and informed the National Oceanic Atmospheric Administration (NOAA) of the disappearance of the beacon, since it had been registered with them.

A few days later, the U.S. Air Force Response Coordinator and the California Emergency Management Agency contacted Malloy. Was he aware that his beacon was going off? Though the

beacon had been reported stolen, they wanted to make sure that he hadn't recovered and activated it. No, Malloy told them, the beacon was still missing along with the rest of the loot. So a search and rescue was mounted, not for Malloy, but for his stolen gear. Law enforcement tracked that PLB signal right to the thief's lair, where they found not only Malloy's equipment but stolen goods belonging to several other victims as well.

Obviously the burglar was not a boater. Had he been, he would never have touched the one piece of equipment designed to bring government agencies right to its exact location. Malloy got his stuff back, and ended up spending only \$200 out-of-pocket — the cost of replacing the window in his truck. If thieves don't take up boating, maybe there will be more emergency-signal-assisted apprehensions.

HAVE YOU EVER fantasized about being a surveyor? Working outdoors, spending the day on or near the water, messing about in boats, helping people buy their dream boat or get paid by their insurance companies ... what's not to like? Well, plenty actually. If you're harboring romantic notions of the surveyor's life, take a good look. Surveyor T. Fred Wright of Carolina Marine Services submitted a damage appraisal with the photo at right in it and the comment, "I demand hazard pay!"

When Wright arrived at Lake Wylie, South Carolina to look at *Force Ten*, a 23-foot Bayliner that had sunk in its slip, the boat had already been recovered and was sitting on a trailer. Vic Winebarger of Boat Sales of Lake Wylie warned Fred of the "potential hazard" aboard. "The pictures should be attributed to Vic," Wright told *Seaworthy*. "I refused to go into the V-berth to investigate further; not that I'm chicken


or anything!" He found another snake lying on a stringer in the stern of the boat. "That one never moved while I was aboard," he said. "Thank goodness they warned me of the potential hazard before I boarded! Otherwise we'd have had to break out new undies."

Snakes may not have been the only critters involved. Wright found muskrat-gnawed flaps on the cockpit scupper drains, which may have contributed to the sinking.



Vic Winebarger

So if you're ever faced with a sunken boat in warm Southern waters, make sure you take a good look before reaching into any dark corners.

THE AMERICAN BOAT & Yacht Council (ABYC), the industry organization that writes safety standards for boats, has just released an iPhone app designed to help you figure out what safety equipment you are required to carry on your boat. "Boat Essentials — USCG Safety Gear" is a free checklist app for the new or experienced boater, developed with a U.S. Coast Guard Recreational Boating Safety Nonprofit Grant. When you download the app, you will be asked a series of questions about your boat, and based on the answers, the app will show you what equipment is required and what is optional. It can store information for up to three boats along with important dates, such as when your flares expire. To download the app, go to the iTunes store and search for "boating essentials safety gear." 

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Sharing Lessons From The Front Lines

PUT CHILDREN, WATER, and anything that floats together, and you can be certain a boat — of one kind or another — will result. It's as if we're born with the desire to captain our own vessel, no matter how humble. Researchers talk of a human drive toward exploration, a genetic need to expand our hunting grounds, an instinct to disperse to prevent overpopulation. Maybe. But those children with that bit of Styrofoam at the edge of a pond aren't really trying to go anywhere. They're just being kids, and most kids love water and anything that lets them stay in — or on — the water longer.

If that urge to get out on the water weren't so fundamental, there'd be a lot fewer boaters. Because once our boats become more than a bit of Styrofoam or a big piece of driftwood, it starts to feel as if nature is out to get us. Mostly it's our fault because we want to take so much stuff with us — our families, our fishing gear, our buddies, our pets, our cold drinks. Some of us even want to take our kitchens, bathrooms, and beds. We want to go farther and get there faster, so we trade in wood for fancy fiberglass composites, replace oars with an engine, and add sophisticated electrical systems to power our fancy electronics.

Now there are lots of things that can and do go wrong. On most boats, we start with a perfectly watertight fiberglass hull, and then we cut and drill holes through it. Some of those holes are below the waterline, so we attach hoses and valves and clamps to keep the water out. We run wir-

ing all over the boat, and we cram equipment into spaces where it can only be accessed by 3-year-olds. Nature tries to undo it all with saltwater that corrodes metals and wiring connections, chafe that parts lines and damages wiring, UV radiation that makes plastics brittle and gelcoat fade, and high temperatures that bake electronics and cause poorly ventilated equipment to overheat. To add insult to injury, cormorants bomb our decks with stinky, corrosive droppings, and winter invaders chew on insulation and nest in our cushions.

Sometimes it feels like a war out there. And *Seaworthy* has long been reporting from the front lines. To keep your boat from succumbing, to keep it seaworthy, takes hard-won knowledge amassed over decades. The BoatU.S. Marine Insurance program's claim files represent a treasure trove of information that we are privileged to mine for you. *Seaworthy* lets grown-ups spend more time on the water indulging their inner child.

Seaworthy isn't afraid to delve into everything from critter-proofing boats to preventing ethanol damage to engines to avoiding the top 10 causes of boat insurance claims. It's entirely possible — likely even — that other boaters you know haven't learned those hard-won lessons and are badly in need of a subscription to *Seaworthy*. Go to www.BoatUS.com/Seaworthy, click on the subscribe button, and, in just a few minutes, you can check off some of your boating friends' names from your Christmas list.

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Seaworthy looks at real claims and how they might have been avoided. For permission to reprint articles, email Seaworthy@BoatUS.com

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