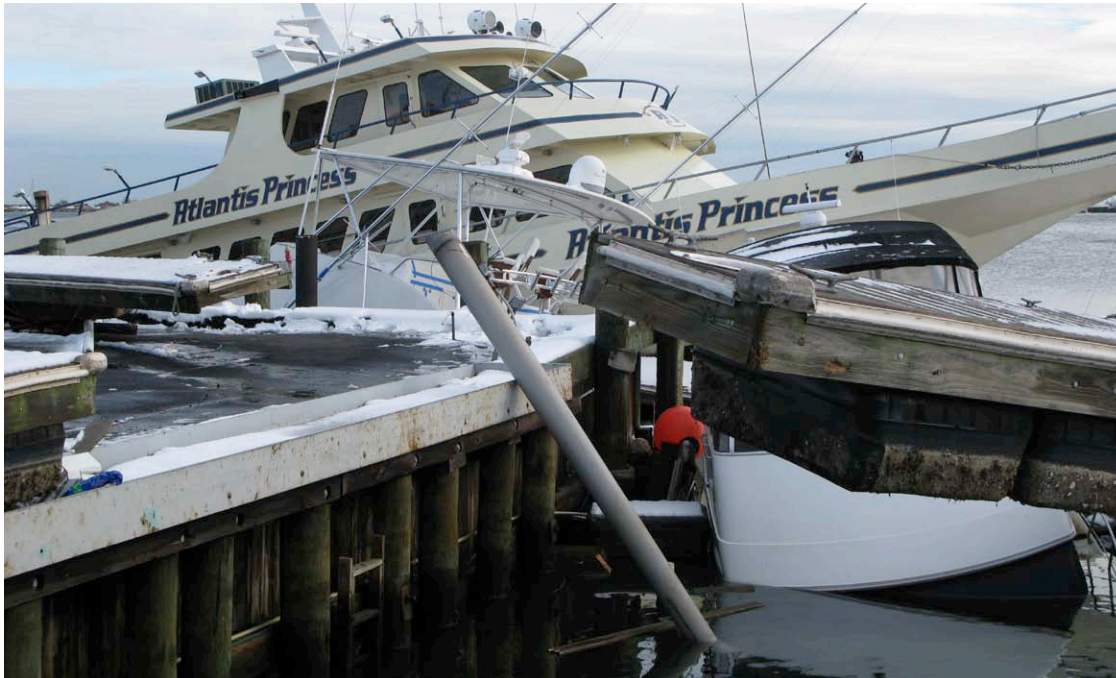


BoatU.S.[®] MARINE INSURANCE PROGRAM

Seaworthy

KEEPING YOU AND YOUR BOAT SAFE ON THE WATER

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Sifting Through Sandy

SINCE THE FIRST BoatU.S. Catastrophe (CAT) Team ventured into the field after Hurricane Alicia in 1983, *Seaworthy* has been sharing lessons learned on preparing boats for hurricanes. So when the *Seaworthy* editors visited Staten Island and northern New Jersey 10 days after Sandy, they were heartbroken to see the number of carefully prepared boats that had been damaged or destroyed. It would be easy to get discouraged and conclude preparations had no bearing on the outcome. But that would be taking the wrong lesson from this storm.

A “boat stew” of boats, docks, and equipment on Staten Island after Sandy.

The bottom line is that most marinas near the epicenter of the storm were not built to withstand a 10-plus-foot storm surge with 4-plus-foot waves on top. That single fact trumped just about everything else. But in at least some cases, where boats were prepared to handle the high water, they beat the odds and survived. We’ll take a look at how different options for securing boats fared against the worst of Sandy’s surge, and share three stories from *Seaworthy* readers whose surge preparations saved their boats when almost all others around them were lost. The real lesson to take from Sandy is not that preparations don’t matter, but that the right preparations, designed to address the real risks, can and do work.

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SUPERSTORM SANDY

It will be enormously helpful to the boaters of the areas destroyed by Sandy to have this kind of reporting continue through the year. An assessment of how the marinas themselves are recovering would assist boat owners in relocating their vessels. As of now there is no good information I am aware of on the recovery process.

Thanks for this informative article.

Don Ford
By email

I live in Point Pleasant, New Jersey. I need to bring my 30-foot Sea Ray that I have in the Chesapeake through the Delaware Bay and up the Intracoastal Waterway from Cape May to Point Pleasant. Are there any plans to provide your readers an update on the conditions of the Intracoastal Waterway in the storm-affected areas?

Getting information or updates have been very difficult so far. Any advice you could provide would be very helpful.

Jerry Russo
Point Pleasant, NJ

We have received several letters along these lines. For information on the status of navigational channels from the Army Corps of Engineers and the Coast Guard, subscribe to Tom Neale's East Coast Alerts (www.BoatUS.com/cruising/TomNeale). To help members determine the status of marinas and other facilities, BoatU.S. is cooperating with Dozier's Waterway Guide to provide updated information for a page they are maintaining (www.waterwayguide.com/superstorm-sandy or Google "waterway guide sandy"). If you live in New Jersey, the Hudson Valley, the New York City area, or the south shore of Long Island, you can help. Send updated reports about your marina's facilities and any navigational hazards in your home waters to superstormsandy@waterwayguide.com

EXPLODING BATTERIES

I experienced a battery explosion on-board my 19-foot 1985 Blue Fin bowrider with a 1988 50-hp Force outboard. The motor was equipped with electric start so a battery circuit was used both to start the motor and as the house battery.

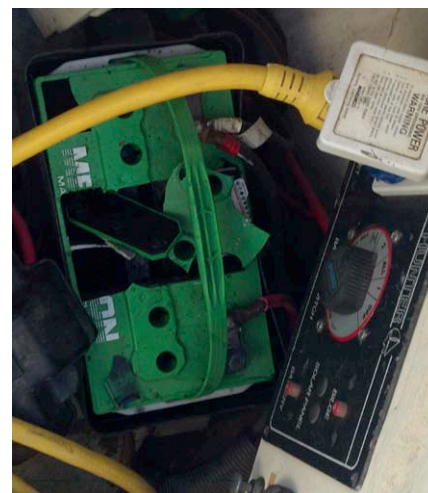
Two companions and I were trolling off Pentwater, Michigan and the seas were rising from an offshore wind. It was November and the air and water temp were both in the 40s. A loud explosion filled the air, and white smoke billowed from behind the transom curtain covering the storage area below the engine well. I reached for the fire extinguisher as one of the crew tore away the curtain. Then we saw what was left of the battery inside the mangled battery box and realized there was no fire, just the boiling off of whatever battery fluid was still left. Fortunately, the motor never quit and we quickly pulled lines and headed for the pier heads.

To my amazement, I later discovered that this particular motor design did NOT include a voltage regulator and so, at any speed above idle, the battery was significantly over-charged. I also learned to regularly check the fluid inside the battery, which I had not done prior to this experience. Lastly, and one thing your article did not mention, always install the battery inside a secured battery box with the lid strap tightly in place. If I had not done so, I truly believe one of my crew would have been severely injured as the front of his legs were only inches away from the explosion.

The following spring I rewired the dash and installed a house battery so the electronics were isolated from the excessive voltage coming off the motor. I also checked the battery fluid before almost every outing. We enjoyed the boat for many years after.

Bill Mulligan
By email

I enjoyed your January 2013 issue of *Seaworthy*, particularly the alert about batteries that go boom. I had a very similar experience with a battery explosion in October of last year, aboard a Hunter 295 owned by one of the regular crew members of my boat. We were just getting ready to leave the dock for a Wednesday night race. I selected battery number one and hit the starter button. As soon as my finger hit the button, the battery, which is stored in a cockpit locker immediately under the starter switch, exploded. The battery box contained the explosion and most of the flying debris. I have attached a photo of the battery, with the cover off.



In retrospect, the owner had noted that battery number one was not maintaining a charge. It was most likely due to a significant lack of water in the battery. Unfortunately, I do not know the vintage of the battery, but it was certainly not new. An internal short in the battery ignited the explosive hydrogen gas when I pressed the starter button. Regular checks of the water levels might have prevented this incident. Also, once the battery was no longer maintaining a charge, it should have been disconnected from the charger and removed from the boat. Overall, we were very lucky, and still managed

to make it to the starting line on time using battery number two.

Jake Brodersen
Hampton, VA

BEWARE BAD FUEL

While I agree completely with most of your article, I would like to add a couple of thoughts.

I have a system that includes a polishing pump. This enables me to not only polish fuel but to transfer between tanks. When stopping for fuel in dubious locations, I can place all my known “good” fuel in one tank and polish and clean the new fuel in quarantine. I also pre-filter all incoming fuel. Should my lift pump fail, I can use the fuel transfer/polish pump to supply fuel to the engine.

Also, a vacuum-actuated switch on the engine side gives a heads-up to a problem before it strikes. It sounds an alarm when a filter is beginning to clog.

Marc Bodian
By email

I'd like to propose a caveat to the good advice in the short article, “Beware Bad Fuel.” It isn't bad fuel that's to blame so much as bad fuel maintenance practices.

My opinion is that all diesel fuel contains filter-clogging elements that build up on the tank bottom and sit there, awaiting agitation by swell, storm, or boat wakes. At the same time, diesel tends to self-filter through gravity (that is, contaminants fall out of suspension). So unless one is drawing fuel from a tank with deep layers of deposits that reach the fuel pickup point, or is using recently agitated fuel, the diesel fuel in one's tank doesn't readily become “bad,” but develops easily disturbed layers beneath otherwise “good” fuel. My concern is that in laying the blame for this problem on “bad” fuel, boat owners will be prompted to search for a solution in “good” fuel, which is a

temporary remedy at best. The condition that causes tank deposits is present in diesel fuel whether new or old, and those deposits build up over the years, in all tanks and with all diesel fuels. That's been my experience, in any case. The only cure I know of is to carefully remove the collected sediments from the tank bottom as needed and use adequate filtration in the supply line (as your article suggests).

Stewart Gilbert
Stewart Marine Services
By email

Excellent point. We used the term “bad” too generically, and Mr. Gilbert is correct that even the “best” diesel fuel, once it gets old, can cause problems. This is exactly why so many people have trouble when heading offshore for the first time – years of particulates from perfectly good fuel get churned up and clog the filters.

We also received several questions about fuel polishing. This process involves pumping the fuel through a series of filters to clean it. Onboard fuel polishing systems consist of a pump that can circulate fuel from tank to tank through at least two filters. They can be purchased from a variety of providers – Google “fuel polishing systems.”

Your marina may offer a fuel-polishing service or know of a contractor in the area with a mobile fuel-polishing unit. Polishing cleans contaminants (fuel, algae, dirt) suspended in diesel but it is not foolproof – sludge on the bottom of the tank may remain that will go back into suspension when the boat gets rolled around by offshore waves and swell. The only way to be absolutely sure your diesel will stay clean on an older boat is to empty and steam clean the tanks. Polishing will remove contaminants from gasoline, but it will not “fix” phase-separated or oxidized gasoline.

CAPACITY, STABILITY, AND SAFETY

I guess the definition of a “small boat” for capacity calculation is the key to the discussion in the article. My Sisu 26 is about 25.3 feet long with a beam of about 9.34 feet. If I use the formula of length times beam divided by 15, I get a capacity of 15 people! There is not enough room on the boat for that many people if everyone is inside the gunwales.

C. Henry Depew
Tallahassee, FL

The “Capacity, Stability, and Safety” article gives the formula for boat capacity in persons as “length times beam, divided by 15.” The article then states that the formula is not applicable to large boats. However, the formula may not be applicable to small boats, either. My 22-foot cuddy has a beam of 8.5 feet. Applying the formula rates this small boat at 12.5 persons. According to the capacity plate, my boat is rated for eight persons. My experience with eight persons aboard tells me that 12 persons would make the boat a real handful unless the water was smooth and everyone was in the middle of the boat and as low as possible. In other words, an emergency-only situation. I hope that this formula does not mislead anyone.

Ted Fautz
By email

Chris Landers responds: *I probably should have been more specific when I said “smaller boat” since there are a couple of different designations used for determining the length cut-off for capacity plate requirements. The formula purports to be valid as a rough guide for boats under 20 feet (the federal cut-off point for capacity plates), which is smaller than either boat above. Both comments are well taken, though, and demonstrate the key point in the article – for the layman (like myself), determining boat capacity is not straightforward and one-size-fits-all formulas don't work well.*

Sandy from page 1

Marinas and boat owners cannot be accused of not preparing for Sandy, but unfortunately most didn't prepare for the right thing.

NO SILVER BULLETS

Hurricane preparations developed over the last three decades have been designed to reduce damage from high winds and, at most, moderate storm surges. Even though the surge predictions 48 hours and more before the storm were reasonably accurate, very few preparations were made to deal with the expected water levels. That's because most marinas didn't have any options. Piling heights and the elevation of hardstand areas above sea level cannot be changed in three days.

At the epicenter of this storm, none of the solutions used to secure large numbers of boats (short of putting them on trailers and heading several miles inland) greatly increased the chances of survival. There were no silver bullets. But in at least three cases, as the stories from *Seaworthy* readers in the next section demonstrate, boats that were set up to handle the surge survived unscathed in some of the hardest hit areas.

BoatU.S. has long advocated hauling boats to prevent damage in hurricanes because all available evidence showed that boats were better off on the hard than in the water. From the moment damage reports began coming in, the Sandy experience seemed to contradict that. Over the past two months, we have been interviewing marina managers and owners and debriefing the CAT Team surveyors and salvors who were in the field. What we have been finding is more complicated and nuanced than a simple yes or no answer to the question of whether hauling boats kept them safer.

While at first glance, hauling boats looked to be an unmitigated disaster in Sandy, that conclusion turned out to be far too simplistic. The percentage

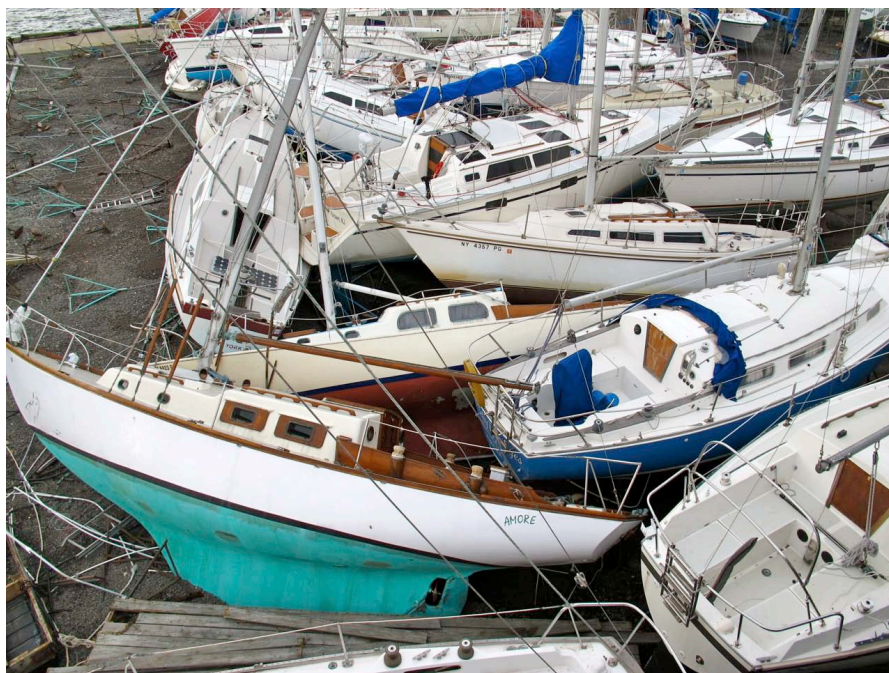
of hauled boats declared constructive total losses (the estimated cost of repair exceeded the insured value) was extraordinarily high near the epicenter of the storm, in places like Staten Island and Atlantic Highlands, where the surge washed docks, boats, and marina equipment back and forth within a confined area. But even there, unless boats went over the bulkhead, they were rarely sunk, so salvage was possible with a crane and repair was more likely than if the boat had been sitting on the bottom. In hardstand areas that were not confined, many boats were pushed inland by the first large surge and came to rest with surprisingly little damage. Others suffered broken rudders, bent props, and hull damage, but if the water

stayed out, many could be repaired. A question still to be resolved is whether tying down boats on the hard, as has become the practice in a number of marinas in Florida, would have prevented damage. Gary Lucas' story below, though anecdotal, suggests it might have for sailboats.

Conclusion: As BoatU.S. CAT Team master salvor Mike McCook put it, "Hauling boats wasn't wrong, but it didn't work as well in Sandy as in other storms."

Whether boats survived on floating docks or not depended, first and foremost, on whether the pilings were high enough. If not, boats went adrift with the dock when it lifted off the piling, and how and where they fetched up deter-

Top: Hauled boats ended up in piles. Bottom: Floating docks were lifted off pilings that were too short, and many fixed docks were destroyed by the surge.



Courtesy Betsy Haggerty



Courtesy Larry Wilson

mined the extent of damage. Boats that came to rest in marshes and on beaches fared quite well compared to those that were carried up into hardstand areas, but they created pollution and environmental hazards in sensitive areas.

number of factors including the boat's ability to rise to the surge, whether the boat came down on a piling or a dock as the water receded, and whether anything came down on top of it, especially if it was located near the bulk-

for the storm. One exception was the Nyack Boat Club in Nyack, New York. The harbor master, Warren Frerichs, told *Seaworthy* that of 97 boats on moorings during Sandy, 19 were lost. Eighteen chafed through their mooring pennants and one dragged its mooring, while 25 stayed put but were damaged by other boats. The remaining 53 boats escaped without damage. Had mooring gear not failed, the outcome would have been significantly better than being on the hard. But when you factor in the difficulty of recovering boats that end up wrecked in the water versus on land, it's much harder to say which was the "right" approach.

The Nyack Boat Club has an open mooring field where boats are well spaced and equipped with plenty of scope. In crowded mooring fields with limited scope, the boats would have had to be thinned and extra scope added to allow them to ride out Sandy's high surge levels. Anchoring is equally dependent on the boat's equipment, the equipment of other boats in the area, and proper scope and spacing.

Conclusion: *Moorings offer a viable alternative for keeping boats safe in Sandy-like storms, but only if ALL moorings in the basin are properly constructed, maintained, and prepared for the actual conditions.*

Every method used for securing large numbers of boats for this storm had significant risks simply because so much of the marina infrastructure was not designed for surge of this magnitude. This will quite likely change as marinas rebuild, and going forward, understanding the surge risk in your area, picking a marina with that in mind, and preparing your boat for both surge and wind should ensure that fewer boats are damaged or destroyed.

SOME SANDY SURVIVAL STORIES

Seaworthy readers have been writing in to let us know how they kept their boats safe during Sandy. These three examples illustrate the range of solu-

WHAT YOU CAN DO

- » Evaluate your weather risks and determine where to get the earliest warnings for natural disasters and the most accurate forecasts for wind and surge.
- » Get a copy of your marina's emergency plan and review it carefully – understand your obligations and theirs.
- » Evaluate the risks at your marina for your boat in different types of disasters – high surge, high wind, high waves.
- » Put together your own emergency plan.
- » Check your insurance policy for salvage, wreck removal, liability, and fuel spill coverages.

In some cases, pilings happened to be high enough by luck rather than by design. We know of more than half a dozen marinas and yacht clubs where docks were within six inches of floating off pilings. At that point, the full force of boats, docks, and the associated windage was being held at the end of a very long lever arm in a way that had probably not been envisioned by the engineers. In stronger winds, older or rotted pilings would quite likely have broken, as happened in some marinas in Hurricane Andrew in 1992. In addition, some well-engineered marinas with sufficiently high pilings still suffered damage when debris from other marinas washed down on them.

Conclusion: *Floating docks with sufficiently high pilings were the only place where large numbers of boats survived Sandy unscathed, but in most cases luck played a significant role.*

Survival on fixed docks turned out to be a crapshoot. A boat that ends up on the bottom has a much higher chance of being declared a wreck and costing a great deal to recover (especially when factoring in fuel spill containment and liability) than one that is still on land. Whether a boat on a fixed dock ended up sinking depended on a

head where the surge pulled boats and debris from the hardstand area over the edge. The relative lack of wind in Sandy meant that other problems with fixed docks in hurricanes were not as big an issue this time, including line chafe and hull damage from the dock. **Conclusion:** *A surprising number of boats did survive on fixed docks, but where they did not, they were likely to be wrecked completely.*

Intuitively, moorings seem like a great way to secure a boat during a high-surge event. So long as there is sufficient scope, the boat will stay facing into the wind and rise and fall with the changes in water level. In practice, the outcome on moorings in this storm, as in others *Seaworthy* has written about, was contingent on the quality of each of the components in the mooring system, from the anchor, to the chain, to the pennant, to the way the pennant was secured to the boat. And the safety of a moored boat does not depend just upon its own equipment, but also on those upwind of it.

Because Sandy was so late in the season, many moorings had already been taken out of the water, and where that wasn't the case, in most places very few boats were left on moorings



tions we saw to handling the unprecedented surge and may give you some ideas when putting together your own storm plan.

Chris Magory keeps his 257 Advance center console Grady White in the canal behind his house in Lavallette, New Jersey on the barrier islands just north of Seaside Heights. When Sandy was approaching, he made the decision to leave the boat in the water and not haul it out at one of the nearby marinas. But he prepared very carefully.

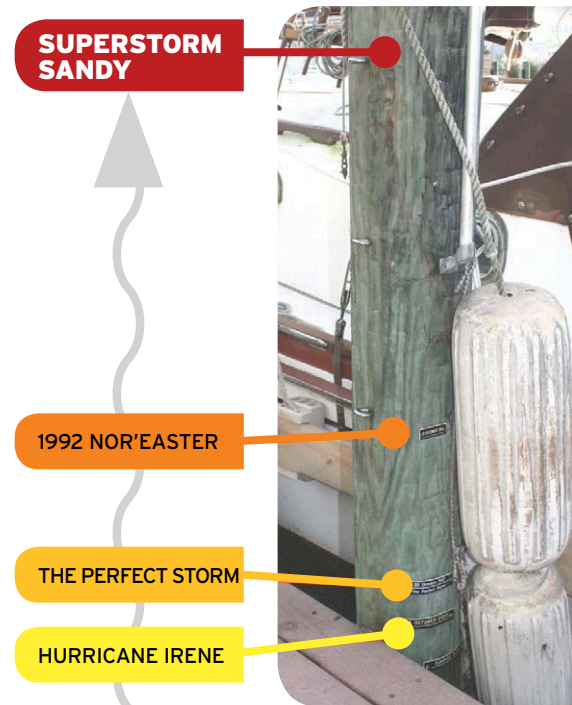
To keep his boat from hitting the dock, “I took two anchors and dropped them [in the middle of the canal] about 30 feet from my boat,” he wrote in an email. He secured these to the canal-side of the boat. “I also took two 100-foot lines from my boat across the canal, one to a dock and one to a Whaler.” His 14-foot whips also helped him to secure the boat in a position away from the dock. “Then I took a length of two-inch PVC pipe and hung it across two large fenders tied to the boat so that when the boat got close to the dock,

the PVC would hit the pilings, and the fenders would protect the boat.” He doubled up as many lines as he could. “When I decided to keep the boat in [the water], I had knots in my stomach worrying if I had made the correct decision,” he wrote. “It worked fine.”

Donald Launer’s two-masted schooner, *Delphinus*, has lived on a dock next to his home on a waterway just off Barnegat Bay on the New Jersey shore for 32 years. “During that time she has survived two hurricanes and several nor’easters with no damage,” he wrote in an email. “Although we’re close to the bay, we’re well-protected. We have minimal tide, and the wave action is negligible – not so the storm surge.” Don’s dock had been constructed with 11-foot-high pilings for this very reason.

In preparation for Sandy, Don fastened two, 6-inch x 8-inch x 8-foot treated lumber fenderboards fitted on the hull side with substantial rubber bumpers. “I also added additional long dock lines, with these lines tied to the deck cleats first and then to the base

Above: Chris Magory’s Grady White set up for Sandy on the Barrier Islands. Below: Donald Launer’s schooner on his fixed dock the day after Sandy.



of the keel-stepped mast, in case of cleat failure.” To absorb shock and add stretch, these lines were nylon. The other end of each line was tied far down the dock near the top of the 12-inch-diameter pilings, so that as the boat rose, there would be no downward pull. The lines were secured so that they couldn’t slip off the top of the piling. *Delphinus* survived the storm without a scratch despite Sandy’s seven-foot storm surge. Don’s solution is tailored to his boat and his situation, and he does not advocate his approach for everyone. “Superstorm Sandy was the supreme test of my decision that a boat like mine, with two masts, and high windage aloft, is far better in the water during a storm *when properly prepared* than in a crowded marina, up on jackstands.”

Gary Lucas keeps his 26-foot Etap sailboat at Shore Point Marina in Pine Beach, New Jersey. When Irene was forecast to come through New Jersey in 2011, the keel was off for repairs, and the boat was sitting up on jackstands. Gary was worried the boat would float away, so he took a day off from work, purchased large screw anchors and heavy ratchet straps, and tied his boat down as has been discussed in the pages of *Seaworthy*. “The day of the hurricane was bright, sunny, and calm,” he wrote in an email. “I felt like a fool.”

When he heard the forecast for Sandy, his boat was closer to the water and a few feet lower, and still without its keel. The weekend before the storm made landfall, Gary and his grandson prepared the boat. “It took us about five hours to do everything. We raised the stands higher and added some concrete block supports under the center of the hull in the area where the keel attached. We sank four large screw anchors, each rated for 6,000 pounds, almost four feet into the ground. We ran two heavy nylon straps over the [top of the] boat and connected each one to the anchors on either side.” The boat displaces 5,000 pounds at the waterline, so he thought the straps and anchors would hold



Left: Gary Lucas’s Etap strapped down before the storm at North Shore Point Marina in Pine Beach, New Jersey. Below: After the storm, last boat standing.



until the water rose to at least 18 inches above the waterline, or about three feet above the ground. “EVERY boat pulled from the water in advance of the storm, except a couple of deep fin keel sailboats floated away!” Gary wrote. “That pile leaning up against my straps has five boats in it.” The straps kept any of the other boats from reaching his, so that the Etap did not have a scratch on it. The water mark on the hull showed that the water had risen two-and-a-half feet above the waterline, about four feet above the ground. “My straps and anchors were obtained from McMaster Carr at a cost of less than \$100,” Gary told us.

There is an element of luck involved whenever a natural disaster strikes. We have no way of knowing how many others who prepared just as carefully as these three readers did ended up with lost or damaged boats, anyway.

But we can be quite certain, given what happened in these areas, that these three boats made it through the storm without damage in large part because their owners took such care in thinking through and then making their preparations to deal with the forecast surge.

THE BOTTOM LINE

Preparations do matter, but you have to prepare for the right thing. In this case, preparations that would have protected boats in hurricane-force winds failed to protect boats in the large surge. You can, and should, factor surge — not just wind — into your decision about where you keep your boat and how you prepare it when a storm is approaching. Making sure your boat survives starts with picking a marina designed to withstand the real risks you could face, and ends with preparations to secure the boat for that particular storm’s dangers. 🚤



Avoiding Spring Safety Snafus

Checking off these 10 things before getting out on the water could make your day

by Lenny Rudow

YOU'VE RIPPED OFF the shrinkwrap, de-winterized the powerplant, and lovingly rubbed a fresh coat of wax on the hull, but are you really ready for your shakedown cruise? It's been a long, cold winter, and we're all excited — no, thrilled — to get our boats back into the water ASAP. But hold on there a moment, captain, and let's slow things down a bit. Even though your boat's been mothballed for months and you've gone through the usual pre-launch preparations, your shakedown could be disastrous if you don't take the time to check for these 10 common safety glitches, which can strike no matter how uneventful the winter layup may have been.

1 BILGE PUMPS AND SWITCH SNAFUS. Your boat may have been covered up and on the hard with the drain plugs pulled, but that doesn't guarantee that no water made its way into the bilge. An unseen leak or a little condensation is all it takes to create a puddle or two, and if one of those puddles formed around your bilge pump or the pump's float switch, there could be trouble ahead in the form of freeze damage. Before you even dream of splashing *Mom's Mink*, test your pumps, both at the helm switch and at the

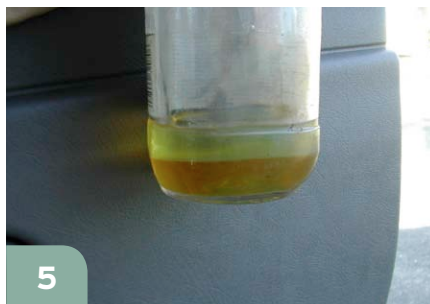
auto switch. Make sure the float switch is not just working, but also swings freely and smoothly. If you have a magnetic float or one of the solid-state, water-sensing variety, you'll have to work a little harder to give it a test. Put a gallon or two of water into a plastic trash bag, and slide the top of the bag over the switch. Then pull the bottom of the bag up, so water pours in and surrounds the switch as you hold the bag around the perimeter. Yes, you will get wet, but it's worth it to know the switch is functioning as it should.



2 HOSES AND THRU-HULL CRACK-UPS. Ice damage can be a problem here as well, especially if your boat was previously owned by a do-it-yourselfer. People often replace hoses with the wrong types, and, below the waterline, this can be disastrous. Most boaters already know to give hoses and thru-hulls a visual inspection in the spring, but that's not good enough. Give those hoses a tug and a twist, while watching attachment points, hose clamps, and droops, for any unexpected movement or cracking. There could be unseen ice damage anywhere water could have collected and frozen. Pay particular attention to the anti-siphon loops found in discharge lines (the loop in the hose which goes above the waterline and prevents water from back-flowing into the bilge). While the loops are absolutely necessary (and required by ABYC standards) water can sit — and turn into ice — in any low spot, damaging the hose.

3 COMMUNICATIONS BREAKDOWN. How many times have you left the dock only to discover that your VHF radio wasn't functioning properly? Dead mics, glitchy connections, and internal gremlins always seem to cause problems after a long layup, even though the radio may have been well-protected and under cover. If you usually do your spring radio check during your shakedown cruise, you won't discover the issue until — once again — your radio fails to work when you're already underway. So this spring, do that radio check before you cast off your lines. If you make your initial run early in the season and air temperatures are still below 50 degrees, pay extra attention to plastic VHF antenna mounts. These tend to get brittle in the cold, and can snap if the antenna whips back and forth violently. And for future reference, it would be a good idea to upgrade that plastic mount to stainless steel. Don't forget to check your handheld radio, too — make sure it's charged and ready to go.

4 LOWER UNIT DISASTER. Picture your first launch of the year: It's a beautiful spring afternoon, for the first time in months you feel the humming of the engine as its vibrations run through the fiberglass, a cool breeze blows through your hair, and then, there's a sudden KA-CHUNK! Forward motion ceases. Your boat settles into the water, and you're stuck. Bummer. What could be worse than blowing your lower unit, on your first trip of the year?



Water intrusion in the gearcase over the winter can lead to such a disaster, yet go unseen during spring outfitting. Even a tiny amount of water can cause freeze damage that cracks metal and pops seals. Finding the problem and taking care of it before you run the boat will save a lot of time and money on repairs. So check the lower unit to make sure it's full of clean lube before that initial launch. Also check the ground below the skeg, and look for drips. Should you see any, head directly for your marine mechanic. If you make a habit of changing your lower unit lube in the fall, when you pull the boat for the season, you'll spot any water in the mix before it has the chance to freeze and cause harm.

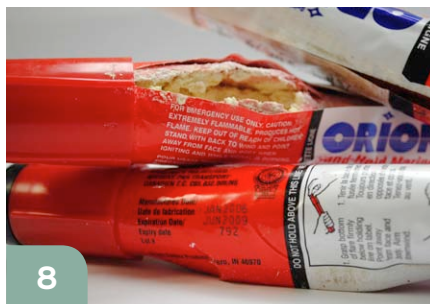
5 WATER IN THE FUEL. *Seaworthy* has always recommended leaving built-in gasoline fuel tanks full over the winter to prevent condensation and avoid problems with water absorption and phase separation of ethanol. Even assuming you laid the groundwork by treating the fuel with a reliable stabilizer last fall, you still can't count out condensation. So, before you launch, drain the fuel-water separator to be sure the fuel in it is 100 percent water-free. Then halfway through your shakedown cruise, check the bowl and drain it again, if necessary. Give it another look-see when you return to the dock. Make a habit of checking that bowl regularly throughout the season, and be sure you spin off the cartridge completely and check it for corrosion at least once this summer — these things are notorious for becoming rusted in place. If your boat runs on diesel, pump a pint or so into a plastic bottle from the bottom of the tank and let it sit for a few hours. Make sure no water separates out, and the diesel is clear. If the diesel has water or algae in it, see if you can arrange to have your fuel polished (filtered multiple times to clean it) through your boatyard. Gasoline can also be polished to remove contaminants and water, but make sure it has not phase separated if it has ethanol in it (see Alert on page 13). If it has, the octane level will be too low and could damage your engine.

6 BROKEN BOOTS. Sterndrive boots are notorious for leaking, and with good reason. Cracking due to age is the usual culprit, but it's important to remember that a boot which looked good in the fall can deteriorate a shocking amount over the winter, especially if it sits in

the same position the entire time. You're probably already aware of this issue, so we're pretty sure you'll closely examine the creases for any visible cracking before, during, and after raising and lowering the drive. And we have complete confidence that you'll look closely for barnacles, oysters, and other hard-shelled growth in the boot's creases, where it may have escaped notice last fall when you put the boat away, since they can cut into the rubber when you tilt the drive up and down. We're also sure you'll remember to check exhaust and cable bellows, too, if your boat has them. But we're also hoping that as part of your spring routine, you won't clean the boot with a potent petroleum-based or acetic cleaner. It might seem like a good idea to make that boot shine but these cleaners can speed the aging process and increase susceptibility to UV damage. When you initially launch the boat for the first time this year, even if all looks well, lift the engine hatch and give it a hairy eyeball for water intrusion.

7 CLOGGED DRAINS. Sure, leaves and twigs can pose a problem if they clog things up, but critters — especially wasps — like to build nests in those tubes. Once they do so, clogs can build up fast, and you can't see them from the outside. Clogged scuppers and deck drains are a safety glitch that can lead to life-threatening situations, so a visual inspection prior to launch is simply not sufficient. Take a hose and send a healthy blast of water through those scuppers and drains to be absolutely sure that the beginning of a clog isn't escaping notice. Do the same for fishbox, live well, and stowage compartment drains as well, so you know they're all completely clear.

8 DATED GEAR. Okay, this is an obvious one. Yet it's worth bringing up because year after year, the Coast Guard busily writes citation after citation for expired flares and empty fire extinguishers. It may seem like you replaced them just yesterday, but the seasons slide by so quickly it's easy to lose track. Flares expire 42 months from the date of manufacture, not the date you bought them. Don't even think of launching this spring until you've checked and double-checked expiration dates and charge levels. Otherwise, you could end up with a ticket, or worse yet, in an emergency situation with ineffective safety gear.



9 FOGGED PLASTIC WINDOWS. This is a common self-inflicted wound, which can reduce your visibility from the helm for years to come. Your boat's see-through plastic curtains (Isinglass or acrylic) are sure to be dirty and in need of a good cleaning now that spring has begun. But if you try to shine them up with Windex or a similar glass cleaner, by the end of the summer they'll be yellow and cloudy. Ammonia is the problem; the plastic reacts with it and becomes hard to see through. No, this won't cause your boat to sink. But it could keep you from spotting a semi-submerged log, a crab trap float, or some other flotsam you most certainly do not want to strike — any reduction in visibility is an increase in danger. So leave the glass cleaners at home, and instead, shine up your see-through plastic with a dedicated plastic cleaner like Plexus (regular lemon Pledge works well, too).

10 SLIP SLIDING AWAY. We all want to make our boats look good before putting them into the water for the season, and wax plays a big role in this endeavor. But while wax will make your deck look shiny, it will also turn your deck nonskid into sure-skid. While most people wouldn't think of applying the stuff they use on their hullsides to the cockpit sole, steps or grab rails, you also need to resist the temptation to wax the gunwales, which people often step on while boarding, and any traffic areas on the coachroof or coamings. For those areas, get a deck sealer/finish specifically designed not to leave a slick surface behind, like Aurora Sure Step or Woody Wax. On metal steps and grab rails, ignore the wax entirely. Rub the metal down with a lemon peel or a sponge sprinkled with lemon juice, and then give the metal a light wash with regular boat-soap. That will get you a good shine, without making the surface slick.

Of course, these 10 spring snafus only scratch the surface of what you need to do — and what can go wrong — when it's time to launch your boat after a long winter lay-up. Batteries need to be charged, electrical connections need to be checked, engines need to be tuned, hoses need to be inspected, fittings need to be re-caulked, and so on. Before you even begin ripping off that shrinkwrap, check out the Spring Launch Safety Checklist in the


April issue of *BoatU.S. Magazine*; stop by www.BoatUS.com to download your own checklist, and while you're there, watch the video, "Spring Launch Safety Checklist." Put that information to good use, avoid these 10 safety glitches as you prep for that initial launch, and you should be in for a great season of boating — ASAP. 🚤

30 Seaworthy Years

In the spring of 1983, BoatU.S. launched *Seaworthy* to “foster safe boating practices.” As *Seaworthy* turns 30, we pause to take a look back

LIKE SO MANY things at BoatU.S., *Seaworthy* grew out of a need to serve our members better. In April of 1966, BoatU.S. began writing boat insurance as a national broker. By 1980, the Association had more than 75,000 members and nearly a quarter of those had purchased policies. BoatU.S.’s CEO, Bill Oakerson, was managing the insurance division at that time. He began to see patterns in the claims. If members could see what he was seeing, he realized, BoatU.S. would reduce its insurance losses and people and boats would be safer.

In March of 1980, BoatU.S. created its Damage Avoidance Program to share those lessons learned with policyholders. BoatU.S. expanded the program by launching a quarterly newsletter, *Seaworthy*, to “foster safe boating practices” in the spring of 1983.

For the first two years, claims adjusters wrote the *Seaworthy* articles. But they were way too busy with their real jobs to deliver material to deadlines. In July of 1985, BoatU.S. Marine Insurance created the Office of Technical Services “to facilitate the flow of loss prevention information to members.” Ernie Braatz, former claims manager, moved into an office in the far corner of the building and was given the title of Director of BoatU.S. Technical Services. Not too long afterward, Bob Adriance came on board. He brought to *Seaworthy* a passion for boats and for the people who love them, a dry wit and folksy writing style, and an intuitive ability to connect the dots from claims to preventative actions. By the time he retired in December of 2012, *Seaworthy* had become a respected and authoritative voice not just within the BoatU.S. membership but across the boating industry. 



SPRING 1983
First issue of *Seaworthy* written by BoatU.S. claims adjusters comes out

SPRING 1984
“A disaster team from the BOAT/U.S. Insurance Department flew into the [Galveston] area as soon as basic services were stabilized [after Hurricane Alicia last summer].” – Article describing the first Catastrophe Team deployment

SPRING 1985
“The most commonly talked about [forms of alcohol] for use as fuel additives are ethanol (wood alcohol) which costs about \$1.50 per gallon and for that reason has seen little use, and methanol, which costs about \$0.50 per gallon.”

FALL 1985
Ernie Braatz becomes editor of *Seaworthy*



SPRING 1986
Bob Adriance joins *Seaworthy* as technical editor

SUMMER 1986
“Imagine for a moment a hurricane is coming You’re in your car headed for your boat. Now quickly – what’s your plan of action?”

FALL 1986
Mailboat makes its first appearance and reader participation quickly becomes a *Seaworthy* hallmark

FALL 1987
“Using the winterizing checklist below may jog your memory and keep your boat healthy over the coming months.”

JANUARY 1988
Seaworthy goes from biannual to quarterly

JANUARY 1989
Alert makes its first appearance as a regular column

APRIL 1989
“While estimates vary, studies have shown that alcohol [consumption] may have been a factor in about 50 percent of adult-drowning deaths.”



JULY 1990
Small Stuff makes its first appearance

OCTOBER 1990
“[An EPIRB] can save your life or be a nuisance.”

JULY 1992
“Screw anchors can be screwed down into the [bottom] to provide tremendous holding power.... [They] have been used successfully to moor boats in the Virgin Islands.”

JANUARY 1994
“Almost half – 48 percent – of all sinking claims involved leaks at underwater fittings.”

JULY 1994
“Only a few milliamps of electricity in the water may cause a swimmer’s muscles to seize....”



OCTOBER 1996
Bob Adriance promoted to editor of *Seaworthy* and Director of Technical Services

JULY 1999
“The single most critical reason boats are flooded on open water has to do with transom height.”

JANUARY 2002
“Has anyone else been bothered by birds and ducks on spreaders, docks, decks, dodgers, or swim platforms?”
Most popular reader participation topic – ever!

APRIL 2002
“The repairs may not have been pretty, but in every case, the duct tape held.”

MAY 2002
Charles Fort joins as Associate Editor

JULY 2003
“If you’ve noticed a lot of wiring and electrical articles in *Seaworthy* over the years, now you know why: The number one cause of fire on boats are DC wiring faults.”

OCTOBER 2004
“On Golden Pond” taps into the wisdom of senior boaters

JULY 2005
“Nylon line starts to deteriorate at 300 degrees F, and at 350 degrees F it will have lost half its strength.”

OCTOBER 2005
“MTBE is out, ethanol is in – uh-oh!”

OCTOBER 2008
Seaworthy’s most popular article ever: “A Strange Case of Justice” about a boating accident involving a deputy sheriff of Lake County, California

OCTOBER 2009
Kevin Ritz writes a moving piece about the death of his son, Lucas, by Electric Shock Drowning in “A Preventable Dockside Tragedy”



JANUARY 2012
“[Tom Weaver, owner of Eastport Yachts,] is one of the few boat-builders/designers around with extensive [Lithium-ion (Li-ion) battery] experience. And in his opinion, even today, Li-ions are still too dangerous for recreational boating use.”

OCTOBER 2012
Bob Adriance says goodbye after 26 years with *Seaworthy*. His number one safety tip? “When in doubt, slow down.”

JANUARY 2013
Beth Leonard takes over as editor in the aftermath of Hurricane Sandy



LOW-WATER WARNING

In one symptom of a broader problem, the stretch of the Mississippi between St. Louis, Missouri and Cairo, Illinois was almost closed to navigation in January. According to the Army Corps of Engineers, Corps and private dredges have been working around the clock, seven days a week since last May to remove sediment deposited by the 2011 flood and fight extreme low-water conditions caused by a multi-year drought across much of the country.

Last summer, that drought reduced the level of many inland lakes in the West, Midwest, and South to multi-decade lows. Most of the Great Lakes were and still are one to two

feet below chart datum. That change can easily make the difference between gliding over an underwater obstruction and crashing into it. Claims for grounding and striking submerged objects increased markedly on most inland lakes last summer and by 50 percent in the Great Lakes.

According to the Climate Prediction Center, the drought is expected to persist or intensify between now and the end of May in 12 Midwestern, Western, and Southern states including Florida, Texas, Oklahoma, Nevada, and Colorado. While some improvement is expected around the Great Lakes, the Climate Prediction Center warned that in areas like the Southeast, “any recovery will occur very slowly, as it will take time for any increased rainfall to chip away at the large moisture deficits that have accumulated over the course of a multi-year drought,” the Center said

Most boaters rely on their knowledge of their home waters to navigate, rarely looking at a depth sounder or a chart. But if you boat on inland lakes, rivers, or the Great Lakes, local knowledge cannot be depended upon when water levels are a foot or more below normal. Encounters with stumps and rocks can lead to serious injuries, both to the crew and to the boat. When in doubt, slow down. If you don’t have a depth sounder or a fishfinder, this may be a good time to purchase one. They are inexpensive and some models can be installed in boats with solid fiberglass bottoms without putting a hole through the hull. Finally, don’t waterski or dive overboard before ensuring the water is sufficiently deep.

KEEP THE WATER FLOWING

This impeller (left) — or what’s left of it — came apart during the first outing of the season. Not only did the engine overheat due to a lack of water flow, chunks of impeller were drawn into the engine’s cooling system, where they got lodged in hoses and the heat exchanger. That caused the engine to overheat even after replacing the impeller. Over time, impellers get a “set,” which makes them less efficient and, eventually, cracks form where the vanes attach to the hub (right). Once the vanes start to break apart, it’s too late. After two or three years, impellers owe you nothing; just to be sure, replace



them every other year. It’s a far easier job to change an impeller than it is to



dig out dozens of pieces scattered throughout your engine.



CHECK YOUR HITCH

Last spring, a member was towing his antique boat behind his truck in Wisconsin when the trailer separated from the truck at 55 mph. Fortunately, the safety chains held and after a quarter-mile of white-knuckle fishtailing across both lanes of the highway, the owner was able to bring the trailer to the shoulder. Because the boat was properly strapped down to the trailer, it was not damaged. According to the investigator, the owner had borrowed an adjustable ball mount from a friend; somehow the pin came out of the mount, causing the mount to come loose, which freed the trailer. Even though the owner claimed he had 30 years of experience trailering boats, it seems likely that somehow the locking cotter pin was forgotten.

Before you head out this spring, check your hitch setup; make certain the ball is secure to the mount, and that pins holding the mount to the receiver have locking pins. Chains should cross so that in the event the trailer comes loose, it will fall into the X made by the chains. It is a good idea to replace S-hooks with screw-pin shackles; they're more reliable and stronger than S-hooks, which can bend under load.

HOW MUCH ALCOHOL IS IN YOUR TANK?

Gasoline mixed with ethanol (ethyl alcohol) is like the obnoxious guy who shows up at your party and proceeds to get drunk; he wasn't invited, he's a troublemaker, and with enough alcohol, he'll wreck the place. And like the drunk guy, the more alcohol in the gasoline, the more problems.

Ethanol cleans old gunk out of fuel systems, which clogs filters, and it absorbs water, which can cause phase separation. Phase separation happens when the ethanol can no longer absorb any more water and the ethanol/water mixture falls to the bottom of the tank, which can cause engines to quit, or worse, damage them. While nearly all marine engine manufacturers allow up to 10-percent ethanol to be used, last fall, the EPA began allowing E15 (15 percent ethanol) into auto gas pumps for use in 2001 and newer cars. Trailerable boats are especially vulnerable to getting too high a dose of ethanol, and it's possible E15 could accidentally find its way into marina fuel pumps. E15 will almost certainly damage engines, which is not covered by a manufacturer's warranty. Some marinas claim to sell ethanol-free gas, but how do you (or they) know for sure?

Fortunately, there are test kits available that easily determine the ethanol content of gas. They're inexpensive, easy to use, and some show by change of color the percentage of ethanol. If you take a sample from the bottom of your tank, they can tell you if your gas has phase separated. A sample of gas can be obtained from a primer bulb for outboards. I/Os and inboards are a little trickier depending on tank accessibility. If you can easily (and safely) draw a sample from the engine's intake, you'll get the best results because the intake comes from the bottom of the tank where phase-separated gas settles. The best time to test the ethanol content — and to discover phase-separated gas — is before cranking up your boat this spring. Test kits are available for purchase online; Google "ethanol test kits."

CAVEAT EMPTOR

"Buyer beware" is good advice for just about any purchase. When a member decided to replace the fuel tanks in his 28-foot Panga, he picked a builder that advertised marine fuel tanks custom built, tested, and certified to U.S. Coast Guard standards. He specified aluminum tanks and was annoyed when the boatyard billed him for fiberglass tanks. But he wasn't about to remove the newly installed tanks, so he paid the bill. After just a few trips in the boat, the member and his wife started smelling gasoline. They took the boat back to the builder several times, and each time they were told the issue had been resolved only to have the smell return. They finally gave up and had another builder pull the tanks out of the boat. These turned



out to be made from plywood covered with a thin layer of epoxy. These tanks would never have been able to pass the Coast Guard pressure testing required for certification and represented a serious hazard to the safety of the vessel and crew. If you're having work done on your boat by a business you are not familiar with, a couple of visits to see the work underway can help ensure that corners don't get cut.



IN THE WAKE of Sandy, a number of our readers have written in wondering what happens to “totaled” boats and how they might be able to get in on the action. Are there deals to be had? Yes, no doubt. But before you start searching the liquidators’ websites, think twice — and then a third time. Many bargain hunters, and even some skilled boatbuilders, have purchased what they thought was treasure only to discover it was little more than trash. Even if you are not bargain hunting, beware if you’re looking to buy a boat sometime in the next few years. One thing worse than paying a bargain price for what turns out to be junk is paying market price for it. There is no CARFAX for boats.

Mark Clarke, a surveyor with 20-plus years experience and a member of the Society of Marine Surveyors (SAMS), sent us an email to point out the danger. “I have seen many vessels repaired after being totaled, to be sold again with no disclosure or history to the unsuspecting buyer.” He points out that when a vehicle is totaled, “most

states issue a ‘rebuilt title’ [or salvage title]. This results in a lower purchase price and a clear understanding that [what the new owners] are purchasing is rebuilt.” No such requirement exists for boats. There is no national database or insurance database for these totaled vessels.

“In the aftermath of Hurricane Katrina,” Mr. Clarke wrote, “many totaled vessel were brought to South Florida for repair, then were either sold here in Florida or made their way up the East Coast. Some vessels were repaired by the owners themselves after being totaled and sold without disclosure. In general, these owners did not have the ability to repair these vessels properly. As a surveyor, all I can do is ask the seller during the pre-purchase survey if the boat has been totaled, or what insurance claims were filed. There is no history that follows the vessel. There is no doubt in my mind many vessels have been totaled more than once.”

Professional builders can and do strip storm-damaged boats back to bare hulls and rebuild them as well as or bet-

ter than new. These boats can be good buys, and, on some, the rebuild will be fully documented. Where documentation doesn’t exist, it can be difficult to separate these boats from those that were owner repaired — or not repaired at all — especially if the boat was trucked several states away from storm-damaged areas before being sold.

So if you’re buying a boat in the next few years, ask for a detailed history. If it could have been in the Northeast in October of 2012, but does not have documentation detailing repairs, think twice. Even if you’ve already fallen in love, treat the boat as suspect and instruct the surveyor to look for evidence of storm damage.

THE SUPREME COURT has decided: Just because it floats doesn’t mean it’s a boat. To make its point, the Court provided a few examples of floating non-boats: “a wooden washtub, a plastic dishpan, a swimming platform on pontoons, a large fishing



net, a door taken off its hinges, and Pinocchio (when inside the whale).”

So why is the Court concerned with the definition of a boat — or, more generically, a vessel? As *Seaworthy* reported in the October and January issues, after the City of Riviera Beach got into a dispute with Franz Lozman, they “arrested” his floating home in 2009 under the Rules of Construction



Act, which defines a vessel as “every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.” Not only did the city arrest it, they executed it. The city auctioned Lozman’s home at a judicial sale, bought it, and then had it destroyed.

In *Lozman v. City of Riviera Beach, Florida*, No. 11-626, Lozman argued that the two-story, boxy plywood structure with French doors and no motor or rudder was not capable of being used as a means of transportation on water but simply a home that happened to float. The U.S. Court of Appeals for the Eleventh Circuit disagreed and held that the craft was a vessel, subject to admiralty jurisdiction, and the city had the right to arrest it. Supreme Court Justice Breyer, writing for the majority, more or less scoffed at the idea that anyone would take to the sea in a plywood box with French doors, citing Pinocchio in what may be a first in the annals of the Court. The city was ordered to compensate Lozman for his destroyed non-boat.

SEEING A SOLID wall of steel rising above your boat is one way to get religion — fast. A ship moving at 20 knots covers a third of a nautical mile a minute or six statute miles in 15 minutes. If two vessels are closing, they will converge even faster. Sitting in the cockpit of a small boat with your eyes six feet above the water, you can see about five statute miles to the horizon. Depending on your boat speed, that ship could be over the horizon for less than 10 minutes before it’s on top of you.

That’s why it’s critical to keep a proper watch at all times, even on what appears to be an empty ocean. Bob Bauer sent us two photos that illustrate the point. “The attached photos are from a trip I made in 2004 sailing from La Paz, Mexico to Hilo, Hawaii aboard a Hans Christian 38T. I took the two

pictures approximately 2,400 nm west of Cabo San Lucas, Mexico without changing my position in the cockpit. The time between pictures is exactly eight minutes. We did contact the ship on channel 13 and they told us that they had us on their radar at 12 miles out.”

In this case, the ship quite likely made a small course correction before the crew even saw it. But counting on that could be very bad for your heart.

FOR SOME REASON, Murphy has always seemed to have it in for boaters. “Anything that can go wrong, will go wrong,” ought to be stamped into the gelcoat above the hull identification number on every vessel before it is launched. When we’re not on our own boats, the editors at *Seaworthy* are grateful to Murphy for providing us with plenty of material. Robert Hanley wrote in with yet another example of Murphy at work. He shared an article by Ted Streuli from Galveston county’s newspaper, *The Daily News*, about the ill-fated voyage of the *Boomer Schooner* (no, we didn’t make that up).

The crew wanted an adventure, which is why they signed up for the Harvest Moon Regatta, the Lakewood Yacht Club’s late-October race from Galveston, Texas to Port Aransas near Corpus Christi. The 150-mile race would take the mid-’70s Pearson 365 more than a day to complete. Despite a frontal passage that brought light air the first night and 30-knot winds the next morning, the crew was having

fun — until the backstay chainplate succumbed to the combination of corrosion and shock loading. It broke, but the crew managed to secure the sails and the backstay without losing the rig. Instead of a fast sail in gusty beam winds, they were looking at an uncomfortable motor to — somewhere.

But where? That simple question became complicated when they realized that no one knew for sure how much fuel was in the tanks. They chose the closest harbor though it took them farther from home, and seven hours later, seasick, bruised, and soaked from being tossed around in six-foot waves with no sails up, they finally pulled into Port O’Connor fuel dock at Matagorda Bay. Most of them would have liked to call it quits right then, but someone aboard must have had a silver tongue, because they left after fueling as darkness was falling, bound for the Gulf Intracoastal Waterway (known locally as “The Ditch”) that would take them back to Galveston.

With half the crew incapacitated by seasickness and the other half exhausted, they wandered around in the dark, followed a local catamaran into The Ditch, ran aground avoiding barge traffic, managed to power off, and, with the engine stalling every few minutes, finally coasted into Matagorda Marina. *Boomer Schooner* again lost power coming in past the jetty, but instead of impaling itself on the rocks, it bounced off some sandbags and somehow found its way to a safe berth.

As Mr. Hanley points out, “This story contains many of the same problems which you frequently refer to in your publication. The rigging had not been thoroughly inspected, the auxiliary engine had not been serviced. The fuel filter had not been changed, nor the fuel tank filled.” In other words, though Murphy was at work, he had a fair bit of help with this one. 🏠



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Seaworthy

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BoatU.S.
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Still Seaworthy

HOLD ON! DON'T recognize us? Before you toss this into the trash, take a good look. Yes, *Seaworthy* has gotten its first facelift in a decade-and-a-half. We know you still cared for us even though we were showing our age. But the 30th anniversary issue seemed the perfect time to introduce a new look, one that's cleaner, a bit more modern, and easier on the eyes. The wrapper may have changed, but what's inside hasn't.

The first article on the first page of the first edition of *Seaworthy* in the spring of 1983 laid out the new publication's purpose: "With this premier issue of *Seaworthy*, BOAT/U.S. policyholders will have the opportunity to sharpen their boat-keeping abilities based on information directly from the BOAT/U.S. marine insurance claim files." Though that first issue was only eight pages long and one of just two issues that year, the topics it covered should sound familiar: causes of fire on boats, the dangers of using electric heaters aboard, inspecting your fuel system, ways to prevent theft, and a brand new towing policy only available to BoatU.S. insureds.

The newsletter was popular right from the start. That wasn't a given. Picture, if you will, a magazine devoted to wrecked cars or derelict houses. It's hard to imagine people



devouring every word, let alone crawling around in their basements or under their dashboards to check the wiring. But for some reason, boaters are fascinated by photographs and stories of "dead" boats and the lessons they teach.

A lot has changed since that first issue slid into policyholders' mailboxes 30 years ago. In 1983 there was no Internet. There were no cell phones. You had to drive to the store to buy just about everything. We were still in the midst of the Cold War. Most fiberglass was solid, most sails were Dacron, and the only

electronics on most recreational boats was a VHF radio. Boaters navigated with compasses, charts, and dividers inshore and with sextants offshore. If you wanted cold drinks on the boat, you bought a bag of ice. Today's boats are a lot more complicated and costly. Most are also safer, more reliable, and better built. Through three decades of changes, *Seaworthy's* mission and subject matter have remained the same. We're still dedicated to mining our claims files to give you the information you need to keep yourself, your family, and your boat safe on the water, to including informed contributions from our readers, and to livening it all up with a touch of humor.

We hope you like our new look. If you're still skeptical, a quick flip through the pages should convince you that the things that really matter haven't changed.

We're still *Seaworthy* after all these years.

Seaworthy

PUBLISHER Michael Pellerin
EDITOR Beth A. Leonard
ASSOCIATE EDITOR Charles D. Fort
CONTRIBUTING WRITER Lenny Rudow
GRAPHIC DESIGN Yacinski Design, LLC
PROOFREADER Regina D. Cruz
CIRCULATION Nelo Karimi, Kristin Loyd

THE BOATU.S. DAMAGE AVOIDANCE PROGRAM IS DEDICATED TO HELPING YOU ENJOY ACCIDENT-FREE BOATING.

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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