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# BoatU.S.

SEPTEMBER | OCTOBER 2022

MAGAZINE

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**WATCHING THE WATCHERS** You're likely to see American alligators, like this one, when visiting Everglades National Park, home to more than 200,000 of these reptiles. But did you know there's a good chance of seeing crocodiles, too? The southern edge of the Everglades is the only place on Earth where both coexist in the wild due to the confluence of salt- and freshwater.

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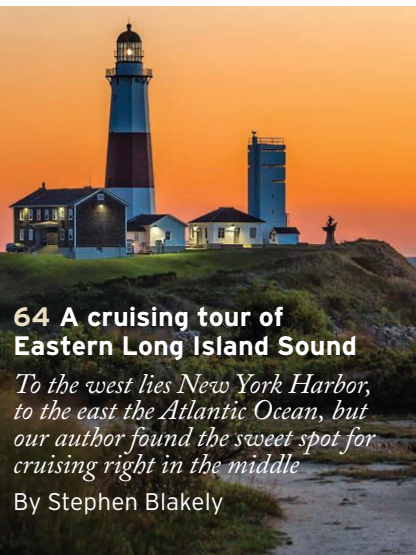
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Photo by David Sites

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CHARLES HAZOURI

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# AT THE HELM

BY HEATHER LOUGHEED, VICE PRESIDENT & MEMBERSHIP DIRECTOR

## LET'S MAKE SOME MEMORIES!

**B**oating season hasn't crested yet! In many areas, this is the best time of year for kicking back and having fun on the water. We've packed this issue with great onboard reading: tales of family connection (NFL great Tom Brady's life in boating, page 46); adventures in an Everglades houseboat (by our own senior editor Rich Armstrong, page 58); father-and-son bonding through boating (bestselling author Christopher Buckley writes about his legendary dad, conservative icon William F. Buckley, page 70).

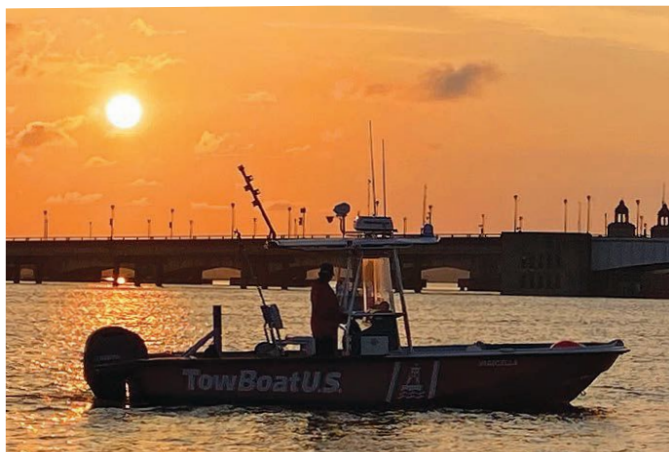
Our fishing and electronics editor Lenny Rudow explains the essentials of topwater fishing (and the rush you get as the water surface erupts with a strike!) and presents another cool collection of new boat gear. Managing editor Stacey Wigmore reports on how various boat covers hold up over a snowy, cold winter. On the serious side, contributing editor Fiona McGlynn offers a no-nonsense report on how rising water from climate change is threatening our marine infrastructure, and what we can do about it. Plus, our editors have found some great new and affordable boats to take you

on your own adventures (page 50).

In our Practical Boater section, you'll also find the extremely high level of technical expertise and detailed descriptions of boat systems, maintenance, and repairs for which we've become known. Technical editor Tom Neale does a deep dive into your boat's water system. Contributing editor Frank Lanier has your back when it comes to coolants, how to handle emergency flooding, and the essential items that every boat needs. What a team!

And the timing for all this is perfect because our BoatU.S. Photo Contest is back, and it's big! You don't have to be a pro photographer to capture pretty boats, great memories, and beautiful smiles. So get your photo gear (or smartphone) charged up to send us highlights from your 2022 boating season. Details and deadlines are in Waypoints (page 20). And even though the rules say I can't enter, below would be my submission from a recent day boating with TowBoatU.S. Charleston. See you out there!

Heather



*The sun sets on  
TowBoatU.S.  
Charleston after a  
day on the water.*



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## LET THE DOGS BREATHE



“The Battle of the Doggie Life Jackets!” (April/May) was a good report on life jackets for our four-pawed crew. I’d like to add dog harnesses to the conversation. While we all want to keep our pets safe while boating, the life jacket has one significant issue: overheating. Dogs regulate body temperature by panting; they don’t sweat. A dog’s chest wrapped snug in the jacket’s closed-cell foam can limit the dog’s ability to pant and self-regulate body heat. That’s why we use a full dog harness with a grab loop incorporated into the design (which is also boat-hook friendly) on our 1998 Endeavorcat 36. I attach a tether to the harness to limit the dog’s movement and keep them inside the gunwales, which keeps them from going over-

board in the first place.

Obviously, life jackets are part of our life afloat. I wear one in the dink and in iffy weather. I also wear an inflatable PFD-harness with jacklines anytime I leave the cockpit to go forward. But in calm, and especially hot weather, our two dogs are issued their harnesses anytime they are on deck.

**BILL HUDSON, Pennsylvania**

### Limitless MPG

I enjoyed the article “21 Gas Saving Tips for Boaters” in the May BoatU.S. e-newsletter. It was full of great ideas, but I would like to add a 22nd tip – one that I have found to reduce fuel consumption rather dramatically: I do my boating in a sailboat. Not to rub it in, but I spent a great Memorial Day holiday on Kentucky Lake with great wind. The only fuel I used was maybe a cup or two motoring in and out of the marina.

**STEVE REDDING, Tennessee**

### White out!

“Caught in the Fog” (July/August) was a great and timely article. I would add that AIS [Automatic Identification System] is cheap and lets AIS-equipped boats – and all ships – know where you are. It’s cheaper than radar and works with most chartplotters. All the rest of the advice was spot on and good reminders. AIS certainly doesn’t make travel in dense fog wise, but if you’re stuck, AIS makes everyone safer. It should be mandated for all boats over 20 feet, in my humble opinion.

**CRAIG RITCHIE, Washington**

## MEMBERS GALLERY



**GOOD MATE** “Leo, our 21-month-old Labrador retriever, loves boating on our Grady White 216 Fisherman center-console,” writes Barbara O’Connor of New Jersey. “Leo always wears his Arcadia trail life jacket when he’s on the boat.”



**FAMILY TRADITION** “For more than 10 summers, we’ve taken a photo of our three sons wakesurfing together on Lake Lanier,” writes Bill Bierbower of Georgia. “They’re all experienced boaters, always ready to help out others on the water. Proud dad here.”



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## FishU.S. Magazine?

I understand I am swimming against the stream, so to speak, but judging from the July/August issue, maybe you should be called *FishU.S. Magazine*. On Page 21 is an article on how fish communicate. There are photos of members holding fish, a “Fishing with a Newbie” article, one on women fishing, and the latest spinning reels from Shimano. **RUSSELL COLE, California**

**EDITOR'S NOTE:** *We hear you, Russell. It was indeed our fish-heavy issue. With the most diverse readership of any boating magazine, we try to offer something for everyone. We hope you enjoy this boat-heavy issue now in your hands. Thanks for the feedback!*

## Rhyme to remind

Thanks to Capt. Frank Lanier for the article, “Navigation Mnemonics” (April/May). While the “red, right, returning” mnemonic is easy to follow in a single channel clearly leading into a harbor or marina, it can be confusing when one encounters side channels, requiring attention to main channel markers vs. side channels. Much of my boating has been on or near the Intracoastal Waterway, from Delaware to the Florida panhandle, with countless instances of coming off a side channel onto the ICW. I tried to come up with an easily remembered rhyme for that transition (to avoid referencing a chart each time) and created one that works for me: “IC, green sea.”

For reference, on the ICW, the red markers coming south on the U.S. East Coast are on the mainland side of the waterway, the green on the ocean side. As it swings around Florida and heads north up the west coast, the greens stay on the Gulf side. Of course, one must stay vigilant on those few instances where the waterway doubles back on itself for a spell, but combining “IC, green sea” with awareness of your compass heading should work every time. **JIM ASHWORTH, Illinois**

## Canal cruising

I'm a little late in reading the February/March issue, but the article about the Erie Canal (“From Barges to Pleasure Boats”) is excellent. We traveled the canal back in 2003 going from Lake Michigan to the south end of the Chesapeake. The Erie Canal was the highlight of our trip. The entire canal, from Tonawanda to Waterford, was delightful. We stayed in so many wonderful little towns and met so many wonderful people. We had to unstep the mast in Tonawanda, and it was a little cumbersome getting up the walls sometimes. But you can't say enough about the lockmasters; they were so helpful. It was the trip of a lifetime and I'd recommend it to anyone who likes boating.

**PAT AND JIM WHARRY, Nebraska**

## That sinking feeling

As a boat enthusiast, water skier, and fisherman, I was excited to read your magazine in my doctor's office. However, I was disappointed by the article by Fiona McGlynn on drought. Despite the clear statement by the NOAA Drought Task Force that global warming is causing the problem, it was surprising that your mitigation ideas did not include cutting greenhouse gases. Your Government Affairs [team] should study the scientific data and get onboard with scientists who have proposed clear solutions that our government needs to act on. If you don't, your magazine may sink like the level of most southwestern lakes.

**MICHAEL LENARDO, Maryland**

**EDITOR'S NOTE:** *Michael, we share your deep concern about the climate. Author Fiona McGlynn did explain why this drought is so persistent and why conditions are worsening due to the warming of the climate. Her article explained that, according to the NOAA Drought Task Force, until “stringent climate mitigation is pursued” (reducing man-made greenhouse gases from burning fossil fuels, as we've reported in numerous articles over the past couple of years) these conditions will continue to worsen.*

## MEMBERS GALLERY



**CAPTAIN'S LUCK** “In March, a friend and his wife drove from Pennsylvania to go fishing with me in coastal Georgia,” writes Tim Kronheim. “I took them out on my 2007 BlackJack 224, hoping they'd catch a few bull redfish, but I'm the one who caught this 39-incher off Jekyll Island.”



### DOG DAYS

“Ollie, our 1-year-old German shepherd, loves to nap on our 21-foot Cobia center-console,” writes Alex Rahl of Florida. “This was taken at the East Pass in Destin.” 🐾

**SEND PHOTOS** Let's see how you have fun on the water (wearing life jackets, of course)! To be considered for this column or on our social media, email a high-resolution image with your name, location, and a few words about it to [LettersToEditor@BoatUS.com](mailto:LettersToEditor@BoatUS.com).





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[P/N 2980]

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[P/N 2982]

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[P/N 3966]



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\*on vessels subject to 33 CFR 175.130 (primarily recreational boats).

# WAYPOINTS

EDITED BY RICH ARMSTRONG, BOATU.S. SENIOR EDITOR







## Race for ragged glory

**W**e all know about the Iditarod, that crazy 938-mile Alaskan dog-sled race from Anchorage to Nome. But have you heard of the Race to Alaska? It's even crazier, but with boats! The rules are simple: Race 750 cold-water miles from Port Townsend, Washington, to Ketchikan, Alaska. Any boat will do, as long as it has no engine – strictly wind or human propulsion – and no support along the way, either. There is no official route, so pick your own. First place is \$10,000. Second place is a set of steak knives (a clever nod to the movie “Glengarry, Glenn Ross”), and for the rest, what organizers call “the cathartic elation” of simply completing the course.

The spirit of tradition, exploration, and lawless self-reliance is what draws about 50 teams each race (only about half typically finish). In the 2022 race, held in June, there were kayaks, rowboats, sailboats under 20 feet, monohulls up to 44 feet, catamarans up to 32 feet, and trimarans up to 35 feet. Some competitors raced solo.

“It’s like the Iditarod on a boat with a chance of drowning, being run down by a freighter, or eaten by a grizzly bear,” R2AK organizers say. “There are squalls, killer whales, tidal currents that run upward of 20 miles an hour, and some of the most beautiful scenery on earth.

“R2AK is based on the hardest kind of simplicity.”

If you want a closer look at the competitors, check out “Rite of Passage: A Race to Alaska Documentary,” which follows a student racing team in the 2017 and 2019 R2AKs. Search the title on YouTube. – **RICH ARMSTRONG**

**MORE** [r2ak.com](https://r2ak.com)

**The R2AK is North America’s longest engineless boat race.**

DREW MALCOLM

## Life-saving duty

**A** Coast Guard crew from Station South Padre Island along the Texas coast freed a dolphin trapped in a net near Laguna Madre in May. A local charter fishing boat captain reported the struggling mammal. Once on scene, the crew cut the dolphin free from the illegal gillnet fishing gear, which had previously entangled 10 bonnethead sharks, one blacktip shark, 20 catfish, one redfish, and a bottlenose dolphin, according to the Coast Guard.

"This incident clearly exemplifies the negative impacts of illegal fishing gear used in U.S. waters," says Petty Officer 3rd Class Drew Ferguson, a Station South Padre Island boarding officer. "Not only does it impact marine life, but the entire ecosystem as a whole. Thankfully, we were able to free the dolphin and remove the gillnet before it trapped and killed any additional marine life." A gillnet consists of a wall of netting with mesh designed to trap a fish's head and is illegal to use in Texas waters. — **R.A.**



**A crew member leaned off the patrol boat with scissors to cut the dolphin free of the net.**

## Michigan tackles plastic problem

**D**ue to its thriving boating industry (786,000 registered boats), and \$100 billion agricultural economy (47,000 farms), Michigan produces tons of plastic film waste after covering boats and plants through the winter. Film plastics are not biodegradable and contribute significant mass to landfills — about 2 to 4 curbside bins worth of recycling per boat cover. To help keep plastic out of the state's landfills, a coalition of vested partners created a plan to recycle boat shrink-wrap.

The Michigan Recycling Coalition (MRC) is a nonprofit coalition of vested parties (including Michigan-based boat shrink-wrap specialist Dr. Shrink) that launched the Recycling Run with Bay Area Recycling for Charities, as the official collection program for boat covers in the state. Katie Fournier, MRC project coordinator, says the Recycle Run has collected marine plastic for nearly 11 years, adding, "We really were not able to scale up the program until the last couple of years when we received a grant from the Department of the Environment, Great Lakes, and Energy. Now we are very excited to see the program become accessible statewide." In 2021, MRC recycled 62,000 pounds of boat shrink wrap and expects to recycle 85,000 pounds this year, which adds up to 42.5 tons.

To keep expanding, MRC is calling for more regional marine business to serve as community drop-off centers for boat film plastic. Contact [kfournier@michiganrecycles.org](mailto:kfournier@michiganrecycles.org) if your business is interested in joining. — **DAN ARMITAGE**



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## Smile! Our BoatU.S. photo contest is back!

**Y**et another perk to our boating lifestyle is that photos just look better when taken on the water. Our last BoatU.S. Magazine Photo Contest was in 2019, so get those smartphones charged up and digital camera lenses wiped clean — and capture moments from your 2022 boating season.

You don't have to be a professional photographer to participate. We're looking for real boaters in their natural element, and there's no one better qualified for the job than YOU. Photos will be judged in the following categories: Action, Lifestyle, Scenic, Artistic (can be digitally enhanced), and Cover photo (vertical, with space toward the top for



ANDREW PFAFF

logo). The entry period ends October 23, 2022.

The first-place winner in each category will receive a prize pack that includes an ACR ResQLink View Survival Kit ([acrartex.com](http://acrartex.com)), a one-year BoatU.S. Unlimited Towing membership, and BoatU.S. swag. (ARV: \$590). In addition, the winning and runner-up photos will be published in the February/March 2023 issue!

Send us your best boating shots — weather, fishing, family, local color, close-ups of boating gear, glorious seascapes, boat chores, seasonal fun, and more! Each photo must contain a boat or be set on a boat. Visit **[BoatUS.com/2023-Photo-Contest](https://BoatUS.com/2023-Photo-Contest)** for info, rules, and online entry.

### COMING UP

See our special report in an upcoming issue on successful efforts to recycle shrinkwrap in other parts of the country, and how to get two or three uses out of one shrinkwrap.



## All-women design team shapes new Sea Ray

**I**t's no secret: The marine industry is male-dominated. But signs of change can be found in Sea Ray's announcement that its all-new SLX 260 and SLX 260 Outboard (see "America Is a Small Boat Nation," page 50) is the company's first boat designed by an all-women design team. The project, which is the first of its Sport Boats line to showcase Sea Ray's new design, was led by senior design manager Carrie Fodor and industrial designer Kristin McGinnis.

"Carrie and Kristin are rising stars in our industry, and I'm thrilled to see their success and the success of this fantastic launch," says Aine Denari, Brunswick Boat Group president.

Born in Holland, Michigan, Fodor grew up on the Great Lakes in a boating family and joined the company in 2008. "It's an incredible opportunity to work for an industry-leading company that has created a recognized culture where an individual's work is truly valued," Fodor says. "For any woman or minority who didn't realize a career in the marine industry or the ability to design a boat was an option, this is proof that you can do something great."

McGinnis grew up outside of Toledo, Ohio, and originally planned to pursue a law degree. Inspired by famous women designers who came before her, and embracing her love for cars and drawing, she returned to the University of Cincinnati for a design degree at the age of 25. She started at Brunswick as an intern. — R.A.



**Design manager Carrie Fodor, right, and designer Kristin McGinnis are making their mark on the boatbuilding industry.**

## Electric-only fishing tournament

**T**he recreational marine industry's electric propulsion businesses continue to make inroads. ePropulsion, which makes electric outboards and pod drives, sponsored an electric-only fishing tournament this spring on North Carolina's Lake Mackintosh — one of dozens of tournaments managed by the Jon Boat Bass Club of North Carolina. The JBBCNC ePropulsion Invitational tournament saw local anglers James Bentley and Mitchell Whitt besting a field of 44 teams with a catch of five fish weighing a total of 23 pounds, 2 ounces. The grand prize was an ePropulsion Navy 3.0 electric outboard.

"The members of JBBCNC are innovative and inventive anglers who embrace alternative forms of propulsion as a responsible way to respect and protect the waters where they fish," says Chris Ponnwitz, electric market manager for Mack



Boring & Parts Company, ePropulsion's distributor in the U.S. — R.A.

**MORE** [jbbnc.com](http://jbbnc.com), [ePropulsion.com](http://ePropulsion.com)

**The electric motors on the fleet kept the anglers chasing fish all the way to sunset.**

**GOOD RIDDANCE:** After weeks of making national headlines, the 1,095-foot container ship *Ever Forward* was refloated April 17 after sitting grounded for a month on the soft bottom of Chesapeake Bay. Following two unsuccessful refloat attempts, the ship was partially unloaded and more than 206,000 cubic yards of material was dredged and taken to Poplar Island, Maryland, where the material is used to offset erosion. Luckily, *Ever Forward* had wandered off course before running aground outside the navigation channel, so it wasn't in the way of marine traffic.



GEORGE MASON UNIVERSITY DEPARTMENT OF POLICE AND PUBLIC SAFETY



BY THE NUMBERS

**805,856** Total number of BoatU.S. members nationwide (annual dues: \$25)

**524** The number of pages *BoatU.S. Magazine* published last year loaded with award-winning boating content

**\$0** Amount BoatU.S. members paid for covered services with an Unlimited Towing Membership

## Jules Verne would be proud

**I**n case you haven't noticed, some of those fantasy sci-fi gadgets we dreamed about growing up are starting to become reality. U-Boat Worx, a Dutch company that specializes in personal submarines, has plans for a completely autonomous submersible with capacity for up to 120 guests, who will experience diving to depths more than 650 feet.

The UWEP submarine would run solely on batteries and operate nonstop for 24 hours. The air-conditioned environment would be fully pressurized, so there'll be no need for decompression.

U-Boat Worx says it's currently reviewing opportunities with entrepreneurs and hospitality groups to select the most suitable locations. Should any investor(s) fully fund the proposal, the 1,600-square-foot of space will include a restaurant, gym, and casino. — R.A. [MORE uboworx.com](https://www.uboworx.com)



A rendering of the World's first 115-foot "Under Water Entertainment Platform" submarine by U-Boat Worx

## Giving back to nature

**R**oughly 3,500 pounds of recycled oyster shells were added back into coastal Texas's St. Charles Bay to help restore degraded oyster habitat, improve fisheries, and improve water quality. The new conservation project, kicked off in May, is led by Texas A&M University-Corpus Christi's Harte Research Institute (HRI) and the Coastal Conservation Association (CCA).

HRI is studying the viability and effectiveness of "recycling" oyster shells that are typically discarded or sold by area restaurants, to rebuild or reestablish oyster reefs. These reefs make it easier for oyster larvae to find suitable places to attach and grow. While the group hand-filled dozens of biodegradable cellulose bags with shells and placed them in shallow water, a large barge with a backhoe deposited tons of reclaimed oyster shells into deeper water, complementing the shallow-water restoration effort. The team



Volunteers placed 3,500 pounds of recycled oyster shells into St. Charles Bay.

was joined at Goose Island State Park by volunteers representing Yamaha Rightwaters, a conservation-focused division of the engine manufacturer.

At least 50% of the original oyster reefs along the Gulf coast have disappeared, according to The Nature Conservancy, challenged by overharvest, hurricanes, drought, and floods over the last decade. The Gulf Coast produces nearly half of the nation's \$250 million oyster industry, according to NOAA Fisheries. In addition, oysters annually contribute approximately \$50 million to the Texas economy.

"Once the reefs are established, they provide valuable habitat for fish, shrimp, and crabs, as well as oysters," said Dr. Jennifer Pollack, chair of Coastal Conservation and Restoration at HRI. "Oyster reefs protect shorelines from erosion. We are also learning about the role that oysters play in capturing and storing carbon from the atmosphere." — R.A.

## 'Sea the World' with Junior Achievement

**J**unior Achievement of South Florida announced it will begin another three-year partnership with local schools to continue its Sea the World program that introduces students to career opportunities in the marine industry. Florida is a boating hub for the nation, with some 960,000 registered boats. The recreational marine industry in the Sunshine State supports more than 6,000 businesses and 92,000 jobs, according to the National Marine Manufacturers Association.

Junior Achievement's Sea the World storefront in Coconut Creek will continue to lease space and add elements "to inspire the next-generation workforce," reads a Junior Achievement statement. The program serves eighth-grade students in Broward and South Palm Beach counties and introduces them to a career and "well-paying, sustained, interesting, and diverse jobs for their future," says Lori Baer, executive director of the Port Everglades Association, a partner in the venture. — D.A.

[MORE jasouthflorida.org](https://www.jasouthflorida.org)



The recreational boating industry, which faces a chronic worker shortage, is investing for the future by funding educational programs for primary school students.

JUNIOR ACHIEVEMENT



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— **Rob Lupola**, Raymarine/Strike Two Fishing Team,  
Pensacola, FL



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# FISH ON!

BY LENNY RUDOW, BOATU.S. FISHING EDITOR

## TIP-TOP TOPWATER

*Whether you fish for bass in a reservoir or bluefish in a bay, few things are more exciting than watching fish explode on a topwater lure. These 10 tips will up your game*

A largemouth bass explodes out of the water while chasing a minnow plug.



GETTY IMAGES/STAMPHOTO

**P**oll any group of anglers on the single most adrenaline-inducing sight to behold while fishing, and you'll hear the same answer again and again: a topwater explosion. Watching your lure skitter across the water's surface can be calming, even entrancing, right up until the moment the water erupts as a predator attacks it from below. Fishing topwater is not, however, for the faint

of heart. There are often more effective ways to get a fish on the end of your line and when the bites don't come, calming and mesmerizing can evolve into just plain boring.

But if you're willing to put in the time and effort to see this epic sight and feel that rush of adrenaline, here are 10 tips and tricks that will help you become a

more effective topwater angler, regardless of where you cast or what you're trying to catch.

**>> 1. Master the "walk the dog" technique,** which most topwater lures that come to a cone or point (as opposed to being concave in the front) are designed for. Cast out and hold your tip low, then rhythmically pump it

a foot or so at a time as you crank on the reel. Watch your lure, and it should zigzag from left to right as it "swims" toward you. If it isn't zigging and zagging, pump a bit harder. If it flies out of the water or dives beneath the surface, pump a bit softer or slower.

**>> 2. Try chuggers or poppers when it's rough.** Virtually all topwater lures have internal rattles to help call in the fish, and in the quiet of a slick calm, adding in the loud chugs and burps made by lures with a concave head can actually create enough commotion to spook the fish. On rough days when there's lots of background noise created by waves or falling rain, however, the



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added noise of a chugger or popper can help generate strikes.

**>> 3. Vary your retrieve speed and cadence.** It's all too easy to fall into a rut making cast after cast and start retrieving your lure by rote. Don't let this happen. The fish can change their preferences from week to week, day to day, and even from hour to hour. So change the speed and cadence of your retrieve constantly until the strikes start coming. When you get hits, you'll know if the fish prefer it fast, slow, erratic, or steady, and you can repeat that style to get more blow-ups.

**>> 4. Swap your lure's treble hooks for singles,** especially when catch-and-release fishing. Sure, you may miss a few hook-ups. But those trebles often do serious damage to the fish, so most experienced anglers who are conscientious about the state of our fisheries do away with them. Plus, it's all too easy to get a treble stuck in a human body part – and that can abruptly, and painfully, end a day of fishing.

**>> 5. Choose topwater lures with a white belly in bright conditions and a dark belly in dim or dark conditions.** In broad sunlight, a lure that's white on the bottom mimics baitfish, which usually have a white underside so they're harder to spot from below when a predator is looking up at the brightly illuminated surface. When it's dark or nearly dark out, however, a lure with a dark underside blocks out the little light that is available and creates a silhouette for gamefish to zero in on.

**>> 6. Don't stop retrieving when you miss a strike.** Floating motionless, most topwater lures don't appear to be anything more than a stick. If you keep it moving, however, it will look like an injured baitfish attempting to escape and you'll often get a follow-up strike.

**>> 7. If you're a novice (or if you have a novice aboard your boat) try using a topwater lure that creates its own fish-attracting action** without any added input from the angler. Lures with lips that help them swim, tiny props, or spinning tails will look alive and trigger strikes even when they're reeled in

without any walks or pumps generated by working the rod.

**>> 8. If possible, focus your efforts during periods of ambient light.** Sunrise, sunset, and heavy cloud cover are ideal conditions for topwater action. Usually the worst time to try this tactic is when the sun is directly overhead. There can certainly be exceptions and we can't always choose when we get to go fishing, but as a general rule of thumb, these periods of indirect lighting will be your best bet.

**>> 9. Don't set the hook on a hair trigger.** When the explosion comes, force yourself to wait just a second or so as you swing your rod tip toward the fish and take up any slack in the line, before rearing back. Note: If your plug regularly flies through the air back at



Visit this article at [BoatUS.com](http://BoatUS.com) or search the BoatU.S. YouTube channel (@BoatUS) for a video on how to replace treble hooks with singles.

# Protection without limits








LENNY RUDOW (3)

you following hook-sets, a fairly common phenomenon, you're on a hair trigger. It's very, very difficult to do, but you need to use more self-control and give that fish a second to take the lure all the way into its mouth.

**>> 10. When fish are hanging über-tight to the shore, cast right onto land and retrieve from there.**

Dropping the lure right on top of the fish's head can spook it, and if the lure lands too far out from the bank the fish likely won't chase it. In this scenario, as long as there aren't a lot of snags preventing you from doing so, retrieving from land into the water is a very effective tactic. And if there are a lot of snags in the way, consider changing over to a weedless lure with protected hooks that can be drawn through heavy cover, like a topwater mouse.

Are there other, more effective ways of catching fish than tossing topwater? You bet. In many cases using bait, trolling, or jigging is a better way to put meat in the cooler. But if you're fishing for an adrenaline jolt, absolutely, positively nothing beats a blow-up. 



**Top left: When it's choppy out, chuggers and poppers shine. Left: Savvy anglers will carry a wide variety of topwater lures. Above: Do a favor to both the fish and yourself, and swap out those treble hooks for singles.**



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## WHAT YOU NEED TO KNOW ABOUT BOAT COVERS

*Debating whether to use a reusable cover instead of shrinkwrapping this winter?*

*We put a number of common boat storage covers to the test*

Semi-custom T-top covers tend to keep water from pooling better than other types by nature of its design.



TED SENSENBRENNER

**W**hen it comes to preparing your boat for its winter nap, are you Team Shrinkwrap or Team Boat Cover? Most of the 350 BoatU.S. members who responded to our BoatU.S. Foundation survey early last year said shrinkwrapping was their top option for covering boats in the off season. Why? Around 90% of shrinkwrappers said they believe it protects

their boats well, and 50% like the convenience – because someone else installs and dismantles it, and it requires little to no maintenance. That said, 12% of you say you're using shrinkwrap because you didn't know there were other options. There are! One of those possibilities is a reusable boat-storage cover.

Boat covers come in a variety of price points, some with warranties up to 10 years. They come in a selection of fabrics and colors, some with options including zipper access points, vents, and strapping. Last fall, our BoatU.S. Foundation purchased covers of all types from basic to top-of-the-line semi-custom for use

on nine of their donated boats over the winter. Here's what we learned.

### 4 main types of boat covers

**>> Marine-grade tarps** are basic squares or rectangles made from fiber-reinforced polyethylene with grommets to tie and/or weight it in place – a true DIY.

**>> Generic covers** are often sold by big box stores and online retailers based on length and width. They're often made from acrylic or polyester and fit a larger range of boats.

**>> Semi-custom covers** are a step up and meant to fit specific boat types, offering a more tailored fit. You choose the year, make, and model of your boat on the retailer website, and the company suggests several models that will fit your specific boat. Those may include

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different qualities/warranties, various grades of acrylic or polyester fabrics, and options like vents, different types of straps, or storage bags. Some are in stock and can be shipped immediately; others are made to order and shipped within a week or two.

**>> Custom boat covers** are custom measured and sewn for your specific boat. Some may be crafted from a high-end acrylic marine fabric like Sunbrella; others are made from a heavyweight treated cotton duck. Most require a wood or metal frame for support.

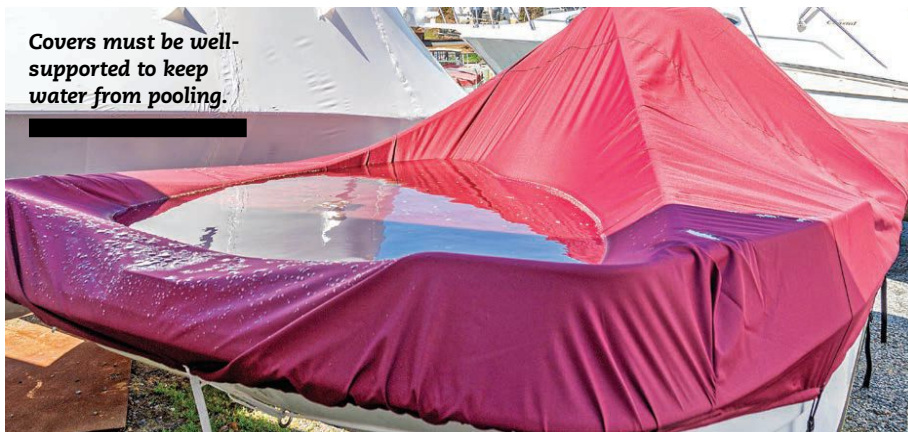
### Here's how we tested the covers

Last fall, the BoatU.S. Foundation ordered a variety of covers from big box marine stores (such as westmarine.com) as well as online cover retailers (budgetcovers.com, nationalboatcovers.com, taylormadeproducts.com, millscanvas.com). Support poles and systems were ordered through Amazon. Our team tried out nine covers on a variety of powerboats ranging from 17- to 25 feet kept on trailers, jackstands, or lifts throughout the temperate 2021–22 Maryland winter, which also had its share of ice and snow.

To get pricing, we also contacted several shrinkwrapping services, as well as companies that make custom covers. See “Price Comparison” on page 30.

To fit each cover, our staff started at the bow and rolled each cover down and back. Most covers secured at the bow, and then we removed the wrinkles as we pulled the cover aft, pulling out any low spots by cinching the side straps. After fitting the covers, optional support poles were added where needed to help keep water from pooling.

The marine tarp was the only option that was a candidate for a frame, but one wasn't used. Some covers from Eevelle (eevelle.com, nationalboatcover.com) had the option of a built-in support in the form of poles and strapping, called Ridgeline, which was used in



STACEY NEDROW-WIGMORE

### Boat cover shopping tips

- >> Take detailed measurements** (length, width, girth, outboard, bowrails, top).
- >> Follow measuring directions/guidelines** carefully if provided by manufacturer/seller.
- >> Look for specials** (sales, free outboard cover, poles, accessories).
- >> Image on box label** might not be an actual image of what's in the box. **Double check the description** of what's inside; don't just rely on the photo.
- >> Boats need to breathe** while covered to avoid mildewing. If the cover is tight, does it include vents? What about elastic/drawstring, straps, bag, covers the outboard?
- >> Silver covers** are reflective and keep boats cooler.
- >> T-tops** and towers make shopping a challenge (but tent better).
- >> Purchase the best pole support** available with wide base and top.
- >> Check fit/return policy** and make sure the cover fits before that window expires, especially if you buy out of season.
- >> Make sure straps** will be long enough to connect if your boat is on jackstands, or that you have something to tie them to if on a trailer.
- >> Don't forget accessories** (rocket launchers, radar) when measuring. They'll require padding, and may be hard to fit with anything but a custom cover or shrinkwrap.

– TED SENSENBRENNER

some of the boats.

Foundation staff checked the boats every other week throughout the winter to readjust covers and straps as necessary. Even though the wear points were covered initially, sharp/wear points became evident as the covers settled. We also discovered that the straps and buckles would get “loaded” when water was sitting in the cover; most covers needed to be bailed out after rain or snow.

### Takeaways & lessons learned

**>> Check your marina contract** to ensure reusable covers are allowed over the winter. Some yards require shrinkwrap for boats in rack storage because the extra weight, if water pooled, could cause collapse.

**>> Waterproof or water resistant?** Not the same! Stick with waterproof for boat-storage covers.

**>> Does the manufacturer offer an installation video?** Follow the instructions.

**>> Read the warranty.** Understand what is and isn't included for the cover you're purchasing. Most warranties are only good for one replacement, and only cover defective workmanship and mate-



The BoatU.S. Foundation welcomes donations of gently used boats in good condition, which help support the Foundation's mission to promote safe, clean, and responsible boating, while offering tax advantages to the giver. Visit [BoatUS.org/Boat-Donation](https://BoatUS.org/Boat-Donation) to learn more.

rials (like seams coming apart or fabric not waterproof as claimed). You'll need to show proof that the cover was installed correctly (take photos). Damage from sharp edges, wind, heavy weather, and pooling generally isn't covered. In most cases, a warranty is only good for the person who buys the cover; it doesn't transfer if the boat is sold or if you buy a used cover.

**>> Enlist a helper.** Covers can be heavy and awkward to handle. Have at least one other person to minimize the trips up and down the ladder and going side to side to adjust straps.

**>> Make sure the cover has enough support.** In our experience, the supports that came with the cover (whether included or optional) weren't robust enough. In almost every case, we had to add strapping to support the cover and reduce pooling, and add poles to help tent the fabric in the stern. Even so, fabrics stretched, stitching pulled, and poles broke under the load of pooling water.

**>> Pad out corners and edges** liberally. Pool noodles, old towels, and even sponges can be used on corners and sharp edges to reduce stress on the cover fabric as well as reduce rubbing at wear points on your boat. Don't forget the windscreen edges.

**>> Pad out support poles** on both the bottom and top. Carpet squares can help spread the load and keep them from ripping through the cover or damaging your deck.

**>> Add nonskid** (shelf liners would work) on the bottom base of the pole to keep it from sliding.

**>> Label the bow and stern** and mark the centerline using permanent marker



**Left: Ted puts the cover on starting at the front, working back, and pulling tight. Then he'll make sure it's properly supported before adjusting the straps. Below: All corners and the windscreen edges are padded out to reduce stress and prevent rubbing.**



for easier installation next time.

**>> Label the cover** with your name and your boat's name for easier identification. Once they're covered, boats in a boatyard or marina can be hard to tell apart!

**>> Never tie a cover to jackstands.** In high winds or rain/snow, the tension can pull the supports out from under your boat. (This wasn't a lesson learned ... just useful info!)

**>> Check your boat at least once a month**, and after snow or heavy rains, throughout the off season. Get rid of any pooling water, which can cause damage

to the boat, trailer, or lift from the extra weight, or cause the cover to rip.

**>> Clean according to manufacturer instructions** and ensure the cover is completely dry before folding or rolling for seasonal storage.

## Boat cover fabrics

**M**ost generic and semi-custom boat covers are made from either polyester or acrylic fabric. Both types are woven from plastic threads derived from fossil fuels. Polyester starts out stronger than acrylic but will lose strength more quickly. In general, higher-end marine acrylic fabrics are more durable than polyester over the long term. But from an environmental standpoint, polyester can be recycled, while acrylic will take around 200 years to biodegrade in a landfill. Sunbrella, one of the top manufacturers of acrylic fabrics, has a take-back program where it's converted into industrial products such as felt, automotive insulation, and filtration ([sunbrella.com/sustainability](http://sunbrella.com/sustainability)).

— S.W.

## Boat cover price comparison

TYPE OF COVER	PRICE RANGE (APPROX. PER BOAT FOOT)	WARRANTY
Marine-grade waterproof tarp	\$5-\$6	None
Generic cover	\$9-\$17	3-5 years
Semi-custom	\$19-\$54	3-10 years
Semi-custom T-top	\$15-\$79	1-6 years
Custom	\$62-\$250	1-5 years
Shrinkwrap	\$15-\$28 (Maryland, basic install only)	6-12 months

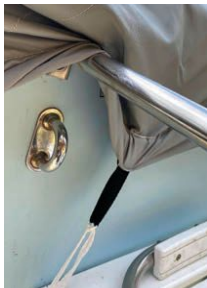




## Understanding denier

**W**hen researching boat covers, you may see reference to the “denier” of the fabric used, especially those made from polyester (and sometimes polyethylene tarps). Generally, only polyester is described in denier, while acrylic is often described in ounces.

Denier is a unit of measurement for the thickness of individual threads used in the manufacture of fabrics or textiles. The higher the number, the coarser, sturdier, and more durable the fabric. The lower the number, the more sheer, soft, and silky the fabric. A 600D fabric is going to be twice as strong as 300D, and 1200D is twice as strong as 600D. Higher denier fabrics are heavier and more protective against the elements, such as rain, wind, and UV damage. — **S.W.**




**Top:** This old cover is ready to be replaced. **Above and right:** Look for options such as reinforced tie-downs, vents, and zippers.

STACEY NEDROW-WIGMORE



## The bottom line

When it comes to covering boats for storage, there's no one-size-fits-all solution. In our experience, a strong tarp might do the trick for the budget-minded boater, if installed well and checked regularly. Custom covers are a good investment if you're going to own your boat for a few years. But the good-quality semi-custom covers offered the best balance between fit, durability, and value. 

*Stay tuned: We're working on an article all about shrinkwrap for a future issue.*



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# CONSUMER AFFAIRS

BY FRANK LANIER, BOATU.S. CONTRIBUTING EDITOR

## WHAT EVERY NEW BOAT NEEDS

*From basic essentials to safety gear, proper outfitting is the key to a safe, enjoyable day on the water. Here's the lowdown on what every new boat needs*



FRANK LANIER

**O**h boy! You've purchased your first boat and are eager to hit the water and begin enjoying all the benefits of new boat ownership – fishing, wakeboarding, and those tropical drinks with the little umbrellas in them that the broker told you about. Not so fast! You may be ready, but is your boat?

### REQUIRED SAFETY EQUIPMENT

While your outfitting list will vary based on the type of boat and activities planned, a great place to start is with required safety equipment. Safety equipment is based on a number of factors, from vessel length to the number of people onboard. You'll want to verify the requirements for your particular vessel and situation, but here are the basics. Visit [BoatUS.com/Expert-Advice](http://BoatUS.com/Expert-Advice) for more in-depth stories and how-to videos on all these subjects.

### Life jackets

All recreational boats must carry a Coast Guard-approved, wearable life jacket (Type I, II, III, or V) for each person on board. Life jackets must be in good, serviceable condition, of the appropriate size for the intended wearer, and readily accessible for use (not stowed in a locked

compartment belowdecks or beneath a ton of gear in the cockpit locker).

As a marine surveyor, I see a lot of life jackets still in the plastic shipping bags (an effort by boat owners to keep them clean). These bags must be removed as well, otherwise they're not considered to be readily accessible.

When purchasing life jackets, one big consideration is wearability. A life jacket provides no benefit if it isn't used, so choose some that are comfortable enough that they will actually be worn. Inflatable life jackets are a popular choice due to their light weight



**Have kids aboard for the weekend but no properly sized life jackets on board? Stop by one of the nearly 600 BoatU.S. Foundation Life Jacket Loaner sites (search [BoatUS.org/Life-Jacket-Loaner/Maps](http://BoatUS.org/Life-Jacket-Loaner/Maps)) to borrow one for the day or weekend at no cost.**



and low profile. Available in vest or belt-worn styles, each unit contains a CO<sub>2</sub> canister, which inflates a rubber bladder to provide flotation when a wearer enters the water. If you choose this style, be aware that they have additional maintenance requirements compared to standard life jackets and must be maintained per the manufacturer's recommendations.

There must also be a minimum of one approved Type IV throwable device (such as a throwable cushion or life ring). Type IV devices are designed to be thrown to a person in the water, and while one is the minimum, it's always a good idea to carry more. Throwing several in the water not only increases the chances that the person in the water can reach one, but also makes it easier to spot the area they went overboard. It's also a good idea to have at least one with an attached (but detachable) lanyard, which allows you to pull the person back to the boat.

### Portable fire extinguishers



The number of portable fire extinguishers your boat requires is based on factors such as boat length, whether it has an enclosed engine compartment, and if there is a fixed or perma-

nent extinguishing system installed. The three primary classes of fire are Class A (combustible solids like wood), Class B (flammable liquids like gasoline or oil), and Class C (electrical fires).

New regulations (2022) call for extinguishers that use UL (Underwriters Laboratories) designations, a number/letter combination that indicate the square footage of the fire the extinguisher can put out, and the type of fire it is effective against. For example, a 5-B extinguisher indicates an extinguisher capable of putting out a Class B fire up to 5 square feet in size.

Vessels less than 26 feet are required to carry at least one 5-B portable fire extinguisher. Vessels 26 feet or more, but less than 40 feet, must carry two 5-B units (or one 5-B unit if a fixed fire extinguisher is installed in the engine compartment). Those 40 feet or more, but not more than 65 feet, are required to carry three 5-B units (two if a fixed extinguisher is installed). A single 20-B portable fire extinguisher can be substituted for two 5-B units.

Note that these are the minimum requirements and there are exceptions. For example, a vessel less than 26 feet in length, propelled by an outboard motor, is not required to carry a portable fire extinguisher if the construction of the vessel will not permit the entrapment of explosive or flammable gases or vapors.

My personal view is that no one



FRANK LANIER

has ever died from having too many fire extinguishers (always carry more than the minimum), and every boat powered by a combustion engine should have at least one onboard.

### Visual distress signaling devices






Boats smaller than 16 feet are required to carry nighttime distress signaling devices when operating between sunset and sunrise, while boats 16 feet and larger must carry visual signals for both day and nighttime use.

Approved visual distress signals fall into two categories: pyrotechnic and non-pyrotechnic devices. Pyrotechnic devices include red flares (hand-held or aerial), orange smoke (hand-held or floating),



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## Life jacket performance types

<b>Type I</b>		Has the greatest required inherent buoyancy and turns most unconscious persons in the water from a face-down position to a vertical and slightly backward position, greatly increasing one's chance of survival. Best for open, rough, or remote water where rescue may be slow to arrive. Will turn most unconscious wearers face-up in water.
<b>Type II</b>		Intended to turn some unconscious persons from a face-down position in the water to a position where the wearer's respiration is not impeded. Good for protected, inland water near shore where chances of immediate rescue is good. Not suitable for extended survival in rough water. Manual and automatic inflatable options available.
<b>Type III</b>		Intended to support a conscious person in the water in an upright position. This type of device is not required to turn an unconscious person in the water from a face-down position to a position where the wearer's respiration is not impeded. Good for protected, inland water near shore where chance of immediate rescue is good. Manual inflated options available.
<b>Type IV</b>		Designed to be thrown to an overboard victim or to supplement the buoyancy of a person overboard. Can be a square-style cushion, or a ring buoy or horseshoe buoy mounted on deck. Not for unconscious persons, nonswimmers, or children. These devices must be immediately available for use; you must have one at arm's length to throw over the side in an emergency.
<b>Type V</b>		Approved for restricted uses or activities such as boardsailing or commercial whitewater rafting. May not be suitable for other boating activities. The label indicates whether a particular design of Type V can be used in specific application, what restrictions or limitations apply, and its performance type.

Sources: U.S. Coast Guard Auxiliary, BoatUS.org

and launchers for aerial red meteors or parachute flares. Nonpyrotechnic would include any other type of visual distress signal, such as a distress flag or electronic distress light (which flashes the Morse code for SOS).

Flares are relatively inexpensive and a popular choice with boaters who typically meet minimum Coast Guard requirements via a combination of red handheld or aerial flares suitable for day and night use. Flares have to be Coast Guard or SOLAS (Safety of Life at Sea) approved.



**BoatU.S. members can request a free MMSI number. Visit BoatU.S. com/MMSI to learn more.**

The following are examples of the variety and combination of devices that can be carried in order to meet the minimal requirements:

» Three hand-held red flares (day and night)

» Three hand-held or floating

orange smoke signals and one electric distress light

» Three combination day/night red flares: hand-held, meteor, or parachute type

» One hand-held red flare and two parachute flares (day and night)

» One distress flag (day) and one electric distress light (night only)

Meeting the minimum number required by law doesn't mean you're carrying all the signaling devices you'll want onboard during an emergency. When needed, flares and other signaling devices are like winning lottery numbers – you can't have too many of them. In my opinion, every vessel should carry at least double what's required by law, more when coastal or offshore cruising.

### Sound-signaling device

Most every vessel is required to carry some form of sound-producing device for use in an emergency or during restricted visibility, and even those that are not would do well to have one on board. A vessel of less than 12 meters in length is not obliged to carry the sound signaling appliances prescribed in Rule

## Equipment and systems checklist for used boats

In addition to all the items you need to have on a brand-new boat, you'll also want to check the following on a "new-to-you" used boat to ensure the boat is properly equipped and that its systems are up to date. These considerations go beyond the professional survey you got when you bought the boat:

» Flares (expire 42 months from date of manufacture)

» Life raft inspection due date

» EPIRB and PLB battery expiration dates and presence of a NOAA registration sticker

» Fire extinguisher condition, age, quantity

» Fixed fire extinguisher system inspection date

» Life jackets – replace damaged jackets and Kapok-

style units (regardless of condition)

» Anchor chain and rode (pull, inspect, and verify lengths and attachment of the bitter end)

» Safety lanyard/emergency engine cutoff feature

» Conduct a leak-down test of the LPG system to verify there are no leaks

» Locate all seacocks below the waterline. Exercise (operate) each to

make sure they work, and check all seacock hoses for deterioration and hose clamps (installation and condition)

» Inspect the shaft log hose for deterioration and hose clamps

» Inspect the stuffing box for excessive leaks or corrosion. If outfitted with a drippless shaft seal, verify that all required maintenance has been conducted

(such as removal for inspection)

» Inspect exhaust manifolds and risers for leaks and corrosion. Verify age and when they were last removed and inspected or replaced

» Verify operation of all bilge pumps and the high-water bilge alarm

» Test the engine and generator alarms

– F.L.

33(a) of the Navigation Rules, but if not, she must carry some other means of making an efficient signal. A vessel of 12 meters or more in length must carry a whistle, while a vessel of 20 meters or more in length must carry both a whistle and bell. The minimum audibility range for a whistle or horn (both terms can be used interchangeably) required for a vessel 20 meters (65.6 feet) but less than 75 meters (246 feet) in length is 1 nautical mile. The minimum range for a vessel 12 meters (39.4 feet), but less than 20 meters is .5 nautical miles.

### OPERATIONAL OUTFITTING

Now that you have the required safety equipment, let's take a look at outfitting required for proper operation of your new boat.

#### VHF radio

Cellphones have their uses, but if you want to communicate on the water directly to other boats or marine rescue organizations, a VHF radio is a necessity. A VHF with a properly registered Maritime Mobile Service Identity



(MMSI) number is invaluable in the event of an emergency, making it easier for rescue agencies (such as the Coast Guard) or tow services to locate you. A fixed-mount, 25-watt VHF provides greater operational distance, but even a 5-watt handheld VHF can be a lifesaver.

#### EPIRB or PLB

When activated, Emergency Position Indicating Radio Beacons (EPIRB) and Personal Locator Beacons (PLB) transmit a coded message on the 406 MHz



distress frequency, which is relayed via the Cospas-Sarsat global satellite system and earth stations to the nearest RCC (Rescue Coordination Center). Featuring internal GPS, modern units can provide a location accuracy of approximately 100 yards.

### Anchor and rode

Every boat should have some means of anchoring, be it for fishing, swimming, or maintaining position in the event of an emergency. Anchor selection is based on a number of considerations, from the size and style of watercraft you own to the type of bottom you'll be anchoring in (mud, grass, sand, rock), as well as water depth, wind, and water conditions you expect to encounter.




Visit [BoatUS.com/Which-Anchor](http://BoatUS.com/Which-Anchor) to learn about different types of anchors and which one is right for you.

Your anchor and rode should be sized to match your vessel, and most anchor manufacturers will provide a table for matching boats to

their product. As an example, a typical setup for a midsized power boat (approximately 25 feet) would be a 13-pound anchor, 15 feet of ¼-inch anchor chain, and 200 feet of 7/16-inch diameter three-strand nylon anchor rode.

### Docklines and fenders

Two more must-have items – how else can you secure and protect your boat while docking at the yacht club Tiki bar for the all-you-can-eat wing special? Each boat should carry a minimum of three lines for tying alongside a dock: a bow line, stern line, and spring line. Dockline sizes and lengths are based on the size of your boat. A good rule of thumb is ⅜-inch of line diameter for every 8 feet of boat length. Bow and stern lines should measure at least two-thirds of your boat's length, while the spring line should be equal to boat length.

You should also have a minimum of two fenders to protect your boat when docked. More is better, and larger diameters will provide greater protection. Don't forget that you'll also need lines to hang the fenders in place. 

## Other good items to have aboard

- » First-aid kit
- » Sunblock (reef-friendly, if available)
- » Bug spray
- » Bailer or bucket to remove water
- » Paddles or oars
- » Waterproof flashlight (handheld and/or headlamp-style)
- » Sturdy, rustproof knife
- » Floating keychain (for your ignition key)
- » A basic tool box with any special tools required for your boat
- » A 2.5-gallon fire bucket with a lanyard of suitable size and length for drawing water from over the vessel's side. In addition to their primary purpose, a fire bucket is versatile piece of equipment that can serve many functions, such as a bailer or even an emergency toilet. – F.L.

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# GOVERNMENT AFFAIRS

BY FIONA MCGLYNN, BOATU.S. CONTRIBUTING EDITOR

## CAN WE RISE WITH THE TIDE?

*Sea levels have been creeping up for decades, and the speed is now accelerating.  
All of us on the coasts need an action plan*



GETTY IMAGES/JOHN MILLER

**I**T'S ALL ABOUT THE HEAT – The April/May 2022 issue of *BoatU.S. Magazine* featured our exclusive report on how rising temperatures and extended drought are causing water levels at America's most treasured freshwater lakes for boating – such as Powell, Tahoe, Mead, and others – to drop to, well, unboatable levels. This month, we move to the coasts and take a look

at how rising sea levels are beginning to have a profound effect. Sinking freshwater levels inland and rising coastal sea levels – and this is happening globally – may seem contradictory, but the causes

are the same – some naturally occurring, such as erosion and land settling; and some man-made, such as ground water depletion and burning fossil fuels.

In the West, according to NOAA,

an extended run of record-high average temperatures have given California its six warmer years, spanning more than a century of recordings since 2014. The hotter climate results in less mountain snowcap, and an earlier melt of those smaller snow packs, leading to drier soil, faster evaporation, and receding water levels. Until we can cool things down, by burning less fossil fuels and thereby reducing destructive greenhouse gasses, the region's self-sustaining water cycle will be increasingly stressed.

Heat is also an underlying contributor to rising sea levels. Globally, sea level has risen by 6.5 inches since 1950, and humans have adapted. The problem is that the last three of those inches have happened quickly, in the last 20 years,

BoatU.S., the voice of recreational boaters on Capitol Hill, is the only national boat-owner organization with a full-time Government Affairs staff. Visit **Advocacy.BoatUS.com** to stay informed on relevant federal and state boating issues, and sign up to receive Action Alerts emails so you can take action when important legislative issues affecting boaters arise.



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according to SeaLevelRise.org, a nonpartisan educational platform dedicated to studying the risks, causes, and solutions to sea level rise.\*

With the Arctic melting at a record pace, global sea levels are creeping up 1 inch every five years, and coastal communities are scrambling to reengineer how they're set up to cope with our shifting waterfronts. This affects marinas, harbors, breakwaters, bridges and roads, waterfront cities and towns. If you live and boat in a flood zone anywhere near the coast, you've seen the change firsthand. This month, let's zero in on our marine infrastructures and waterfronts, which are of the most interest to BoatU.S. members.

### So, what does this mean for us?

With increased tidal and storm surge flooding iconic boating meccas during heavy rains and king tides – such as in Annapolis, Maryland; Miami, Florida; Seattle, Washington; Charleston, South Carolina; New Orleans, Louisiana; and Newport, Rhode Island, among others – rising sea levels are having an increasing impact on some of America's most popular ports.

According to the National Oceanic and Atmospheric Administration (NOAA), U.S. coastal communities as a whole saw a national median of four high-tide flooding days in 2020, twice as many as they saw 20 years ago. By 2030, high-tide flooding is projected to be in the range of 7 to 15 days a year, and by 2050, between 25 to 75 days, with some communities seeing as many as 180 days a year.

These may seem like far-off dates, until you remember it's already 2022 and scientists predict U.S. coastal communities can expect flooding to be 10 times worse than it is now. Humans will adapt, as always, but first we should know what we're facing.

### Sizing up the challenge

US Harbors (usharbors.com), a free online service that provides marine weather,

tides, boating, and fishing information for more than 1,400 harbors in 30 coastal states, recently hosted “Rising with the Tide: Keeping Our Communities Above Water,” a free conference for coastal communities to learn about sea-level rise and changing coastlines. Presenters included scientists, planners, and politicians. Among them was John Englander, an oceanographer, consultant, and leading expert on sea-level rise, who explained

of seawater; as the oceans warm, they slightly expand in volume.” The biggest problem is ice on land – glaciers and ice sheets. “When a glacier calves off, becoming an iceberg, and that big chunk of ice enters the sea, that's like adding another ice cube to a glass of water,” said Englander. “Then, as ice on land melts and turns into water and works its way to the sea, that adds more to sea level, like adding water to our glass.”



**Weather systems are intensifying. Here Tropical Storm Henri passes through Newport Harbor causing flooding rains, strong winds, and storm surge.**

## BY 2030, SCIENTISTS PREDICT U.S. COASTAL FLOODING WILL BE 10 TIMES WORSE THAN NOW

what's causing sea-level change and how much we can expect it to rise in the future. Englander is also listed as one of SeaLevelRise.org's local experts.

“The two major causes of sea-level rise globally are ice from land entering the sea, and meltwater from melting ice on land entering the sea,” said Englander. “The third cause is thermal expansion

### Same cause, different effect

Most of the ice causing sea-level change comes from Antarctica and Greenland, both of which are covered in a 2-mile-deep ice sheet. To give an idea of scale, Antarctica is larger than North America, and Greenland is about the size of the eastern United States. Englander estimated that if all that ice melted, global sea level would rise by 212 feet.

“Rising seas and shifting shorelines are now unstoppable,” Englander explained, because the planet is now warming at such an accelerated rate and our ice is melting. In the last decade, sea levels have been rising by almost 0.2 inches (5 mm) per year, and that rate of rise is accelerating. While 0.2 inches per year globally may not sound like a lot in absolute terms, it has a disproportionate impact at a local level. “Locally, there's

*\*SeaLevelRise.org publishes info gathered by the First Street Foundation of 180 leading academic and industry research partners whose mission is to make climate risk accessible, easy to understand, and actionable for individuals, governments, and industry using a peer-reviewed approach.*



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subsidence and uplift, land can move up and down, which can have an amplifying effect,” said Englander.

For instance, researchers found that most of New Orleans subsided by 0.3 inches per year relative to global mean sea level between 2002 and 2005, with the hardest-hit areas sinking by more than an inch per year. Scientists have proposed several possible contributors to the subsidence in New Orleans, ranging from natural causes like shifting faults to human ones such as draining wetlands, diverting sediment-bearing floodwaters, and pumping groundwater.

Alaska, on the other hand, has seen relative sea levels appear to decline because the land is rising due to shifts in the earth’s tectonic plates and a process called “isostatic rebound.” In the last ice age, heavy glacial ice pushed that land down and compressed it. When that heavy ice retreated, the land began to spring back to its original form. Despite this, sea levels also will eventually rise faster than the land in Alaska, according to SeaLevelRise.org.

### What needs to be done

Englander suggested that a reasonable planning horizon for designers of marine waterfront businesses, coastal buildings, and public infrastructure is 10 feet of sea-level rise over the next 100 years, which would mean 5% of the planet’s ice had melted. “This depends on how warm we let the planet become.”

The impacts of sea-level rise are far-reaching. More new icebergs pose increased hazards to shipping, and higher water levels decrease shoreline property values and amplify short-term flooding. “When sea level is a foot higher than present, a storm, hurricane, nor’easter, super high tide, or sunny day flooding event will cause water levels to reach higher because the base sea level is higher,” said Englander.

For instance, Maine, a state expected to see a 1.5-foot sea-level rise by 2050, is anticipating \$17.5 billion in coastal building damage and 20,000 jobs lost, according to the Maine Climate Council, and the disappearance of valuable coastal ecosystems – not to mention declines in



PAUL TODD/OUTSIDEIMAGES.COM

**Sea level rise is worsening the effects of storms, hurricanes, flooding, and super high tides, causing water levels to reach even higher, such as here in Louisiana’s Gulf Coast.**

fish stocks. Maine’s warming waters are already becoming less hospitable to cold-water species like cod and lobster, which have been moving northward in response.

It’s a timely and important issue for Sen. Angus King of Maine, who made the opening remarks at the Rising with the Tides conference. “The inevitability of rising sea level is upon us,” said King. “Areas that have occasionally flooded at a king tide are now flooding much more frequently. ... It’s already happening in Miami. It’s going to happen in all of our coastal states.”

### Global problem, local solutions

Initiatives to protect coastal communities have been gaining steam at the local, state, and federal levels. For example, Newport, Rhode Island, has been working to safeguard its many historic buildings around the harbor. In January 2020, Newport’s Historic District Commission voted to adopt design guidelines making it possible for owners of historic properties in the Federal Emergency Management Agency (FEMA) Flood Zone to apply to elevate their buildings, providing certain guidelines are met.

The city of Norfolk, Virginia, one of the most flood-vulnerable cities on the East Coast, has spent years conducting flood research planning. In January 2022, it was announced that the city will receive \$249 million from the U. S. Army Corps

of Engineers to construct surge barriers, levees, and pump stations, to build up the downtown floodwall.

In response to hurricanes Katrina and Rita, Louisiana developed a master plan for coastal restoration and risk-reduction projects. As of 2019, boaters have seen firsthand that the state has constructed 60 miles of barrier islands and berms, built or improved 315 miles of levees, and in so doing benefited over 46,058 acres of coastal habitat.

The West Coast isn’t immune to rising seawater and has an additional challenge: El Niño weather patterns can worsen coastal flooding due to that expansion of seawater as it warms. Oregon is monitoring its dikes and levees that protect coastal estuaries, and has developed an adaptation framework for how the state should respond to sea level rise. Washington has a three-year Coastal Resilience Project to help the state rapidly enhance its ability to prepare for sea level rise. And California is spending billions of dollars on critical state and local infrastructure improvements.

President Biden’s bipartisan federal Infrastructure Investment and Jobs Act, which he signed in November, included \$47 billion in climate resiliency funds targeted to help communities prepare for extreme weather events – floods, fires, storms, and droughts – which scientists confirm are becoming more frequent due to this warming climate.




Here are some highlights: NOAA will receive funding for several critical mitigation programs, including \$492 million to map and forecast inland and coastal flooding, and \$491 million to help prevent flood damage in coastal communities by restoring natural ecosystems. FEMA will receive \$700 million for its Flood Mitigation Assistance (FMA) program, which provides grants to reduce flood risk to buildings insured by the National Flood Insurance Program. Another \$1 billion will go to FEMA's Building Resilient Infrastructure and Communities (BRIC), which will help our communities plan and build resilience before extreme weather strikes.

### Let's get boating-specific

Rising sea levels are presenting new challenges to boatyards and marinas, such as increasing maintenance, flood repair, and insurance costs, not to mention significant investments in facility upgrades such as flexible floating dock systems that will float up with rising water. But keep in mind, this problem is in your hands; be a proactive boater. In the immediate future,

know that, during the rising water of a tropical storm or hurricane, your boat will be much safer in a marina or private dock that has the high-water upgrades discussed above. If your boat is tied to a rigid dock, however, and you're threatened with a more challenging storm, move it to a safer location or take it out of the water until the weather passes. (Check your GEICO insurance policy to learn more about getting reimbursed for hauling or moving your boat during a named storm.)

In the big picture, keeping our communities above water and our waterfronts protected is a growing national issue that will require a coordinated approach from all of us – government, industry, property owners, and the public, said Sen. King. He urged us to take the threat of rising sea levels seriously, to learn and get involved, and to proactively call our representatives and tell them it's time to take action. He also emphasized how important it is that our lake and coastal communities come together and share best practices and ideas. "An ounce of prevention," he said, "is worth a pound of cure in this case." 

## #BoatUSonWatch

### Local and national boating issues at the forefront

Here's the latest on what our BoatU.S. Government Affairs team is working on, on your behalf:

» Represented boaters at the American Boating Congress, the annual gathering of recreational boating organizations and companies in Washington, D.C.

» Advocating for additional dredging funds as part of the annual federal appropriations process. Working with industry partners, we're seeing some of the highest funding levels go to projects such as the Atlantic Intracoastal Waterway.

» Working with the Recreational Boaters of California as the state considers changes to registration fees, keeping the focus on programs that benefit boaters.

» Continuing to defend the GPS spectrum from a new cellphone company that could interfere with the accuracy of millions of GPS receivers.

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# NEW GEAR

BY LENNY RUDOW, BOATU.S. CONTRIBUTING EDITOR

## KEEP THE GOOD TIMES ROLLING

*With some season left, check if anything new in the way of toys, tools, or technology is what you and your boat need right now*



LOUNGE LIZARD

### Lounge lizard

Just about everyone enjoys riding on a tow tube, but almost none of us would call it comfortable. Wow's new Beach Bubba takes tubing to the next level ... comfort. This is an inflatable with seatbacks and sides, allowing riders to kick back and relax as they hold onto the webbed foam handles. There are tow points both forward and aft so when you're feeling a bit more adventurous, you can kneel, face forward, and ride "chariot style." Two- and three-rider models are available.

**\$389.99 to \$499.99 | [wowwatersports.com](http://wowwatersports.com)**

### Eye candy

Costa Sunglasses has a new style for you sun worshipers – the Lido. Top features include vented nose pads (you read that right), top and side sun shields, sweat channels that drain drips away from your eyes, and spring hinges. The frames are also extra thin at the temples to allow for comfort when wearing a hat along with the sunglasses. Made from naturally sourced "bioresin" processed from castor plant seeds, they eliminate petroleum-based resin from the supply chain, according to the manufacturer. Lenses are Costa's 580 Glass, which are scratch-resistant and color-enhancing. **\$295 | [costadelmar.com](http://costadelmar.com)**



### Spinning fish tales

Spinners are one of the oldest – and still most effective – forms of fishing lures around and haven't changed much for decades. Enter new Dangle spinners. These American-made lures were developed by two angling high-school teachers who recognized that spinners could be more effective and fished in areas of strong current or deeper water if they weighed more without growing in size. They experimented with brass and nickel bodies, stainless-steel through-wires, Eagle Claw hooks, and natural finishes until they developed a line of Dangles that will cast farther, sink deeper, and flutter as they fall to trigger more strikes. Editors' note: We tested these spinners out and came away impressed.

**\$4.99 to \$6.25 | [danglelures.com](http://danglelures.com)**



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## Watch the watch

Garmin has announced its new quatix 7 watch line that includes three models (the 7, 7 Sapphire, and 7X Solar) designed with mariners in mind. These watches have one-touch control and can integrate with your MFD display, deliver weather and tide data, stream engine data, and display Garmin BlueChart and LakeVu g3 cartography. Battery life is 16 to 18 days; solar models can go for over a month between charges.

**\$699.99 to \$1,199.99 | [garmin.com](http://garmin.com)**



## Trolling thunder

If you're searching for the latest in level-winders, check out the Shimano Tekota 800. Since giving the Tekota series a redesign (including improved corrosion protection, shielded bearings, a cross-carbon drag, and improved gears), Shimano has upped the ante with this new, larger size level-wind reel. It's available in standard and line counter models, and can hold a whopping 750 yards of 80-pound Power Pro braid. Maximum drag sets at 35 pounds of pressure. **\$299 | [fish.shimano.com](http://fish.shimano.com)**



## Surf's up!

Have you ever wished your boat made a wake shaped better for surfing? If so, the latest "wake shaper," the Wakesurf Creator Slim H3X Plus, from Swell Wakesurf, should do the trick. Featuring what Swell calls an "H3X" pattern to increase water velocity across its surface, turbulence is reduced for a denser wave with more push.



The extendable face can be set in nine positions, and the shaper attaches to the hullsides via super-strong suction cups. (It does float in case of detachment.) The Slim H3X is designed to fit between the hull lines of numerous boats and work with stepped hulls as well.

**\$359 | [swellwake.com](http://swellwake.com)**

## Beneath the boat

Another new launch from Garmin this year is the ECHOMAP UHD2 keyed chart-plotter series. Designed for folks who like to have buttons at hand, models come with 5- and 7-inch displays. Other important attributes include a high-contrast, sunlight-viewable screen and an IPX7 waterproof rating. They feature integrated Wi-Fi connectivity, preloaded BlueChart g3 or LakeVu g3 cartography plus support for Navionics+, and options for GT20-TM or GT24UHD-TM (ultra-high definition) transducers.

**\$399.99 to \$649.99 | [garmin.com](http://garmin.com)**



## Head games

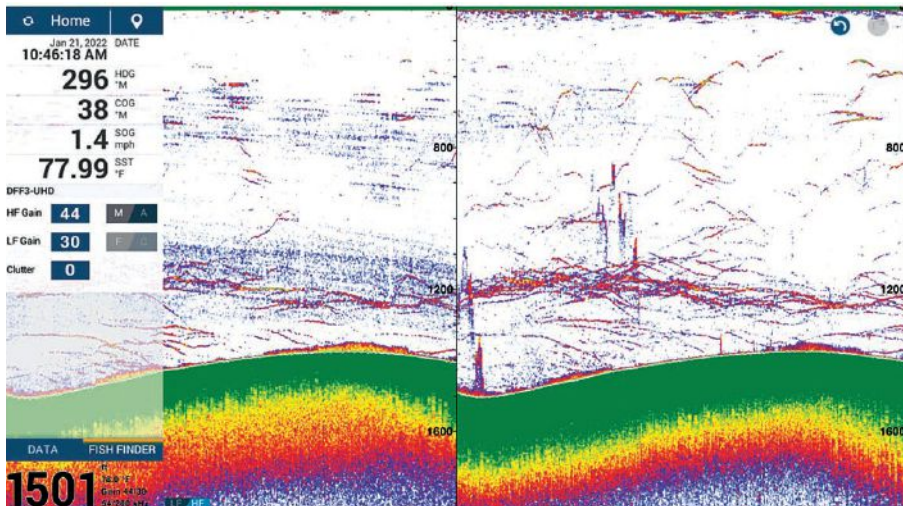
What's the least glamorous part of your boat? The head, of course. But it's also among the most critical systems aboard. And in space-constrained small boats, most of us are still making do (or is it doo?) with those old, self-contained, portable MSDs that you have to lift out, carry to a toilet, and (ugh!) empty manually. Dometic aims to ease the chore while expanding the head's abilities with the new Gravity Series. These heads (available with two bowl styles and sizes) sit atop their own holding tank, eliminating the need for plumbing and remote tanks. They hold 6.5 gallons (about 260% more than the normal portable MSD), feature a steel flush lever, and can be easily plumbed to deck fittings for pumpout and venting. **Starting at \$1,149 | [dometic.com](http://dometic.com)**





## Proof positive

Tablets are great sailing tools ... right up until the moment the bow hits a wave and they get soaked with spray. That's why you need a marinized tablet, and Sailproof now has a 10-inch Android, the SP10AS, among its offerings. Getting a 2-inch screen size boost from the previously existing SP08, this larger tablet also packs in more memory (6+128 GB), internal GPS, a wet- and glove-touchable IPS touchscreen, and an unusually potent 10,000 mah lithium-ion battery. Inside it packs Android 11, Wi-Fi, Bluetooth 4.2, and a MTK Octacore 64-bit MT-6771 2.0 GHz CPU. All of the above is then wrapped into an IP67 and Mil-STD 810G waterproof and drop-tested casing with third-gen Gorilla Glass. **\$945.65 | [sailproof.shop](http://sailproof.shop)**



## Deep in thought

Anglers who want to see the bottom, the structure, and fish on it in über-deep water will be interested in Furuno's new DFF3-UHD TruEcho CHIRP network fishfinder, which can punch through the depths to a rather shocking 15,000 feet. Sending out 25- to 242-kHz frequencies with 2- to 3kW of power then interpreting the returns with digital signal processing, both target resolution and depth capability get a serious boost. The DFF3-UHD TruEcho CHIRP is compatible with NavNet TZtouch3 and NavNet TZtouch2 TZT2BB systems. **\$2,400 | [furunousa.com](http://furunousa.com)**

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# AMERICAN BOATER

BY HERB MCCORMICK, BOATU.S. CONTRIBUTING EDITOR

## THE G.O.A.T. GOES BOATING

*Seven-time Super Bowl champion Tom Brady makes the most of his down time – on the water with his family*

**W**hen legendary NFL quarterback Tom Brady guided his Tampa Bay Buccaneers to victory over the Kansas City Chiefs in the 2021 Super Bowl, his most impressive pass completion did not occur on the playing field but in the epic celebratory boat parade on Tampa Bay three days later. That's when Brady – who later admitted to having enjoyed

several adult beverages – lofted the actual 7-pound, 22-inch-long sterling-silver Lombardi Trophy presented to the winning squad from the deck of his 53-foot powerboat into the waiting arms of a teammate on a nearby vessel, Cameron Brate, who luckily was a sure-handed tight end.

"I wasn't thinking at that moment," Brady later told talk-show host James Corden during an appearance on "The Late Late Show." "I found out later, had that been an incomplete pass, that would have went down like 80 feet! I'm so happy that Cam (caught it)!"

Not for the first time, though in far different circumstances, a video of Brady's famous passing proficiency went viral. Equally impressive was his ride, a Dutch-built Wajer 55S called *Viva a Vida* – Portuguese for "live life" and the name of Brady's supermodel Brazilian wife Gisele Bündchen's environmental organization. A family-owned business, Wajer (pronounced "why-er") was founded in 1992 by Dorus Wajer in the Netherlands; the company's current managing director is his son Dries.

As profiled in *Robb Report*, "Holland makes the largest number of superyachts above 250 feet in length, so the Dutch

have created smaller-yacht brands like Wajer, Zeelander, and Mulder as tenders and standalone cruisers. Wajer is arguably one of the most beautiful, even though the brand is not highly known in the U.S."

Powered by a trio of 435-hp Volvo Penta IPS engines, the "S" in the 55S stands for "sport," fittingly enough for one of the world's most recognized sportsmen. In addition to some serious velocity – the boat will zip along at a tidy 40 knots – other amenities include a spacious deck for lounging and parties, augmented by a handy outdoor galley.

Brady's own boating experience began far more modestly. As a kid growing up in the Bay Area of California, he was into football and baseball, and fishing every summer with his cousins in Browerville, Minnesota, which perhaps lit a spark he pursued later in life.

In his previous stint as quarterback for the New England Patriots, Brady, his wife, and three children lived in Brookline, Massachusetts, close to the renowned public sailing center on the Charles River called Community Boating. Its executive director, Charlie Zechel, told us Brady would stop by to rent a sloop from time to time, and that



**Brady holds up the Lombardi Trophy, which he would later throw in exuberance from boat to boat during the victory parade. He's glad the throw connected!**

he once had to turn him away when he requested a kayak to take his son, who unfortunately was too small by the organization's rules at the time, for a spin. "He was very nice about it," chuckled Zechel, recalling the encounter with Brady. "And he's very tall!"

The kayak is in Brady's figurative rearview mirror, and for that matter, so is his 55S. He's moving up to a sparkling new Wajer 77, also to be called *Viva a Vida*, powered by triple 900-hp Volvo Penta IPS motors with a cruising range of 400 nautical miles. Just the ticket for

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ERIC CANHA/CSM/SHUTTERSTOCK



PHILAN M. EBENHACK/AP/SHUTTERSTOCK



COURTESY WAJER

**From top: Brady and his wife, Gisele, celebrate a win with daughter, Vivian. Brady is celebrated aboard his boat, Viva a Vida (blue hull), in a Tampa victory parade after the Buccaneers won the Super Bowl. With Vivian on the field. With son Benjamin on the family boat. Brady's latest boat is a Wajer 77.**



off-season jaunts.

"I enjoyed the waters of New England, but when we moved to Tampa, with its beautiful bay, I said to myself, 'I need a boat,'" Brady remarked in a video presentation at the announcement of his commissioning of *Viva a Vida*. "I think the 77 will be a little bit more suited for what we need it for down here, which is more day trips and weekend trips. We spend a lot of time in the Bahamas. So, going from the east coast of Florida across to the Bahamas would be a really great trip for us as a family."

Spending time in the islands on a boat with the family? Maybe professional football's so-called G.O.A.T – the Greatest Of All Time – is more like us than it might seem. 🦁

*BoatU.S. contributing editor Herb McCormick, is the former executive editor of Cruising World magazine. He is author of five books: "Offshore High," "One Island, One Ocean," "As Long As It's Fun," "Out There," and "Gone to the Sea."*



COURTESY, WAJER

This year, Brady traded his Wajer 55S for a Wajer 77, the company's new flagship. The 77-footer can accommodate nine guests and is powered by triple 900-hp Volvo Penta IPS motors. Brady said that this larger model will be great for bluewater cruising with his family, especially over to the Bahamas.

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# America is a SMALL BOAT NATION

BY RICH ARMSTRONG, BOATU.S. SENIOR EDITOR

**95%** of the **12 million** U.S.-registered boats are less than **26 feet**, and most cost less than **\$50k**.  
**TRANSLATION:** There's a boat out there for everyone



The boatbuilding industry is over the moon about selling more than 300,000 new boats annually. First-time boat buyers accounted for 34% of new boat sales in 2020.





**A**sk any average American boater why they think more than 1 million preowned (formerly known as “used”) boats were bought in 2020, versus about 320,000 brand new boats. You’ll likely hear the same answer: “New boats are expensive.” We can all agree that’s a relative term depending on one’s disposable income. And that one person’s stinkpot may be another’s yacht. It’s all a matter of perspective.

“You do see a lot of ‘big’ boats at the shows, and they certainly have the ‘wow’ factor, but nearly 80% of our boats cost less than \$50,000, so we have a huge portion of our portfolio aimed squarely at middle-income consumers,” says Lee Gordon, president of communications for Brunswick Corp., the largest boatbuilder in America encompassing 17 brands including Bayliner, Boston Whaler, and Sea Ray. “Most of the boats on my lake are \$50K and below, for sure.”

We know from speaking with industry insiders that plenty of new boats are paid in full upfront – sometimes with cash! – but most of us are looking at what type of monthly payments we can fit into our household budget. And while a new boat might cost more up front, the benefits include a guaranteed warranty and a local dealer connection.

While you may be perfectly happy with your boat, you’ll inevitably come across a potential newbie wanting to pick your boat-savvy brain. Or your grown kid is contemplating making the jump. Or you’re both looking to downsize. One of the great joys of small boating is found in their simplicity – there’s less stuff on board to break, fewer systems to maintain, and those inevitable surprise repair bills don’t hurt nearly as much.

Despite their size, small boats usually mean big fun, and the water under your hull, regardless of size, is exactly the same out there. Here we’ve collected some of the best-bang-for-the-buck new boats we’ve come across, a diverse fleet designed for varied passions on the water.



## Bayliner Element M17 Deck Boat

There are lots of Bayliners on the water because the iconic brand remains focused on affordable entry-level boats. When the Element was introduced back in 2013 to attract nonboaters, it was a hit because it came out of the box with engine and trailer (with swing tongue) for about half the average cost of a new car. The simple helm layout is designed to not overwhelm the senses – just a few gauges and toggle switches that deliver what you need for safe navigation. The proprietary M-Hull foundation offers better stability and predictable turning, making the M17 easy to drive. At 20-feet, 1-inch long, and standing 6 feet, 8 inches on the trailer, the M17 tucks away in most garages. There are optional packages for watersports, fishing, and additional comfort, but a portable toilet is not included. [bayliner.com](http://bayliner.com)

**PRICE** Starts at \$21,830 | **ENGINE** 60-hp Mercury FourStroke EFI Outboard | **FUEL CAPACITY** 18 gal. | **DRY WEIGHT** 1,984 lbs. (with standard engine); 2,457 lbs. (with trailer) | **PERSONS (CAPACITY)** 7 (1,000 lbs.) | **LOA** 17' | **BEAM** 8'6"



*The Element is compact fun with versatile seating and comfortable swim platform seating.*



*The Sunchaser Vista 20 LR has the ample seating and versatility that are essential to pontoon boating.*



**PRICE** Starts at \$31,007 | **ENGINE** 60-hp Mercury 4S (max 90-hp) | **FUEL CAPACITY** 20 gal. | **DRY WEIGHT** 1,875 lbs. | **PERSONS (CAPACITY)** 9 (1,210 lbs.) | **LOA** 20'10" | **BEAM** 8'

## Sunchaser Vista 20 LR

Vista is the most affordable line among Sunchaser's pontoon boats. The compact 8-foot beam makes for easier docking in tight spaces. The Vista 20 LR features four wraparound lounges and a seating area that converts into a bar area to entertain. Twin pedestal-mount captain's chairs, carpeting, retractable aluminum boarding ladder, and a bimini top come standard. Options include a Jensen Bluetooth stereo, docking lights, mood lighting, extreme tilt steering, and a full complement of gauges. Comes with a Lifetime Plus six-year limited warranty on hull and superstructure and six years on all components, carpet, upholstery, and electronics. Notable options: Humminbird Helix 5 GPS and Humminbird Piranhamax Sonar Unit, trailer. [sunchaserboats.com](http://sunchaserboats.com)





*The Parker 2200CC is an excellent fishing machine with a few nice touches for catching some rays.*



**PRICE** Starts at \$82,458 | **ENGINE** Yamaha F200 XCB outboard (F250 XCB option) | **FUEL CAPACITY** 79 gal. | **DRY WEIGHT** 4,751 lbs. | **PERSONS (CAPACITY)** 10 (4,624 lbs.) | **LOA** 25'10" | **BEAM** 8'6"

## Parker 2200CC

Parker Boats set up shop in 1960s coastal North Carolina, so its modified-V hulls are built to slice through surf and head out for offshore fishing. Parkers are known for their dry ride. The 2200 is a fish-first boat (with leaning post, rod holders, self-bailing cockpit, and 60 gallons of insulated storage), but with some added comforts for family dayboating (bow seating, portable toilet, and swim platforms with mounted boarding ladder). Hydraulic steering, trim tabs, a Yamaha Digital Gauge package, under-gunwale LED lights, and stainless steel pop-up cleats are standard. Options include a Garmin GPS/sounders, Fusion sound system, fiberglass leaning post with 30-gallon livewell and tackle storage, anchor windlass, bow seating bolsters, and adjustable bow table with sunpad cushion. [parkerboats.com](http://parkerboats.com)



## Alumacraft Competitor FSX 175

The family-friendly fishboat hybrid is alive and well in the Competitor FSX (Fish/Ski Crossover) line, providing a flexible layout for families who love being out on the water. It's built for all levels of anglers with multiple livewells, a built-in cooler, and lockable rod storage. Two added fold-up jump seats on the rear platform allow owners to quickly adjust for daycruising. The extra seating can be folded out of the way for more access to the newly extended platform (by 6 inches), allowing anglers more space to cast off the rear deck. For skiers, an optional ski pylon can be attached to the built-in base and conveniently stored in the starboard side storage when not in use. The base also doubles as a pedestal seat base for the comfort of your favorite fishing partner. Options include one of eight Mercury outboards, ranging from about \$10,000 to \$15,000. [alumacraft.com](http://alumacraft.com)

**PRICE** Starts at \$20,692 (plus outboard) | **ENGINE** Mercury 90EXLPT (max. 150-hp) | **FUEL CAPACITY** 34 gal. | **DRY WEIGHT** 1,375 lbs. | **PERSONS (CAPACITY)** 5 (1,500 lbs.) | **LOA** 17'8" (23'1" on trailer) | **BEAM** 8'

## Regal 2000 ES

Known more for high-end cruising boats, Regal also makes small boats like this 20-foot bowrider with yacht-quality stitched upholstery, stainless accents, and a proprietary FasTrac Hull the builder says delivers up to 26% faster speeds and 30% better fuel efficiency. The 2000 ES is a low-maintenance family dayboat that can be parked on a trailer in the garage (6'5" height on trailer). A multiposition Social Seat, oversized bow seating, sunpad, Fusion Marine sound system with six cockpit speakers, ample storage and cooler space, and low-to-the-water swim platform set the scene for socializing on the water. The transom walk-through makes boarding safe and keeps the upholstery clean. Garmin 743 chartplotter, bimini shade, and power-assisted steering come standard. Options to consider: choice of three towers, transom shower, and SeaDek swim-platform flooring. [regalboats.com](http://regalboats.com)



*The Regal 2000ES design includes a ski locker and plenty of deep storage pockets.*

**PRICE** Starts at \$70,130 | **ENGINE** 2 Mercury and 3 Volvo sterndrive engine options (200- to 280 hp) | **FUEL CAPACITY** 40 gal. | **DRY WEIGHT** 3,400 lbs. | **PERSONS (CAPACITY)** 10 (1,170 lbs.) | **LOA** 20'3" | **BEAM** 8'6"



## Stingray 173CC

Stingray Boats has built nothing but small boats since its founding more than 40 years ago. The latest is the 173 CC, the smallest in its center-console line. This is boating stripped to the essentials – a stainless-steel steering wheel, cushioned leaning post with a cooler underneath, livewell, rod holders, and a new 90-hp outboard on back. Stingray's Z-Plane hull design, adopted from offshore racing boats, reduces drag and increases performance, making for a soft ride. Every bit of surface area is used on this boat: Under each casting deck, fore and aft, is padded seating, a livewell, or storage. Notable standard features include hydraulic steering, removable Plexiglas windshield (for tight storage), Fusion RA-60 stereo BT-APP, electric horn, tilt-steering, aft swim ladder, and a cooler/storage box with overboard drain. Options to consider: bimini top, bow seating package, ski tow pylon, and portable toilet. [stingrayboats.com](http://stingrayboats.com)



*The Stingray 173CC has plenty of comfortable seating to zip the family and friends across the lake to your favorite spot.*

**PRICE** Starts at \$29,306 | **ENGINE** Suzuki DF90 | **FUEL CAPACITY** 30 gal. | **DRY WEIGHT** 2,100 lbs. | **PERSONS (CAPACITY)** 7 (2,000 lbs.) | **LOA** 17'3" | **BEAM** 7'6"



## Princecraft Sport 182

Canadian builder Princecraft has been turning out straightforward, affordable aluminum boats for 65 years. The new Princecraft Sport 182 is a prime example – an 18-foot aluminum family-friendly fishboat with everything you need for a day of fishing or cruising. It even comes standard with a 115-hp outboard and galvanized trailer with swing tongue. The redesigned hull is 4 inches wider, adding to valuable seating room in the bow and stern. For anglers, there's a livewell at the stern and bow as well as rod holder storage and an insulated cooler. For dayboating, there's cushioned seating for five (plus two padded bow recliners), an optional bimini top, and ski pylon. The Sport 182 is available in three colors – black, anthracite gray, and blue. [princecraft.com](http://princecraft.com)

**PRICE** Starts at \$43,823 | **ENGINE** Mercury 115 EXLPT outboard (optional Mercury 150 XL PRO-XS) | **FUEL CAPACITY** 37 gal. | **DRY WEIGHT** 1,500 lbs. (with standard engine) | **PERSONS (CAPACITY)** 7 (930 lbs.) | **LOA** 18'5" | **BEAM** 8'2"



*The Princecraft Sport 182 has rod storage for six, and bow seating that transforms into a sturdy casting platform.*





## Lund Renegade 1775

The Lund brand has been about quality aluminum fishing boats for 75 years. The latest from the Minnesota builder is the Renegade 1775, a modified V-hull bass and crappie fishing boat. The Renegade's 11.5-inch draft reaches nicely into coves and backwaters where the big fish live. The side-console-style fishboat features on-the-go rod storage (rods up to 8 feet) at the bow and port side as well as an integrated cooler with a drain. Standard features include a 50-hp Mercury outboard with aluminum prop and a black bunk trailer. Notable options: Lowrance electronics, Minn Kota trolling motor and battery charger, and five color options.

[lundboats.com](http://lundboats.com)



**PRICE** Starts at \$26,761 | **ENGINE** Mercury 50 ELPT (90-hp max) | **FUEL CAPACITY** 22 gal. | **DRY WEIGHT** 1,221 lbs. (with standard engine) | **PERSONS (CAPACITY)** 4 (1,225 lbs.) | **LOA** 17'9" (20'4" on trailer) | **BEAM** 8'



## Godfrey Mighty G 1476 F

*BoatU.S. Magazine* got a sneak peek at a boat to be introduced this fall at the shows that may be the ultimate entry into pontoon boating. The Mighty G is the latest from Godfrey Marine and, at less than 16 feet, is compact and highly maneuverable. Available in either cruising or fishing configurations, standard features include a Clarion sound system, bench-style seating, steel telescoping EZ Climb ladder, and a fishing station with rod holders and tackle storage (standard on the Fish model; an option on the Cruise model, which comes with a ski pylon). A standard-feature Nightshade boat cover is easy to install/remove, and the boat is capable of being trailered under cover. Options include full 360-degree RGB under-deck lighting, sun shade, and a performance package of lifting strakes and under-deck skin. Designed to be powered by electric or fuel propulsion, the boat comes standard with dedicated locations for battery storage and built-in charging as well as a singular gauge that supports both electric and internal combustion propulsion. Options you'll need: electronics, engine, trailer. [godfreypontoonboats.com](http://godfreypontoonboats.com)



**PRICE** \$14,000 (base) | **ENGINE** 50-hp max (Torqeedo electric option) | **FUEL CAPACITY** 6 gal. | **DRY WEIGHT** 1,250 lbs. | **PERSONS (CAPACITY)** 7 (1,335 lbs.) | **LOA** 15'7" | **BEAM** 7'6"





## Next-level 'affordable'

As we said upfront, "affordable" means something different to everyone. Depending on one's life situation, here are a few notable boats on the upper end of our affordability scale.

### Pursuit DC 246

For anglers, center-consoles rule. But the dual-console design can handle nastier conditions due to a semi-enclosed helm station offering better weather protection. This new generation of dual-consoles replaces a cuddy cabin with open-bow seating, making for another family-friendly fish-boat. Rod holders and foldaway transom seating make room for two anglers in the cockpit with a 31-gallon transom fish box. A folding windshield makes for easy walking fore and aft through the center walkway and onto the aft swim platform. Comfortably seats up to nine, with folding armrests and hinged cushions that allow for versatility. The standard molded console with Edson steering wheel comes without electronics. An everything-you-need Garmin electronics package is an option (\$10,390). Among many options: fiberglass hardtop, removable ski tow bar, and windlass anchor system with remote. Comes with Pursuit Protection Plan. [pursuitboats.com](http://pursuitboats.com)



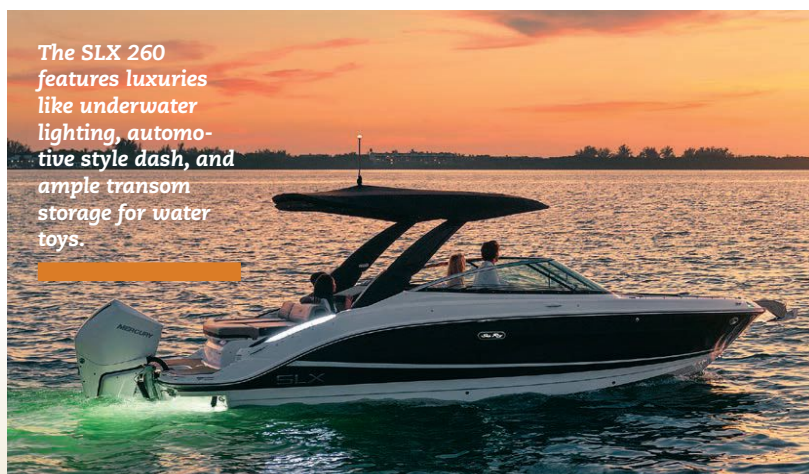
*The Pursuit DC 246 has the comforts and amenities for a long summer day on the water.*

**PRICE** Starts at \$143,040 | **ENGINE** Yamaha Digital F300 V6 Offshore with Integrated Digital Electric Steering (DES) and Helm Master EX Digital Electronic Control (DEC) | **FUEL CAPACITY:** 118 gal. | **DRY WEIGHT:** 6,138 lbs. | **FRESHWATER:** 18 gal. | **LOA** 25'8" | **BEAM:** 8'6"



### Sea Ray SLX 260 Outboard

The SLX 260 is another 26-foot bowrider, but it's a Sea Ray, which means a well-appointed boat with eye-catching design aesthetics. Also available with sterndrive propulsion, the SLX 260 is luxury dayboating, and the new look of the Sea Ray line going forward. Customer feedback played a key role in designing the layout, which translates to comforts including include L-shaped bench cockpit seating, lounge-style bow seating with foldable armrests, and a teak table that converts the bow into a large sunpad with filler cushions. Storage is 24 cubic feet more than previous models, including an integrated cooler under the transom sunpad and a transom locker for stowing gear and flotation toys. Standard features are a cut above, with twin 9-inch Simrad touchscreen displays, Mercury Marine's VesselView engine performance monitor, Active Trim automatic engine trim system, and CZone digital switching. [searay.com](http://searay.com)



*The SLX 260 features luxuries like underwater lighting, automotive style dash, and ample transom storage for water toys.*

**PRICE** Starts at \$169,900 (sterndrive or outboard model) | **ENGINE** Mercury 300 Verado; or MerCruiser 6.2L MPI ECT Bravo Three with DTS (300 hp 224 kW) | **FUEL CAPACITY** 75 gal. | **DRY WEIGHT** 5,564 lbs. | **CAPACITY** 3,200 lbs. | **LOA** 28'7" (OB); 25'5" (sterndrive) | **BEAM** 8'6"




**61% of recreational boat owners have an annual household income of \$100,000 or less.**  
Source: NMMA



## Cutwater C-288 Coupe

This fast, fuel-efficient cruiser is also suitable for fishing, entertaining, and watersports – and has a similar cost to some vacation cottages. Cutwaters are known for smart layouts that maximize storage and accommodations, and the boats come packed with standard features: two climate-controlled (AC and heat) cabins, one with en suite head and shower; a full galley; Fusion stereo; and LCD-TV. The helm comes wired with chartplotter, autopilot, sonar, xHD radar, a DSC-capable VHF radio, color engine displays, and twin-lever electronic throttle controls. A standard bow thruster with wireless remote makes docking easy, safe, and calm for boaters of all experience levels. A patent-pending transom seat can face forward, aft, or be completely folded away for fishing. Another clever feature called a “clear path” swim platform conceals all engine hoses and controls. This leaves more usable space for sitting with the transom seat opened aft, fishing (there are rod holders and a livewell), grilling (electric BBQ), or when boarding. A 10-foot beam adds stability and volume, but the boat is still trailerable. [cutwaterboats.com](http://cutwaterboats.com)

**PRICE** Starts at \$314,937 | **ENGINE** Twin counter-rotating Yamaha F250 outboards | **FUEL CAPACITY** 200 gal. | **DRY WEIGHT** 10,000 lbs. | **LOA** 33'7" (motors down) | **BEAM** 10' 



*The Cutwater C-288 Coupe packs in a full galley and creative space solutions like this foldaway transom bench.*



Visit [BoatUS.com/Loans](http://BoatUS.com/Loans) to calculate the monthly payment you can afford, and even apply for a boat loan!



## The bottom line on pricing

In preparing this article, we've noticed a pricing trend from some manufacturers. What was once considered standard equipment in the base list price is no longer included – and this can include the engine!

Options have always been the slippery slope with any new vessel purchase. But there are options you'd like (bimini top) and options you need (anchor). Some boats no longer come with a VHF radio or navigation electronics, even though you'll need them out there. Don't forget to add these “extras” into your budget, including installation costs.

We recently heard from a boater who knew ahead of time that his new ski boat didn't come with an anchor or VHF. He was left trying to “figure out” how to install those himself before he could use the boat. If you're not confident in your DIY abilities, get the dealer to install these kinds of necessities.

What items should be on board? See “What Every New Boat Needs” on page 32 to find out exactly what should be on your new (or new-to-you) boat before safely leaving the dock. – R.A.



# Our Everglades escape

BY RICH ARMSTRONG, BOATU.S. SENIOR EDITOR  
PHOTOS BY RHIANNON ARMSTRONG

How one boating couple learned  
that going fast is overrated, and peace  
of mind can be found living among  
the mangroves

**A**s a nature lover, the thought of renting a houseboat in the Florida Everglades certainly had appeal – a rare chance to see exotic birds, sea turtles, and manatees up close. On the other hand, the notion of being dropped off at some anchored hotel room in the middle of gator country had me feeling less like a naturalist, and

more like bait. That is, until I learned I could *drive* the houseboat around and anchor pretty much wherever I liked. Now this was a boating trip ... of a different kind.

Flamingo Adventures kindly offered me a chance to see for myself with few nights on a houseboat to explore Whitewater Bay, the largest body of open water in the 1.5 million acres of wetlands that make up Everglades National Park, located on the southern

tip of Florida. Flamingo Adventures has a 20-year contract with the federal government to provide guest services to park visitors. You have to pay the \$30 National Park pass (good for seven days), then drive 38 miles to reach the low-key Flamingo Marina in the middle of nowhere – but is still somehow only a 90-minute drive from Miami. The marina store rents canoes, kayaks, bikes, skiffs, and pontoon boats – as well as four houseboats. The white, fiberglass,





**The author and his wife, Rhiannon, avid runabout day-boaters, discovered a different kind of boating serenity in this one-of-a-kind playground.**

42-foot shoebox-shaped houseboats sit on twin pontoon hulls and weigh 8,000 pounds. They are powered by a single 115-hp Yamaha outboard. Ours was named *Dolphin*. My wife, Rhiannon, graciously accepted my offer for the first mate and chief photographer gigs.

### Into the wild

As with most charter or rental operations, a staff member pilots the boat out to the drop-off point and back to its slip. Departing from Flamingo Marina, Capt. Chris rattled off Everglades navigation tips mixed with local knowledge, such as how we can identify the world's most poisonous plant, why this is the only place on earth with both alligators and crocodiles, and to listen at night for "a bird that sounds like a drunken monkey."

Our 20 minutes of no-wake motoring through Buttonwood Canal, across 1.5-mile Coot Bay, then through curved, mangrove-lined Tarpon Creek, suddenly opened up wide to vast Whitewater Bay, 10- by 6 miles, and home to countless little hideaways for angling or anchoring. The "islands" ahead have no land; they're made entirely of dense tangles of mangroves and their "prop roots" that grow out of the trunk and branches, then down to the water, making the trees appear to be standing on their roots above the water. This part of the Everglades has a controlling depth of about 3½ feet, plenty for the 2-foot draft of our pontoon boat.

Here is where Capt. Chris wished us luck and stepped onto a chase boat. It was late afternoon, and the boats must be anchored by dark, so our priority was finding a lee from the 10-knot northerly breeze. "The Joe River is a good bet," Capt. Chris said. "Meet me back here at 10 a.m. Tuesday."

I took my seat behind the modest



**Current is a minimal factor in the Everglades. Often referred to as a "slow-moving river," the network of wetlands and forests originating in Lake Okeechobee and fed by the Kissimmee River flows just a quarter-mile per day into Florida Bay.**

### STEP ABOARD

**T**hey may not impress from the exterior, but step inside one of Flamingo Adventures' houseboats, and any fears of residing in a glorified fish shack are immediately dispensed. The interiors are nice, simply appointed in terms of furniture, but with every comfort of a small apartment.

The departure is made simple because the refrigerator and hot water automatically switch from shore power (electric) to propane once the boat leaves the dock. Working back from the bow, the galley includes a gas range, gas-electric refrigerator with a freezer, microwave, small coffee maker with filters, and a basic set of cooking utensils, glasses, dishes, silverware, pots/pans. The area also includes a loveseat and a small table with chairs.

A narrow passageway has a full-size bed opposite a full bath (sorry, no tub). The main stateroom takes up the entire enclosed aft section. Our



boat had a TV mounted for connecting to a device. Heavy curtains did a good job of blocking out light. Two seats, a propane grill, and fish-cutting table (both mounted to the back rail) fill up the smaller aft deck.

Flamingo Adventures says the houseboats can sleep six, but the narrowness essential for the design seemed to us that four people is plenty and would work best with family or close friends.

Houseboats are equipped with a 12-gallon main running tank and three 6-gallon spare tanks, for total of 30 gallons of gas. With just the two of us aboard for two nights, we still had about 25 of the 70 gallons of fresh water (showering as if at home). Leaning heavy on the generator, we used up two of the three cans of spare gas. Our only fee on the way out was about \$90 for a 19-gallon refill.

Pricing starts at \$300 (for two-night minimum). Tourist season in the Everglades is the "dry season," from early December to April. You'll get more pleasant temperatures, fewer mosquitos, and a higher probability of spotting wildlife. The Flamingo Lodge & Restaurant, which will include rooms with amenities and a restaurant/bar, is scheduled to open later this year. Visit [flamingoeverglades.com](http://flamingoeverglades.com) to learn more. — R.A.

helm station, a pedestal mounted to the starboard foredeck. I had a GPS chart-plotter with various past runs available to follow, VHF radio (Ch. 18 for base), and a depth sounder, so getting lost was not a concern.

Getting the sense for maneuvering what feels like an extended cab box truck with no side mirrors, I throttled up into open water and was surprised to be quickly making way at 5 mph. My first thought was how well the boat turned. It

certainly wasn't a tight radius, but I could loop around and catch my own wake in about 10 seconds, and I was impressed with my slow-motion serpentine course. "This is so easy," I said out loud.

Emboldened with confidence, I turned to port and headed west into Joe's wide mouth, which quickly narrows and winds through a maze of mangroves with out-of-the-way pockets to anchor around most every bend. We passed just one other houseboat boat (a mom and daugh-





ter fishing off the bow, casting toward the mangroves) during our hour-long meander to some lee shore we'd know when we found it. I caught a glimpse of a dolphin 20 feet ahead, missed my chance at a photo, but found our spot.

### Setting up for the night

Our boat had two anchors: a 33-pound claw and a 9-pound Danforth. After working up a sweat wrestling to pry the claw from the muck and over the rail the

first morning, I opted for the mercifully lighter Danforth for any anchoring other than overnight. It dug right in and was easy to retrieve.

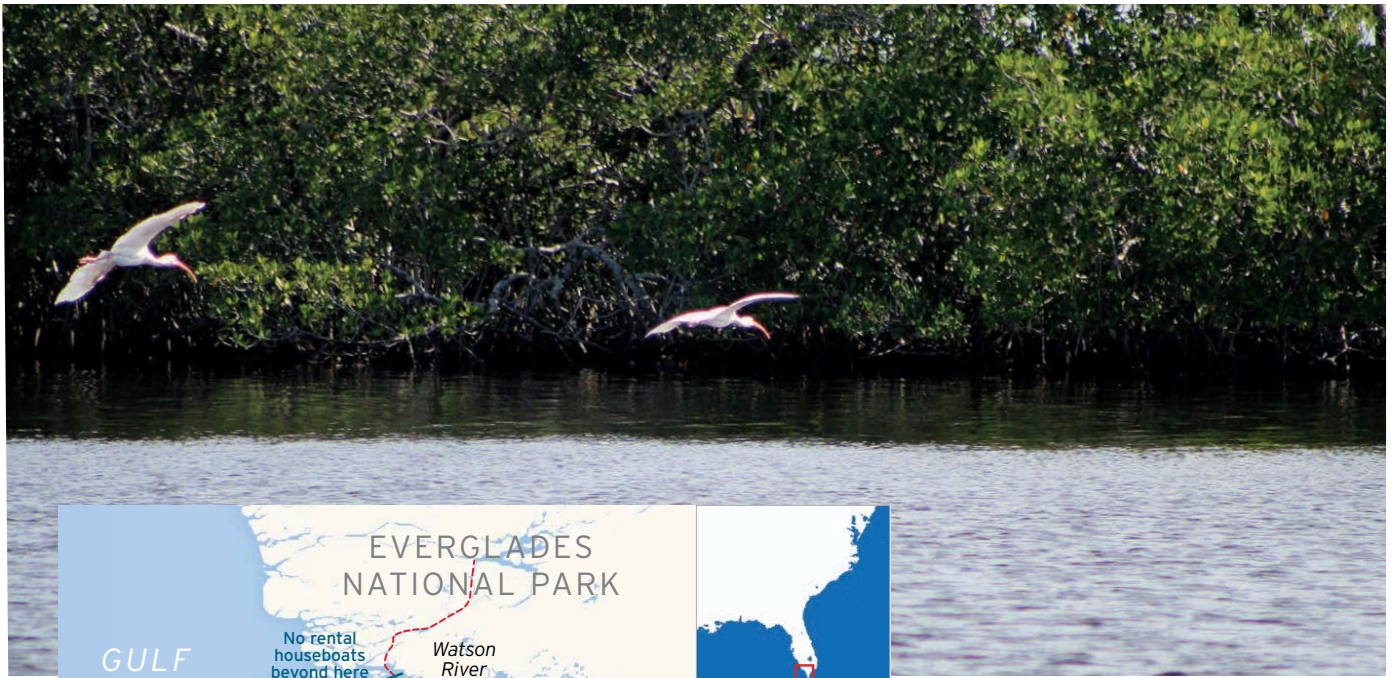
Breezes were consistent and mild, which made for refreshing airflow when anchored with the bow and stern sliding doors open. I grilled chicken on the propane grill to top the salad Rhi made in the galley. We ate on the aft deck to take in the radiant sunset, looking out across Whitewater Bay and eating in silence,

both savoring a good meal in paradise. I've seen sunsets and sunrises before, but this one felt like we had front-row seats at our own private show. That's when I realized this wasn't so much a "doing" vacation as a "being" holiday. Just being present in this peaceful world felt like medicine for the soul.

### How are the mosquitos?

Everglades mosquitos may appear benevolent in giving you the time to savor





**The American white ibis is one of more than 386 species of birds that make their home in Everglades National Park.**

a glorious sunset – but not a moment more. When the last orangey sliver of sun slips behind the mangroves, the mosquitoes don't wait for applause to storm the stage. And since warmblooded mammals are in short supply in the 'Glades, humans are the main course.

We were given two bits of advice: "Bring the strongest bug spray you can," and, "If you wait an hour after sunset, the swarm isn't so bad." We opted to let the mosquitoes work their night shift and never bothered to test the latter tip.

### Good morning!

The sun was our alarm clock, and our simple morning ritual brought yet another reward. The coffee maker was set in motion, then I took a quick look outside to make sure we were in the same spot and scanned for the first outline of orange to appear. Within minutes, we had scrambled eggs, toast, fruit, coffee, and orange juice on the bow deck table. With a building chorus of bird calls as our soundtrack, we ate while transfixed by this astronomical event that happens

every day of our lives but rarely gets our undivided attention.

This would be our only full day aboard, so we decided to meander, starting by chugging across Whitewater Bay. I couldn't be happier. The bay is so open across 3 miles, it feels like running on a quiet lake. The only other action was the occasional center-console zipping anglers to one of the many hot spots in one of the best fishing locations in the world. They seem to come from nowhere, then they're gone in a flash, clearly focused on one pursuit.

I was focused on seeing how fast I could comfortably cruise a 42-foot houseboat. I soon settled on 5 knots in open water (with a 7- to 10 mph breeze and nearly a foot of chop) because the boat told me when I was going too fast when our foredeck was washed. On that day, 8 mph was too fast. No harm, no foul, and 5 mph felt just fine.

### How'd you sleep?

We live in a city, so we're used to sleeping with noise. But unless you've slept with a generator humming continuously though the night, you'll have a few decisions to make. My wife opted for air condition-



**Everglades National Park contains the largest mangrove system in the western hemisphere. Mangroves are a cluster of several trees with complex root systems and the ability to flourish in salty environments. Mangroves help clean water while also providing shelter to marine organisms.**



ing on and earplugs. But the generator is set up on the other end of the boat from the main stateroom that has a real door to close. That muffled the sound enough for me. All of the windows are screened, so no AC is another option.

Our Generac Q3500 had an electric start that worked immediately, and a 2.6-gallon fuel tank that has a rated run time of nearly nine hours at half load. I don't know what our load was, but with the AC cranking, the generator I started at 5:30 p.m. lasted until 1:30 a.m. Despite being willing to sacrifice blood to the mosquitos to get the Generac filled and fired up again, the cool lasted until morning and we both slept deeply. Of course, that didn't prevent a midday escape from the sun to the queen bed for some snoozing with an open-door breeze and the sound of water gently lapping on the aluminum hulls.

### Takeaways from paradise

After two nights aboard, my wife and I agreed a third would have been better. After all, this was our first experience getting a spectacular sunrise and sunset in the same day. On our final morning, we woke to both a radiant orange sunrise and a white waning Gibbous moon still hanging high in the now blue sky!

It's easy to fall into nature's rhythm on an Everglades houseboat. I kept my Canon DSLR with zoom lens always nearby, but this isn't a Disney ride with automated creatures that rise up on cue. If I was unlikely to capture some award-winning wildlife photo, then I was quite content to sit, watch, and listen. Sunsets delivered orange-streaked skies. The birds we'd seen flick about the mangroves, hunting for food, gathered into large flocks that flew overhead, bound for their nests.

The quieting birds gave way to the gentle sound of water gurgling against the hulls in the dying light. "Hypnotic" is good way to describe the experience. The black nights bring a calming silence, and the mornings feel like opening a new present.

"I could just sit here all day," my wife declared, raising her coffee mug to the rising sun. For whatever reason, that Café Bustelo coffee we bought sure did taste good. Maybe the best in my life. 🍵

## EVERGLADES HOUSEBOATING IS GREAT FOR:



- Fishing buddies who use a houseboat as a base camp, then take off in their small center-consoles for a day of fishing.
- Families, but not toddlers. Even young kids may wonder why they can't go in the water. As parents, we thought the houseboat would work fine with babies or kids 8 years and older.
- Taking out elderly or limited-mobility boating friends and family. Even at its worst, running speed is gentle on the back and joints.
- An adventurous honeymooning couple on a budget.
- The harried family. If you're coming off an action-packed family vacation

(say, at Disney in Orlando), a few nights on a houseboat could be the perfect vacation from your vacation. — **R.A.**

### Packing list

- Bug spray
- Jacket (it can get chilly at night)
- Polarized sunglasses
- Earplugs (to block out generator)
- Gloves (to handle the anchor)
- Binoculars
- Camera with zoom lens and tripod
- A good book
- Movies and shows downloaded on a smart device — **R.A.**



## FISHING THE 'GLADES

One third of Everglades National Park is covered by water. Snapper, sea trout, redfish, bass, and bluegill are plentiful. Freshwater and saltwater fishing require separate Florida fishing licenses.


As for bait, live or dead fish (including minnows and shiners) or amphibians, and nonpreserved fish eggs or roe are prohibited. Digging for bait inside the park is not permitted.

Licensed anglers are limited to possession of 20 fish per person at any time, but may possess no more than 10 fish of any one species. There is no possession limit for non-native species.

All anglers are urged to pick up a current copy of the Everglades Fishing Regulations available at all visitor centers and entrance stations.

— **NATIONAL PARK SERVICE**






MYSTIC SEAPORT, CONNECTICUT  
Mystic Seaport, in southeastern Connecticut, is known for its maritime heritage, historic ship-captains' homes, and excellent dining.

# *A cruising tour of* Eastern Long Island Sound

BY STEPHEN BLAKELY, BOATU.S. CONTRIBUTING WRITER

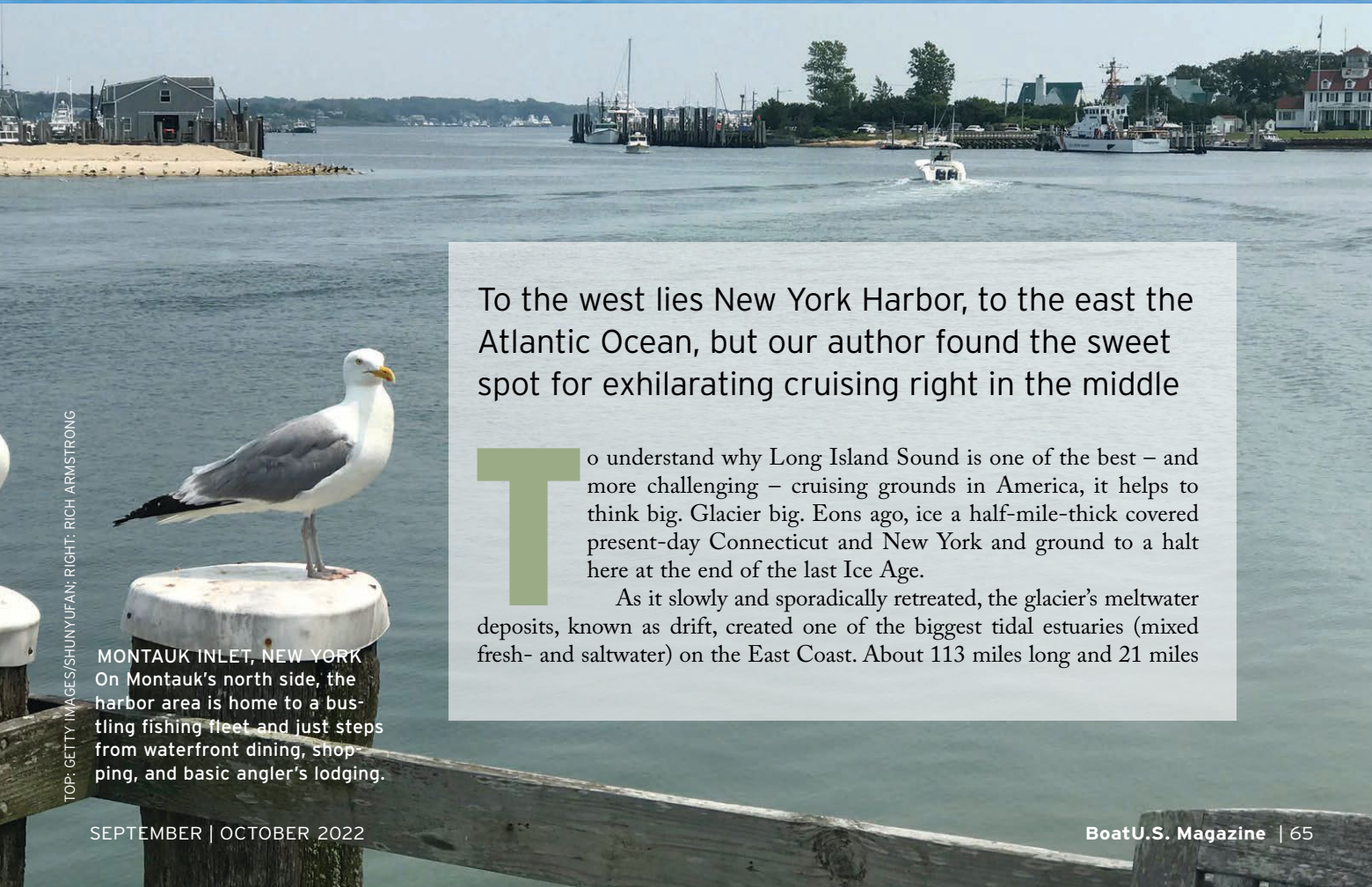


BLOCK ISLAND, RHODE ISLAND  
Area boaters head to "The Block," Rhode Island's Block Island, 13 miles off the coast and home to a well-marked and lively harbor.

TOP: GETTY IMAGES/DENIS TAGNE/UR.; LEFT: STEPHEN BLAKELY



OLD SAYBROOK,  
CONNECTICUT  
Lynde Point  
Lighthouse serves  
as both a leading  
light for ships  
coming through  
Long Island Sound,  
and a marker for  
the entrance to the  
Connecticut River.



To the west lies New York Harbor, to the east the Atlantic Ocean, but our author found the sweet spot for exhilarating cruising right in the middle

**T**o understand why Long Island Sound is one of the best – and more challenging – cruising grounds in America, it helps to think big. Glacier big. Eons ago, ice a half-mile-thick covered present-day Connecticut and New York and ground to a halt here at the end of the last Ice Age.

As it slowly and sporadically retreated, the glacier's meltwater deposits, known as drift, created one of the biggest tidal estuaries (mixed fresh- and saltwater) on the East Coast. About 113 miles long and 21 miles

**MONTAUK INLET, NEW YORK**  
On Montauk's north side, the harbor area is home to a bustling fishing fleet and just steps from waterfront dining, shopping, and basic angler's lodging.

TOP: GETTY IMAGES/SHUNYUFAN; RIGHT: RICH ARMSTRONG

at its widest point, Long Island Sound is known for its complex underwater geography, mythical tidal currents, and rich fishing grounds. With 600 miles of coastline stretching from New York City to the eastern edges of sandy Long Island and the rocky southern Connecticut shoreline, it offers endless places for both sail- and powerboats to explore, especially at its eastern end.

The variety of boating and destinations here is amazing. Remote, laid-back, and beautiful Block Island, off the eastern tip of Long Island, is one of the top cruising destinations on the eastern seaboard. The Race and Plum Gut off the North Fork of Long Island, where fierce tidal currents are violently squeezed in and out of the Sound twice a day, are legendary for their rough water and great fishing. On Connecticut's south shore (up Mystic River), you can explore historic wooden ships at the Mystic Seaport

Museum, or (up the Thames River) watch sinister-looking modern nuclear submarines transiting the Navy's primary East Coast sub base at New London.

Mix in Atlantic wind and swells from the east, countless recreational boats (especially on summer weekends), big-ship commercial traffic (at any time), and occasional fog (common in July and August), and you'll need to stay alert at the helm – and pay attention to tidal currents. But especially in the eastern half of the Sound, a sheltered gunkhole is never too far away when the wind or weather kick up.

“What’s remarkable about the area are the short legs between strikingly different places. In 15 or 20 nautical miles, you go from cityscapes and busy coastal harbors to places where few if

any other boaters are to be found,” says Dwight Merriam, a Connecticut lawyer and Navy vet who’s sailed Long Island Sound for more than five decades. “There’s excitement if you want it, but also so many little places to tuck in, both gunkholing and small harbors with deep water.”

## Heading out

Charter boat companies offer a flexible range of cruising itineraries to suit their customers’ time and interests on

Block Island. We soon motored into the island’s well-protected Great Salt Pond on the west side. A crisp red-and-white Coast Guard station near the mouth of the harbor greets inbound boats.

Block Island is the quintessential summer retreat, and in full season its harbor is jammed with cruisers, ferries, and commercial fishing boats. Its population triples over the summer, and on busy weekends some 1,500 boats somehow squeeze into Great Salt Pond. But with only 90 transient moorings available

to visiting boaters (the lime green ones, owned by the town), be prepared to drop the hook if you don’t have a reservation. And be careful if you do, as swinging room is tight and holding in the outer anchorage is poor.

Among the many delights of Block Island is its laid-back vibe, beautiful dunes, rolling moors, high cliffs, and easy accessibility. Only 5 miles long and 1 mile wide, you can explore it by

the water. For our Long Island loop, we chose to charter in nearby Newport, Rhode Island, a legendary nautical town worthy of its own story, because it worked best logistically for our crew. We opted for a clockwise route, heading south down Narragansett Bay, past sprawling mansions with acres of perfect lawns, bound for Rhode Island’s Block Island as our first stop. Our boat is a Beneteau 44 named *Summer Dreams*.

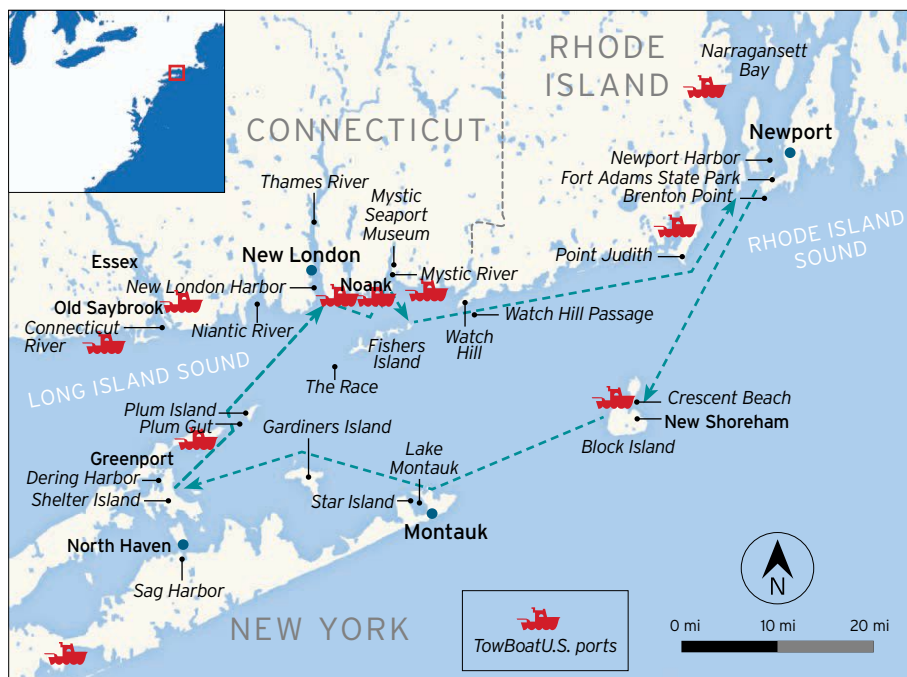
The sheltered waters of Narragansett Bay come to an end soon after leaving Newport Harbor. As you pass Brenton Point to port and Beavertail Lighthouse to starboard, you enter the open and typically bumpy sea of Rhode Island Sound, and I soon regretted my big breakfast. But we were making good time, had clear weather, and only 17 miles to the lee of

bike, moped, or even on foot. (Don’t miss Crescent Beach on the east side, one of the best in New England.) There are two historic brick lighthouses still active, both open to visitors: Southeast Light located on Mohegan Bluffs (the most popular tourist attraction on the island) and North Light, with a small museum.

“Block Island is really a throwback to an earlier time. There are no traffic lights, about half the island is conservation reserve, there are no chain stores or McDonald’s,” a volunteer at Southeast Lighthouse told us. “We like it that way.”

## Montauk

The next day we motorsailed in light winds 26 miles southwest to the South Fork of New York’s Long Island, passing Montauk Point Lighthouse at its eastern





## MYSTIC RIVER, CONNECTICUT

The Mystic River Bascule Bridge was built in 1922 and has a clearance of just 4 feet.



**Dwight Merriam, retired Navy captain and Connecticut sailor, leads the pack across Long Island Sound.**

tip to port and entering nearby Montauk Harbor, with packed fishing docks to starboard. (It's the largest commercial and sporting fish harbor in New York state.) We took the port channel around the recreational boating hub of Star Island and motored down to the remote southern end of shallow Lake Montauk (hug the channel markers closely and mind the tide), where our little fleet anchored for the night. We kicked back in the warm fall sun and swam off the stern in the brisk Atlantic seawater. That evening, dinghies snaked through the

fleet to share group dinners aboard, one of the few nights we did not dine ashore.

### Shelter and Gardiners islands

Our third day involved a motorsail through light northwest winds to the charming and historic summer enclave of Shelter Island. In colonial times the island was a key harbor for ships in the Triangle Trade between America, Caribbean slave plantations, and Britain.

Shelter Island is nestled between the North and South forks of Long Island and provides the only link between them, via two small car ferries, to the towns of Greenport above and North Haven below. With five good harbors, Shelter Island is a popular rendezvous destination for yacht clubs and cruisers.

Just south of Shelter Island is Sag Harbor on the South Fork of Long Island, popular with both boat and land-yacht tourists. The Sag Harbor Whaling and Historical Museum is a must-see.

### Crossing the Sound: The Connecticut coast

The following day we crossed Long Island Sound bound for the Connecticut River. This required carefully timing the tide to transit Plum Gut, the narrow and treacherous passage between Orient Point (the tip of the North Fork of Long Island) and legendary Plum Island.

Plum Gut passage, as "The Cruising Guide to the New England Coast" describes it, "is a vicious piece of water,



**On your nav chart, be sure to note the roughly mile-square rectangle about 3 miles ENE of Gardiners Island: That's a restricted anchorage for nuclear submarines operating out of New London. Navy warships have a 500-yard security perimeter, so stay away if one is there.**



where seven currents come together and can form a tide rip that can run as high as 10 knots.” Adding to the navigational challenge is the New London-Orient Point car ferry that runs through the Gut several times each day. Various other ferries cross Long Island Sound, too, especially to Block Island, so keep an eye out. Of particular note are the high-speed power catamaran ferries that cruise at 15 knots and can sneak up on an unobservant boater.

We had good timing and a glorious sunny day for this leg, with a perfect northwest breeze. The tidal current shot us through the roiling waves as we headed upwind to a small yacht club in Old Saybrook, Connecticut, 10 miles to the north across the Sound. It was the most magnificent sailing of the entire voyage.

The entrance to the Connecticut River is well-marked with two breakwaters and lighthouses befitting the waterway’s status. This is the largest source of freshwater entering Long Island Sound and a cruising destination by itself, stretching 400 navigable miles north to the Canadian border. But with a deep current, sometimes opposing tides and wind, shoals, and crossed by various highway and railroad bridges, this seemingly calm river can be tricky due to the strong outgoing flow. The east side of the lower river is shallower and dotted with the remnants of old piers just below the surface.



**The tightly quarantined home of USDA's Animal Disease Center, Plum Island's dangerous infectious disease research is slated to be moved in 2023 to a new National Bio- and Agro-Defense Facility in Kansas – still off limits.**

One of the most popular destinations just up the Connecticut River is the historic harbor town of Essex, a major boatbuilding center in the 1700s with beautiful architecture, cobblestone streets, and genuine colonial charm. Essex is consistently ranked as one the 100 Best Small Towns in America and is a great walking town. The historic Griswold Inn, or “The Griz,” was built in 1776 and



DERING HARBOR, NEW YORK  
SHELTER ISLAND YACHT CLUB

has a great tap room with a wood stove and occasional piano player.

### Mystic Seaport

Returning to the Sound the next day, we turned east for our last destination, north up the Mystic River. The Connecticut shore is dramatically rockier, more complex than New York’s sandy Long Island coast, with submerged ledges, small islands, and busy harbors that demand constant attention. This route has several inviting attractions we had to pass without stopping, such as the Niantic River (crossed by a busy Amtrak Bascule Bridge that must be raised to clear anything more than 16 feet) and Thames River farther east. Busy New London Harbor is home to the U.S. Coast Guard Academy, the Navy sub base (dating to 1915), and the USS Nautilus Submarine Force Museum. Keep an eye out for subs

while passing New London.

Due south of Thames River is “the Race,” the short, steep, and deep underwater funnel that squeezes and accelerates powerful tides between Long Island Sound and the open Atlantic. It’s marked by Race Rock Lighthouse and is

renowned among boaters for its strong rips, standing waves, heavy winds, and traffic. Well-powered motorboats can fight the currents

### IT’S EASY TO BE TRANSPORTED BACK IN TIME DURING THE DAY BY ALL THE HAUNTING OLD SHIPS

here, as many fishing boats do chasing striped bass and other types of fish that feed in the fast flow. But sailboats must catch a slack or fair tide to get through. The Race is ranked as the second-most challenging cruising water in the Northeastern U.S. (Hell Gate in New York’s East River is No. 1), according to [coastalboating.net](http://coastalboating.net).

We avoided The Race entirely by hugging the Connecticut shore, head-

STEPHEN BLAKELY





ing east above Fishers Island, and slipping into the mouth of the Mystic River at the town of Noank. A meandering channel takes you past several picture-postcard villages and many packed marinas to the Mystic Seaport Museum. This trip is often delayed by

both a pivoting railroad bridge and a small drawbridge just before reaching the museum.

But when you clear that last bridge, you enter another era. On the banks of a calm harbor is the Mystic Seaport Museum complex, a meticulous restora-


tion of a 19th-century whaling village with one of the best and most active wooden boat restoration shops in the nation. Among its many historic vessels, the jewel in the collection is *Charles W. Morgan*, the last surviving 18th-century whaling ship, which recently underwent a massive refit. Every summer, the deck of the *Morgan* becomes a stage for the annual Moby-Dick Marathon – a nonstop 24-hour reading of Herman Melville’s masterpiece.

Our fleet tied up at the museum’s marina for visiting boats, which gave us a special treat: private access at night to the museum grounds, historic ships, and buildings after all the busloads of tourists were gone. It’s easy to be transported back in time during the day by all the haunting old ships, vintage shipwright stores, and volunteers wandering around in period costume. Alone in the quiet darkness (and occasional fog), it can be ghostly.

### Back to Newport

For our last day at sea, we motored south back into the Sound, east-northeast to hug the coast back to Newport. The two big waypoints along here are Watch Hill Passage, another area of strong rip currents. The cruising guide notes that navigation buoys here sometimes disappear: At maximum flow, the rip will pull cans 3 and 5 entirely underwater.

As you pass Watch Hill, the most prominent building is a white mansion on top of the hill, protected from the sea to the east by a fortune’s worth of rip-rap. That’s Holiday House, the 11,000-square-foot, 8-bedroom retreat of singer-songwriter superstar Taylor Swift when she’s not touring.

At the start of a voyage, Newport Harbor is always an exciting place, but at the end of a voyage, swinging on the mooring, watching the sun go down over the water, and reflecting on our adventures, it was a cozy, rewarding, and even nostalgic place – even before we jumped in the dinghy for the last time and returned to land. 

*Stephen Blakely cruised Chesapeake Bay for many years on Bearboat, an Island Packet 26, and now trailers a 13-foot Mellonseed skiff, Watermelon, to explore his new home waters of Cape Cod.*

## NEWPORT BAREBOAT SAIL CHARTERS

### Bareboat Sailing Charters:

[bareboatsailing.com](http://bareboatsailing.com)

### Dream Yacht Charters:

[dreamyachtcharter.com/destination/newport/](http://dreamyachtcharter.com/destination/newport/)

### 2N Navtours:

[navtours.com/en/destinations/newport-ri](http://navtours.com/en/destinations/newport-ri)

### New England Sailing Center:


[nesailingcenter.com/yacht-charters](http://nesailingcenter.com/yacht-charters)

## GUIDES & DISCOUNTS

### "The Cruising Guide to the


New England Coast," Duncan, et al

### "Waterway Guide, Northern"

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# my Old Man and The Sea

BY CHRISTOPHER BUCKLEY, BOATU.S. CONTRIBUTING WRITER

A satirist and his larger-than-life dad may have disagreed about some important fundamentals in life, but both loved boats and each other. Here, a son remembers some wild days aboard with his legendary father

**M**y late father, William F. Buckley Jr., was an avid sailor. He had learned to sail as a child in upstate Connecticut, on a not-very-big lake. When I was growing up, we lived on the Connecticut shore of Long Island Sound. He had then a 38-foot wooden sailboat, a sloop named *Panic* — a name my long-suffering mother found ... apt.

In my father's study in the garage, he kept a framed photograph of *Panic* taken by a news photographer at the start of the 1958 Newport-to-Bermuda race. In the photo, *Panic* is lying on her side at a more or less 90-degree angle, its mast sub-

CHRISTOPHER LITTLE







Bill Buckley navigating across the Atlantic using his trusty sextant, taking a noon sight to determine his boat's position



merged in the water – an undesirable nautical posture technically called a “knock-down.” It was thrilling for me as a 6-year-old to hear my father’s crewmates describe the sensation of thousands of gallons of the Atlantic pouring into the cabin at the start of a five-day ocean race.

I should point out at this point an important detail, namely that my father was a great man. I don’t mean that in the usual platitudinous way. It’s a straightforward statement. He wrote more than 50 books and many thousands of articles, founded a magazine, taped more than 1,500 episodes of his television program, “Firing Line,” and influenced the course of modern American political history. You don’t have to take my word for it. You can look it up.

Looking back, I now understand that his greatness was consistent with the way he conducted himself at sea. Great men always have too much sail up. Great men take too many risks. More timorous souls – souls like myself – tend to err on the side of caution. When we see a storm coming, we look for a snug harbor. Not my old man. Or as my mother used to put it, “Bill, why are you trying to kill us?”

Great men are also impatient. This particular aspect showed up most vividly in my father’s manner of docking. Most people, when guiding a 10- or 20-ton vessel toward a dock, approach slowly. Not my old man. His technique was to go straight at it, full speed.

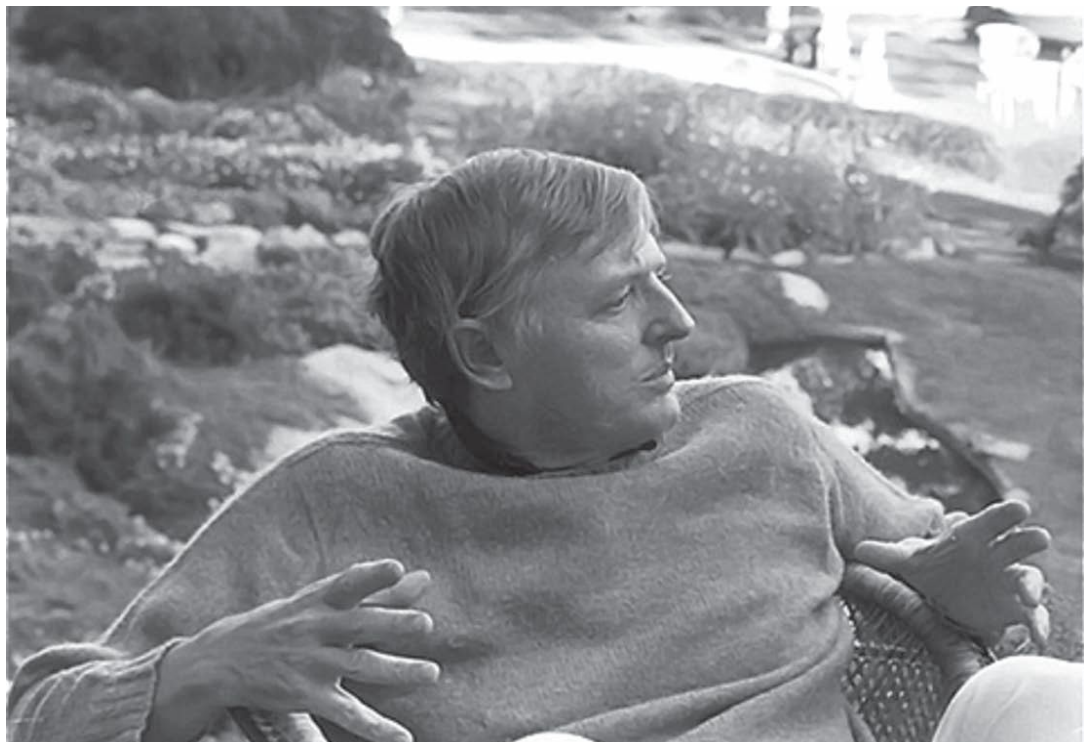
At one point, he owned a 72-foot schooner with an 18-foot bowsprit. With my father at the wheel, going hell-bent-for-leather toward a pier, that long bowsprit became a jousting lance. What vivid memories I have of people scattering like sheep at our approach! One time, someone actually leapt off the dock into the water in an attempt to escape. Over the years, my father took out entire sections of docks up and down the Eastern seaboard. His crew bestowed on him the nickname, “Captain Crunch.”

But there were fun times, too. When I was 6, my father contrived a treasure hunt. He bought an antique wooden chest and filled it with silver dollars and some of my mother’s jewelry. He and a friend sailed across Long Island Sound one weekend and buried it on a sandy spit called on the chart Eaton’s Neck, but which I will always call “Treasure Island.”

Pup told me that he had come into

another chest buried there, somewhere. I was quite persistent. In due course, he relented and procured another chest, which he filled with another fistful of my mother’s jewels, this time adding – without telling her – a few pieces of her prized Queen Anne silver. He sailed across and buried it.

On the weekend appointed for the treasure hunt, Hurricane Irene struck. The Hurricane Katrina of her day, Irene hit with such force that she rearranged



possession of an old treasure map, something out of Robert Louis Stevenson, scratched on thick parchment in blood-red ink, the location of the treasure indicated with compass bearings. I couldn’t sleep the night before we set out, I was so excited.

We sailed across. After digging up half of Eaton’s Neck, we found the treasure. I can still remember the thrill as my fingers scraped the chest’s wooden lid beneath the sand. When we got home, my father said it would be a nice gesture to give my mother the pirate jewelry. OK, I said grudgingly, but I’m keeping the silver dollars.

It had been such an adventure that I persuaded my father that there must be

the entire topography of Eaton’s Neck, making nonsense of my father’s compass bearings on the treasure map.

We sailed over the next weekend. We dug and dug. And dug. By the time we were finished, Eaton’s Neck looked like it had been ravaged by a thousand prairie dogs. We never did find the treasure. For all we know, it’s still there. How thrilled my mother was to learn that her jewels and Queen Anne were now a permanent geological feature of Eaton’s Neck. I wonder what the reaction of the insurance company was.

“I’m not sure I understand. Was the jewelry stolen, Mr. Buckley?”

“No, we buried it. Is there a problem?”

The next hurricane landed poor old





**Opposite: Bill at home in Connecticut, 1985. Left: Father and son endure a typical Buckley daysail! Below: Young Christopher and his dad, 1975. This article was excerpted from Christopher's acclaimed tragi-comic memoir about losing both parents in one year.**

respond. In due course, my mother's voice would call out in the dark, "Bill! What do you propose to do about that sound?"

My mother deserves a word of appreciation here. She had been raised as a debutante, a beautiful, delicate orchid from Vancouver, Canada. Now she found herself cooking for eight men aboard a small boat with no hot water, and scrubbing the toilet. She would mutter darkly, "I was made for better things."

In those nonrefrigerated, pre-microwave days, a lot of our food came in tins. These were stored below the floorboards in the ship's bilges, which invariably filled with oily seawater, causing the labels to decompose. As a result, we never knew what, exactly, we'd be having for dinner on any given night. If we were lucky, Dinty Moore beef stew. If not, we might well dine exclusively on Harvard beets and creamed corn. Some tins contained crepes Suzette. My father, not a cook himself, loved to douse them in copious amounts of Grand Marnier. At the climactic moment, he would drop a match into the skillet, causing a Hiroshima of flame to lick the cabin top.

Some afternoons, my father might say, "Shall we have lobster tonight?" He'd steer for the nearest lobster pot. As a child, I found this thrilling beyond belief, for it was established lore that a Maine lobsterman could legally shoot you dead on sight if he caught you plundering his livelihood. After laborious heavings on the line, the trap would come up, suddenly alive with frantic, jackknifing lobsters. The trick was getting them out without having them clamp down on your fingers. My father would then put two bottles of whisky into the lobster pot as payment. I always wondered what the lobsterman

### Losing Mum and Pup



Christopher Buckley



## BY THE TIME WE WERE FINISHED, EATON'S NECK LOOKED LIKE IT HAD BEEN RAVAGED BY A THOUSAND PRAIRIE DOGS. WE NEVER DID FIND THE TREASURE

*Panic* atop the Stamford Harbor breakwater. My father used that insurance payment – over the years, there were many – to buy a successor yacht, a sweet, 42-foot Sparkman and Stephens yawl, Hong Kong-built, named *Suzy Wong*. She was a real honey, all teak and mahogany and carved Buddhas.

Every summer we would cruise the waters of Maine aboard *Suzy*. Sailing in Maine was always an adventure. The water is scrotum-tighteningly cold,

the currents swift, the tidal drop pronounced and the bottom unforgivingly rocky. We'd drop anchor, have a merry, kerosene lamp-lit dinner, then drift off to sleep. Soon, invariably, there'd be a sound under the hull: thunk, thunk, thunk. This announced beyond reasonable doubt that our anchor had slipped and that we were now positioned over a sharp rock on a falling tide. Depending on how many bottles of wine had been consumed, the grown-ups were not always quick to



## I MADE AN ENTRY IN THE LOG TO THE EFFECT THAT CAPTAIN CRUNCH COULD TAKE HIS SAFETY HARNESS AND SHOVE IT WHERE THE SUN DIDN'T SHINE

thought upon bringing up their trap, to find two fifths of Johnnie Walker Black inside. Did he scratch his head and say, “Reckon Mr. Buckley’s back?”

Sometimes we barbecued on a little grill that hung off the transom. One night, as I was cooking six expensive filet mignons that my mother had asked me please not to burn, the grill suddenly swiveled 180 degrees. Six steaks and charcoal briquettes plopped hissing into the dark, swift waters of Penobscot Bay.

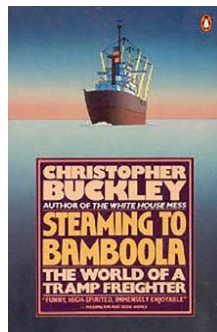
My friend Danny and I grabbed a flashlight, leapt into the dinghy, fired up the outboard, and roared off into the night. The current was running 5 knots. It was tricky work corralling the fugitive filets. We ran a few of them over, turning them into Salisbury steaks. No one asked for salt that night.

**S**uch were our adventures. Larger ones loomed. My father always had the notion of sailing across the Atlantic, and this we did in 1975. The

story is told in his book, “Airborne.” We set off from Miami on June 1. A month and 4,400 miles later, we dropped anchor in the shadow of Gibraltar.

He taught me on that trip how to navigate by the sun and stars with a sextant. It’s a skill that today, in the age of satellite navigation, fewer parents impart to their children. As I look back, it seems to me one of the most fundamental skills you can hand down: finding out where you are, using the tools of our ancestors.

I was 23 now. I’d spent a year between high school and college working on a Norwegian tramp freighter. I’d gone around the world, been in rough situations among rough people. I’d steered a 20,000-ton ship through 60-foot seas in a Force Ten gale in the South Atlantic. I knew my way around a boat.



One night, I relieved my father on the midnight-to-0400 watch. He told me to put on my safety harness. “Yeah,” I said, “I’ll get around to it.” He let me have it, in harsh words – perhaps the second time in 23 years he’d spoken to me that way. Falling overboard at night in the middle of the ocean without a safety harness isn’t a thing to be taken lightly.

I obeyed, but later that night, still simmering over my affronted manhood, I made an entry in the log to the effect that Captain Crunch could take his safety harness and shove it where the sun didn’t shine. The next morning, upon examining the log, he smiled, delighted at the mutiny.

What a trip it was! We sailed into the Azores, accompanied by a thousand dolphins; camped out in the crater of an extinct volcano; sailed through the spot where Nelson sank the French and Spanish fleets; and finally through the place that had once been called “The Pillars of Hercules,” end of the known world. We had such a good time, in fact, that my father declared that we must sail across the Pacific, from Honolulu to New Guinea. We did, 10 years later.

I was now 33, recently married.

“By the way,” I said to my new bride on our honeymoon, trying to sound casual, “I won’t be around much this summer.” She was a pretty good sport about it. The first time I’d brought her to Stamford to meet my parents, my father insisted on taking us for a sail. It was a bright, beautiful summer day, but the wind was blowing 25 knots, with 6-foot seas.

She had been in a sailboat exactly once before, on a flat-calm lake. The waves crashed over the cockpit, hurling her to the deck. She smiled bravely and said, “Is it always like this?” My mother, hearing this account after we got home, drenched to the skin, acerbically remarked, “Yes. With Bill, it is always like that.”

Off we set across the great Pacific. We made our first landfall a week later, at a strange little archipelago called



Johnson Atoll. It's here that the United States stores its most lethal nerve weapons. For that reason, any ship sailing into the harbor is greeted not by lovely ladies bearing leis and rum punches, but by grim-faced Halliburton contractors aiming 50-caliber machine guns at you. Welcome to Johnson Atoll!

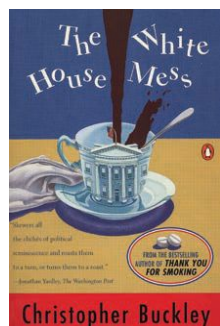
We made our peaceful intentions clear to the frowning colonel in charge. It was an ironic encounter, for that same day, back home in Stamford, Nancy Reagan, then First Lady of the U.S., was spending the weekend at our house with my mother. The colonel was totally unimpressed with my father's desperate name-dropping and informed us dourly that we must be on our way.

We made three landfalls on our way to New Guinea, each one something out of Gauguin. After the weeks at sea, we were avid for R&R; for a swim that didn't involve someone having to stand shark guard with an assault rifle. For cold beer and hot showers. For a stretch of sleep longer than four hours. But the moment we dropped anchor, my father would look at his watch and say, "OK, it's 10 o'clock now. What say we shove off at 2?"

Danny and I would look at each other and shake our heads. I was learning that for my father, it was the voyage, not the stopping. Great men are not idlers; their idle is set too high. They're built for speed. I myself was built to lie on the sand and drink beer and be fanned by island ladies. But I am not a great man.

And so at 2 o'clock, it was up anchor and off to the next idyllic atoll, some thousand miles away. I scribbled in my journal, "We are racing through paradise." My father liked that and used it for the title

of the book he wrote about the trip. We did, however, manage to convince him to stop for a whole day at a place called Kapingamarangi. You may not be familiar with Kapingamarangi, but it's there on the chart, 350 miles northeast of New Guinea. We sailed in over the



## AFTER THE WEEKS AT SEA, WE WERE AVID FOR R&R; FOR A SWIM THAT DIDN'T INVOLVE SOMEONE HAVING TO STAND SHARK GUARD WITH AN ASSAULT RIFLE

reef into a turquoise lagoon fringed with white sand and swaying coconut palms. Natives came out in a launch to greet us. This was 1985.

"Is there anything you need?" we asked, thinking perhaps batteries, antibiotics, tools?

"Among my people," the headman said gravely, "there is a great hunger for video cassettes."

There was a plane in the lagoon, still shiny-bright beneath the water. It had been there for 40 years. I scuba-dived on it, saw the "U.S. Navy" markings, the bullet holes that had brought it down, hem-stitched along the fuselage. A quarter-mile

away was a sunken Japanese vessel, the object, perhaps, of the American plane's last attack.

"What happened here?" I asked the headman.

He shrugged. "First the Japanese bombed the crap out of it, then the

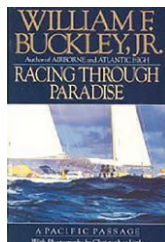
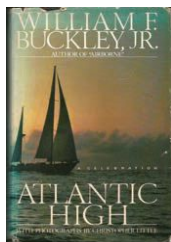
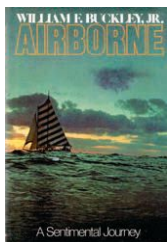
Americans came and bombed the crap out of it." World War II in a nutshell.

We were navigating again by sextant and celestial navigation. But my father had always been on the cutting edge of the latest gadgetry, and so we had with us a prototype of a satellite navigation device made by the Trimble company. My father had gone to enormous pains to procure it from his new best friend, Charlie Trimble. It was the size of a steamer trunk and had more dials and knobs and oscilloscopes than Dr. Frankenstein's entire laboratory. My father would crouch before it for endless hours, twiddling the knobs, calling out numbers to us, which we'd plot on the chart.

"Where does that put us?" he would groan hopefully.

"Here," I said, pointing to a spot in the middle of the Brazilian rainforest.

It was back to basics, to the sextant and the stars he preferred. I can still see



**In addition to his political books, Bill Buckley wrote three popular sailing memoirs.**

him standing on the deck at twilight, searching the sky for Spica and Vega and Deneb, one hand wrapped around a stay for support, the sextant in his other, calling out “Mark!”

A month after sailing out of Honolulu, we anchored in Kavieng Harbor on New Ireland Island. That night we had a celebration as liquid as the vast Pacific. I toasted him, “To Pup,” I said, “who shot the sun, shot the stars, but who most of all shot the moon.”

That was to be our last long sail together. My father was getting older now. So was I. I was a father of two. Then came the episode of October 1997.

We’d made a date the month previous to have an overnight sail to Treasure Island along with Danny, our old sailing partner. I took the train up from Washington, D.C., to Stamford. Along the way, I looked out the window and saw gray, stormy skies. I checked the weather in the paper. There I saw the word “Nor’easter.” To anyone who’s grown up along the Connecticut seashore, this is not a word congruent with “overnight sail.”

My father was standing there on the train platform to greet me. This had always been a welcoming sight. Then I noticed, through the train window, that he seemed to be holding onto a sign post, as if for support. Had he injured himself? No, for when the train door opened, and I went to disembark, a violent gust of Northeast wind blew me back into the train. I crawled out. Loose objects in the railroad parking lot were being blown about.

“We’ll have a brisk sail,” my father said.

Danny was there with him. I looked at Danny. Danny looked at me.

“We’re going out in this?” I said, incredulously.

“Sure,” said my father nonchalantly.

We arrived at the marina. The wind gauge indicated steady at 45 knots, gusting 50. To put it in context, hurricane force winds start at 64.

“Pup,” I said, shouting to make myself heard above the wind, “ought we to be doing this?”

“Take in the fenders,” he merrily replied.

He had brought a friend of his, from San Francisco, as it happens. Poor, innocent lamb. He had never been on a sailboat before.

“Should I take a Dramamine?” he asked me nervously.

“Nah,” I said. “You’ll be too scared to throw up.”

And so off we sailed into the storm. This was in my father’s last sailboat, a 36-foot fiberglass sloop named *Patito*. We somehow made it across Long Island Sound, through a screaming, dark night and 15-foot seas. I kept the radio tuned to the Coast Guard frequency. I thought of my two young children. I thought of my warm bed in Washington. I thought, What the \*\*\*\* am I doing out here?

The next morning, after a sleepless night at anchor listening to the halyards slap furiously against the mast, dawn arrived greasily. The wind had increased. It was now gusting to 55. The radio reported that half a million homes in New England were without power. Various governors had declared a state of emergency. We had gone for an overnight sail in a state of emergency. I proposed that we row ashore and flag down a passing car. Or perhaps a passing FEMA vehicle.

“No, no,” said my father. “We’ll be fine.”

It was daylight now, so we could see the seas we were up against and there was nothing pleasant about them. Perhaps you’ve seen the movie, “The Perfect Storm”? Somehow we made it back across Long Island Sound. My mother had spent the morning on the phone to the Coast Guard, who kept saying, “But Mrs. Buckley, what are they doing out there in this?”

Good question, I thought, gulping down a brandy with trembling hands. I simmered for a few days and wrote my father a blistering letter. Never again, I vowed.

Since then, I’ve taught my own son to sail. I remember the first time I placed his small hands, along with mine, on the tiller and taught him the feel of the boat and the wind and the sea. I thought back to when my father had first taken my small hands in his and taught me the rudiments of the same art. Now I was imparting to my son what my father had passed along to me: something elemental, thrilling, and joyous.

My father is gone now. I wonder: As he approached the Pearly Gates, no doubt at the same speed he used to approach the pier, did the angels scatter? I often find myself thinking back to that night in ’97, an experience I desired never to repeat. But now I think I would give almost anything for just one more sail together, even in a howling Nor’easter. 🌩



Once chief speechwriter for then Vice President George H. W. Bush, Christopher Buckley has been awarded the Thurber Prize for American Humor and the Washington Irving

Medal for Literary Excellence. He’s published 20 books, including bestsellers “The White House Mess” and “Steaming to Bamboola.” His novel “Thank You For Smoking” was made into a movie. His newest, “Has Anyone Seen My Toes?” will be published this month.





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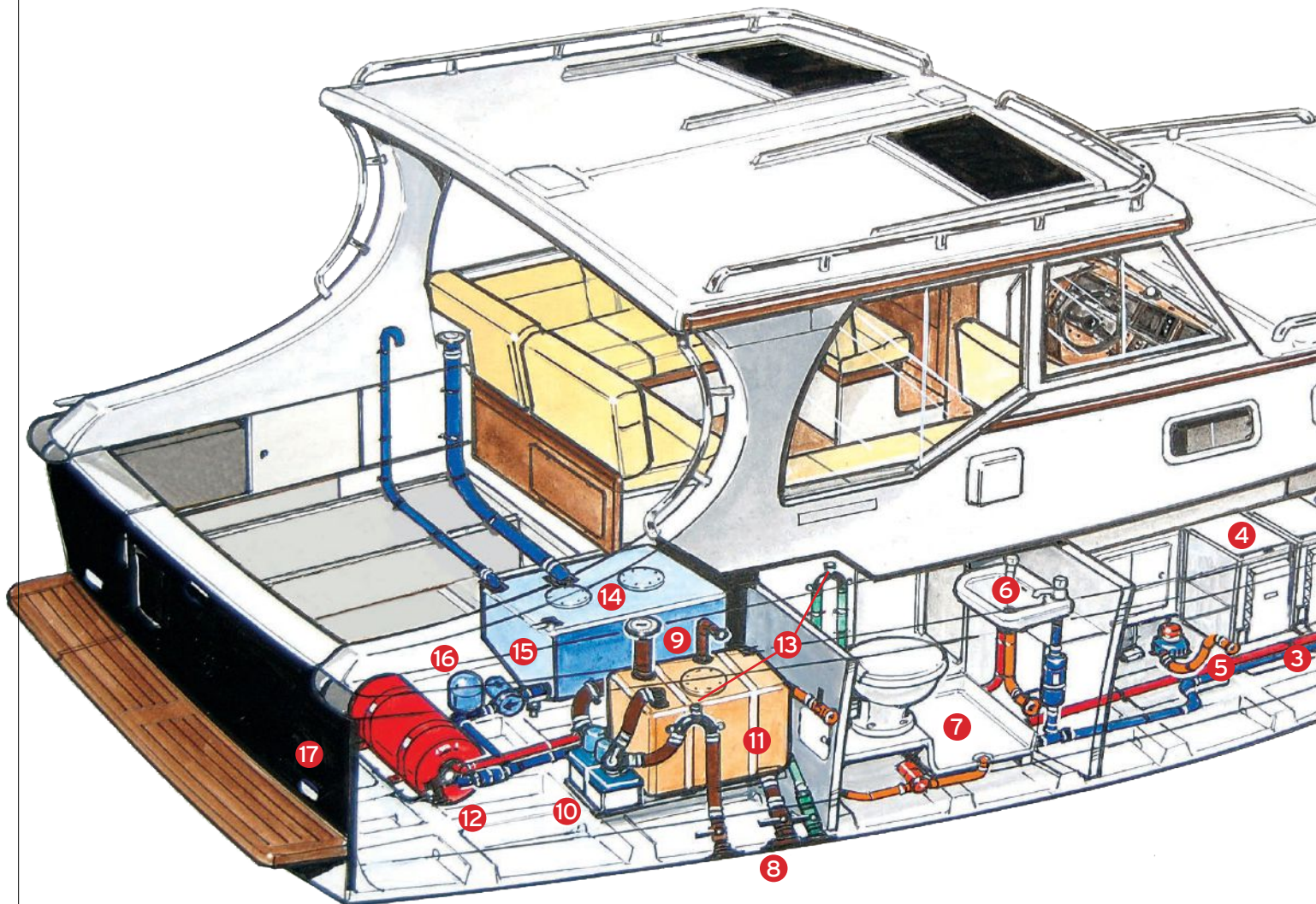


# PRACTICAL BOATER

78 | Water systems    84 | Flooding emergency!    90 | Coolants    94 | Electrical dilemma

## THE CARE AND FEEDING OF YOUR WATER SYSTEMS

*Boating is all about water, inside and outside your boat. Let's take a close look at important maintenance tasks to stay on top of all your water systems*



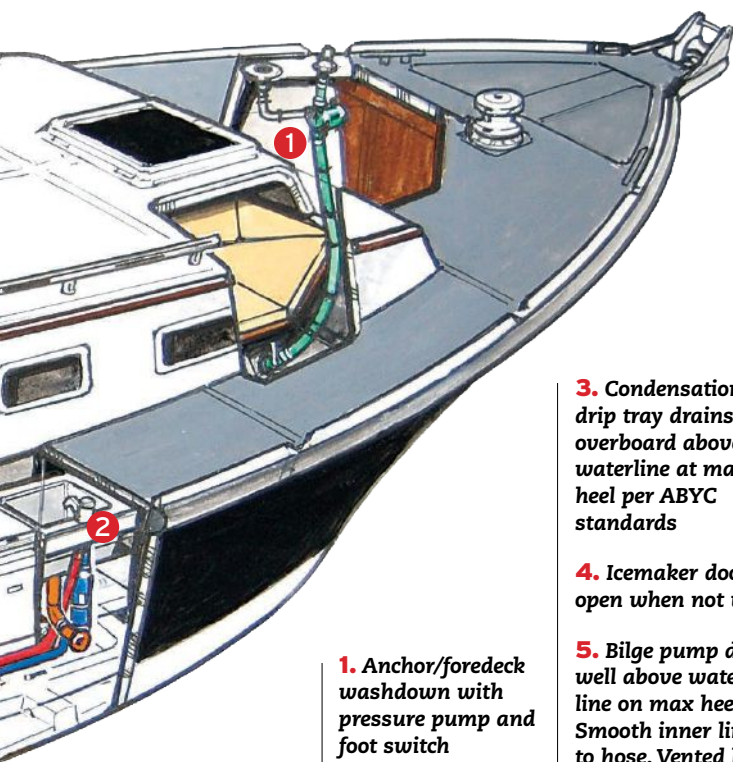


# YOUR GUIDE TO PROJECTS, SKILL BUILDING + WHAT'S NEW

98 | Ask the experts 100 | Alerts!

BY TOM NEALE, BOATU.S. TECHNICAL EDITOR

ILLUSTRATIONS BY DICK EVERITT



**1.** Anchor/foredeck washdown with pressure pump and foot switch

**2.** Galley sink. Filter for cleaner cold water. Sink drains above waterline at max heel. All thru-hulls must comply with ABYC standards

**3.** Condensation drip tray drains overboard above waterline at max heel per ABYC standards

**4.** Icemaker door open when not used

**5.** Bilge pump drain well above water line on max heel. Smooth inner lining to hose. Vented loop may be needed if drain is near or below water line at max heel

**6.** Head sink with filter on cold water and drain above waterline at max heel

**7.** Shower sump pumped overboard to discharge above water line at max heel. Shower drain hose goes to shower evacuation pump. Head intake hose has a strainer and thru-hull

**8.** All thru-hulls equipped with sea-cocks. Note double hose clamps

**9.** Holding tank vented with minimum bends for better airflow

**10.** Head discharges to MSD Type 1 with Y-valve

**11.** Holding tank has pumpout hose and gravity discharge overboard after treatment where it's legal

**12.** Water heater has anti-backflow valve to prevent expanding hot water from entering cold water system (This tank is shown lying on its side, an installation seen on some boats. Normally, hot-water tanks are upright.)

**13.** Anti-siphon loops and valves where appropriate

**14.** Potable water tank with fill and vent

**15.** Potable water tank has sediment filter prior to pressure pump

**16.** Accumulation tank diminishes pulsation

**17.** Scuppers drain cockpit. Some boats need scuppers with hose to discharge

**BLUE:** potable water

**BROWN:** wastewater

**ORANGE:** graywater

**RED:** hot water

**GREEN:** seawater

**NOTE:** Parts of this illustration are out of scale for purposes of clarity, and engine systems are not included.

**SEAWATER WASHING (1)** Seawater systems such as anchor washdown and dishwashing with a seawater foot pump (if you're in clean water and rinse well with potable water) can conserve water.

Frequently bathing in saltwater causes skin problems in many people; a freshwater rinse helps. Washdown water pump should be a short distance from the thru-hull but above the waterline.

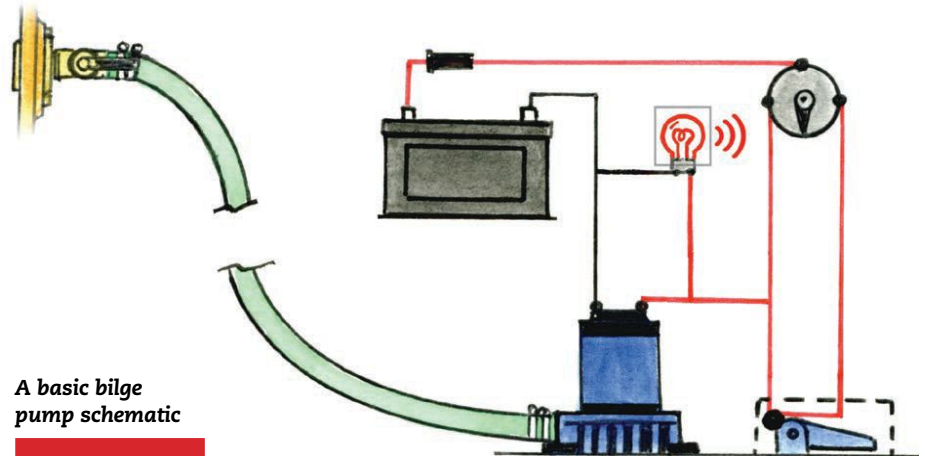
**DRINKING WATER PURITY (2, 6)** when in question, can be improved by adding a small amount of bleach. Some authorities recommend adding approximately 1 teaspoon of household bleach



with no perfumes, dyes, or other additives per 10 gallons of water. If possible, agitate the water after adding bleach and then let it sit for an hour. Chlorine odor will dissipate after a day. Bleach may initially make the water to which it's added unclear because it's killed the "bugs." The water clears as these settle to the bottom. Ultimately they should be flushed out. It's preferable and safer to add product manufactured for the purpose; camping stores are good sources. If you have questionable water purity and no way to remedy it, boil water before drinking. Drinking-water filters such as GE's FXUVC under-the-sink cartridge remove many impurities and greatly improve taste. A water system UV light, such as those used in some reverse-osmosis systems, can kill viruses.

**AIR CONDITIONING & REFRIGERATION (3)** Condensation drain trays should occasionally be inspected to clear any blockage in drain hoses, which should preferably drain overboard rather than into the bilge. If trays don't drain fully, they'll develop a musty odor that will be circulated by the air handler.

**ICEMAKERS (4)** should be left open and off when not being used for a



A basic bilge pump schematic

few days or longer to avoid odor and mold. Often the incoming water line is behind the unit in an area warmed by the unit. This facilitates stagnation and odor, particularly in the filter that may be in that area. When in use, the ice bin should be dumped at least every few days to keep water flowing. Good ventilation helps.

**BILGE WATER (5)** Oil-absorbent pads in bilges under the engine and whenever there's oil-spill potential are critical. They must not interfere with the operation of a bilge-pump float switch. Always clean loose fuel and oils out of the bilge with an oil-absorbent pad, and discard appropriately. Proper bilge-pump installation is critical and will vary with different boats.

The hose interior should be smooth, the water column in the hose should be no more than needed, and great care must be taken to avoid backflooding from the sea. Visual and audible alarms at the helm are crucial.

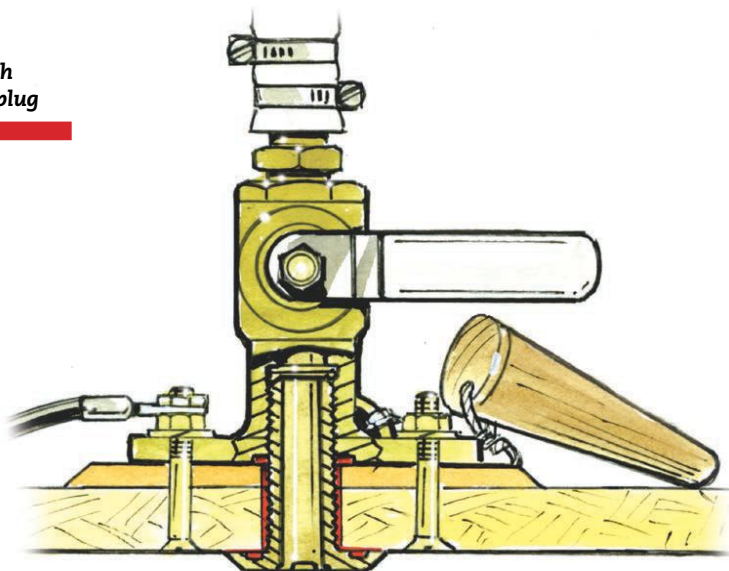
Bilge pump hose should exit well above water line at maximum heel within the parameters of ABYC standards. Pumps should be in sections where water can pool more than minimally.

**SUMPS (7)** such as those used for showers should be cleaned and flushed through regularly, even if the shower isn't often used. Shower sumps should discharge well above the water line at maximum heel within the parameters of ABYC standards.

**THRU-HULLS (8)** should be checked for obstruction every time you haul the boat and/or dive the bottom. Inspect them with a strong light, such as Streamlight's Stylus Pro 360 (streamlight.com), while hauled. While in the water, you may need to carefully (to avoid damaging hose and valve) work an old table knife or similar tool around inside the hole to clear it of barnacles and other obstructions. A carrot peeler makes a good tool for small holes. If the hole is covered by an external filter, this should be removed, when hauled, for painting inside, inspection, and cleaning.

**WATER PASSAGES (8, 6)** from thru-hull openings. Sinks, heads, engines, air conditioners, refrigeration, bilge pumps,

Seacock with emergency plug





# WEEKEND FORECAST: SAVINGS!

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and other components use thru-hull openings and hoses. Regularly inspect and operate all thru-hull valves. Some valves periodically require disassembly and lubrication or cleaning while the boat is hauled. You may need to close one quickly when a breach occurs in a water passage inside the boat.

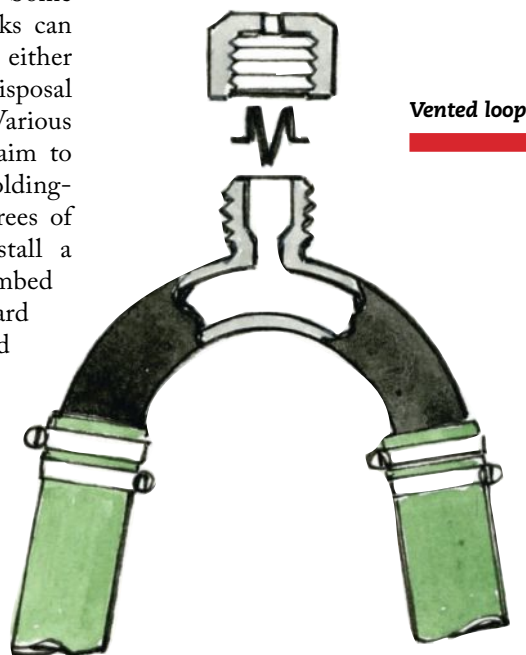
Regularly inspect all hoses and connections. Old or suspect hoses will deteriorate over time and should be replaced. Eventually, wire inserts will rust and harm inner and/or outer hose walls. Preferred hose clamps are AWAB brand or similar. Double the clamps (unless doing so would cut into the hose, in which event a longer hose barb is indicated) and regularly inspect.

All components should be 316 grade stainless or better. Cheap hose clamps tend to rust and break. Use hose appropriate for the job, such as marine-sanitation hoses for heads. ABYC standards should be followed in these and all other aspects.

**HOLDING TANK (9, 10, 11)** Some chemicals added to holding tanks can harm the environment if spilled, either from the boat or from pumpout-disposal systems and system failures. Various companies market what they claim to be environmentally friendly holding-tank additives with varying degrees of effectiveness. Some boaters install a Raritan ElectroScan MSD plumbed to treat and discharge overboard where it's legal, and treat and discharge into the holding tank at other times.

#### HEAD WATER (10)

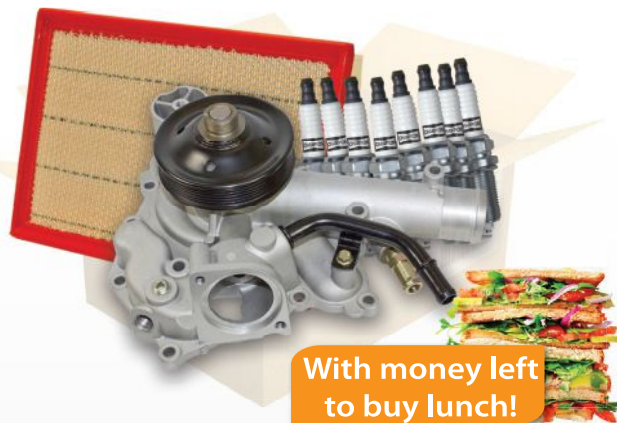
Regular addition of products such as Star brite Instant Fresh Toilet Treatment and Raritan CP help keep head water odorless and improve operation of the head. Petroleum-based products can harm valves, seals, and gaskets. Check manufacturer's recommendations. Regularly pouring white vinegar into the head and flushing will help diminish calcium buildup on inside



walls of head plumbing. Raritan's CH is stated to be environmentally harmless and is specially formulated to remove heavy calcium buildup as well as prevent



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buildup if used regularly.

Head discharge hoses should be specified for MSD use. Other types of hoses are usually more likely to develop calcium buildup, deposits, blockages, and odor permeation. Plumbing the head to flush with fresh water can reduce odor. The head intake hose is positioned as it is in the illustration for clarity, but should be far enough from the head discharge to avoid sucking up waste.

**WATER HEATER (12)** should be standing upright with a backflow valve between the incoming cold water and the heater. Requires periodic flushing by squirting in clean dock water with a water hose under moderate pressure through a discharge port at top, squirting around inside as much as practical, and draining through open intake port at bottom. Some water heaters have an anode for cathodic protection that should be checked yearly.

**ANTI-SIPHON LOOPS AND VALVES (13)** are needed in some hoses that exit underwater to prevent

water from siphoning into the boat. Whether anti-siphon valves and loops are used depends in part on the location of relevant components in the boat and whether they're below the waterline or could end up below the waterline. These components may include heads, sinks, and engines and their raw-water intake and exhaust systems. As a precaution, when you're away from your boat, close the underwater seacocks.


**POTABLE WATER TANK (14, 15, 16)** should be treated periodically with a product such as Star brite AQUA Water Treatment & Freshener to remove odors, scale, and bad taste. Also, thoroughly flush tank with clean water and pressure nozzle. Drain from bottom if possible; if not, pump it out. Follow manufacturer directions when applying anything to drinking water.

Follow instructions and warnings for cleaning additives, particularly with aluminum tanks. New tanks, especially fiberglass or plastic, may smell of the material of which they're made. Often, adding baking soda to the water will

help, as well as with other odors later. The amount depends on the severity of the problem and volume of the tank.

Clarity of water may vary with source, such as from wells, cisterns, public water works, and reverse osmosis. The latter source, if coupled with a UV light and maintained well, probably produces the best water.

#### **DRAINS AND SCUPPERS (17)**

Cockpits, side decks, and other areas of a boat normally have drains to rid the boat of rain and boarding seas. Test these regularly with a hose to be sure they're draining adequately. Leaves, plant material, dirt, and other debris can quickly obstruct them. Boats can sink if drains aren't kept clear. Clear them with a high-pressure hose nozzle or plunger. 



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# BOATU.S. REPORTS

BY FRANK LANIER, BOATU.S. CONTRIBUTING EDITOR

## FACING A FLOODING EMERGENCY

*While exclamations like, “We’re out of hotdogs,” or, “The toilet seems to be clogged,” are bad enough, the one that really strikes fear in a boater’s heart is, “Where’s all this water coming from!?!”*



### Discover a leak or breach? Do these first

#### STOP FORWARD WAY

Shift weight to elevate leak if this is safe and practical, and you know where it is.

#### LISTEN CAREFULLY AND QUICKLY INSPECT

Take needed safety precautions including donning life jackets and making a distress call or signal.

**This dramatic hull breach is beyond what can be managed with standard damage control.**

SCOTT CROFT

**U**ncontrolled flooding is one of the more insidious emergencies a boater can face, one that can not only sink a boat outright, but can also lead to instability and capsize. Many boat owners purchase equipment and train to save themselves or those onboard, however, aside from a few wooden plugs and a vague plan of action, very few are adequately prepared

to mount a credible attempt to save the boat itself should flooding due to hull breach occur.

Here’s how to both improve your odds and give your boat a fighting chance.

### Boats and holes

My first introduction to “Damage Control Basics” was as a newly minted

Coast Guard Seaman attending training aboard the Navy’s “USS Buttercup” (look it up!). It was an eye-opening experience that continues to guide my own damage-control philosophy some 30 years later.

As with any emergency situation, advance preparation is the key to dealing with a hull breach. It should include

everything from planning for possible causes of flooding to assembly of a proper damage-control kit.

Damage control (DC) itself can be categorized into a number of steps, from prevention and preparation to damage assessment, control, and temporary repairs. Topics such as proper and timely distress signaling, temporary repairs, emergency pumps, and rescue are also important. But the focus here is to find, access, and stop (or at least mitigate) the source of uncontrolled water entry into the hull. The focus is on fiberglass hulls, although many of the techniques can also be applied to other vessels.

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Time is of the essence

Early detection is crucial when dealing with flooding. The more time you have to address the problem, the better chances your boat (and possibly you) will survive. Precautions such as a high-water bilge alarm system and bilge pump “ON” indicators at each helm position will provide the maximum benefit in this regard, however, those should be part of your preparedness strategy. As mentioned earlier, our purpose here is to highlight actions to consider when a hull breach occurs.

The first goal in a flooding situation is to find the leak and stop or at least bring it under control. Without first-hand experience, it’s almost impossible for the average boater to imagine how quickly flooding can occur, even during a relatively small leak (such as a ruptured hose or damaged thru-hull fitting). More water in the boat can make a leak harder to find in the first place, another reason why time is so critical.

It’s also important to note that the added weight of flood water (each gallon of saltwater weighs approximately 8.5 pounds) can negatively affect vessel stability and operation. This additional weight may also give you an early sign that you are taking on water, as the boat becomes more sluggish, harder to steer, slower, or behaves differently.

Boat Flooding Rates in Gallons Per Minute							
Depth of hole below waterline	Diameter of opening or hole						
	1 in.	1.5 in.	2 in.	2.5 in.	3 in.	3.5 in.	4 in.
1 ft.	19.4	43.8	77.9	121.7	175.3	238.6	311.6
2 ft.	27.8	62.5	111.1	173.6	250	340.2	444.4
3 ft.	33.9	76.3	135.7	212	305.3	415.6	542.8
4 ft.	39.3	88.4	157.1	245.3	353.5	481.2	628.4

Flooding fun facts

Well, they’re not really fun, but they are facts you should know.

- The volume of water that enters a boat is proportional to the square root of the depth of the hole and the square of the hole’s radius.
- A 2-inch hole that is 1 foot below the waterline can fill a 55-gallon drum in 42.4 seconds.
- A 1-inch hole that is 2 feet below the water line is forcing your boat’s weight to increase at 240 pounds per minute or 4 pounds per second.
- As the boat fills with water, the effective hole depth increases, forcing faster water ingress.

Hull breaches

Hull breaches can be divided into two broad categories: structural breaches and equipment failure below the waterline. A structural breach of the hull typically occurs as a result of impact damage from grounding or collision with an object, although failure of the hull due to other reasons (severe delamination, broken stringers, inadequate design) can also happen.

Flooding due to equipment failure can include anything from a broken sea-cock to a ruptured hose. While equipment failure can often be traced to improper installation or lack of maintenance, there can also be some crossover between the two, such as rudder loss or sterndrive damage due to grounding.

Assembling a DC kit

The two things you need to tackle a hull breach are a cool head and a well-thought-out DC kit. From shower curtains and beer koozies to T-shirts or throw pillows held in place with your foot, most every boat will have something onboard that can be used for damage control in a pinch. While such repairs on the fly can be effective, why risk being unable to MacGyver a solution in an emergency when you can easily buy or assemble a proper DC kit beforehand?

Your kit should be tailored to meet

Clockwise from top left: Three people were rescued from this sinking 45-foot boat off the coast of Hawaii. DC kit basics include various sizes of soft wooden plugs and wedges. Equipment failure below the waterline (such as this dripless shaft seal) can sink a boat in minutes. The extent of hull damage will dictate your DC response.



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the needs of your particular boat. A small runabout will obviously have neither the space nor need to carry the same kit as an offshore cruising vessel. All boats should carry some form of DC kit however, which should be stored in a readily accessible, dedicated bag or container labeled “Damage Control Kit.” There’s no hard and fast rule of what it should contain, however, the time to think about it is now. The list below is a good starting point for assembling your own kit.

Access is crucial

In a perfect world, a hull breach would never happen. But if it did, it would be in an easily accessible location. With adequate hull access, a hole can more readily be found and hopefully stopped by something as simple as a plug, plywood patch, or whatever method resourcefulness provides.

Regardless of the training, equipment, and ingenuity a boat owner possesses, it all amounts to nothing if a leak can’t be found and accessed. Fiberglass boats

can be notoriously bad when it comes to providing even minimal internal access to the hull. The use of one-piece pans and liners almost guarantees a crew dealing with a structural hull breach will be faced with water gushing from multiple holes for wire runs, piping, or ducting and no clear idea of just where the damage is located.

The best option in such cases will likely be battlefield-style surgery to remove internal furnishings and cut access holes into the liner in efforts to expose the hull and find the breach – one reason having the proper tools (saws, pry bars, axes) readily available when needed is imperative.

Despite your best efforts, access to a leak may be impossible, due to either location or a leak being already underwater by the time a problem is discovered. In such cases, isolating the space to prevent flooding of the entire vessel is a preferred option, although only for boats with watertight bulkheads (something not found on the vast majority of recreational vessels).

Another possible option might be

gently beaching the boat, assuming the hull configuration is amenable to it, it is safe to do so, and there is a nearby soft (sand or mud) bottom. Just keep in mind that beaching the boat may increase incoming waterflow, something that must be considered against the benefits of a successful beaching.

Realistic assessment of damage

Once the leak is found, next up is a realistic assessment of the damage or nature of flooding, as well as the odds of successfully addressing it. In some cases, flooding may be stopped by simply closing a seacock. Others (such as a structural breach) will likely not be as easy. While the hope when tackling a hull breach is that it can be completely sealed, the reduction of flooding to a manageable leak is the most likely scenario. The difference between the two is that a leak can be managed by bilge or emergency pumps, while flooding cannot and will eventually lead to sinking unless addressed.

In addition to ascertaining the extent of damage, another part of this initial

DAMAGE CONTROL KIT

- |   |  |   |  |
|---|--|---|--|
| 1. Two or three waterproof flashlights (a mix of handheld and head lamps)           | 10. Foam emergency plug (various sizes)  | 18. Sheets of rubber or rubberized cloth, various sized squares (old raincoat sleeves and pant legs, or cut tire inner tube works well) | 27. One sheet of thin (1/2- or 5/16-inch) plywood, precut to various sized squares. Slightly larger, precut squares of thick felt or thin foam rubber gaskets will help wood patches seal against the hull |
| 2. Hatchet or small ax (to chop away interior furnishings or split wood wedges)     | 11. Screwdrivers (various sizes)   | 19. Hose clamps (various sizes)   | 28. Nails  |
| 3. Heavy hammer or maul   | 12. Stainless steel mousing (seizing) wire   | 20. C-clamps  | 29. Square-drive, self-tapping or self-drilling, rust-resistant screws along with a matching hand driver or battery-operated drill with driver extension (to secure wood patches to the hull)              |
| 4. Folding hand saw   | 13. Duct tape. Is any type of kit really complete without it? The Gorilla brand works well | 22. Duct Seal Compound (aka Monkey Poop)  | 30. Utility snips  |
| 5. Utility knife  | 14. Butyl tape   | 23. Wax toilet bowl ring (works well to seal gaps around shafts and glands)   | 31. Underwater epoxy putty or fiberglass repair kit*   |
| 6. Pry bar  | 15. Self-fusing silicone tape (e.g., Rescue Tape®)   | 24. Twine and/or paracord   |  |
| 7. Marine caulk (such as Boat-Life Life Caulk) that cures fast and bonds underwater | 16. Grease tape  | 25. Wire ties (assorted sizes and lengths)  |  |
| 8. Tapered soft wooden plugs (various sizes)  | 17. Can of expanding spray foam (great for filling voids and gaps around wood patches)     | 26. A couple two-by-fours   |  |
| 9. Soft wooden wedges (various sizes)   |  |   |  |

**\*NOTE:** While they have their place in a DC kit, epoxy compounds or fiberglass repair kits will be of no use for an immediate, stop-the-flooding solution. For starters, just because they cure underwater doesn’t mean they’ll bond. Most will not stick to a wet surface (especially a hole that’s under pressure). The surfaces to be bonded must also be completely immobile (epoxy can’t bond surfaces that are flexing or moving in relationship to each other). Cure time can also be greatly affected by temperature (colder water can add days to advertised cure time).

assessment is danger to the crew should they attempt a repair. Damage rarely occurs under ideal conditions, which means other factors (darkness, heavy weather, loss of power, poor access, rate of flooding) must also be considered when making the decision to attempt repairs or make preparations for abandoning ship.

## Suspect areas

Unless you've struck something, run aground, or know where the breach is located, the first places to consider are all hull penetrations below the waterline, such as seacocks or glands for the shaft or rudder. Other "weak" areas to check include shaft log hoses (the section of hose joining the shaft log to the shaft gland or stuffing box), hose clamps, as well as hoses located in out-of-the-way areas (toilet intake, sanitation discharge hoses, cockpit drains, and the like) that may not get looked at on a regular basis (though they should be).

If you have struck an object or grounded, then that would dictate where the initial search would begin. Pull up floorboards, open hatches, and clear lockers in efforts to determine where the leak is coming from.

## Controlling the flood

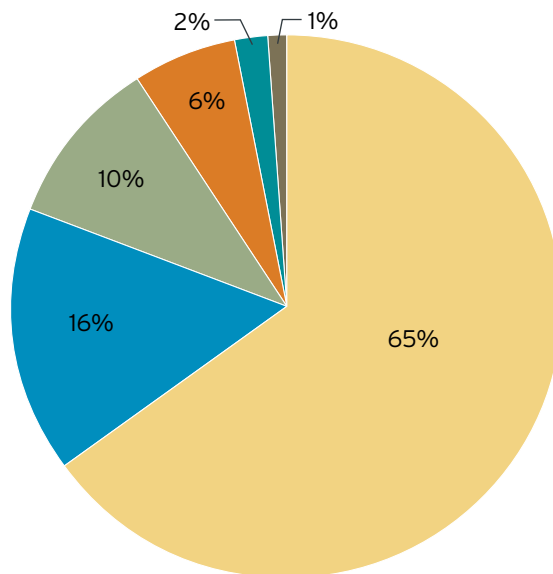
Once the damage has been evaluated and a determination made that it's safe to proceed with repairs, now's the time to apply your training, preparation, and ingenuity. Impact damage to a fiberglass hull will likely result in a jagged, uneven split (rather than a nice, round hole) so don't be afraid to use your imagination – that baking sheet slathered with caulk and screwed into place may be the perfect patch.

You also don't need to worry about neatness or how pretty the repair looks. It's only temporary and just needs to be effective at stopping the leak. Once the flooding is stopped, you can always go back and improve the strength of the repair if needed.

Foam or expansion-style plugs can be jammed into smaller holes. Stuffing rubber sheeting, towels or rags coated with marine caulk, or similar items into them can also be effective. These can also be wrapped around wooden plugs or wedges before driving them into place, which

## Sinkings by cause

We delved into the GEICO claims files to find out the top causes of sinkings in 2021. Here's what we learned:



**Equipment Failure: 65%**  
(wear & tear 80%, mechanical/ electrical 19%, manufacturer defects 1%)

**Collisions: 16%**  
(striking submerged objects 59%, collisions with objects 19%, collisions with other boats 15%, wakes 4%, groundings 3%)

**Acts of Nature: 10%**  
(wind 31%, hurricanes/storms/ tornados 28%, flooding 17%, ice/ freeze 16%, snow accumulation 7%, lightning 1%)

**Fire/Explosion: 6%**

**Water Damage: 2%** (partial sinkings, waves)

**Vandalism/Theft: 1%**

helps fill the hole, provides a better seal, and keeps the plug or wedge in place.

Wooden plugs and wedges should be made from soft woods, such as pine or fir. Soft wood wedges can be more easily split to fit different hole sizes and more readily conform to irregular hole shapes. Soft wood also compresses when driven into a breach and will absorb water and swell, improving the seal. You can also use multiple plugs or wedges to seal large or irregularly shaped holes.


Items such as a cushion or mattress can be used to plug larger holes, as can plywood patches, which can be nailed or screwed in place. As water will be entering the hull under pressure, plugs and patches may also need to be shored or braced into place. That's the purpose of the aforementioned two-by-fours. However, free your mind and think outside the box when the need arises – a boat hook, table leg, or even a sturdy shower curtain rod could also be used in a pinch.

In some cases, a collision mat, sail, piece of canvas, or even a heavy trash bag (if strong enough not to be sucked in) can be lowered over the side and held into place by straps and water pressure. While this type of emergency

repair may be worth a shot in certain cases (a large breach or one that can't be located for example) my personal preference is to concentrate on repairs that can be attempted from inside the hull. The effectiveness of collision mats or similar items can be hampered by hull shape, heavy seas, or even location of the breach itself. Another downside is that effective deployment will also likely require that someone enter the water to place and secure the mat into position, an undesirable option under the best of circumstances.

A split or ruptured hose or pipe can be wrapped with tape or rubber strips secured in place with hose clamps, twine, or wire ties, while a failed seacock or thru-hull can be sealed with a plug.

It's also good to remember that sink drains and other thru-hulls above the waterline can become submerged due to flooding, possibly allowing water to back siphon into the hull if not plugged or otherwise secured.

As with all safety training, the time to learn damage control techniques is before they're needed. Planning and preparation beforehand will help ensure both you and your boat have a fighting chance should the need arise. 



# MAINTENANCE

BY FRANK LANIER, BOATU.S. CONTRIBUTING EDITOR

## THE CHEMISTRY OF COOLANT

*This oft-overlooked maintenance item is critical to ensuring your boat's engine operates properly. Here's what you need to know*

### Propylene glycol

(antifreeze), aka "the pink stuff," is used for winterizing systems. "Antifreeze" is misleading as it prevents boil-over as well as freezing. Nontoxic



**Ethylene glycol** (coolant) is mixed 50/50 with water to use for engine cooling. Comes in many colors depending on manufacturer. Toxic

**T**hought about your boat's engine coolant lately? If not, you've got plenty of company. Even the boat owners who do have such thoughts typically just open up the reservoir cap, see some kind of brightly colored fluid sloshing around in there, and call it good. It's a sad approach for something so crucial to the proper operation and long life of your engine. Let's take a look at how to ensure your coolant is up to the task.

### This isn't your great-grandpappy's radiator fluid

Early automobiles used plain old water to cool the engine. It's not only cheap and plentiful but, to this day, water remains the most efficient engine cooling medium you can use. That being the case, why are we even talking about antifreeze and coolant? The problem is that while water is the most efficient way to cool an engine, it isn't the best way to cool the engine for a number of reasons.

First off, water is corrosive to internal engine components. It also freezes in cold weather and boils in hot temperatures (turning to steam), both of which can result in engine damage. The solution was to add antifreeze to the water, which not only addresses freezing, boiling, and corrosion, but also prevents the formation of limestone deposits and foaming. It additionally provides lubrication for pumps and other components of the system that require it.

### What's in a name?

Antifreeze, coolant – what's the difference? Coolant is the correct term for a mixture of water and ethylene glycol heat-transfer fluid. Ethylene glycol itself is commonly referred to as antifreeze, although this is somewhat misleading as it prevents freezing as well as boil-over. Adding to the confusion, the term antifreeze was coined decades ago by the plumbing industry to describe a propylene glycol solution used specifically for winterizing fluids used to keep pipes from freezing.

While both may be referred to as "antifreeze," there are important distinctions between ethylene glycol and propylene glycol. Propylene glycol-based antifreeze has low toxicity, which means it can be used to winterize systems such as your boat's freshwater system (think

the ambiguous “pink stuff”). Ethylene glycol, on the other hand, is poisonous, meaning it must be handled with caution and can only be used in engine coolant.

Propylene glycol-based antifreeze solutions are not suitable for use as engine coolants. While that pink solution can be used to winterize an open or “raw water” cooled engine or the open side of a “freshwater” cooled engine (i.e., one that has a closed system filled with coolant), it isn’t suitable for the closed portion of the engine cooling system.

For the purpose of this article, “antifreeze” refers to ethylene glycol, while “coolant” indicates a mixture of ethylene glycol and water. Along those lines, “cooling system” or similar terms refer to the closed system of a freshwater-cooled engine.

### It’s all about the mix

Most boat owners realize they need a mixture of antifreeze and water in their engine’s cooling system, however things tend to get a little fuzzy on the ratio.

Most engine manufacturers recommend a 50/50 mixture of antifreeze and water for optimum year-round protection. Straight ethylene glycol freezes at around 8 F, boils at 330 F and is around 15% less efficient at carrying heat away than straight water.

Using straight water (as mentioned earlier) provides no freeze protection, no boil-over protection above 212 F, and no corrosion protection.

A 50/50 mix provides freezing protection down to -34 F and boil-over protection to 228 F. A more concentrated glycol solution increases freeze protection but reduces cooling ability, while a more diluted mixture reduces corrosion protection and lubrication properties.

### What’s all the ruckus about coolant anyway?

As a marine surveyor, I inspect many boats in the 10- to 15-year range that have had only one or two coolant changes, with some even circulating the same tired, original coolant since being placed into service.

This coolant neglect has a number of consequences for your engine, from



**You’ll need at least one of these items to check that you have the proper ratio of antifreeze to water (clockwise from top left): ball gauge, coolant test strips, a refractometer, a hydrometer.**

deteriorated hoses and eroded water pumps to chronic overheating and even blown head gaskets. Unfortunately, coolant maintenance is often deferred until a failure occurs.

### Checking your coolant

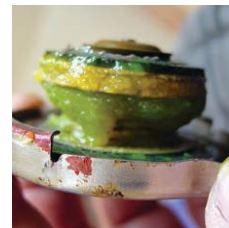
Most owners start with a visual inspection. It’s an easy check, although one that can provide varying levels of success. For example, low coolant can be an indicator of possible leaks in the system, while coolant that resembles chocolate milk contains rust or sediment, an indication of internal engine corrosion.

Even if the coolant is brightly colored and appears like-new, it doesn’t mean all is well. In many such cases, testing will show the corrosion-fighting additives are depleted or the 50/50 ratio is off – just a few examples of why visual inspection alone is inadequate to determine coolant condition.

Simply opening the reservoir cap and dumping in extra antifreeze in efforts to increase freeze or boil-over protection will likely result in a mixture with too much antifreeze (ethylene glycol).

Exceeding an 80% concentration of antifreeze can also cause **silicate gelling** (shown below), a condition where the silicate corrosion-inhibiting additive of the antifreeze drops out of suspension, forming a greenish goo that clogs the system and reduces heat transfer. If gelling occurs, the system must not only be drained but also fully flushed before adding new, properly mixed coolant.

If water needs to be added, the best choice is distilled water. Tap water con-



FRANK LANIER (3)

FRANK LANIER





tains dissolved minerals, which can react with and reduce the effectiveness of the corrosion inhibitors. Softened water has fewer minerals but contains salts, which can be just as bad. Distilled water contains no acids, salts, or minerals and is pH neutral, all of which help maximize coolant service life.

### Measuring the mix

The only way to verify a proper ratio of antifreeze (ethylene glycol) to water is to measure the coolant with a floating ball gauge, hydrometer, test strip, or refractometer.

A **floating ball gauge** is the cheapest of the testers. It resembles a miniature turkey baster with small colored balls inside a clear tube. It has a squeeze bulb on one end and a short section of hose on the other.

To use a ball gauge, stick the hose into the coolant reservoir of a cold engine, press the squeeze bulb and release, allowing it to suck coolant into the tube, filling it. Remove the tube while quickly placing your finger over the end (to prevent it from draining). Hold the tube upright, flick or tap the tube to shake off any air bubbles clinging to the balls, and observe how many of the balls are floating, the number and location of which will indicate the strength of the coolant as compared against the provided scale.

**Hydrometers** work in the same fashion but use a pivoting arrow or float instead of balls to indicate coolant strength.

**Coolant test strips** are disposable strips used to measure the concentration level and condition of your coolant. Once dipped into the coolant, they change colors to show the coolant's concentration level as well as pH level and alkalinity. They're the only method

that can also check the additives in the coolant that protect against corrosion or provide lubrication.

A **refractometer** uses a prism to determine the strength of your coolant. To use, simply place a few drops of coolant in the unit, point the lens toward a strong light source (it doesn't require any power), and look through the eyepiece. A scale will be visible that shows the coolant concentration of ethylene glycol. Many will also have additional scales, allowing you to check the concentration of fluids such as battery electrolyte or windshield wiper fluid.

### Preventing corrosion

While the rate of corrosion inside your engine depends on a number of factors (such as the presence of minerals or other impurities in the coolant), a prime consideration is the pH of the coolant itself. Corrosion-inhibiting additives are added to coolant to make it more alkaline, and it will continue to protect your engine from corrosion as long as it

## MOST ENGINE MANUFACTURERS RECOMMEND A 50/50 MIXTURE OF ANTIFREEZE TO WATER

remains that way. When it goes acidic, however, corrosion can start.

To keep coolant pH alkaline for a reasonable length of time, it must contain enough corrosion inhibitor to neutralize the acids formed from glycol degradation, which occurs normally during use as the coolant ages. This coolant-neutralizing capability is called "reserve alkalinity," and how long it lasts varies depending on the quality and type of additives used in the antifreeze as well as heat, impurities, and dissolved oxygen, all of which can deplete these inhibitors over time. The goal of the boat owner is to monitor the coolant and replace it with new before all the reserve alkalinity has been used up.

### A rainbow of colors

Back in the day, coolant color was simply a result of the type of chemicals added to prevent corrosion. This meant that you

could actually tell a lot about a coolant simply based on its color.

Inorganic Additive Technology or IAT coolant (which was commonly used from the 1920s through the early 1990s) was typically blue or green. Service life for IAT coolant was typically two years, after which it would have to be drained and replaced.

Next came Organic Acid Technology (OAT) coolants, which were chemically improved to provide better protection and extended coolant life. OAT coolants can be either straight OAT or a blend of IAT and OAT chemicals, the reason they are sometimes called "hybrid" coolants.


Also referred to as Extended Life Coolants (ELC), OAT coolants have a typical service life of five years, although some straight OAT chemical coolants have an advertised service life of up to 10 years. OAT coolants are normally orange in color, although they can also be pink, red, blue, yellow, or dark green.

Today, there is no reason for coolant to be any specific color, meaning it is strictly a manufacturer's choice. This makes it pretty much impossible to tell anything about the chemicals used in the coolant by its color or, even worse, to choose a coolant based on color alone. Some older engines may not be able to use newer coolants, while some older-type coolants are not suitable for use in new engines.

The golden rule with regard to coolant selection is to go colorblind and simply use the coolant specified by your engine's manufacturer.

### When should you change your coolant?

While you should always follow the guidance provided by your engine manufacturer (which will take into consideration the type of coolant used), coolant generally should be changed every five years or after 1,000 hours of use.

When changing your coolant, drain out the old coolant and flush the system thoroughly (again, per the engine manufacturer's directions) before adding the new coolant. This ensures all of the old coolant is removed while also helping to dislodge any deposits that may have formed. 

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## SPECIAL REPORT

BY ED SHERMAN, BOATU.S. CONTRIBUTING WRITER

# THE ELECTRICAL DILEMMA ON THE DOCK

*How much electrical current leakage is acceptable before your onboard systems shut down or a lethal accident occurs? New regulations to detect this leakage may impact you*

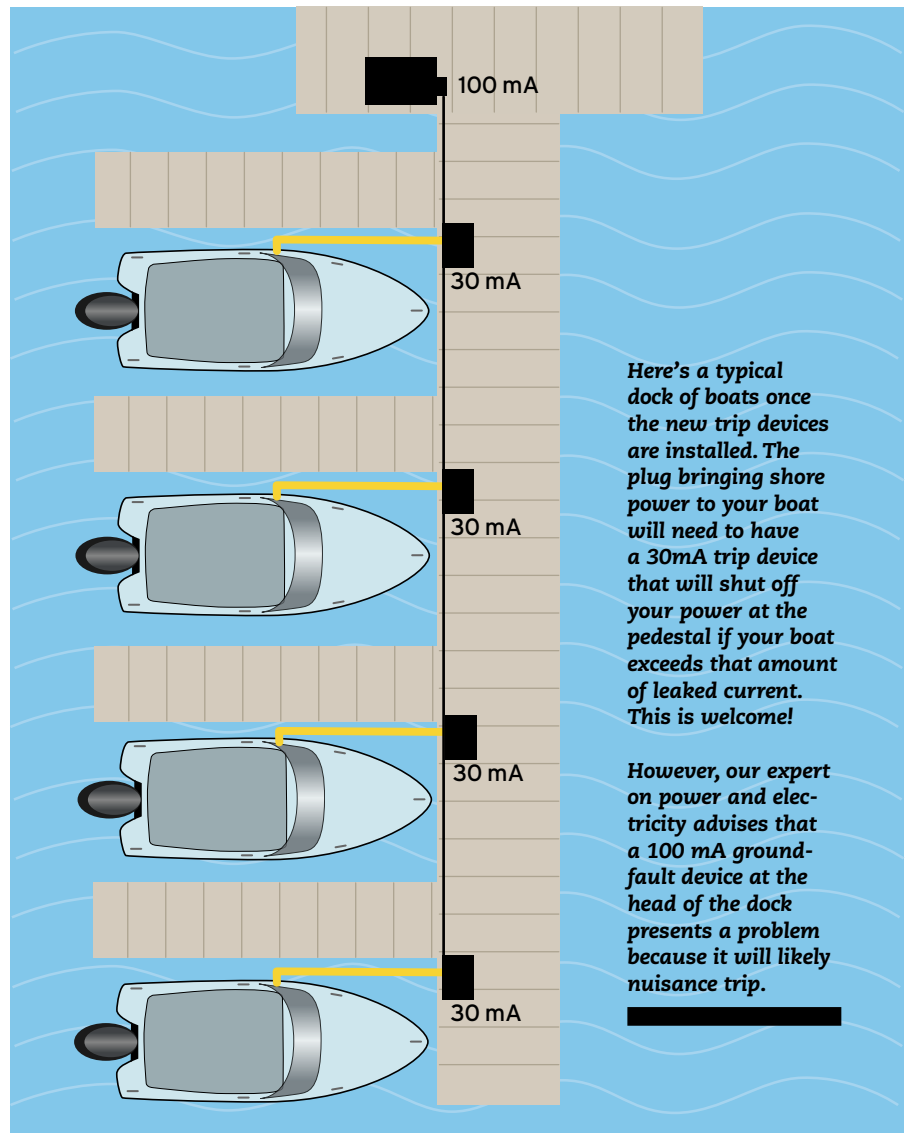
**H**ave you been cruising and been refused a transient slip because your boat was tested by the marina and determined to have “electrical leakage”?

Have you or your friends suddenly lost electrical power to a boat at the dock? Perhaps this occurred during the week when you weren’t on board and it caused your batteries to go dead, the refrigerator to shut down, and the cold cuts and frozen bait to go bad in your absence. This is a widespread problem with a simple technical solution.

Some leakage of electrical current is normal. In fact, due to the design and nature of modern appliances using electronic control circuitry as a foundation for their operation, current leakage may be more common today than in the past. But reporting of in-water electric-shock deaths in freshwater environments all over North America during the past 15 years have increased concern, driving standards-writing bodies to develop requirements intended to mitigate any possibility of this occurring.

So, what’s “normal” leakage?

In my 2007 book “Advanced Marine Electrics and Electronic Troubleshooting,” I noted that the International Electrotechnical Commission (IEC) limits acceptable ground-fault leakage to 0.01 mA (milliamps) to 0.75 mA dependent upon the appliance category. More recently I’ve read that maximum leakage values for permanently connected IT equipment can be 3.5 mA or more in



some cases. The use of electronic “filters” on equipment power supplies that use capacitors are the essential cause.

Simply put, a modern boat with an all-electric galley and sophisticated AC

and refrigeration systems is going to have multiple power supplies that can and will contribute to the overall onboard leakage current when the equipment is running.

This explains why the 30 mA trip rate for whole-boat leakage protection came about versus the 5 mA (ground-fault circuit interrupter) rate for shock hazard protection.

Leakage current is cumulative in a grounding system, whether on board the boat or on the dock. The National Electric Code (NEC) requires 5 mA-rated GFCI devices for all 15- or 20 amp service receptacles on a dock. This will work just fine for a small center-console boat with no more than, say, a 120 volt battery charger as an appliance on board.

All of this has prompted marina operators to comply with “No swimming from boats or off the dock” signage at their marinas. Plus, more and more operators are performing these leakage tests for their customers, and before any transient boat is allowed to plug into the marina’s shore power system. Some of the tales I’ve heard about the test equipment used to perform these tests is concerning, however, such as large yellow boxes with multiple display screens and test probes dangling from them. Don’t trust anyone using a box falling under that description

## DANGEROUS CURRENTS

1 milliamp (mA) of electrical current is equal to 1/1000 of an amp (A); 1 amp of electrical current entering the human body can be lethal. Medical journals describe the effects of electricity entering the human body in the following way, based on a 120 volt 60 Hz shore power system. (Effects vary depending on body mass, skin roughness, and overall physical condition.)

- >> **1 mA** - Barely perceptible
- >> **16 mA** - Maximum current an average man can grasp and “let go”
- >> **20 mA** - Paralysis of respiratory and limb muscles
- >> **100 mA** - Ventricular fibrillation threshold
- >> **2 A** - Cardiac standstill and internal organ damage – **E.S.**

for this testing. All that’s needed is what’s known as a handheld AC leakage clamp.

### Different parts of the world, different solutions

The fundamental requirement that does the most to cure this problem has been in place since about 1957, developed in South Africa for the gold mining industry: the ground fault leakage interrupter. You’ve seen this device in your bathroom or kitchen. The plug assembly with the trip and reset button installed on the face is called a GFCI and is commonplace

today. These devices are designed to trip at a maximum of 6 mA of ground fault leakage current and rated as 5 mA devices. They’re only for plug-in receptacles supplying power to individual appliances, and provide shock hazard protection in case of a ground fault to the metal housing of say, a coffee maker. GFCI protection on boats is required for any electrical receptacle in a galley, head area, or outside on a weather deck.

These issues are not exclusive to North America. Realizing that some ground fault leakage is normal with certain appli-



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ances, marine entities in South Africa, Asia, and Europe created, and use to this day, a 30 mA device called a residual current device (RCD) used in dock pedestals and on boats. These became mandatory in Europe under the European Recreational Craft Directive in June 1998. Before that, they were widely used voluntarily. This 30 mA trip value (significant in a real-world situation) has long been considered a reasonable compromise between equipment leakage current in total from a boat, and personnel safety.

Leaked current goes directly into an electrical system's grounding wire, recognized in the U.S. as the green conductor in a typical 120 volt dock wiring circuit. If a boat is wired to ABYC electrical standards, as more than 90% of U.S.-built boats are, then some of this leakage current can actually leak into the water around the boat. This isn't a problem in saltwater as the water is electrically conductive enough for the current to get carried to earth ground rather efficiently. Freshwater, on the other hand,

is not very conductive, and the leakage current will stratify near the surface, creating a real – and often deadly – hazard for swimmers. Note that many bodies of water that might be mistaken for saltwater can change the degree of salinity, for example, if a fresh-

water river runs into it. So never swim around marinas or boats actively using inverters or generators.

### “Whole boat” protection

Ten years ago, here in America, ABYC mandated installation of what we refer to as an ELCI (Equipment Leakage Circuit Interrupter) device in the shore-power system on all new boats. These are rated at 30 mA, just like global RCD units. This whole system is designed to mitigate in-water shock issues. The problem is that tens of thousands of older boats registered in North America are not

## WHAT YOU CAN DO ABOUT IT

**T**he 30 mA receptacle requirement is new and technically quite welcome, and the 5 mA GFCI requirement that has always been in place for 15- to 20 amp receptacles is just fine. The 100 mA whole-dock requirement is a mistake. Get rid of that and you'll be back to fully charged batteries, cold beer, and sandwiches that won't put you in the hospital.

If this is something that you regularly encounter, you can make a difference. NFPA is a standards-writing body just like the American Boat and Yacht Council (ABYC). NFPA creates the NEC (National Electrical Code), which licensed electricians are obliged to follow.

When developing standards, part of the process requires a public comment period

before publication. Comments need to be addressed by the standards-writing committee. It's clear to me that this particular NFPA group is not hearing from the same public I hear from – boaters and marina operators. The best advice I can give, besides what is needed to mitigate the problem, is to share this article with your marina operator. They need to contact NFPA directly and com-

plain, and so should you. This might get attention so the NFPA will make the appropriate changes. Otherwise dock power lines will be tripping without regard to the cumulative effect.

Contact NFPA via email at [stds\\_admin@nfpa.org](mailto:stds_admin@nfpa.org) or by mail at Secretary, Standards Council, NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

– E.S.

equipped with ELCI devices, so in-water shock hazards still exist.

The good news? Adding an ELCI device to an older boat is quite possible. They're typically combined with the main shore power circuit breaker in 30- or 50 amp configurations, with the 30 mA leakage current breaker integrated into the device. Companies like Blue Sea Systems offer detailed installation instructions for these devices, and this can be a good upgrade for any older boat. The cost is about \$200 plus installation – typically a one- to two-hour project for a certified marine electrician. That said, if your marina has upgraded its dock wiring to comply with the newest version of the national electrical code, then each dock pedestal will be equipped with a 30 mA ground fault protection device, making an onboard ELCI redundant.

### What does the NEC say?

The National Fire Protection Association (NFPA) writes the standards that make up the National Electrical Code (NEC), which covers electrical installations in buildings and marinas. Within those standards is a series that addresses marina wiring: Article 555. Regarding ground fault protection, it says: Receptacles providing shore power “installed in accor-

dance with 555.33(A) shall have individual GFPE (ground fault protection equipment) set to open at currents not to exceed 30 milliamperes.”

This finally emulates what the rest of the world has been doing for years! Translated into plain English, this means that the plug you use to bring shore power onto your boat is now required to have a 30 mA trip device in the event your boat exceeds that amount of leakage current. This threshold has worked quite well globally and will NOT be a problem if all is well on your boat. Over 30 mA is indicative of a serious fault and should be checked out by a certified marine electrician, not your cousin who does house wiring.

Although I've seen steps in the right direction within Article 555, the latest 2020 version of the NEC contains a troublesome flaw, posing a significant problem for conscientious marina operators attempting to comply with recognized industry standards. Article 555.35, Note 3, discusses branch circuits, the supply circuits to each dock finger pier. “Feeder and branch-circuit conductors that are installed on docking facilities shall be provided with GFPE set to open at currents not exceeding 100 milliamperes.”

That 100 mA ground fault device will



**Visit [BoatUS.com/Prevent-ESD](http://BoatUS.com/Prevent-ESD) to learn about electric shock drowning and what can be done to prevent it.**

create a problem, in my view. If ground fault current is cumulative in a wiring system – as already stated, it is – and you have 10 or 20 cruising boats with all the bells and whistles in electrical gear installed, let's say each with 9- or 10 mA of inherent leakage current, you won't be tripping the 30 mA devices now required for each boat plugged in, but odds are good that the 100 mA device at the head of the dock is going to nuisance trip.

The net result? Warm beer, smelly bait, and spoiled cold cuts. My question to the NEC team is, if each boat is protected at 30 mA, do we also need a 100 mA device at the head of the dock? I don't think we do. It serves no useful purpose. Should there be a properly rated overcurrent circuit breaker on the dock in the event of a genuine electrical short circuit? Yes. A 100 mA GFPE device? No! (See "What You Can Do About It" on page 96.)

### New NEC requirements that make sense

A new requirement in NEC Article 555 recommends that the marina opera-

tor have a leakage current measurement device on hand: "Where more than three receptacles supply shore power to boats, a leakage current measurement device shall be made available and be used to determine leakage current from each boat that will utilize shore power." This is a

### IF EACH BOAT IS PROTECTED, DO WE ALSO NEED A 100 mA DEVICE AT THE HEAD OF THE DOCK?

great idea. Just remember that all onboard electrical loads need to be up and running when these checks are performed. Some cycling loads like refrigeration and air conditioning systems may not show up at the moment of the test.

Lastly, this newest NEC recommends periodic checks for AC leakage current "to determine when an individual boat has defective wiring or other problems contributing to hazardous voltage and current."

The take-aways? 1. Check with your marina personnel about precautions they're taking to measure current leakage from boats at their docks. 2. If your boat is older than 10 years and not fitted with an ELCI in your shore-power system, always check in advance with marinas you plan to visit to make sure they'll let you dock; or have the device installed in advance. 3. Never swim in the water around docks, or around boats at the docks, especially in fresh- or brackish water. 

*Ed Sherman is an avid boater and the author of "The Twelve Volt Bible for Boats," "The Power Boater's Guide to Electrical Systems," and "Advanced Marine Electrics and Electronics Troubleshooting." He's the former vice president and education director of ABYC.*



**For more on this subject, see "A Trippy Issue" in Ask the Experts on page 100.**

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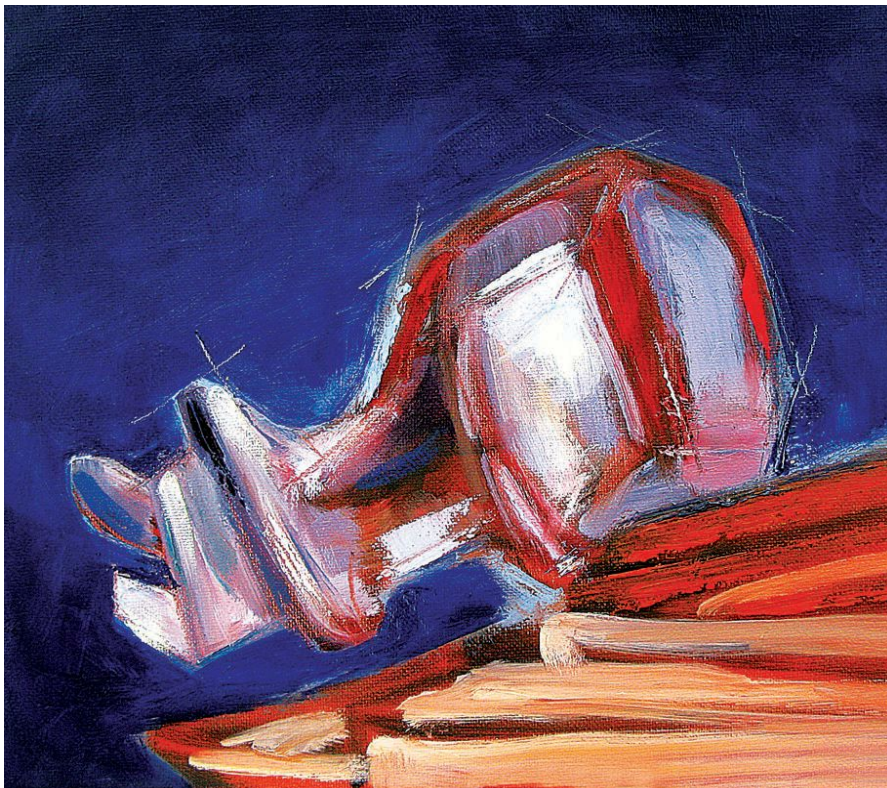


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# ASK THE EXPERTS

MEMBERS BRING THEIR BOAT QUESTIONS TO OUR TECHNICAL EDITOR, TOM NEALE



BILL ROCHE

## DO YOU WIN WHEN YOU SPIN?

Should you let your outboard motor prop spin while towing the trailer down the highway? **Phyllis L., Florida**

**TOM NEALE:** Like so many things, you can find any answer you want to this question on the internet, sometimes in quite heated debates. My first answer is to ask the manufacturer of the motor. The customer service reps should know. Beyond that, I can tell you what I do. If I'm going for a short, slow trip to the ramp, I don't bother. However, if I'm doing a longer trip at highway speeds, I stop the spinning. You can do this with a short piece of line or, with some rigs (yes, ask the manufacturer), merely by putting the motor into gear.

I understand that the lower unit is filled with oil (or should be), but I still do this. I feel that the generation of heat, no matter the condition of the bearings, bushings, and so on, could be injurious to the involved components over enough time and with enough speed. Also, the unnecessary wear on the seal and other affected components is not something I want. I have a policy of not letting mechanical things move or spin unless there's a reason.

Some argue that the shaft and bearings may be more likely to suffer damage if you hit something while the prop is fixed. I say, "Don't hit something." (I haven't always followed my advice, however.)

### Manifolds aren't forever

I read "7 Ways to Murder Your Diesel" by Frank Lanier (April/May), and it brings up a question I've had: It's suggested that exhaust manifolds and risers be replaced every five to seven years. I assume that applies to engines with raw-water cooling systems, like fresh- or saltwater. What about closed cooling systems (like mine) where the block and exhaust are filled with antifreeze? I purchased my 350 engine new in 1988 and the exhaust manifolds are original. The risers were replaced in 2002. What's the prognosis for this system?

*George Swindell, New Jersey*

**T.N.:** This question came in response to an article by our BoatU.S. contributing editor Frank Lanier, and so of course I checked with him.

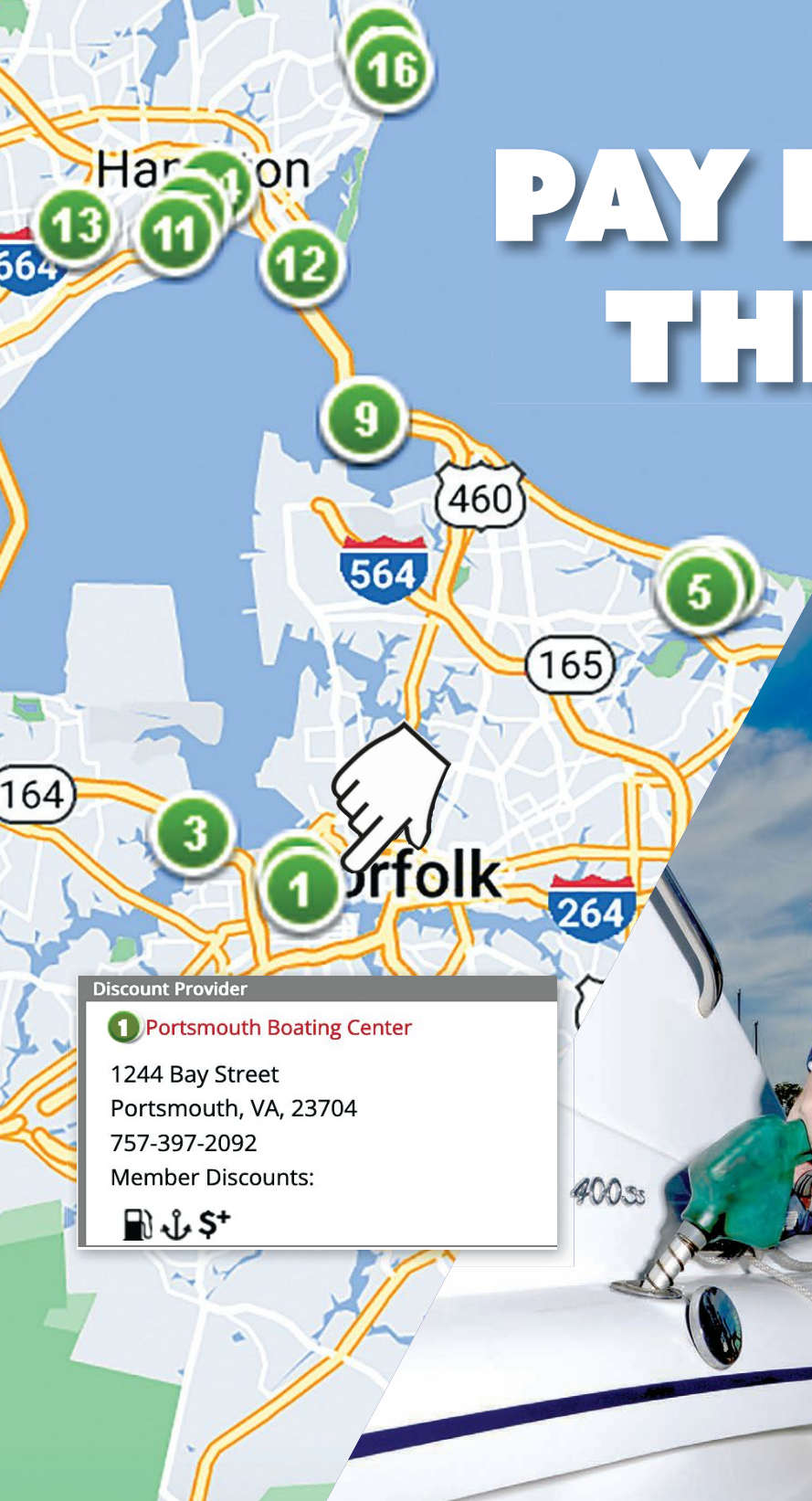
**FRANK LANIER:** Here are my thoughts: First, follow the engine manufacturer's recommended schedule of removal, inspection, and/or replacement. While the manifolds should last longer in a closed system (as opposed to an open system used in saltwater), there are other factors to consider such as scale buildup and the depletion of anticorrosion inhibitors if the coolant hasn't been changed as required. Even if they don't fail because of corrosion, manifolds can become clogged due to the above and experience a reduction in cooling capabilities.

Lacking clear guidance from manufacturer recommendations, I'd pull and inspect the manifolds in a closed system

**ASK TOM** Our tech editor, DIY guru Tom Neale, lived aboard both power and sailboats, and cruised with his family for 30 years, doing all systems maintenance and boat repairs himself. Today, he and his wife, Mel, own a Camano 41. Tom creates our Ask The Experts column from correspondence with our members. If you have a vexing boat problem, email us at [Magazine@BoatUS.com](mailto:Magazine@BoatUS.com) or search our website for answers. **MORE** [BoatUS.com/Expert-Advice](http://BoatUS.com/Expert-Advice)



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every seven or eight years. I'm sure there are examples of manifolds that have lasted decades, but is it worth pushing the envelope at the possible cost of a new engine? Some boat owners consider manifolds and risers to be part of the engine, when they should actually be viewed as consumables.

**T.N.:** I agree with Frank and follow this practice as well. I pulled one very expensive manifold on an old Perkins 6-354 once. Its jacket was raw-water cooled. I found that the metal was almost "mushy" and probably had only a few hours before the raw water went through into the exhaust ports and into the cylinders. Of course, a freshwater-cooled jacket should, in theory, add life, but even with this, the riser at the aft end of the manifold normally has raw water injected into it to cool the riser and exhaust. If the raw water injection area in the riser gets a hole, in some units it's possible for some of this water to go where we don't want it.

Usually when you pull that exhaust manifold you'll want to check the riser

and, normally, you'd want to change it as part of the operation. Typically, it's bolted to the end of the manifold. Even if corrosion in this riser doesn't introduce water into the exhaust system, it may cause blockage in the passage that allows raw water to be injected into the exhaust hose. This could result in poor cooling and even overheating and/or heat damage to the hose.

There's something else going on in addition to rust. The temperature extremes that the metal in a manifold and riser must endure can be destructive as the metal expands and contracts over time. The metal used should be manufactured to be resistant to this, but nothing on a boat is forever. Even the best material is likely to suffer from these extremes over a long enough time. And when you consider the consequences, it's worth the hassle (and yes, it can be a huge hassle) and even the expense. But like they say: It's a boat, dammit.

### A trippy issue

Recently I moved my boat to a new dock in Florida where I had an electrician

install a 50 amp electric service to power it. During inspection, the code officer required that a ground fault breaker be installed in the dock-side disconnect. I wasn't sure this was code, but I didn't argue about it.

When the boat is plugged into the marine Hubble twist lock receptacle, the ground fault trips. I looked for the problem and found that even with the other end of the cord not plugged into the boat (just hanging out enjoying the Florida sun), the ground fault trips. I tested continuity and resistance in the shore power cord, and all was fine with no shorts or detectable power bleed between the wires.

The electrician replaced the ground fault with a standard breaker and the boat powers up just fine using this shore power cord. I ordered a new cord, just to be on the safe side, but my cord is in excellent condition and I do not believe it is the cause of the issue. [Gary later reported that the new cord made no difference.]

I'm no dummy when it comes to electricity, but this issue has me baffled. What am I missing? The ground fault breaker was new so maybe it was no good. Also, are ground fault breakers necessary for boats?

*Gary Haring, Florida*

## ALERTS FROM GEICO | BOATU.S. CLAIMS & SURVEYS

### BATTEN THE BATTERIES!

**M**uch has been written on these pages over the years about securing batteries. These lumps of heavy lead can do serious damage if they get loose in rough weather, and the lugs and connections can spark and cause a fire if they touch something grounded. So while we definitely want batteries tied down, an old piece of strap tied to another old piece of strap is not going to cut it.

Batteries should be in a battery box that prevents spilled electrolyte from escaping, and purpose-built boxes usually have a means of securing the boxes to the boat and the battery to the box. According to the American Boat and Yacht Council, batteries should not be able to move more than 1 inch in any direction – preferably less. Next time you're on your boat, give them a tug and see if they pass the test. – **CHARLES FORT**



ALISON MAZON

**ED SHERMAN:** The National Electrical Code (NEC) does require them. For 15- and 20 amp service a conventional 5 mA GFCI device is required. As for 30- and 50 amp service, NEC now requires a 30 mA device. On the boat, ABYC requires a 30 mA device we refer to as an ELCI (Equipment Leakage Circuit Interrupter).

As for your specific problem, it's hard to determine what could be wrong unless your electrician installed a new old stock ELCI. We did have nuisance tripping with some of the early units. It was determined that the trip delay specifications needed to be adjusted to overcome the problem. I haven't heard of any issues with new units. Beyond that, it's pretty hard to determine what could be wrong without further inspection and testing.

**For more on this topic, see my article "The Electrical Dilemma on the Dock" on page 94.**

## Oil crisis?

My 250-hp outboard has a lower-unit capacity of 39 ounces. When I pump the new oil, it takes only about 16 ounces before it starts coming out of the top hole. Why would that be? Thanks in advance.

*Ed Roach, Virginia*

**T.N.:** When you drain the old oil, are you getting the full 39 ounces out? Normally, what you should be doing is opening the top screw plug, then open the bottom one. Let all the lube drain out, completely. Then, leaving both plugs out, start pumping in the new lube through the bottom hole until it comes out the top hole.

If you fill through the top hole you may be getting a bubble or air lock in the unit and this could prevent your being able to fill to the entire capacity. You can then plug the top hole (I usually do it temporarily with my thumb) so that you won't lose much lube oil out the bottom hole as you screw in the plug for that bottom hole. ⚓

## ALERTS FROM GEICO | BOATU.S. CLAIMS & SURVEYS

### IMPEDE THE OBSTRUCTION

No pump can overcome a bilge choked with trash and debris. Periodic bilge cleaning is a fact of life with older vessels, but even new boats can be littered with wood shavings, bits of fiberglass, globs of adhesives and other construction trash that can plug up a pump. Oil in the bilge is just as bad. It combines with dirt to form sludge, a thick, gooey, material that can clog pumps and prevent automatic float switches from operating properly. — **FRANK LANIER**




FRANK LANIER

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HIGHLIGHTS & BENEFITS

## TOWBOATU.S. CHARLESTON CAPTAIN HONORED FOR RESCUE

**C**apt. Greg Giggi of TowBoatU.S. Charleston honed his seaman-ship chops as a Coast Guard chief boatswains mate. That level of experience paid off big time when Giggi single-handedly rescued eight people from a disabled vessel dragging anchor as a storm approached. For that he earned the Lifesaving Award from the Association For Rescue At Sea (AFRAS).

A storm was bearing down in June 2021, and boats on South Carolina's Lake Moultrie were heading for shelter. An 18-foot ski boat had a dead engine and was a sitting duck. Giggi arrived on scene amid 15-mph winds, and 2- to 3-foot seas and building. The anchor line was under heavy strain and waves were coming over the incapacitated boat's bow. Giggi had to quickly get everyone to safety, including the skipper's young daughter, who is deaf and has Down Syndrome. Only some of the eight passengers were wearing life jackets.

Giggi opted to tow the vessel to sheltered waters with his 20-foot single outboard center-console. The weather was rapidly deteriorating with winds to 40 knots, and he plowed into an



**TowBoatU.S. Capt. Greg Giggi, left, accepted the AFRAS Lifesaving Award for his heroic work.**

onslaught of seas and wind. Just a quarter-mile from safety, the skipper shouted that his boat was sinking. Within seconds, the stern went under and violently rolled to port, tossing all eight into the water. Giggi came to all-stop, cut the towline, brought his towboat about, and began recovering the victims who were now drifting toward the riprap rock levee wall.

After pulling the second person aboard, he returned to the helm to throttle out of the debris field, but the towing vessel's outboard prop became

fouled. Remaining calm under pressure, Giggi set anchor and cleared the fouled prop, but the motor was only able to reach 2,100 rpm before it would shut off. Assessing the risks, his training, his vessel's capabilities, and the danger to the victims still in the water, Giggi weighed anchor and rescued the remaining six victims. He then requested emergency personnel to meet him at the nearby Joint Base Charleston Recreational Facility where they were safely transferred to shore with only minor injuries.

— RICH ARMSTRONG



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## From our members ...

BoatU.S. is the best! Last night, my engine broke down 40 miles offshore and Capt. Nelson took us safely back to land. He was communicative and constantly checked in on us throughout the trip back. He is one of the many reasons I will stay a member. – Yarel L.

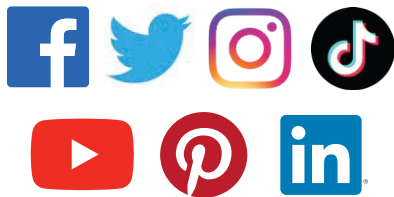
Capt. Ron helped us today when our boat wouldn't start. We are new boat owners and I am also disabled. He was knowledgeable and gave us great advice on how to fix it once safe at home. – Bob G.

Our tow captain was very skilled. He was able to handle a heavy 46 ft. sailboat in high winds without any mishaps. – Milton B.



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## BoatU.S. National Flagship award announced

Sea Scout Ship Ranger (Ship 8009) out of Belleville, Illinois, was named 2022–2023 BoatU.S. National Flagship in May. The award recognizes leadership and seamanship excellence and is presented to one Sea Scout Ship each year that propels youth achievement through the help of adult mentorship and commitment.

Boatswain George Hayes and Skipper Jeffrey Taylor lead Ship Ranger to the award. Some of the community service projects they took part in included building the trailhead and signs for the Wild Bird Sanctuary, food collection for the local interfaith food pantry, and volunteering at many local events. They also completed first-aid training, spent 46 days on the water, camped in all weather conditions, and added new members.

Sea Scouts is a co-educational program (part of Boy Scouts of America) that teaches youth boating and leadership skills as well as community service. Sea Scout units, also known as "ships," are established on bodies of water across the country. The BoatU.S. National Flagship award was reimagined in 2002 by BoatU.S. and Sea Scout BSA in order to honor the 90th anniversary of the founding of the Sea Scout program in the United States.



– ERIN SPINDLE



# BEST DAY ON THE WATER

BY BOATU.S. MEMBER TERRY MCINTYRE



GARY HOVLAND

## MY 'AMERICAN GRAFFITI' MOMENT

**I**n August 1965, I got together with my best friends from high school (Bill, Dave, and John) at Lake Berryessa in Northern California, shortly before heading back to our respective colleges. I'd built a 14-foot, 40-hp outboard ski boat from a kit two years earlier. Bill, John, and I brought dates. (I would marry mine,

Antoinette, three years later.) It took us three trips to shuttle ice chests, beach chairs, and a barbecue to set up a little day camp not far from the marina.

We all got up on two skis. Dave tried, and failed, to teach me how to get up on a single ski from the beach without getting wet. We barbecued hamburgers and hot dogs, and ate Antoinette's chocolate chip cookies. It had been a great day but was getting late. Tired, sunburned, and happy, we loaded all seven of us – and the gear – into the little boat to limp back to the marina in a single trip. The boat had

maybe 6 inches of freeboard, and there was no way it could get up on a plane, but it was mostly inside a no-wake zone, and we got in safely. Young and stupid, I know.

We said our goodbyes and promised to do it again the next year. But by that next year, the Vietnam War would rear its ugly head. Bill, Dave, and I were soon active duty military. We remained lifelong friends, but it was the last time that the four of us would be together at the same time. I've now been boating for almost 60 years, but I will always remember that classic "American Graffiti" day. 🛥



Have a "best day" you want to share? Paint the scene in a short essay of 300 words or fewer, attach a photo or two, and email it to us at [Magazine@BoatUS.com](mailto:Magazine@BoatUS.com) with "Best Day" in the subject line.

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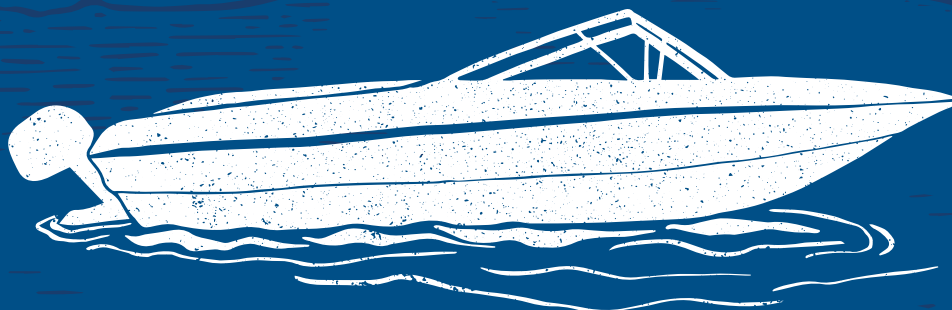
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